Stink bugs (Pentatomidae) and parent bugs (Acanthosomatidae) of Ontario and adjacent areas: A key to species and a review of the fauna

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Abstract

The Ontario stink bugs (Pentatomidae) and parent bugs (Acanthosomatidae) are reviewed. Illustrated dichotomous keys are provided to the families of Canadian Pentatomoidea and the 56 species of Pentatomidae and Acanthosomatidae occurring in, or likely to occur in, Ontario. One species, *Trichopepla atricornis* Stål, is recorded from Ontario for the first time.

Introduction

The recent arrival of the Brown Marmorated Stink Bug [*Halyomorpha halys* (Stål)] in eastern North America (Hoebeke & Carter 2003) has highlighted the need for an updated and user-friendly key to the Pentatomidae to facilitate swift and reliable identification of this serious new pest in threatened areas of the northeast. The province of Ontario, one such threatened area, is home to dozens of superficially similar pentatomoid bugs, most of which can be identified to species using keys to the northeastern North American Pentatomidae by McPherson (1982). Those keys, while functional, are illustrated only with simple black and white line drawings of specific characters and emphasize technical characters that require microscopic examination. The purpose of the current project is to provide an updated key, taking advantage of a digital format to make extensive use of colour photographs that render the keys more reliable and user-friendly. Two key formats, a simplified key and a complete key, are provided. The simplified key allows rapid identification of species using characters visible with a hand lens or on photographs of the dorsum and venter of the bug taken with a good camera. Although it will work for the great majority of routinely encountered stink bugs, some unusual colour variants and uncommon species could be misidentified using the simplified key. The second key is a complete key requiring the examination of more technical characters, many of which are only visible with a microscope. This complete key, an updated version of McPherson's (1982) key, should allow for confident determination of all species in our region.

Although the main incentive for developing these keys was to render one newly introduced pest unequivocally identifiable, they also cover all Ontario Pentatomidae and the superficially similar Acanthosomatidae. These families include several species of potential conservation concern, several beneficial predaceous species, and many phytophagous species. Good pentatomoid keys are needed for students and workers in a variety of disciplines including biological control, pest management, and biodiversity studies. Recent faunal studies for other regions in North America include the following: Washington (Zack et al. 2012), North Dakota (Rider 2012), Michigan (Swanson 2012), Illinois (McPherson 1982), Kansas (Packauskas 2012), and Missouri (Sites et al. 2012).

The keys presented here include 56 species, 53 of which belong to the family Pentatomidae (stink bugs) and three of which are in the family Acanthosomatidae (parent bugs). Of these 56 species, 50 are currently known from Ontario, and the remaining six are northeastern species that could occur in Ontario. Of those species known from Ontario, three were first recorded from the province in the last decade (Paiero et al. 2003, Fogain and Graff 2011) and one (*Trichopepla atricornis* Stål) is recorded here from Ontario for the first time. An additional species, *Amaurochrous ovalis* Barber & Sailer, was erroneously recorded in Canada by Paiero et al. (2003) based on misidentified material of *A. cinctipes*. *Thyanta custator* (Fabricius), now treated as the subspecies *T. custator custator* (Fabricius), is not included because its occurrence in Canada is suspect. Rider and Chapin's (1992) revision of *Thyanta* treated *T. custator custator*

doi:10.3752/cjai.2013.24

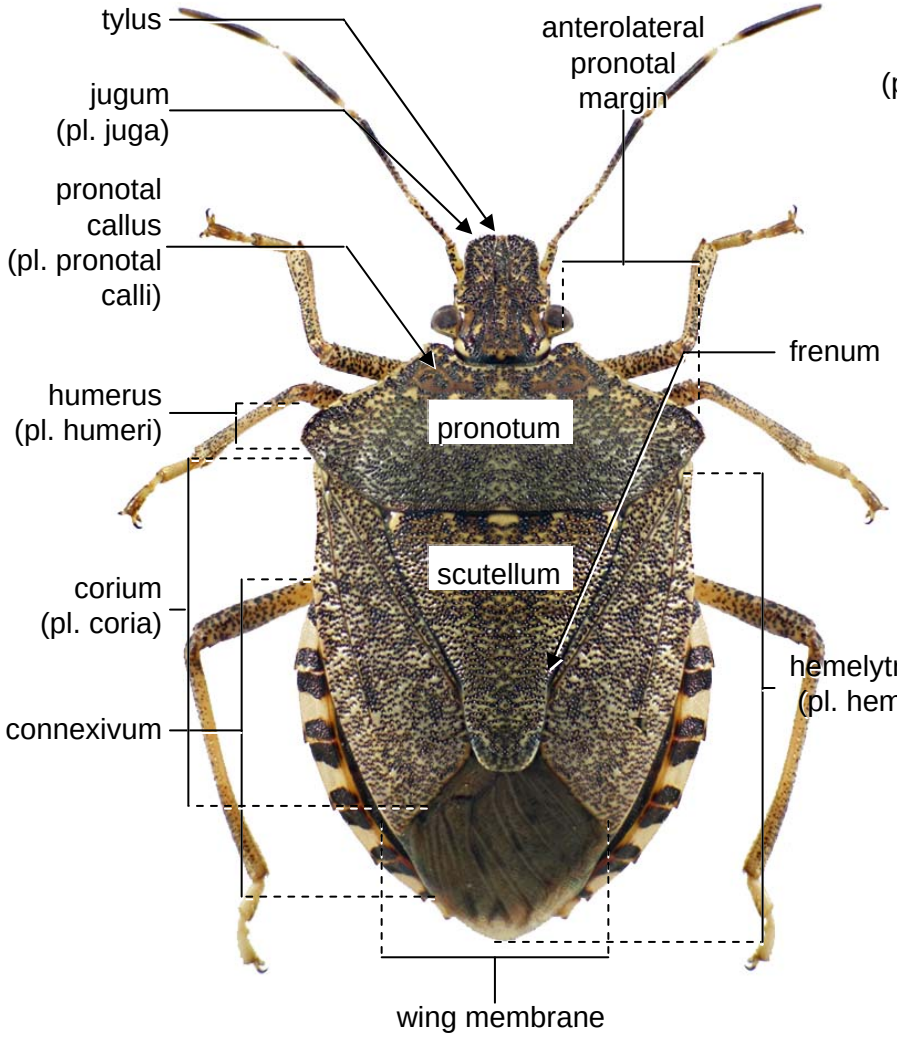
as a southeastern coastal plain species, and we have seen no material from Ontario that would indicate otherwise. Other recent nomenclatural changes include the following: *Cosmopepla bimaculata* (Thomas) is now treated as *C. lintneriana* Kirkaldy (McDonald 1986), *Holcostethus piceus* (Dallas) as *H. macdonaldi* Rider & Rolston (Rider & Rolston 1995), and *Hymenarcys aequalis* (Say) as *Mcphersonarcys aequalis* (Say) (Thomas 2012). *Apateticus bracteatus* (Fitch) and *A. cynicus* (Say) are now in the genus *Apoecilus* (Thomas 1992). *Acrosternum hilare* (Say) and *A. pensylvanica* (Gmelin) are in the genus *Chinavia* (e.g., Rider 2012). The updated checklist of Ontario stink bugs given here reflects the tribal placements given in Rider (2012) and Thomas and Brailovsky (1999).

The distributions summarized in the species pages are based on McPherson (1982), Froeschner (1988), and Maw et al. (2000), with the addition of recent records (Paiero et al. 2003, Fogain and Graff 2011).

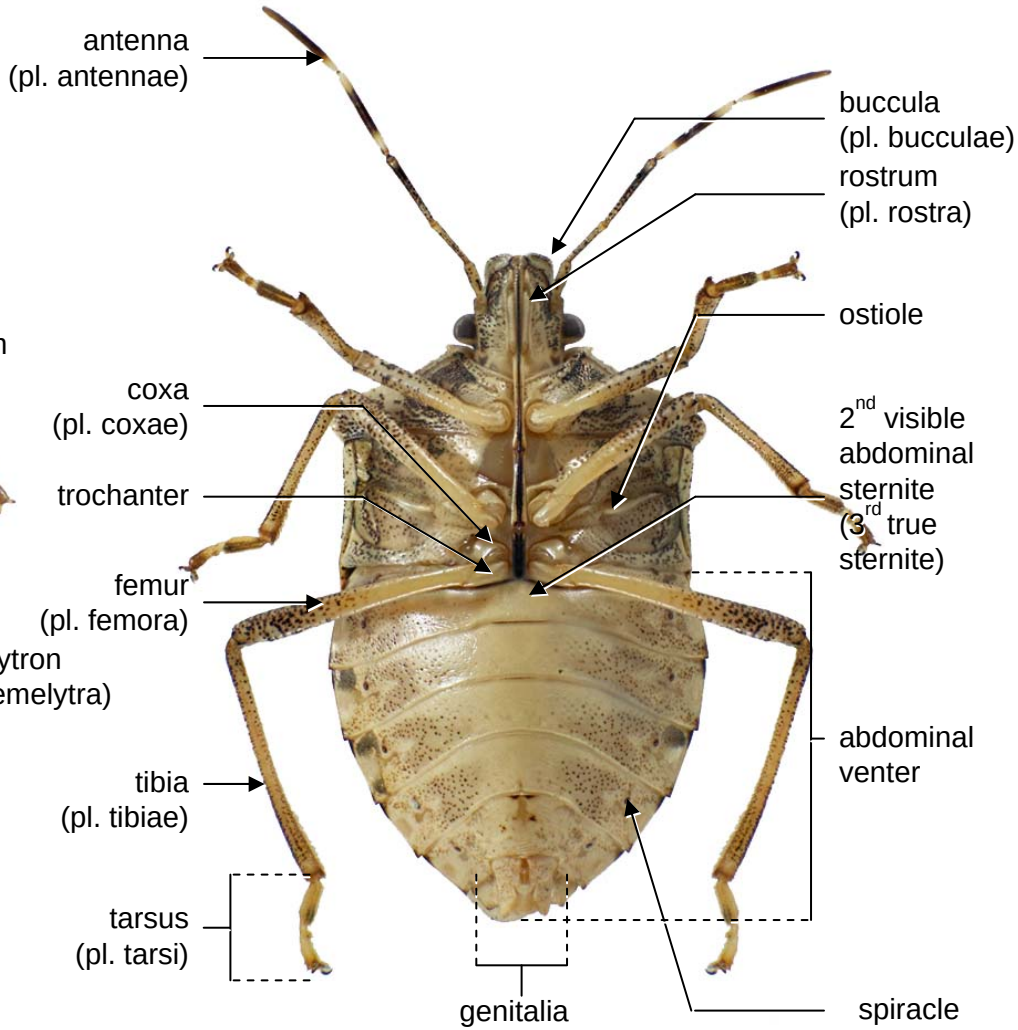
Contents

Morphology

Dorsal Surface (dorsum)



Ventral Surface (venter)



Note that the second visible abdominal sternite is referred to here and in other keys as “abdominal sternite 2” although it is actually the third true sternite. The true sternite one is hidden beneath the metasternum.

Checklist of stink bugs (Pentatomidae) and parent bugs (Acanthosomatidae) occurring in, or expected to occur in (*), Ontario

FAMILY PENTATOMIDAE

SUBFAMILY ASOPINAE

Genus APOECILUS Stål
- *A. bracteatus* (Fitch)
- *A. cynicus* (Say)

Genus PERILLUS Stål
- *P. bioculatus* (Fabricius)
- *P. circumcinctus* Stål
- *P. exaptus* (Say)
- *P. strigipes* (Herrich-Schäffer)*

Genus PICROMERUS Amyot & Serville
- *P. bidens* (Linnaeus)

Genus PODISUS Herrich-Schäffer
- *P. brevispinus* Phillips
- *P. maculiventris* (Say)
- *P. neglectus* (Westwood)*
- *P. placidus* Uhler
- *P. serieventris* Uhler

Genus RHACOGNATHUS Fieber
- *R. americanus* Stål

Genus STIRETRUS Laporte
- *S. anchorago* (Fabricius)

Genus ZICRONA Amyot & Serville
- *Z. caerulea* (Linnaeus)

SUBFAMILY PENTATOMINAE

Tribe Aeliini

Genus AELIA Fabricius
- *A. americana* Dallas

Genus NEOTTIGLOSSA Kirby
- *N. trilineata* (Kirby)
- *N. undata* (Say)

Tribe Cappaeini

Genus HALYOMORPHA Mayr
- *H. halys* (Stål)

Tribe Carpocorini

Genus COENUS Dallas
- *C. delius* (Say)

Genus COSMOPEPLA Stål
- *C. lintneriana* Kirkaldy

Genus EUSCHISTUS Dallas
- *E. ictericus* (Linnaeus)
- *E. politus* Uhler
- *E. servus euschistoides* (Vollenhoven)
- *E. tristigmus luridus* Dallas
- *E. variolarius* (Palisot de Beauvois)

Genus HOLCOSTETHUS Fiber
- *H. abbreviatus* Uhler
- *H. fulvipes* (Ruckes)
- *H. limbolarius* (Stål)
- *H. macdonaldi* Rider & Rolston

Genus HYMENARCYS Amyot & Serville
- *H. nervosa* (Say)*

Genus MCPHERSONARCYS Thomas
- *M. aequalis* (Say)*

Genus MENECLES Stål
- *M. insertus* (Say)

Genus MORMIDEA Amyot & Serville
- *M. lugens* (Fabricius)

Genus TRICHOPEPLA Stål
- *T. atricornis* Stål
- *T. semivittata* (Say)

Tribe Halyini

Genus BROCHYMENA Amyot & Serville
- *B. quadripustulata* (Fabricius)

Genus PARABROCHYMENA Larivière
- *P. arborea* (Say)

Tribe Nezarini

Genus CHINAVIA Orian
- *C. hilaris* (Say)
- *C. pensylvanica* (Gmelin)

Genus CHLOROCHROA Stål
- *C. persimilis* Horváth

Genus NEZARA Amyot & Serville
- *N. viridula* (Linnaeus)

Genus THYANTA Stål
- *T. calceata* (Say)*
- *T. custator accerra* McAtee

Tribe Pentatomini

Genus BANASA Stål
- *B. calva* (Say)
- *B. dimidiata* (Say)
- *B. euchlora* Stål
- *B. sordida* (Uhler)

Tribe Procleticini

Genus DENDROCORIS Bergroth
- *D. humeralis* (Uhler)

Tribe Sciocorini

Genus SCIOCORIS Fallén
- *S. microphthalmus* Flor

Tribe Strachiini

Genus MURGANTIA Stål
- *M. histrionica* (Hahn)

SUBFAMILY PODOPINAE

Genus AMAUROCHROUS Stål
- *A. brevitylus* Barber & Sailer*
- *A. cinctipes* (Say)

FAMILY ACANTHOSOMATIDAE

SUBFAMILY ACANTHOSOMATINAE

Genus ELASMOSTETHUS Fieber
- *E. atricornis* (Van Duzee)
- *E. cruciatus* (Say)

Genus ELASMUCHA Stål
- *E. lateralis* (Say)

Common names of stink bugs (Pentatomidae) and parent bugs (Acanthosomatidae) in Ontario

Common names of species accepted by the Entomological Societies of Canada (*) and America (+):

Banasa Stink Bug – *Banasa dimidiata**

Brown Marmorated Stink Bug – *Halyomorpha halys*+

Brown Stink Bug – *Euschistus servus*+

Dusky Stink Bug – *Euschistus tristigmus**+

Fourhumped Stink Bug – *Brochymena quadripustulata**

Green Stink Bug – *Chinavia hilaris*+ (as *Acrosternum hilare*)

Harlequin Bug – *Murgantia histrionica**

Onespotted Stink Bug – *Euschistus variolarius**+

parent bug(s) – member(s) of the family Acanthosomatidae

Redcrossed Stink Bug – *Elasmostethus cruciatus**

Redshouldered Stink Bug – *Thyanta custator accerra*+

Rough Stink Bug – *Brochymena quadripustulata*+

Southern Green Stink Bug – *Nezara viridula*+

Spined Soldier Bug – *Podisus maculiventris**+

stink bug(s) – member(s) of the family Pentatomidae

turtle bug(s) – member(s) of the subfamily Podopinae (Pentatomidae)

Twospotted Stink Bug – *Perillus bioculatus**+

Key to the families of Pentatomoidea of Canada

Continue to key

doi:10.3752/cjai.2013.24

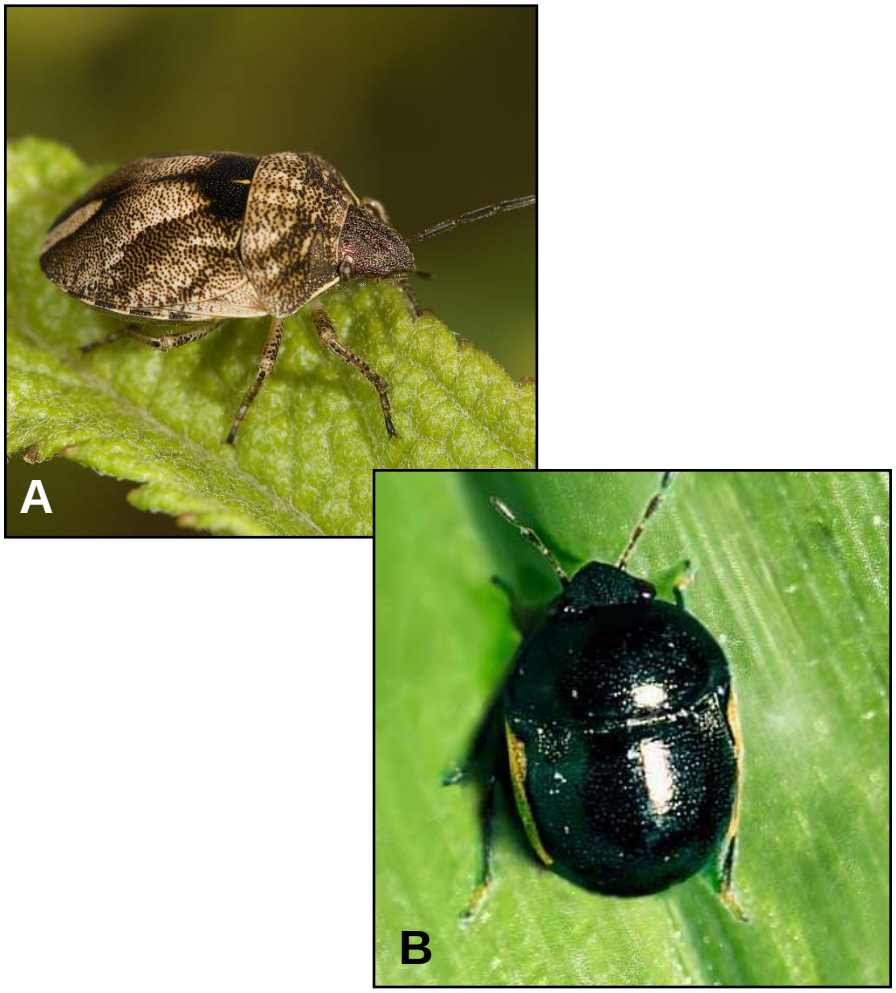


Fig. 1 A-B. A) Scutelleridae. B) Thyreocoridae.

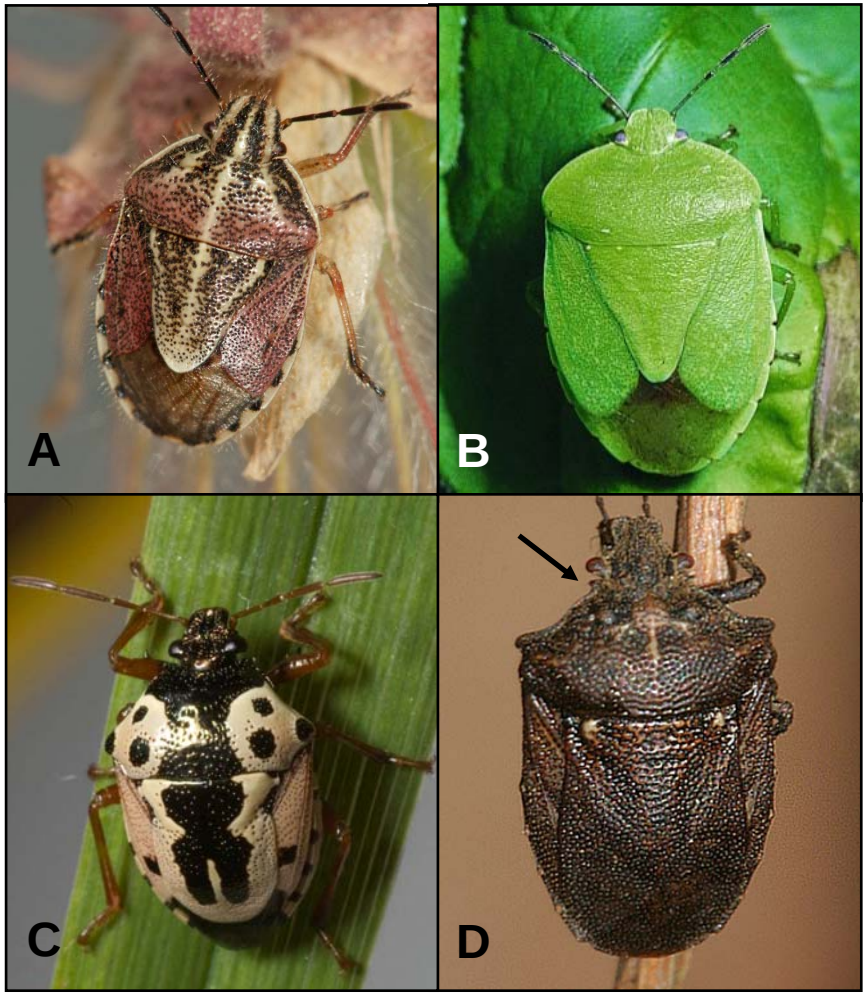


Fig. 2 A-D. A) *Trichopepla atricornis.* B) *Chinavia pensylvanica.* C) *Stiretrus anchorago.* D) *Amaurochrous cinctipes.*

1. Scutellum large, broad, U-shaped, longer than corium and covering almost entire dorsal surface of abdomen (Fig. 1 A-B).

2

1'. Scutellum subtriangular, usually shorter than corium (Fig. 2 A-B) but if large and U-shaped then colours bright and contrasting (*Stiretrus*, Fig. 2 C) or prominent tooth or process present at each anterolateral angle of pronotum (*Amaurochrous*, Fig. 2 D).

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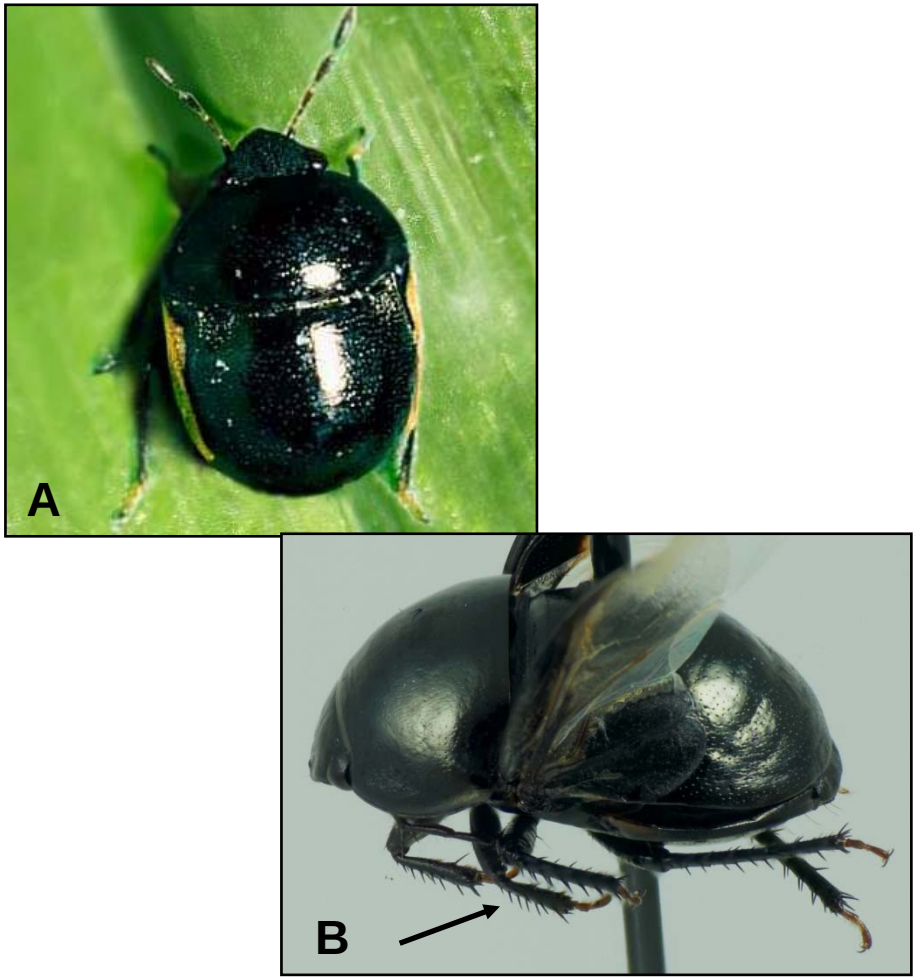

Fig. 3 A-B. Thyreocoridae.

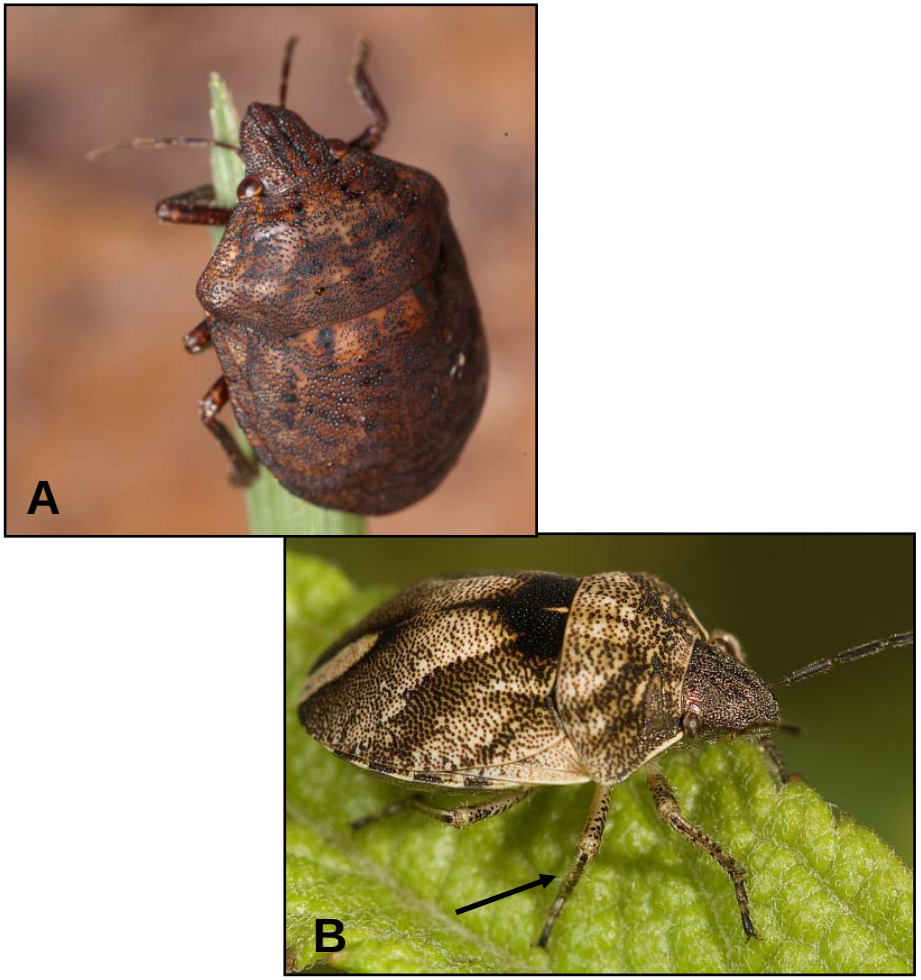

Fig. 4 A-B. Scutelleridae.

2. Tibiae conspicuously spined, spines thick (Fig. 3 B). Colour usually shiny black or dark brown; margins of hemelytron sometimes pale (Fig. 3 A).

Thyreocoridae (Ebony bugs)

2'. Tibiae not conspicuously spined, spines thin (Fig. 4 B). Colour variable but never shiny black (Fig. 4 A-B).

Scutelleridae (Shieldbacked bugs)

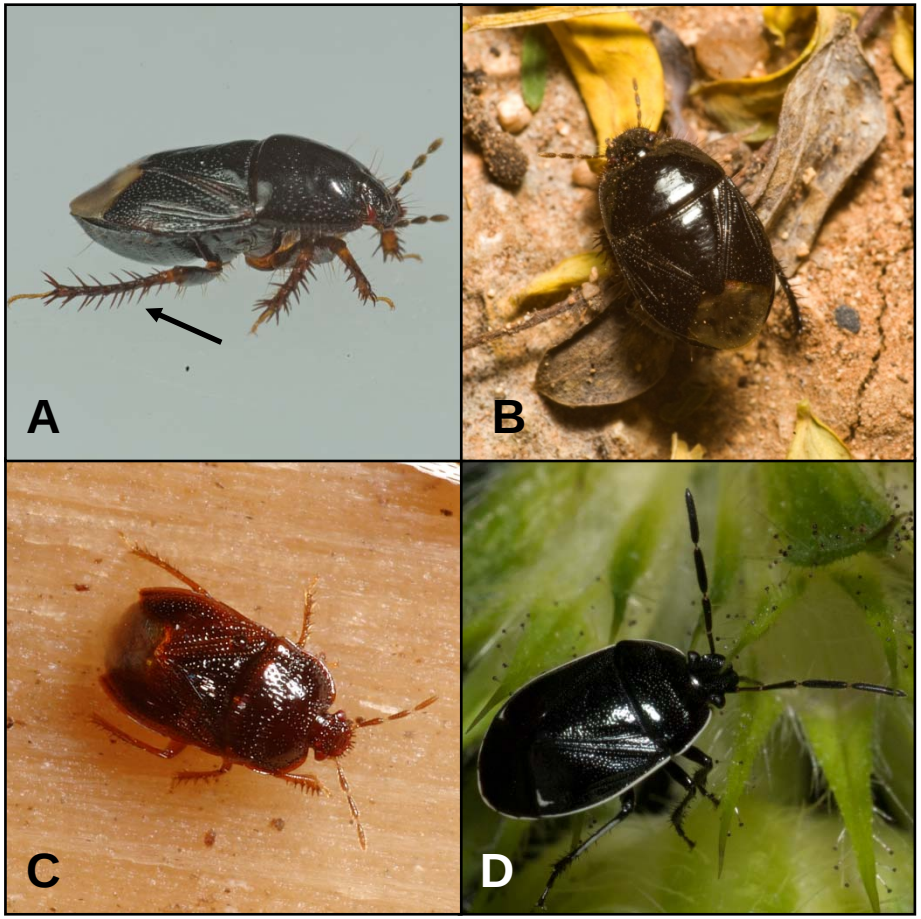

Fig. 5 A-D. Cydnidae.

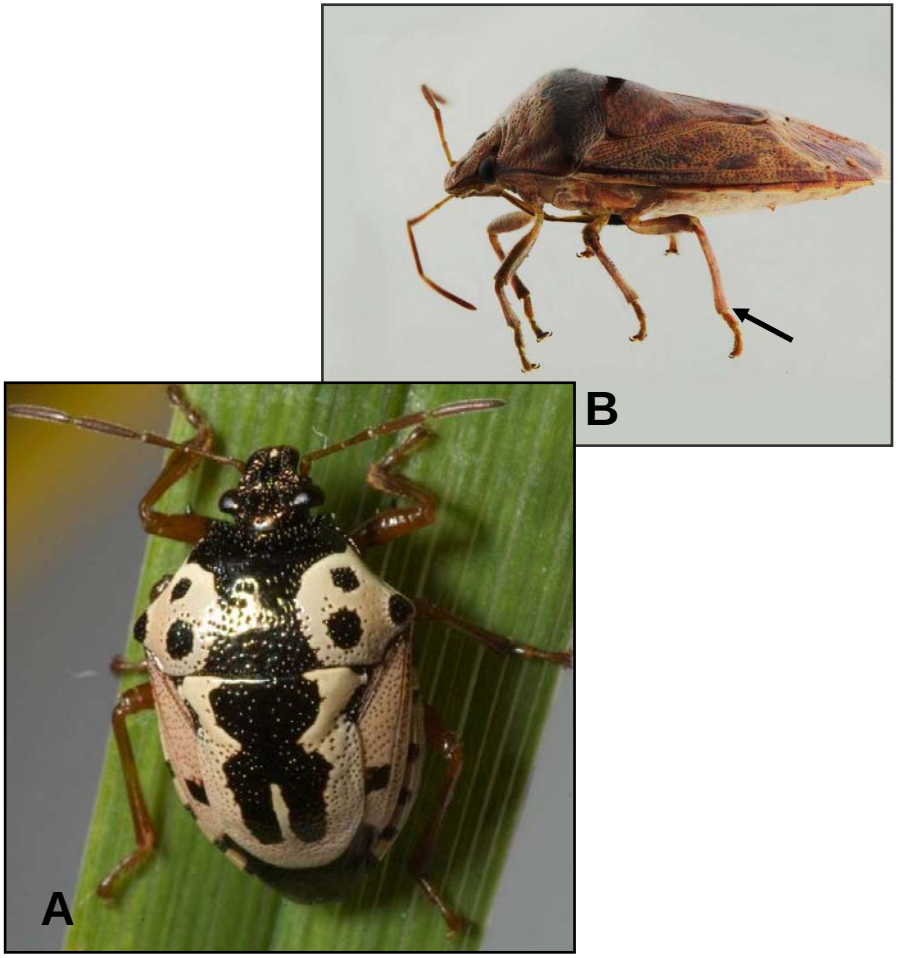

Fig. 6 A-B. Pentatomidae. A) *Stiretrus anchorago.* B) *Banasa calva.*

3. Tibiae conspicuously spined, spines thick (Fig. 5 A-D). Length rarely more than 7 mm.

Cydnidae (Burrower bugs)

3‘. Tibiae not conspicuously spined, spines thin (Fig. 6 A-B). Length usually more than 7 mm.

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doi:10.3752/cjai.2013.24

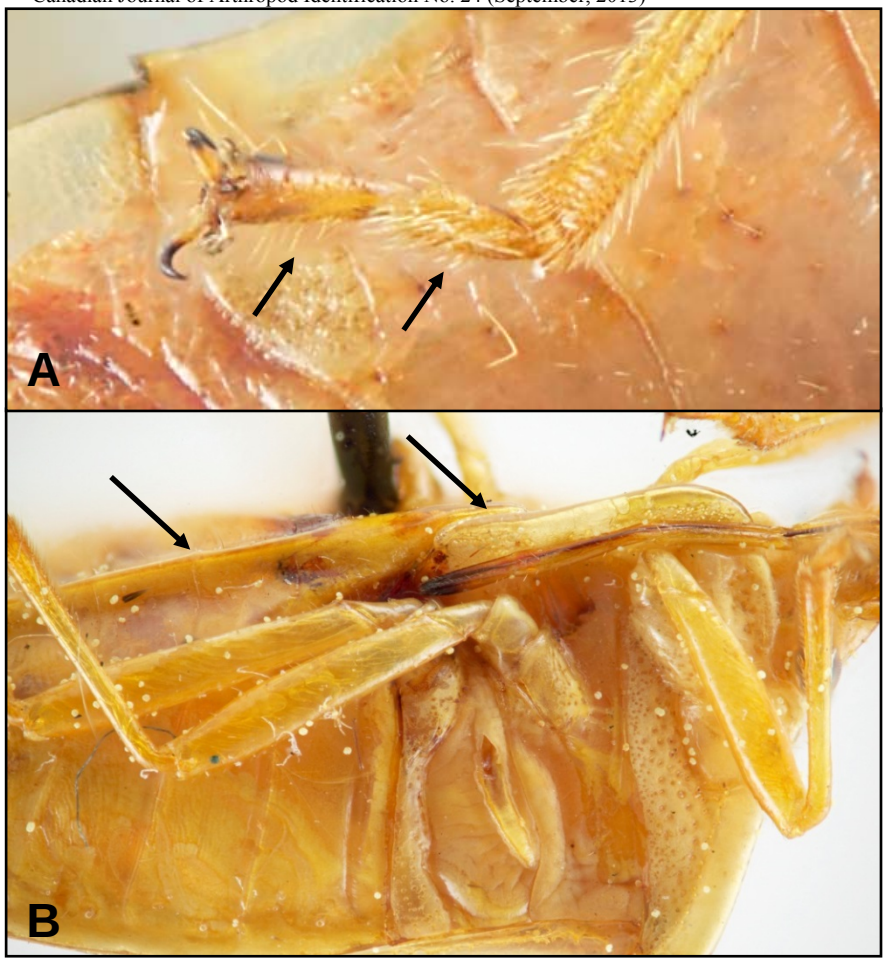

Fig. 7 A-B. *Elasmostethus cruciatus*: A) 2-segmented tarsus; B) ventral.

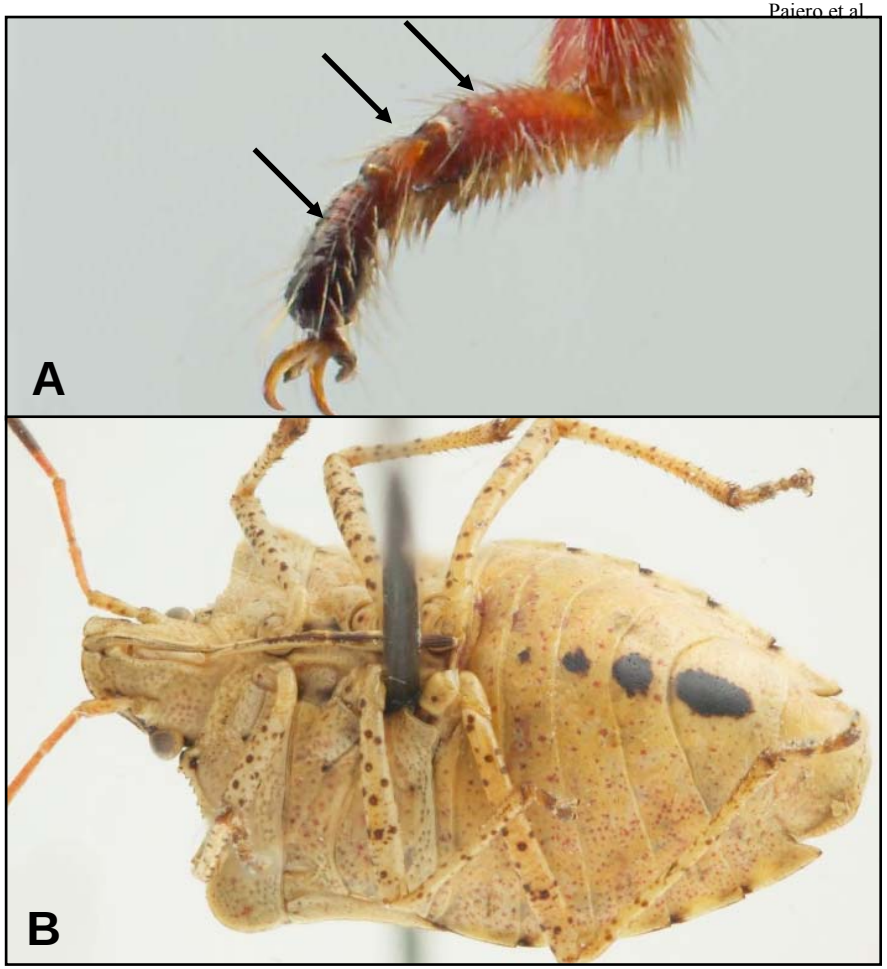

Fig. 8 A-B. A) *Picromerus bidens*, 3-segmented tarsus. B) *Euschistus tristigmus luridus*, ventral.

4. Tarsi 2-segmented (Fig. 7 A). Thoracic and abdominal sterna with prominent, midventral longitudinal ridge (Fig. 7 B).

Acanthosomatidae (Parent bugs)
Continue to the complete key

4'. Tarsi 3-segmented (Fig. 8 A). Thoracic and abdominal sterna without prominent, longitudinal ridge (Fig. 8 B).

Pentatomidae (Stink bugs)
Continue to the complete key

Continue to a simplified key to the species of stink bugs (Pentatomidae) and parent bugs (Acanthosomatidae of Ontario

A simplified key to the species of stink bugs (Pentatomidae) and parent bugs (Acanthosomatidae) of Ontario

Continue to key

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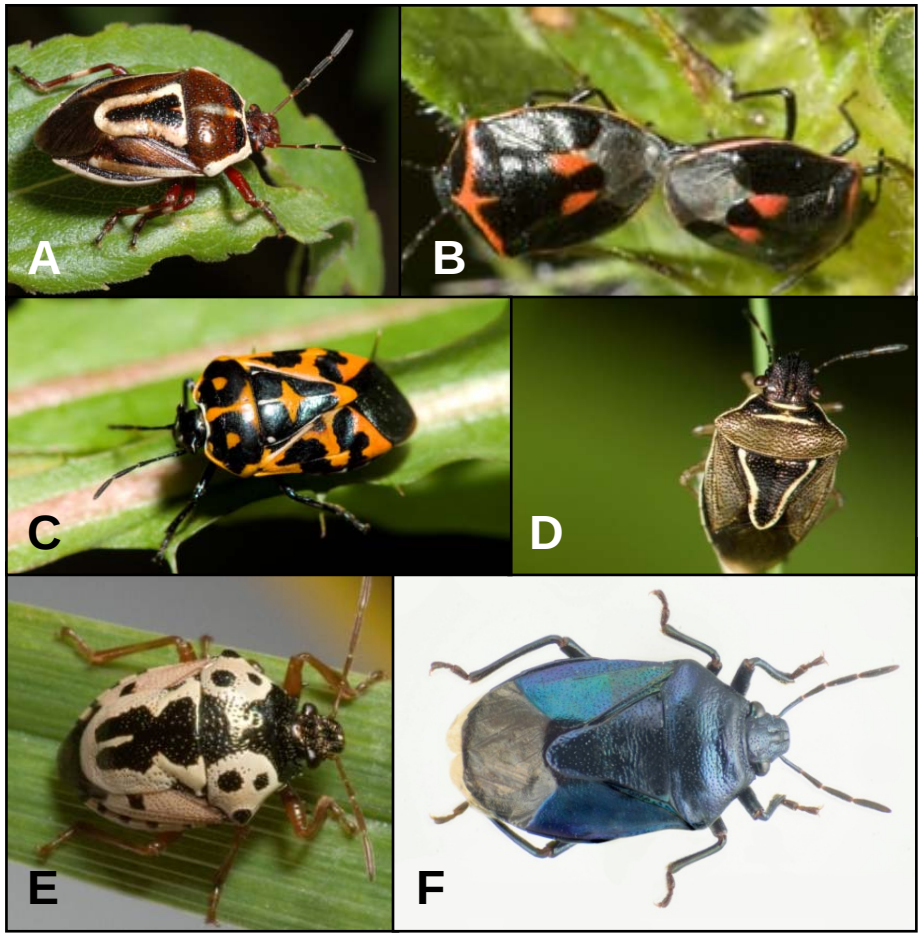

Fig. 1 A-F. A) *Perillus circumcinctus.* B) *Cosmopepla lintneriana*. C) *Murgantia histrionica.* D) *Mormidea lugens.* E) *Stiretrus anchorago.* F) *Zicrona caerulea.*

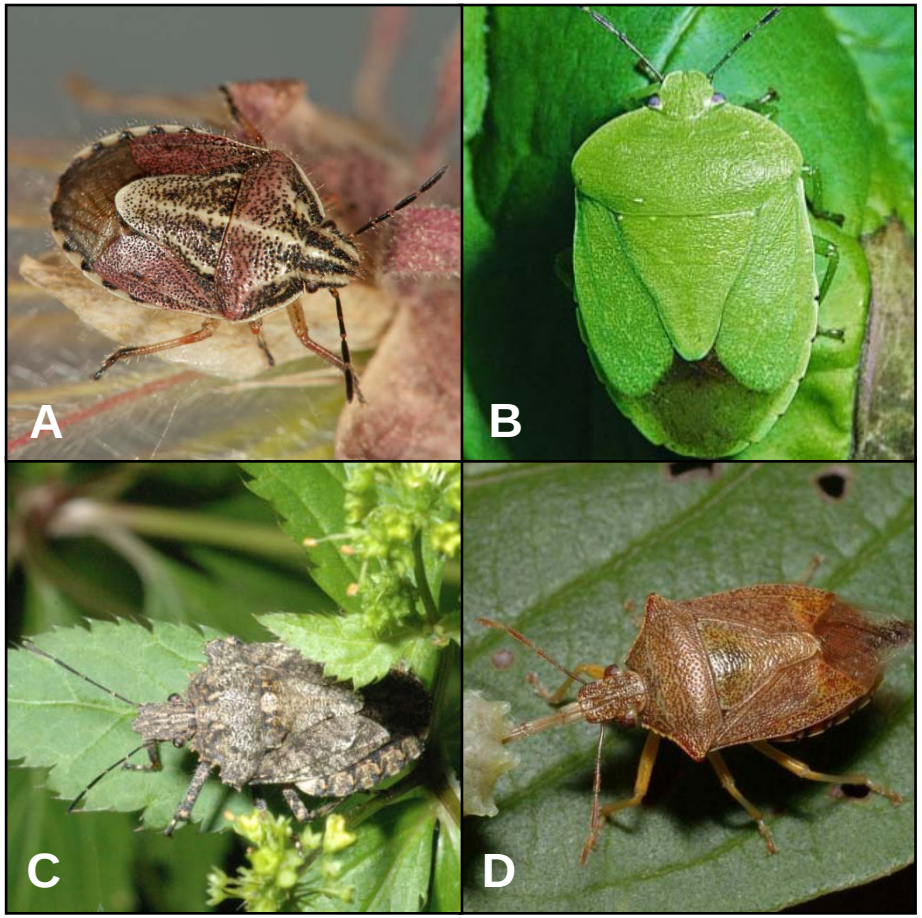

Fig. 2 A-D. A) *Trichopepla atricornis.* B) *Chinavia pensylvanica.* C) *Parabrochymena arborea.* D) *Podisus brevispinus.*

1. Black/brown with distinctively coloured ivory, red, or orange markings; or body metallic blue (Fig. 1 A-F). Venter dark, sometimes with coloured markings.

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1'. Colour brown, tan, yellow, or green; usually without distinctive brightly coloured ivory, red, or orange markings (Fig. 2 A-D) but if with indistinct dorsal markings, then venter of abdomen pale.

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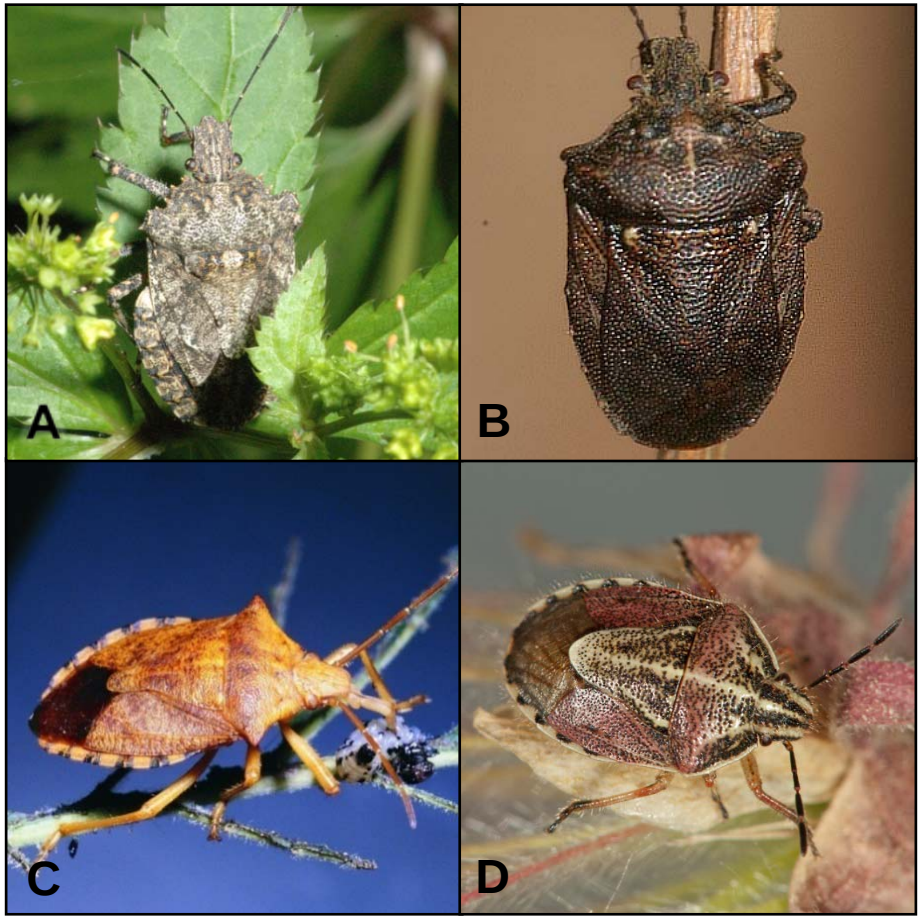

Fig. 3 A-D. A) *Parabrochymena arborea*. B) *Amaurochrous cinctipes*. C) *Apoecilus bracteatus*. D) *Trichopepla atricornis.*

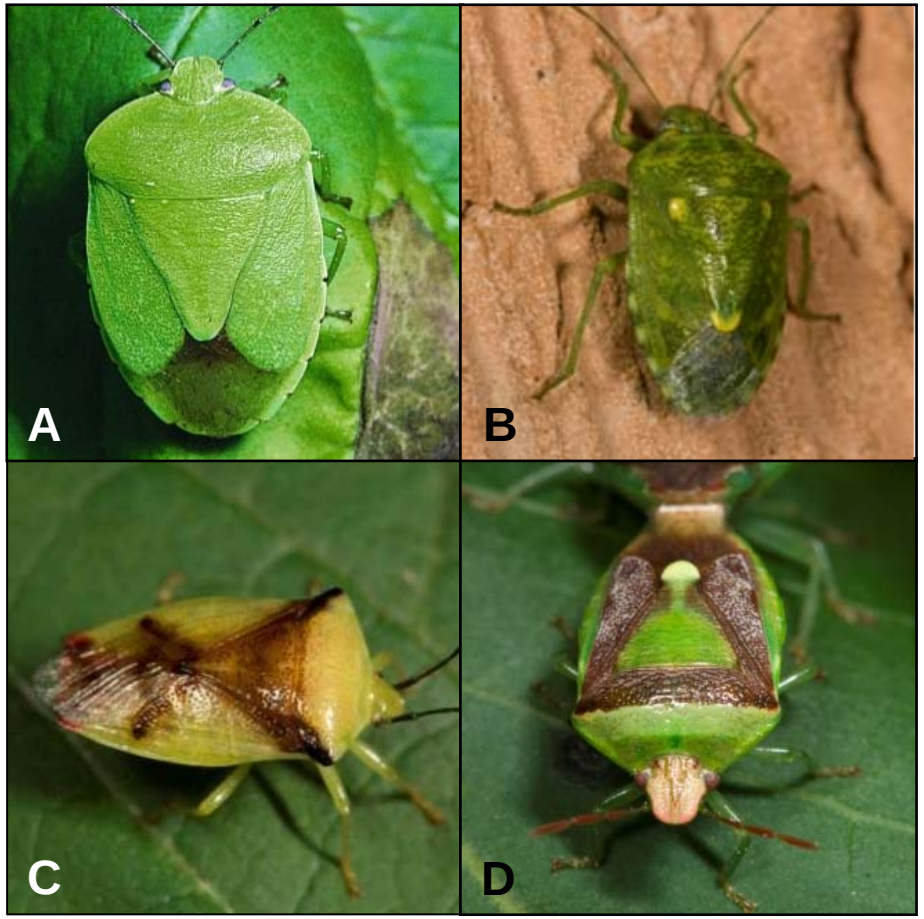

Fig. 4 A-D. A) *Chinavia pensylvanica*. B) *Banasa euchlora*, C) *Elasmostethus cruciatus.* D) *Banasa dimidiata.*

2. Colour entirely brown, tan or greyish brown, occasionally with dark punctures (Fig. 3 A-D).

3

2'. Colour entirely green or mostly green with ivory, red, or brown markings (Fig. 4 A, B, D); if yellow-green then with distinct red to black markings (Fig. 4 C).

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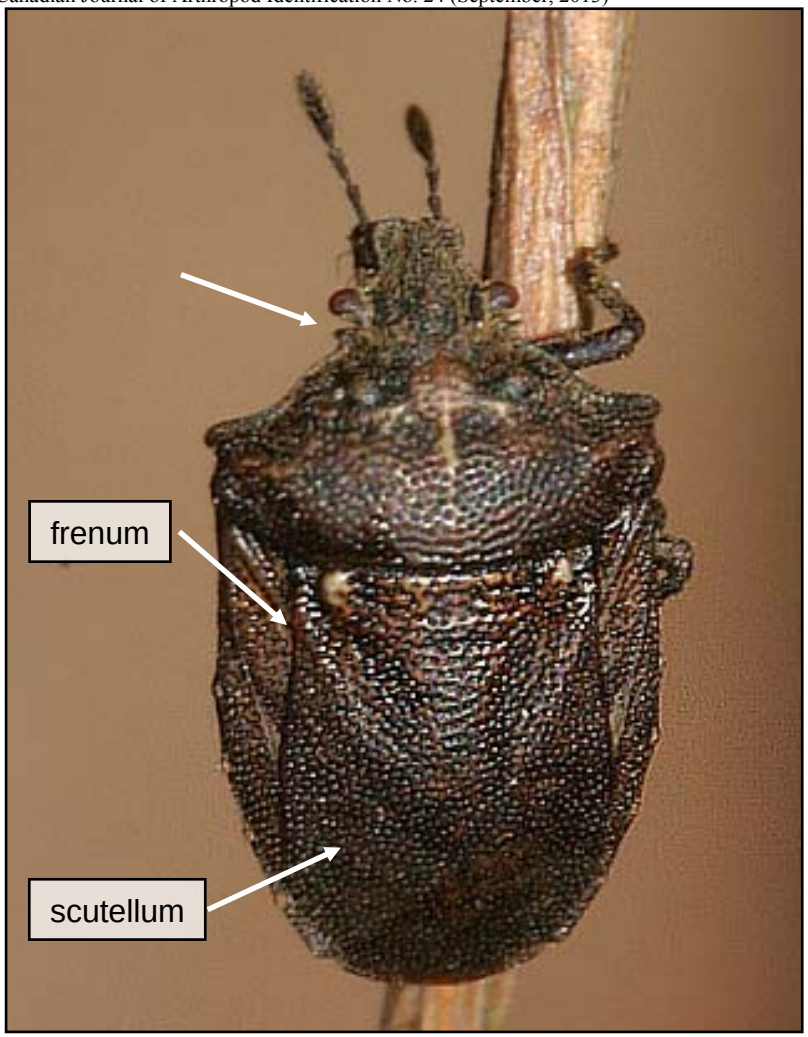

Fig. 5. *Amaurochrous cinctipes.*

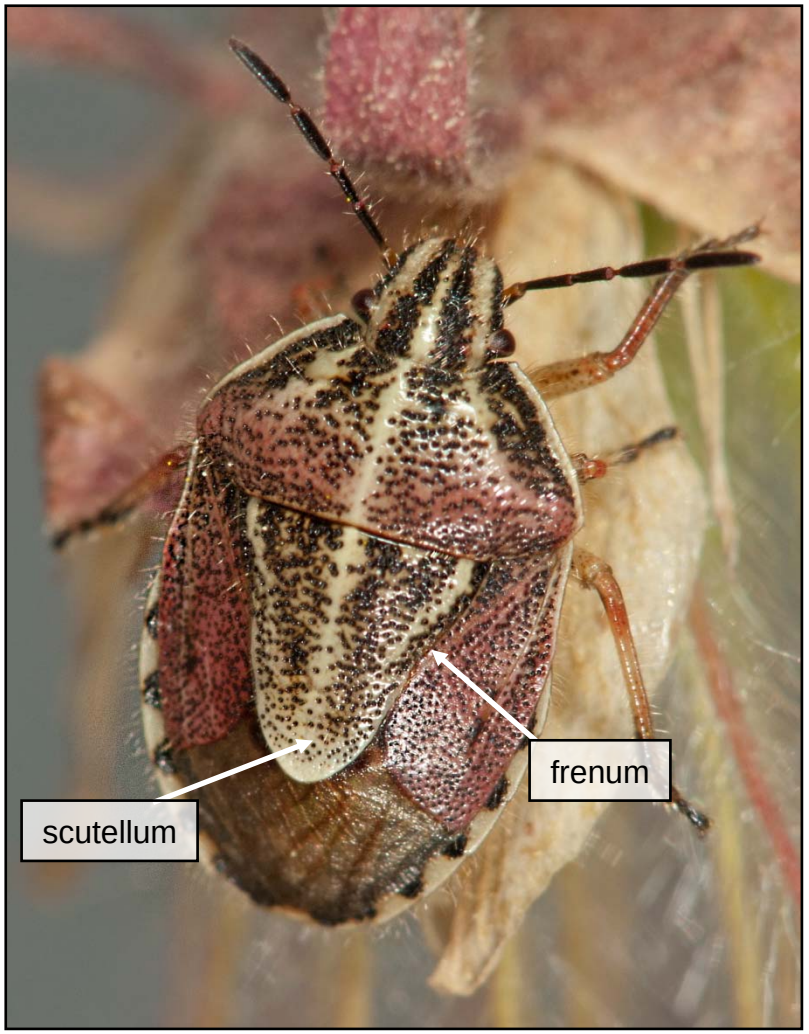

Fig. 6. *Trichopepla atricornis.*

3. Scutellum U-shaped, almost reaching apex of abdomen (Fig. 5). Frenum (ridge at basal corner of scutellum) less than one-fourth as long as scutellum. Anterolateral angle of pronotum with a distinctive tooth.

