

# **The Rhopalidae of Florida**

"Scentless Plant Bugs"

Insect Classification Project: 2003

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## Introduction

The scentless plant bugs (Heteroptera: Rhopalidae) are small- to medium-sized insects that are heavily punctate and pubescent, and often have tubercles and small spines on the head, pronotum and legs (1). These bugs resemble the Coreid bugs, but are smaller and have a greatly reduced ostiole, or scent gland opening (2). Rhopalids are also similar in appearance to orsilline Lygaeids, but can be distinguished by the presence of numerous veins in the membrane of the hemelytra (2). The scentless plant bugs typically feed on fruit and seeds of herbaceous plants in fields and along roads, however some species are arboreal (1).

A few of the scentless plant bugs are considered pest species. The most notable member is the box elder bug (*Boisea trivittata* (Say)). These insects are found primarily on boxelder trees and occasionally feed on maple, ash, plum, cherry and apple (1). They are pests in the autumn and spring months when they aggregate in large numbers on sides of trees, houses and buildings. Although they do not damage structures directly, they can enter homes and leave stains on fabrics and walls. Another pest species included in the Rhopalidae is the red shoulder bug or soapberry bug, *Jadera haematoïoma* (Herrich and Schaeffer), which resembles the boxelder bug but lacks the central red stripe on the pronotum and the red stripes on the wings (3). This bug can be a nuisance when it accumulates in large numbers in yards and gardens while aggregating on seeds that have dropped to the ground (3).

Checklist of Rhopalidae occurring in Florida (1)

Family: Rhopalidae (Amyot and Serville) 1843

Subfamily: Rhopalinae (Amyot and Serville) 1843

Tribe: Harmostini (Stal) 1873

Genus: *Harmostes* (Burmeister) 1835

*Harmostes reflexulus* (Say) 1832

*Harmostes serratus* (Fabricius) 1775

*Harmostes obliquus* (Say) 1832 (Has not been associated with species in US since original description: not included in key)

Tribe: Niesthreini (Chopra) 1967

Genus: *Arhyssus* (Stal) 1870

*Arhyssus lateralis* (Say) 1825

*Arhyssus nigristernum* (Signoret) 1859

*Arhyssus punctatus* (Signoret) 1859 (Florida occurrence likely a misidentification: not included in key)

Genus: *Niesthrea* Spinola, 1837

*Niesthrea louisianica* (Sailer) 1961

*Niesthrea sidae* (Fabricius) 1794

Tribe: Rhopalini (Amyot and Serville) 1843

Genus: *Liorhyssus* (Stal) 1870

*Liorhyssus hyalinus* (Fabricius) 1794

Subfamily: Serinethinae (Stal) 1873

Genus: *Boisea* (Kirkaldy) 1910

*Boisea trivittata* (Kirkaldy) 1910

Genus: *Jadera* (Stal) 1862

*Jadera antica* (Walker) 1872

*Jadera haematoïoma* (Herrich and Schaeffer) 1847

Key to Genera and Species of Rhopalidae in Florida (Adjusted to Florida fauna (4))

Key to Genera and Species of Rhopalidae in Florida

1. Lateral pronotal margins distinctly notched behind anterior margin; generally conspicuously colored; 11 mm or more in length.....2
  - Lateral pronotal margins straight or slightly sinuate, without a distinct notch behind anterior margin; generally inconspicuously colored; usually about 9 mm.....4
  
2. Bucculae long, reaching base of head; *Jadera* Stal.....3
  - Bucculae short, not extending beyond middle of head; *Boisea* Kirkaldy.....  
.....*Boisea trivittata* (Say)
  
3. Species predominantly brownish black; male pygophore and paramere as in (Fig. 1a)(4); large species, 9.6-13.3 mm in length.....*Jadera haematoloma* (Herrich-Schaeffer)
  - Species predominantly brownish red or only reddish; male pygophore and paramere as in (Fig. 1b)(4); smaller species, 7.4-10.3 mm in length.....*Jadera antica* (Walker)
  
4. Hind femur incrassate, bearing a series of prominent spines.....5
  - Hind femur not incrassate, lacking prominent spines.....6

