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**A Literature-based Key to REDUVIIDAE
(Heteroptera) of Florida**

(Assassin Bugs, and Thread-Legged Bugs)

[This manuscript is the result of research by the above listed students. It is intended to provide dichotomous keys to species of Reduviidae listed as occurring in Florida. Records are based on literature only. Figures are mostly from Blatchley's Heteroptera of Eastern North America.]

This is a large group (more than 160 North American species) of predaceous bugs, and many species are fairly common. They are often blackish or brownish in color, but many are brightly colored. The head is usually elongate with the part behind the eyes neck-like. The beak is short and three-segmented, and its tip fits into a stridulatory groove in the prosternum. The abdomen in many species is widened in the middle, exposing the lateral margins of the segments beyond the wings. Most species are predaceous on other insects, but a few are bloodsucking and frequently bite people. Many species will inflict a painful bite if carelessly handled.

One of the largest and most easily recognized assassin bugs is the wheel bug, *Arilus cristatus* (L.), a grayish bug 28-36 mm in length, with a semicircular crest on the pronotum that terminates in teeth and resembles a cogwheel. This species is fairly common in the East. The Masked hunter, *Reduvius personatus* (L.) is a brownish black bug 17-22 mm in length that is often found in houses. It feeds on bed bugs, but will also bite people. The nymphs are soft-bodied and cover themselves with dust particles. They are also called "dust bugs" or "masked bedbug hunters."

The assassin bugs of the genus *Triatoma* also invade houses and bite people. They feed at night, biting any exposed parts (such as the face) of people sleeping. These bugs are sometimes called kissing bugs (because of their tendency to bite people about the mouth) or Mexican bed bugs. In South America species of this genus serve as vectors of a trypanosome disease of man known as Chagas' disease (several cases of this disease have recently been found in the United States). Armadillos, opossums, and certain rats also serve as a host for the trypanosome causing this disease.

The thread-legged bugs (Emesinae) are very slender and long-legged and resemble walkingsticks. They occur in old barns, cellars and dwellings, and outdoors beneath loose bark and

in grass tufts, where they can catch and feed on other insects. One of the largest and most common of the thread-legged bugs is *Emesaya brevipennis* (Say), a widely distributed species that is 33-37 mm in length. Most of the thread-legged bugs are smaller (down to 4.5 mm in length).

Keys to the Adult Reduviidae of Florida-Insect Classification Class Fall 2002

Keys to Subfamilies

1. Forecoxae four time or more longer than wide and extending beyond apex of head.....Emesinae (page 5)
- 1a. Forecoxae twice as long or less than wide and not extending beyond apex of head..... 2
2. Ocelli absent; hemelytra entire, second rostral segment swollen at base...Saicinae (page 14)
- 2a. Ocelli usually present, if absent, hemelytra shortened, second rostral segment not swollen at base.....3
3. Hemelytra with a quadrate cell (figure 1) in corium at base of membrane.....4
- 3a. Hemelytra without quadrate cell in the corium.....6
4. Membrane of hemelytra with anal area not extending forward beyond costal cell; antennal segment 2 longer than 1.....Stenopodainae (page 14)
- 4a. Membrane of hemelytra with anal area extending beyond costal cell; antennal segment 2 equal to or shorter than segment 15
5. First antennal segment shorter than head; eyes closer together than ocelli; claws simple.....Apiomerinae (page 4)
- 5a. First antennal segment longer than head; eyes further apart than ocelli; claws dentate or apendicular.....Harpactorinae (page 10)
6. Second antennal segment subdivided into 8 to 28 pseudosegments; eyes located immediately in front of posterior margin of head; ocelli in between eyes..... Microtominae (*Microtomus purcis* Drury -fig.1)
- 6a. Second antennal segment not subdivided; eyes more forward in front of posterior margin of head; ocelli usually behind them.....7
7. Pronotum constricted behind the middle; forecoxae laterally compressed; outer side flat or slightly concave.....Pieratinae (page 13)
- 7a. Pronotum constricted at or in front of middle; forecoxae somewhat rounded.....8
8. Apex of scutellum truncate with two or three curved prongs; antennae 4, 6, 7, or 8-segmented.....Ectrichodiinae (*Rhiginia cruciata* Say -fig. 2)
- 8a. Apex of scutellum elongated as a single process; antennae 4-segmented.....9