55

3'. Scutellum smaller and usually subtriangular (Fig. 6). Frenum at least one-fourth as long as scutellum. Anterolateral angle of pronotum various but never as is Fig. 5.

4

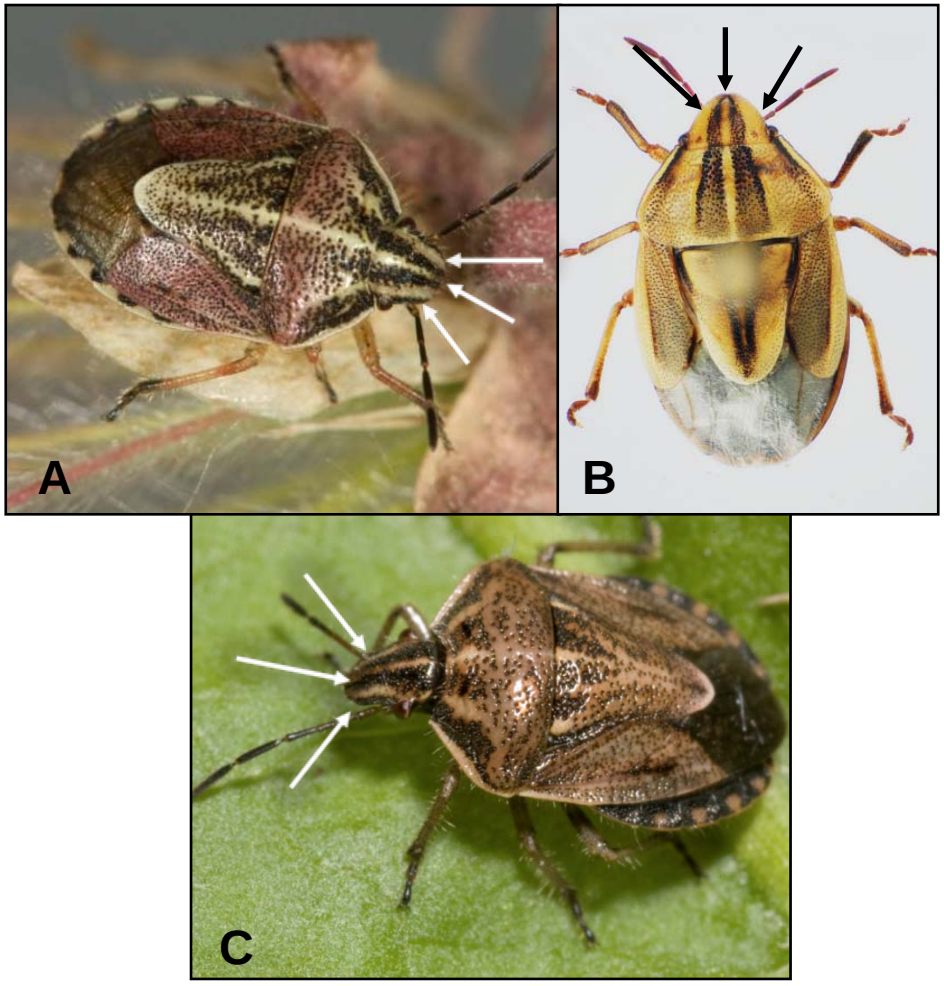

Fig. 7 A-C. A) *Trichopepla atricornis*. B) *Aelia americana*. C) *Trichopepla semivittata.*

4. Head with three distinctive pale longitudinal stripes (Fig. 7 A-C).

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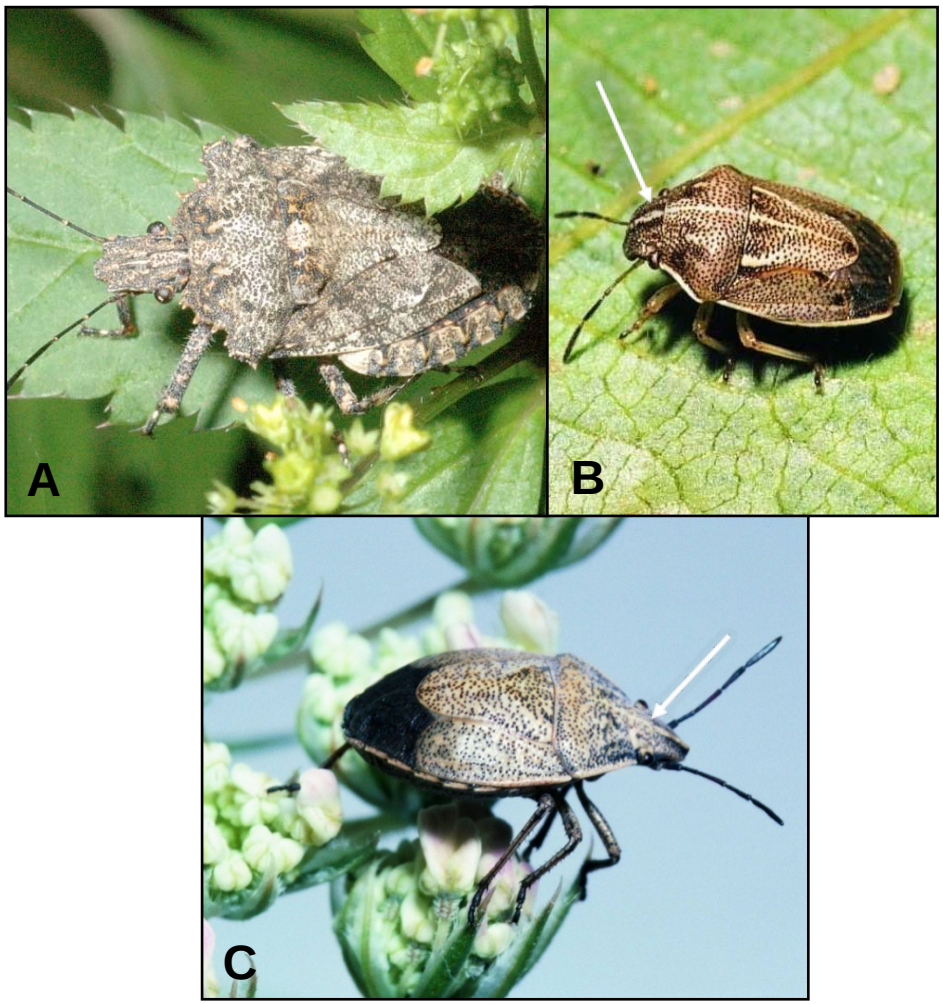

Fig. 8 A-C. A) *Parabrochymena arborea.* B) *Neottiglossa undata.* C) *Coenus delius.*

4'. Head with at most one median pale longitudinal stripe (Fig. 8 A-C).

7

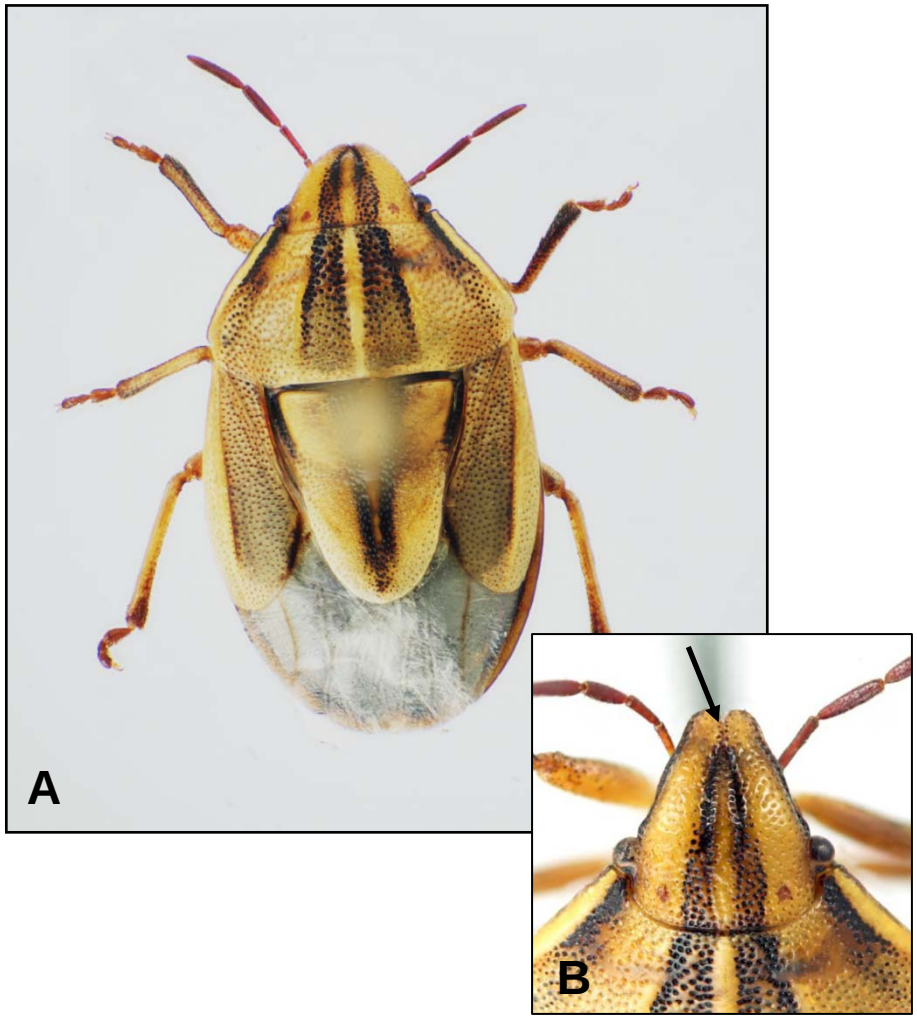

Fig. 9 A-B. *Aelia americana*: A) dorsal; B) head.

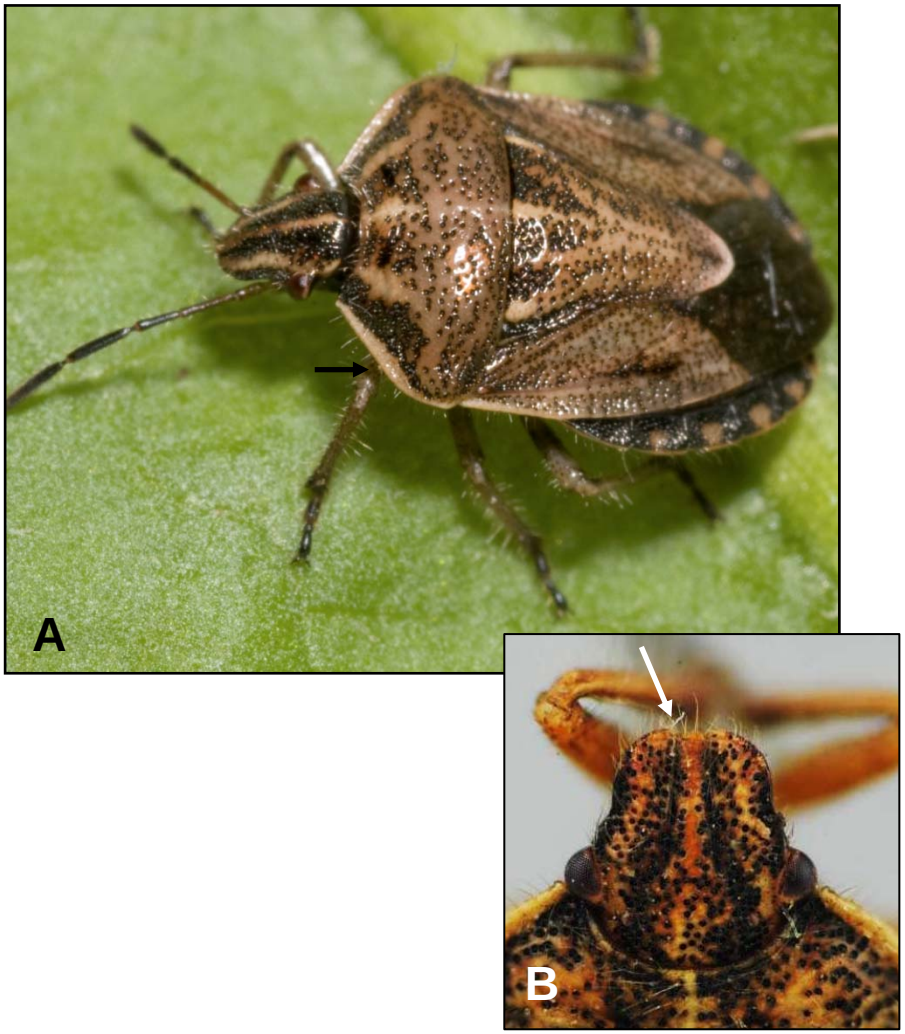

Fig. 10 A-B. *Trichopepla semivittata.* A) dorsal, B) head.

5. Body bare, without distinct hairs or setae (Fig. 9 A). Juga longer than tylus and broadly touching in front of tylus (Fig. 9 B). Length 7.0-9.0 mm.

***Aelia americana* Dallas**

5'. Body covered with fine but distinctive setae or hairs (Fig. 10 A). Juga subequal in length to tylus (Fig. 10 B). Length 5.5-8.0 mm.

6

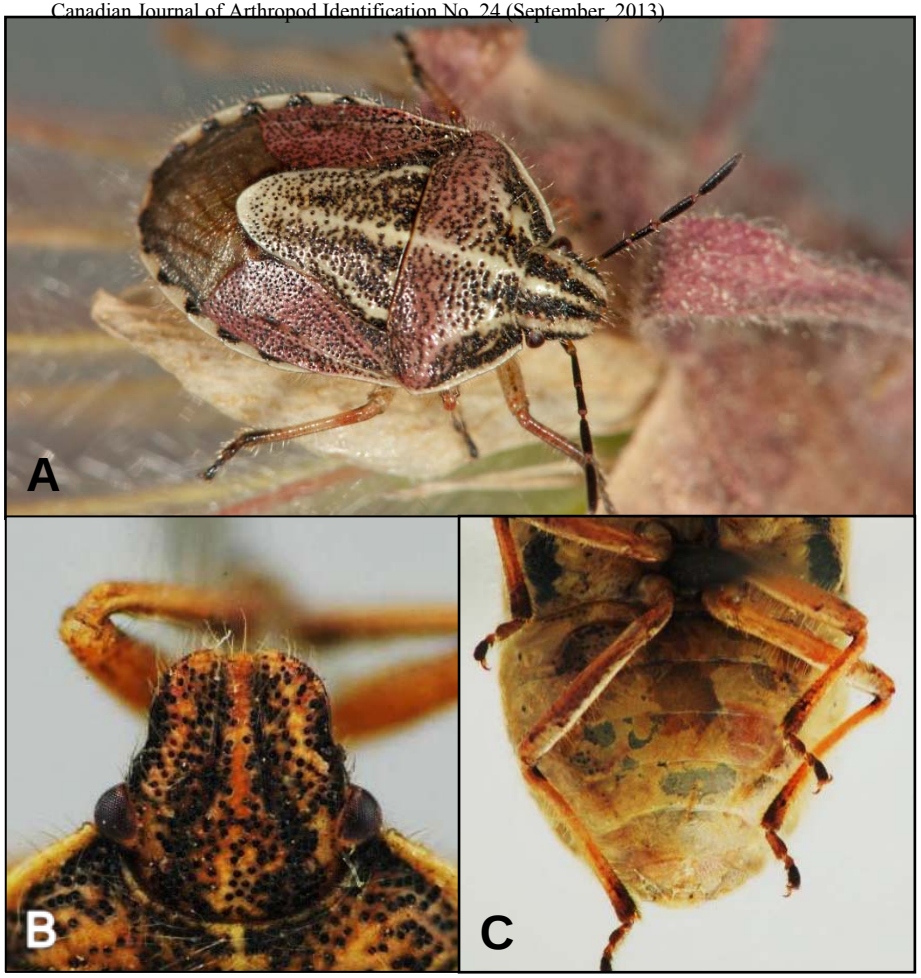

Fig. 11 A-C. *Trichopepla atricornis*: A) dorsal; B) head; C) abdomen, ventral.

6. Antenna completely black except pale basal segment (Fig. 11 A). Head with sides subparallel, apex broadly rounded (Fig. 11 B). Abdominal venter unmarked or irregularly marked (Fig. 11 C). Length 6.0-8.0 mm.

***Trichopepla atricornis* Stål**

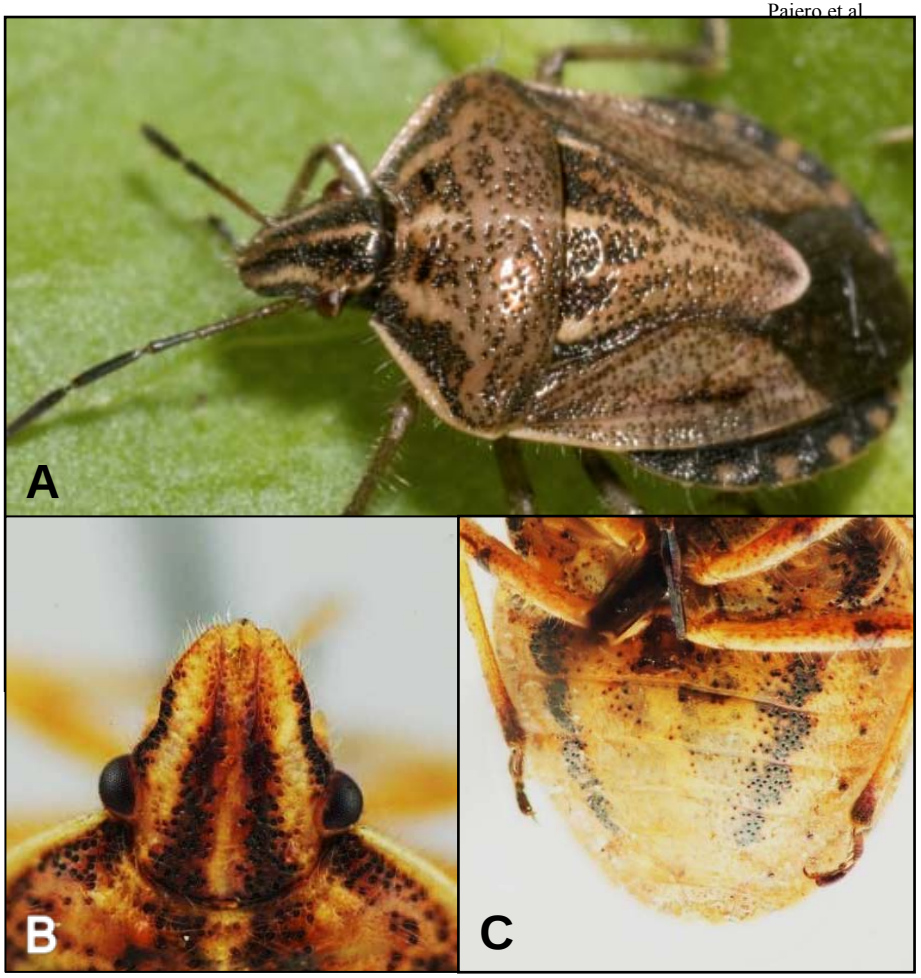

Fig. 12 A-C. *Trichopepla semivittata*: A) dorsal; B) head; C) abdomen, ventral.

6'. Antenna reddish-brown with segments 4 and 5 darker (Fig. 12 A). Head tapered at front, apex narrowly rounded (Fig. 12 B). Abdominal venter with a longitudinal dark stripe on either side of middle (Fig. 12 C). Length 5.5-8.0 mm.

***Trichopepla semivittata* (Say)**

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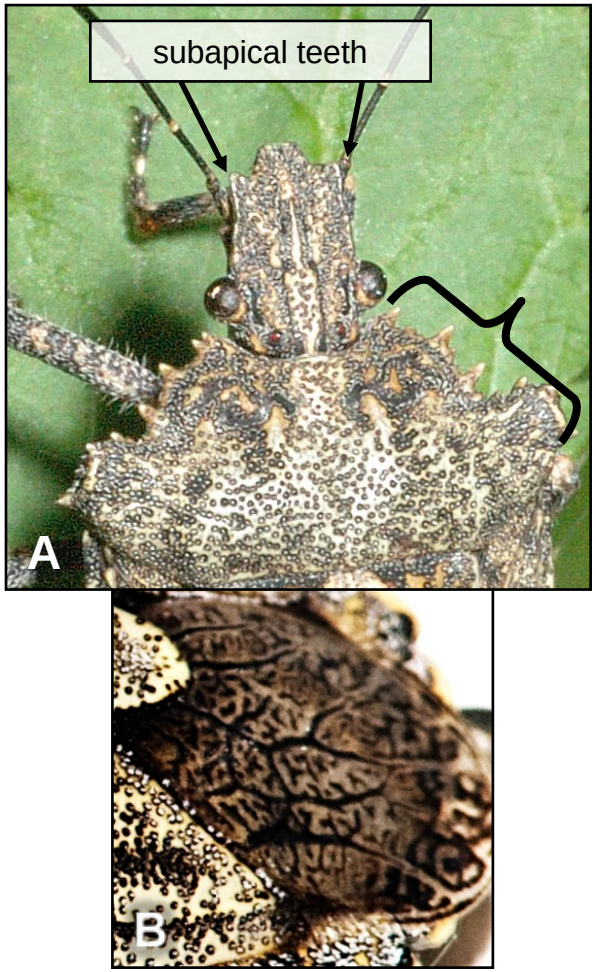

Fig. 13 A-B. A) *Parabrochymena arborea* , dorsal. B) *Brochymena quadripustulata*, wing membrane.

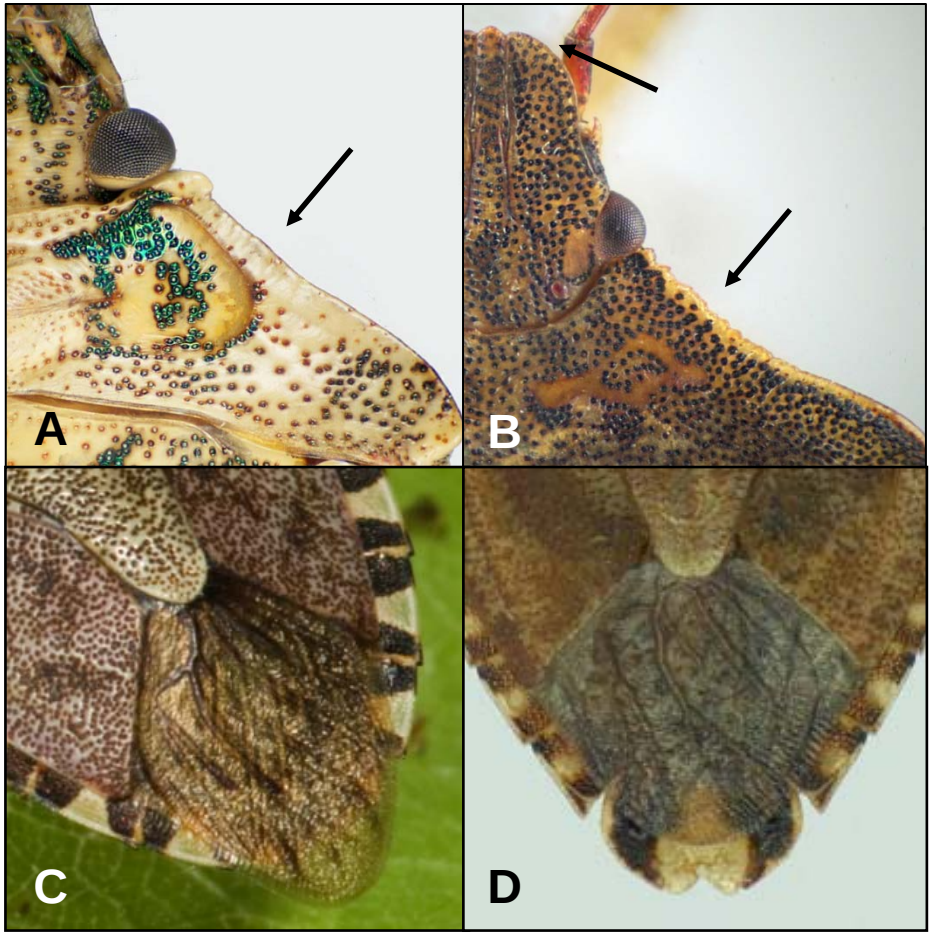

Fig. 14 A-D. A) *Halyomorpha halys*, anterolateral pronotal margin. B) *Euschistus variolarius*, anterolateral pronotal margin. C) *H.* halys, wing membrane. D) *Eushistus politus*, wing membrane.

7. Anterolateral pronotal margin strongly toothed (Fig. 13 A). Juga with subapical tooth (Fig. 13 A). Wing membrane reticulate-patterned (Fig. 13 B).

8

7'. Anterolateral pronotal margin smooth (Fig. 14 A) or crenulate (Fig. 14 B). Juga without subapical tooth (Fig. 14 B). Wing membrane variable but never reticulate-patterned (Fig. 14 C-D) except in *Hymenarcys nervosa,* which has a smooth anterolateral pronotal margin.

9

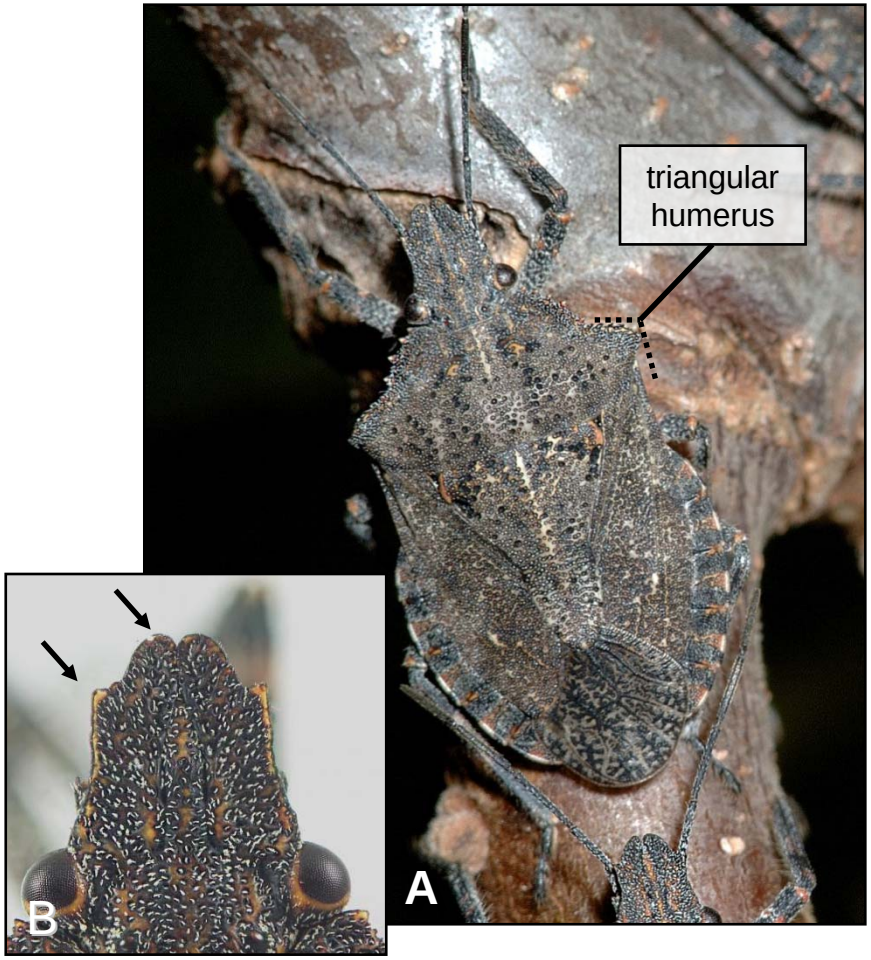

Fig. 15 A-B. *Brochymena quadripustulata*: A) dorsal; B) head.

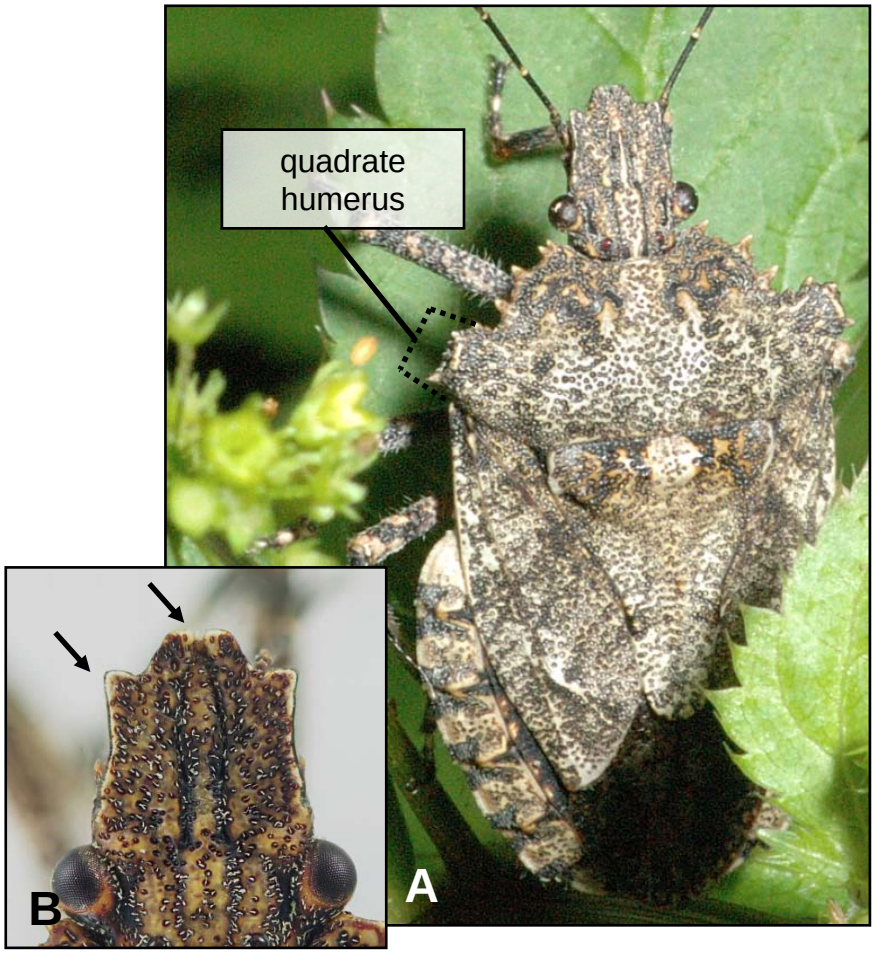

Fig. 16 A-B. *Parabrochymena arborea*: A) dorsal; B) head.

8. Humerus triangular (Fig. 15 A). Juga distinctly longer than tylus and sometimes touching or overlapping; juga with a distinctly shorter and less pointed subapical tooth (Fig. 15 B) than that of *Parabrochymena arborea*. Length 10.0-18.0 mm.

***Brochymena quadripustulata* (Fabricius)**

8'. Humerus quadrate (Fig. 16 A). Juga only slightly longer than tylus, with a distinctly longer and more pointed subapical tooth (Fig. 16 B) than that of *Brochymena quadripustulata.* Length 12.0-17.0 mm.

***Parabrochymena arborea* (Say)**

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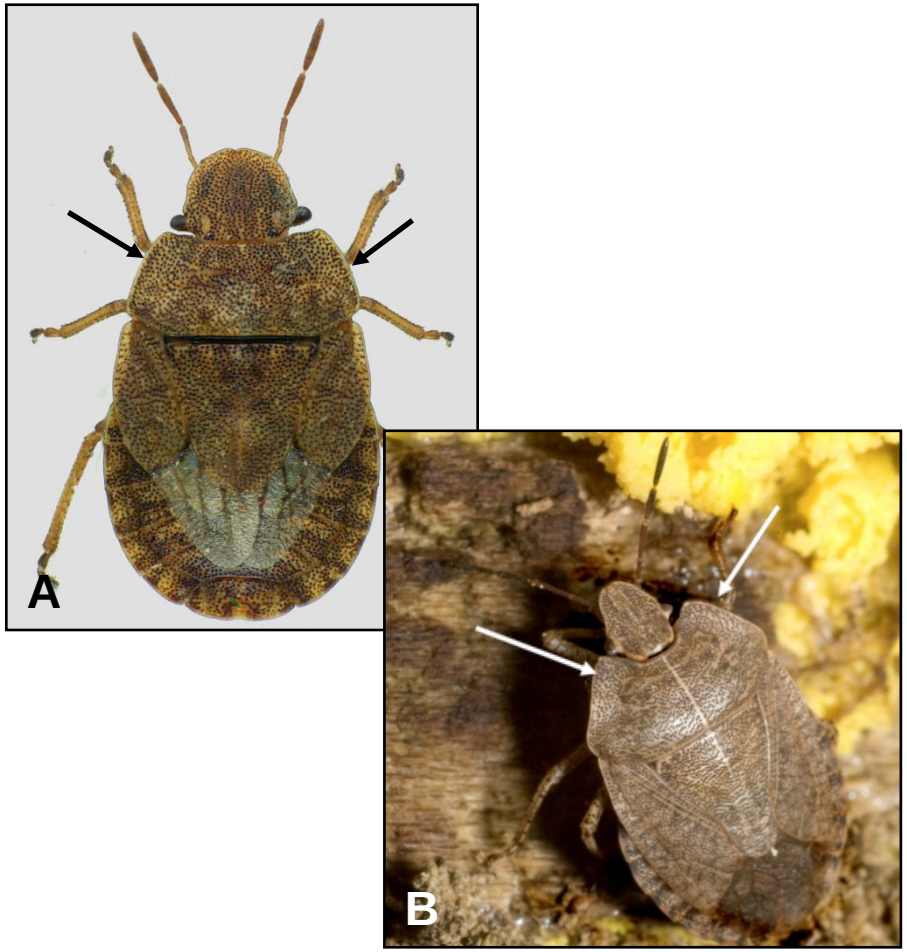

Fig. 17 A-B. A) *Sciocoris microphthalmus.* B) *Menecles insertus*.

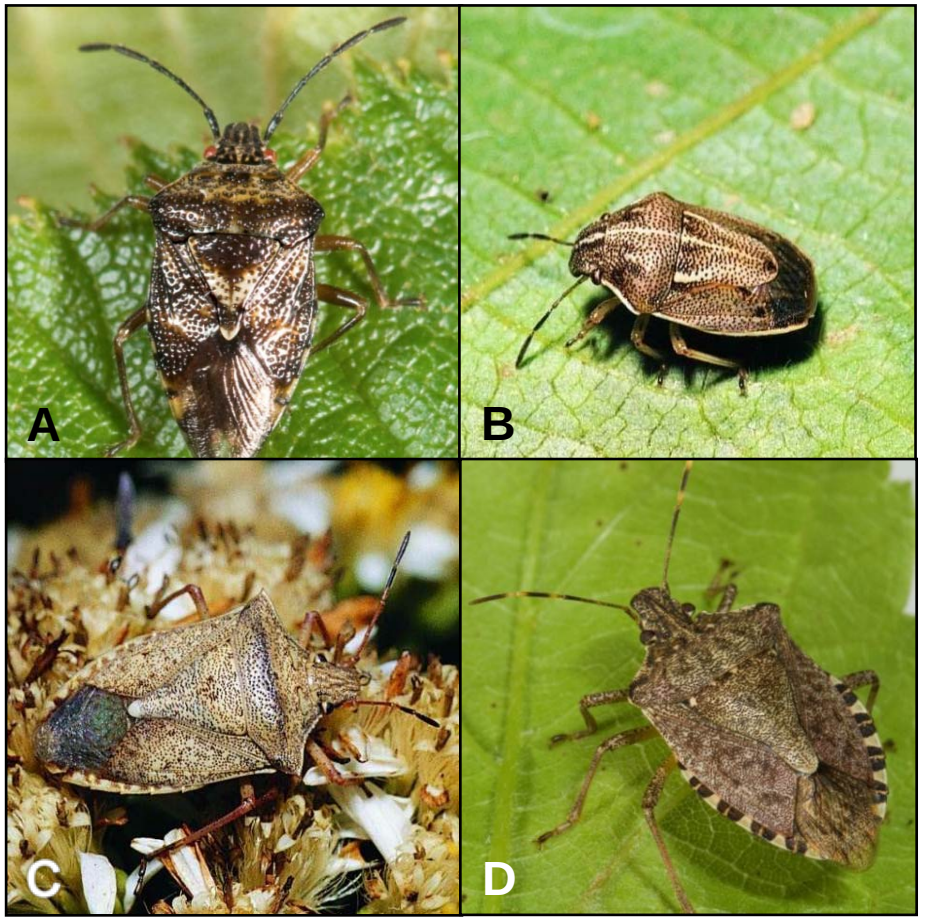

Fig. 18 A-D. A) *Elasmucha lateralis.* B) *Neottiglossa undata.* C) *Euschistus variolarius.* D) *Halyomorpha halys.*

9. Body flattened (Fig. 17 A), or with anterolateral pronotal margin distinctly explanate and projecting forward so head appears “sunken” into pronotum. (Fig. 17 B).

10

9’. Body not flattened (Fig. 18 A-D). Anterolateral pronotal margin not distinctly explanate. Body shape otherwise variable.

11

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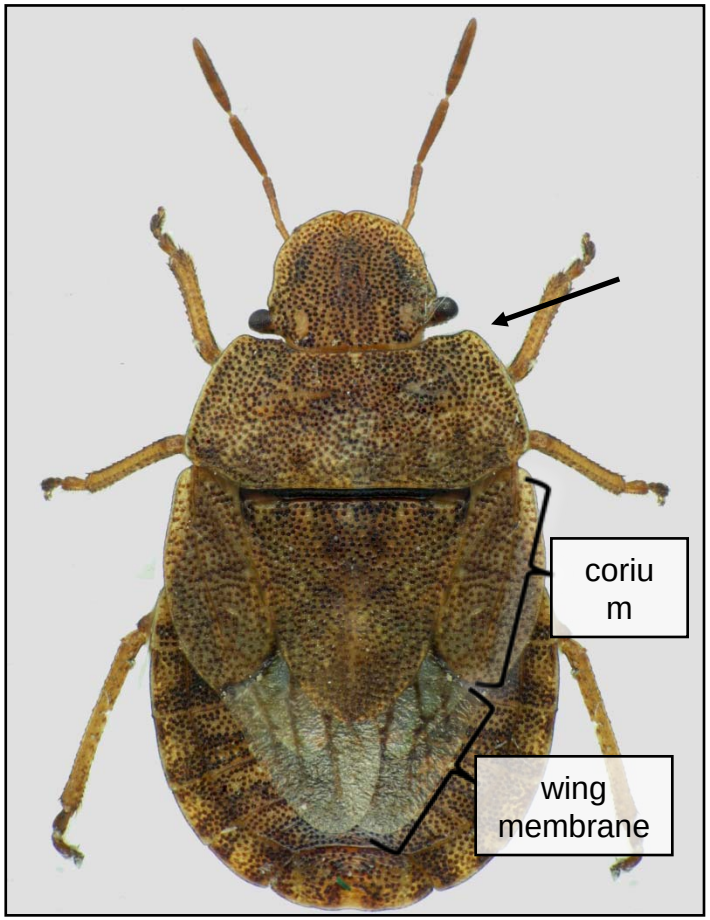

Fig. 19. *Sciocoris microphthalmus*.

Fig. 20. *Menecles insertus*.

10. Body teardrop-shaped, strongly flattened with anterior margin of pronotum almost straight (Fig. 19). Anterolateral pronotal margin not extending forward; head does not appear sucken into pronotum. Corium (non-membranous section of wing) as long as or shorter than wing membrane. Pronotum without pale median ridge. Length 5.0-7.0 mm.

***Sciocoris microphthalmus* Flor**

10'. Body broad and oval, not strongly flattened (Fig. 20). Anterolateral pronotal margin broadly explanate, projecting forward to eye; head appears "sunken" into pronotum. Corium longer than membrane. Pronotum and anterior half of scutellum with pale ridge along middle. Length 12.0-14.0 mm.

***Menecles insertus* (Say)**

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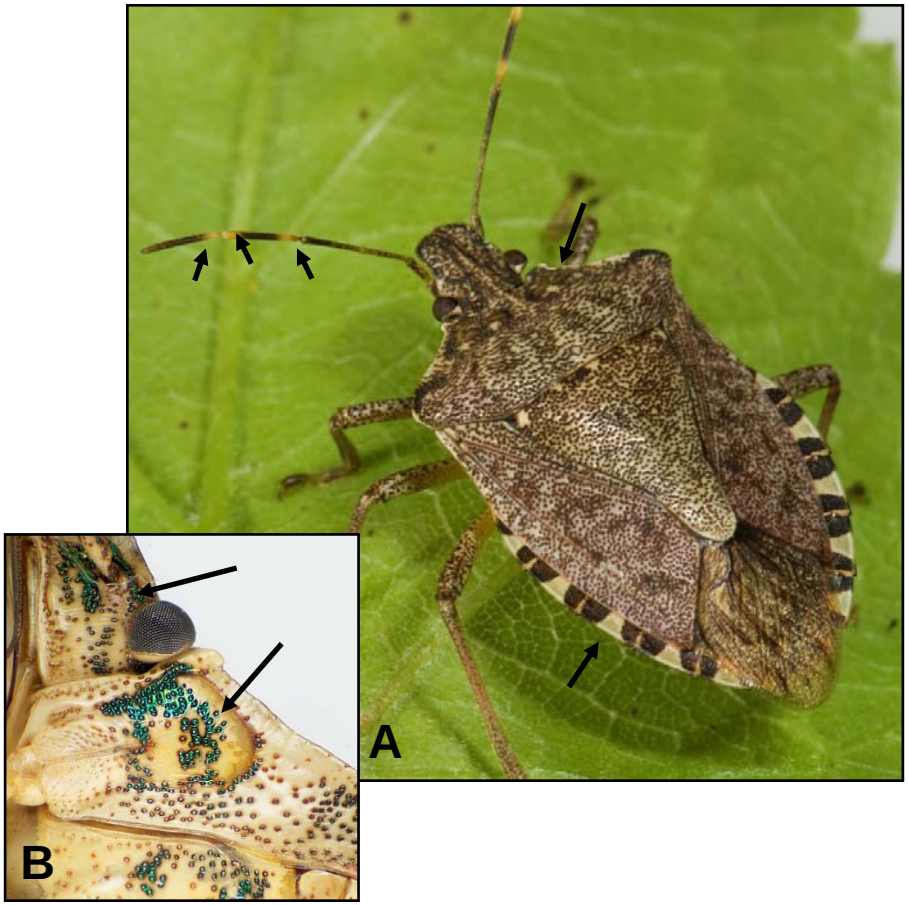

Fig. 21 A-B. *Halyomorpha halys:* A) dorsal; B) venter.

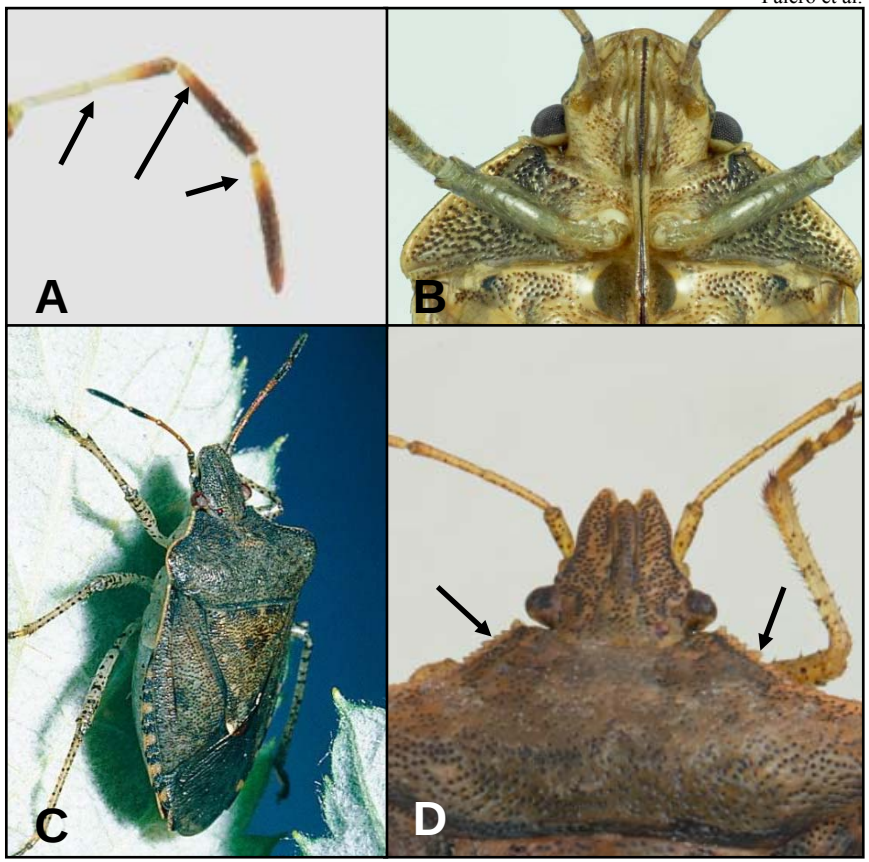

Fig. 22 A-D. A) *Banasa sordida,* antenna. B) *B. sordida,* venter. C) *Euschistus tristigmus luridus.* D) *E. servus euschistoides*, head and pronotum, dorsal.

11. Base of antennal segment 5 and apex and base of segment 4 pale (Fig. 21 A). Connexivum with white and black bands (Fig. 21 A). Anterolateral pronotal margin smooth (Fig. 21 A). Venter of head and thorax with clusters of dark (metallic green under bright light) punctures (Fig. 21 B). Length 12.0-17.0 mm.

***Halyomorpha halys* (Stål)**

11'. Antennal segments 4 and 5 either completely dark or pale only at base (Fig. 22 A, C). Connexivum patterning variable, occasionally banded (Fig. 22 C). Anterolateral pronotal margin smooth or crenulate (Fig. 22 D). Venter of head and thorax occasionally with dark punctures but these never clustered or metallic green (Fig. 22 B). Length less than 15.0 mm.

12

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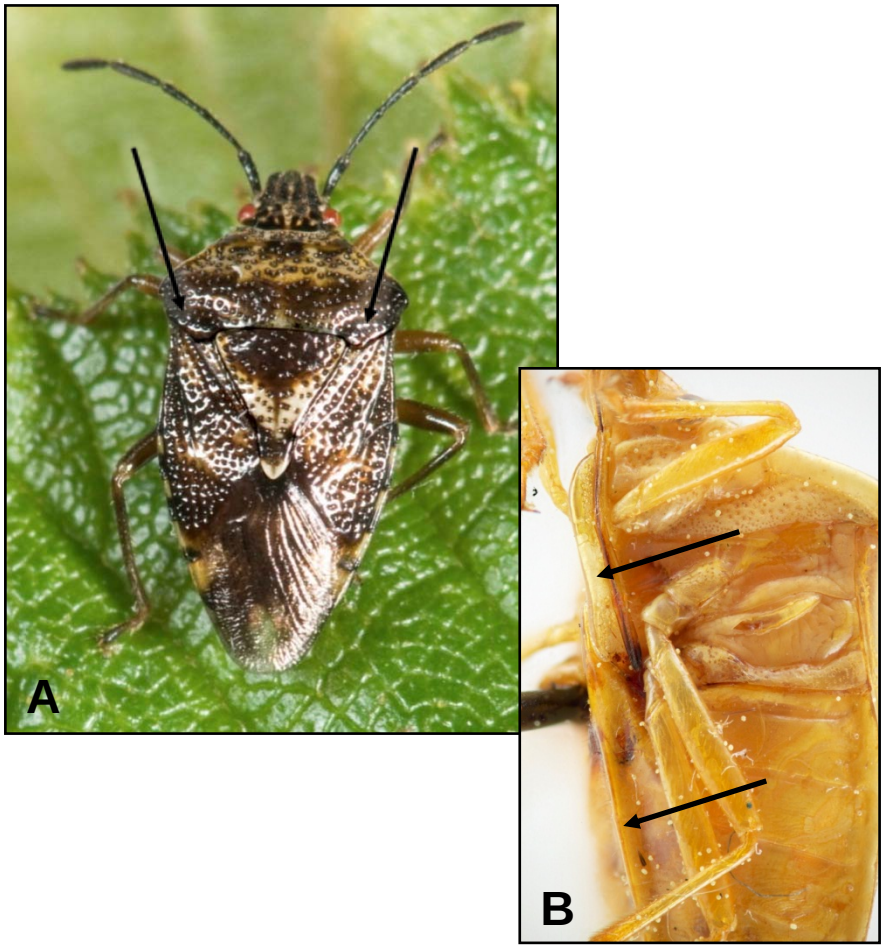

Fig. 23. *Elasmucha lateralis*: A) dorsal; B) ventral-lateral.

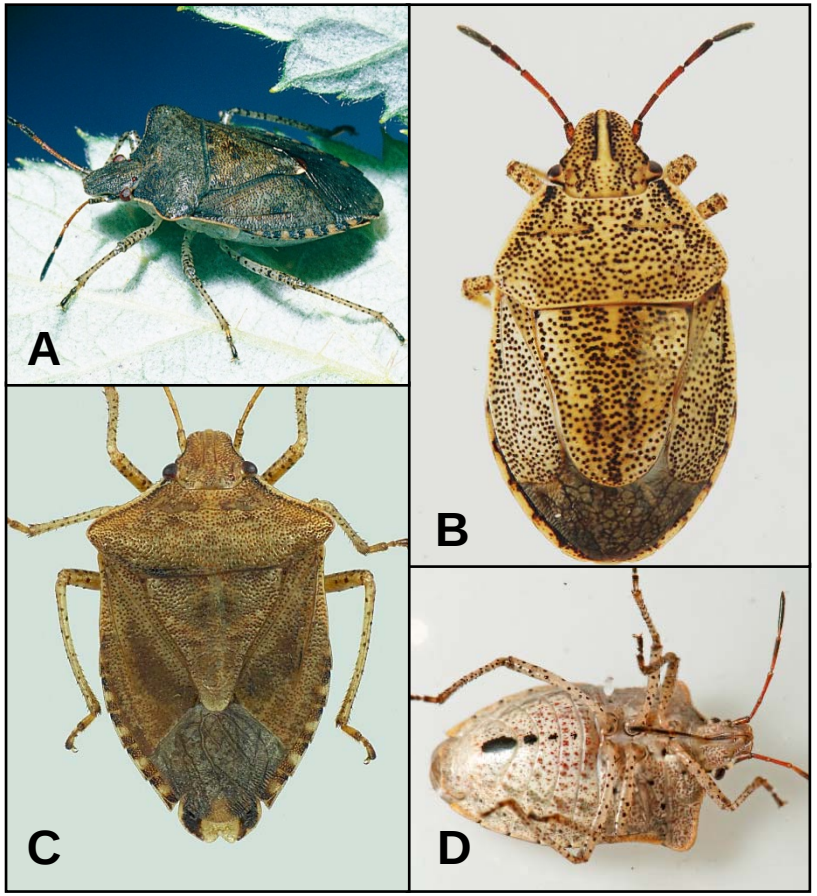

Fig. 24 A-D. A) *Euschistus tristigmus luridus.* B) *Coenus delius*. C) *E. politus*. D) *E. tristigmus luridus.*

12. Hind margin of pronotum with a lobe on each side of middle (produced inner-posterior angles, Fig. 23 A). Abdominal venter with median ridge (Fig. 23 B). Thoracic venter with longitudinal ridge projecting between coxae (Fig. 23 B). Colour pale with dark mottled brown markings. Length 6.5-9.0 mm.

***Elasmucha lateralis* (Say)**

12'. Hind margin of pronotum without a lobe on each side of middle (Fig. 24 A-C). Abdominal venter without median ridge (Fig. 24 D). Thoracic venter without projecting ridge (Fig. 24 D). Colour variable.

13

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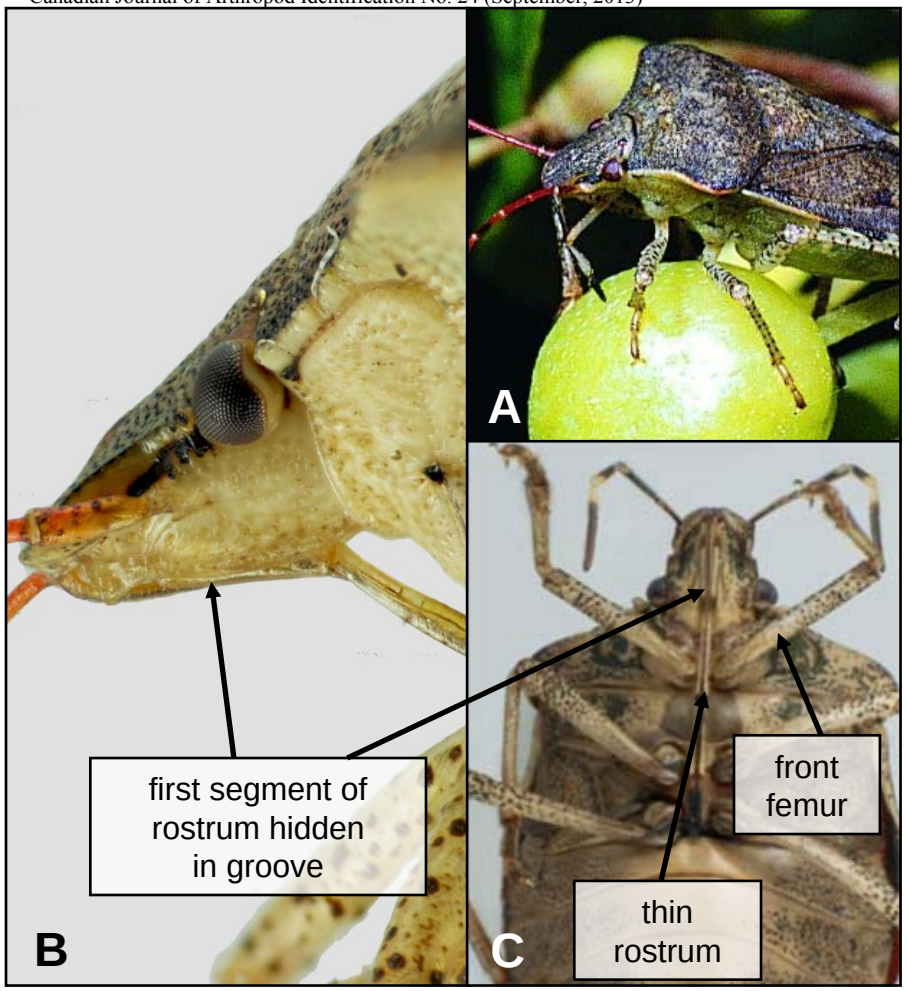

Fig. 25 A-C. A) *Euschistus tristigmus luridus,* lateral. B) *E. tristigmus luridus,* lateral. C) *Halyomorpha halys,* ventral.

13. Plant-feeding bugs (Fig. 25 A-C); rostrum slender (narrower than front femur), usually held tightly to thoracic venter. First segment of rostrum lying within groove.

21

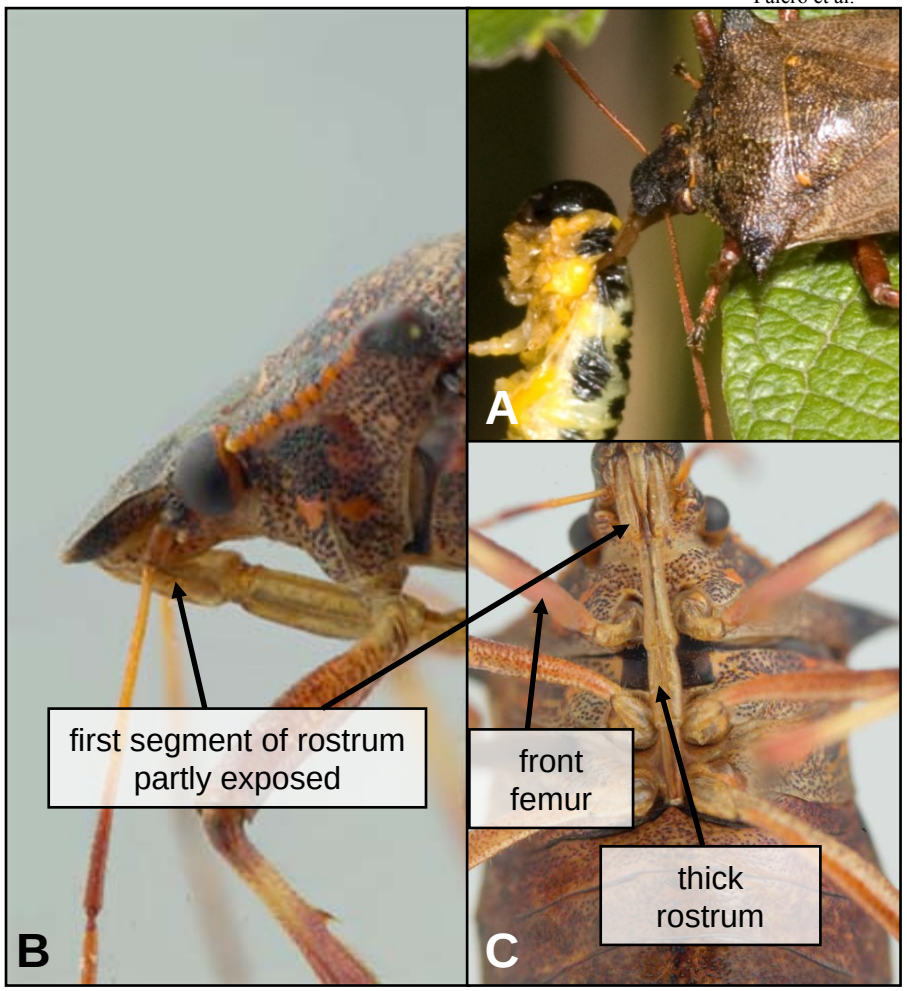

Fig. 26 A-C. *Picromerus bidens:* A) dorsal; B) lateral; C) ventral.

