The Reduvioidea of Oklahoma (Hemiptera)

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This paper was undertaken as part of a series to be done on the Hemiptera of Oklahoma. It is hoped that, as a consequence of the availability of keys to the Oklahoma fauna, other persons will be stimulated to aid in the collection of these insects.

Records of the Reduvioidea of Oklahoma are quite sparse; thus, it is likely that further collection will not only produce a wealth of new county records, but that it will also add to the number of species found in the state. In some instances, species have been included in the key which have not yet been collected in Oklahoma; however, their known distribution is such that they most likely do occur here. Distribution records are based on specimens in the Stovall Museum, University of Oklahoma, the collection of Professor C. Dennis, East Central State College, the Oklahoma State University collection, and distribution in literature.

If a species does not fit the key one should refer to the works of Blatchley (1926) and Froeschner (1944). Although these works will not contain all the species of Oklahoma, or species likely to occur here, they are of considerable help. A key for the generic identification of the immature forms has been published by Fracker and Usinger (1949).

For the most part, the synonymy of the reduviids is in accordance with the work of Wygodzinsky (1949) and the synonymy of the nabids follows that of Harris (1928).

In this paper the Phymatidae and Ploiariidae are treated as families; however, the groups are regarded as subfamilies of the Reduviidae by some.

Descriptions of the species are not included, for we feel that the key and the illustrations are sufficient. References to size should be regarded as approximate.

All illustrations are by Mrs. Barbara Roach. For the size of the species refer to the size references given in the key.

We gratefully acknowledge the cooperation of the Stovall Museum at the University of Oklahoma.

Key to the Reduvioidea of Oklahoma

1. Hemelytra entirely membranous (3-4 mm) [Enicocephalidae] ..... *Systelloderes biceps*

— Hemelytra not as above or brachypterous; length more than 4 mm.....2

2. Last joint of the antennae enlarged [Phymatidae] 3

— Last joint of the antennae not enlarged 5

3. Scutellum elongate, covering much of the elytra (5mm) ..... *Macrocephalus prehensilis*

— Scutellum short, not as above 4

4. Posterior lateral angles of the connexivals I-III tuberculate (10 mm) (Figure 1) .....*Phymata fasciata georgiensis*

— Posterior lateral angles of the connexivals I-III may be projecting, but not tuberculate (11 mm) (Figure 2) ..... *Phymata americana coloradensis*

1

2

5. Prosternum with a striated groove 6

— Prosternum without a striated groove 39

6. Front coxae very long; body slender as shown in Plate I, Figure 5 [Ploiariidae] 7

— Front coxae short; body not as above [Reduviidae] 10

7. Length over 28 mm ..... *Emesaya brevipennis*

— Length less than 20 mm 8

8. Fore tibae about as long as the fore femora (5 mm) ..... *Empicoris tuberculatus*

— Fore tibiae less than one half as long as the fore femora 9

9. The under surface of the head with a pale stripe not as wide as the distance between the eyes (14 mm) ..... *Metapterus fraternus*

10. Ocelli wanting 11

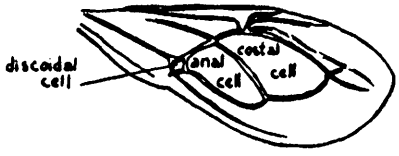
— Ocelli present 12

11. Abdomen and hemelytra entirely pale (7 mm) ..... *Oncerotrachelus pallidus*

— Abdomen and hemelytra partially infuscated (6 mm) ..... *Oncerotrachelus acuminatus*

12. Discoidal cell present (Figure 3); or brachypterous, general color yellow 13

— Discoidal cell wanting (Figure 4); or if brachypterous the general color black 31



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13. Ocelli further apart then the distance between the compound eyes 14

— Ocelli closer together than the distance between the compound eyes 15

14. Basal area of the hemelytra reddish brown (16 mm) ..... *Apiomerus spissipes*

— Basal area of the hemelytra mostly black (19 mm) ..... *Apiomerus crassipes*

15. Frontal lobe of the head longer than the posterior lobe 16

— Frontal lobe subequal or shorter than the posterior lobe 24

16. Anal cell not extending beyond the base of the costal cell (Figure 4) 17

— Anal cell of the membrane extending beyond the base of the costal cell (Figure 3) 21