9. Head without transverse sulcus; antennae attached closer to antecular.....Triatominae (page 17)

9a. Head with distinct transverse sulcus; antennae attached closer to eyes.Reduviinae
(*Reduvius personatus* Linnaeus -fig.3)

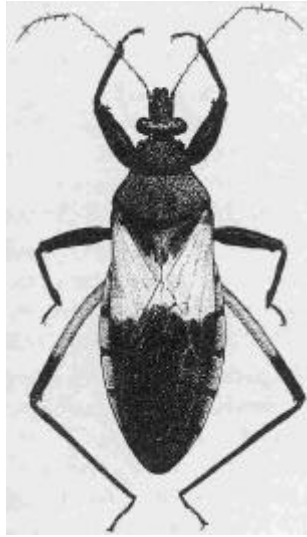


Figure 1. *Microtomus pureis* Drury

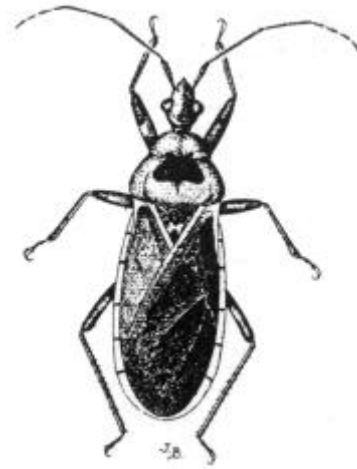


Figure 2. *Rhiginia cruciata* Say

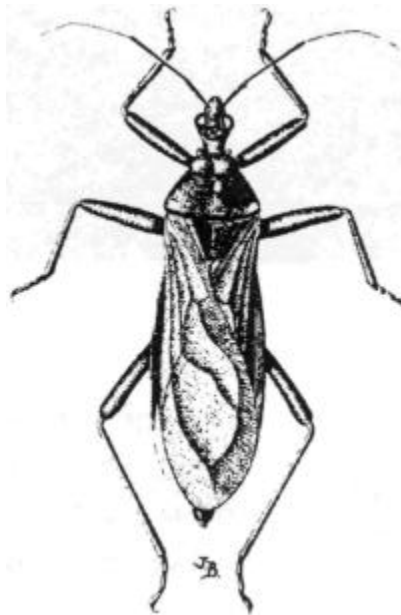


Figure 3. *Reduvius personatus* Linnaeus

Keys to the subfamily Apiomerinae

1. Larger 14-19 mm.; Pronotum black, margins narrowly edged in red; ventrals usually wholly black; corium blackish-brown.....*Apiomerus crassipes* Fabricius (fig. 4)

1a. Under 13mm..... 2

2. Pronotum with disk in part red; ventrals each with a distinct pale transverse median bar, their front and hind margins black; corium in great part reddish-brown; smaller.