13'. Predaceous bugs (Fig. 26 A-C); rostrum thick (as thick as front femur), directed away from head, not held tightly to thoracic venter. First segment of rostrum with only base hidden in groove.

14

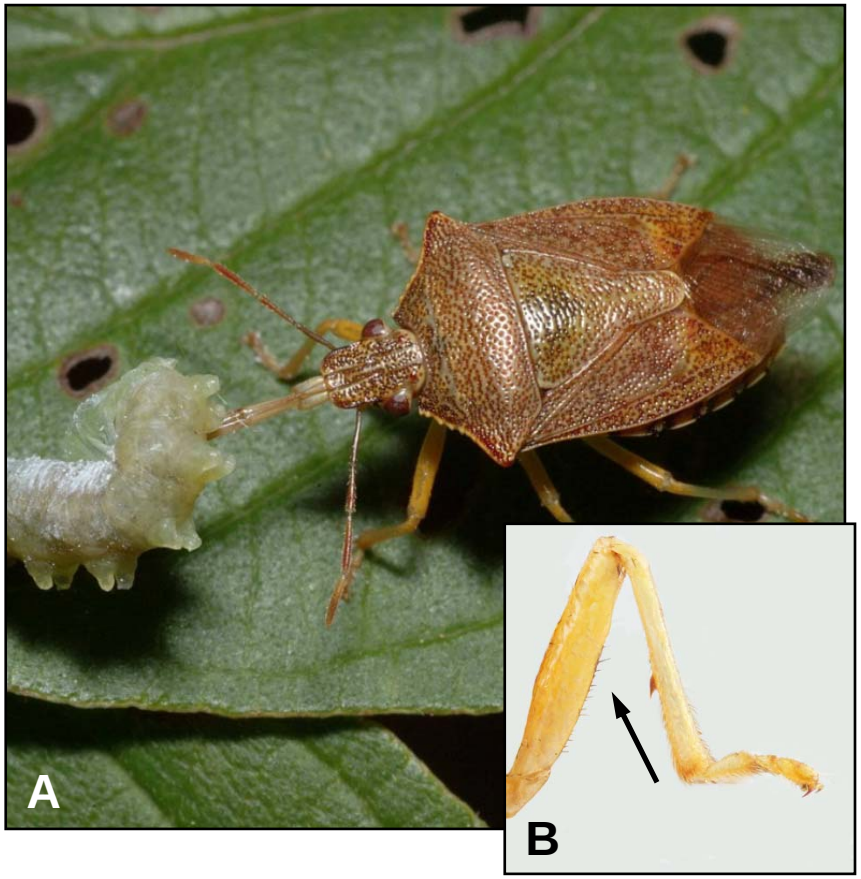

Fig. 27 A-B *Podisus brevispinus*: A) dorsal; B) front leg.

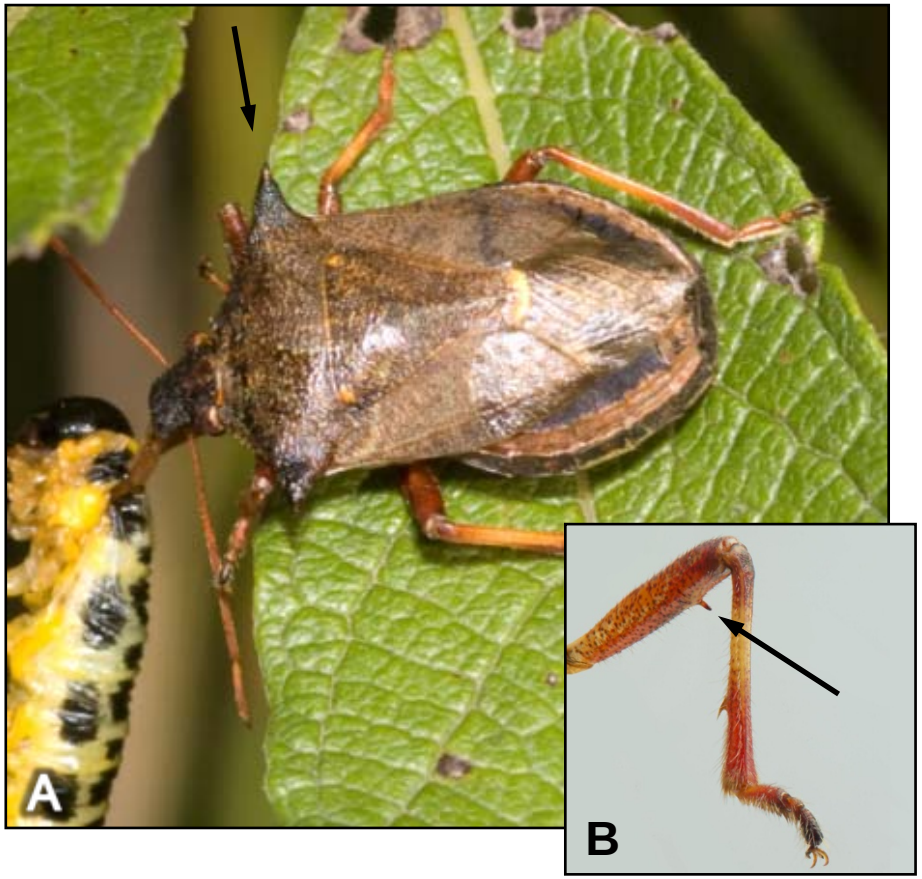

Fig. 28 A-B. *Picromerus bidens*: A) dorsal; B) front leg.

14. Front femur unarmed ventrally (Fig. 27 B). Humerus rounded or spinose (Fig. 27 A) but never as prominently spinose as *Picromerus bidens.* Length variable.

15

14'. Front femur armed with a ventral spine distally (Fig. 28 B). Humerus acute, black, strongly spinose, and projecting outwards (Fig. 28 A). Length 11.0-14.0 mm.

***Picromerus bidens* (Linnaeus)**

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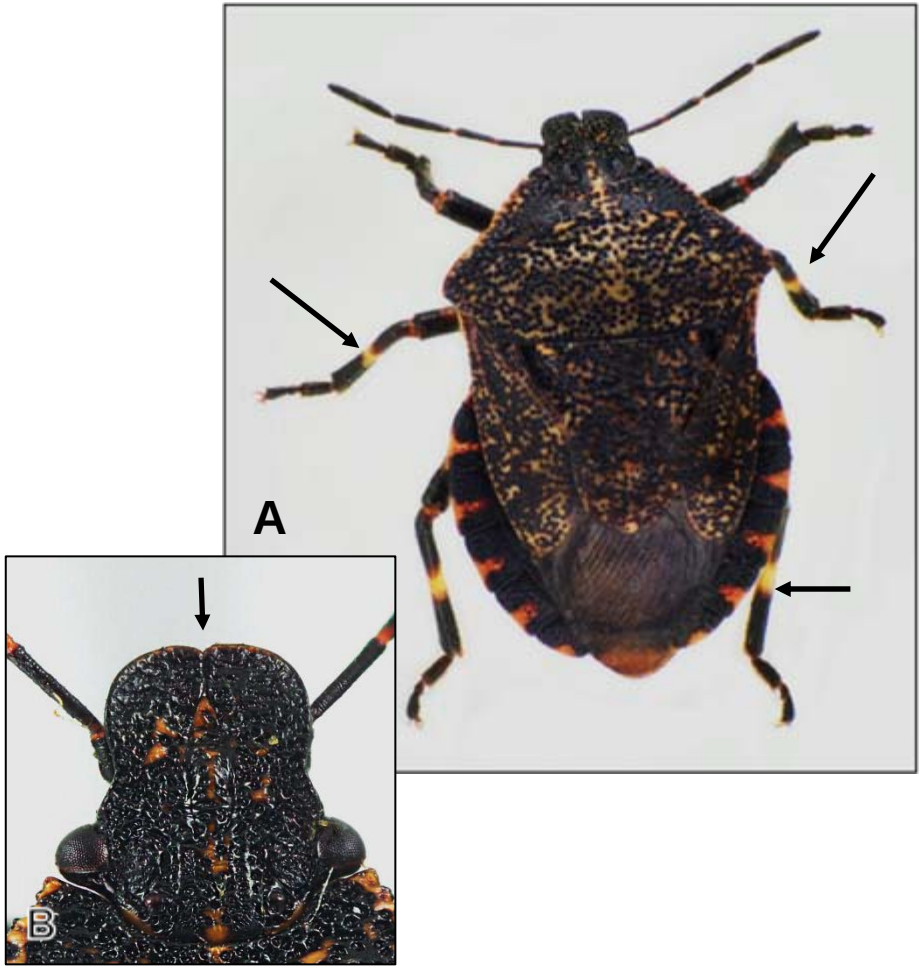

Fig. 29 A-B. *Rhacognathus americanus:* A) dorsal; B) lateral.

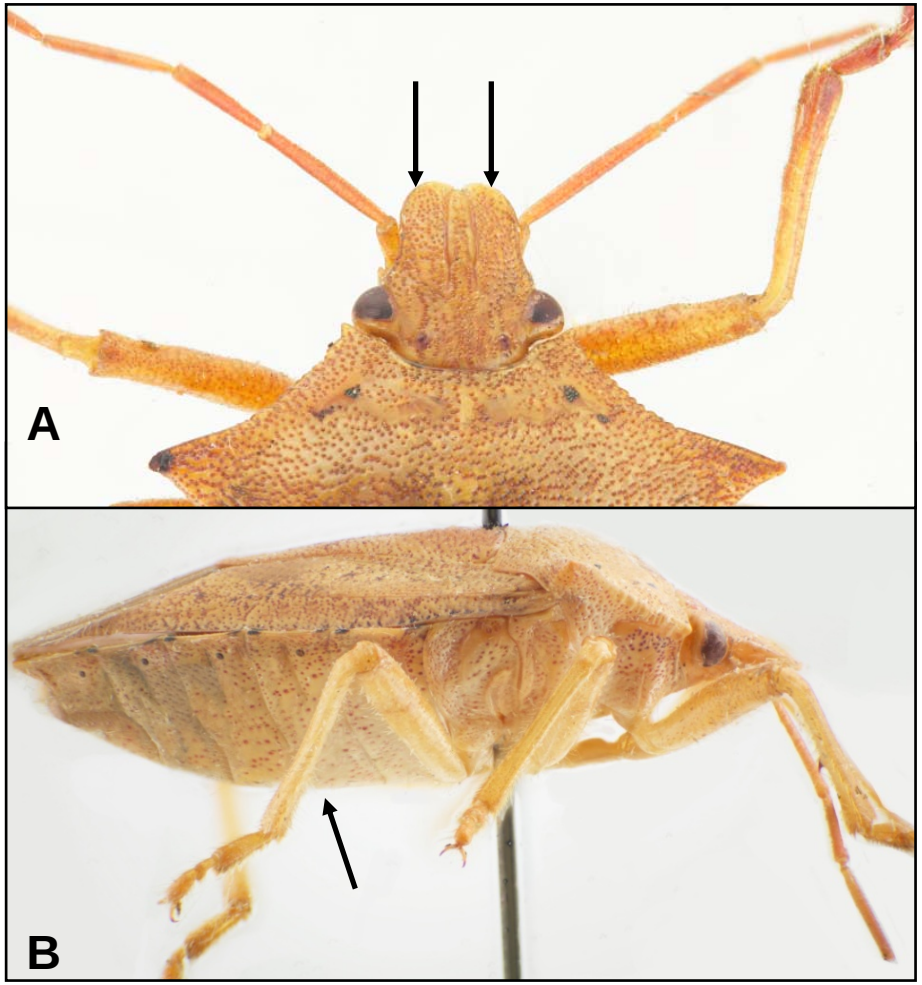

Fig. 30 A-B. *Apoecilus cynicus:* A) dorsal; B) lateral.

15. Body densely covered with dark punctures dorsally and ventrally; legs dark with pale band at mid-length of each tibia (Fig. 29 A). Juga much longer than tylus and touching in front (Fig. 29 B). Length 9.0-11.0 mm.

***Rhacognathus americanus* Stål**

15'. Body pale dorsally and ventrally, sometimes with dark spots but never densely covered with dark punctures; legs concolourous or with slightly darkened spots, but never with distinct pale banding (Fig. 30 B). Juga at most only slightly longer than tylus and never touching (Fig. 30 A). Length 7.5-20.0 mm.

16

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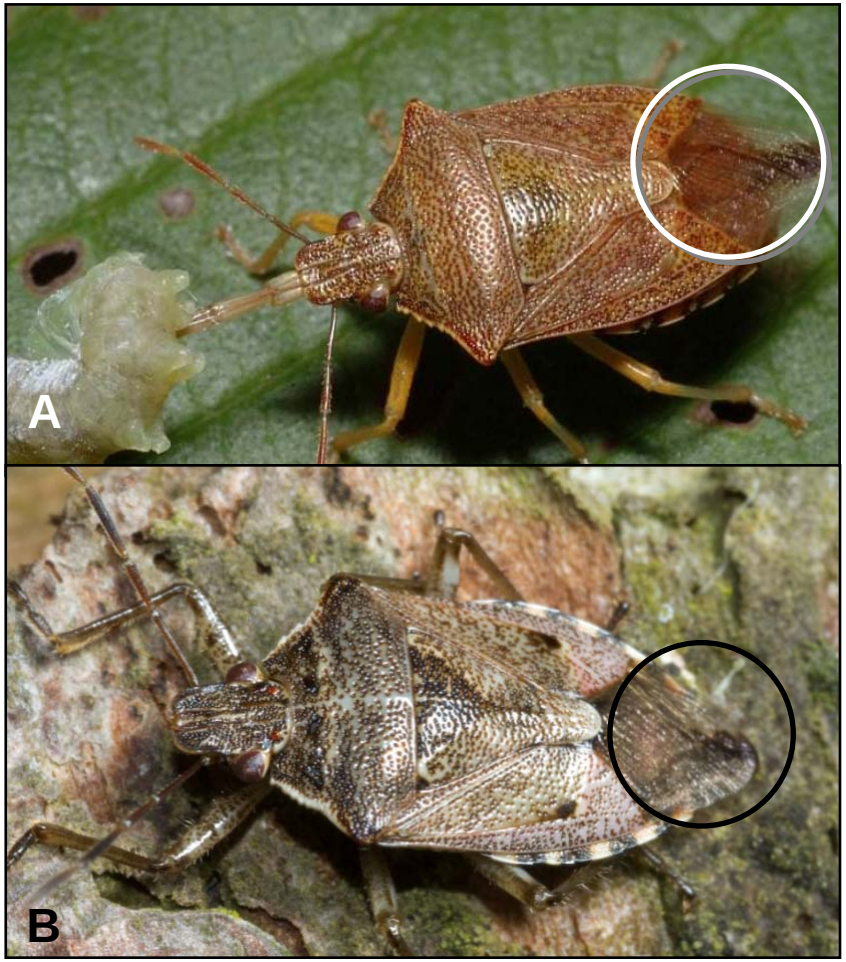

Fig. 31 A-B. A) *Podisus brevispinus*. B*) P. serieventris.*

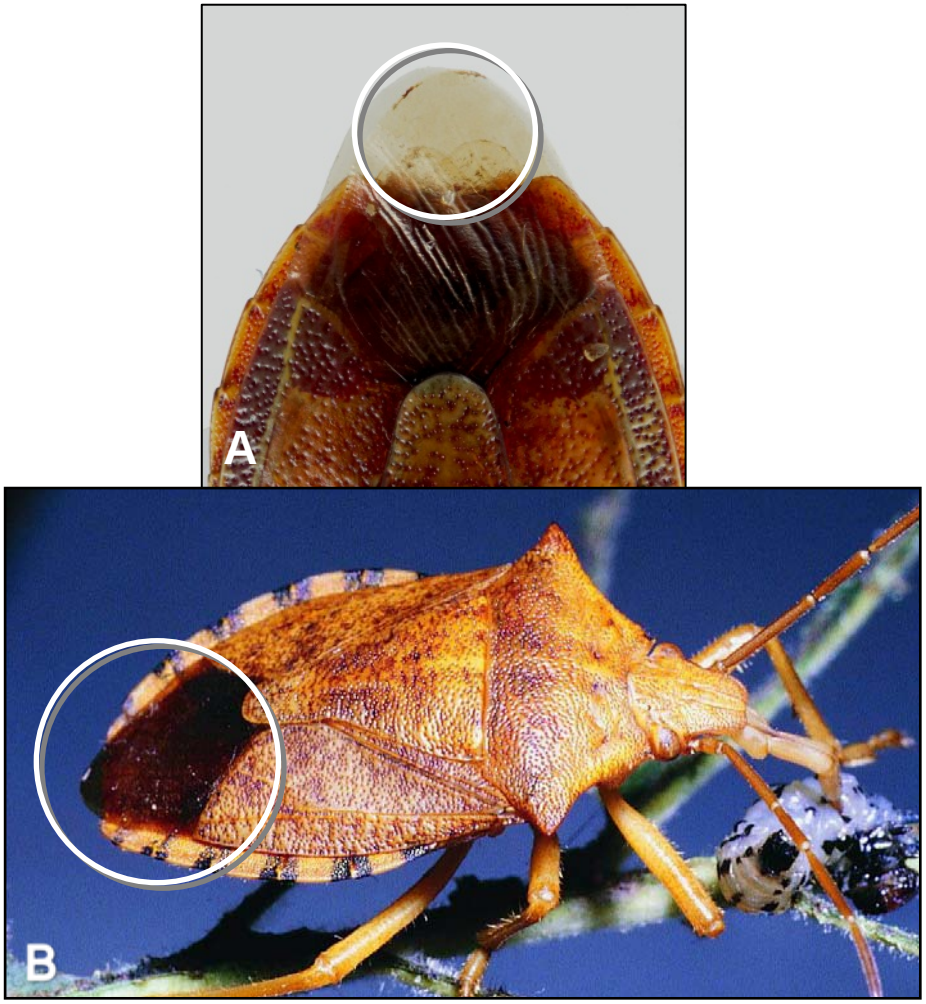

Fig. 32 A-B. A) *Podisus placidus*. B*) Apoecilus bracteatus.*

16. Wing membrane with distinct dark apical marking (Fig. 31 A-B).

17

16’. Wing membrane clear and without distinct apical markings, sometimes with light brown markings but these are never limited to apex of wing (Fig. 32 A-B).

20

doi:10.3752/cjai.2013.24

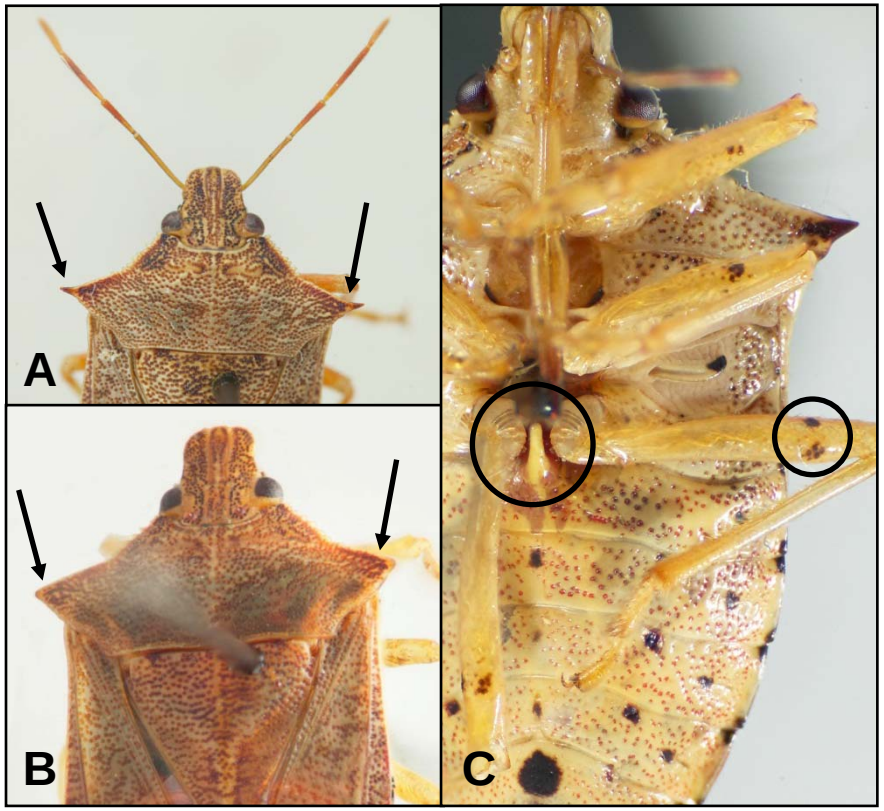

Fig. 33 A-C. *Podisus maculiventris:* A-B) head and pronotum, dorsal; C) hind legs, lateral.

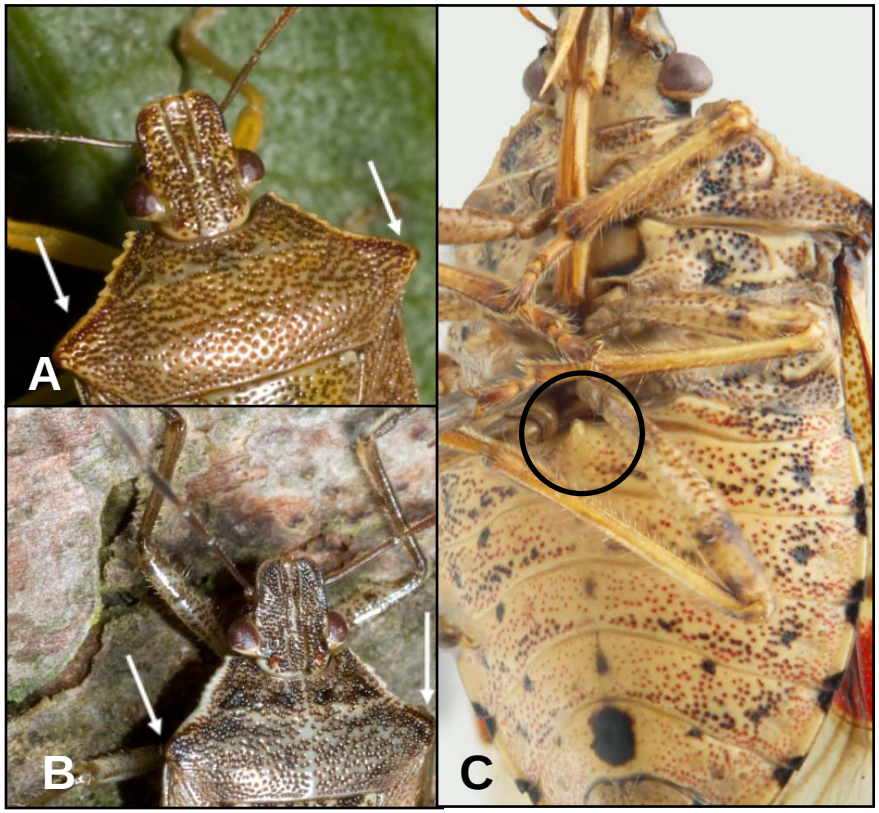

Fig. 34 A-C. A) *Podisus brevispinus*, dorsal; B) *P. serieventris,* dorsal; C) *P. serieventris*, ventral.

17. Humerus produced as a slender spine (Fig. 33 A), sometimes broader but still acutely spined (Fig. 33 B). Hind femur with one or two subapical spots on anterior surface (Fig. 33 C). Spine of abdominal sternite 2 long, reaching between hind coxae (Fig. 33 C). Length 8.5-13.0 mm.

***Podisus maculiventris* (Say)**

17'. Humerus not produced, either bluntly acute (Fig. 34 A) or obtusely angled (Fig. 34 B). Markings of hind femur variable. Spine of abdominal sternite 2 short (Fig. 34 C) or extending between hind coxae (as in Fig. 33 C).

18

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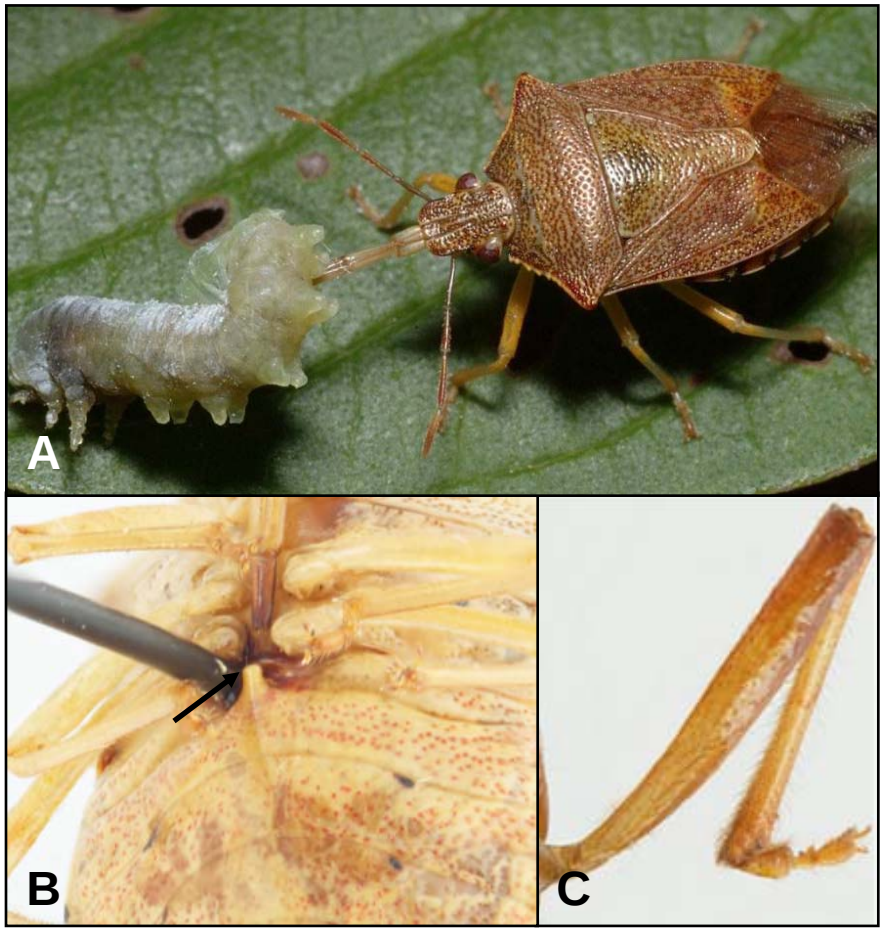

Fig. 35 A-C. *Podisus brevispinus:* A) dorsal; B) abdomen, ventral; C) hind leg.

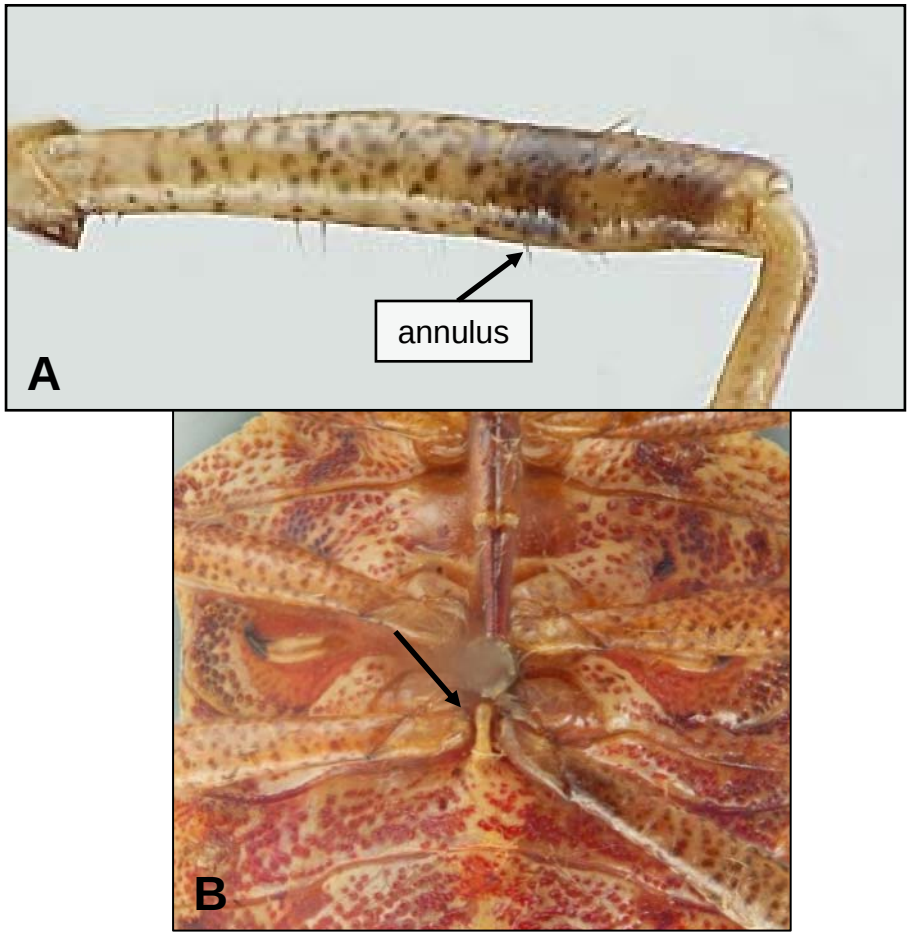

Fig. 36 A-B. A) *Podisus serieventris*, hind femur. B) *P. neglectus*, ventral.

18. Hind femur usually completely spotless, rarely with two pale brown subapical spots (Fig. 35 A, C). Spine of abdominal sternite 2 short, not reaching hind coxa (Fig. 35 B). Length 8.0-11.0 mm.

***Podisus brevispinus* Phillips**

18'. Hind femur heavily spotted, sometimes with partial subapical annulus (ring) of brown or black spots (Fig. 36 A). Spine of abdominal sternite 2 variable, either short (as in Fig. 35 B) or extending between hind coxae (Fig. 36 B).

19

doi:10.3752/cjai.2013.24

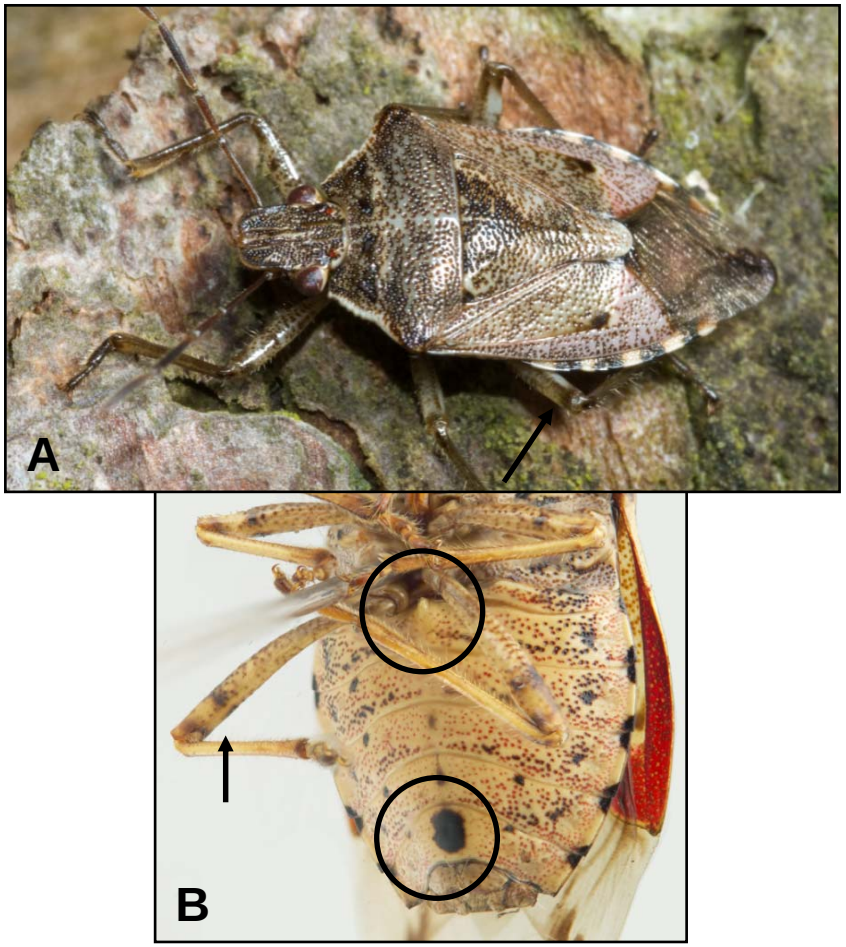

Fig. 37 A-B. *Podisus serieventris:* A) dorsal; B) abdomen, ventral.

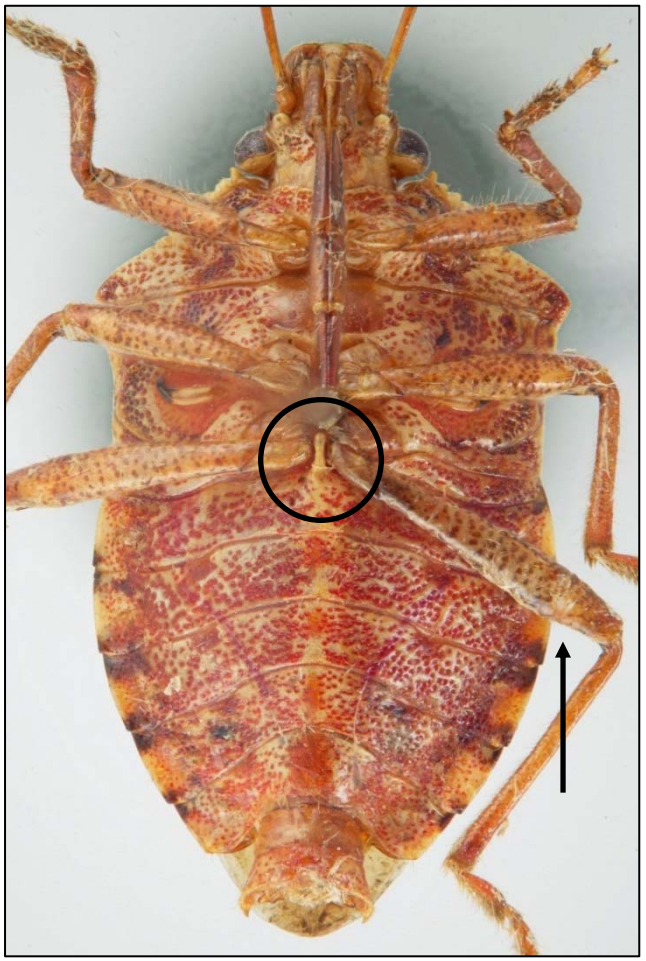

Fig. 38. *Podisus neglectus*, ventral

19. Hind femur with a distinct black apical or preapical annulus (Fig. 37 A-B). Spine of abdominal sternite 2 short, just reaching hind coxae (Fig. 37 B). Length 8.5-13.0 mm.

***Podisus serieventris* Uhler**

19'. Hind femur without distinct apical or preapical annulus (Fig. 38). Spine of abdominal sternite 2 extending between hind coxae. Length 12.5-14.0 mm.

***Podisus neglectus* (Westwood)**

Fig. 39. *Podisus placidus*.

Fig. 40. *Apoecilus bracteatus*.

20. Humerus rounded (Fig. 39). Anterolateral margin of pronotum straight. Relatively small (length 7.5-11.0 mm).

***Podisus placidus* Uhler**

20'. Humerus spinose (Fig. 40). Anterolateral margin of pronotum concave. Relatively large (13.0-20.0 mm).

***Apoecilus* (our two species are difficult to separate in the field; click here for the technical key)**

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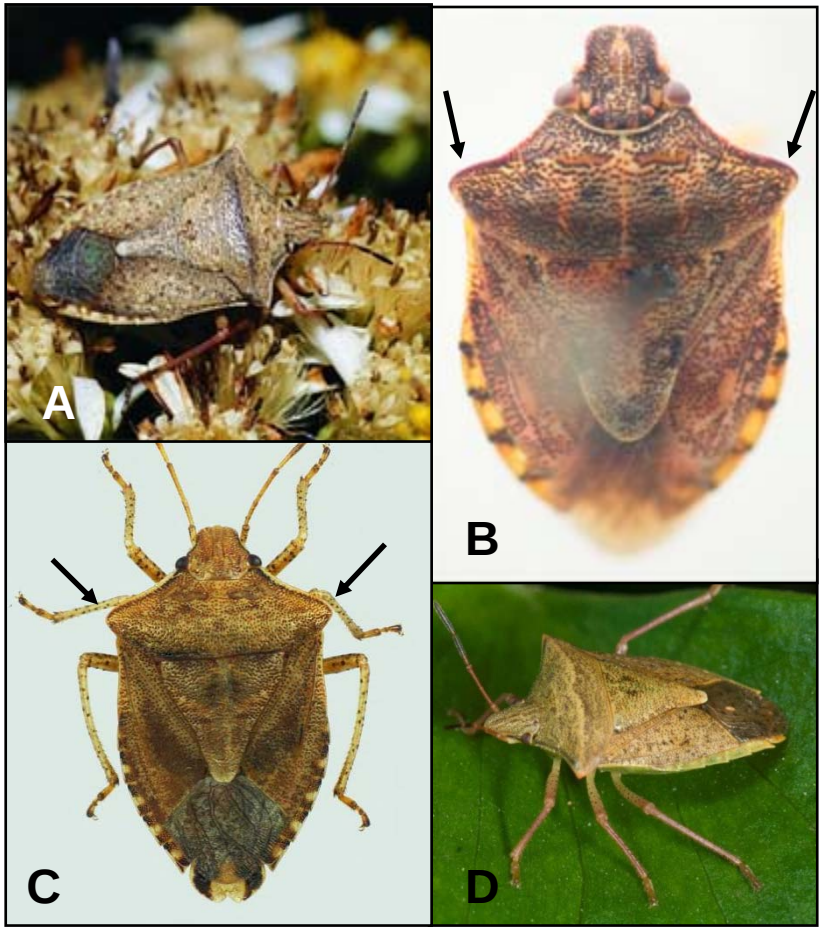

Fig. 41 A-D. A) *Euschistus variolarius*. B) *Dendrocoris humeralis*. C) *E. politus*. D) *E. ictericus.*

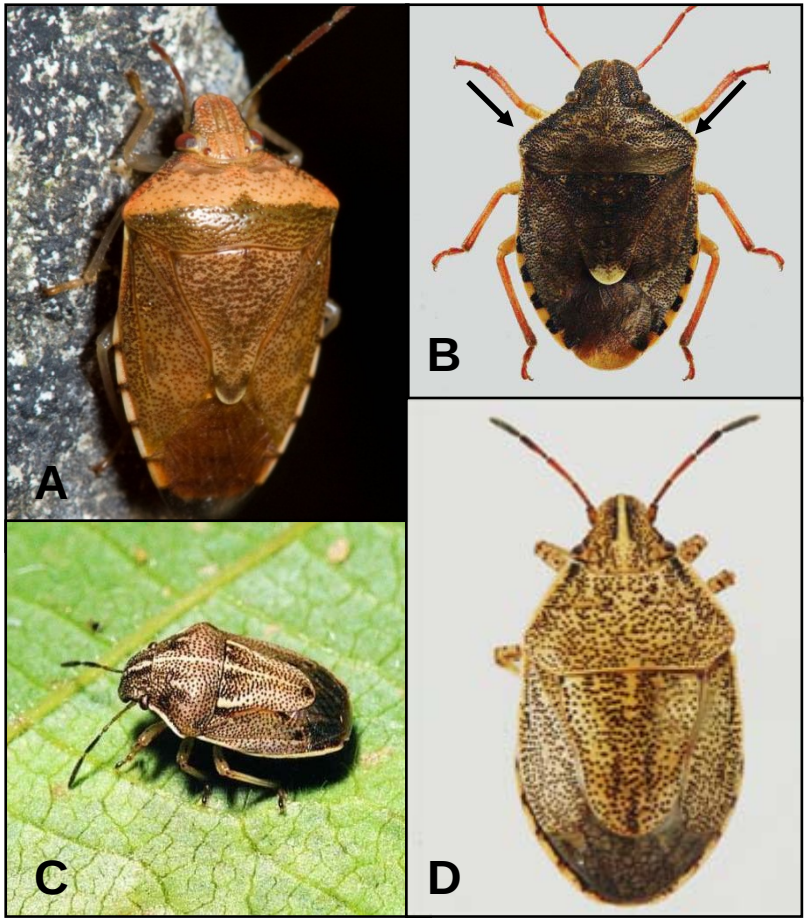

Fig. 42 A-D. A) *Banasa calva* B) *Holcostethus fulvipes*. C) *Neottiglossa undata*. D) *Coenus delius*.

21. Humerus often acute, distinctly projecting beyond base of abdomen (Fig. 41 A-D).

22

21'. Humerus rounded, projecting, at most, only slightly beyond base of abdomen (Fig. 42 A-D).

27

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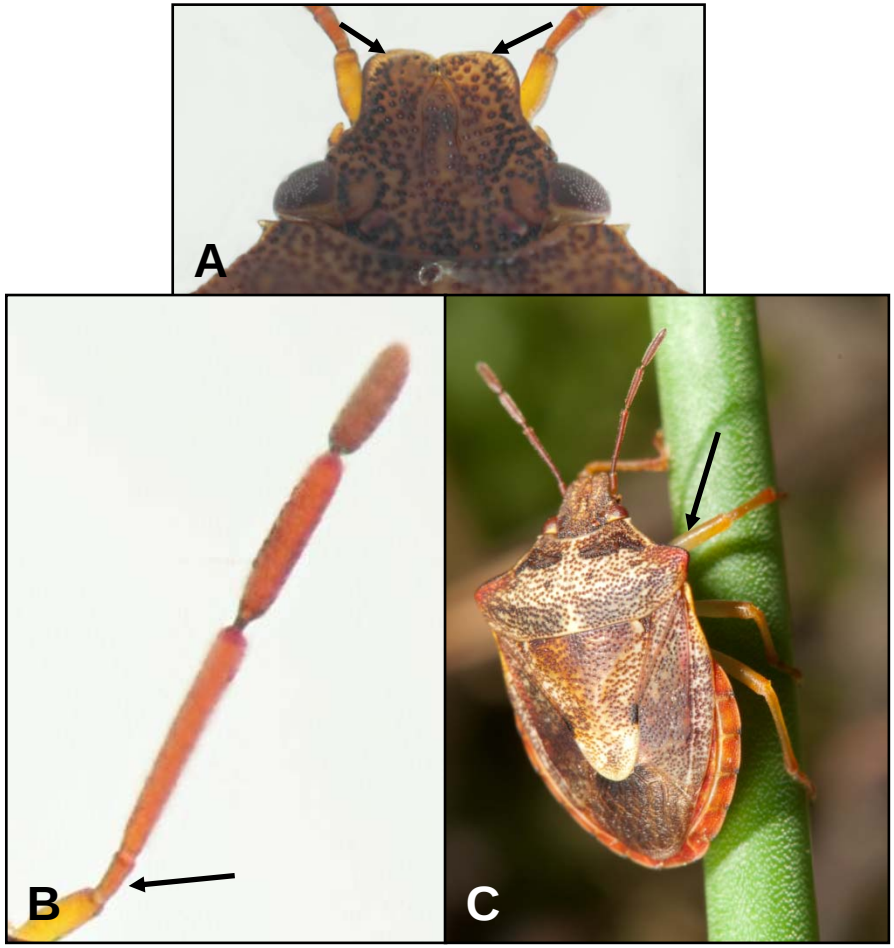

Fig. 43 A-C. *Dendrocoris humeralis*: A) head; B) antenna; C) dorsal.

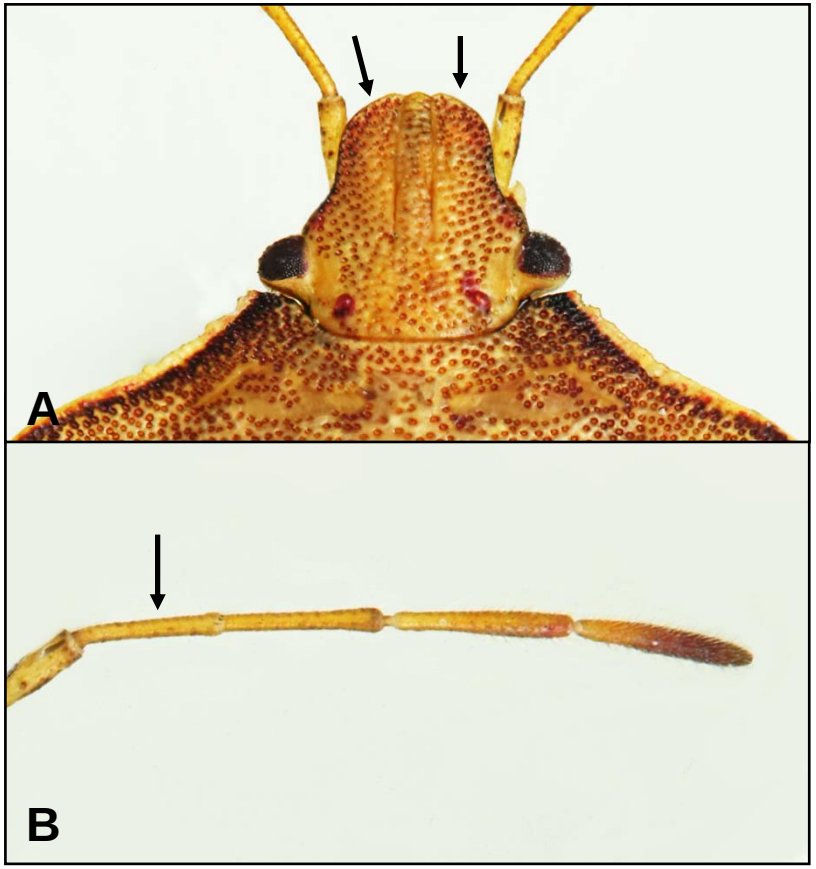

Fig. 44 A-B. *Euschistus politus.* A) head; B) antenna.

22. Juga quadrate and broadly touching (Fig. 43 A). Antennal segment 2 less than one-third length of segment 3 (Fig. 43 B). Humerus often outlined in red (Fig. 43 C). Length 6.0-8.5 mm.

***Dendrocoris humeralis* (Uhler)**

22'. Juga rounded (Fig. 44 A), either separated or touching. Antennal segment 2 subequal in length to segments 3-5 (Fig. 44 B). Humerus colour variable. Length variable.

23

doi:10.3752/cjai.2013.24

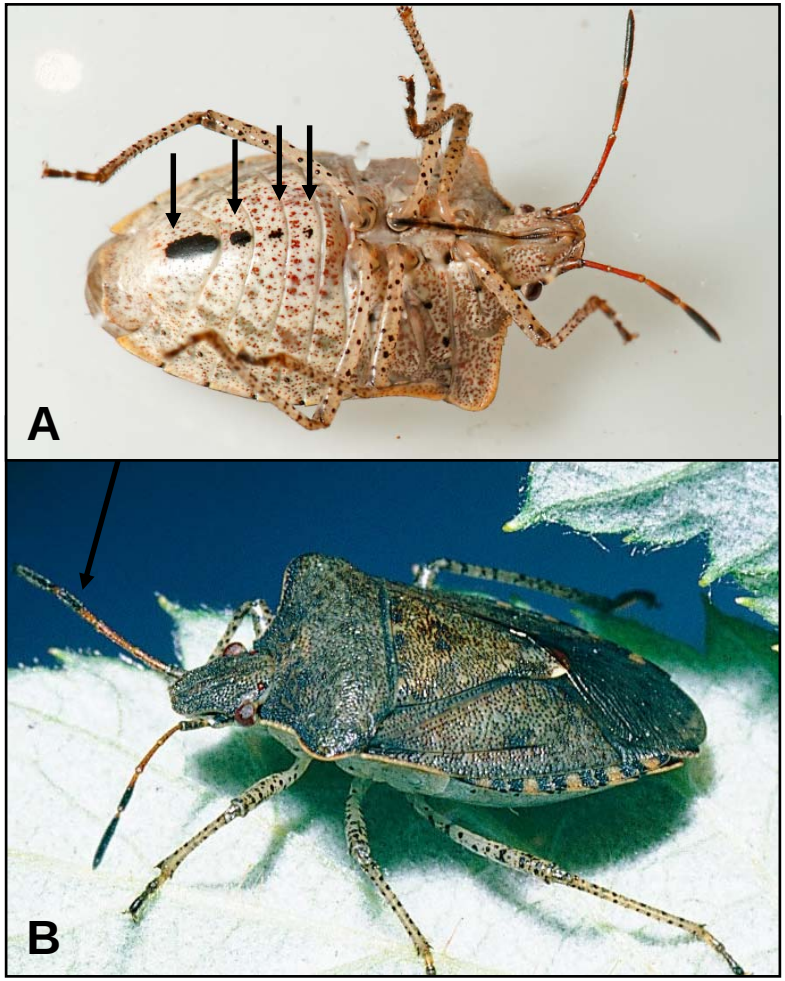

Fig. 45 – *Euschistus tristigmus luridus:* A) abdomen, ventral; B) dorsal.

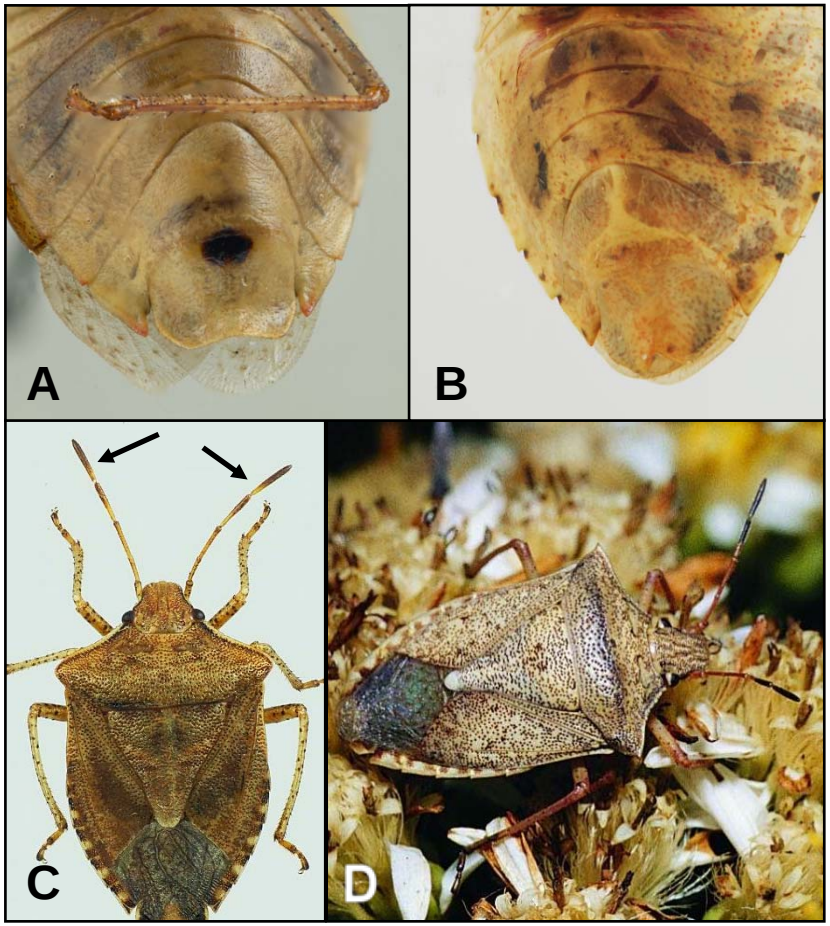

Fig. 46 A-D. A) *Euschistus variolarius,* abdomen, ventral. B) *E. politus*, abdomen, ventral. C) *E. politus*. D) *E. variolarius*.

23. Abdominal venter of males and females with three to four median black spots (Fig. 45 A; may be reduced or obsolete). Antenna with apical half of segment four and all of five brownish-black to black (Fig. 45 A-B). Length 10.0-12.0 mm.

***Euschistus tristigmus luridus* Dallas**

23'. Abdominal venter of male with at most one median black spot (Fig. 46 A-B); that of female without spot (Fig. 46 B). Antenna colour variable (Fig. 46 C-D). Length variable.

24

doi:10.3752/cjai.2013.24

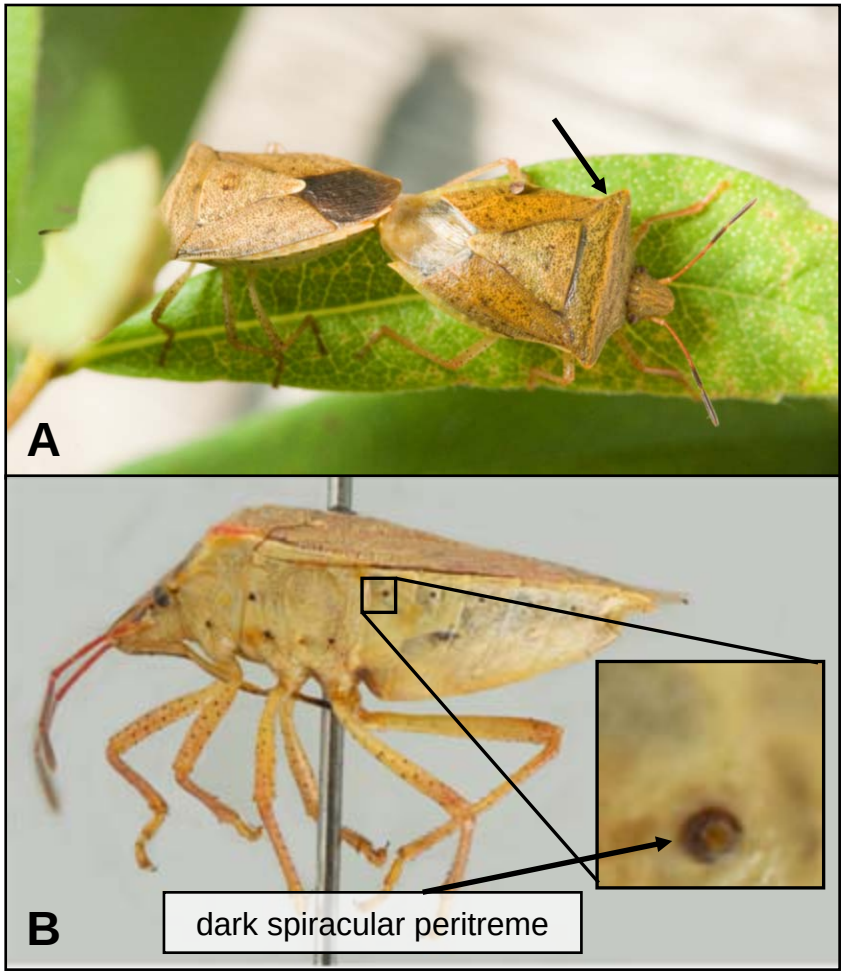

Fig. 47. *Euschistus ictericus*: A) dorsal; B) lateral.

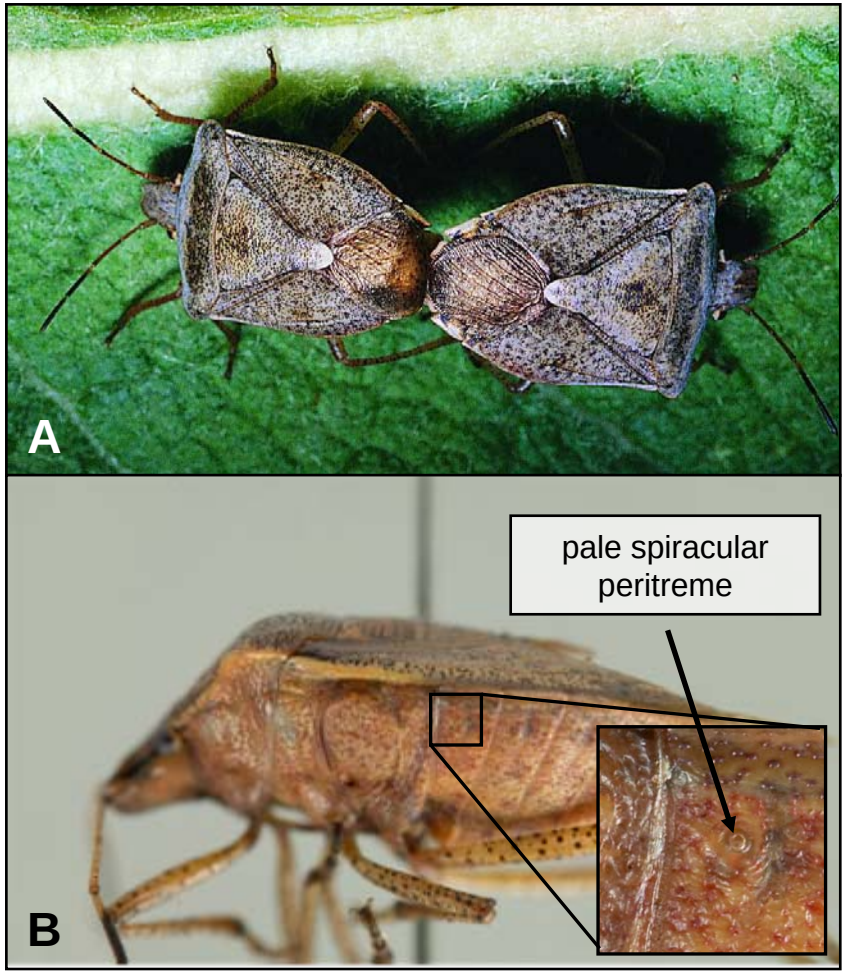

Fig. 48 A-B. A) *Euschistus servus euschistoides,* dorsal; B) *E. variolarius,* lateral.

24. Pronotum with a distinct pale line reaching between apices of humeri (Fig. 47 A). Abdominal spiracular peritremes dark (Fig. 47 B). Length 10.5-12.0 mm.

***Euschistus ictericus* (Linnaeus)**

24'. Pronotum patterning variable but never with a distinct transverse yellow line (Fig. 48 A). Abdominal spiracular peritremes pale (Fig. 48 B). Length 8.0-15.0 mm.