17. Spines beneath the eyes (13 mm) 18

— Spines not present beneath the eyes 19

18. Fore legs spined beneath ..... *Pnirontis languida*

— Fore legs not spined ..... *Pygolampis pectoralis*

19. Pronotum with numerous spine-like setae (22 mm) ..... *Stenopoda cinerea*

— Pronotum without spine-like setae 20

20. Legs banded; fore femora thickened, with stubby, blunt spines below (20 mm) ..... *Oncocephalus geniculatus*

— Legs of a uniform color; fore femora not thickened, not armed as above (19 mm) ..... *Narvessus carolinensis*

21. General color yellow, legs and antennae annulated 22

— General color orange, some black, legs and antennae not annulated (11 mm) ..... *Rhynocoris ventralis*

22. Frontal lobe of pronotum smooth without blunt tubercles, tibiae annulated throughout length 23

— Frontal lobe with blunt tubercles, tibiae annulated only toward base (12 mm) ..... *Pselliopus latifasciatus*

23. Tubercle on the posterior lateral angle of the pronotum not projecting beyond the margin (12 mm) ..... *Pselliopus barberi*

— Tubercle on the posterior lateral margin of the pronotum projecting beyond the margin (12 mm) ..... *Pselliopus cinctus*

24. Pronotum with a large wheel-like crest (32 mm) (Plate I, Figure 6) ..... *Arilus cristatus*

— Pronotum not as above 25

25. Brachypterous; yellow with a dark longitudinal stripe on the abdomen (12 mm) ..... *Fitchia aptera*

— Wings fully developed; abdomen not as above 26

26. Dorsum of the head with spines 27

— Dorsum of the head without spines 28

27. Anterior pronotal disk armed with blunt tubercles (12 mm) ..... *Sinea spinipes*

— Anterior pronotal disk armed with pointed spines (13 mm) ..... *Sinea diadema*

28. Posterior lateral angles of the pronotum unarmed 29

— Posterior lateral angles of the pronotum armed 30

29. Anterior legs with black spots or annulations (13 mm) ..... *Zelus pictipes*

— Anterior legs unicolorous (14 mm) ..... *Zelus cervicalis*

30. Pronotal disk with spines (13 mm) ..... *Zelus socius*

— Pronotal disk without spines (17 mm) ..... *Zelus exsanguis*

31. Pronotal constriction at or before the middle 32

— Pronotal constriction behind the middle 36

32. Basal area of the hemelytra white (24 mm) ..... *Hammacerus purois*

— Basal area of the hemelytra not white 33

33. Head, thorax, and legs largely orange (13 mm) ..... *Rhiginia cruciata*

— Head, thorax, and legs brown or black 34

34. General coloration orange and black 35

— General coloration brown (23 mm) ..... *Reduvius personatus*

35. Upper surface of the pronotum distinctly haired (24 mm) ..... *Triatoma lecticularius*

— Upper surface of the pronotum bare (19-22 mm) ..... *Triatoma sanguisuga*

36. Wing membrane with a conspicuous yellow spot (20 mm) ..... *Rasahus hamatus*

— Wing membrane unicolorous; or brachypterous 37

37. Base of the hemelytra orange (22 mm) ..... *Sirthenea carinata*

— Base of the hemelytra black; or brachypterous 38

38. Abdomen red (15 mm) ..... *Melanolestes abdominalis*

— Abdomen black (15 mm) ..... *Melanolestes picipes*

39. 3rd segment of the antennae longer than the combined length of segments one and two; antennae five-segmented 40

— 3rd segment of the antennae shorter than the combined length of segments one and two; antennae four-segmented 42