5. Lateral pronotal margins irregularly, but distinctly finely toothed.....  
.....*Harmostes serratus* (Fabricius)
- Lateral pronotal margins entire, basal antennal segment large, thickened and extending far beyond apex of tylus (Fig. 2)(4); costal margins of hemelytra usually unicolorous.....*Harmostes reflexulus* (Say)
6. Pronotum with a distinct, but narrow collar anteriorly; pronotum between collar and cicatrices forming a distinct ridge which is polished and impunctate, or at most with a few punctures; *Liorhyssus* Stal.....*Liorhyssus hyalinus* (Fabricius)
- Pronotum without collar anteriorly; pronotum anterior to cicatrices not smooth or polished, always with numerous coarse punctures.....7
7. Hindtibia possessing a number of black rings; extending to or beyond 3rd abdominal sternum; *Niesthrea* (Spinola).....8
- Hindtibia often speckled or spotted with black or fuscous, but lacking a series of black rings; rostrum not extending posteriorly beyond 3rd abdominal sternum; scutellum not reaching clavus; antenniferous tubercles readily visible.....9
8. Small species, usually less than 6.5 mm; male pygophore with median lobe constricted at base, broad proximally and slightly concave distally (Fig. 4a); paramere slender with subapical projection, broad with somewhat flattened distally (Fig.4b)(4).....  
.....*Niesthrea sidae* (Fabricius)

- Larger species, usually much greater than 6.5 mm; male pygophore with median lobe slightly constricted medially and concave distally (Fig. 4c)(4); paramere slender with subapical and dorsal projection (Fig. 4d)(4).....*Niesthrea louisianica* (Sailer)

9. Apex of last abdominal tergum of female broadly rounded in dorsal outline (Fig. 3a)(4); male pygophore with median lobe slightly concave (Fig. 4e)(4); paramere broad in middle, lateral projection with tip broadly rounded (Fig. 4f)(4).....*Aryssus lateralis* (Say)

- Apex of last abdominal tergum of female subacuminate or pointed in dorsal outline (Fig. 3b)(4); male pygophore with median lobe almost truncate (Fig. 4g)(4); paramere flat, broad, lateral projection with tip narrowly rounded (Fig. 4h)(4).....  
.....*Arhyssus nigristernum* (Signoret)

Description of Rhopalidae species occurring in Florida

Subfamily: Rhopalinae (Amyot and Serville) 1843

***Harmostes reflexulus* (Say) 1832** (Figure 5)(1,5)

\*Distribution: All U.S states (1).

\*One of phytophagous insects associated with goldenrods (*Solidago* spp.) in Gainesville, Florida (6).

\*The descriptions of the egg and nymphs of *Harmostes reflexulus* (Hemiptera: Rhopalidae) were documented by Yonke and Walker (7).

\*Description: Elongate-oval. Above greenish-yellow to pale reddish-brown sprinkled with scattering fuscous or reddish dots; costal margin of elytra with a few vague fuscous point; membrane clear hyaline; under surface and legs greenish-yellow, often sprinkled with minute reddish dots, the tip of the beak, fourth antennal and tarsal claws fuscous. Antennae as in key, the spines at base very acute, the basal joint rugose-granulate. Beak scarcely reaching hind coxae. Pronotum with front portion but little declivent, its side margins strongly reflexed, entire, but slightly concave, humeri rounded; disk with a fine median line, the apical third finely and closely, the remainder coarsely confluent punctate. Elytra coarsely, not densely punctate, the punctures each enclosing a minute yellow bristle. Length, 7.5-9mm; width, 2.2-2.7mm (8).

***Harmostes serratus* (Fabricius) 1775**

\*Distribution: Fla., Tex. (1).

\*Description: Form of *affinis* but longer. Above dull yellow, thickly marked with reddish-brown punctures and sprinkled with reddish dots; membrane longer with more distinct fuscous or reddish dots; under surface yellow thickly sprinkled with small reddish dots and points; tarsi in part fuscous; color otherwise as in *affinis*. Basal joint of antennae but little surpassing apex of head, the spines at its base longer than in *affinis*; second joint one-fourth or more shorter than third; beak reaching base of abdomen. Pronotum with humeri subacute, disk more strongly declivent and more narrowed in front than in *affinis*, finely, densely punctate and with a fine median line; sidae margins more deeply concave, their edge with a fine median line; side margins more deeply concave, their edge serrulate. Scutellum with apex slightly narrower, its margin less thickened. Length 8-9mm.; width 2.3-2.5 mm (8).