25

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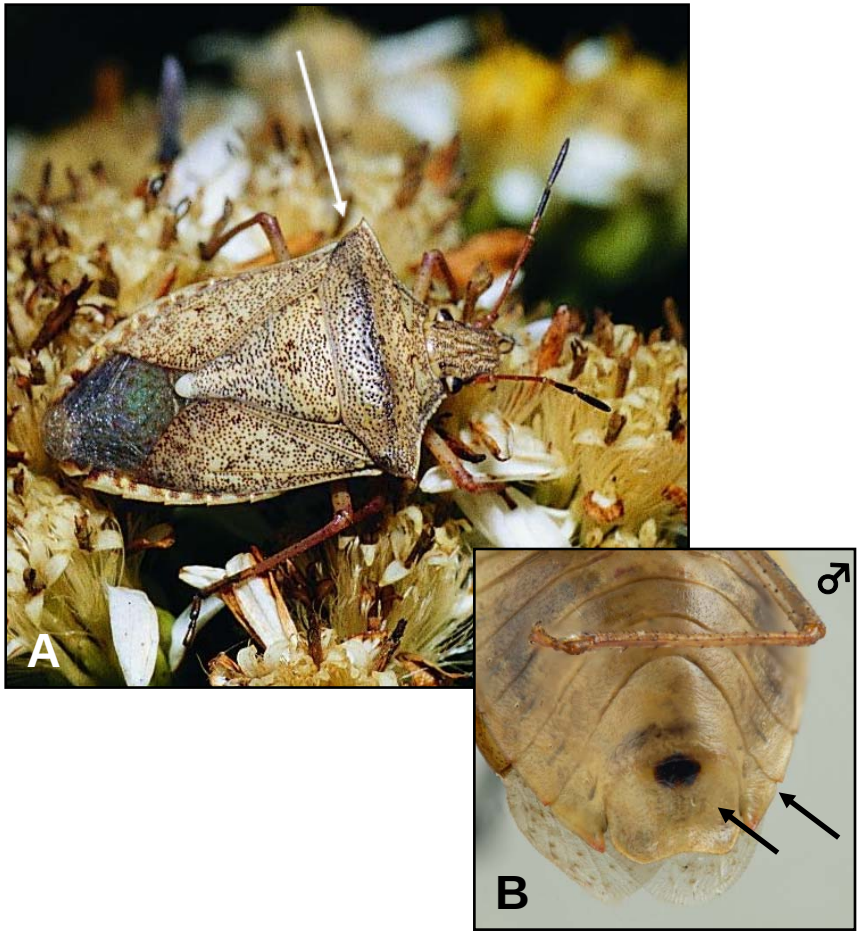

Fig. 49 A-B. *Euschistus variolaris:* A) dorsal, B) male pygophore.

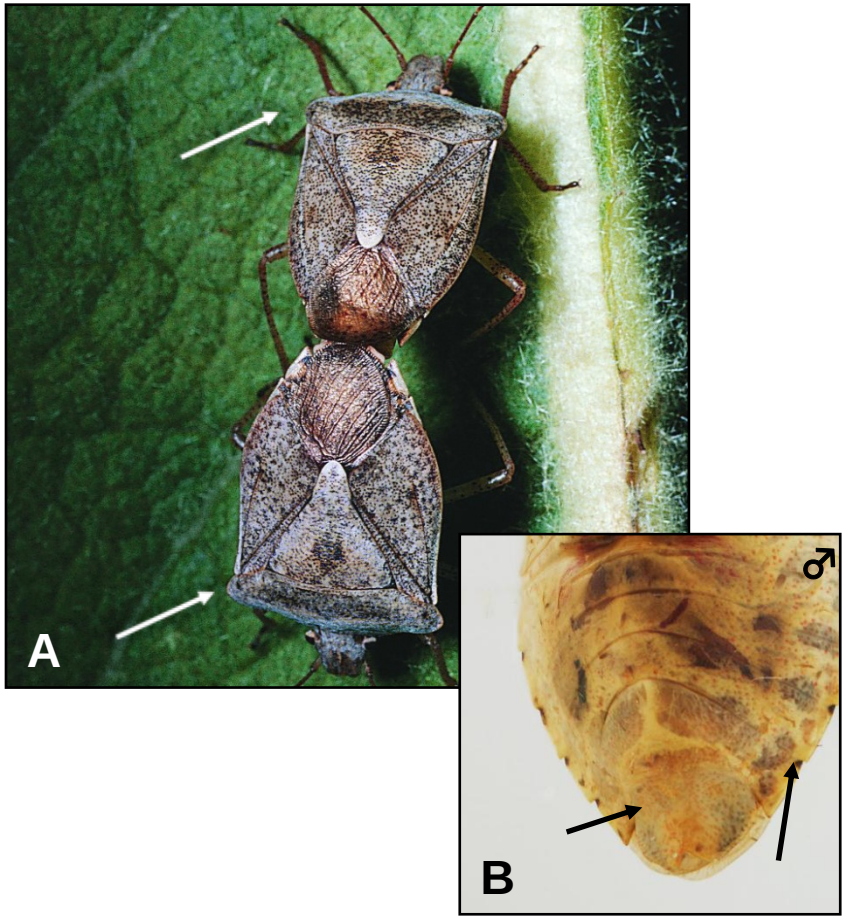

Fig. 50 A-B. *Euschistus servus euschistoides:* A) dorsal, B) male pygophore.

25. Humerus acute to spinose (Fig. 49 A). Antenna with segment five and apical half of segment four black (Fig. 49 A). Male with dark spot on abdominal venter (on pygophore) (Fig. 49 B). Abdominal sternites pale at lateral angles. Length 11.0-15.0 mm.

***Euschistus variolarius* (Palisot de Beauvois)**

25'. Humerus obtuse to rounded (Fig. 50 A). Antenna colour variable. Male without dark spot on last abdominal venter (pygophore unmarked) (Fig. 50 B). Abdominal sternites with black spots at lateral angles. Length 8.0-14.0 mm.

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doi:10.3752/cjai.2013.24

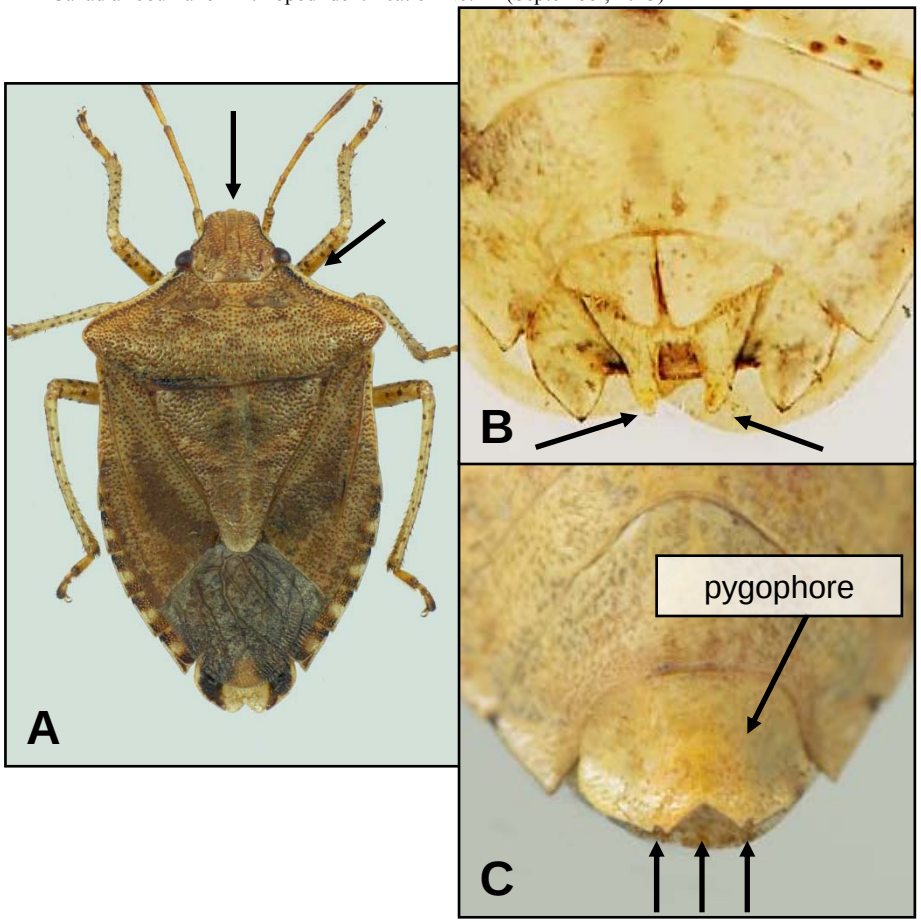

Fig. 51 A-C. *Euschistus politus:* A) dorsal; B) female genital plates; C) male pygophore.

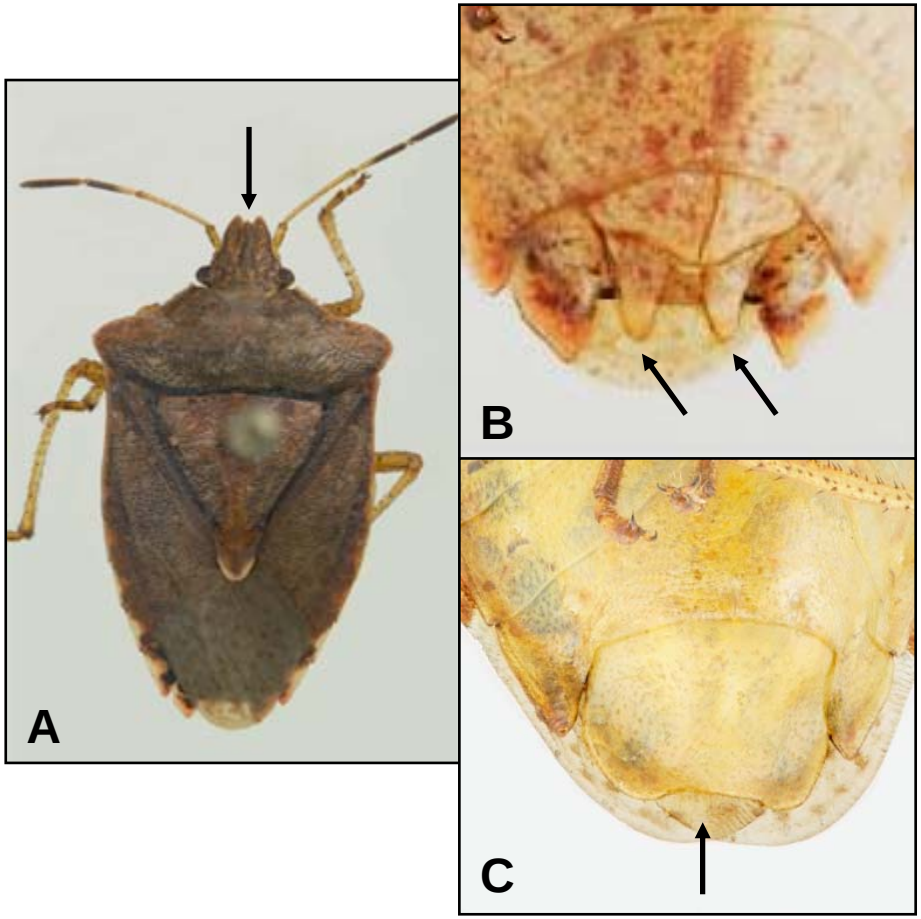

Fig. 52 A-C. *Euschistus servus euschistoides*: A) dorsal; B) female genital plates; C) male pygophore.

26. Jugum and tylus approximately equal in length (Fig. 51 A). Anterolateral pronotal margin outlined by a row of dark punctures (Fig. 51 A). Antennal segment 5 dark. Female genital plates narrowly pointed at apex (Fig. 51 B). Male pygophore with a median V-shaped notch and smaller notches on either side of apex (Fig. 51 C). Length 8.0-10.0 mm.

***Euschistus politus* Uhler**

26'. Jugum distinctly longer than tylus (Fig. 52 A). Anterolateral pronotal margin similar in colour to rest of pronotum (Fig. 52 A). Antennal segments 4 and 5 usually dark (Fig. 52 A). Female genital plates more rounded at apex (Fig. 52 B). Male pygophore with apex broadly concave to subtruncate (Fig. 52 C). Length 10.5-14.0 mm.

***Euschistus servus euschistoides* (Vollenhoven)**

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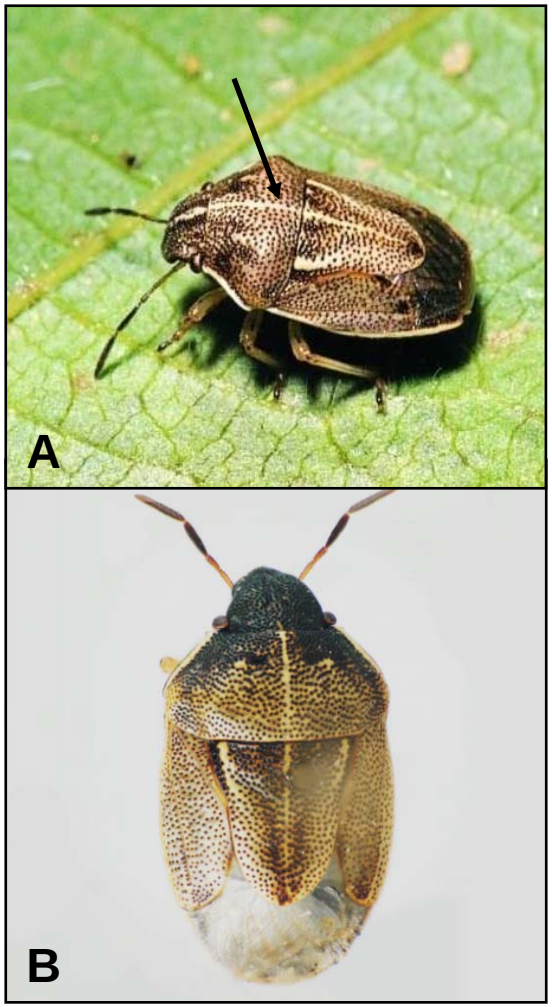

Fig. 53 A-B. A) *Neottiglossa undata.* B) *N. trilineata*.

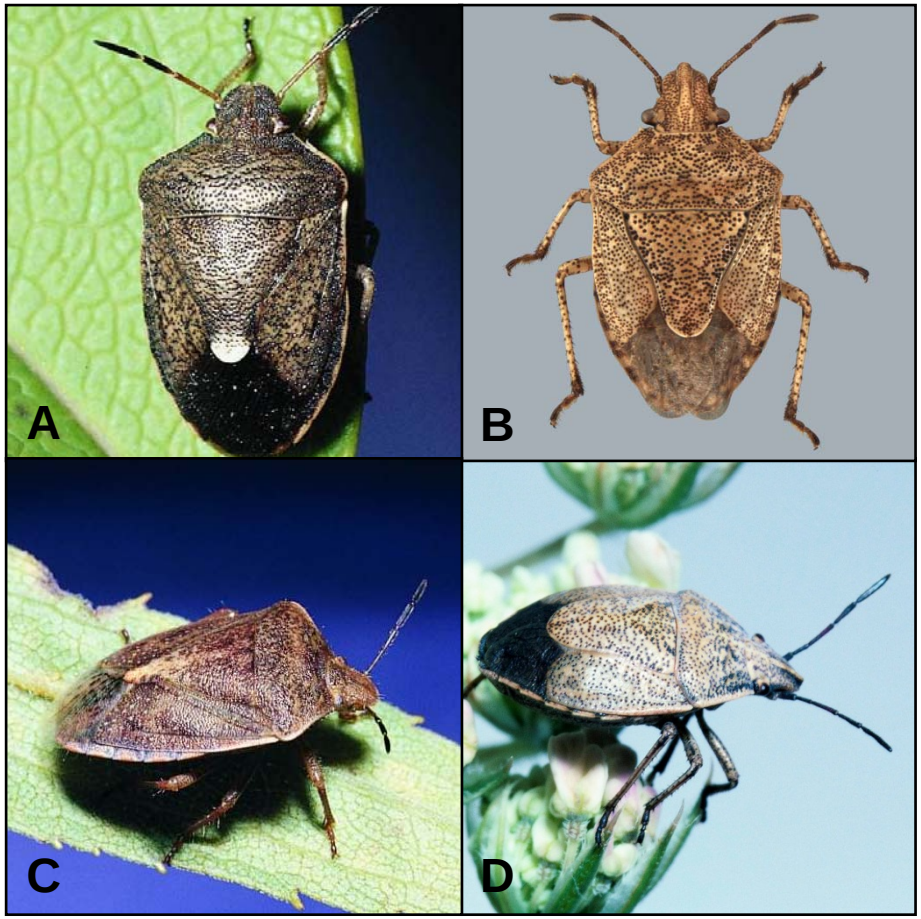

Fig. 54 A-D. A) *Holcostethus limbolarlus*. B) *Mcphersonarcys aequalis*. C) *Thyanta custator accerra*. D) *Coenus delius*.

27. Pronotum and scutellum with smooth pale medial line (Fig. 53 A-B). Length less than 7.0 mm.

28

27'. Pronotum and scutellum without distinct smooth medial line (Fig. 54 A-D). Length greater than 7.0 mm.

29

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Fig. 55. *Neottiglossa trilineata*.

Fig. 56. *Neottiglossa undata*.

28. Head brownish black to black with deep dark punctures, and without pale median line extending from scutellum onto head (Fig. 55). Length 5.5-6.0 mm.

***Neottiglossa trilineata* (Kirby)**

28'. Head pale yellow to brown with shallow black punctures, and with pale median line extending from scutellum to apex of head (Fig. 56). Length 4.5-6.0 mm.

***Neottiglossa undata* (Say)**

doi:10.3752/cjai.2013.24

Fig. 57. *Banasa calva.*

Fig. 58. *Holcostethus limbolarius.*

29. Pronotum with anterior half pale yellow, strongly contrasting with darker reddish brown of posterior half (Fig. 57). Length 8.5-12.0 mm.

***Banasa calva* (Say)**

29'. Pronotum with anterior and posterior areas similarly coloured (Fig. 58). Length variable.

30

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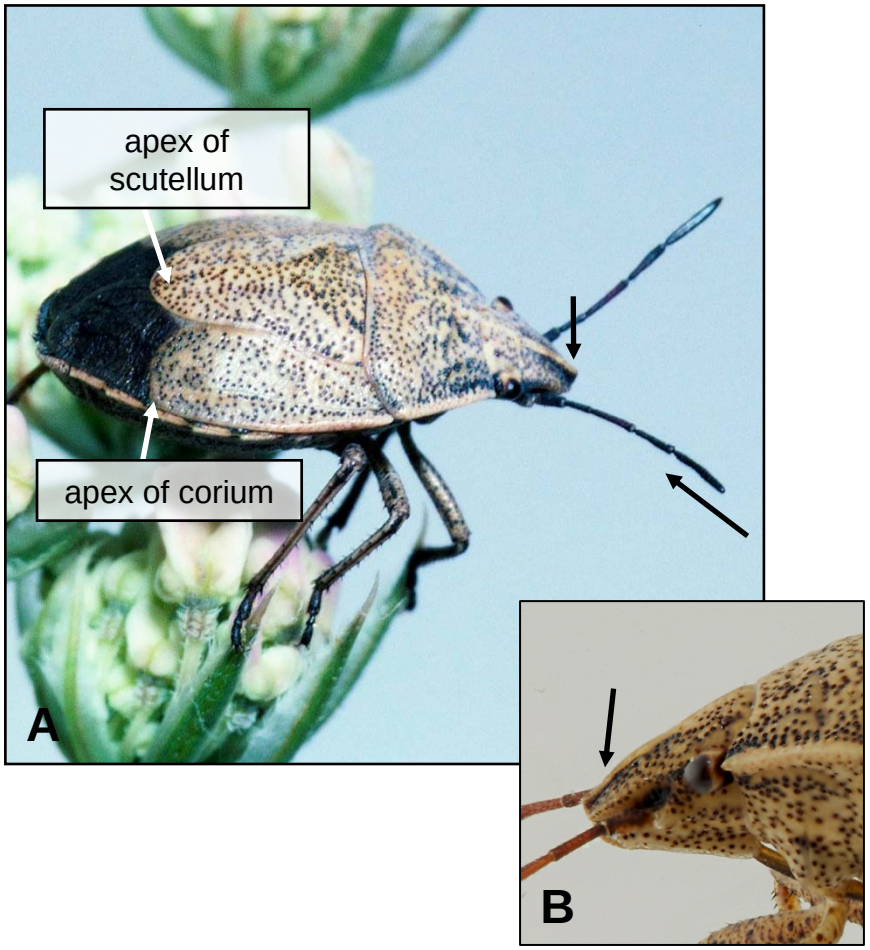

Fig. 59 A-B. *Coenus delius:* A) dorsal; B) head, lateral.

30. Tylus elevated above juga (Fig. 59 A-B). Non-membranous section of wing (corium) equal in length to scutellum, apex broadly rounded (Fig. 59 A). Scutellum broadly rounded (Fig. 59 A). Length 8.5-10.5 mm.

***Coenus delius* (Say)**

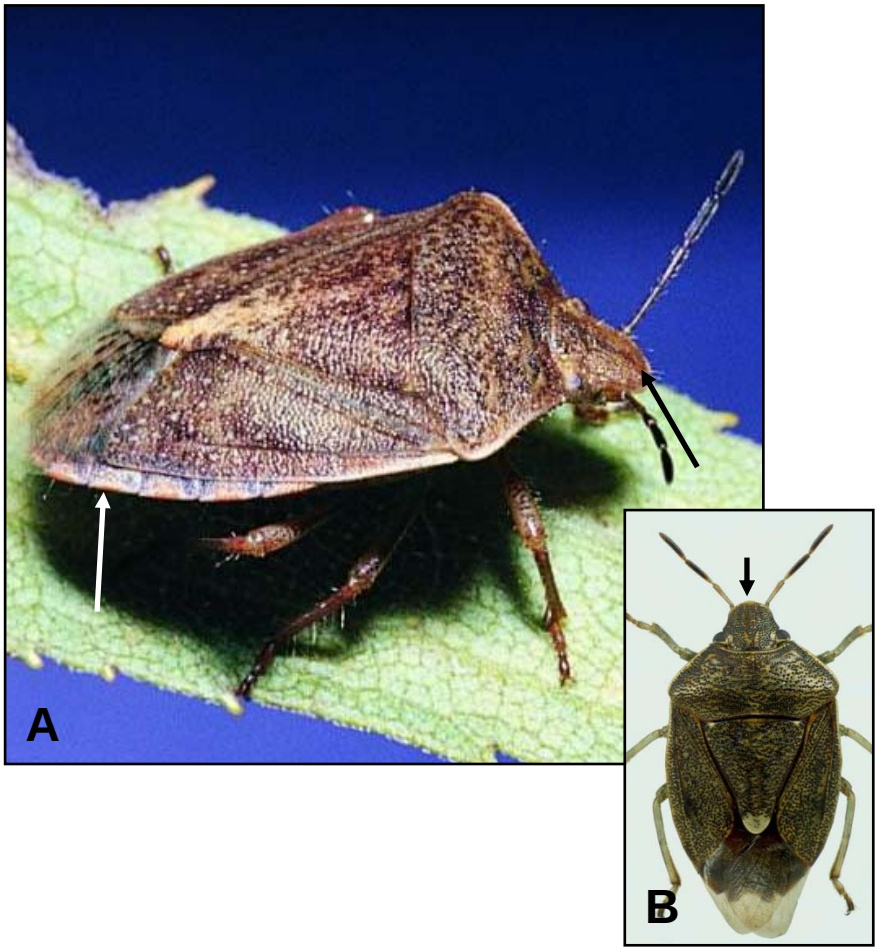

Fig. 60 A-B. A) *Thyanta custator accerra*. B) *Banasa sordida*.

30'. Tylus not elevated above juga (Fig. 60 A). Non-membranous section of wing (corium) longer than scutellum, apex pointed or narrowly rounded but never broadly rounded (Fig. 60 A-B). Scutellum narrowly rounded (Fig. 60 A-B). Length variable.

31

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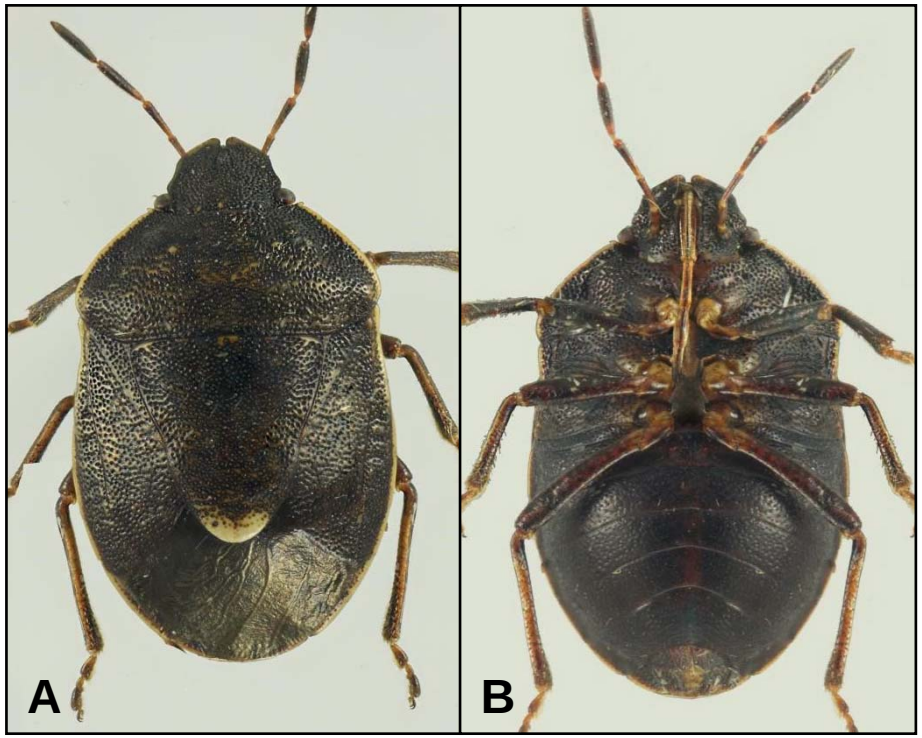

Fig. 61 A-B. *Holcostethus macdonaldi*: A) dorsal; B) ventral.

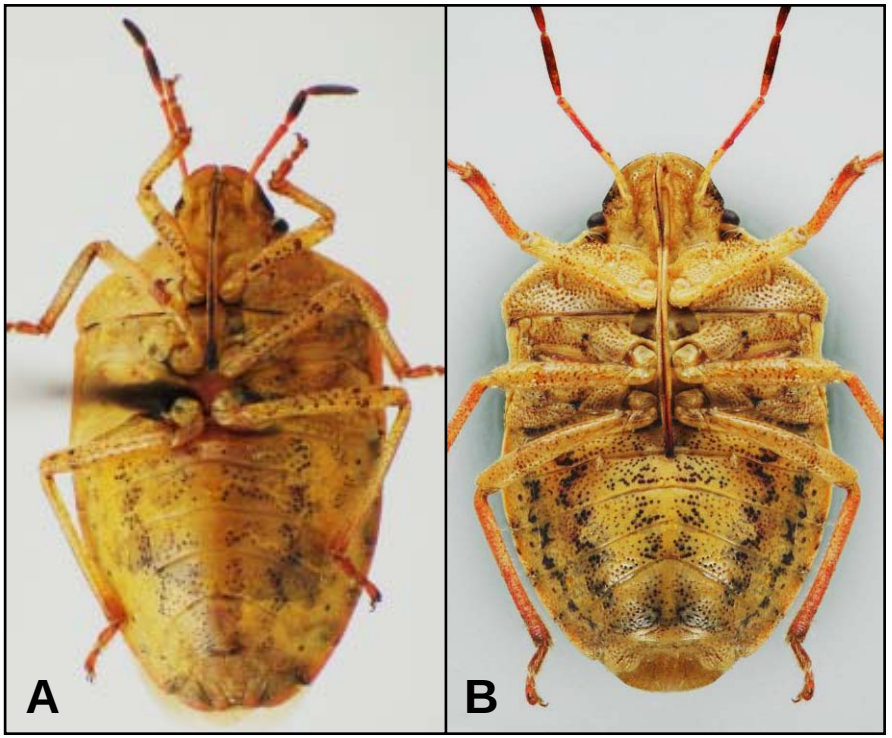

Fig. 62 A-B. A) *Holcostethus limbolarius*, ventral. B) *Holcostethus fulvipes*, ventral.

31. Dorsum and venter of body dark brown to black (Fig. 61 A-B). Length 7.0-9.0 mm.

***Holcostethus macdonaldi* Rider & Rolston**

31'. Dorsum of body not black; venter of body pale (Fig. 62 A), sometimes with dark markings (Fig. 62 B). Length 6.0-13.0 mm.

32

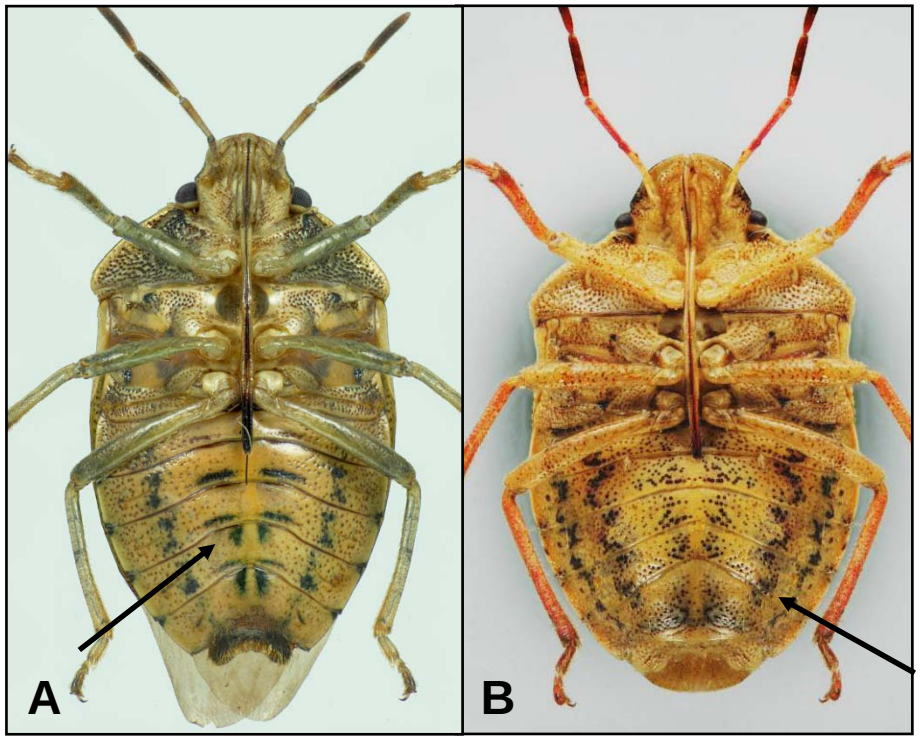

Fig. 63 A-B. A) *Banasa sordida*, ventral. B) *Holcostethus fulvipes*, ventral.

Fig. 64. *Holcostethus limbolarius*, ventral.

32. Abdominal venter with four rows of dark markings (Fig. 63 A-B).

33

32'. Abdominal venter without rows of distinct markings (Fig. 64).

34

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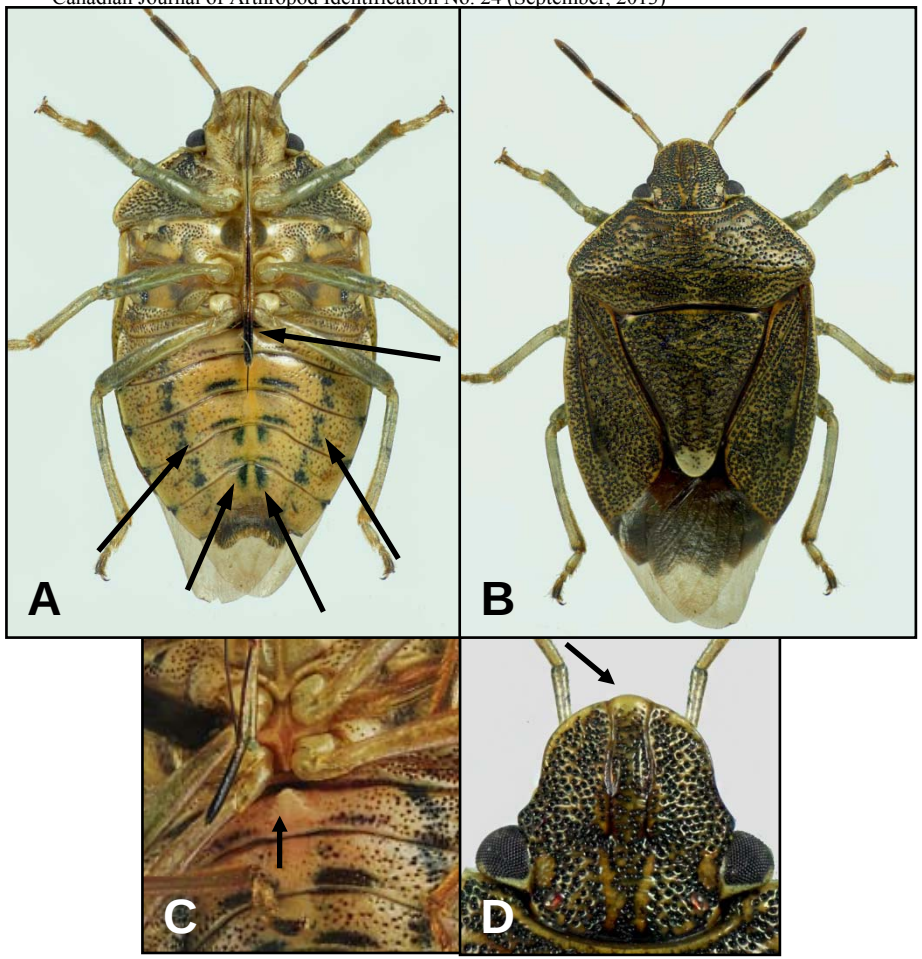

Fig. 65 A-C. *Banasa sordida*: A) ventral; B) dorsal; C) base of abdomen, ventral; D)head, dorsal.

33. Abdominal sternite 2 with obtuse spine (Fig. 65 A, C). Abdominal venter with four rows of dark spots (Fig. 65 A). Juga as long as tylus, not extending in front of tylus (Fig. 65 B, D). Length 10.0-11.5 mm.

***Banasa sordida* (Uhler)**

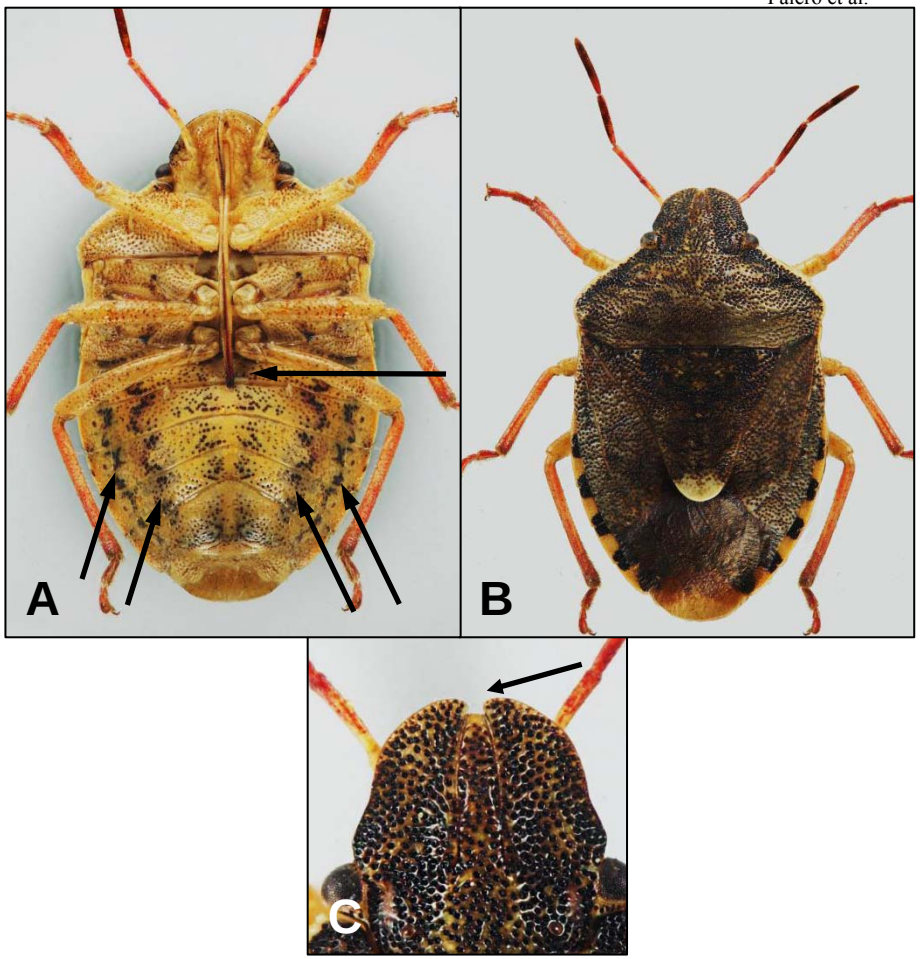

Fig. 66 A-C. *Holcostethus fulvipes*: A) ventral; B) dorsal; C) head, dorsal.

33'. Abdominal sternite 2 without spine (Fig. 66 A). Abdominal venter with four dark zig-zag stripes (Fig. 66 A). Juga converging but narrowly separated in front of tylus (Fig. 66 B, C). Length 9.0-10.0 mm.

***Holcostethus fulvipes* (Ruckes)**

(*H. limbolarius* rarely has similar abdominal markings but can be separated from *H. fulvipes* by its contiguous juga)

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Fig. 67. *Hymenarcys nervosa.*

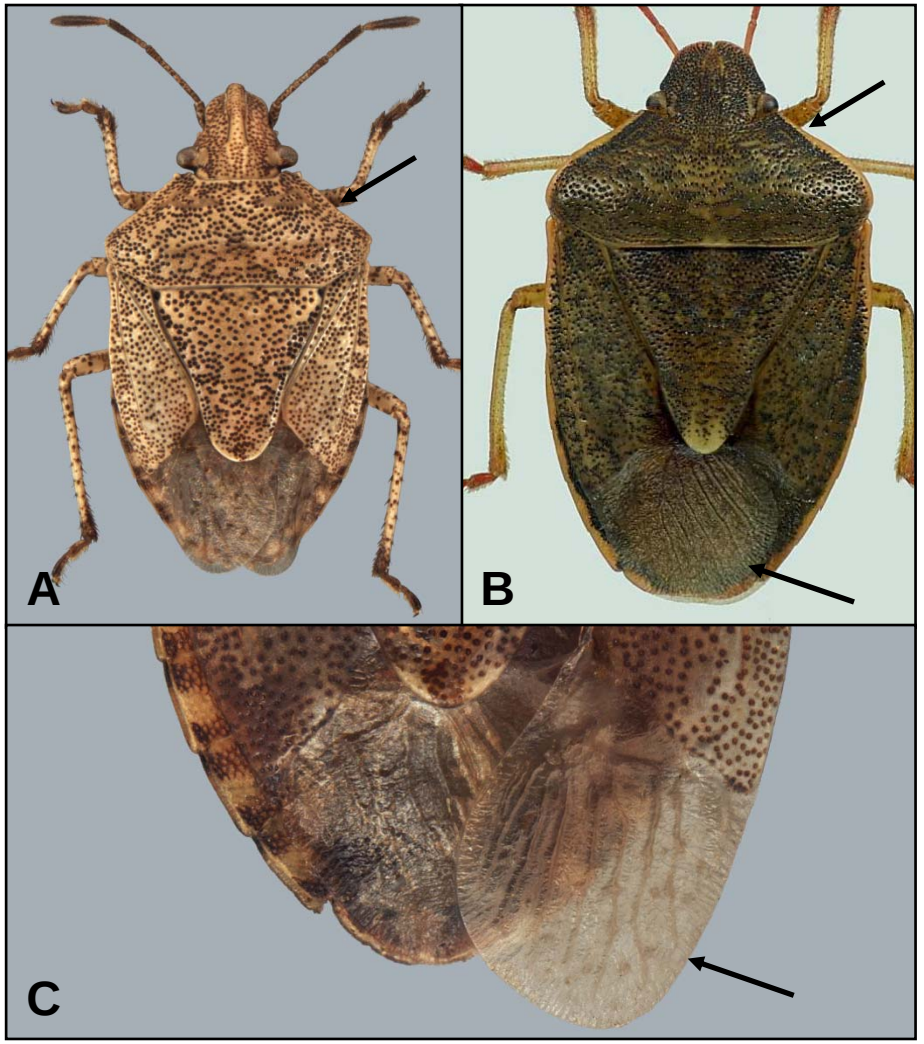

Fig. 68 A-C. A) *Mcphersonarcys aequalis*. B) *Holcostethus limbolarius*. C) *M. aequalis*, wing.

34. Anterolateral pronotal margin arcuate (Fig. 67). Wing membrane with veins anastomosing. Length 8.5-11.5 mm.

***Hymenarcys nervosa* (Say)**

34'. Anterolateral pronotal margin straight to slightly arcuate (Fig. 68 A-B). Wing membrane with veins not anastomosing (i.e., simple; Fig. 68 C). Length 6.0-13.0 mm.

35

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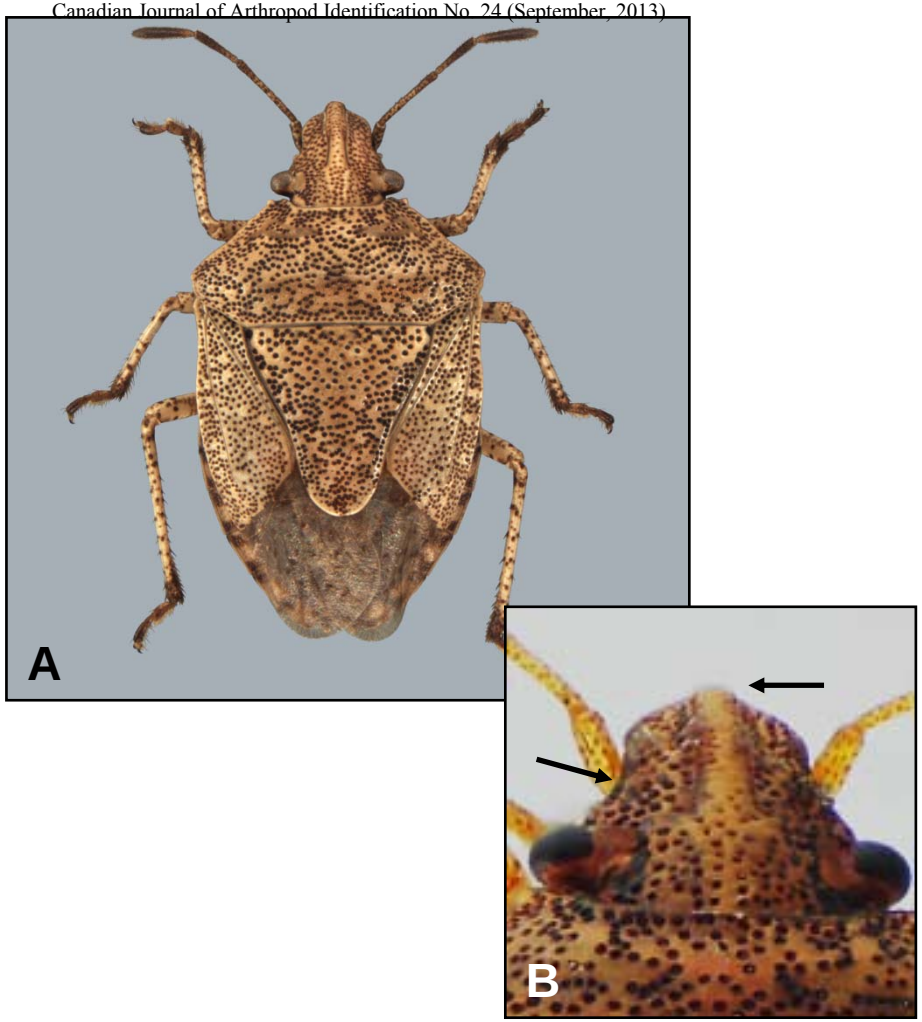

Fig. 69 A-B. *Mcphersonarcys aequalis*

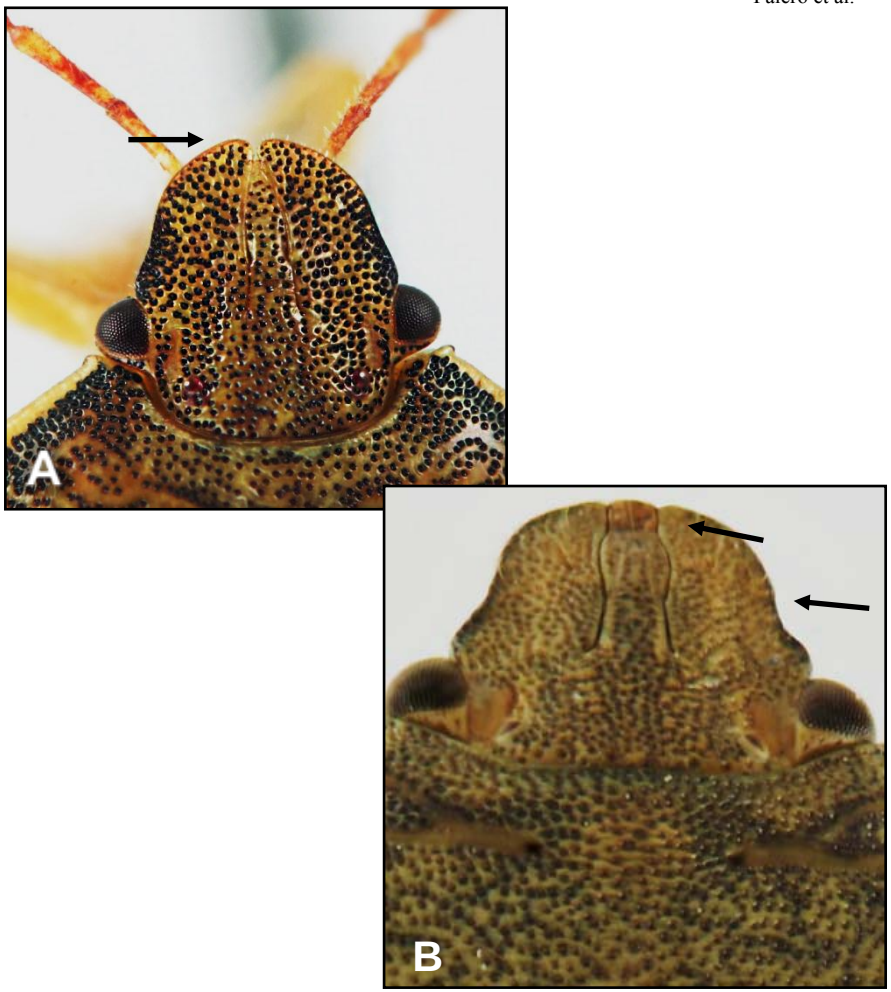

Fig. 70 A-B. A) *Holcostethus limbolarius*. B) *Thyanta calceata*

35. Head at mid-length much narrower than head between eyes (Fig. 69 A-B). Tylus raised above juga, making dorsal surface of head appear rounded (Fig. 69 B). Tylus slightly longer than juga (Fig. 69 B). Length 6.0-8.5 mm.

***Mcphersonarcys aequalis* (Say)**

35'. Head at mid-length as wide or almost as wide as head between eyes (Fig. 70 A-B). Tylus not raised, dorsal surface of head flat. Juga longer than (Fig. 70 A) or equal to (Fig. 70 B) tylus. Length 7.0-13.0 mm.

36

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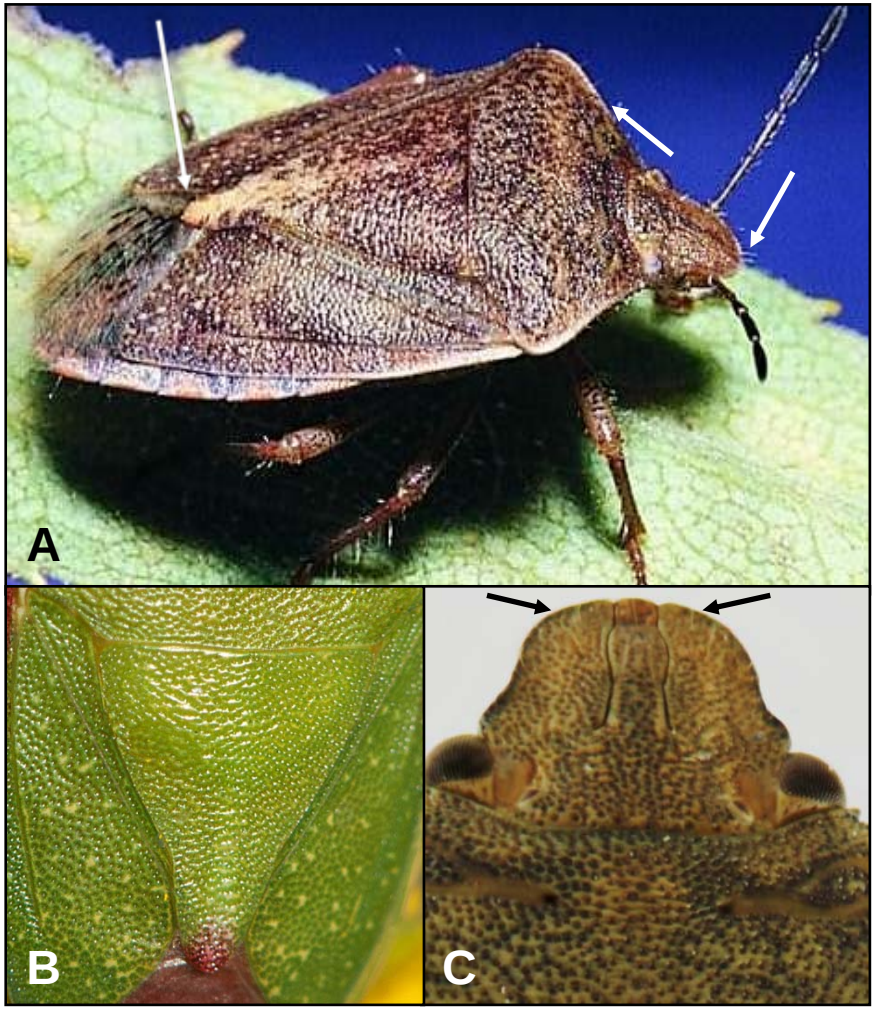

Fig. 71 A-B. *Thyanta custator accerra*: A) dorsal; B) scutellum (green colour form); C) head; dorsal.

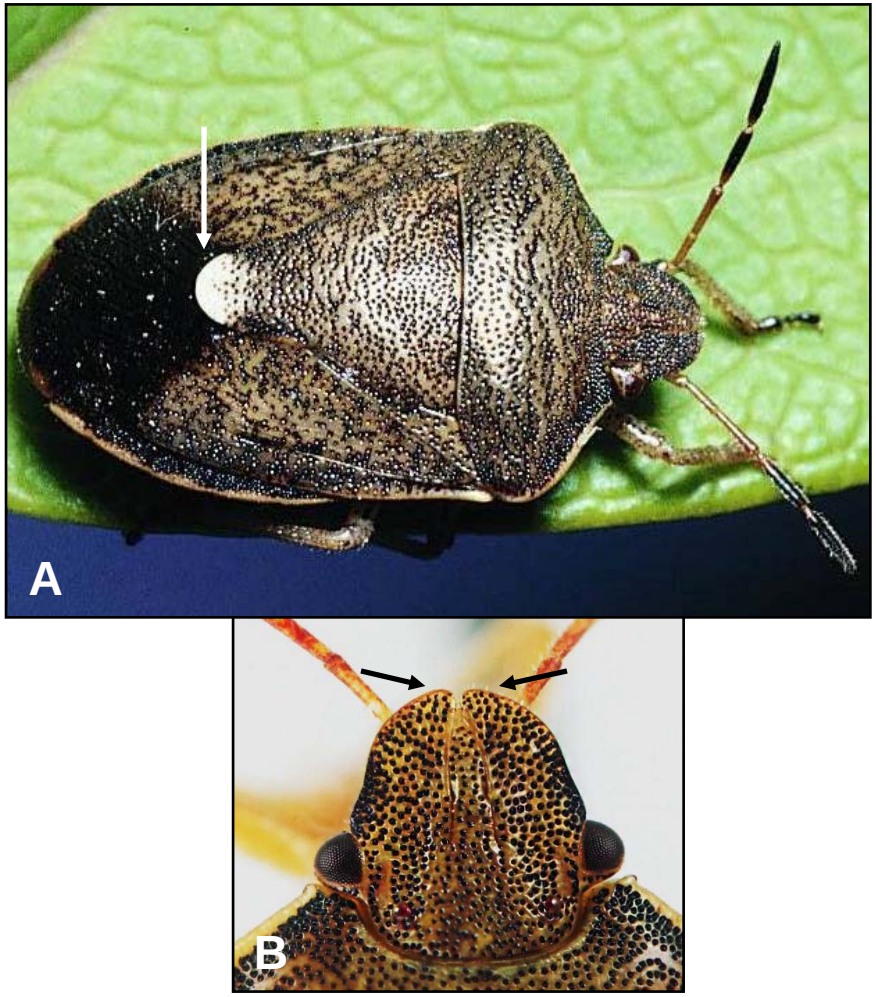

Fig. 72. *Holcostethus limbolarius*: A) dorsal, B) head; dorsal

36. Scutellum tapered to a narrow apex and often with an indistinct median pale stripe (Fig. 71 A-B). Tylus and juga subequal and apices of juga separated (Fig. 71 C). Usually with distinct hairs visible on head and pronotum (Fig. 71 A). Length 9.0-13.0 mm.

37

36'. Scutellum with apex broadly rounded and without pale median line (Fig. 72 A). Tylus shorter than juga and juga converging in front of tylus (Fig. 72 B). Head and pronotum bare (Fig. 72 A-B). Length 7.0-9.0 mm.

38

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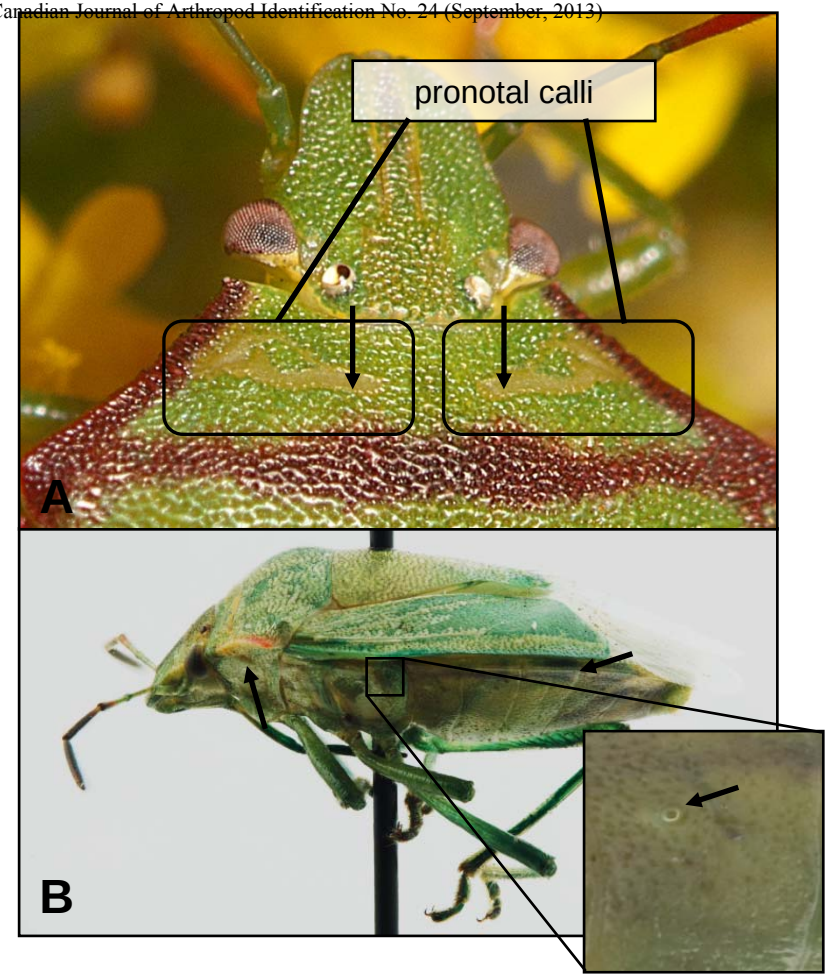

Fig. 73 A-B. *Thyanta custator accerra*: A) head and pronotum, dorsal; B) lateral.