40. Beak reaching the middle coxae (6 mm) ..... *Pagasa pallipes*

— Beak not reaching the middle coxae 41

41. Legs clothed with long hairs, body entirely dark, appendages yellow (6 mm) ..... *Pagasa fusca*

— Legs not clothed with long hairs; much of the body and appendages reddish orange (5 mm) ..... *Pagasa fasciventris*

42. Appendages yellow, the rest of the body shiny black (10 mm) ..... *Nabis subcoleoptratus*

— Not as above 43

43. Fore femora armed with short, blunt spines as well as setae (7 mm) ..... *Nabis sordidus*

— Fore femora armed only with setae 44

44. Posterior lobe of pronotum strongly punctuate; femora annulate before the apex (often very faint) (9 mm) ..... *Nabis annulatus*

— Posterior lobe of pronotum not or very faintly punctate; femora not annulate 45

45. Head beneath in great part fuscous or black (1.5 mm) ..... *Nabis roseipennis*

— Head beneath nearly entirely pale 46

46. Hemelytra speckled with fuscous dots 47

— Hemelytra not speckled (9 mm) ..... *Nabis capsiformis*

47. Antennal segment IV longer than segment I (7mm) ..... *Nabis kalmii*

— Antennal segment IV subequal or shorter than I 48

48. Posterior lobe of the pronotum strongly elevated; posterior tibiae usually dotted with fuscous; connexivum usually with black spots on the basal angles of its segments (8 mm) ..... *Nabis alternatus*

Posterior lobe of the pronotum weakly elevated when viewed laterally; posterior tibiae without fuscous dots; connexivum without spots on the basal angles of its segments (7.5 mm) ..... *Nabis ferus*

ENICOCEPHALIDAE

Systelloderes biceps (Say), 1832.

Habitat: Most of the specimens of this species collected in Oklahoma have been taken from rotting sawdust piles (Drew and Van Cleave, 1962).

Distribution: Latimer, Mayes, McCurtain, Nowata, Pontotoc, Pushmataha, Rogers, and Sequoyah counties.

PHYMATIDAE

Subfamily Phymatinae

Phymata fasciata georgiensis Melin, 1930.

Habitat: Found on vegetation.

Distribution: Cleveland, Love, Major, Oklahoma, Pittsburg, Woods, and Woodward counties.

Phymata americana coloradensis Melin, 1930.

Habitat: Commonly found on flowering plants.

Distribution: Atoka, Beaver, Cherokee, Choctaw, Ellis, Harmon, Harper, Leflore, McCurtain, McIntosh, Noble, Oklahoma, Osage, Payne, Pittsburg, Pontotoc, Pushmataha, Woods, and Woodward counties.

According to Karmilev (1953), *Phymata americana* Melin is a distinct species and not a subspecies of *P. pennsylvanica* Handlirsch. Furthermore, he states that *coloradensis* is a subsepcies of *P. americana* Melin and not *P. pennsylvanica* Handlirsch, as it has been generally regarded in recent works.

Subfamily Macrocephalinae

Macrocephalus prehensilis (Fabricius), 1803.

Habitat: Taken by sweeping along margins of ponds (Blatchley, 1926).

Distribution: Cleveland County.

PLOIARIIDAE

Subfamily Emesinae

Emesaya brevipennis (Say), 1832.

Habitat: Readio (1927) reports this species as occurring about cobwebs in vacant buildings.

Distribution: Cleveland, Leflore, Marshall, Muskogee, Payne, and Pontotoc counties.

Empicoris tuberculatus (Banks), 1909.

Specimens of this species are not in any of the Oklahoma collections; however, it is likely that it occurs in Oklahoma.

Metapterus fraternus (Say), 1832.

Habitat: This species may be found in various debris. Readio (1927) states that this species hibernates beneath logs.

Distribution: Cleveland, McClain and Payne counties.

Metapterus uhleri (Banks), 1909.

Habitat: Has been taken under stones (Blatchley, 1926).

Distribution: Although likely to occur in Oklahoma, this species has not yet been collected in Oklahoma.

REDUVIIDAE

Subfamily Apiomerinae

Apiomerus crassipes (Fabricius), 1803.