.....*Apiomerus spissipes* Say

2a. Not as above.....*Apiomerus flaviventris* Herrich-Schaffer

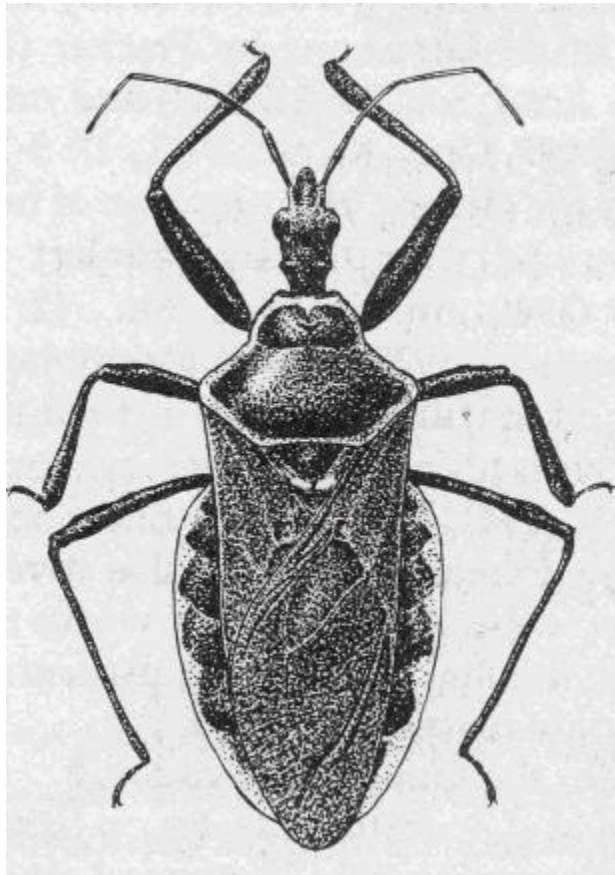
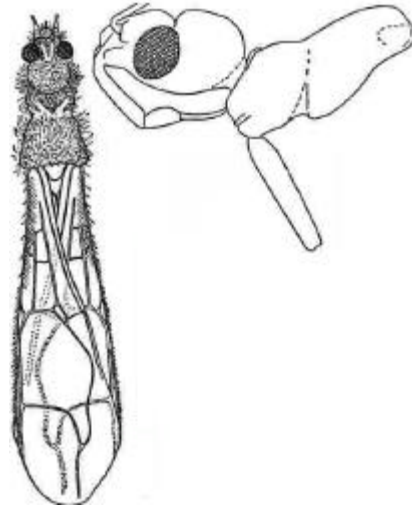


Figure 4. *Apiomerus crassipes* Fabricius

Keys to Subfamily Emesinae

1. Uniformly brownish, hind lobe of pronotum about twice as long as fore lobe; mid and hind legs with conspicuous long hairs. Hemelytra membranous throughout, gradually widening towards the tip with a few transverse veins crossing at nearly right angles, with the cells growing larger in the posterior. Abdomen moderately flat, widening towards the middle.....*Emesopsis nubilus* Uhler (figs. 5,6)
 - 1a. Not as above.....2
2. Earthy red color, darkest in the center of the abdomen, eyes large, the postocular region of head with sides that are gradually convergent posteriorly. In the hind wing Cu is separated by M by a short but distinct cross vein. Fore lobe surface smooth, and the hind lobe polished. Length from 9-11 mm..... *Gardena elkinsi* Wygodzinsky (fig. 7)
 - 2a. Not as above.....3
3. Spines of fore femur beginning at considerable distance from base of article; body elongate; fore lobe of pronotum much longer than hind lobe. Fore wing with single closed cell. Coxae of mid and hind tibia black; fore tibia more than half as long as femur, in addition the ventral surface of fore tibia with strongly sclerotized spinulets in addition to setae. Hind margin of pygophore deeply emarginated in male....*Gardena poppaea* McAtee and Malloch
 - 3a. Not as above.....4
4. Front tarsi flexible, distinctly 2 or 3 jointed; front trochanters unarmed; body of adults winged, the elytra surpassing abdomen; front femora spinose from the base; claws of front tarsus two, usually equal.....5
 - 4a. Front tarsi rigid or inflexible, either 1 jointed or so heavily chitinized that the sutures are invisible; body winged or apterous; claws of front tarsi usually either unequal or single.....6
5. Elytra with two completely enclosed discal cells, the basal one triangular; pronotum extending backwards over mesonotum of base of wings, always with a deep constriction, sometimes pedunculate; antennae and legs with numerous long erect hairs; elytra with inner apical margin concave.....14
 - 5a. Elytra with but one discal cell pronotum seldom with a deep constriction, never pedunculate; antennae and legs without long erect hairs. Front tarsi 2 jointed; meso and metanota usually each with a spine; pronotum slightly constricted near front margin.....16

- 6. Front femora spinose from about the basal third or middle; pronotum in winged forms overlapping mesonotum to base of wings.....7