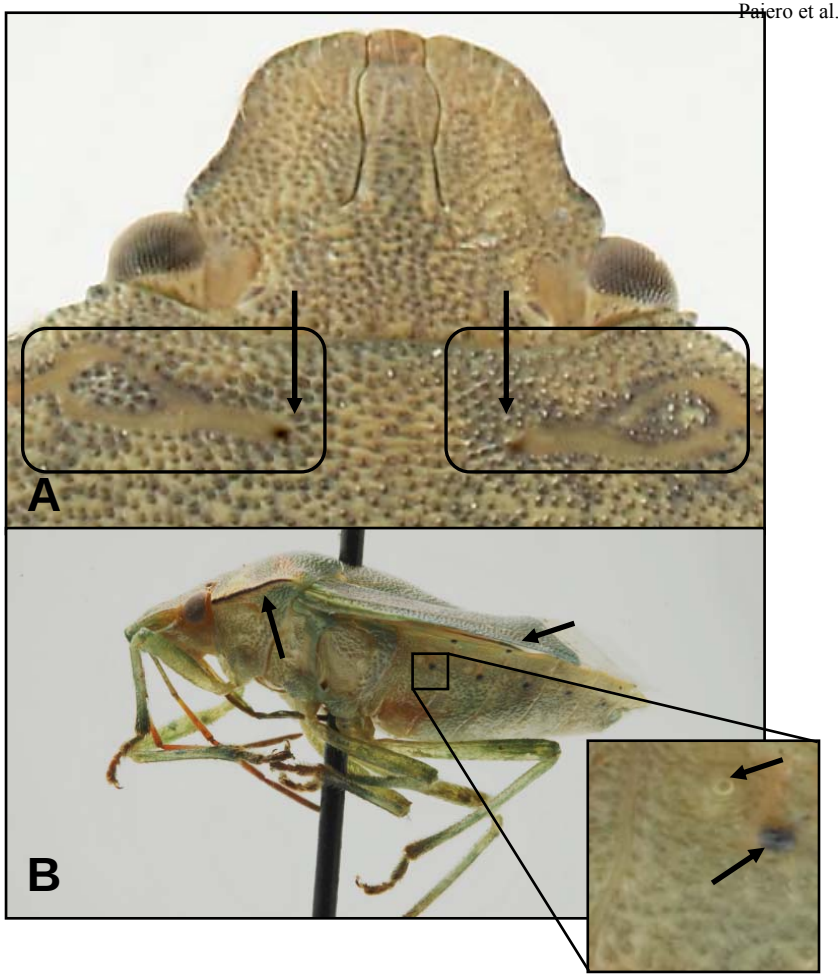

Fig. 74 A-B. *Thyanta calceata*: A) head and pronotum, dorsal; B) lateral.

37. Anterolateral pronotal margin not black (Fig. 73 B). Inner angle of each pronotal callus pale (Fig. 73 A). Lateral margin of abdominal connexivum without row of dark spots (Fig. 73 B). Abdominal venter with postspiracular spots reduced or absent (Fig. 73 B). Length 9.0-13.0 mm.

***Thyanta custator accerra* McAtee**

(Green in summer, brown in fall)

37'. Anterolateral pronotal margin black (Fig. 74 B). Inner angle of each pronotal callus with black spot (Fig. 74 A). Lateral margin of abdominal connexivum with row of dark spots (Fig. 74 B). Abdominal venter with row of black postspiracular spots (Fig. 74 B). Length 10.0-11.0 mm.

***Thyanta calceata* (Say)**

(Green in summer, brown in fall)

doi:10.3752/cjai.2013.24

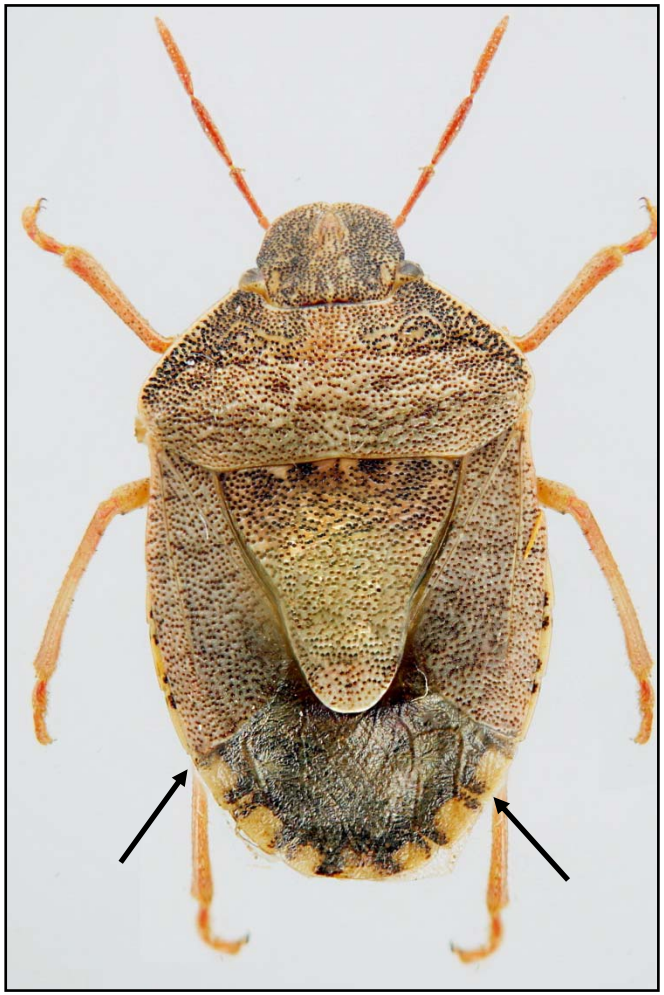

Fig. 75. *Holcostethus abbreviatus*.

Fig. 76. *Holcostethus limbolarius*.

38. Connexivum with alternating bands of black and yellow (Fig. 75). Length 8.0-9.5 mm.

***Holcostethus abbreviatus* Uhler**

38'. Connexivum black with a narrow yellow margin (Fig. 76). Length 7.0-9.0 mm.

***Holcostethus limbolarius* (Stål)**

doi:10.3752/cjai.2013.24

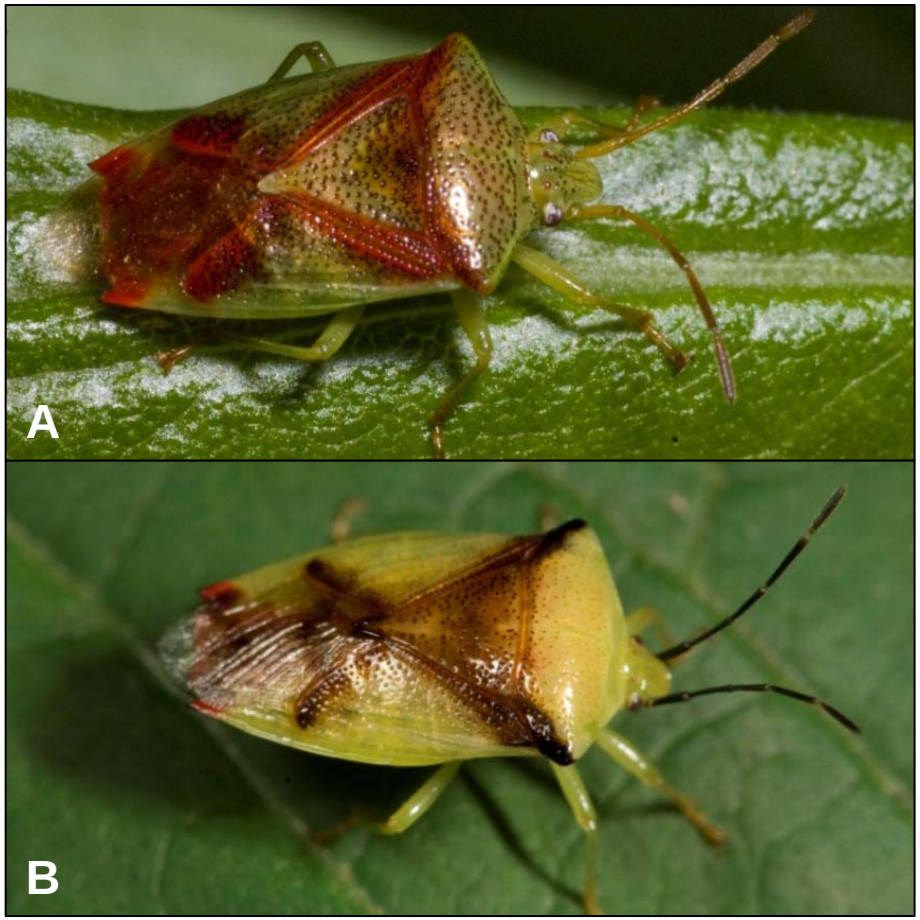

Fig. 77 A-B. A) *Elasmostethus cruciatus.* B) *E. atricornis.*

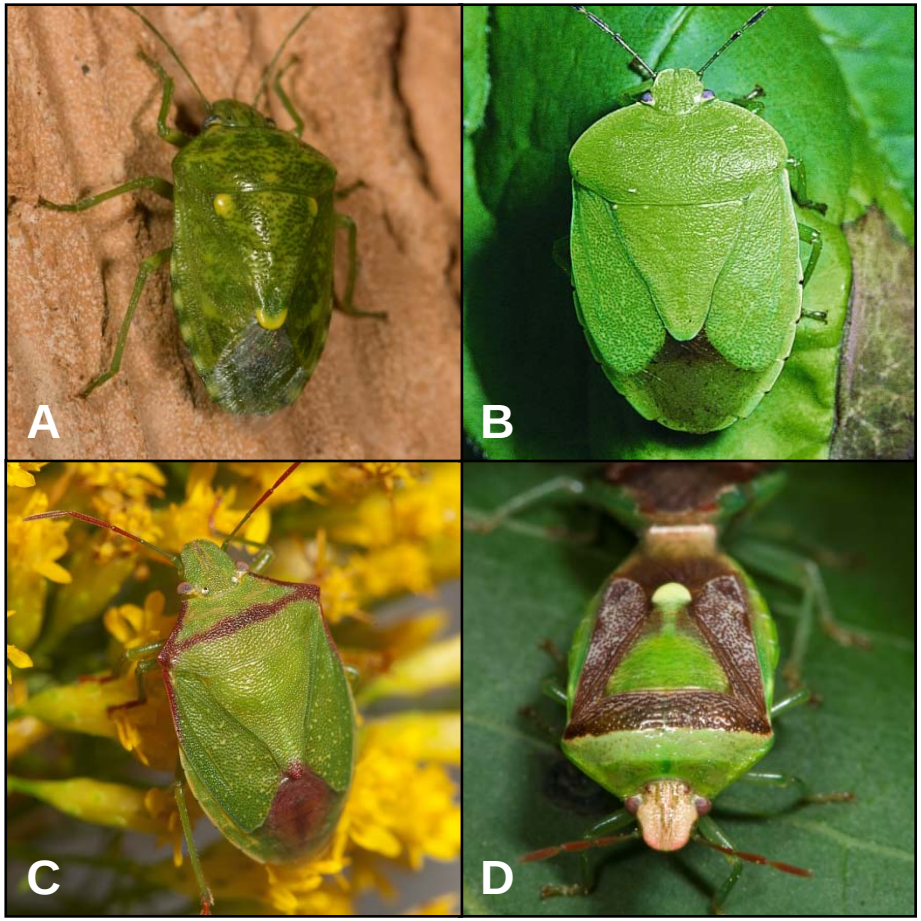

Fig. 78 A-D. A) *Banasa euchlora*. B) *Chinavia pensylvanica*. C) *Thyanta custator accerra*. D) *B. dimidiata*.
.

39. Dorsum of body green or yellow-green with a red or brownish black “X” dorsally (Fig. 77 A-B).

Parent bugs, in part **40**

39’. Dorsum of body green (rarely yellow-green) sometimes with ivory markings; red markings usually absent, never in form of an “X” (Fig. 78 A-D).

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Fig. 79. *Elasmostethus cruciatus*.

Fig. 80. *Elasmostethus atricornis*.

40. Dorsum of body with a bright red "X"(Fig. 79). Antenna pale with apical three segments occasionally slightly darker. Pronotal punctures dark. Humerus often tinged with red. Length 8.0-10.0 mm.

***Elasmostethus cruciatus* (Say)**

40'. Dorsum of body with a dark coloured "X" ranging from black to dark brown (Fig. 80). Antenna completely dark (reddish to black). Pronotal punctures pale. Humerus black. Length 9.0-10.0 mm.

***Elasmostethus atricornis* (Van Duzee)**

doi:10.3752/cjai.2013.24

Fig. 81. *Banasa dimidiata*.

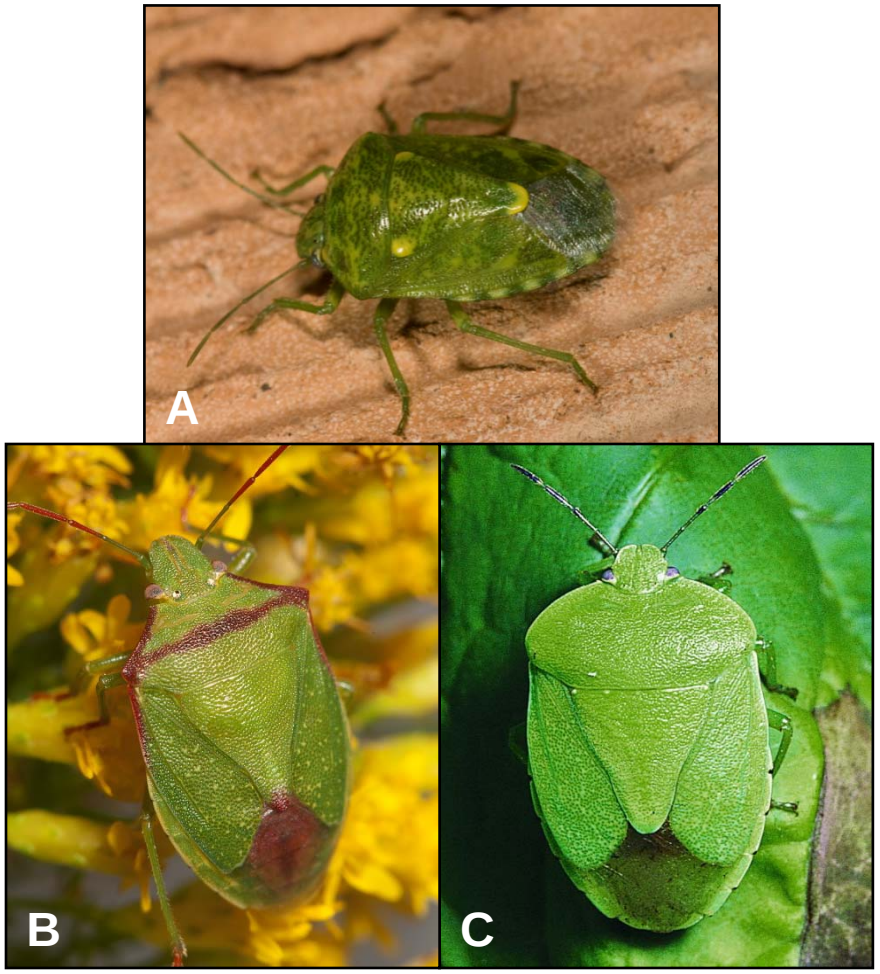

Fig. 82 A-C. A) *Banasa euchlora*. B) *Thyanta custator accerra*. C) *Chinavia pensylvanica.*

41. Anterior section of pronotum green, contrasting with reddish-brown posterior section (Fig. 81). Corium concolourous with posterior section of pronotum. Length 8.5-11.0 mm.

***Banasa dimidiata* (Say)**

(*Banasa calva* rarely is similarly coloured but differs in having a small dark spot on the hind angle of each abdominal sternite)

41'. Body green, sometimes with distinct ivory markings or with reddish band across middle of pronotum (Fig. 82 A-C); anterolateral pronotal margin occasionally reddish (Fig. 82 B). Length variable.

42

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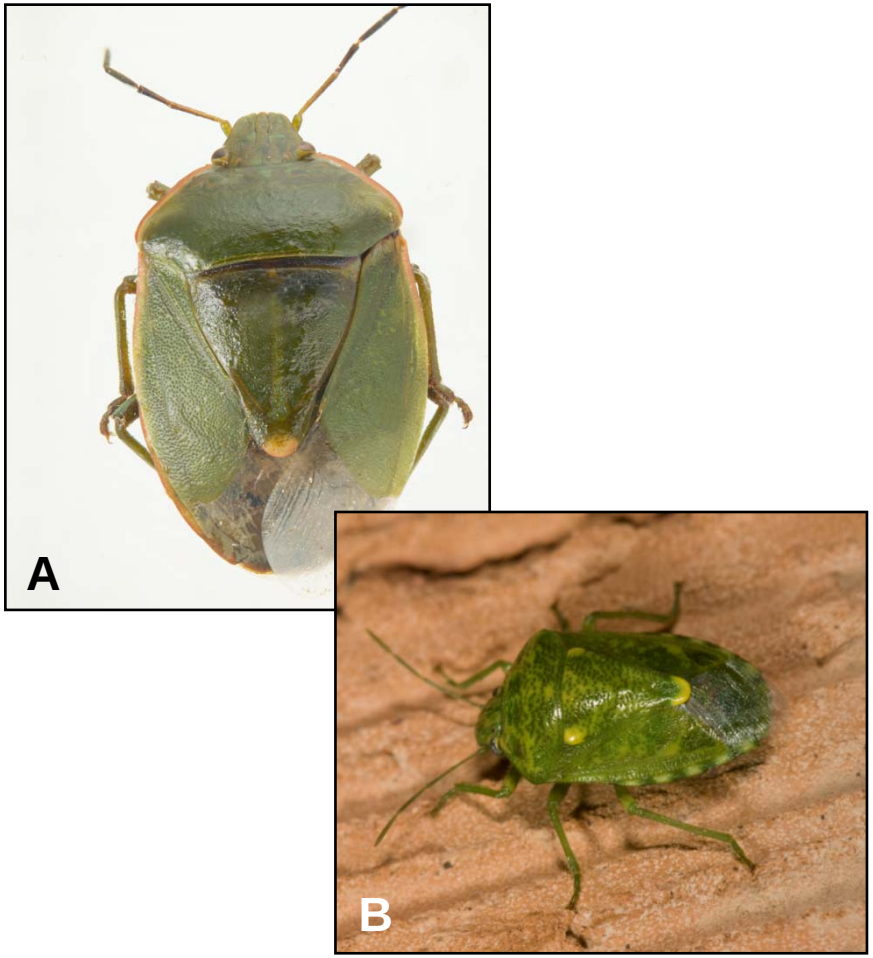

Fig. 83 A-B. A) *Chlorochroa persimilis*. B) *Banasa euchlora.*

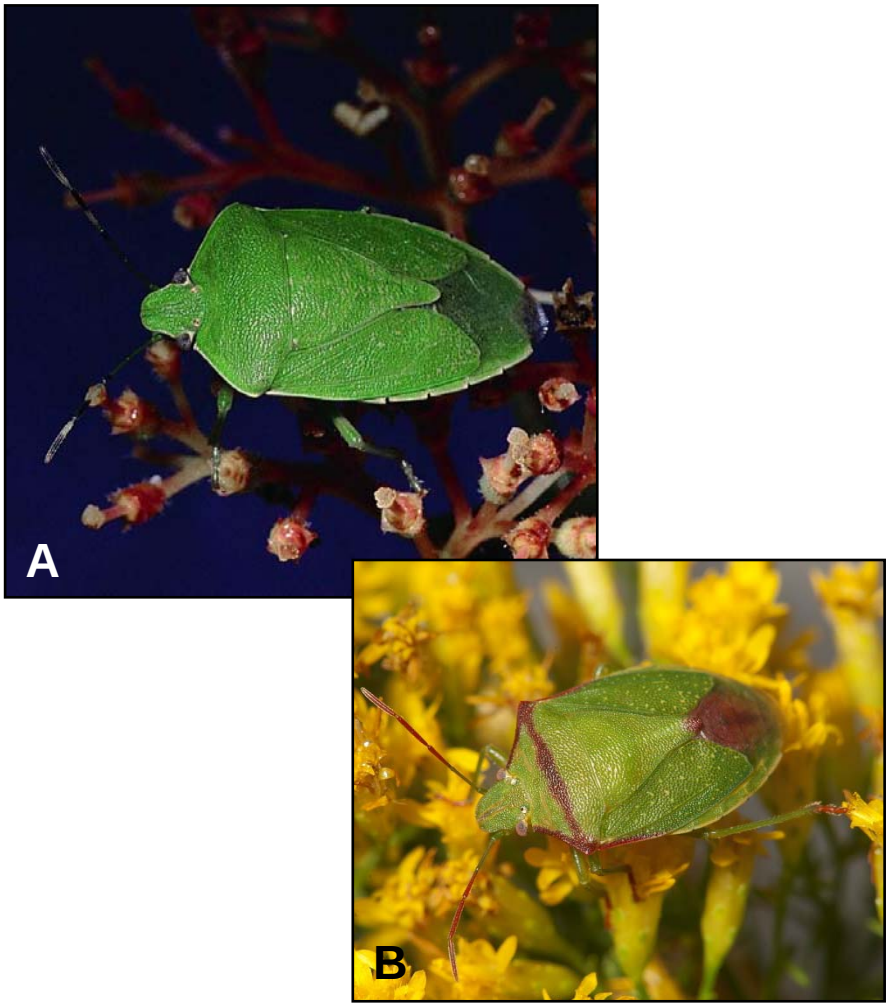

Fig. 84 A-B. A) *Chinavia hilaris*. B) *Thyanta custator accerra.*

42. Body green with ivory or reddish markings on anterolateral margin of pronotum (Fig. 83 A) or on scutellum (Fig. 83 B).

43

42'. Body completely green (Fig. 84 A) or with transverse reddish marking on pronotum (Fig. 84 B).

44

doi:10.3752/cjai.2013.24

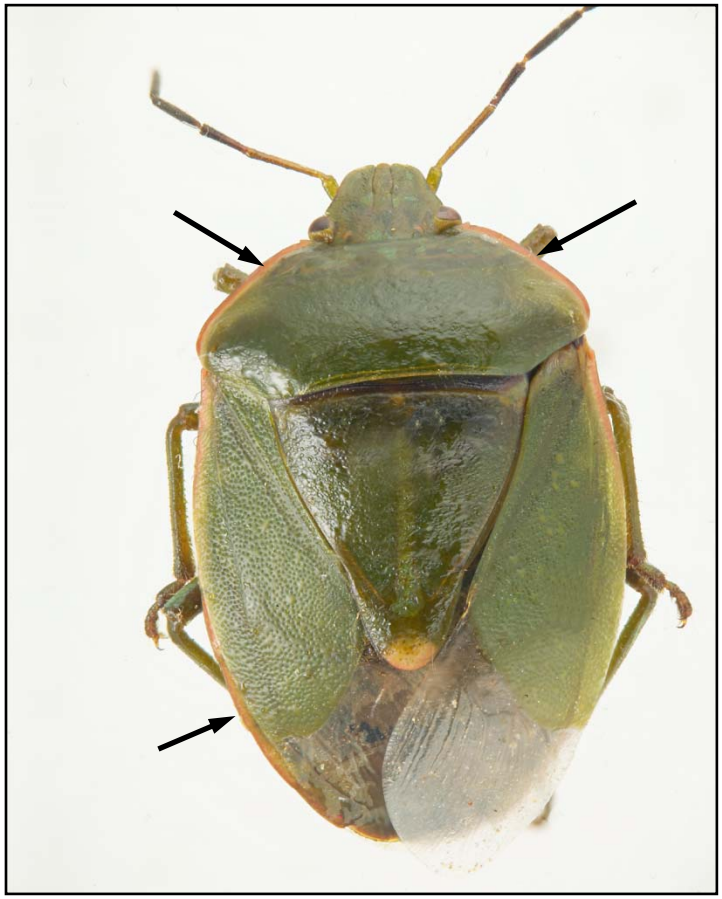

Fig. 85. *Chlorochroa persimilis*.

Fig. 86. *Banasa euchlora.*

43. Anterolateral pronotal margin and margin of abdomen pale yellow to orange, occasionally with inner pale margin and outer red margin (Fig. 85). Scutellum green with only apex ivory white. Antenna with apical segment black. Length 11.0-15.0 mm.

***Chlorochroa persimilis* Horváth**

43'. Body green, scutellum with basal angles and apex marked with a raised smooth, ivory spot (Fig. 86). Antenna entirely green. Length 9.0-11.0 mm.

***Banasa euchlora* Stål**

doi:10.3752/cjai.2013.24

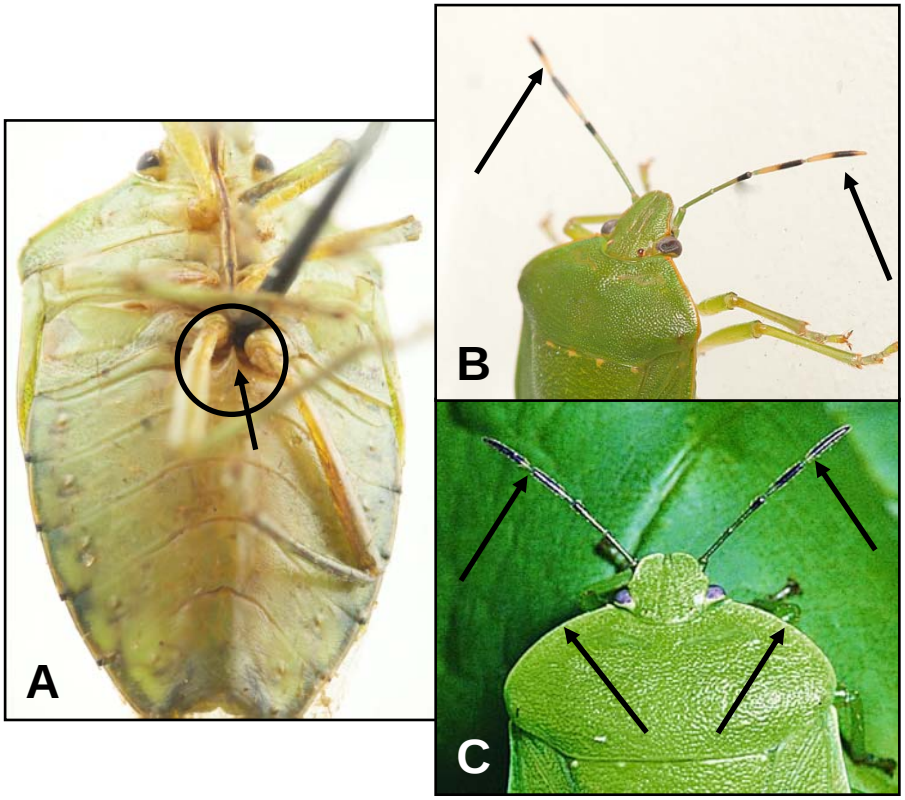

Fig. 87 A-C. A) *Chinavia hilaris*, ventral. B) *Chinavia hilaris* , dorsal. C) *C. pensylvanica*, dorsal.

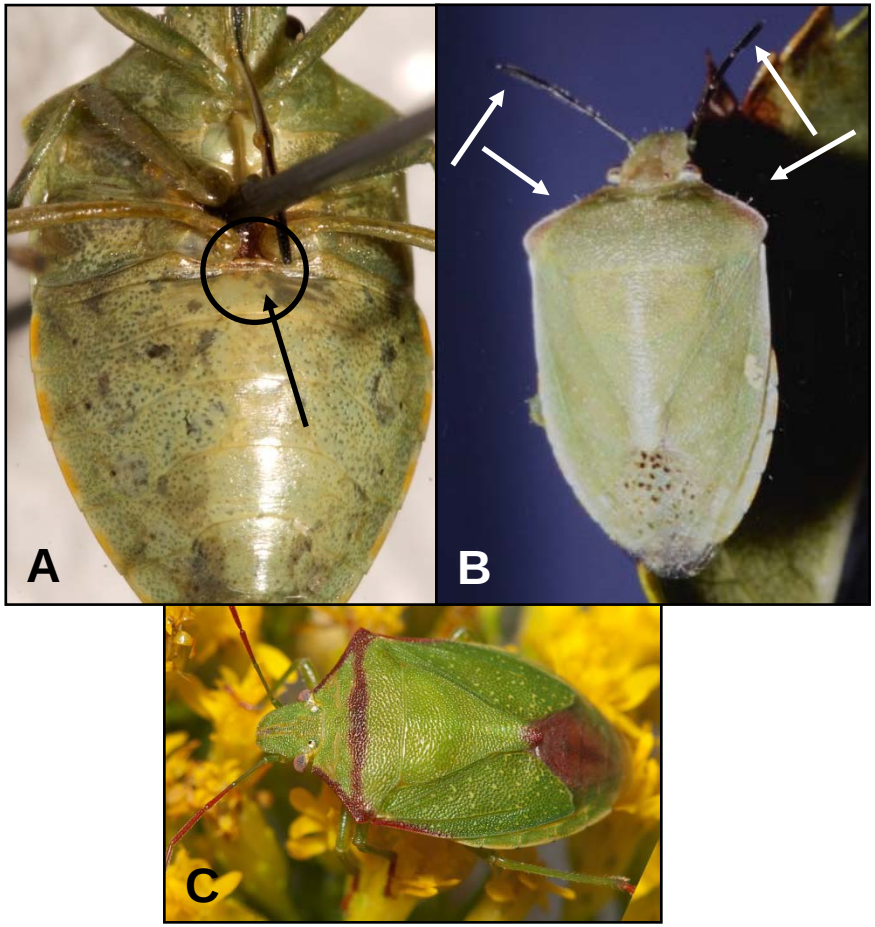

Fig. 88 A-C. *Thyanta custator accerra:* A) ventral; B-C) dorsal.

44. Abdominal sternite 2 armed with a projecting spine (Fig. 87 A). Anterolateral pronotal margin straight (Fig. 87 B) or arcuate (Fig. 87 C). Last antennal segment dark apically and pale basally (Fig. 87 B-C). Pronotum always green.

45

44'. Abdominal sternite 2 not armed with a spine (Fig. 88 A). Anterolateral pronotal margin straight to slightly concave (Fig. 88 B-C). Last antennal segment unicolourous, usually completely dark but sometimes dark red (Fig. 88 B). Pronotum occasionally with transverse reddish marking (Fig. 88 C).

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doi:10.3752/cjai.2013.24

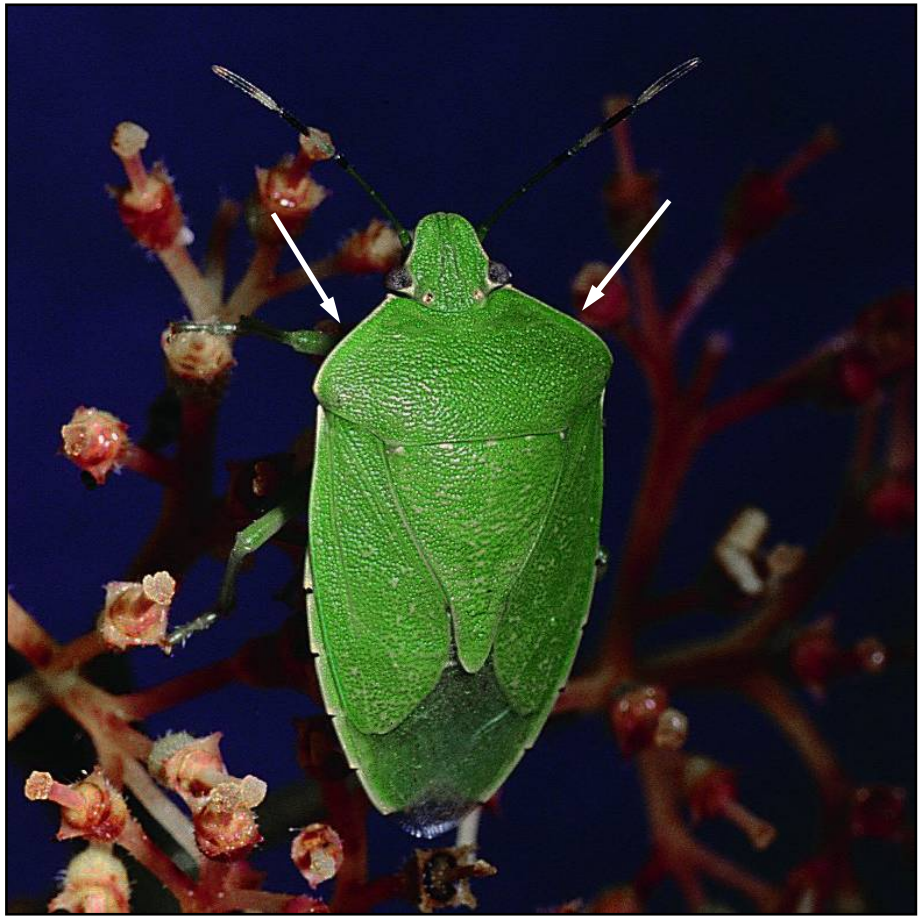

Fig. 89. *Chinavia hilaris*.

Fig. 90. *Chinavia pensylvanica*.

45. Anterolateral pronotal margin straight or nearly so (Fig. 89). Form elongate oval. Length 13.0-19.0 mm.

***Chinavia hilaris* (Say)**

(*Nezara viridula* (Linnaeus) will also key here; it has been recorded as adventive but is not established in Ontario)

45'. Anterolateral pronotal margin strongly arcuate (Fig. 90). Form broadly oval. Length 12.5-14.5 mm.

***Chinavia pensylvanica* (Gmelin)**

doi:10.3752/cjai.2013.24

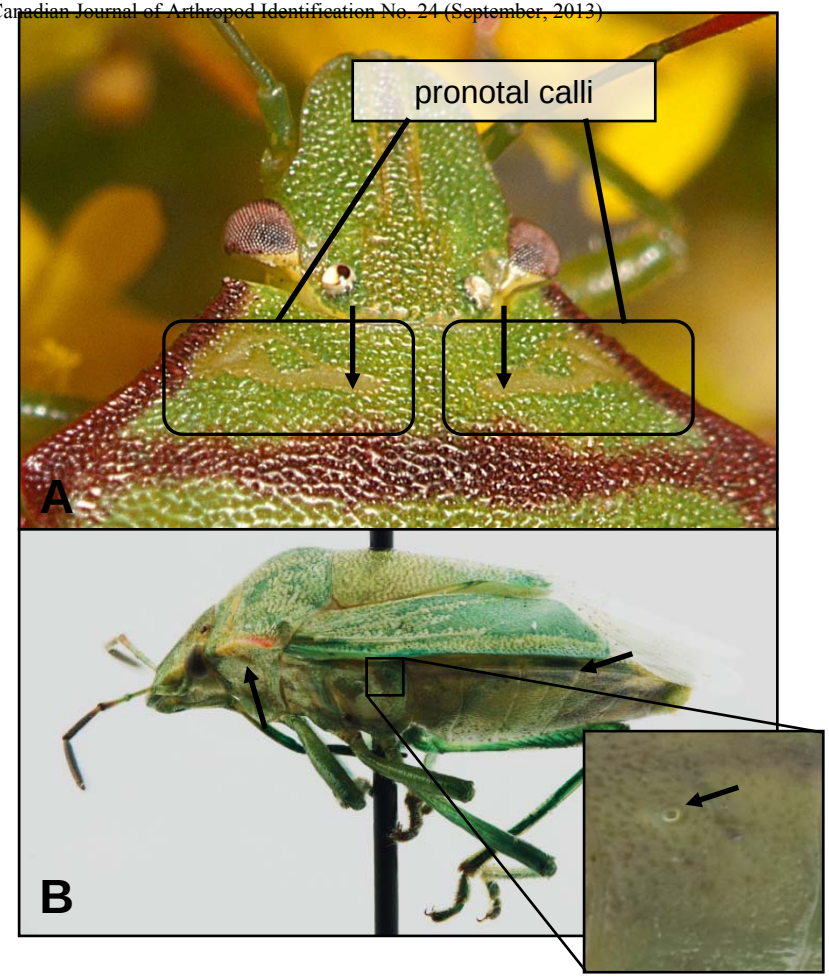

Fig. 91 A-B. *Thyanta custator accerra*: A) head and pronotum, dorsal; B) lateral.

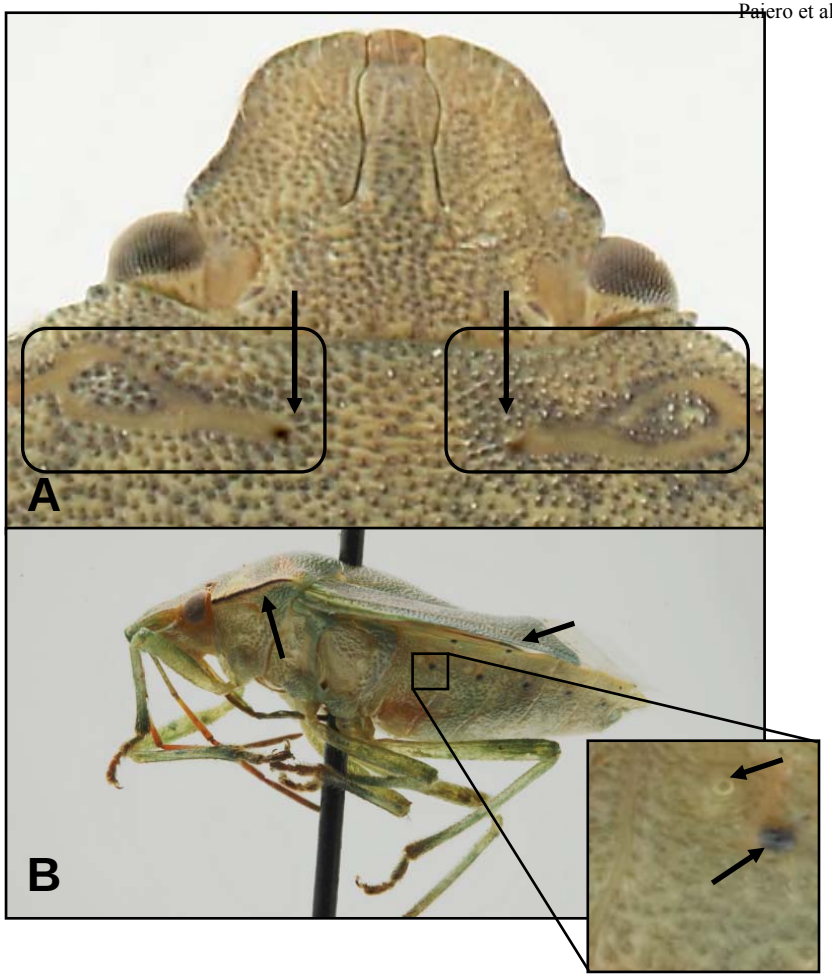

Fig. 92 A-B. *Thyanta calceata*: A) head and pronotum, dorsal; B) lateral.

37. Anterolateral pronotal margin not black (Fig. 91 B). Inner angle of each pronotal callus pale (Fig. 91 A). Lateral margin of abdominal connexivum without row of dark spots (Fig. 91 B). Abdominal venter with postspiracular spots reduced or absent (Fig. 91 B). Length 9.0-13.0 mm.

***Thyanta custator accerra* McAtee**

(Green in summer, brown in fall)

37'. Anterolateral pronotal margin black (Fig. 92 B). Inner angle of each pronotal callus with black spot (Fig. 92 A). Lateral margin of abdominal connexivum with row of dark spots (Fig. 92 B). Abdominal venter with row of black postspiracular spots (Fig. 92 B). Length 10.0-11.0 mm.

***Thyanta calceata* (Say)**

(Green in summer, brown in fall)

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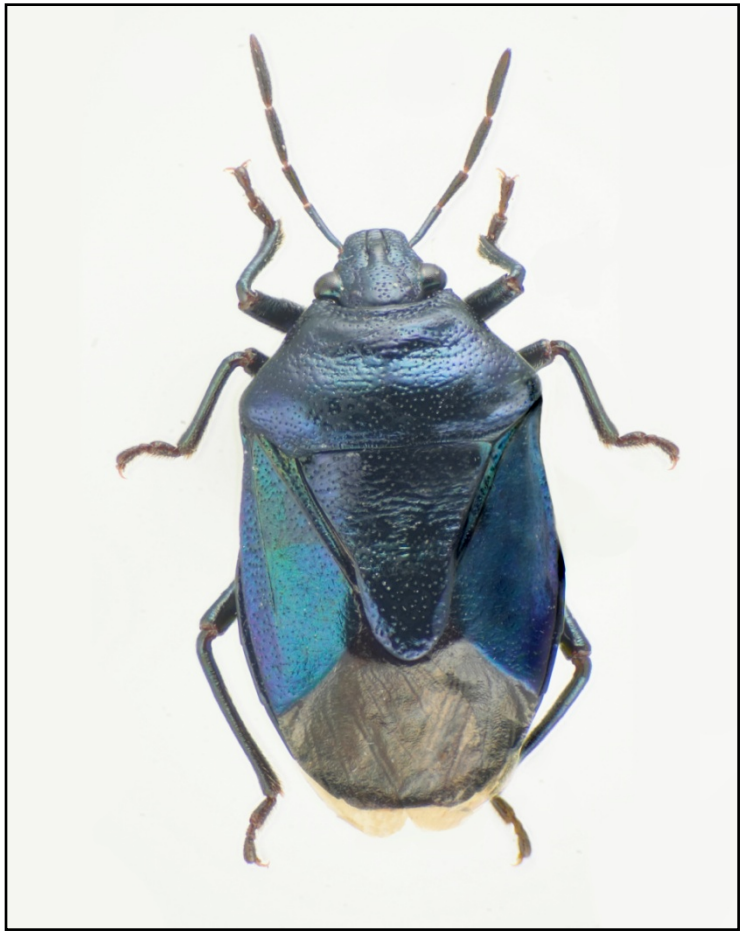

Fig. 93. *Zicrona caerulea*.

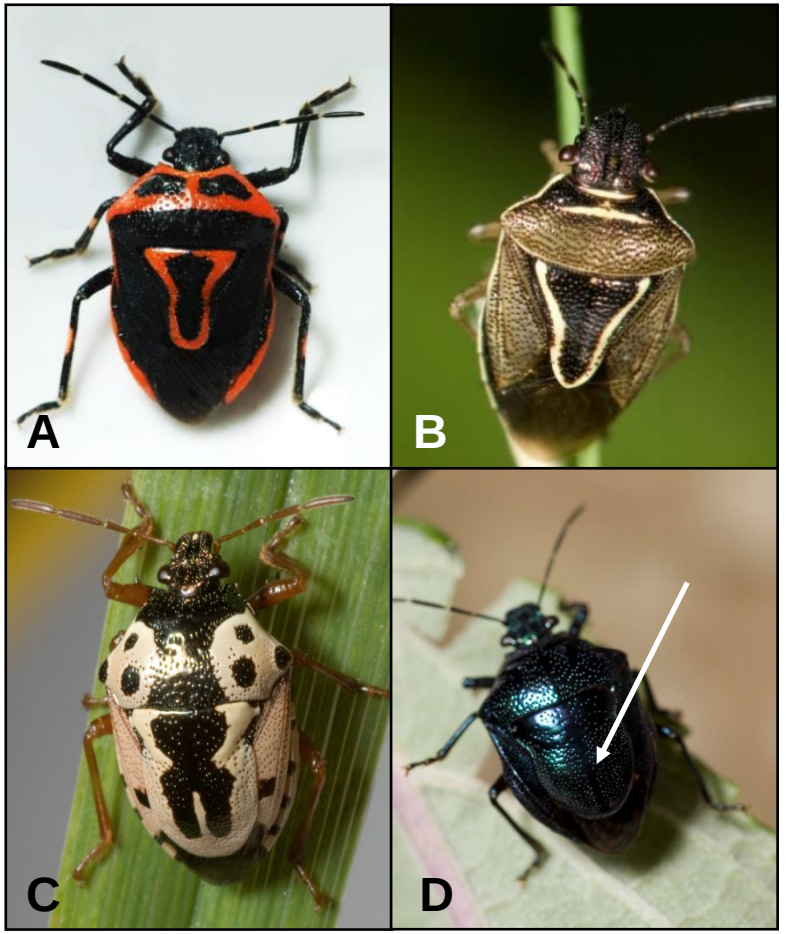

Fig. 94 A-D. A) *Perillus bioculatus*. B) *Mormidea lugens*. C-D) *Stiretrus anchorago.*

47. Colour metallic purple-blue or dark blue with no distinct markings (Fig. 93). Scutellum narrowly rounded. Length 7.0-9.0 mm.

***Zicrona caerulea* (Linnaeus)**

47'. Colour usually black or brown, with distinct red, white, orange, or yellow markings (Fig. 94 A-C); if metallic blue, scutellum broadly rounded (Fig. 94 D). Length variable.

48

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Fig. 95. *Stiretrus anchorago*.

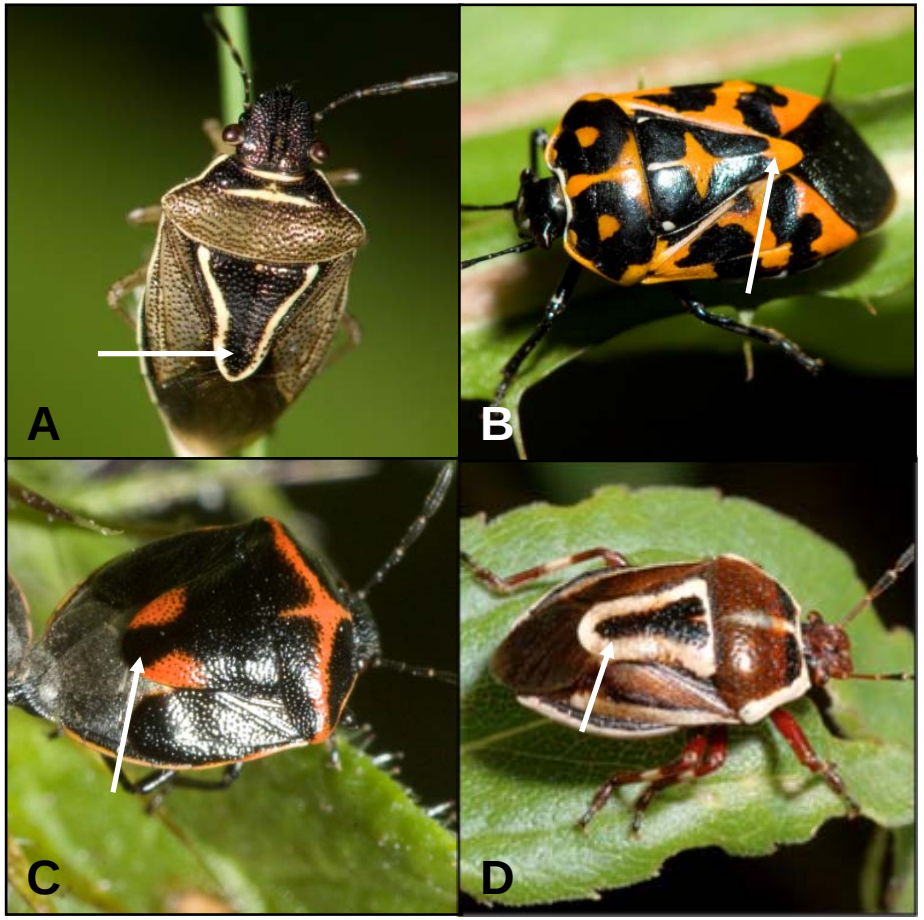

Fig. 96 A-D. A) *Mormidea lugens*. B) *Murgantia histrionica.* C) *Cosmopepla lintneriana*. D) *Perillus circumcinctus*.

48. Scutellum “U” shaped, apex two or more times width of corium and almost reaching abdominal apex (Fig. 95). Body black with irregular ivory-coloured markings. Length 7.0-10.0 mm.

***Stiretrus anchorago* (Fabricius)**

48’. Scutellum narrow, apex at most slightly wider than corium and ending well before abdominal apex (Fig. 96 A-D). Body colour and size variable.

49

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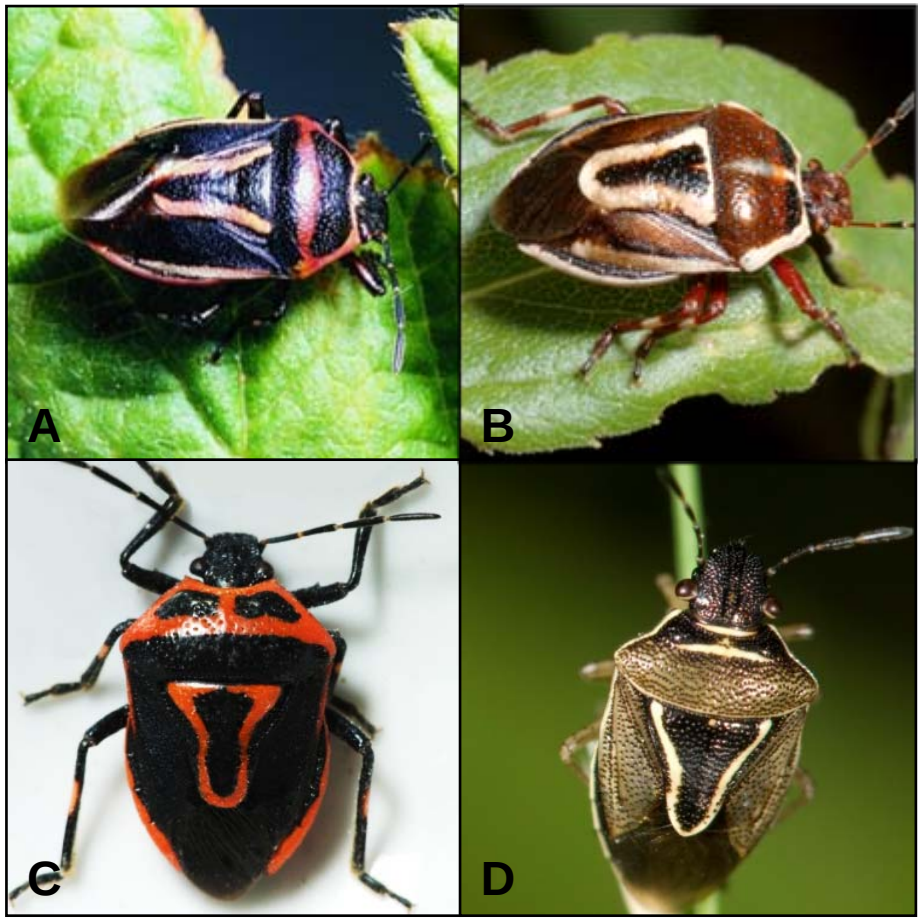

Fig. 97 A-D. A) *Perillus exaptus.* B) *P. circumcinctus.* C) *P. bioculatus.* D) *Mormidea lugens.*

Fig. 98 A-B. A) *Murgantia histrionica,* B) *Cosmopepla lintneriana.*

49. Scutellum outlined laterally with red or ivory. Dorsal pattern resembles one of Fig. 97 A-D.

50

49'. Scutellum with markings other than pigmented lateral margins. Colour red and black or orange and black but never with ivory pattern. Dorsal pattern resembles Fig. 98 A or B.

54

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Fig. 99. *Mormidea lugens.*

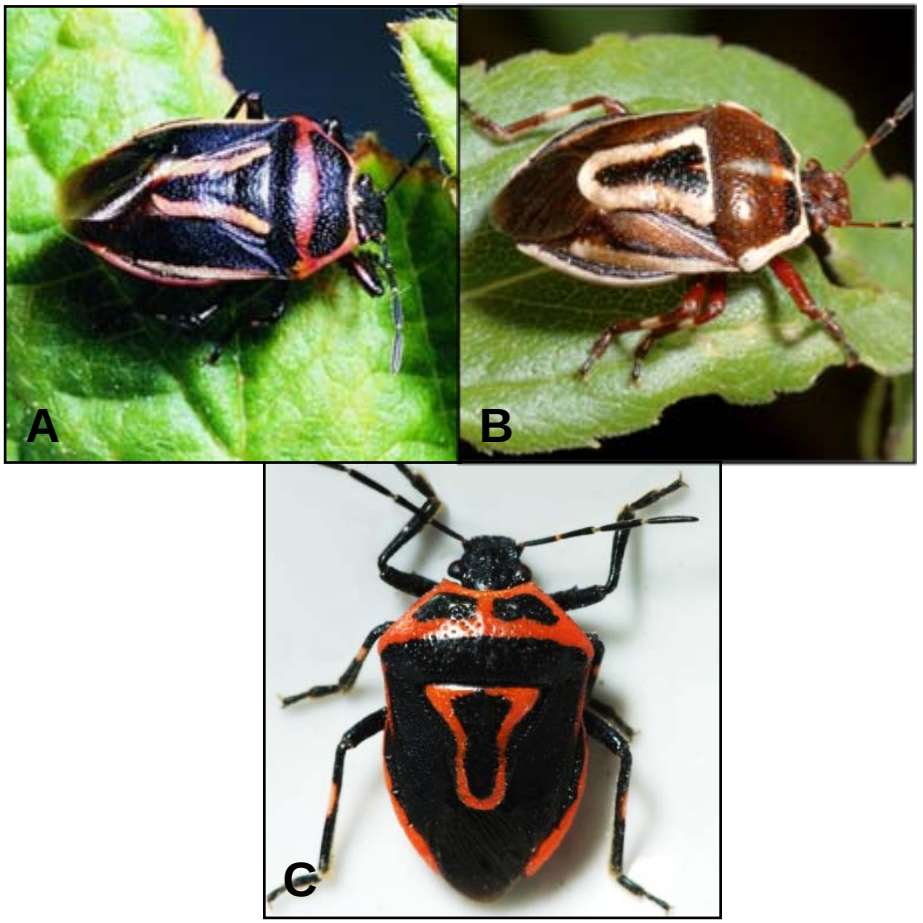

Fig. 100 A-C. A) *Perillus exaptus.* B) *P. circumcinctus*. C) *P. bioculatus.*

50. Anterior half of pronotum with two transverse ivory-coloured lines (Fig. 99). Anterolateral pronotal margin concave, colour ivory. Length 5.0-7.5 mm.

***Mormidea lugens* (Fabricius)**

50'. Anterior half of pronotum black and red or black and ivory but never with two transverse ivory-coloured lines (Fig. 100 A-C). Anterolateral pronotal margin straight or slightly convex, colour red or ivory. Length variable.

51

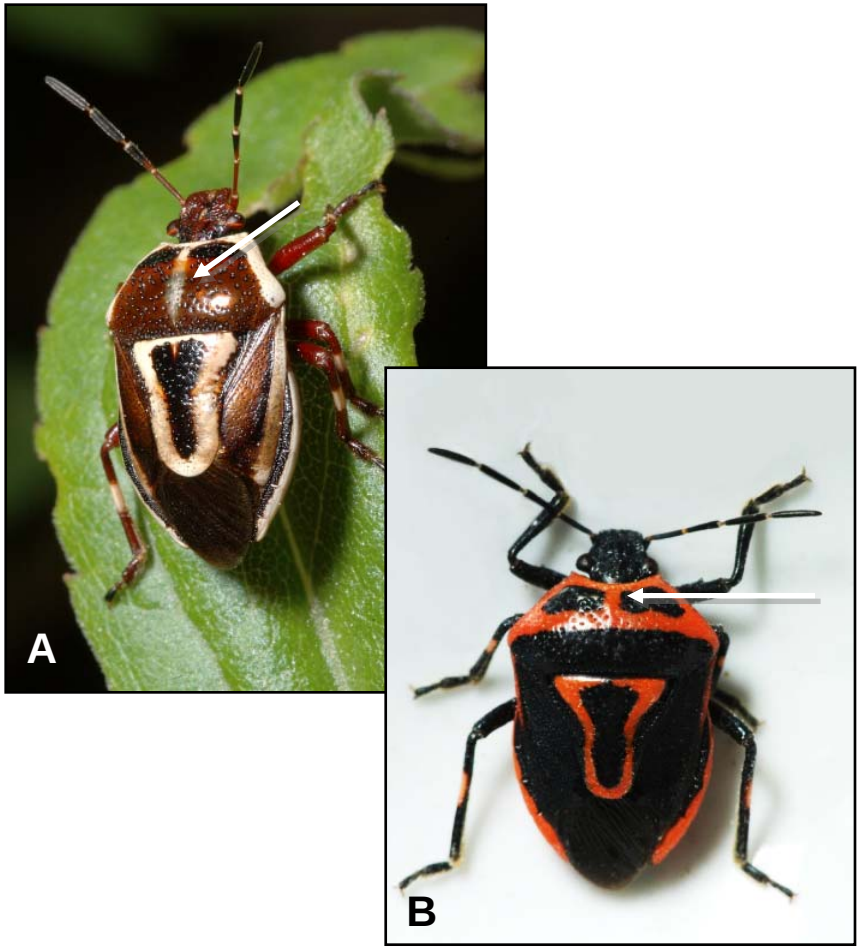

Fig. 101 A-B. A) *Perillus circumcinctus.* B) *P. bioculatus*.

Fig. 102. *Perillus exaptus.*

51. Pronotum red-and-black or ivory-and-black, with distinct longitudinal midline on pronotum (Fig. 101 A-B). Colour black and red or black/brown and ivory, never black, red, and ivory as in Fig. 102. Length 7.0-11.5 mm.

52

51'. Pronotum with continuous transverse dark stripe (Fig. 102). Colour black, red, and ivory. Length 5.0-8.0 mm.

Perillus exaptus (Say)

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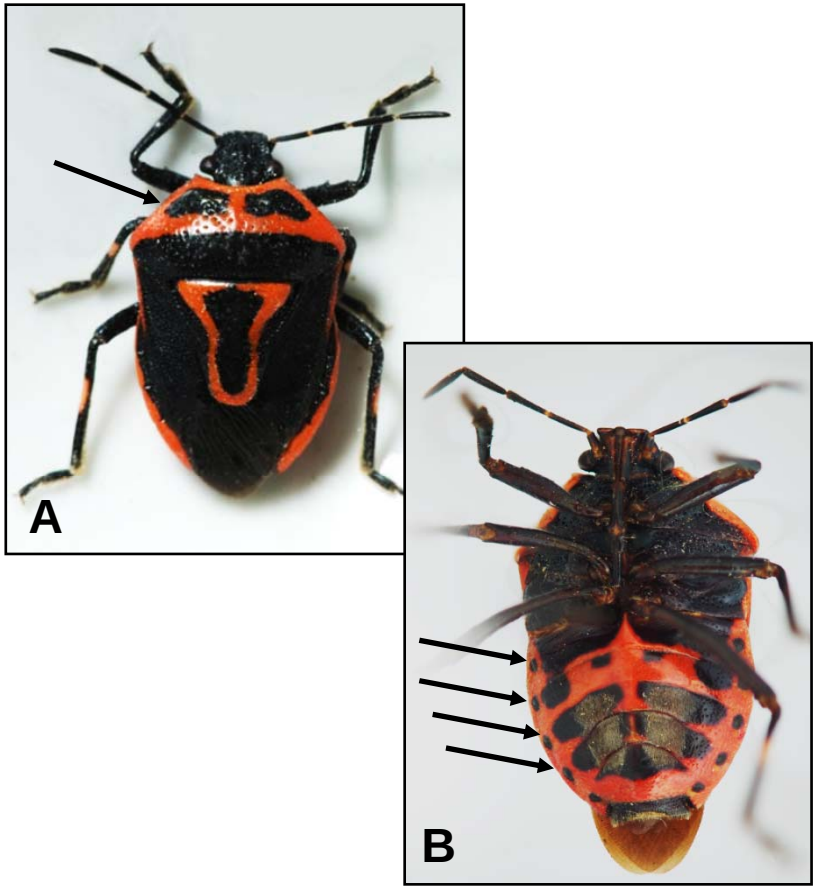

Fig. 103 A-B. *Perillus bioculatus*: A) dorsal; B) ventral.