Habitat: According to Elkins (1951), this species is especially abundant on thistles in early fall.

Distribution: Choctaw, Cleveland, Craig, Creek, Delaware, Hughes, Lincoln, Okmulgee, Osage, Pawnee, Payne, Pittsburg, Pontotoc, and Washington counties.

Apiomerus spissipes (Say), 1825.

Habitat: Found on various forms of vegetation.

Distribution: Alfalfa, Caddo, Cimarron, Cleveland, Cotton, Creek, Custer, Jackson, Kiowa, Love, Major, Marshall, McCurtain, Murray, and Woods counties.

Subfamily Ectrichodiinae

Rhiginia cruciata (Say), 1832.

Habitat: Under stones and logs (Elkins, 1951). On vegetation (Blatchley, 1926).

Distribution: We have one specimen in our collection; it has no label, but the distribution is such that the species probably occurs in Oklahoma.

Subfamily Harpactorinae

Arilus cristatus (Linné), 1763.

Habitat: Commonly found on vegetation.

Distribution: Alfalfa, Beaver, Caddo, Cleveland, Coal, Comanche, Creek, Custer, Delaware, Harper, Kay, Lincoln, McCurtain, Oklahoma, Osage, Ottawa, Pawnee, Payne, Pontotoc, Sequoyah, and Woodward counties.

Fitchia aptera Stål, 1859.

Habitat: According to Elkins (1951), this species is found in grass along ponds and streams and in grass in shaded places.

Distribution: Carter, Cleveland, and Payne counties.

Pselliopus barberi Davis, 1912.

Habitat: Found on various plant forms.

Distribution: Adair, Delaware, McCurtain, Murray, Ottawa, Payne, Pontotoc and Sequoyah counties.

Pselliopus cinctus (Fabricius), 1776.

Habitat: The same as the above.

Distribution: Cleveland, Latimer, McCurtain, Pontotoc and Washington counties.

Pselliopus latifasciatus Barber, 1924.

Habitat: Same as the above.

Distribution: Cleveland and Pontotoc counties.

Rhynocoris ventralis (Say), 1832.

Habitat: Six specimens of this species have been collected in Oklahoma. All have been collected from shortgrass highplains type of rangeland in northwestern Oklahoma.

Distribution: Harper County.

Say (1832), in the original description of this species, describes the color as brown-black, with the posterior end of the thorax margined narrowly with sanguineous, the corium rufous, and the abdomen sanguineous with large marginal quadrate black spots above and beneath and dilated black ventral vittae.

Our specimens do not agree color-wise with Say's description. The general color of the specimens before us is reddish-orange. The disk of the pronotum is slightly infuscated in some of the specimens. The quadrate black spots mentioned by Say are present on all specimens and are very conspicuous; however, the dilated black ventral vittae are feebly represented. The corium is reddish-orange and the rest of the hemelytra is infuscated. One of the specimens has considerable blackness on the head, but the other specimens have reddish-orange heads. The coxae and proximal areas of the femora are reddish-orange with the remainder of the legs being blackish.

Although these specimens differ from Say's description in color, we feel that they are, nevertheless, the same species. Fracker (1912) stated, regarding three specimens which he examined, that two of the specimens (females) did not agree with Say's color description. One specimen (male) did agree.

The specimens before us may possibly be an undescribed subspecies, but, since the specimens demonstrate a variation in color (a series of six), we do not at this time believe the color devation from Say's description to be a justification for establishing a subspecies.

Sinea diadema (Fabricius), 1796.

Habitat: Common on various types of vegetation, grassland.

Distribution: Alfalfa, Beaver, Cimarron, Cleveland, Comanche, Craig, Ellis, Grady, Harper, McClain, McCurtain, McIntosh, Murray, Oklahoma, Okmulgee, Osage, Ottawa, Pawnee, Payne, Pontotoc, Texas, and Woods counties.

Sinea spinipes Stål, 1862.

Habitat: Common in grasslands.

Distribution: Cleveland, Craig, Creek, Marshall, Mayes, Murray, McClain, McCurtain, McIntosh, Oklahoma, Osage, Noble, Pawnee, Payne, Pontotoc, and Sequoyah counties.