Figures 5 and 6. Head, pronotum, and body of *Emesopsis nubilus* Uhler

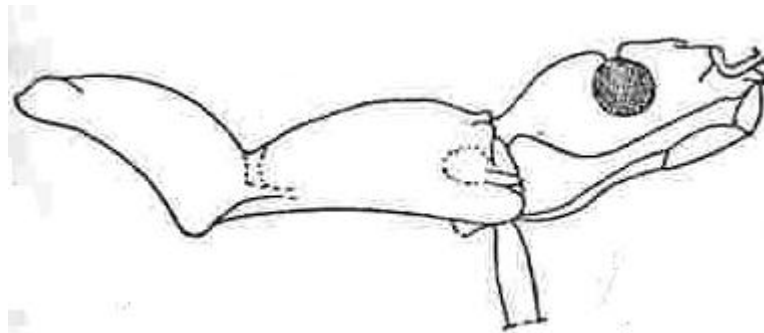


Figure 7. Head and pronotum of *Gardena elkinsi* Wygodzinsky

- 6a. Front femora spinose from the base; pronotum not extending over mesonotum.....10
- 7. Head normally with tubercles or spines, elytra when present, with two discal cells; front tarsi with one claw.....8
- 7a. Head without tubercles or spines; elytra when present, with one discal cell; basal ventral spine of front femur much longer than others; front tarsi with two equal claws; length 28 mm or more.....13

8. Head with a single slender curved spine between bases of antennae; front tarsus with two rows of very fine elongate deflected knife-like teeth on its lower surface; adults never winged; length 20-25 mm.....*Ghinallelia productilis* Barber
- 8a. Head with two tubercles or spines, one between bases of antennae, the other just beneath it decurved above base of beak; front tarsus with two rows of decumbent setae on its lower surface; adults often winged, the elytra shorter than abdomen; length, less than 18mm.....9
9. Front femora little or no stouter than apical half of front coxae; color a nearly uniform opaque black.....*Pseudometapterus umbrosus* Blatchley
- 9a. Dull, clay yellow; head with two narrow brown stripes. Antennae filiform, joint 2 three fourths the length of 1; joint 3 the shortest being one fourth the length of 4.....*Barce fraternus* Say
10. Hind lobe of head armed with an acute median backward projecting spine and two tubercles; males with joints 1 and 2 of antennae furnished with numerous long erect hairs; pro and mesonota subequal in length..... *Ploiaria hirticornis* Banks
- 10a. Hind lobe of head unarmed; antennae without long hairs.....11
11. Front femora armed beneath with numerous slender bristles of unequal length, the larger ones not arising from elevated bases; general dull yellow; length 8 or more mm*Ploiaria setulifera* McAtee and Malloch
- 11a. Outer margin of under surface of front femora with 4 to 7 long spines arising from conical tubercles, and much shorter ones intervening; general color dark brown; length 6-7 mm.....12
12. Pro and mesonota subequal in length, the latter without a wide median yellow stripe; front tarsus fully two-thirds as long as the tibia.....*Ploiaria carolina* Herrich-Schaffer
- 12a. Mesonotum longer than pronotum and with wide median stripe and lateral carina yellowish; front tarsus less than two-thirds as long as the tibiae.....*Ploiaria floridana* Bergroth
13. Hind margin of eighth tergite between the processes decidedly concave, the emargination broadly U-shaped; seventh and eighth tergites with a median longitudinal bare and slightly elevated line; side of eighth tergite subangulate posteriorly.....*Emesaya lineata* McAtee and Malloch
- 13a. Hind margin of eighth tergite between the processes nearly straight, the emargination nearly rectangular; seventh and eighth tergites lacking such a line; side of eighth tergite not at all angulate posteriorly.....*Emesaya brevipennis* Say (fig 8).