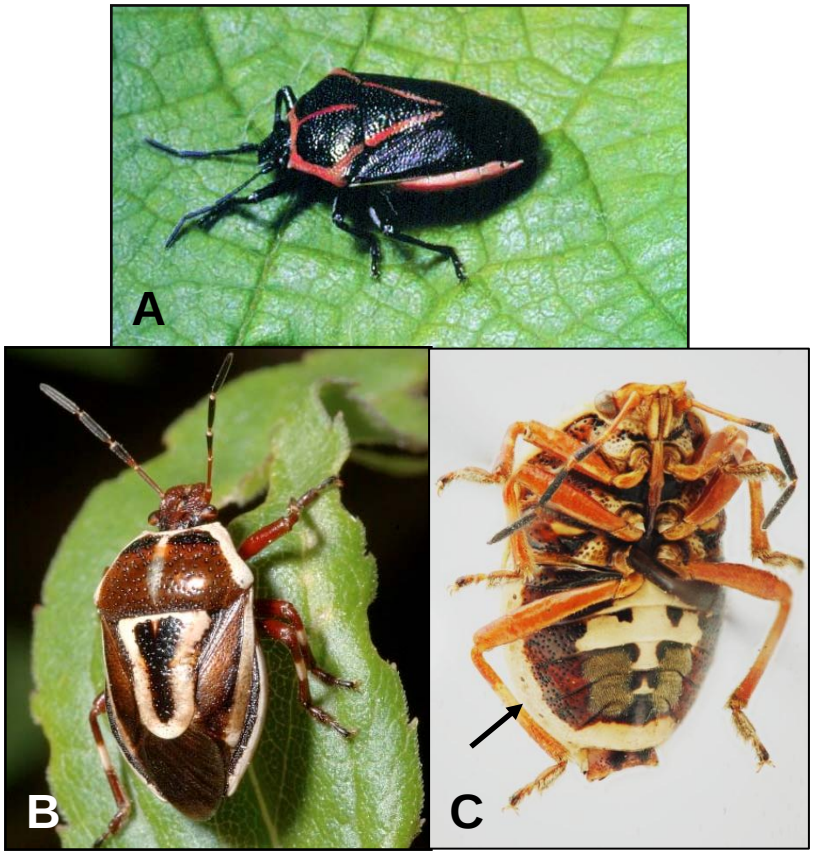

Fig. 104 A-C. A) *Perillus strigipes.* B) *P. circumcinctus,* dorsal. C) *P. circumcinctus,* ventral.

52. Anterior half of pronotum red with a pair of black spots; middle longitudinal stripe not extending beyond middle (Fig. 103 A). Ontario specimens usually red and black, rarely ivory and black. Abdominal venter with a row of submarginal spots surrounding spiracles (Fig. 103 B). Length 8.5-11.5 mm.

***Perillus bioculatus* (Fabricius)**

52'. Anterior half of pronotum without pair of black spots; middle longitudinal stripe extending onto posterior half of pronotum (Fig. 104 A-B). Colour either ivory and black/brown or red and black. Spiracles black but not surrounded by large submarginal black spots (Fig. 104 C). Length 7.0-11.0 mm.

53

Fig. 105. *Perillus strigipes.*

Fig. 106. *Perillus circumcinctus.*

53. Colour red and black. Markings on pronotal margins continuous with markings on scutellum, confluent with scutellar markings (Fig. 105). Scutellar markings V-shaped. Hemelytron entirely black or with a narrow red or white margin. Antenna black. Length 7.0-10.0 mm.

***Perillus strigipes* (Herrich-Schäffer)**

53'. Colour black and ivory or reddish-brown and ivory. Markings on pronotal margins not continuous with markings on scutellum (Fig. 106). Scutellum with complete ivory-coloured margin, apex U-shaped. Hemelytron with broad ivory margin. Antenna black with segments 1, 2, and basal half of 3 brown. Length 9.0-11.0 mm.

***Perillus circumcinctus* Stål**

Fig. 107. *Cosmopepla lintneriana*

Fig. 108. *Murgantia histrionica.*

54. Pronotum with red cross (Fig. 107). Apex of scutellum black with two red spots. Corium black. Length 4.0-7.0 mm.

***Cosmopepla lintneriana* Kirkaldy**

54'. Pronotum, scutellum and elytra all with orange or yellow markings (Fig. 108). Length 8.0-11.5 mm.

***Murgantia histrionica* (Hahn)**

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Fig. 109. *Amaurochrous cinctipes*.

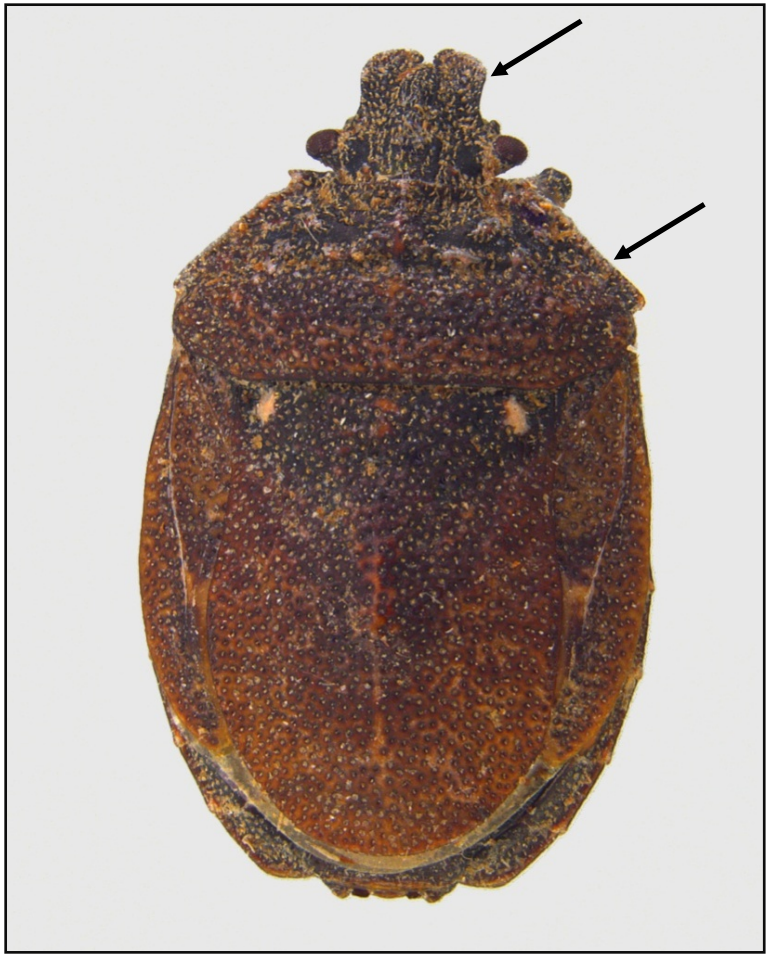

Fig. 110. *Amaurochrous brevitylus.*

55. Anterolateral pronotal margin emarginate (Fig. 109). Juga as long as or slightly longer than tylus. Length 5.0-8.0 mm.

***Amaurochrous cinctipes* (Say)**

55'. Anterolateral pronotal margin straight (Fig. 110). Juga distinctly longer than tylus. Length 5.0-6.0 mm.

***Amaurochrous brevitylus* Barber & Sailer**

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Complete key to the parent bugs (Acanthosomatidae) of Ontario

Continue to key

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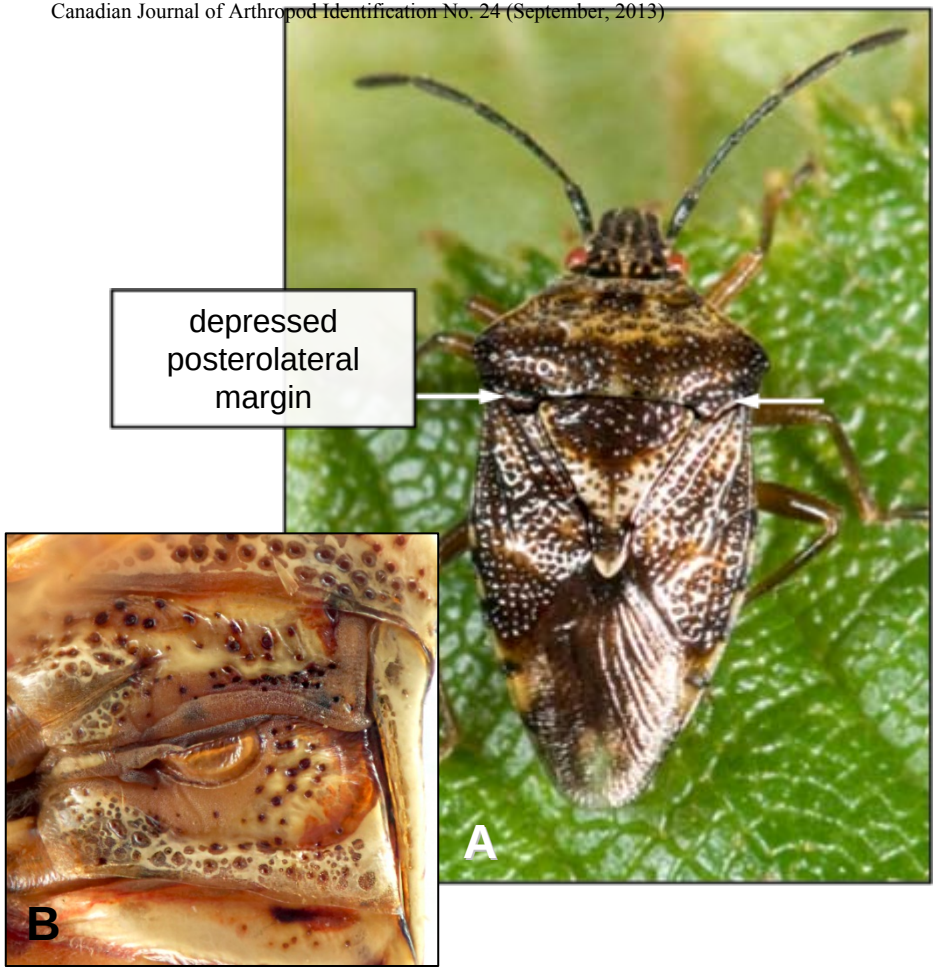

Fig. 1 A-B. *Elasmucha lateralis*: A) dorsal; B) ostiolar canal.

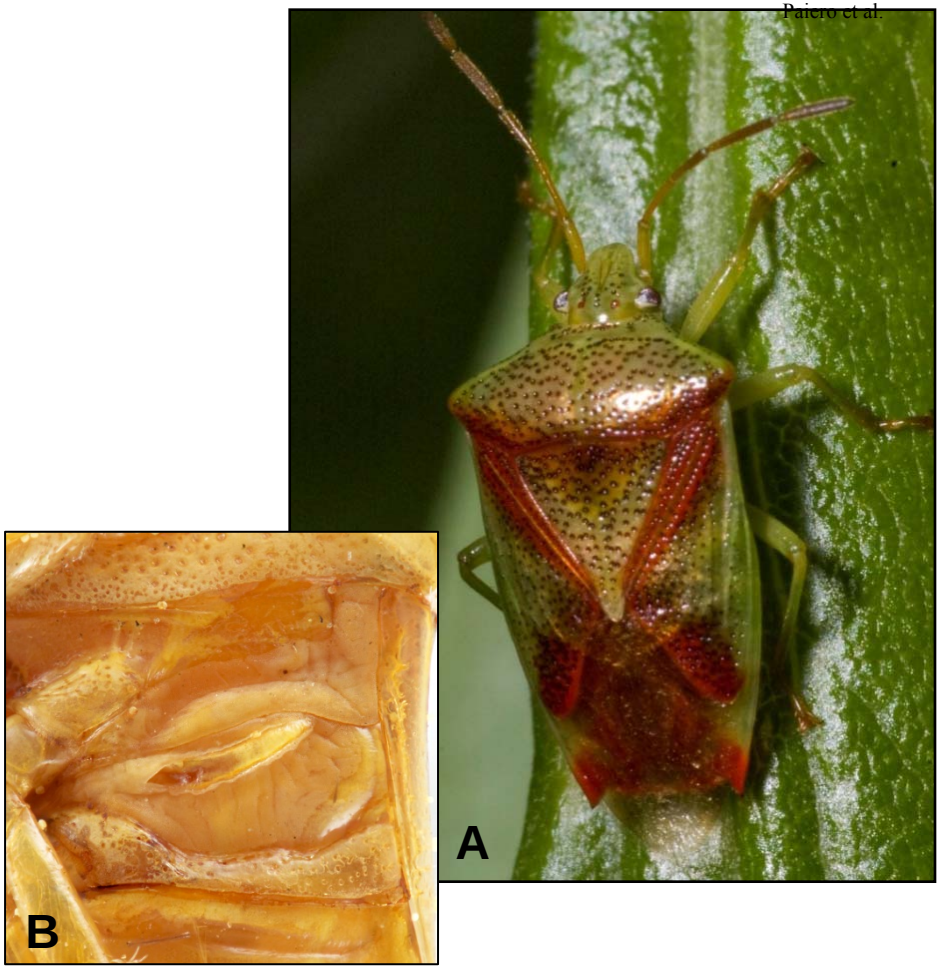

Fig. 2 A-B. *Elasmostethus cruciatus*: A) dorsal; B) ostiolar canal.

1. Pronotum with posterolateral margins depressed, inner posterior angles produced posteriorly (Fig. 1 A); ostiolar canal short, reaching only to middle of metapleuron (Fig. 1 B); length 6.5–9.0 mm.

Elasmucha lateralis (Say)

1'. Pronotum with posterolateral margins not depressed or only slightly so, inner posterior angles not produced posteriorly (Fig. 2A); ostiolar canal long, much surpassing middle of metapleuron (Fig. 2B); length 8.0–10.0 mm.

(*Elasmostethus*) 2

doi:10.3752/cjai.2013.24

Fig. 3. *Elasmostethus cruciatus*.

Fig. 4. *Elasmostethus atricornis*.

2. Dorsum with bright red "X" marking; antenna pale with apical 3 segments occasionally slightly darker; humerus pale, often tinged with red; pronotal punctures dark (Fig. 3). Length 8.0-10.0 mm.

Elasmostethus cruciatus (Say)

2'. Dorsum with brownish black "X" marking; antenna entirely black or maroon; humerus black; pronotal punctures pale (Fig. 4). Length 9.0-10.0 mm.

Elasmostethus atricornis (Van Duzee)

Complete key to the stink bugs (Pentatomidae) of Ontario

Continue to key

doi:10.3752/cjai.2013.24

Fig. 1. *Amaurochrous cinctipes*.

Fig. 2. *Stiretrus anchorago*.

1. Eyes prominent, pedunculate (stalked) (Fig. 1). Scutellum U-shaped, almost reaching apex of abdomen. Frenum less than one-fourth as long as scutellum.

Podopinae – *Amaurochrous* 2

1'. Eyes not pedunculate (Fig. 2). Scutellum usually subtriangular but if large and U-shaped then colours bright and contrasting (*Stiretrus*). Frenum at least one-fourth as long as scutellum.

3

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Fig. 3. *Amaurochrous cinctipes*.

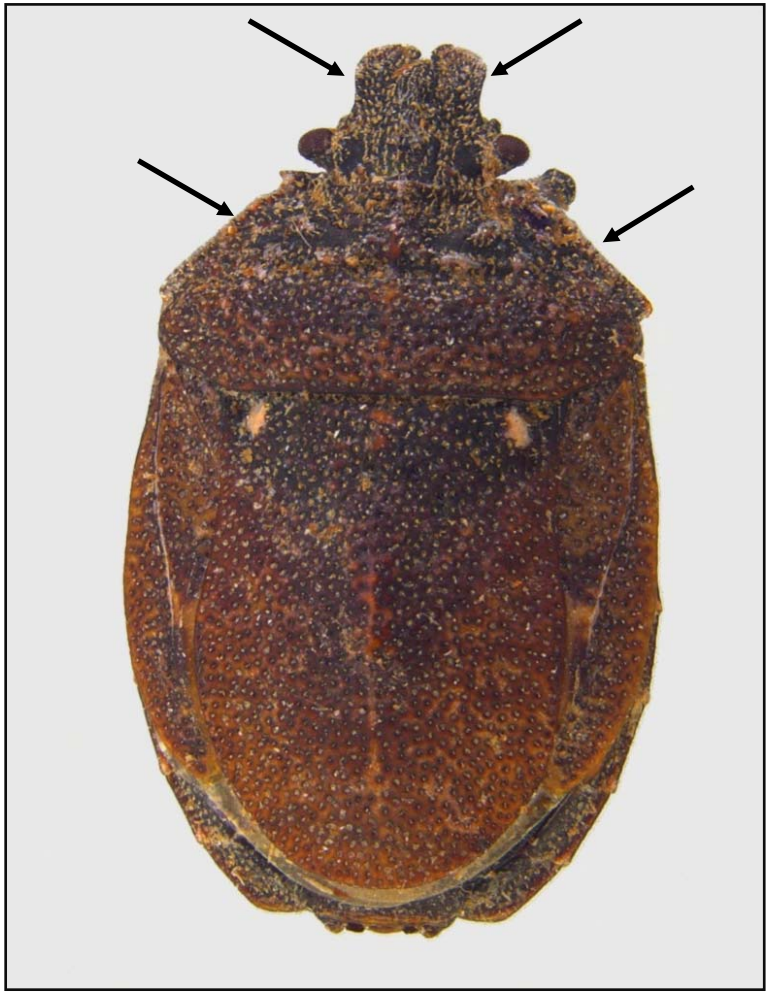

Fig. 4. *Amaurochrous brevitylus*.

2. Juga and tylus equal or subequal in length (Fig. 3). Anterolateral margin of pronotum strongly sinuate. Length 5.0-8.0.

Amaurochrous cinctipes (Say)

2'. Juga distinctly longer than tylus, often contiguous anteriorly (Fig. 4). Anterolateral margin of pronotum straight to weakly sinuate. Length 5.0-6.0.

Amaurochrous brevitylus Barber & Sailer

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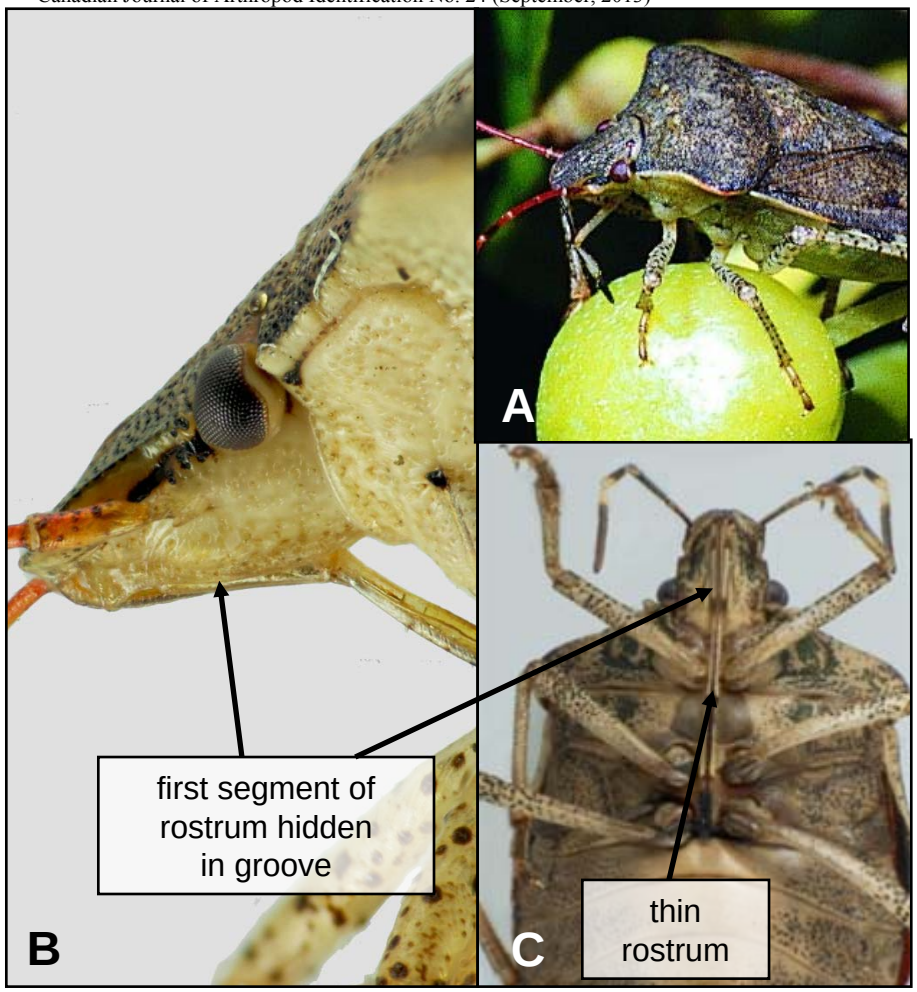

Fig. 5 A-C. A) *Euschistus tristigmus luridus*, dorsal; B) *E. tristigmus luridus*, lateral; C) *Halyomorpha halys*, ventral.

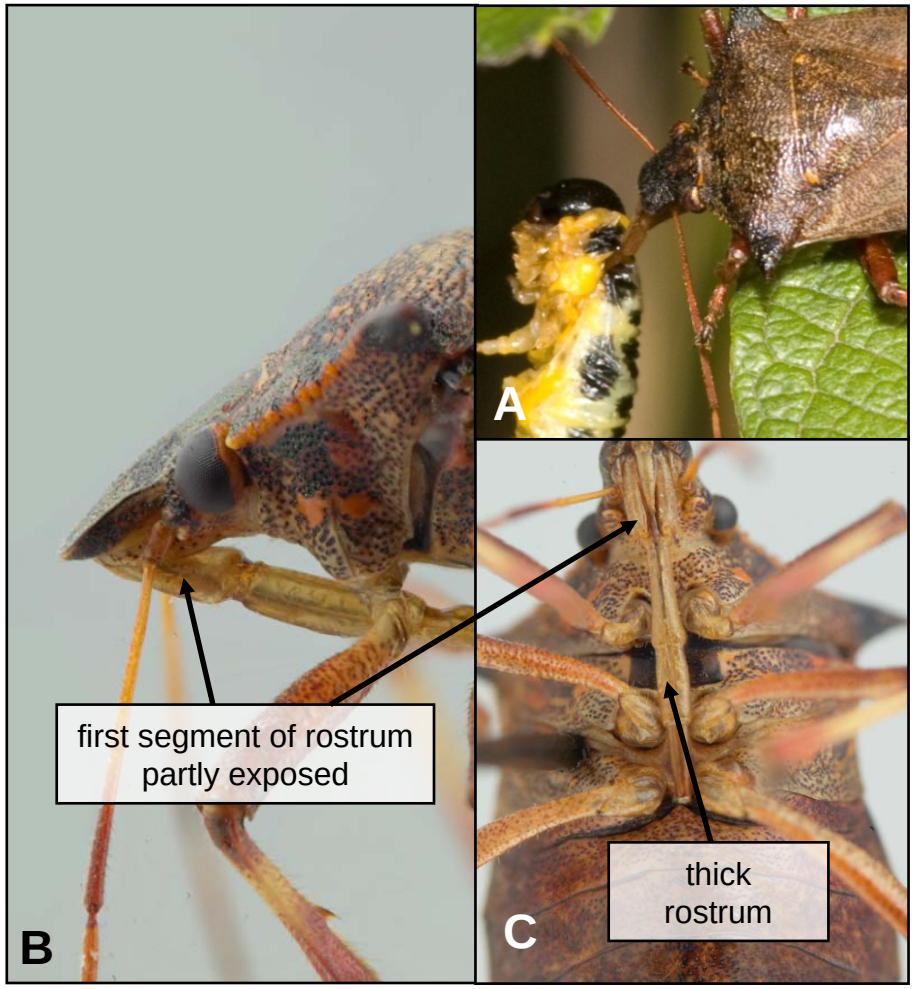

Fig. 6 A-C. *Picromerus bidens*: A) dorsal; B) lateral; C) ventral.

3. Rostrum slender, first segment lying between subparallel bucculae (Fig. 5 A-C).

(Pentatominae) 4

3'. Rostrum thicker, first segment free, usually with only base between bucculae; bucculae converging beneath (Fig. 6 A-C).

(Asopinae) 39

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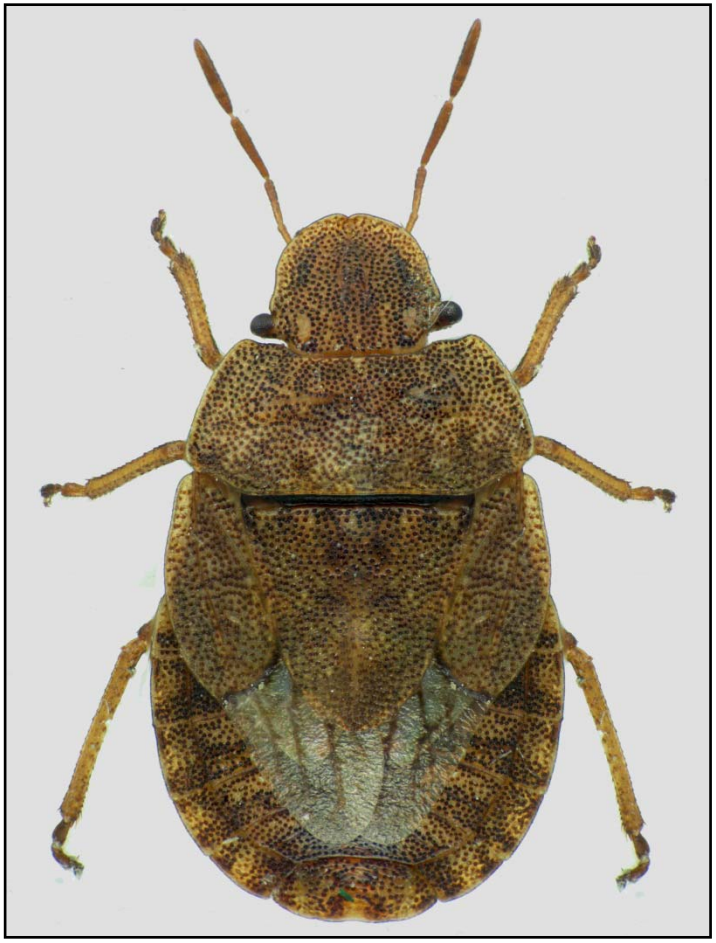

Fig. 7. *Sciocoris microphthalmus*.

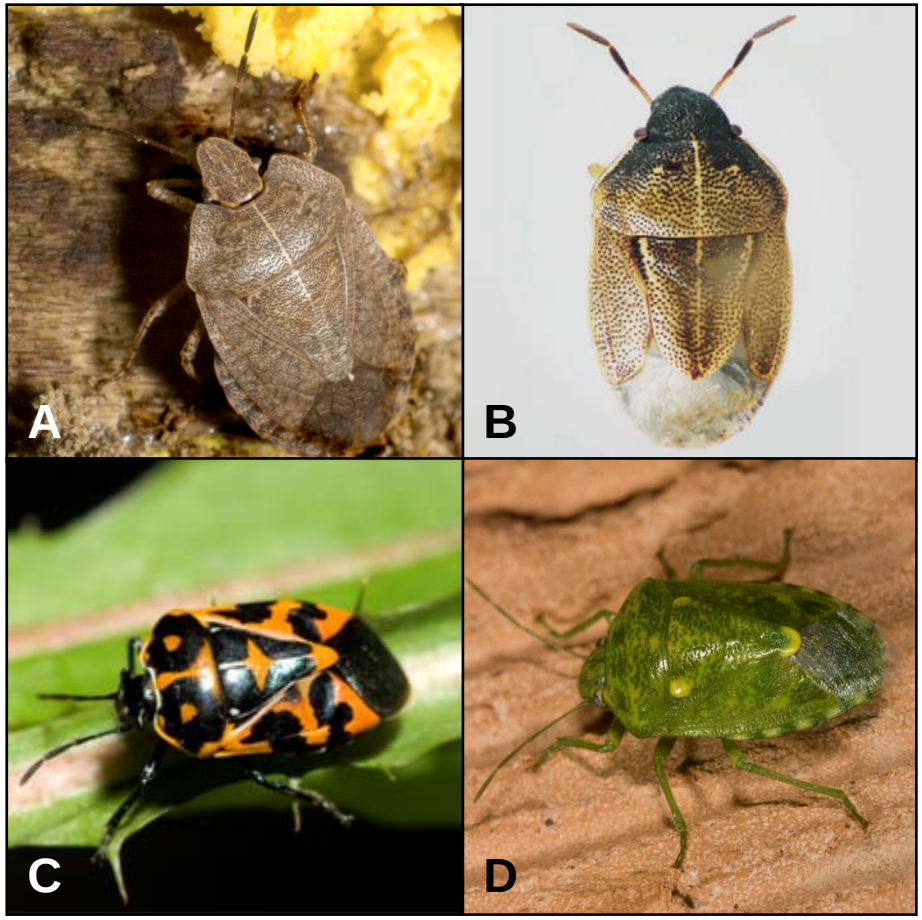

Fig. 8 A-D. A) *Menecles insertus;* B) *Neottiglossa trilineata;* C) *Murgantia histrionica;* D) *Banasa euchlora*.

4. Body broad, flattened, anterolateral pronotal margin explanate (strongly flattened and expanded), broadest behind middle; head about as wide as base of scutellum (Fig. 7). Length 5.0-7.0 mm.

Sciocoris microphthalmus Flor

4'. Body not distinctly flattened; if anterolateral pronotal margin explanate then width of head much less than base of scutellum (Fig. 8 A-D). Size variable.

5

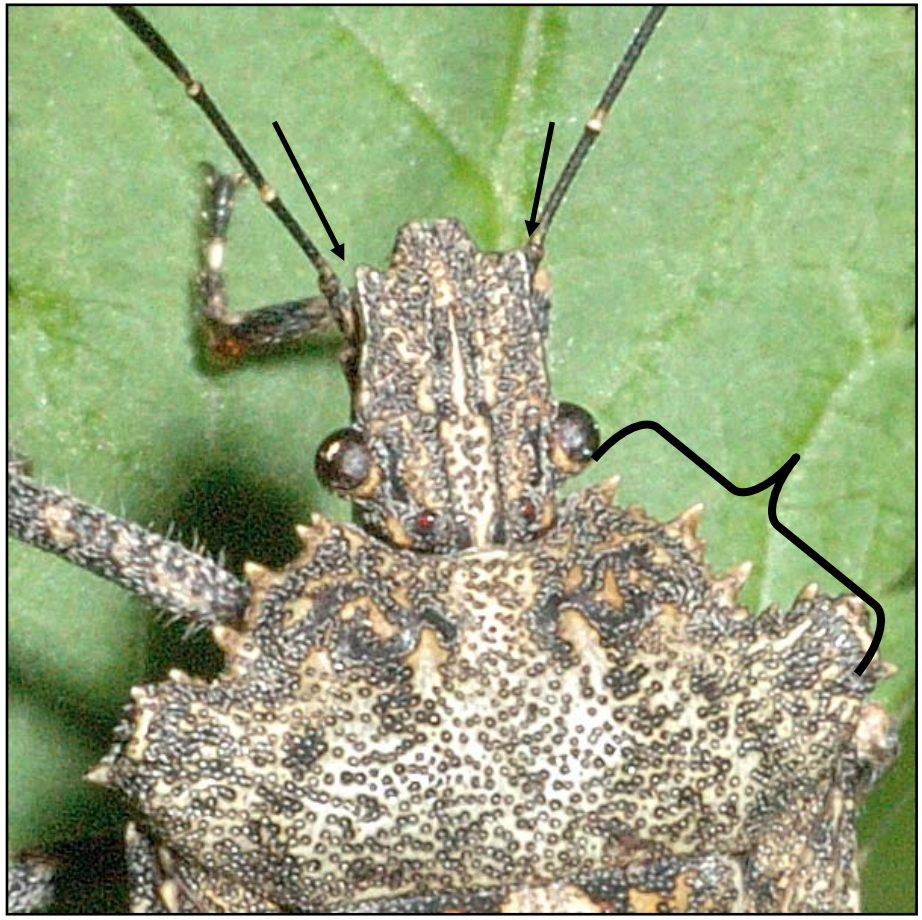

Fig. 9. *Parabrochymena arborea*, pronotum.

Fig. 10. *Halyomorpha halys*, pronotum.

5. Jugum with anteapical tooth on outer margin (Fig. 9). Anterolateral margin of pronotum with distinct teeth. Abdominal venter with shallow, median groove that becomes obsolete (indistinct) posteriorly.

6

5'. Jugum without anteapical tooth (Fig. 10). Pronotum with anterolateral margin smooth to crenulate, without large teeth. Abdominal venter usually without median groove although occasionally with slight indentation basally.

7

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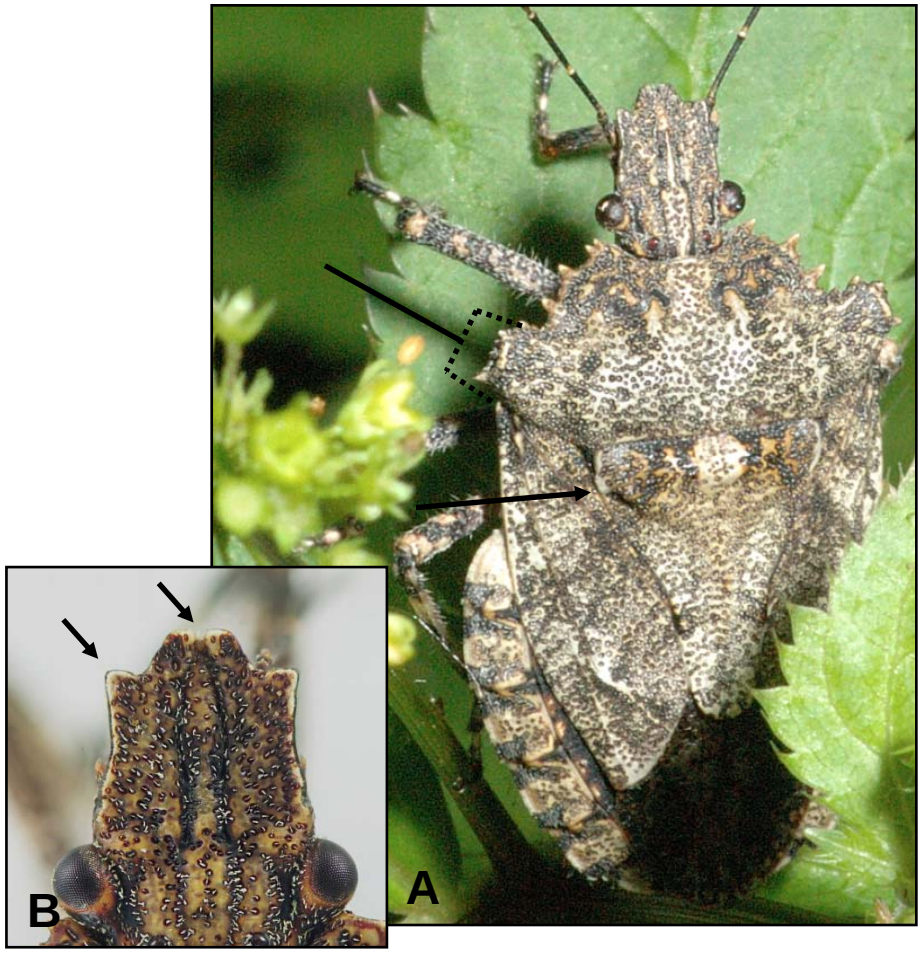

Fig. 11 A-B. *Parabrochymena arborea*: A) dorsal; B) head, dorsal.

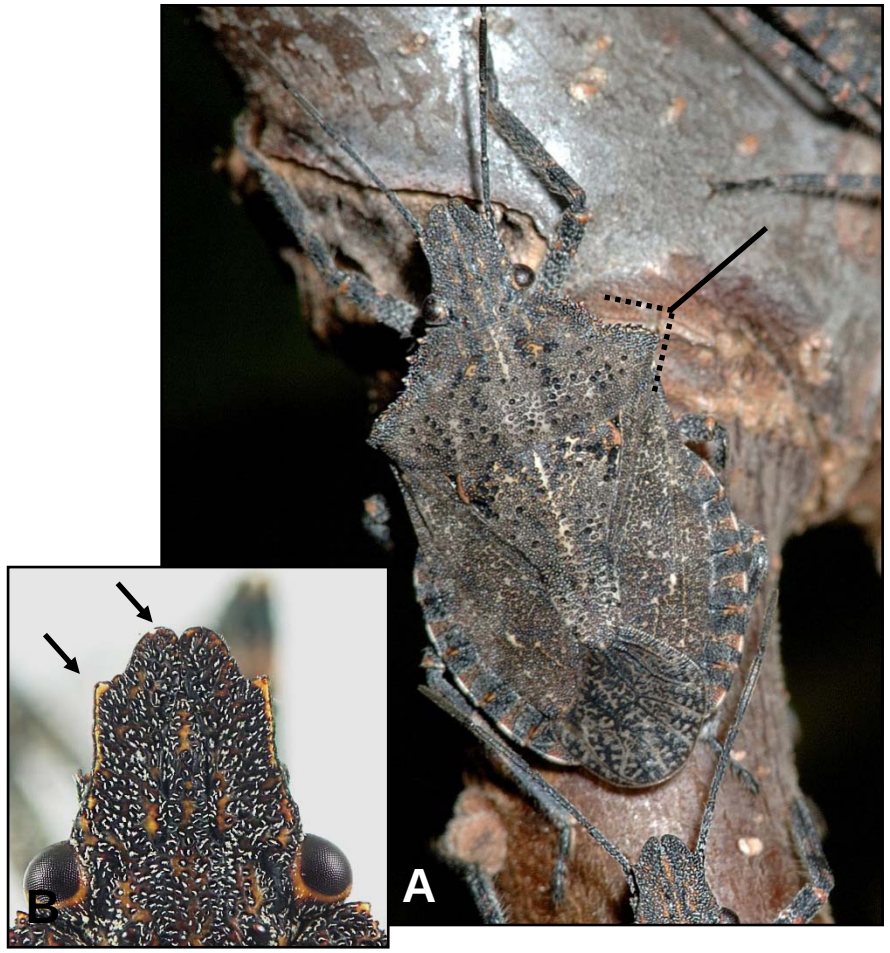

Fig. 12 A-B. *Brochymena quadripustulata*: A) dorsal; B) head, dorsal.

6. Humerus subquadrate with large teeth (Fig. 11 A). Scutellum with basal third to fourth distinctly elevated above remainder (Fig. 11 A). Juga slightly longer than tylus, not overlapping anteriorly; anteapical tooth present, subacute, directed anteriorly (Fig. 11 A-B). Length 12.0-17.0 mm.

Parabrochymena arborea (Say)

6'. Humerus subtriangular with small teeth (Fig. 12 A). Scutellum with basal third to fourth not distinctly elevated above remainder (Fig. 12 A). Juga distinctly longer than tylus, usually approximate but sometimes overlapping anteriorly; anteapical tooth short, obtuse (Fig. 12 A-B). Length 10.0-18.0 mm.

Brochymena quadripustulata (Fabricius)

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Fig. 13. *Chinavia hilaris*, ventral view.

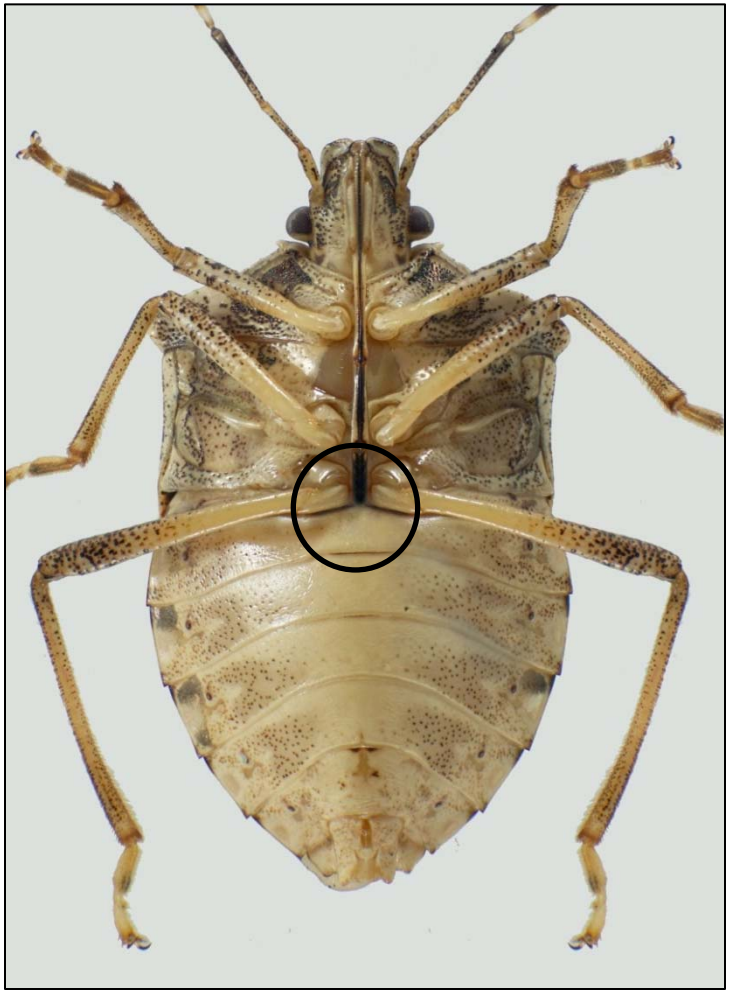

Fig. 14. *Halyomorpha halys*, ventral view.

7. Abdominal sternite 2 armed medially with projecting spine or tubercle (except in male *Dendrocoris humeralis*) (Fig. 13).

8

7'. Abdominal sternite 2 unarmed (Fig. 14).

15

doi:10.3752/cjai.2013.24

Fig. 15. *Dendrocoris humeralis*, close up of head.

Fig. 16. *Banasa dimidiata*, close up of head.

8. Juga surpassing tylus and usually contiguous anteriorly (Fig. 15). Length 6.0-8.5 mm.

Dendrocoris humeralis (Uhler) females

8'. Juga usually not surpassing tylus but if so, not contiguous anteriorly (Fig. 16). Length variable.

9

Fig. 17. *Chinavia hilaris*, ventral view.

Fig. 18. *Banasa dimidiata*, ventral view.

9. Larger, length more than 13 mm. Spine of abdominal sternite 2 variable, obtuse (as in Fig. 18) to acutely tapering (Fig. 17).

10

9'. Smaller, length 12 mm or less. Spine of abdominal sternite 2 short, obtuse (Fig. 18).

Banasa 12

doi:10.3752/cjai.2013.24

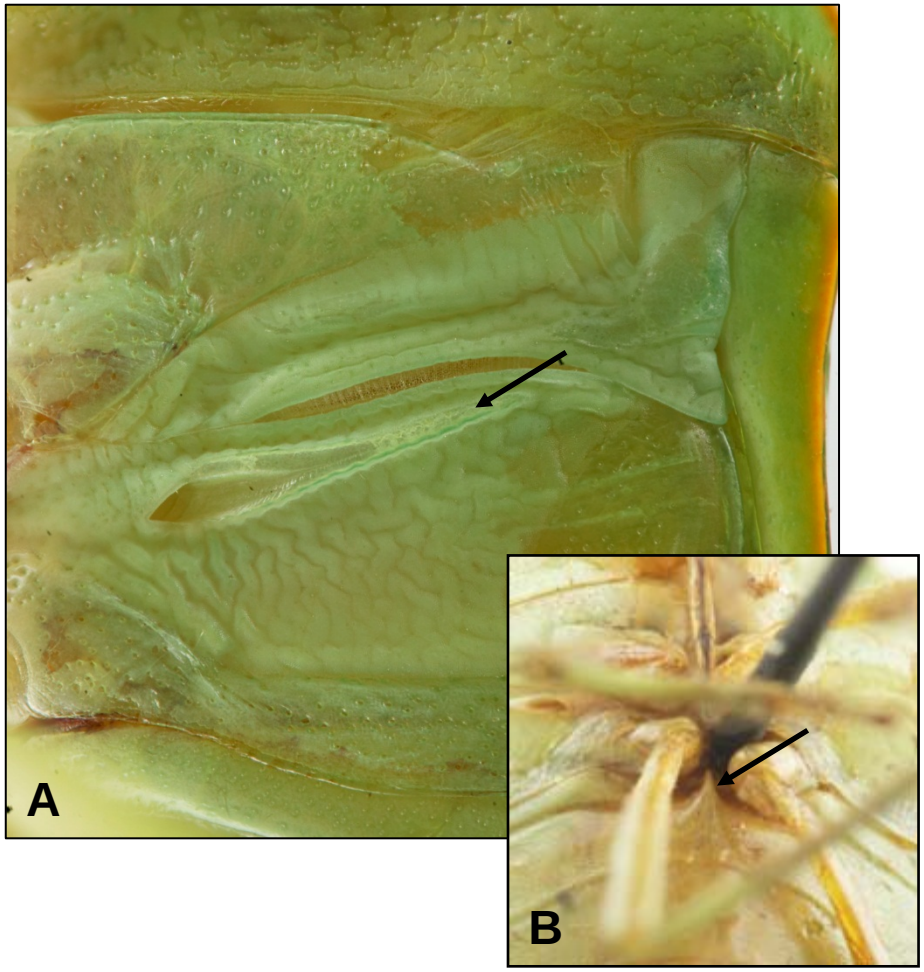

Fig. 19 A-B. *Chinavia hilaris*: A) ostiolar canal; B) abdominal sternite 2.

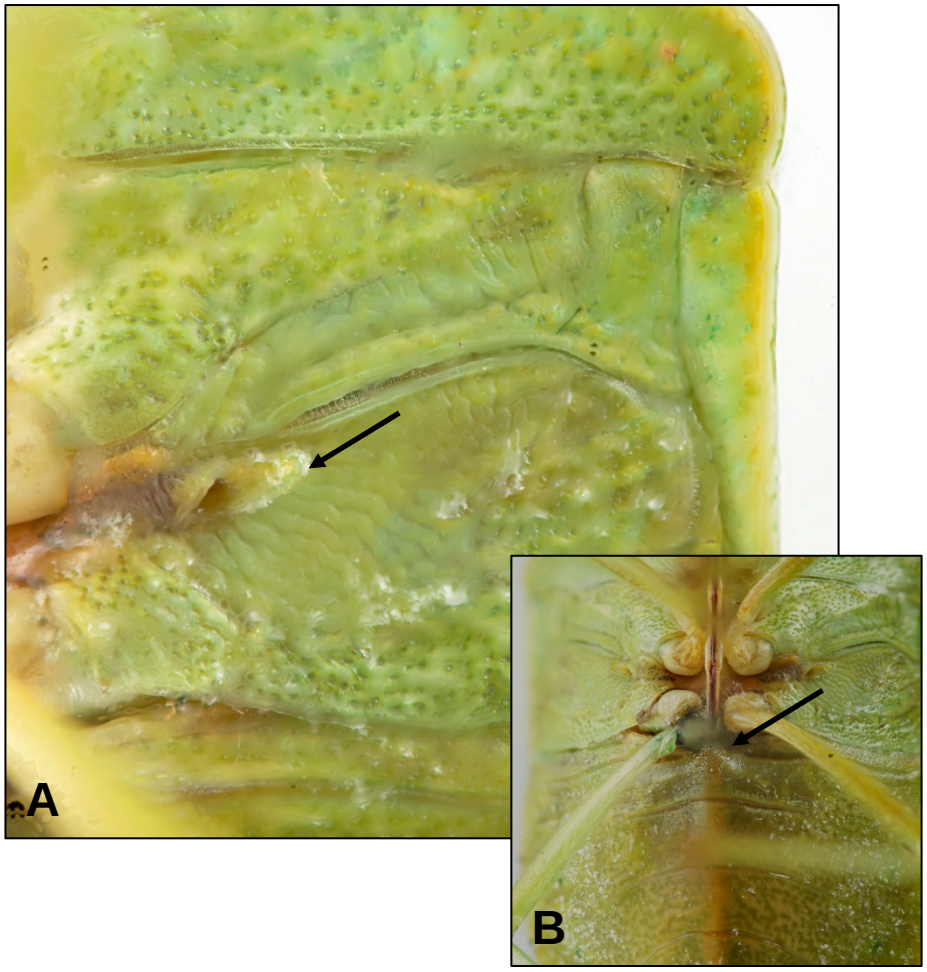

Fig. 20 A-B. *Nezara viridula:* A) ostiolar canal; B) abdominal sternite 2.

10. Ostiolar canal long, extending laterally to beyond middle of metapleuron (Fig. 19 A). Spine of abdominal sternite 2 acutely tapering (Fig. 19 B). Length 12.5-19.0 mm.

Chinavia 11

10'. Ostiolar canal short, not extending laterally to middle of metapleuron (Fig. 20 A). Spine of abdominal sternite short, obtuse (Fig. 20 B). Length 14.0-17.0 mm.

Nezara viridula (Linnaeus)

doi:10.3752/cjai.2013.24

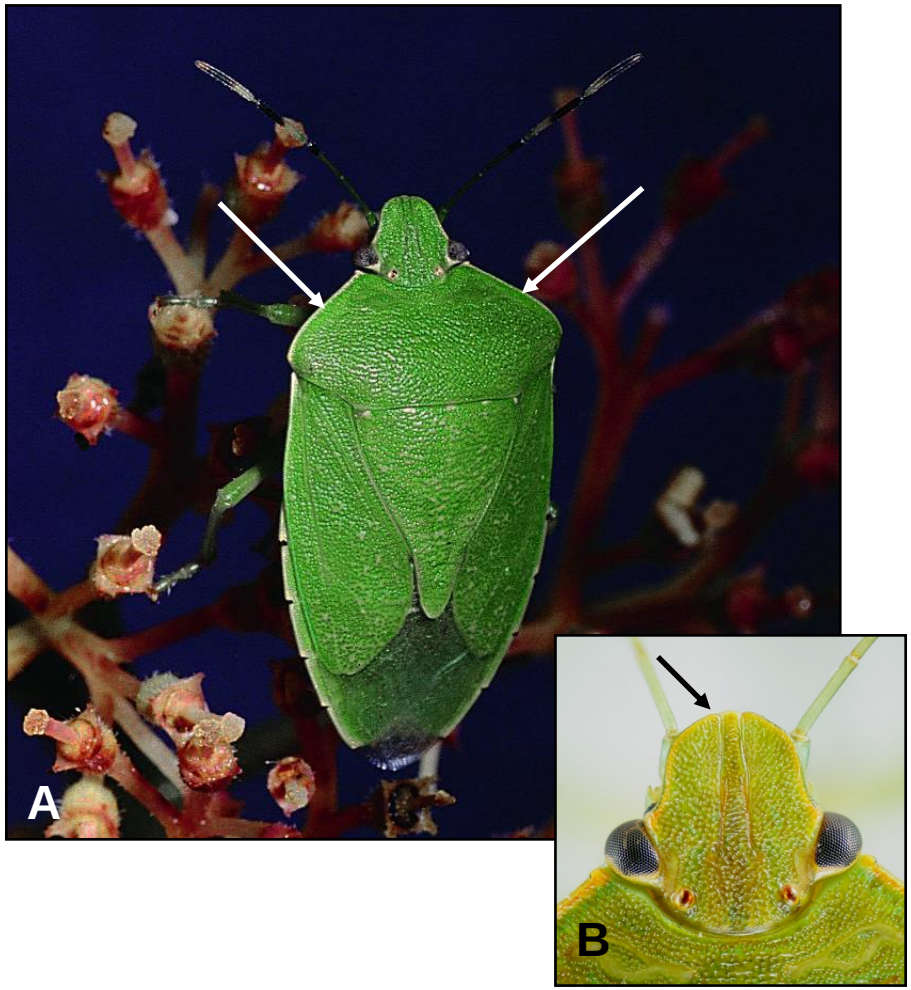

Fig. 21 *Chinavia hilaris*: A) dorsal; B) head.

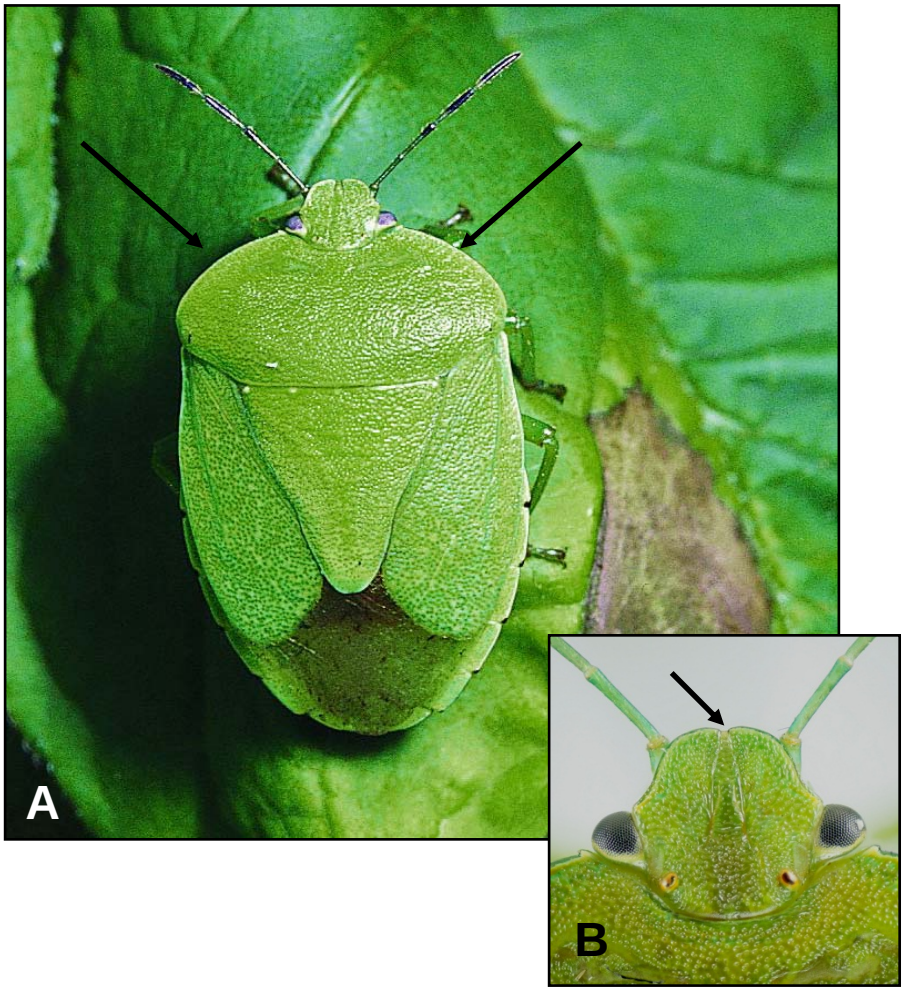

Fig. 22. *Chinavia pensylvanica*: A) dorsal; B) head.

11. Form elongate-oval (Fig. 21 A). Head elongate, jugum equalling tylus (Fig. 21 B). Anterolateral pronotal margin straight or nearly so (Fig. 21 A). Rostrum reaching at least to middle of hind coxae. Length 13.0-19.0 mm.

Chinavia hilaris (Say)

11'. Form broadly oval (Fig. 22 A). Head short, broad, jugum slightly longer than tylus (Fig. 22 B). Anterolateral pronotal margin strongly arcuate (Fig. 22 A). Rostrum not surpassing middle coxae. Length 12.5-14.5 mm.

Chinavia pensylvanica (Gmelin)

doi:10.3752/cjai.2013.24

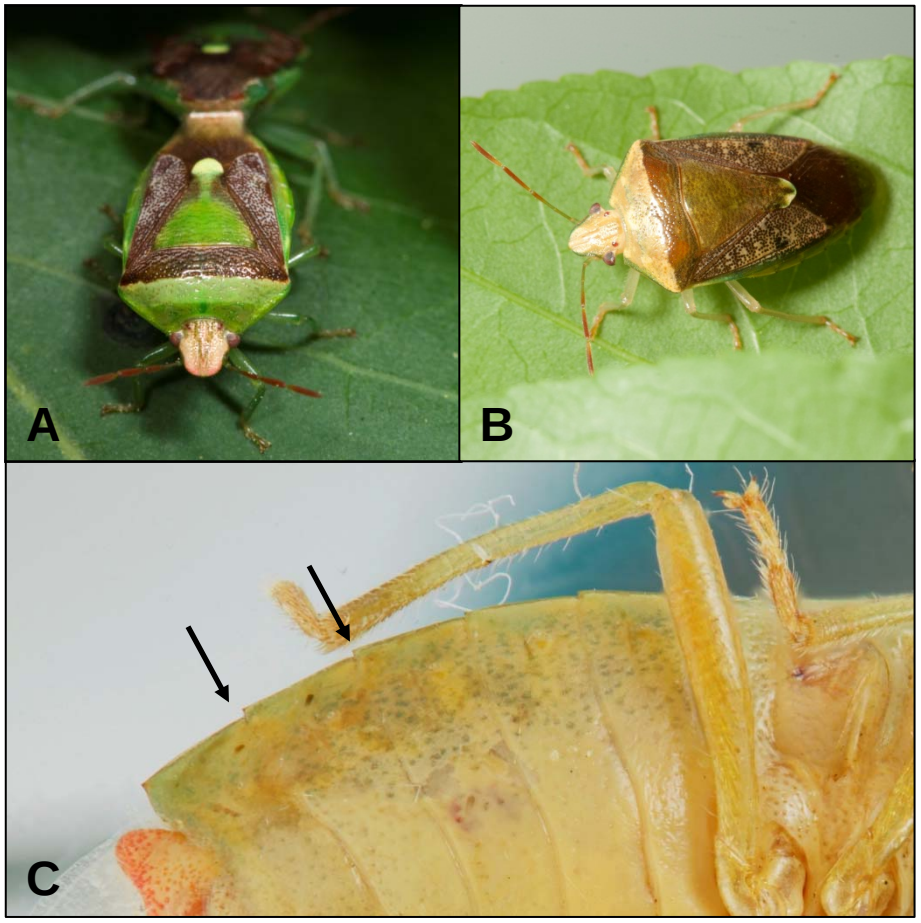

Fig. 23 A-C. A) *Banasa dimidiata,* dorsal. B) *B. calva;* dorsal. C) *B. dimidiata*, abdominal venter .