***Harmostes obliquus* (Say) 1832** (Has not been associated with species in US since original description: not included in key)(1).

\*Distribution: "U.S." (1).

***Arhyssus lateralis* (Say) 1825** (Figure 6.)(1,5)

\*Distribution: All U.S except Id., Me., Mont.(1).

\*One of phytophagous insects associated with goldenrods (*Solidago* spp.) in Gainesville, Florida (6).

\*The description of the immature stages were documented by Paskewitz and McPherson (9).

\*Description: Elongate-oval, depressed above, convex beneath. Pale dull yellow, often strongly suffused with reddish; antennae yellow tinged with fuscous, the basal joint with one or two black lines; a small blackish spot behind each eye, a faint one on humeri and some fuscous dots on nerves or corium usually present; membrane clear hyaline, surpassing abdomen; connexivum yellow, rarely with a faint dark spot near front angles of each segment; dorsum pale, black at base, second segment with median black spot, third, fourth and fifth each with three or four smaller rounded or curved black spots, sixth with a median black stripe, these darker spots or stripes often reddish[brown; under surface usually uniform reddish-yellow with sternum black at middle, rarely with sides of abdomen reddish[brown; legs yellow with black dots. Antennae with basal joint reaching apex of head, 2-4 subequal. Ocellar tubercles prominent. Pronotum relatively short, feeble declivent, disk finely and densely punctate, the transverse impression reaching the margins, the median line obvious, but very fine. Scutellum constricted near apical third, coarsely not densely punctate, its edges raised and apex subacute. Abdomen but slightly wider than pronotum, its margins subparallel; connexivum narrowly or not at all exposed. Sixth dorsal of female broadly triangular with apex rounded; of male somewhat prolonged, subspatulate. Length, 5-7.5mm.; width, 2-3mm (8).

***Arhyssus nigristernum* (Signoret) 1859**

\*Distribution: Ark. Conn., D.D., Fla., Ind., Ks., Ky., La., Mass., Me., Mich., Miss., Mo., N.C., N.J., N.Y., Oh., Pa., R.I., Tenn., Tex., Va., W.Va.(1).

\*One of phytophagous insects associated with goldenrods (*Solidago* spp.) in Gainesville, Florida (6)

\*Description: Oblong-oval, thinly pubescent. Above dark reddish-brown to fuscous-black; head with a median blackish line; antennae in great part fuscous, joints 3 and 4 pale at base and tip; narrow median line of pronotum and scutellum and extreme tip of the latter, pale yellow; nervures of elytra pale with black dots; connexivals alternated with black and yellow, sometimes with only a small dark spot near apical angle; membrane pale hyaline, reaching or but slightly passing tip of abdomen; dorsum dark brown or black with a pale X-shaped spot a middle., the last segment usually black with a pale spot each side at base and another at tip; under surface usually pale yellow or reddish-brown, the abdomen sometimes with margins fuscous and middle sprinkled with reddish or fuscous dots; legs dull yellow marked with fuscous dots. First joint of antennae not reaching apex of head, 2 and 4 subequal, 3 slightly shorter. Pronotum but little declivent, disk finely and densely punctate, the median line distinct. Scutellum more coarsely punctate, the edges raised excepte at middle, tip acute, median line obsolete at base and apex. Abdomen feebly dilated at middle; connexivum narrowly exposed, male, more broadly so, female. Sixth dorsal of female broader than long, the apex pointed; of male somewhat prolonged, the apex rounded. Length, 5-6mm; width 2.5-3mm (8).

***Arhyssus punctatus* (Signoret) 1859** (Florida occurrence likely a misidentification, not in key)(1).

\*Distribution: Ariz., Cal., Col., Fla(?), Ok., Ore (?), N.M., Tex.(1).