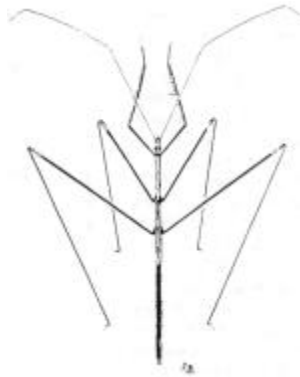


Figure 8. *Emesaya brevipennis* Say

- 14. Processes of scutellum and metanotum distinctly thickened apically, with very dense, long pilosity; projections of hind lobe large, rounded-truncate apically; color of hind lobe light brown, without spots, but without veinlet-like lines.....*Stenolemus spiniventris* Signoret
- 14a. Not as above.....15
- 15. Prothorax deeply constricted, not pedunculate; spines of front femora very short, the basal one directly straight downward; meso and metanotal spines stout, the former strongly inclined backwards.....*Stenolemus longicornis* Blatchley
- 15a. Prothorax strongly pedunculate, the cylindrical peduncle as long as front lobe; spines of front femora longer and more slender, nearly as long as the tibial diameter, the basal one inclined backwards meso and metanotal spines slender, both suberect..... *Stenolemus lanipes* Wygodzinsky
- 16. Front lobe of pronotum with two raised white lines in addition to the lateral carinae; head and pronotum dull yellow; hind lobe of pronotum, costal margin of elytra and front legs with numerous very fine erect hairs; mesonotal spine brown, horizontal.....*Empicoris palmensis* Blatchley
- 16a. Not as above.....17
- 17. Head with whitish line extending from base of antennae to occiput, where the line bends and unites with a diagonal line from below each eye. Posterior lobe of pronotum with 1+1 linear, submedian, whitish carinae similar in structure to lateral carinae; scutellum and metanotum lacking spines. Fore femur with very short inconspicuous spines only; discal cell of forewing with numerous small spots.....*Empicoris barberi* McAtee and Malloch
- 17a. Posterior lobe of pronotum lacking sharply defined, submedian carinae; scutellum and metanotum spined.....18
- 18. Hind wings conspicuously spotted with dark apically; abdomen ventrally with distinct, large, bare spots around base of macrochaetae.....*Empicoris errabunda* Say (fig. 9)
- 18a. Hind wings not spotted apically; ventral pubescence of abdomen apparently uniform.....19

19. Pronotum with two conspicuously curved, linear, pilose, white vittae which are distinct in front of constriction; bases of forewings white.....*Empicoris nudus* McAtee and Malloch
- 19a. Pronotum with two moderately broad, whitish vittae which do not extend in front of constriction or to hind margin, disc with rather conspicuous, white, decumbent hairs; process of pygophore of male spinelike.....*Empicoris armatus* Champion (fig 10)