12. Pronotum with anterior area pale green or yellow and strongly contrasting with darker green or reddish brown colour of posterior area (Fig. 23 A-B). Posterior abdominal sternites with posterolateral angles acute to spinose (Fig. 23 C).

13

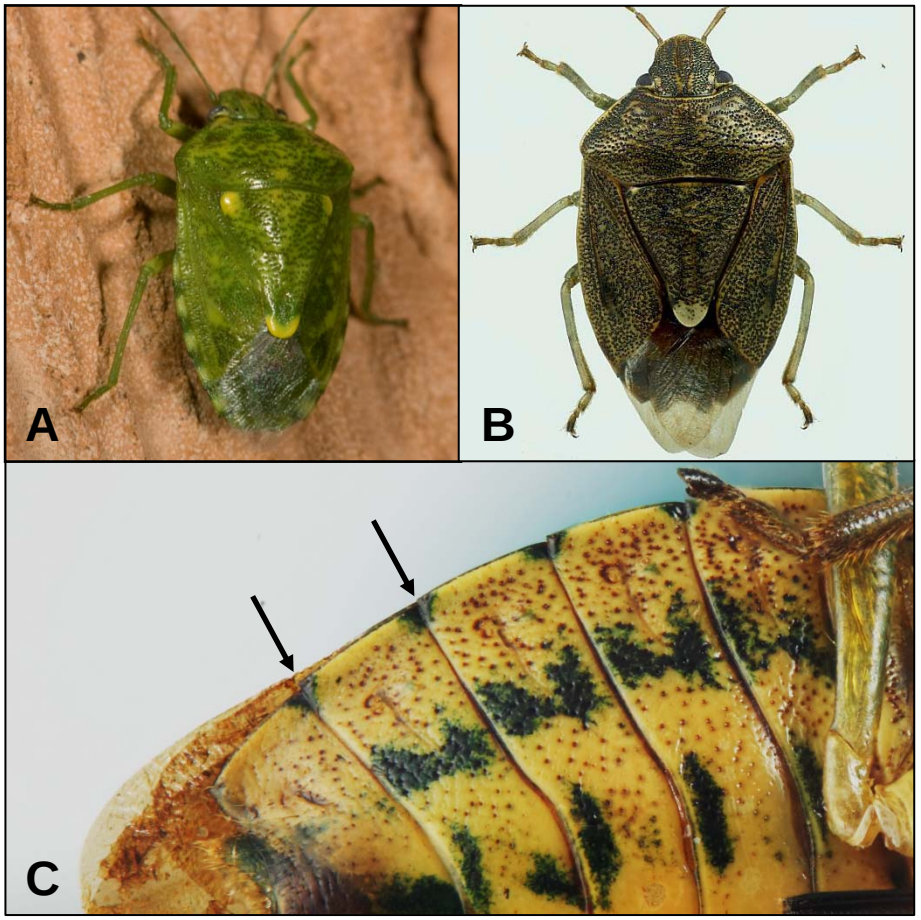

Fig. 24 A-C. A) *Banasa euchlora*. B) *B. sordida*, dorsal. C) *B. sordida*, abdominal venter.

12'. Pronotum with anterior area usually concolourous with posterior area (Fig. 24 A-B). Posterior abdominal sternites with posterolateral angles obtuse (Fig. 24 C).

14

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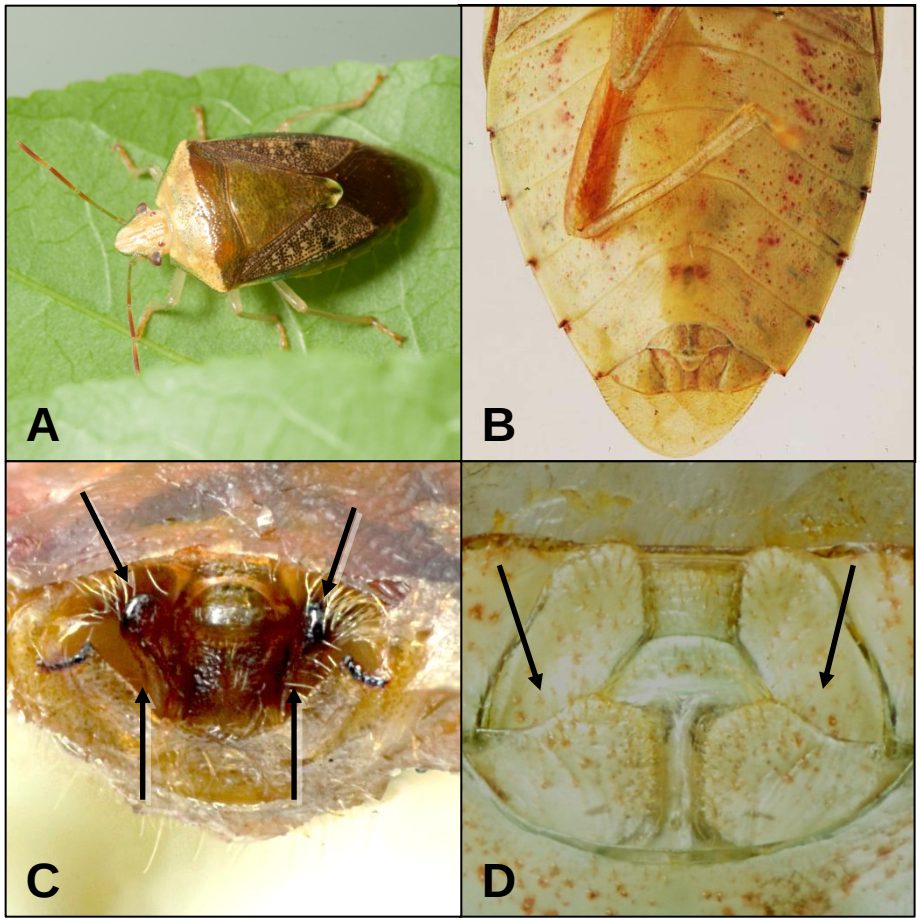

Fig. 25 A-D. *Banasa calva*: A) dorsal; B) abdominal venter; C) male genitalia; D) female genitalia.

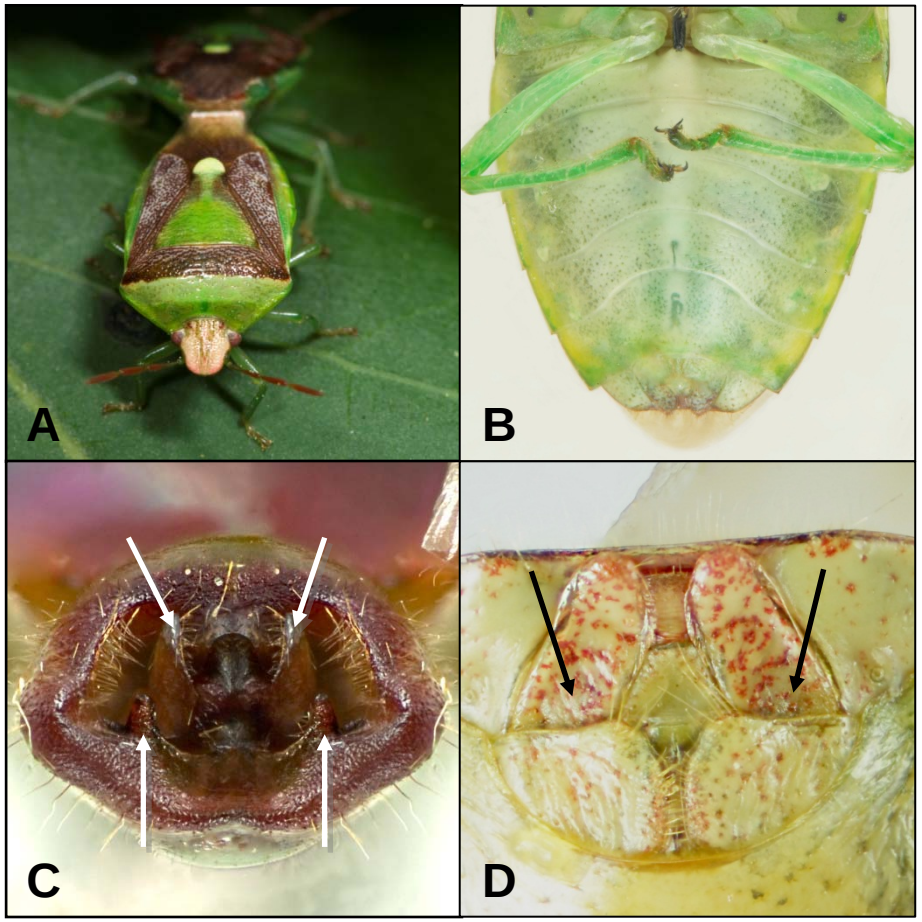

Fig. 26 A-D. *Banasa dimidiata:* A) dorsal; B) abdominal venter; C) male genitalia; D) female genitalia.

13. General colouration as in Figure 25 A; abdominal sternites usually with prominent black spots at lateral angles (Fig. 25 B). Male without prominent acute tubercles projecting dorsally from floor of pygophore, parameres sublinear in shape (Fig. 25 C); female with posterior margin of basal gonocoxites distinctly concave (Fig. 25 D). Length 8.5-12.0 mm.

Banasa calva (Say)

13'. General colouration as in Figure 26 A; abdominal sternites lacking black spots (Fig. 26 B), or with minute spots, at lateral angles. Male with prominent acute tubercles projecting dorsally from floor of pygophore, parameres subtriangular in shape (Fig. 26 C); female with posterior margin of basal gonocoxites straight to slightly concave (Fig. 26 D). Length 8.5-11.0 mm.

Banasa dimidiata (Say)

doi:10.3752/cjai.2013.24

Fig. 27. *Banasa euchlora*.

Fig. 28. *Banasa sordida*.

14. General colour jade green dorsally; basal angles of scutellum each with a large calloused ivory spot (Fig. 27). Length 9.0-11.0 mm.

Banasa euchlora Stål

14'. Dorsal colour dull yellow with numerous, fine, regularly distributed black punctures often obscuring ground colour to give a reddish-brown appearance; basal angles of scutellum each with small calloused ivory-white spot (Fig. 28). Length 10.0-11.5 mm.

Banasa sordida (Uhler)

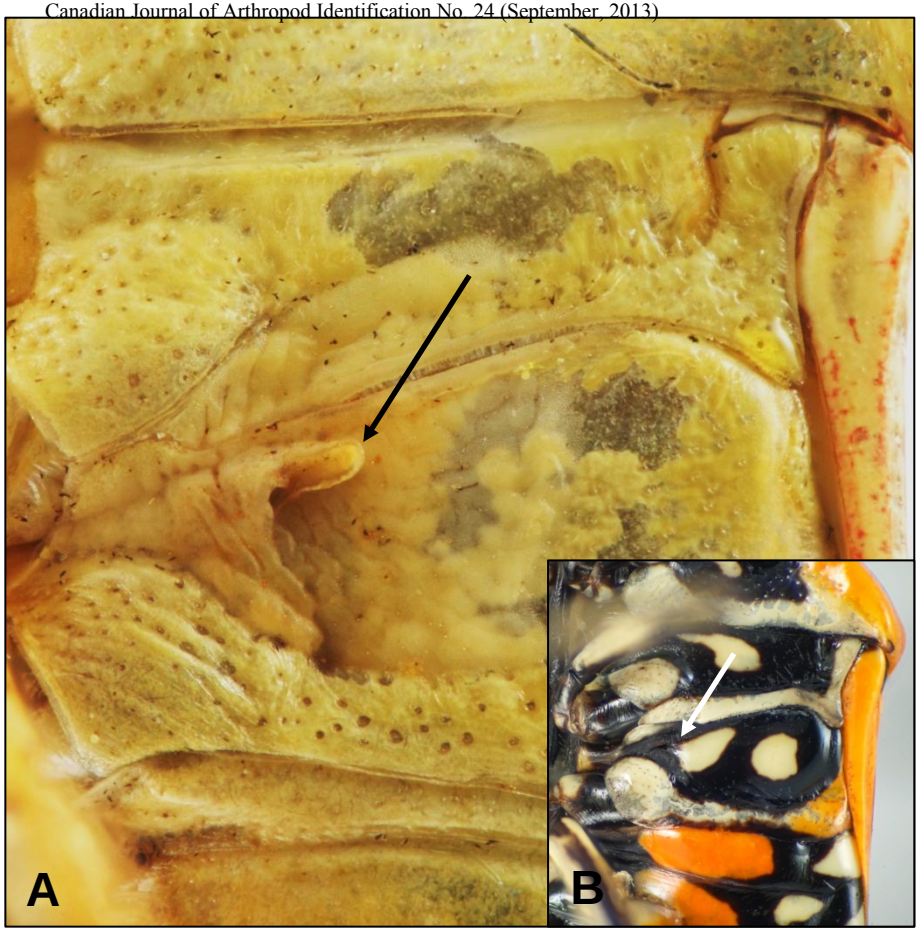

Fig. 29 A-B. Ostiolar canals: A) *Euschistus variolarius*; B) *Murgantia histrionica.*

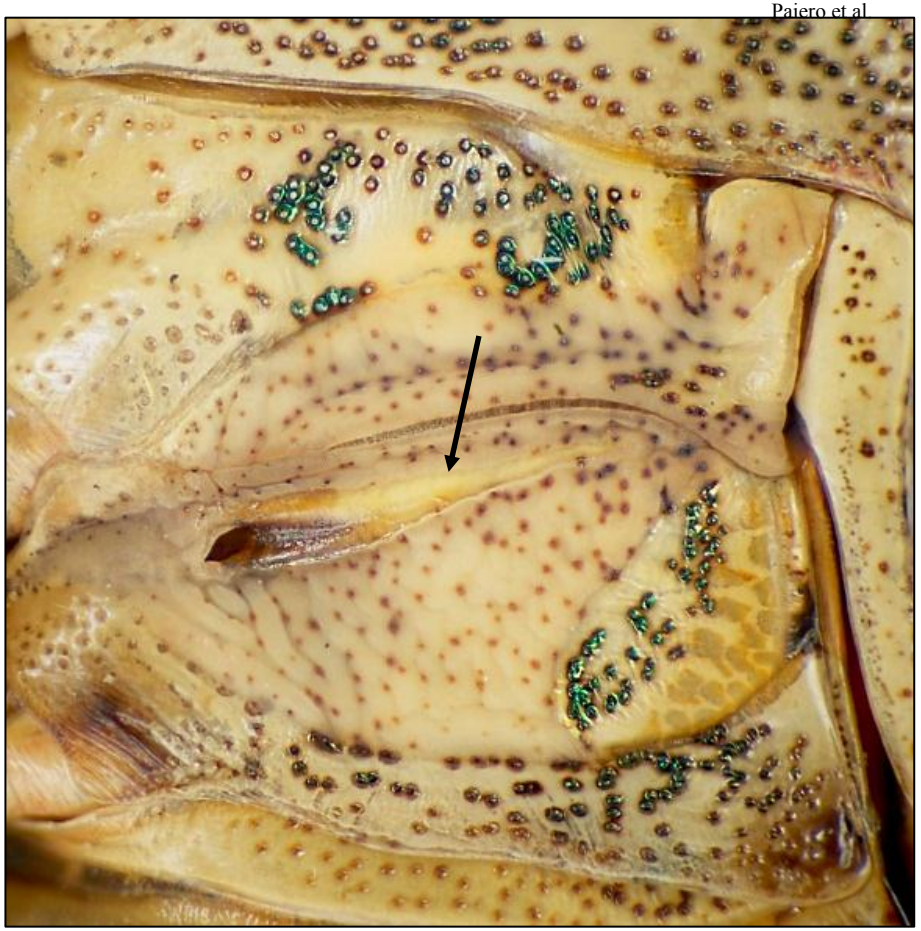

Fig. 30. *Halyomorpha halys*, ostiolar canal.

15. Ostiole usually with distinct auricle (a small earlobe- or flaplike, free-edged process, Fig. 29 A; not evident in *Murgantia,* Fig. 29 B, and lacking or small in *Neottiglossa*); ostiolar canal short (prolonged as a wrinkle in some *Neottiglossa* spp.), ostiole usually rounded on inner side (Fig. 29 A).

16

15'. Ostiole without auricle but extended as an elongated tapering canal, V-shaped on inner side (Fig. 30).

30

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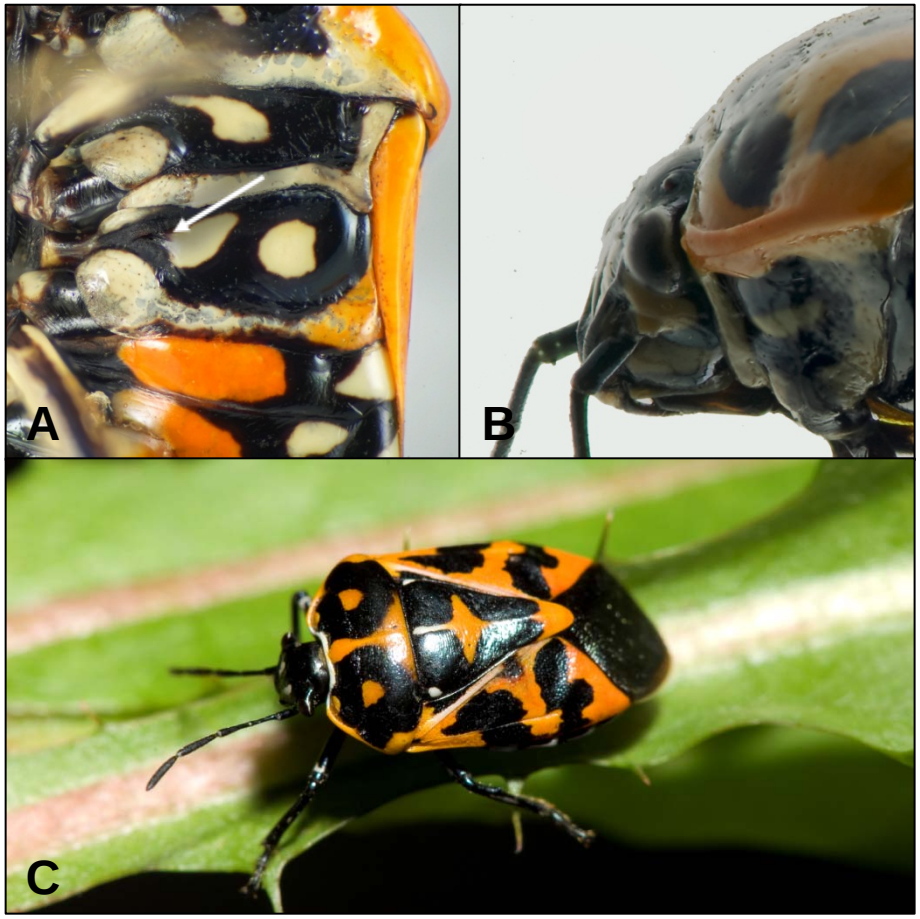

Fig. 31 A-C. *Murgantia histrionica*: A) ostiolar canal; B) head, lateral view; C) dorsal view.

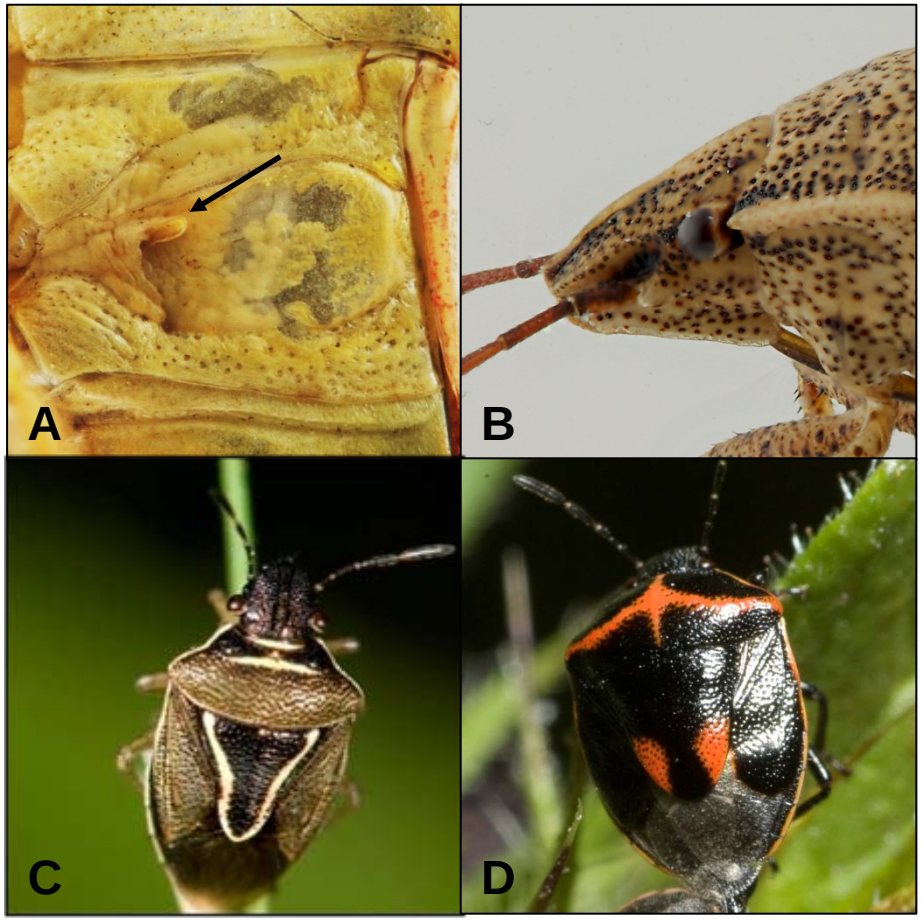

Fig. 32 A-D. A) *Euschistus variolarius*, ostiolar canal. B) *Coenus delius*, lateral view of head. C) *Mormidea lugens*, dorsal. D) *Cosmopepla lintneriana*, dorsal.

16. Ostiole small, without evident auricle or canal (Fig. 31 A). Head strongly sloped with front of head almost vertical (Fig. 31 B). Sides of juga thickened and reflexed. Colour variegated black and red or black and yellow (Fig. 31 C). Length 8.0-11.5 mm.

Murgantia histrionica (Hahn)

16'. Ostiole conspicuous, auricle well-developed (Fig. 32 A) (lacking or small in *Neottiglossa*). Head varying from horizontal (Fig. 32 B) to strongly sloped. Sides of juga not thickened and reflexed. Colour variable but not variegated black and red or black and yellow (Fig. 32 C-D). Length variable.

17

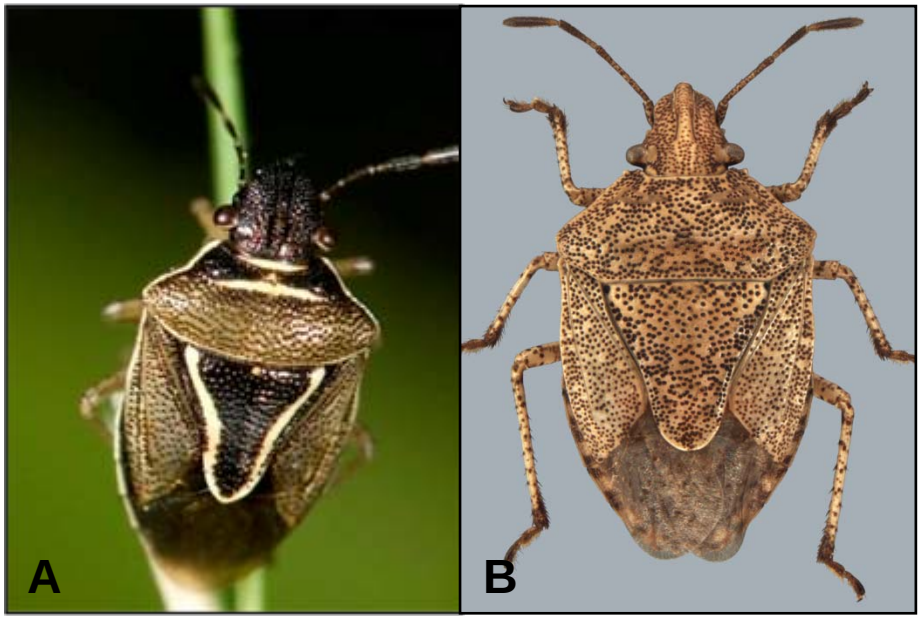

Fig. 33 A-B. A) *Mormidea lugens.* B) *Mcphersonarcys aequalis*.

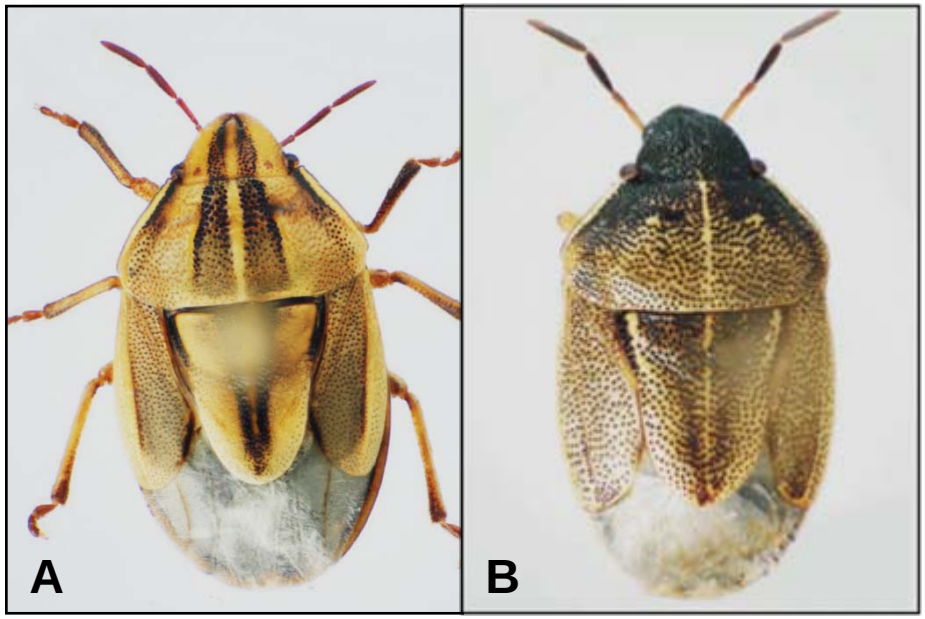

Fig. 34 A-B. A) *Aelia americana.* B) *Neottiglossa trilineata*.

17. Scutellum shorter than corium, apical third narrower than apex of corium, tapered towards apex (Fig. 33 A-B).

18

17'. Scutellum equal to or longer than corium, apical third wider than apex of corium and broadly rounded at apex (Fig. 34 A-B).

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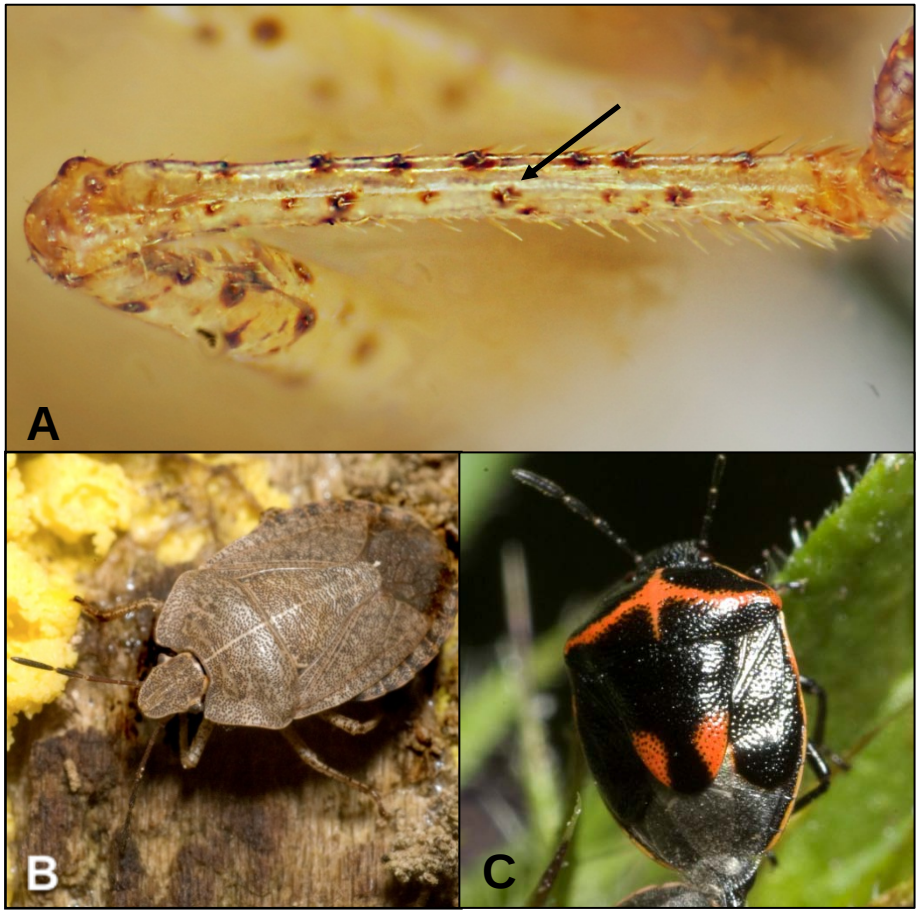

Fig. 35 A-C. A) *Euschistus tristigmus luridus*, hind tibia. B) *Menecles insertus*, dorsal. C) *Cosmopepla lintneriana*, dorsal .

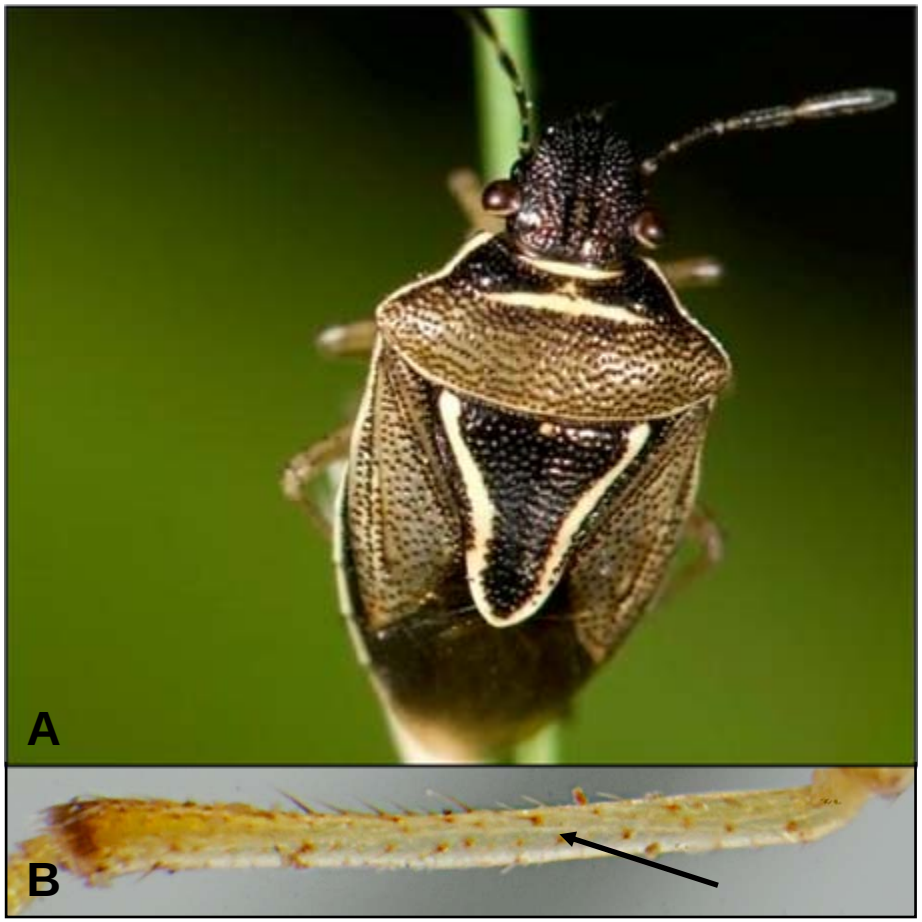

Fig. 36 A-B. *Mormidea lugens*: A) dorsal; B) hind tibia.

18. Hind tibia distinctly sulcate dorsally (with a distinct groove on upper surface) over entire length (Fig. 35 A). Colour primarily brown or black, scutellum not margined with pale or ivory colour (Fig. 35 B-C). Length variable.

19

18'. Hind tibia with at most an indistinct and incomplete dorsal groove (Fig. 36 B). Edge of pronotum, margin of scutellum and two transverse strips on anterior part of pronotum ivory-coloured (Fig. 36 A). Length 5.0-7.5 mm.

Mormidea lugens Fabricius

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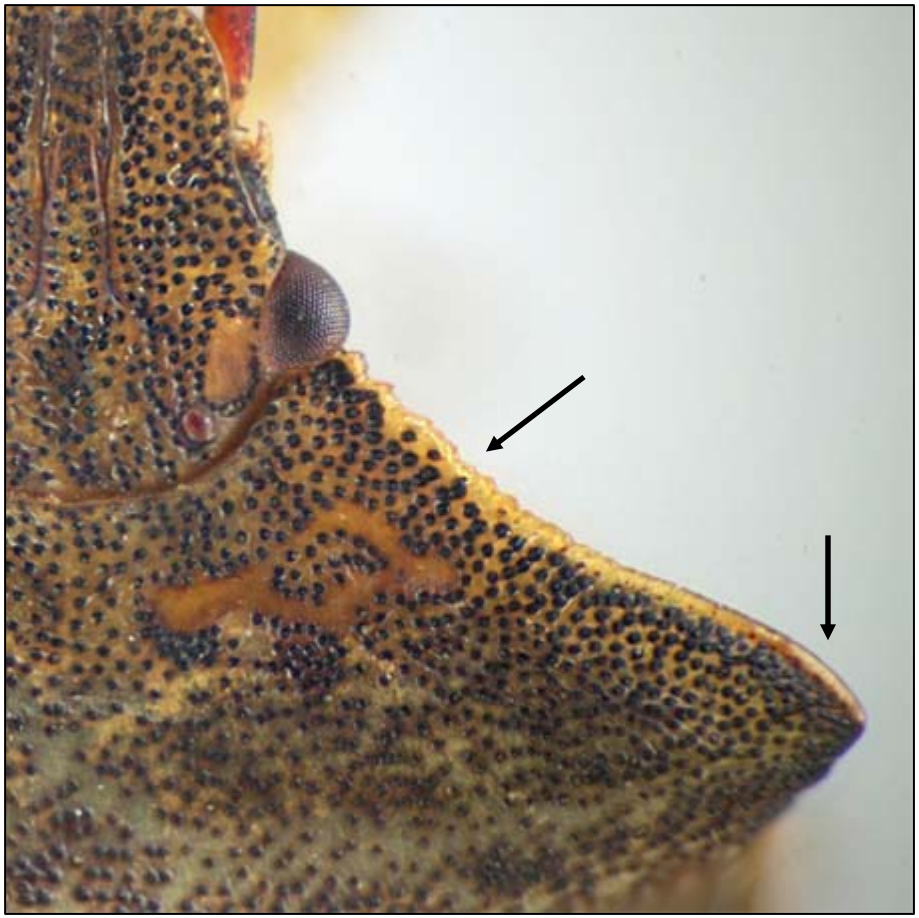

Fig. 37. *Euschistus variolarius*, anterolateral margin of pronotum.

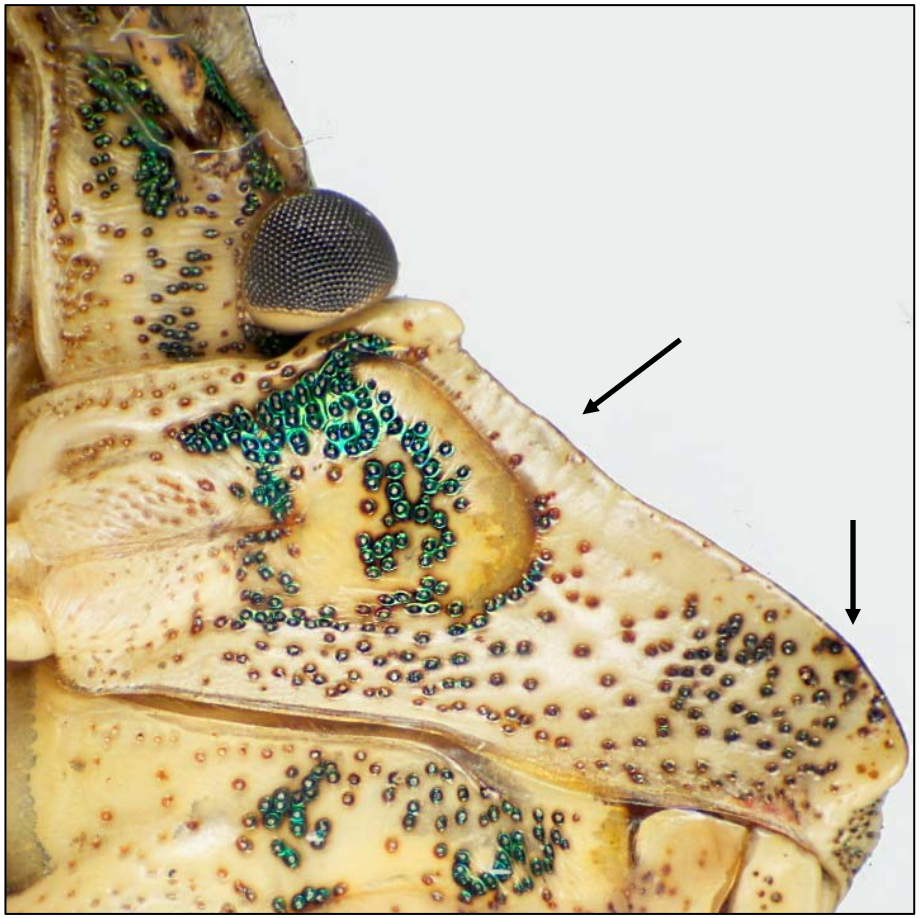

Fig. 38. *Halyomorpha halys*, anterolateral margin of pronotum.

19. Pronotum with anterolateral margin crenulate (Fig. 37). Humerus acute to rounded.

Euschistus 20

19'. Pronotum with anterolateral margin smooth (not crenulate) (Fig. 38). Humerus rounded or weakly obtuse.

24

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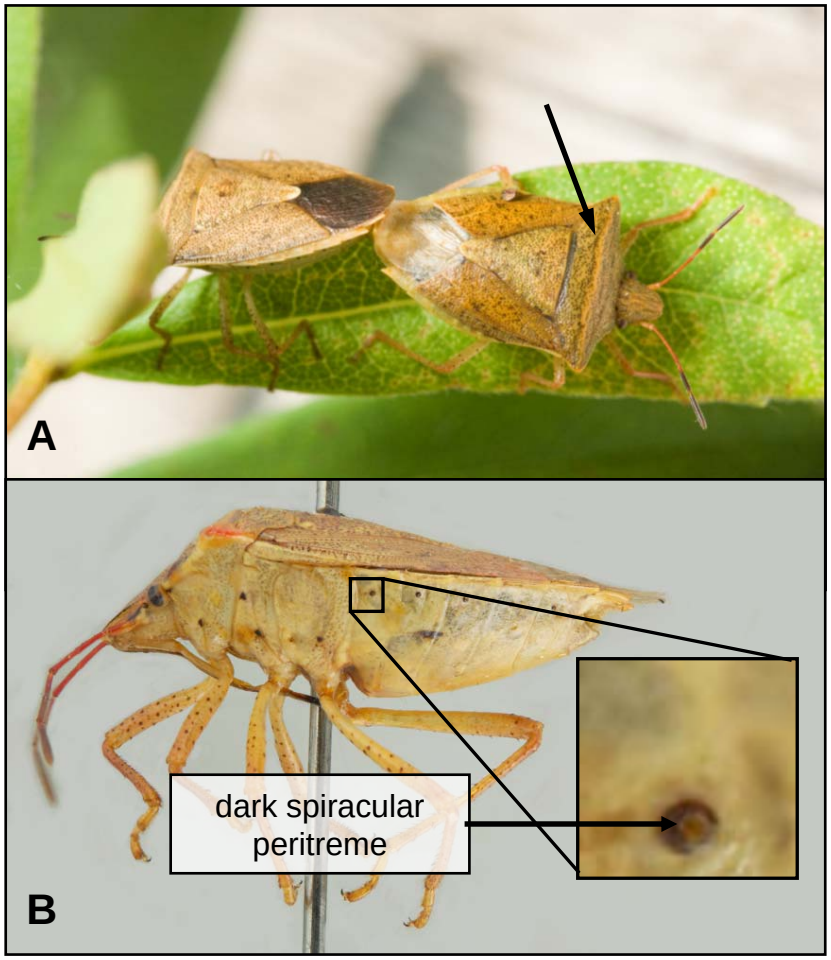

Fig. 39 A-B. *Euschistus ictericus*: A) dorsal; B) lateral with close-up of spiracular peritreme.

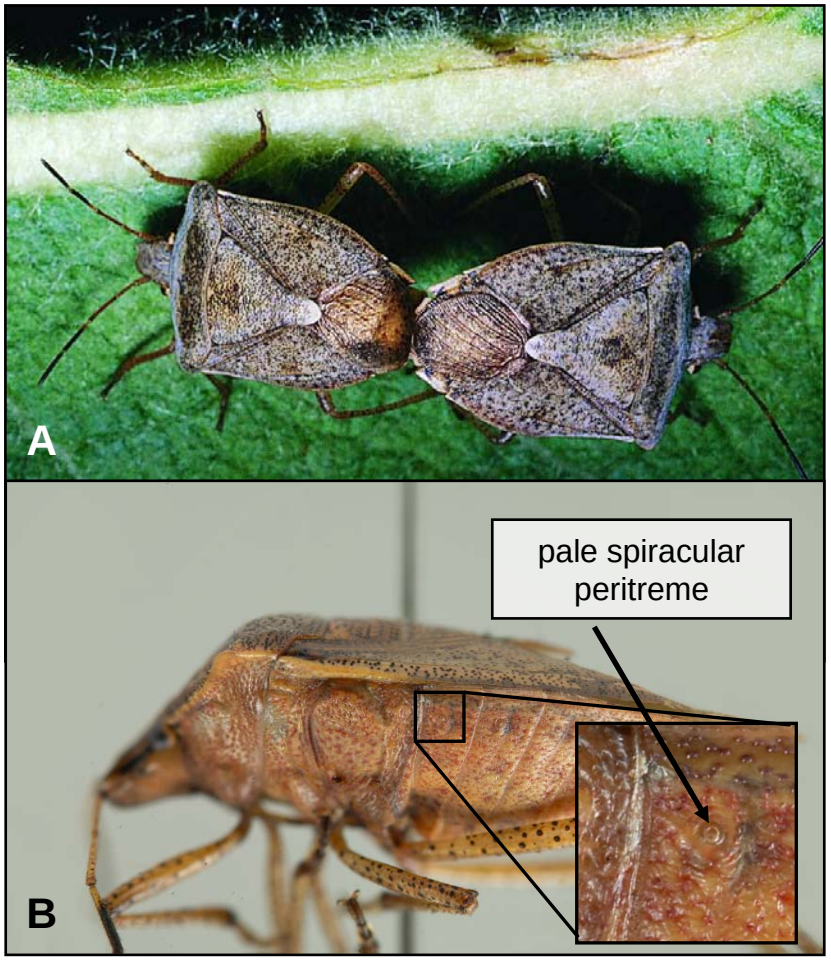

Fig. 40 A-B. A) *Euschistus servus euschistoides*, dorsal. B) *E. variolarius*, lateral with close-up of spiracular peritreme.

20. Pronotum with irregular, raised, calloused, smooth, yellowish line between humeri (Fig. 39 A). Abdominal spiracular peritremes black (Fig. 39 B). Length 10.5-12.0 mm.

Euschistus ictericus (Linnaeus)

20'. Pronotum without irregular, raised, calloused line between humeri (Fig. 40 A). Abdominal peritremes pale (Fig. 40 B) (some specimens may show slight darkening of peritremes). Length variable.

21

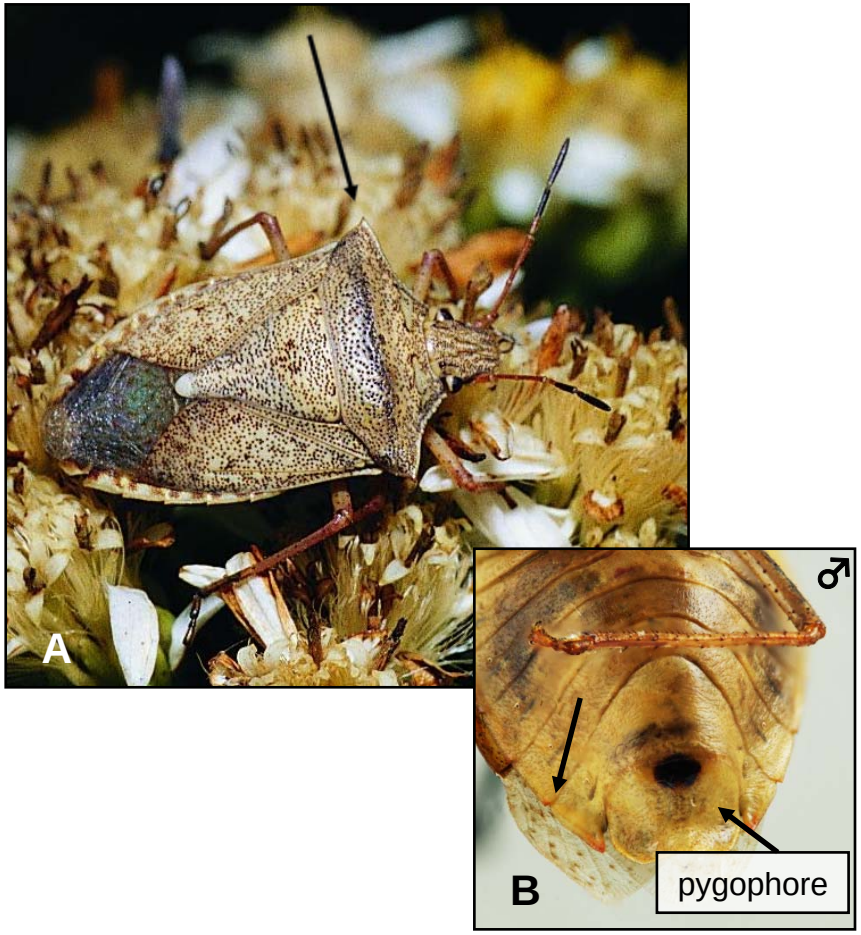

Fig. 41 A-B. *Euschistus variolarius*: A) dorsal; B) male pygophore.

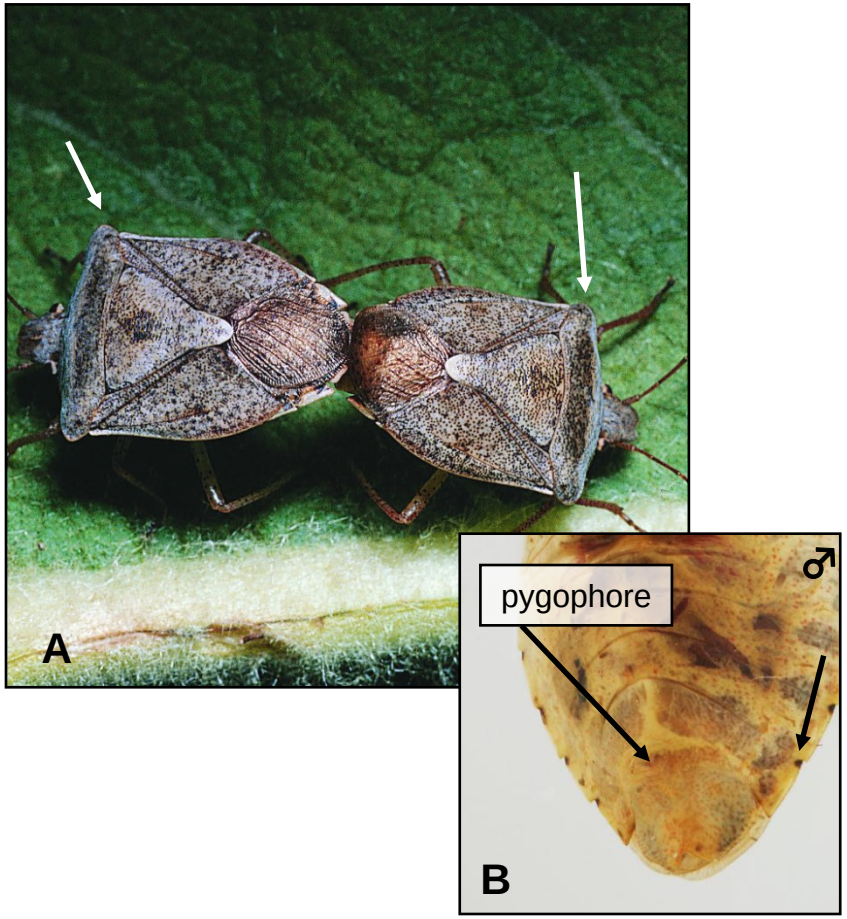

Fig. 42 A-B. *Euschistus servus euschistoides*: A) dorsal; B) male pygophore.

21. Abdominal sternites without black spots at lateral angles (occasional specimens have light diffuse spots) (Fig. 41 B). Humerus generally acute to spinose (Fig. 41 A). Antenna with segment 5 and apical half of 4 black (Fig. 41 A). Male with dark brown or black spot on ventral side of pygophore (Fig. 41 B). Length 11.0-15.0 mm.

Euschistus variolarius (Palisot de Beauvois)

21'. Abdominal sternites with black spots at lateral angles (occasional specimens have light diffuse spots)(Fig. 42 B). Humerus variable (Fig. 42 A). Antenna with segments 4 and 5 pale red to brown or black. Male without black spot on ventral side of pygophore (Fig. 42 B). Length variable.

22

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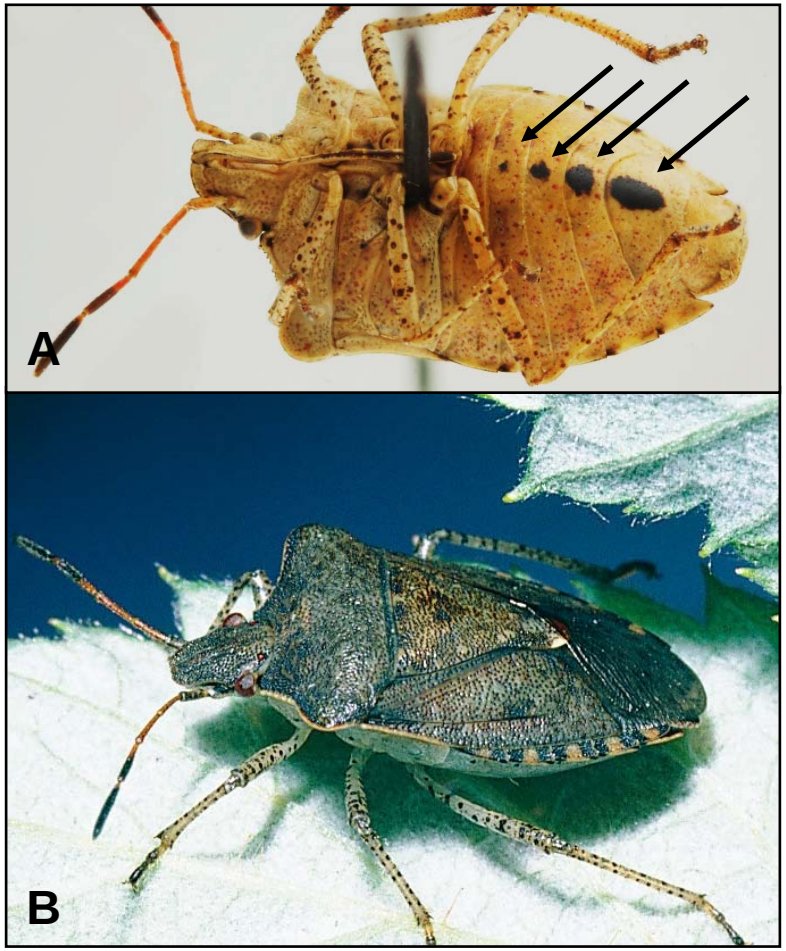

Fig. 43 A-B. *Euschistus tristigmus luridus*: A) ventral; B) dorsal.

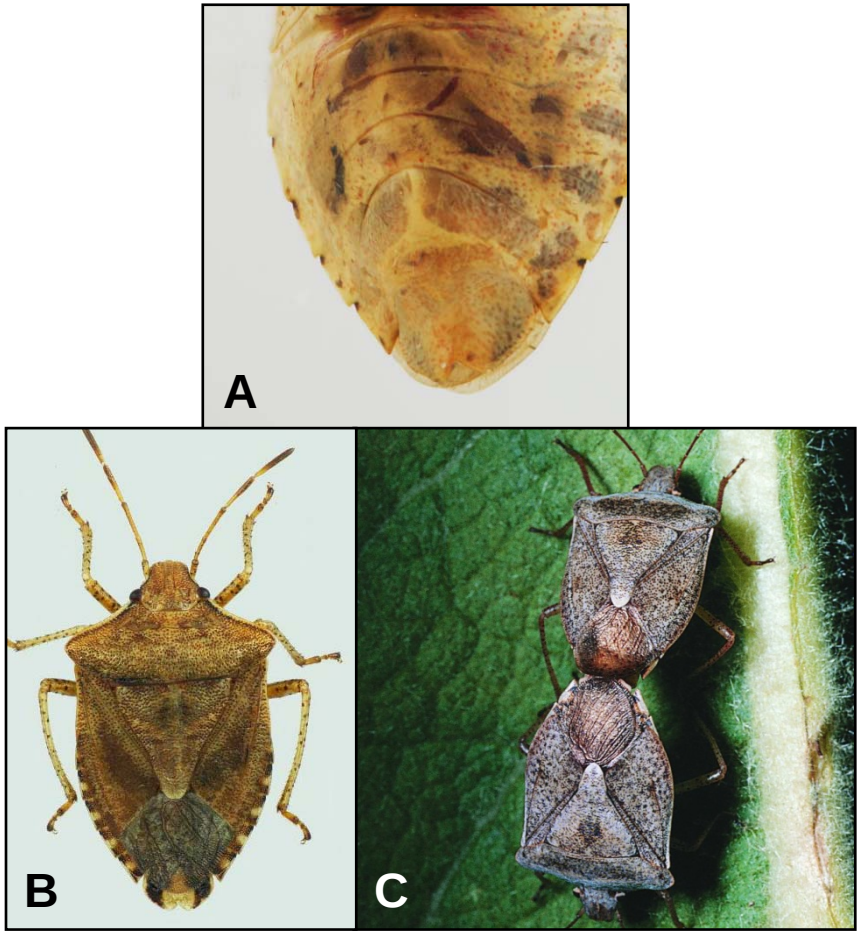

Fig. 44 A-C. A) *Euschistus servus euschistoides*, abdominal venter. B) *E. politus,* dorsal. C) *E. servus euschistoides*, dorsal.

22. Humerus rounded (Fig. 43 A-B). Abdominal venter with 2 to 4 median black spots (may be small or obsolete) (Fig. 43 A). Length 10.0-12.0 mm.

Euschistus tristigmus luridus Dallas

22'. Humerus obtuse to rounded (Fig. 44 B-C). Abdominal venter without median black spots (Fig. 44 A). Length variable.

23

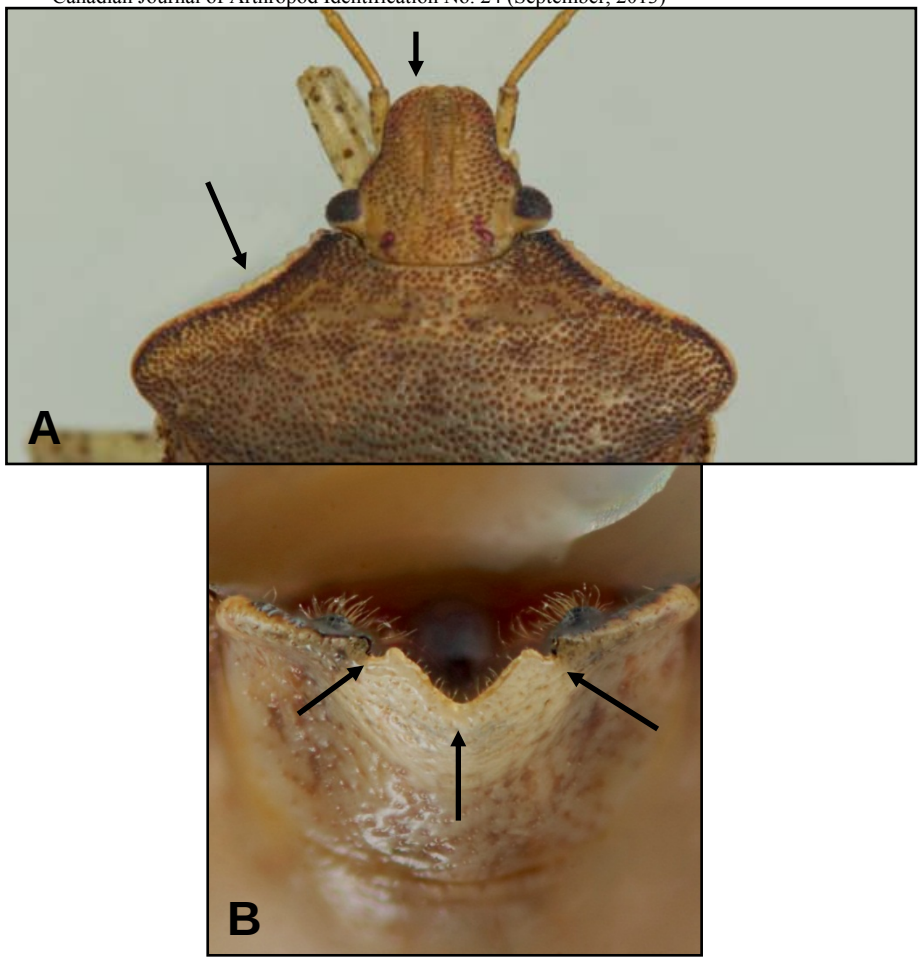

Fig. 45 A-B. *Euschistus politus*: A) head and thorax, dorsal; B) male genitalia, caudal.