\*Description: Oblong-oval. Dark grayish-white to reddish-brown, head usually with a median blackish line; nodules of humeral angles of pronotum, some scattered oblong spots on base and near apex of scutellum and on veins of elytra, fuscous-brown; membrane clear hyaline, but slightly surpassing the pointed tip of abdomen; connexivum pale with a small black spot on each segment.; under surface and legs greenish-yellow, the pleura and femora thickly flecked with purplish-brown points and dots; middle of mesosternum black. Antennae with joints 1 to 3 greenish-yellow with vague fuscous lines, 1 slightly passing tip of tylus, 4 fuscous-brown. Base of pronotum one-third wider than apex, hind angles with an obtuse tubercle. Scutellum coarsely punctate, its margins raised and calloused near base and apex, the apical fourth concave. Female with sixth dorsal and ventral both long and pointed, male with apex of last dorsal rounded. Length 4.5-5.5mm (8).

***Niesthrea louisianica* (Sailer) 1961**

\*Distribution: Ala., Ariz., Ark., Fla., Ga., Ia., Ks., La., Md., Miss., Mo., N.C., N.J., N.M., N.Y., Ok., S.C., Tenn., Tex., Ut., Va.(1).

\*This scentless plant bug feeds chiefly on velvet leaf, prickly sida and spurred anoda., and is an important biocontrol agent of velvet leaf . Pathogenic fungi (of the Genera: *Fusarium* and *Alternaria*) "hitchhike" on the insect and infect weakened remains of weed seeds that were previously fed upon by these Rhopalids (10,11,12).

*Niesthrea sidae* (Fabricius) 1794 (Figure 7)(8).

\*Distribution: Fla., Ga., Tex.(1).

\*This seed-feeder has been documented concerning its influence on mesquite seed production (13)).

\*Description: Oblong-oval, rather thickly pubescent. Above dull grayish-yellow to dark brown, often rather thickly sprinkled with brown or reddish dots; head sometimes with a median brownish line extending back to pronotal impression; terminal joint of antennae in great part fuscous' dorsum with black bars across segments 3-5, these separated on connexivum by narrow pale lines' sixth segment usually wholly pale in female, with a median dark stripe, male; membrane hyaline, surpassing the abdomen, sometimes sprinkled with reddish dots; under surface yellow, thickly mottled with reddish-brown spots; mesosternum blackish at middle; femora annulate with black; tibiae and tarsi with blackish dots. Head short, its apex bluntly triangular; basal joint to antennae not reaching its tip, second longest, third and fourth subequal. Pronotum with basal portion convex, rather strongly declivent; sides distinctly converging the apex two-thirds the width of base; disk finely and densely punctate, usually with scattered minute reddish tubercles, the smooth median line fine, distinct throughout. Scutellum similarly sculptured, the tip narrow. Abdomen short, dilated at middle, the connexivum relatively widely exposed. Length, 4.5-6.3mm; width, 2-3mm (8).

***Liorhyssus hyalinus* (Fabricius) 1794** (Figure 8)(5).

\*Distribution: Ark., Ariz., Cal., Col., Conn., Fla., Ia., Ind., Ks.(1).

\*Description: Elongate-oblong, sparsely pubescent. Pale yellow varying to reddish or dark brown; head with an interrupted basal transverse line and some marks in front of eyes, black; antennae dull yellow, dotted with fuscous, the basal joint usually with a black line; pronotum with transverse impression and a spot on humeri blackish, disk with fuscous punctures, the side margins usually rather broadly pale yellow; scutellum with disk, blackish, the edges and tip yellow; elytra with apical nervures dotted with fuscous, the apex of corijmoften reddish; connexivum yellow, often with a dark spot on each segment; membrane clear hyaline, surpassing the abdomen; under surface pale yellow, the sides of abdomen ofen in part darker; mesosternum black at middle; legs yellow with numerous very small fuscous dots; dorsum in great part black, the margin of the sixth segment with pale spots, male, or wholly pale, female. First joint of antennae scarcely reaching apex of head, second and third sub-equal, fourth longest. Pronotum subconvex, declivent in front; transverse impression rather wide, hind angles obtusely rounded, disk finely, not densely punctate. Scutellum with a vague elevated median line, edges raised, tip narrowly rounded. Length 5.5-6.5 mm; width, 1.8-2.5mm (8).