Figure 9. Head and pronotum of *Empicoris errabunda* Say

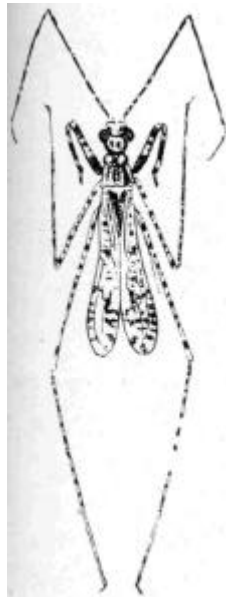


Figure 10. *Empicoris armatus* Champion

Keys to the Subfamily Harpactorinae

1. Body very long and slender, 6-8 times as long as wide.....*Doldina interjungens* Bergroth
- 1a. Body not so slender; less than 6-8 times long as wide.....2
2. Sides of mesopleuron with a small spine projecting in front of posterior margin of propleuron.....3
- 2a. Sides of mesopleuron without such a spine.....6
3. Pronotum produced with a large “wheeled” ridge.....*Arilus cristatus* Linnaeus (fig. 11)
- 3a. Pronotum without such a ridge.....4
4. Anterior pronotal lobe with sharp spines.....*Sinea diadema* Fabricius (figs.12,13)
- 4a. First pair of anteocular spines usually twice as long as third pair.....*Sinea sanguisuga* Stål (figs.14,15)
- 4b. Anterior pronotal lobe with medium sized blunt spines. Brown golden hue with many fine short hairs.....*Heza similis* Stål.
- 4c. Anterior pronotal lobe with blunt tubercles.....5
5. Antennae reddish-brown, first segment with one or two vague pale rings; anteocular spines with basal pair usually not nearly twice as long as the apical pair..... *Sinea spinipes* Herrich-Schäffer
- 5a. Antennae brown, first segment darker at base; anteocular spines short, blunt, or very small..... *Sinea rileyi* Montandon
6. First segment of labium scarcely or not longer than half the length of second segment... 7
- 6a. First segment of labium much longer than one-half the length of segment two..... .8
7. Hind lobe of pronotum subhexagonal, unarmed on disk.....*Zelus exanguis* Stål (fig. 16)
- 7a. Hind lobe of pronotum with four short spines on disk, one on each humeral angle, two near hind margin.....*Zelus tetracanthus* Stål
8. First segment of labium shorter than second segment.....9
- 8a. First segment of labium equal to or longer than second segment.....10
9. Front lobe of pronotum glabrous with a median sulcus.....*Pselliopus cinctus* Fabricius

9a. Front lobe of pronotum setose with 10-12 distinct obtuse tubercles..... *Pselliopus latifasciatus* Barber

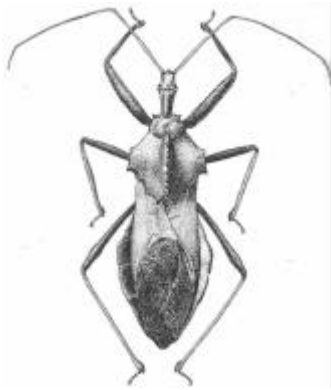


Figure 11. *Arilus cristatus* Linnaeus



Figure 12. *Sinea diadema* Fabricius

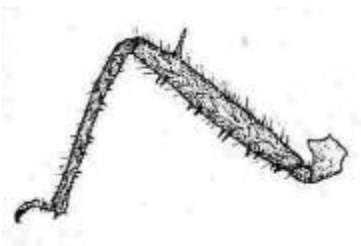


Figure 13. Leg of *S. diadema*

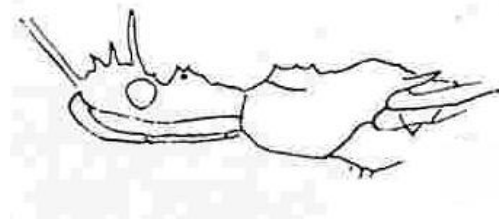


Figure 14. Head and pronotum of *Sinea sanguisuga*



Figure 15. Body of *S. sanguisuga*



Figure 16. *Zelus exanguis* Stål

- 10. Hind lobe of pronotum with two very short spines.....*Fitchia spinosula* Stål
- 10a. Hind lobe of pronotum armed with four elongate, prominent spines.....11
- 11. Caudo-lateral angles of abdominal sternal segments 3-5 prolonged posteriorly into distinct spines; only a short acute erect spine behind base of each antenna.....*Atrachelus cinereus* Fabricius (fig.17)
- 11a. Caudo-lateral angles of abdominal sternal segments 3-5 not prolonged posteriorly into distinct spines; one very long tapering acute erect spine behind base of each antenna.....12
- 12. Head spines pale, their length half of the interocular space; hemelytra wholly pale..... *Rocconota annulicornis* Stål
- 12a. Head spines dark, black or brown, nearly as long as interocular space; hemelytra in great part black.....*Repipta Taurus* Fabricius (fig.18)