Zelus cervicalis Stål, 1872.

Habitat: Found on cotton and other plants.

Distribution: Choctaw, Cleveland, Marshall, McCurtain, Pittsburg, Pontotoc, and Pushmataha counties.

Zelus exsanguis Stål, 1862.

Habitat: various forms of vegetation.

Distribution: Adair, Alfalfa, Cleveland, Comanche, Craig, Murray, Osage, Payne, Pontotoc, and Roger Mills counties.

Zelus pictipes Champion, 1899.

Habitat: According to Elkins (1951) this species is found on trees, shrubs, and grassland.

Distribution: Pushmataha and Pontotoc counties.

Zelus socius (Uhler), 1872.

Habitat: Found on alfalfa and various other types of vegetation.

Distribution: Alfalfa, Comanche, Harper, McCurtain, McIntosh, Okmulgee, and Payne counties.

Subfamily **Hammacerinae**

Hammacerus purcis (Drury), 1872.

Habitat: Under bark.

Distribution: Payne, Pushmataha and Sequoyah counties.

This species is placed in the genus *Microtomus* by Wygodzinsky (1949); however, China and Miller (1959) indicate that *Microtomus* is a synonym of *Hammacerus*.

Subfamily **Piratinae**

Melanolestes abdominalis (Herrick-Schaeffer), 1848.

Habitat: Often found under rocks, logs, etc.

Distribution: Beaver, Carter, Cherokee, Cleveland, Comanche, Johnson, Latimer, Marshall, McClain, McCurtain, Murray, Oklahoma, Payne, and Pontotoc counties.

This species and the next are very similar, as indicated by the key. Froeschner (1944) states that the females of the two species appear to intergrade. We question the status of *Melanolestes abdominalis;* however, this and other questions can only be answered by a more complete study.

Melanolestes picipes (Herrick-Schaeffer), 1848.

Habitat: As the above species.

Distribution: Adair, Caddo, Cleveland, Comanche, Delaware, Grady, Grant, Johnson, Latimer, Leflore, Love, Marshall, McClain, McCurtain, Murray, Ottawa, Payne, Pontotoc, Roger Mills, Sequoyah, and Woods counties.

Rasahus hamatus (Fabricius), 1781.

Habitat: Under rocks and logs (Elkins, 1951).

Distribution: Adair, Cleveland, Latimer, Leflore, and Rogers counties.

Sirthenea carinata (Fabricius), 1798.

Habitat: Beneath logs and stones usually in damp places (Blatchley, 1926).

Distribution: Caddo, Leflore, Payne, Pontotoc, and Sequoyah counties.

Subfamily **Reduviinae**

Reduvius personatus (Linné), 1758.

Habitat: Under logs, in rodent nests, and dwellings.

Distribution: Dewey and Major counties.

Subfamily **Saicinae**

Oncerotrachelus acuminatus Say, 1831.

Habitat: In short grass in moist situations (Elkins, 1951).

Distribution: Caddo County.

Oncerotrachelus pallidus Barber, 1915.

Habitat: Not known.

Distribution: Carter County.

Subfamily **Triatominae**

Triatoma lecticularius (Stål), 1859.

Habitat: Davis *et al.* (1943) list *Neotoma micropus* (the southern plains woodrat) as the host.

Distribution: Not present in any of the Oklahoma collections; however, Usinger (1944) indicates that the species probably occurs in Oklahoma.

Triatoma sanguisuga (Leconte), 1855.

Habitat: Habitations of man and animals. Usinger (1944) lists *Neotoma floridana* (eastern woodrat) as a host.

Distribution: Bryan, Cleveland, Garvin, Leflore, Lincoln, Mayes, Oklahoma, Osage, Payne, Pontotoc, Pottawatomie, and Woodward counties.

Also, from the following counties (Howell, 1963): Blaine, Logan, Harper, Noble, and Washington.

Subfamily **Stenopodinae**

Narvesus carolinensis Stål, 1862.