Subfamily: Serinethinae (Stal) 1873

***Boisea trivittata* (Kirkaldy) 1910** (Figure 9)(1).

\*Distribution: Ariz., Col. Conn., D.C. Fla., Ia., Ill., Ind., Ks., Mass., Md., Minn., Miss., Mo., Mont., N.D., N.H., N.J., N.M., N.Y., Neb., Oh., Ok., Pa., R.I., S.D., Tenn., Tex., Vt., Va., W.Va., Wis.(1).

\*Description: Elongate-oval, depressed above, subconvex beneath. Above fuscous-black, very finely pubescent, subopaque; ocelli narrow median line and broader marginal stripe of pronotum behind transverse impression, also its hind margin very narrowly, clear red; costal and apical margins and usually the nervures of elytra, dorsum and inner wings, red or in part orange yellow; membrane fuscous; under surface fuscous-black, the margins and middle of abdomen, the sides of sternal pleura and the coxae, red; eyes brown. Head and pronotum minutely granulate-punctate, the latter with elevated narrow median line behind the transverse impression; beak reaching hind coxae, joint 1 as long as head, 3 and 4 subequal, 2 longest. Scutellum and elytra similarly punctate, the tip of the former very narrow, subacute. Other characters as under generic heading. Length 11-13.5mm.; width 3-4mm (8).

***Jadera antica* (Walker) 1872**

\*Distribution: Fla..(1).

\*Description: Elongate-oval. Upper surface fuscous-brown, thickly clothed with short appressed grayish hairs and sprinkled with fuscous dots; orbits of eyes, under surface of head and reflexed side margins of pronotum red; narrow costal margin of elytra pale yellow; membrane pale brown, the veins darker; antennae beak and legs brown; under surface red, pubescent as above and flecked with fuscous or red dots. Fuscous dots of upper surface each bearing a short erect brown seta. Pronotum with thickened side margins narrower and more strongly reflexed and transverse groove more shallow than in *haematoloma*. Membrane of elytra long, in male surpassing abdomen by one-half its length. Length 11-12 mm (8).

***Jadera haematoïoma* (Herrich and Schaeffer) 1847**

\*Description: Elongate-oval, depressed above, subconvex beneath. Above black, subopaque, finely pubescent; eyes and their orbits, ocelli and broad side margins of pronotum a clear red; antennae black with erect hairs; under surface usually fuscous, the sixth ventral, genitalia and margins of abdomen and sterna, red; sometimes almost wholly red beneath; legs black with erect hairs. Head and pronotum granulate-punctate, the granules bearing short erect black hairs; head with a median impressed line and pronotum with a median carina on the hind portion. Elytra minutely rugose and granulate. Membrane finely granulate between the veins, sometimes shorter than abdomen. Length, 10-14mm, width 3-4mm (8).

## References

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<http://www.ars.usda.gov/is/AR/archive/oct98/rhizo1098.htm>

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## Figures

Figure 1. Male genitalia, Pygophore. a) *Jadera haematoloma*. b) *Jadera antica* (4).

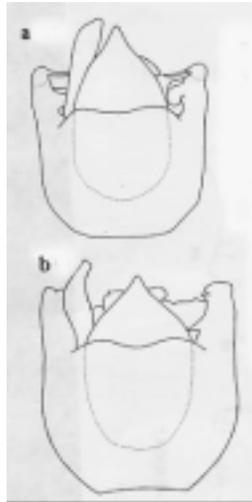


Figure 2. Dorsal view of head, *Harmostes reflexulus* (4).

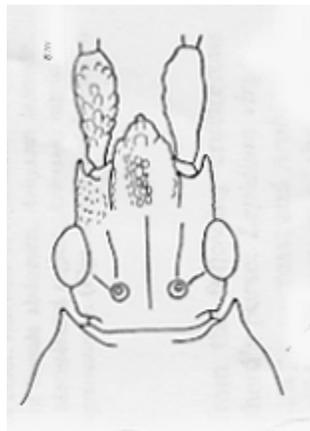


Figure 3. a) Dorsal view of apex of female abdomen, *Arhyssus lateralis* b) Dorsal view of apex of female abdomen *Arhyssus nigristernum* (4).