Figure 17. *Atrachelus cinereus* Fabricius

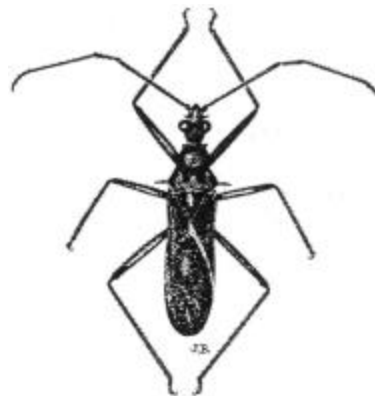


Figure 18. *Repipta Taurus* Fabricius

Keys to the subfamily Pieratinae

- 1. Body with yellow markings.....2
 - 1a. Body wholly black.....3
 - 2. Inner portion of basal half of corium as far as tip of clavus is yellow; clavus black at base; body narrow.....*Rasahus hamatus* Fabricius (fig. 19)
 - 2a. Basal half of corium and the clavus both in great part yellow; body broad; connexivum widely exposed.....*Rasahus biguttatus* Say (fig. 20)
- 3. Abdomen wholly black, ocelli small, elytra often much abbreviated.....*Melanolestes picipes* Herrich-Schaffer (fig. 21)
 - 3a. Not as above.....*Melanolestes morio* Erichson



Figure 19. *Rasahus hamatus* Fabricius



Figure 20. *Rasahus biguttatus* Say



Figure 21. *Melanolestes picipes* Herrich-Schaffer

Keys to the Subfamily Saicinae

- 1. Pronotum unarmed; apex of scutellum produced into a long horizontal spine..... *Oncerotrachelus acuminatus* Say (fig. 22)
- 1a. Pronotum bearing a pair of elonate upward projecting spines; scutellum with an apical spine and an upward projecting median spine arising from basal half.....*Saica florida* Barber (fig. 23)

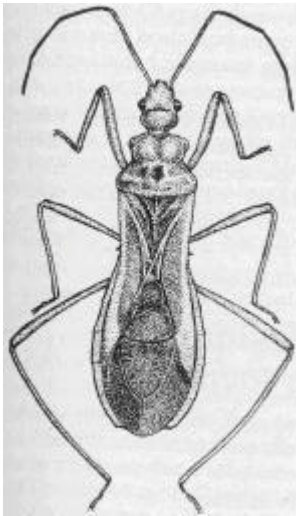


Figure 22. *Oncerotrachelus acuminatus* Say

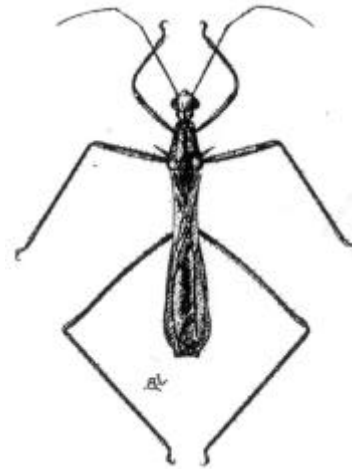


Figure 23. *Saica florida* Barber

Keys to the subfamily Stenopodainae

- 1. Head with one or more branched or bifid spines or processes on each side below and behind the eyes.....2
- 1a. Head without branched spines or processes behind and below the eyes, rarely with small simple ones.....4
- 2. Joint 1 of antennae with apex produced forward as a blunt spine beyond the base of joint 2; front femora armed beneath on each side with prominent spines.....6
- 2a. Joint 1 of antennae not spined at apex.....3
- 3. Front femora unarmed; joint 1 of beak nearly twice as long as the other united; apex of head at base of beak unarmed..... *Pygolampis pectoralis* Say

- 3a. Front femora armed beneath with two rows of short spines; joint 1 of beak subequal in length to 2 and 3 united; apex of head armed with a short porrect obtuse spine on each side at base of beak.....*Gnathobleda litigiosa* Stal
- 4. Ocelli not or only slightly elevated; hind portion of head not strongly narrowed into a slender neck; hind femora much surpassing apex of abdomen.....*Stenopoda cinerea* Laporte
- 4a. Ocelli located on small protuberance or tubercle above the general level of the head; hind portion of head strongly narrowed into a neck; hind femora not at all or but slightly passing tip of abdomen.....5
- 5. Front femora thickened, armed beneath with very short spines; joint 1 of beak much shorter than joint 2; hind femora not or just reaching tip of abdomen.....*Oncocephalus geniculatus* Stal (fig.24)
- 5a. Front femora but little thickened, unarmed beneath; joints 1 and 2 of beak subequal in length; hind femora slightly surpassing abdomen.....*Narvesus carolinensis* Stal (fig.25)