Habitat: According to Elkins (1951), this species is found under rocks and logs, and occasionally at electric lights.

Distribution: Beckham, Choctaw, Cleveland, Delaware, Leflore, Marshall, and Payne counties.

Oncocephalus geniculatus (Stål), 1872.

Habitat: Under rocks, boards, etc. (Elkins, 1951).

Distribution: Beckham, Carter, Choctaw, Delaware, Marshall, McCurtain, Ottawa, Pontotoc, and Rogers counties.

Pnirontis languida Stål, 1859.

Habitat: Unknown, but taken at electric lights (Elkins, 1951).

Distribution: Marshall County.

Pygolampis pectoralis (Say), 1832.

Habitat: Under rocks and boards (Elkins, 1951).

Distribution: Cleveland, Noble, and Payne counties.

Stenopoda cinerea Laporte, 1833.

Habitat: Not known.

Distribution: Adair, Carter, Leflore, Mayes, McCurtain, Osage, Pawnee, Payne, and Pontotoc counties.

NABIDAE

Subfamily **Prostemminae**

Pagasa fasciventris Harris, 1940.

Habitat: Occurs in blue-stem clumps (Harris, 1942.)

Distribution: Not collected from Oklahoma, but likely to occur here as it has been collected from Cherokee County, Kansas (Harris, 1940, 1942).

Pagasa fusca (Stein), 1857.

Habitat: According to Harris (1928) this species is usually found in hot dry situations where the vegetation is very short. Our collection includes one specimen collected from an alfalfa field and a specimen collected in November from bunch grass. Blatchley (1926) reports them being collected on low sandy cultivated ground.

Distribution: Payne County.

Pagasa pallipes Stål, 1873.

Habitat: Taken under oak leaves and weeds and in the company of *Nabis subcoleoptratus*, which it closely resembles in color and form (Blatchley, 1926).

Distribution: Not yet recorded from Oklahoma.

Subfamily **Nabinae**

Nabis alternatus Parshley, 1922.

Habitat: Taken from alfalfa, rangeland (highplains and sandsage).

Distribution: Alfalfa, Caddo, Cleveland, Cimarron, Comanche, Garvin, Grady, Harper, Major, McClain, McCurtain, Payne, Sequoyah, and Texas counties.

Nabis annulatus Renter, 1873.

Habitat: Taken by sweeping vegetation along stream banks (Blatchley, 1926.)

Distribution: Delaware and McCurtain counties.

Nabis capsiformis Germar, 1837.

Habitat: Swampy meadows (Harris, 1928) and bottom land pasture (Stoner *et al.*, 1962).

Distribution: Payne County.

Nabis ferus (Linné), 1758.

Habitat: Found on vegetation in grassland. (Blatchley, 1926). In Oklahoma on cotton plants.

Distribution: Alfalfa, Cleveland, McClain, McCurtain, Murray, and Payne counties.

Nabis kalmii Reuter, 1872.

Habitat: Not known.

Distribution: Pontotoc county.

Nabis roseipennis Reuter, 1873.

Habitat: Found in tall grasses and weeds along streams, margins of swamps and dense upland woods (Blatchley, 1926). In our state, cotton.

Distribution: Alfalfa, Canadian, Choctaw, Cleveland, Delaware, Latimer, McCurtain, Ottawa and Pontotoc counties.

Nabis subcoleoptratus (Kirby), 1837.

Habitat: Found on vegetation, where it resembles black ants. The resemblance is due to the common brachypterous wing condition and black coloration (Blatchley, 1926).

Distribution: Not collected in Oklahoma, but its distribution (Kansas, Texas, Missouri, etc.) is such that it probably occurs here.

Nabis sordidus Reuter, 1873.

Habitat: Blatchley (1926) reports this species taken by sweeping low vegetation in dense woods, especially from giant ragweed *(Ambrosia trifida)* along pond and stream margins. The short winged form is the most common. In our state, from cotton plants.

Distribution: McClain and McCurtain counties.