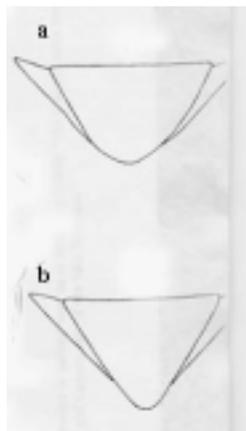


Figure 4. Male genitalia. a) Pygophore, *Niesthera sidae*. b) Paramere, *N. sidae*. c) Pygophore, *N. louisianica*. d) Paramere, *N. louisianica*. e) Pygophore, *Arhyssus lateralis*. f) Paramere, *A. lateralis*. g) Pygophore, *A. nigristernum*. h) Paramere, *A. nigristernum* (4).

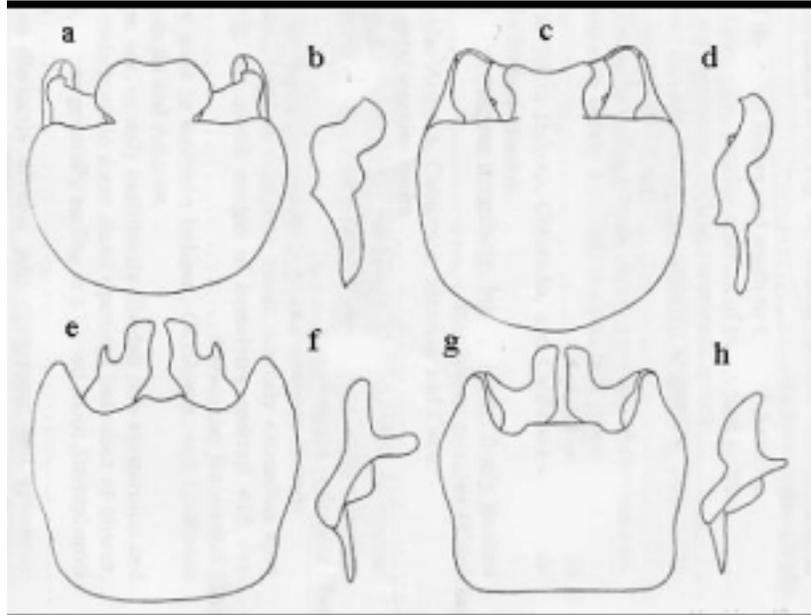


Figure 5. Adults of *Harmostes reflexulus* (Say) 1832 (1,5).



Figure 6. Adults of *Arhyssus lateralis* (Say) 1825 (1,5)

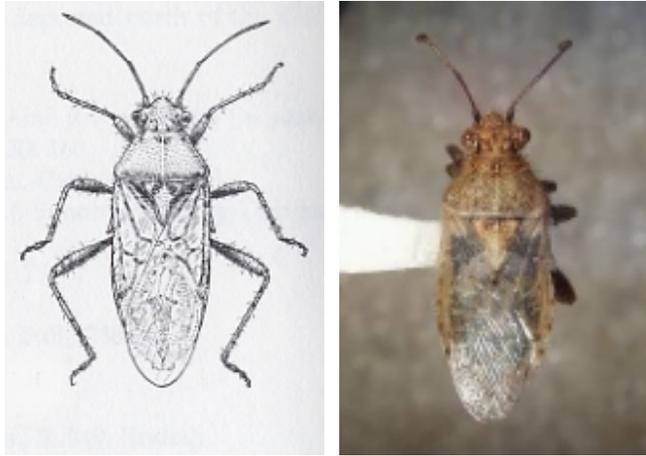


Figure 7. Adult of *Niesthrea sidae* (Fabricius) 1794 (8).



Figure 8. Adult of *Liorhyssus hyalinus* (Fabricius) 1794 (5).



Figure 9. Adult of *Boisea trivittata* (Kirkaldy) 1910 (1).