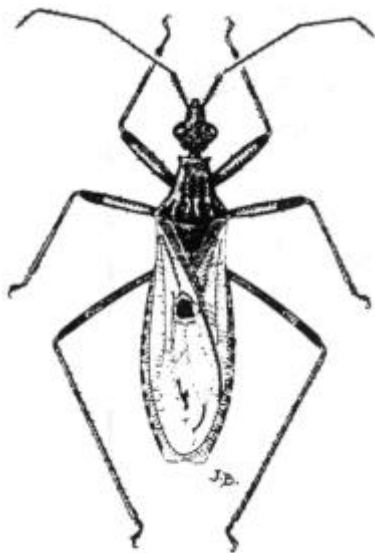


Figure 24. *Oncocephalus geniculatus* Stal



Figure 25. *Narvesus carolinensis* Stal

- 6. Front tibiae with spines along entire length.....7
- 6a. Front tibiae with spines only on proximal half of length, length of spines more than twice that of diameter of tibiae.....*Diaditus tejanus* Giacchi (figs 26,27)

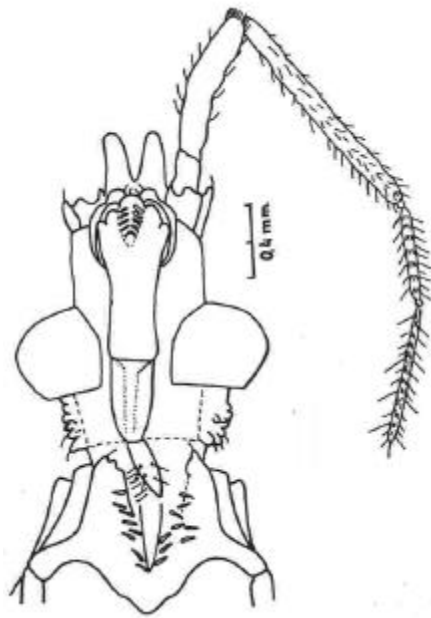


Figure 26. Head of male *Diaditus tejanus* Giacchi

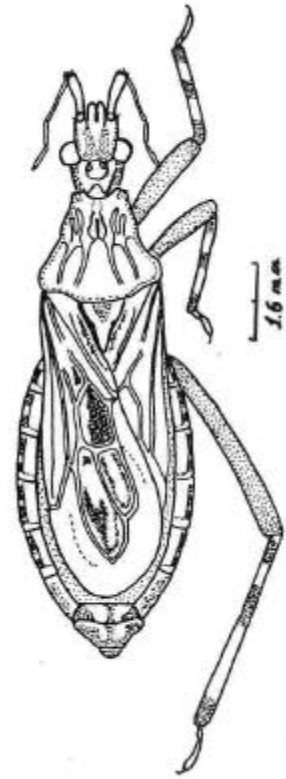


Figure 27. Body of *D.tejanus*

- 7. Front tibiae armed on inner edge only with three or four spines.....8
- 7a. Front tibiae armed with spines on both inner and outer edges.....9
- 8. Basal joint of antennae unarmed beneath; incisures of connexivals without dark spots; cheeks much surpassing antenniferous tubercles.....*Pnirontis languida* Stal
- 8a. Basal joint of antennae armed beneath; apical angles of incisures of connexivals both above and beneath with a small black spot; cheeks but slightly surpassing antenniferous tubercles.....*Pnirontis infirma* Stal (fig. 28)
- 9. Jugae slightly surpassing apex of antenniferous tubercles; basal segment of antennae longer than half the length of head.....*Pnirontis modesta* Banks
- 9a. Jugae short, slender, apices not reaching apex of antenniferous tubercles; basal segment of antennae half the length of head.....*Pnirontis granulosa* Barber



Figure 28. *Pnirontis infirma* Stal

Keys to the Subfamily Triatominae

- 1. Upper surface of body and rostrum densely haired.....*Triatoma lecticularius* Stål
- 1a. Upper surface of body and rostrum almost without hair.....*Triatoma sanguisuga* Leconte (fig. 29)



Figure 29. *Triatoma sanguisuga* Leconte

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