LITERATURE CITED

Blatchley, W. S. 1926. Heteroptera of eastern North America. The Nature Pub. Co., Indianapolis. 1116 pp.

China, W. E. and N. C. E. Miller. 1959. Check-list and keys to the subfamilies of Hemiptera-Heteroptera. Bull. Brit. Mus. (Nat. Hist.) Ent. 8: 1-45.

Davis, D. J., T. McGregor and T. de Shezol. 1943. *Triatoma sanguisuga* (Leconte) and *Triatoma ambigua* Neiva as natural carriers of *Trypanosoma cruzi* in Texas. Pub. Health Rep. 58: 352.

Drew, W. A. and H. W. Van Cleave. 1962. Notes on the distribution of *Systelloderes biceps* (Say) in Oklahoma (Hemiptera: Enicocephalidae) Proc. Okla. Acad. Sci. 42: 123.

Elkins, J. C. 1951. The Reduviidae of Texas. Texas Journ. Sci. 3: 407-412.

Fracker, S. B. 1912. Systematic outline of the Reduviidae of North America. Proc. Iowa Acad. Sci. 19: 217-252.

Fracker, S. B., and R. L. Usinger. 1949. The generic identification of Nearctic reduviid nymphs (Hemiptera). Ann. Ent. Soc. Amer. 42: 273-278.

Froeschner, R. C. 1944. Contribution to a synopsis of the Hemiptera of Missouri, Pt. III. Amer. Midland Nat. 31: 638-683.

Harris, H. M. 1928. A monographic study of the hemipterous family Nabidae as it occurs in North America. Ent. Americana (N.S.) 9: 1-97.

Harris, H. M. 1940. A new *Pagasa* from the United States (Hemiptera, Nabidae). Ent. News 51: 35-37.

Harris, H. M. 1942. The male of *Pagasa fasciventris* H. M. Harris (Hemiptera, Nabidae). Ent. News 53: 36.

Howell, D. E. 1963. Personal communication.

Karmilev, N. A. 1953 . Notas sobre Phymatidae nearcticos. I.(Hemipteros). Publ. Mis. Estud. Pat. reg. Argent. 24: 63-67.

Readio, P. A. 1927. Biology of the Reduviidae of America north of Mexico. Univ. Kansas Sci. Bull. 17: 5-291.

Say, T. 1832. Heteroptera New Harmony. p. 31. *In* Leconte's The complete writings of Thomas Say on the entomology of North America, Builliere Bros., N. Y., p. 355-356.

Stoner, A., D. E. Bryan, and W. A. Drew. 1962. A partial inventory of insect populations in tallgrass prairie pastures in north central Oklahoma. Proc. Okla. Acad. Sci. 42: 143-157.

Usinger, R. L. 1944. The Triatominae of North and Central America and the West Indies and their public health significance. U. S. Pub. Health Bull. 288, 83 pp.

Wygodzinsky, P. 1949. Elenco sistematico de los Reduviidormes americanos. Inst. Med. Reg. Tucuman 1: 1-92.

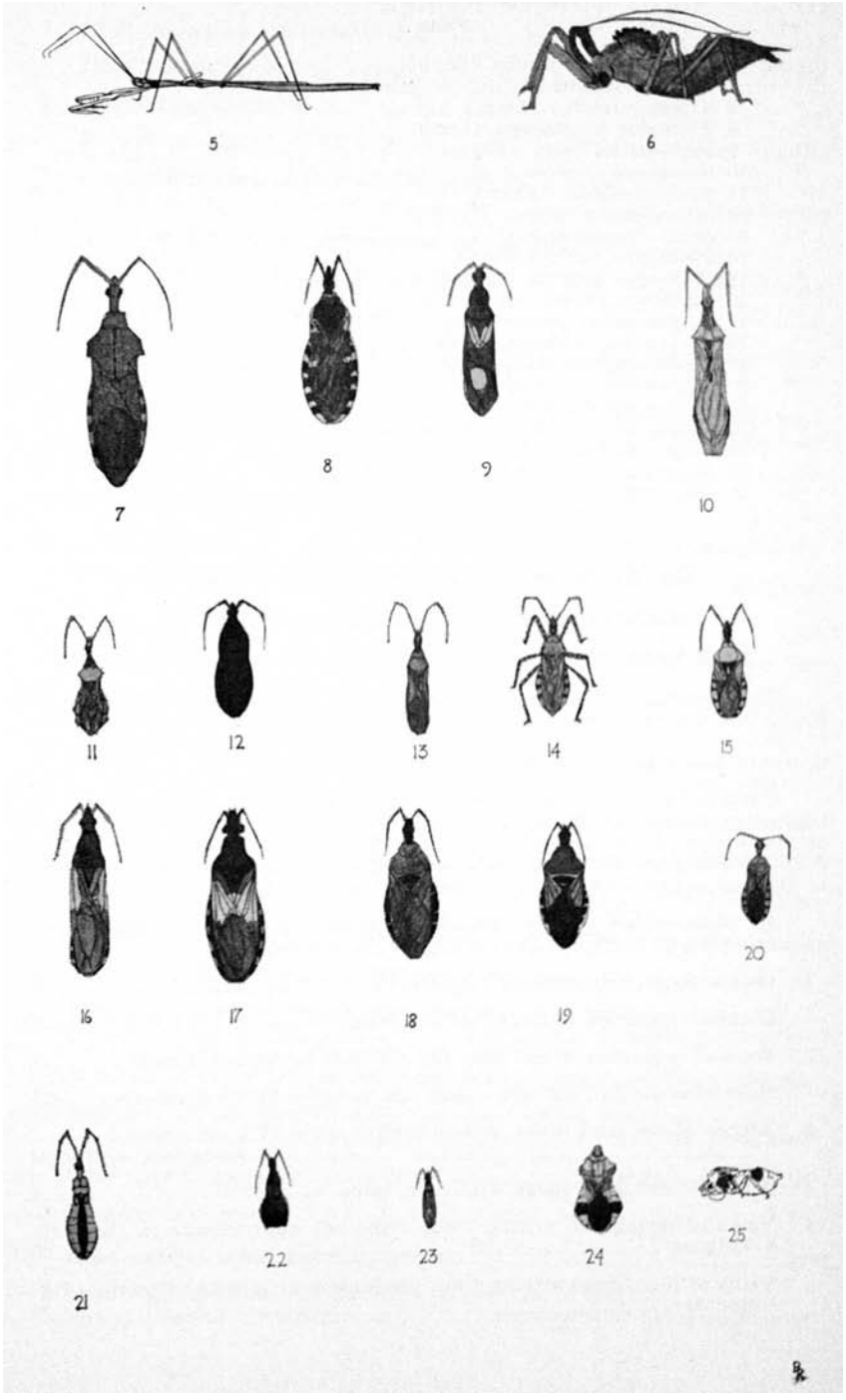
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Plate I

Figure 5 *Emesaya brevipennis* (Say)
" 6 *Arilus cristatus* (Linn.) — lateral view
" 7 *Arilus cristatus* (Linn.)
" 8 *Triatoma sanguisuga* (Lec.)
" 9 *Rasahus hamatus* (Fabr.)
" 10 *Stenopoda cinerea* Lap.
" 11 *Sinea diadema* (Fabr.)
" 12 *Melanolestes picipes* (H. S.)
" 13 *Zelus exsanguis* Stål
" 14 *Pselliopus barberi* Davis
" 15 *Pselliopus cinctus* (Fabr.)
" 16 *Sirthenea carinata* (Fabr.)
" 17 *Hammacerus purcis* Dru.
" 18 *Apiomerus crassipes* (Fabr.)
" 19 *Apiomerus spissipes* (Say)
" 20 *Rhynocoris ventralis* (Say)
" 21 *Fitchia aptera* Stål
" 22 *Nabis subcoleoptratus* Kirb.
" 23 *Nabis alternatus* Parsh.
" 24 *Phymata americana coloradensis* Melin
" 25 *Phymata americana coloradensis* Melin — lateral view