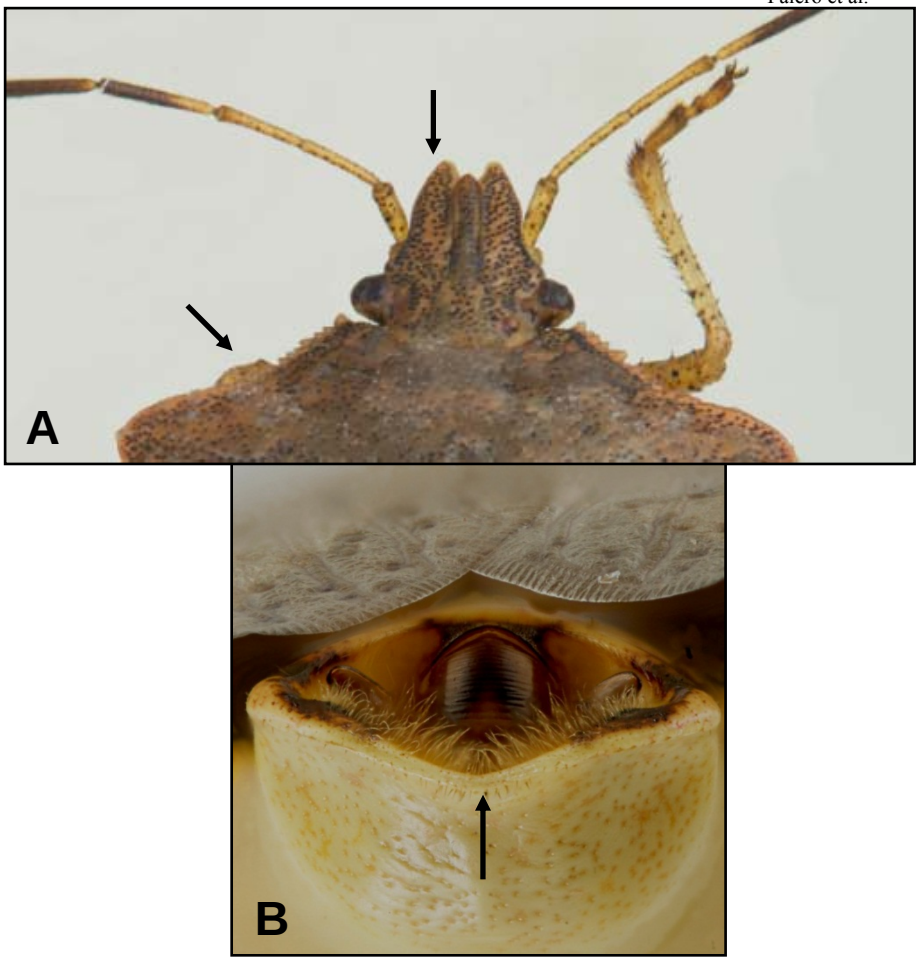

Fig. 46 A-B. *Euschistus servus euschistoides*: A) head and thorax, dorsal; B) male genitalia, caudal.

23. Juga and tylus equal or almost equal in length (Fig. 45 A). Pronotum with pale anterolateral margin bordered within by well-defined line of black punctures (Fig. 45 A). Posteroventral margin of male pygophore with a distinct median V-shaped notch flanked by 2 smaller notches(Fig. 45 B). Length 8.0-10.0 mm.

Euschistus politus Uhler

23'. Juga distinctly longer than tylus (Fig. 46 A). Pronotum with pale anterolateral margin not bordered within by well-defined line of black punctures (Fig. 46 A). Posteroventral margin of male pygophore broadly concave to subtruncate (Fig. 46 B). Length 10.5-14.0 mm.

Euschistus servus euschistoides (Vollenhoven)

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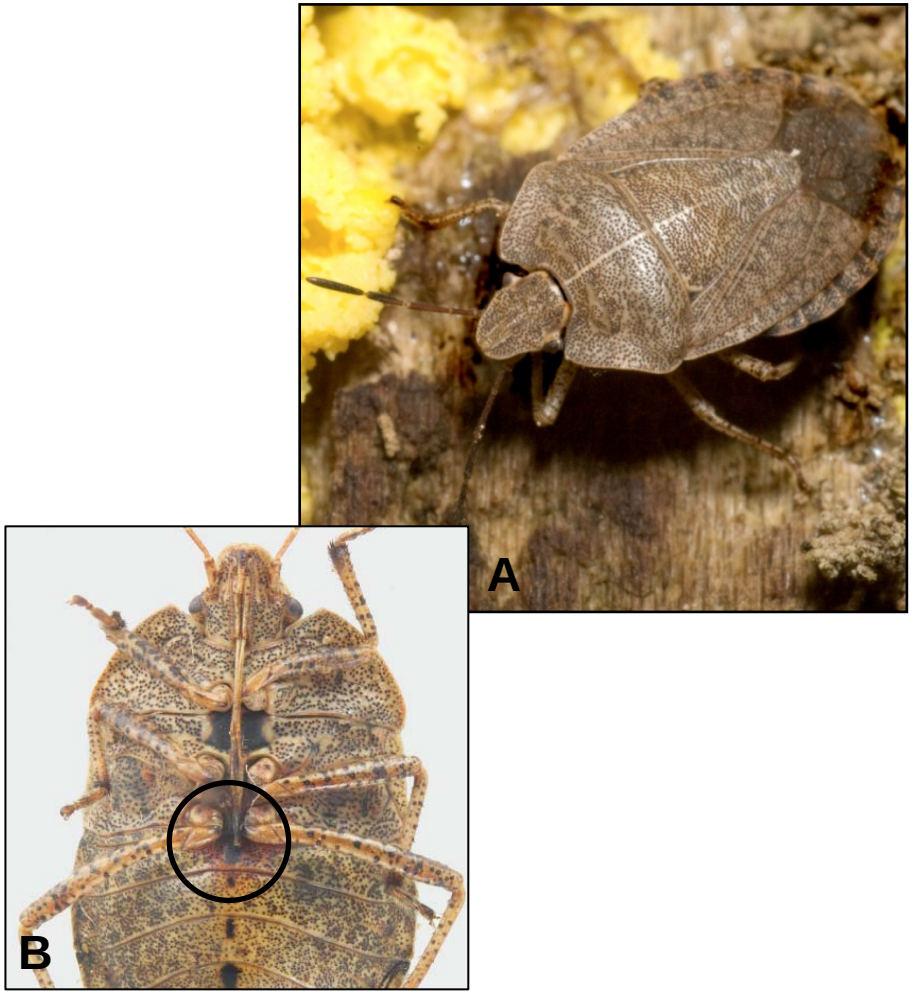

Fig. 47 A-B. *Menecles insertus*: A) dorsal; B) ventral.

Fig. 48 A-B. *Hymenarcys nervosa*: A) dorsal; B) ventral.

24. Pronotum with anterolateral margin strongly explanate (flattened and expanded); head appearing recessed into thorax (Fig. 47 A). Rostrum reaching abdominal sternite 2 (Fig. 47 B). Length 12.0-14.0 mm.

Menecles insertus (Say)

24'. Pronotum with anterolateral margin not strongly explanate, anterior angles not strongly produced anteriorly (Fig. 48 A). Rostrum usually not passing hind coxae (Fig. 48 B), occasionally reaching base of abdominal sternite 2. Length 11.5 mm or less.

25

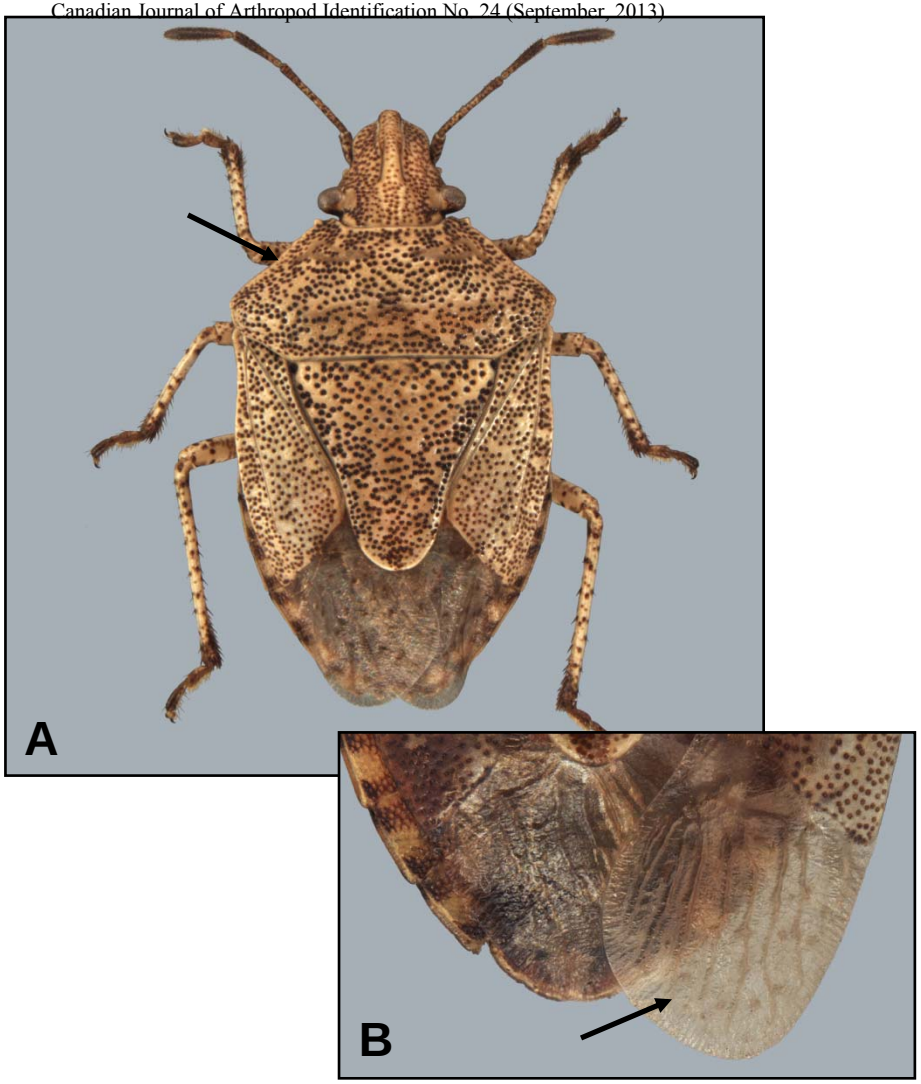

Fig. 49. *Mcphersonarcys aequalis*. A) dorsal. B) wing membrane

Fig. 50. *Hymenarcys nervosa*.

25. Pronotum with anterolateral margin straight to slightly concave (Fig. 49 A). Veins of membrane not anastomosing (Fig. 49 A-B). Length 6.0–8.5 mm.

Mcphersonarcys aequalis (Say)

25'. Pronotum with anterolateral margin broadly arcuate (curved) (Fig. 50). Veins of membrane anastomosing. Length 8.5–11.5 mm.

Hymenarcys nervosa (Say)

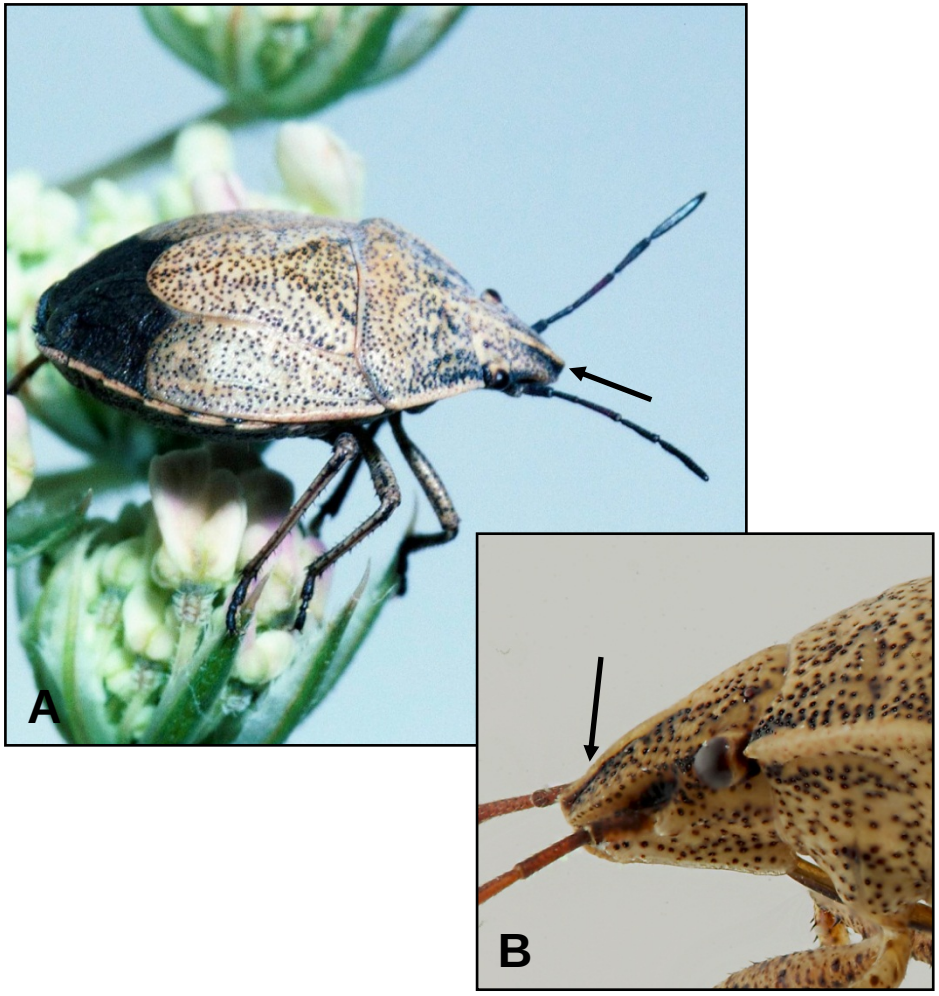

Fig. 51 A-B. *Coenus delius*: A) dorsolateral; B) head, lateral.

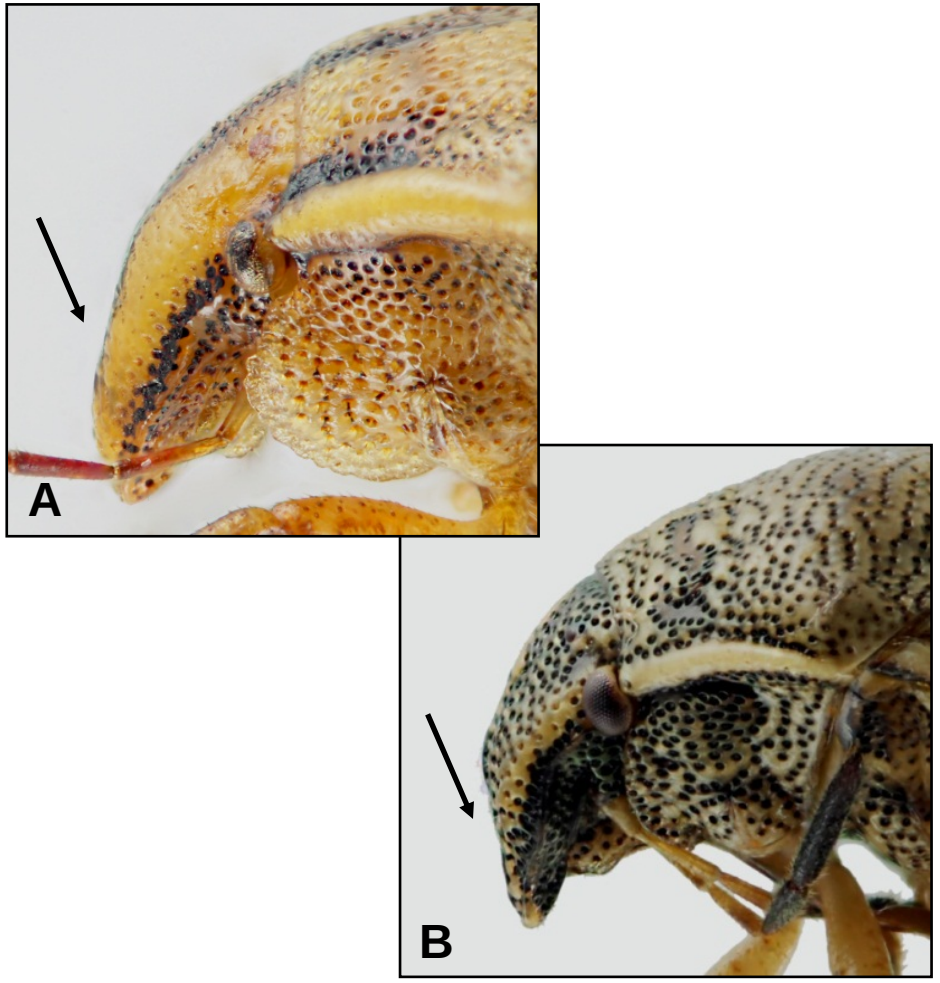

Fig. 52 A-B. Lateral view of head: A) *Aelia americana*; B) *Neottiglossa undata*.

26. Head horizontal or slightly declivent (sloped), tylus distinctly elevated above juga (Fig. 51 A-B). Length 8.5-10.5 mm.

Coenus delius (Say)

26'. Head more deflexed, tylus scarcely elevated above juga (Fig. 52 A-B). Length 4.0-9.0 mm.

27

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Fig. 53. *Aelia americana*, head.

Fig. 54 A-B. *Cosmopepla lintneriana*: A) head; B) dorsal.

27. Juga longer than tylus and contiguous anteriorly (Fig. 53). Body not black with red markings. Length 4.5-9.0 mm.

28

27'. Juga separate, subequal to tylus (Fig. 54 A). Body black with red or reddish yellow markings (Fig. 54 A-B). Length 4.0-7.0 mm.

Cosmopepla lintneriana Kirkaldy

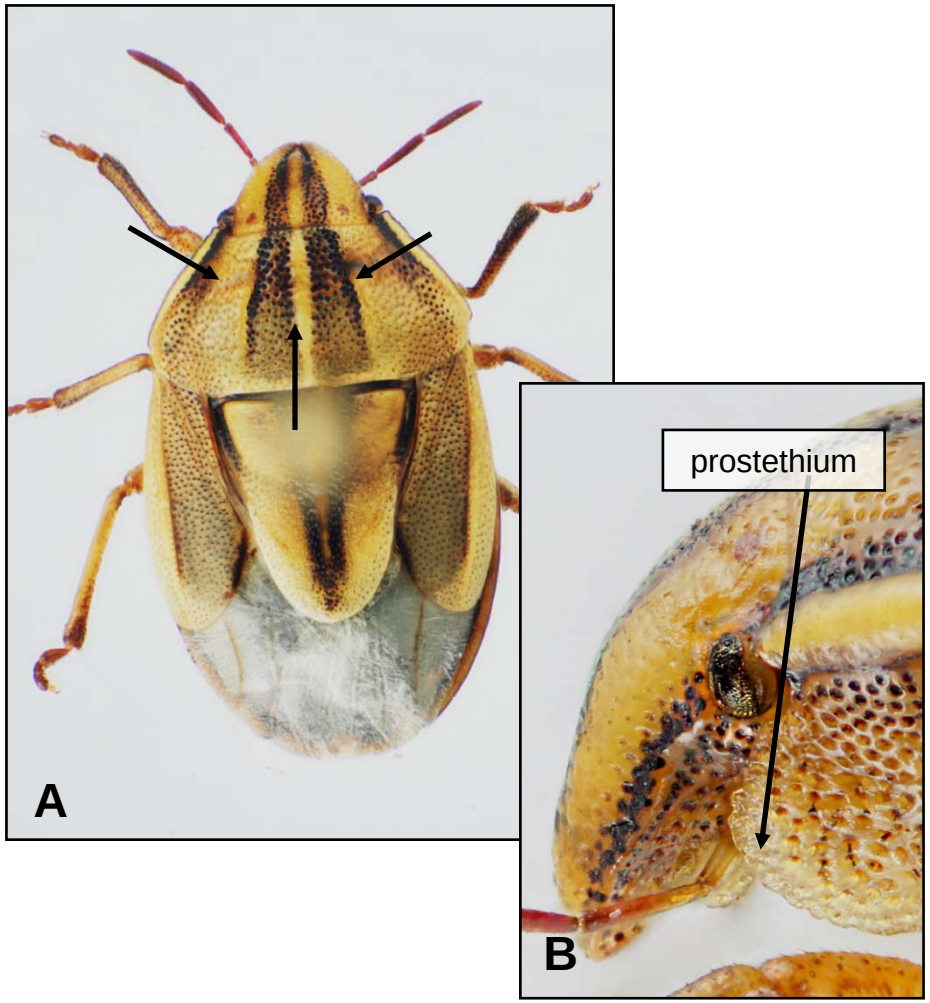

Fig. 55 A-B. *Aelia americana*

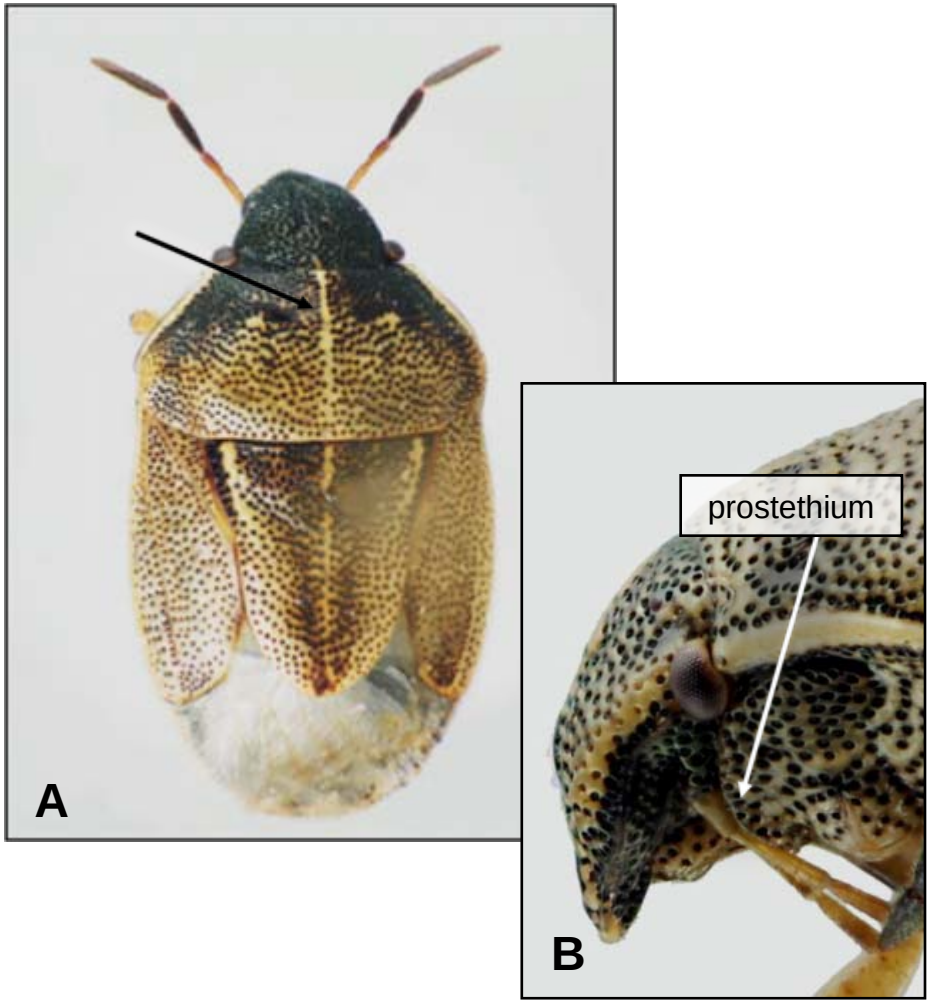

Fig. 56 A-B. *Neottiglossa trilineata*

28. Pronotum with 3 low ridges (Fig. 55 A). Prostethium with anterior margin extending beyond anterior margin of eye (Fig. 55 B). Length 7.0-9.0 mm.

Aelia americana Dallas

28'. Pronotum with only 1 median ridge (Fig. 56 A). Prostethium with anterior margin not extending beyond anterior margin of eye (Fig. 56 B). Length length less than 7 mm.

Neottiglossa 29

Fig. 57. *Neottiglossa undata*.

Fig. 58. *Neottiglossa trilineata*.

29. Head yellowish brown; tylus with median yellow line (Fig. 57). Length 4.5-6.0 mm.

Neottiglossa undata (Say)

29'. Head black or brownish black; tylus without median yellow line (Fig. 58). Length 5.5-6.0 mm.

Neottiglossa trilineata (Kirby)

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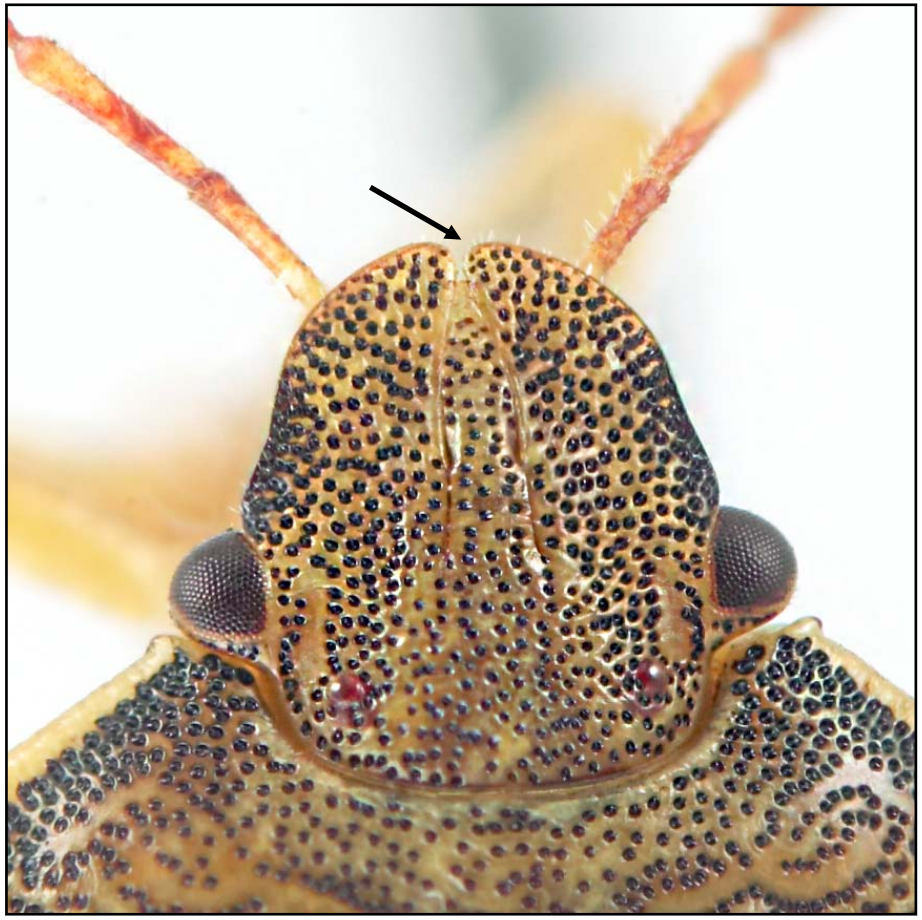

Fig.59. *Holcostethus fulvipes*, head.

Fig. 60. *Halyomorpha halys*, head.

30. Juga longer than tylus, extending beyond tylus by at least width of tylus, apices of juga rounded, converging and frequently contiguous anteriorly (Fig. 59).

Holcostethus 31

Males of *Dendrocoris humeralis* will key here but have pronounced humeri, short second antennal segment, and an orange/red connexivum.

30'. Juga subequal in length to tylus (Fig. 60); if longer, then exceeding tylus by less than width of tylus apex.

34

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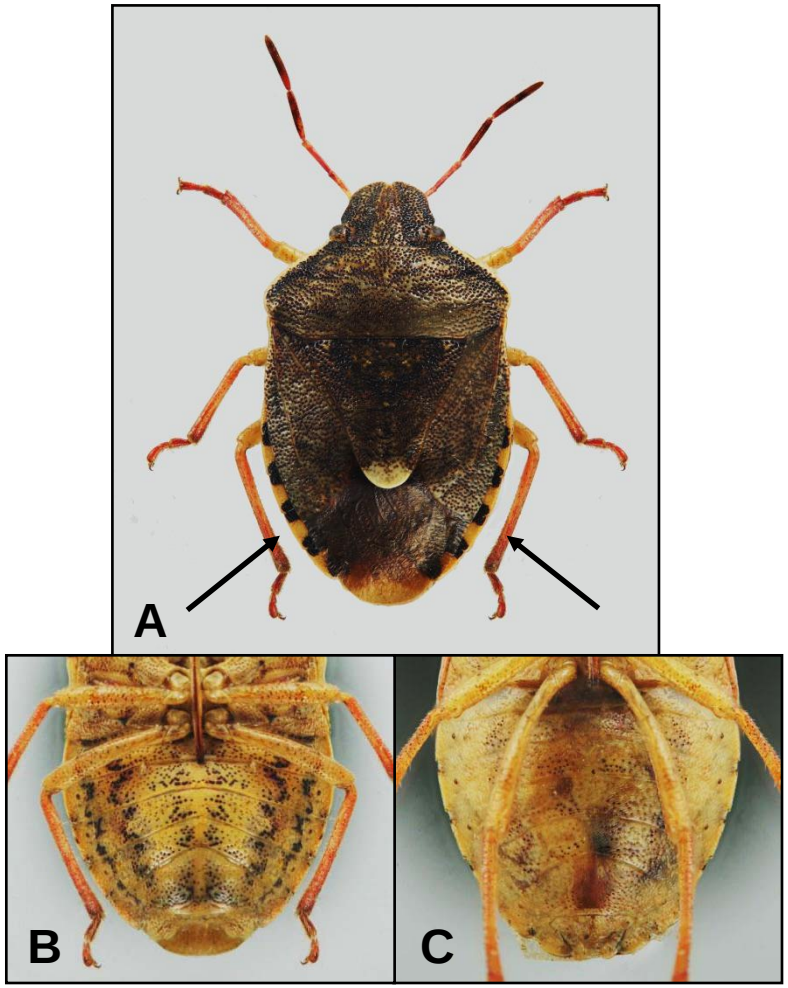

Fig. 61 A-C. A) *Holcostethus fulvipes*, dorsal. B) *H. fulvipes*, abdomen, ventral. C) *H. abbreviatus*, abdomen, ventral.

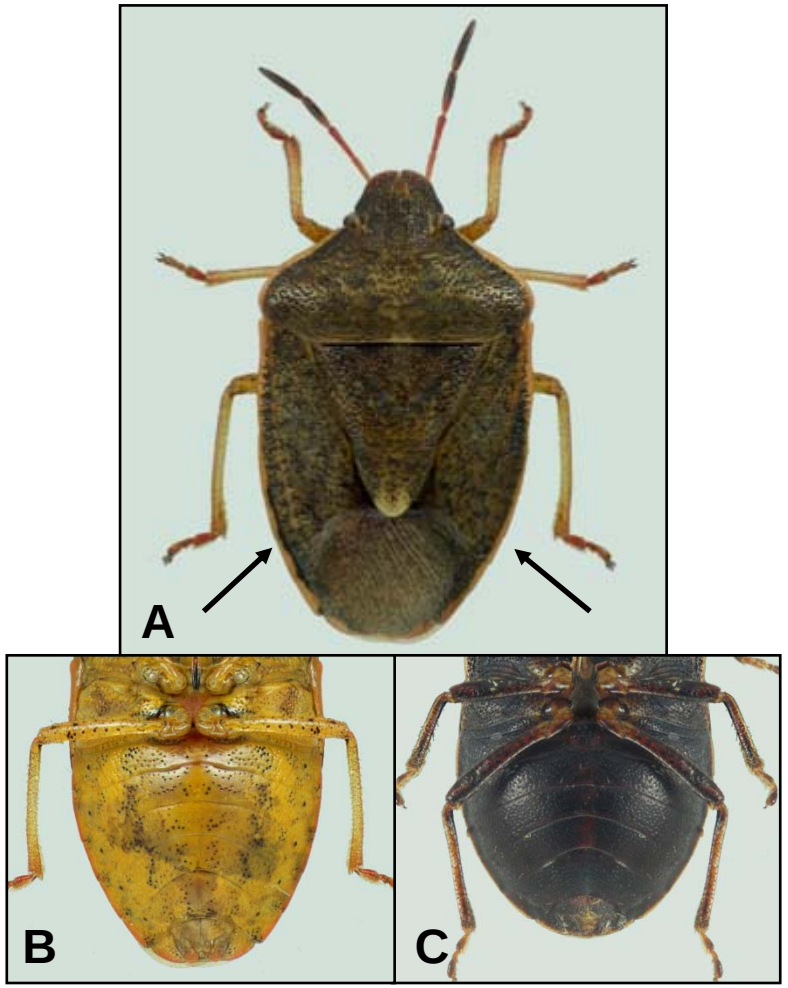

Fig. 62 A-C. A) *Holcostethus limbolarius*, dorsal. B) *H. limbolarius*, abdomen, ventral. C) *H. macdonaldi*, abdomen, ventral.

31. Connexivum alternated with black and yellow, black spots at lateral angles reaching almost to edge (Fig. 61 A). Abdominal venter pale (Fig. 61 C) or pale with black zig-zag bands (Fig. 61 B).

32

31'. Connexivum black, bordered by narrow yellow margin (Fig. 62 A). Abdominal venter pale (Fig. 62 B) (occasional specimens may have zig-zag bands) or black (Fig. 62 C).

33

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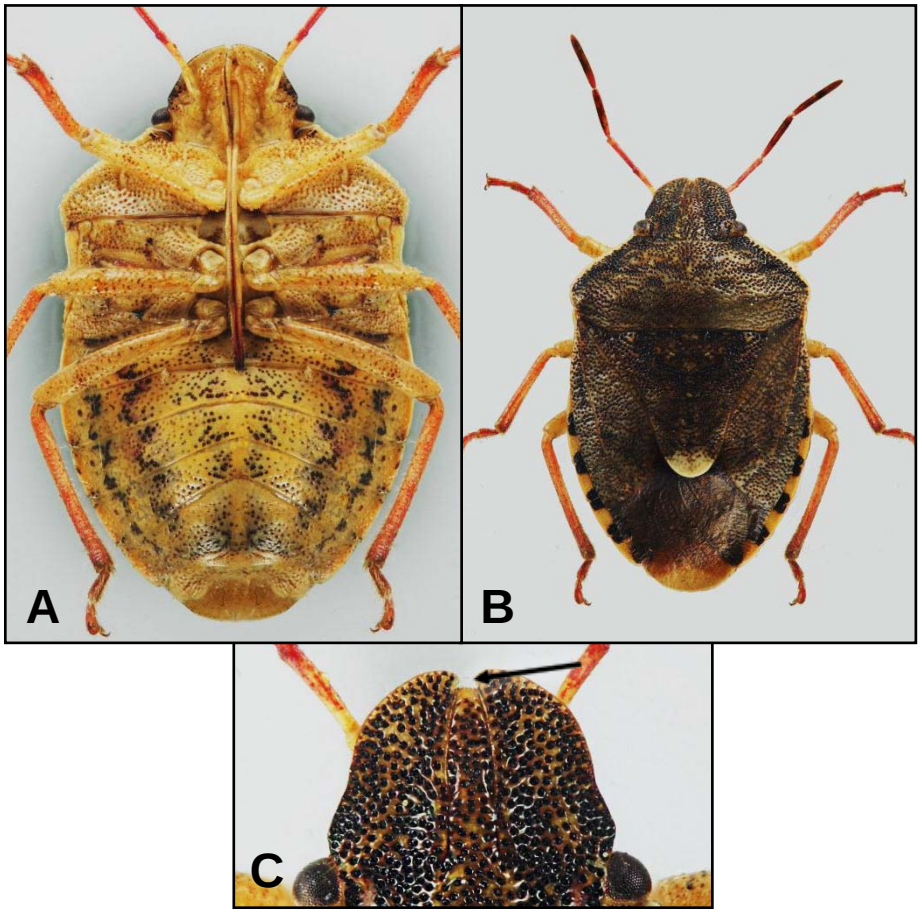

Fig. 63. *Holcostethus fulvipes*: A) ventral; B) dorsal; C) head.

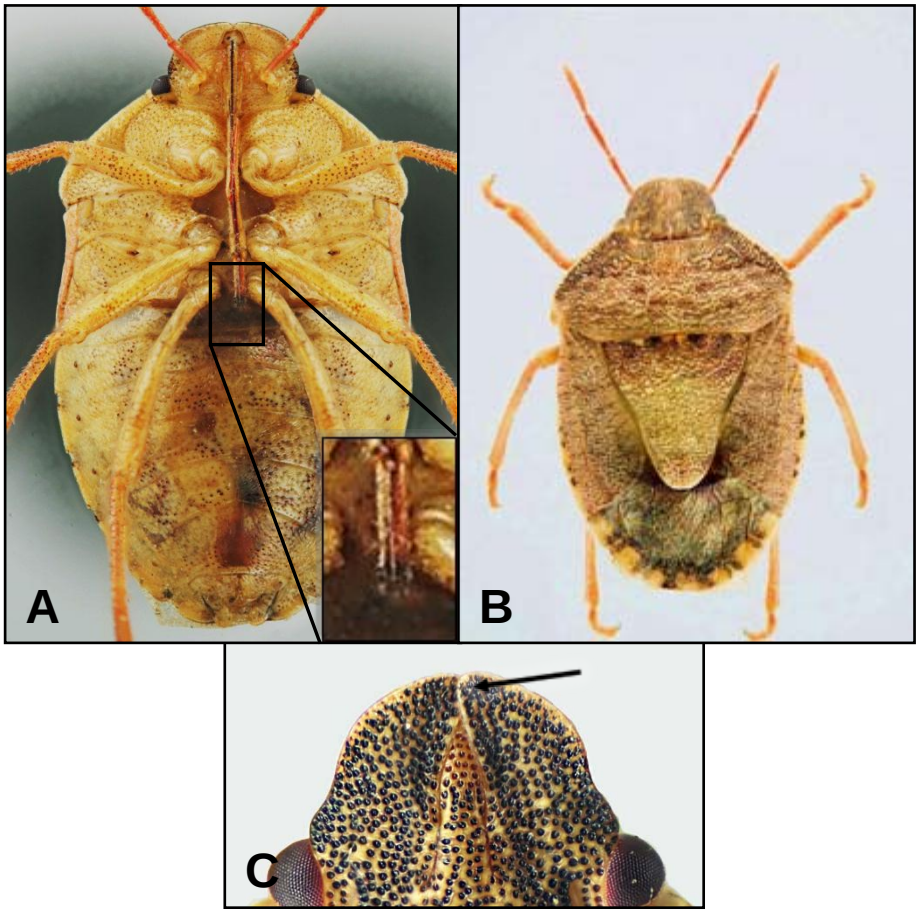

Fig. 64. *Holcostethus abbreviatus*: A) ventral; B) dorsal; C) head.

32. Abdominal venter with 2 longitudinal, zig-zag, black bands either side of midline (Fig. 63 A). Juga not contiguous anteriorly (Fig. 63 A-C). Antennal segments 1 to 3 pale, 4 and 5 darker (Fig. 63 B). Rostrum reaching base of abdominal sternite 2, segment 4 mostly black (Fig. 63 A). Length 9.0-10.0 mm.
Holcostethus fulvipes (Ruckes)

32'. Abdominal venter without zig-zag bands (Fig. 64 A). Juga contiguous anteriorly (Fig. 64 A-C). Antennal segments more uniformly coloured (Fig. 64 B) (occasional specimens with segments 4 and 5 darker). Rostrum extending to just beyond hind coxae, segment 4 with only apex black (Fig. 64 A). Length 8.0-9.5 mm.
Holcostethus abbreviatus Uhler

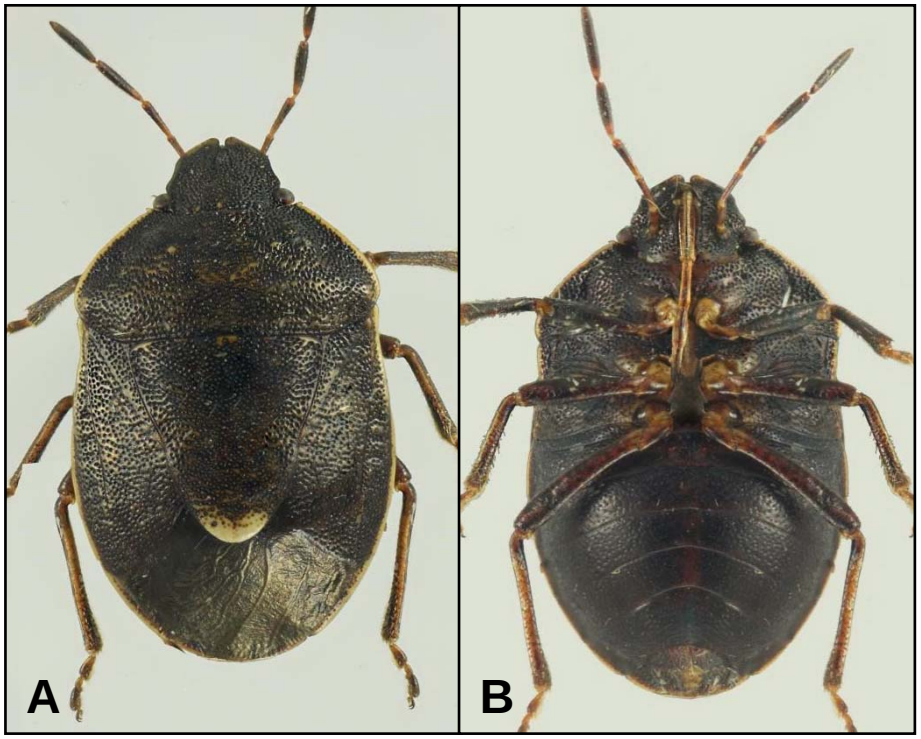

Fig. 65 A-B. *Holcostethus macdonaldi*: A) dorsal; B) ventral.

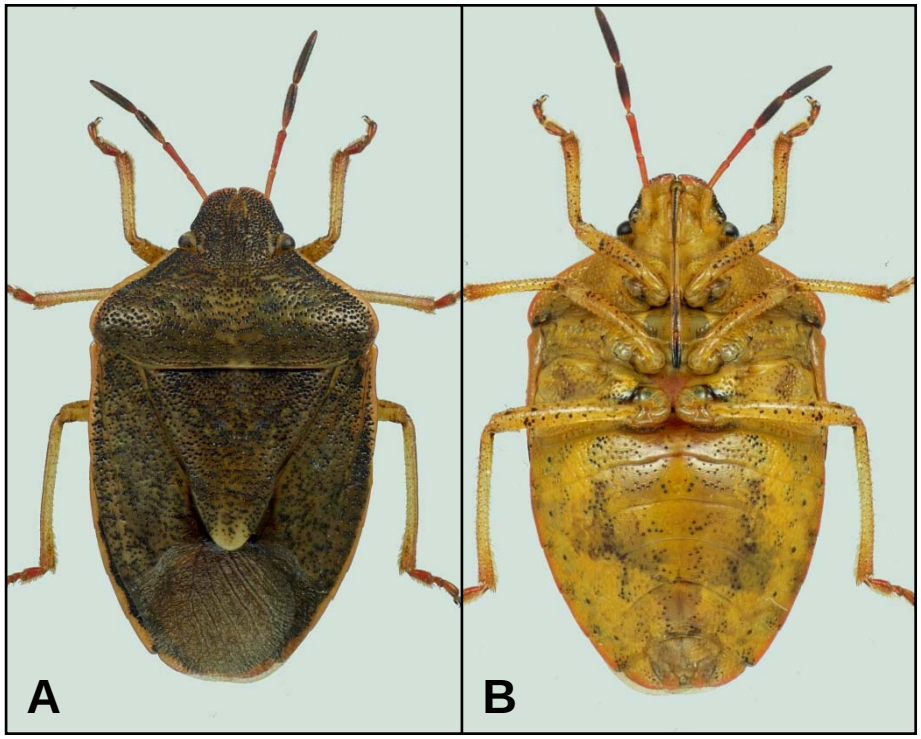

Fig. 66 A-B. *Holcostethus limbolarius*: A) dorsal; B) ventral.

33. Dorsum and venter of body dark brown to black (Fig. 65 A-B). Antennal segments 2–5 brown to black, segment 1 and joints lighter (Fig. 65 B). Body broadest behind middle (Fig. 65 A-B). Juga not contiguous anteriorly (Fig. 65 A). Scutellum broadly rounded at apex (Fig. 65 A). Length 7.0-9.0 mm.

Holcostethus macdonaldi Rider & Rolston

33'. Dorsum of body not black (Fig. 66 A); venter of body pale (Fig. 66 B) or pale with zig-zag bands. Antennal segments 1 to 3 pale, 4 and 5 brownish black (Fig. 66 A-B). Body not broadest behind middle (Fig. 66 A-B). Juga contiguous anteriorly or nearly so (Fig. 66 A-B). Scutellum narrowly rounded at apex (Fig. 66 A). Length 7.0-9.0 mm.

Holcostethus limbolarius (Stål)

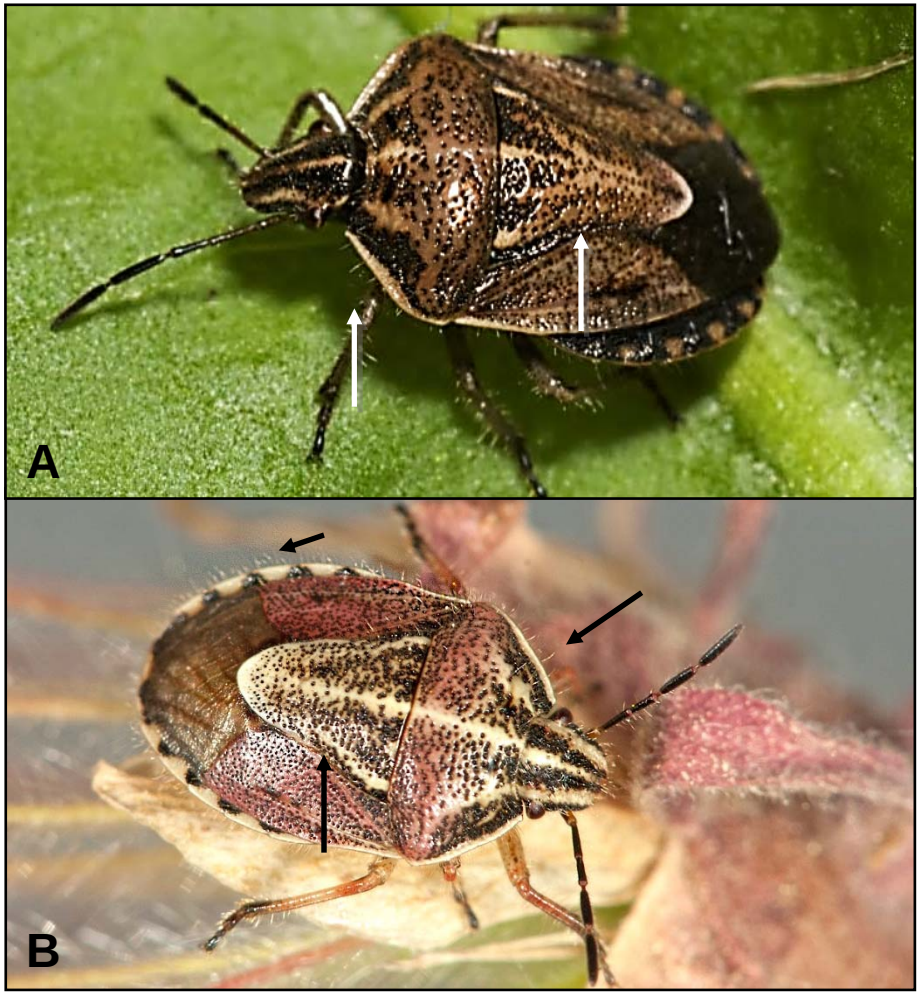

Fig. 67 A-B. A) *Trichopepla semivittata*. B) *T. atricornis*.

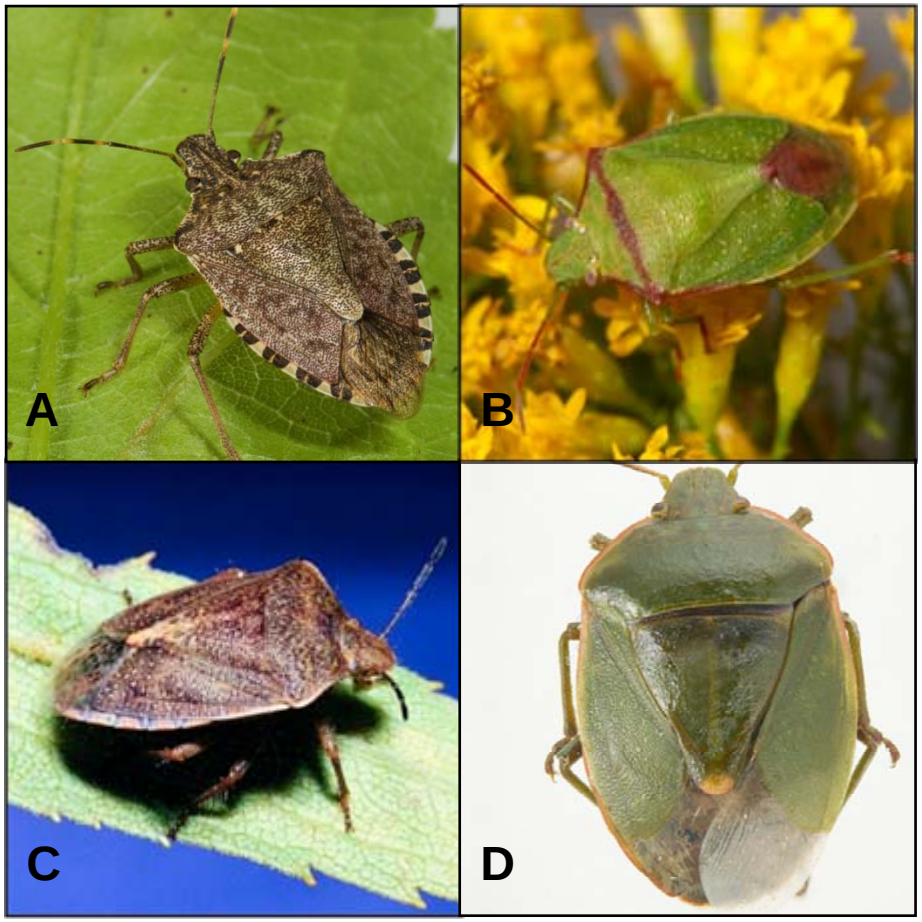

Fig. 68 A-D. A) *Halyomorpha halys*. B-C) *Thyanta custator accerra*. D) *Chlorochroa persimilis*.

34. Body distinctly pubescent (Fig. 67 A-B). Frena reaching to about middle of scutellum.

Trichopepla 35

34'. Body not pubescent or only slightly so (Fig. 68 A-D). Frena surpassing middle of scutellum.

36

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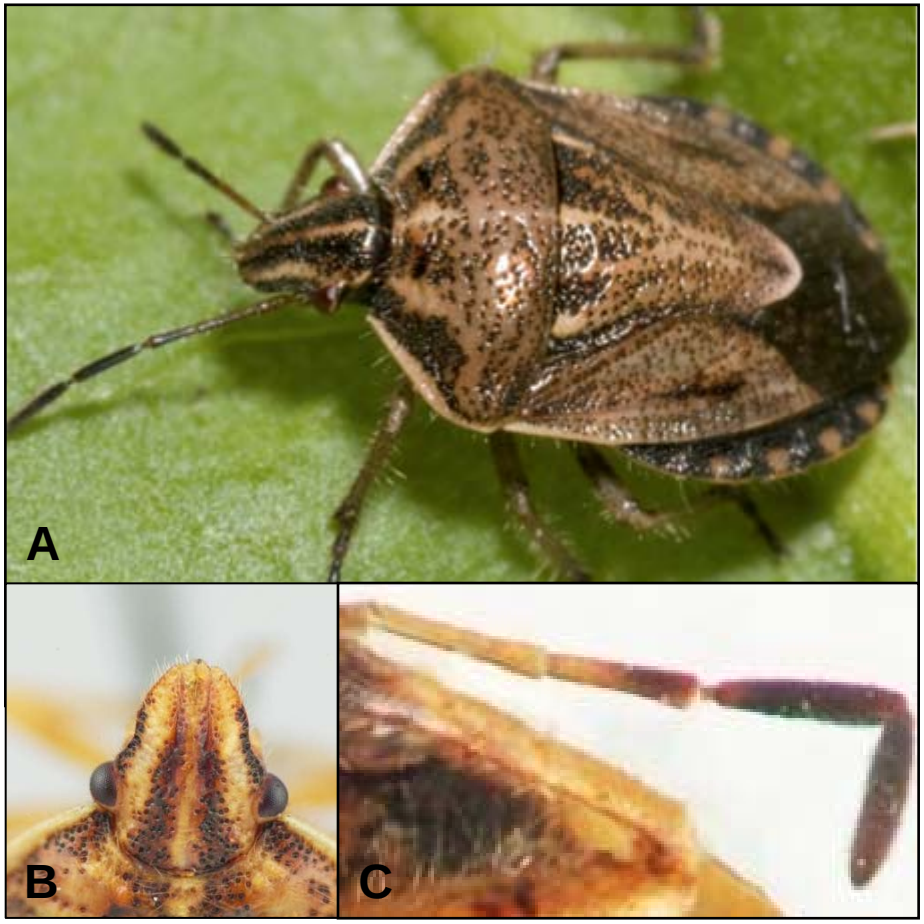

Fig. 69 A-C. *Trichopepla semivittata*: A) dorsal; B) head; C) antenna.

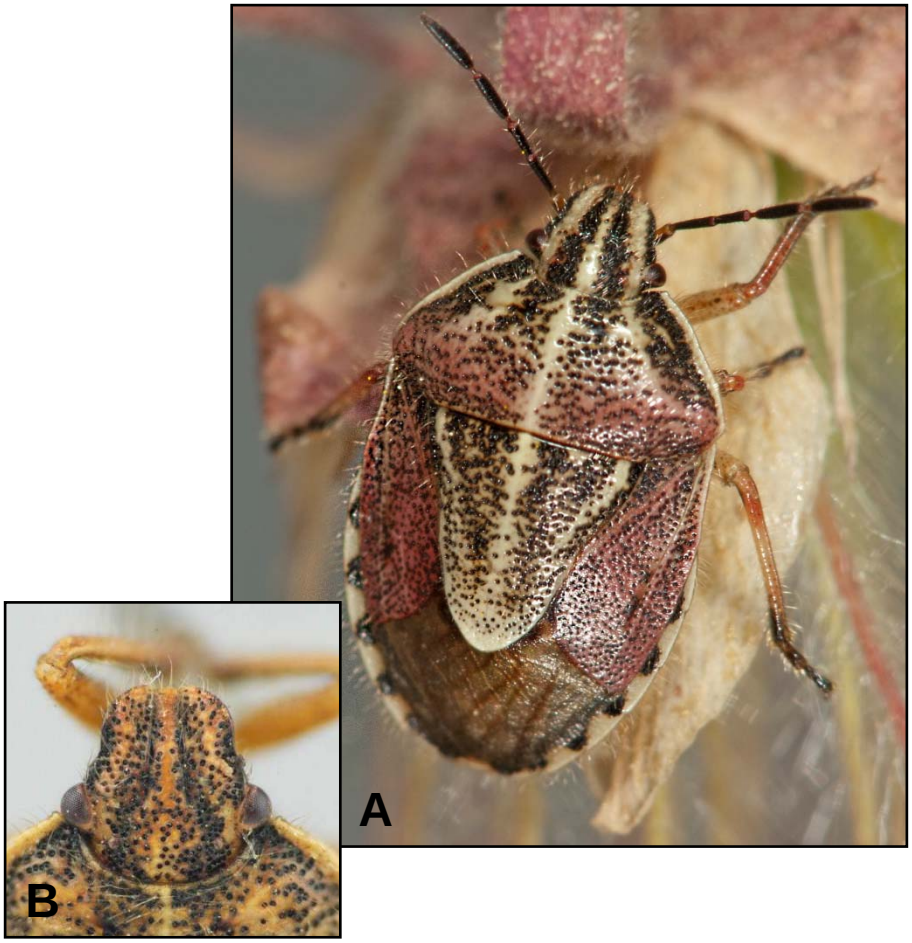

Fig. 70 A-B. *Trichopepla atricornis*: A) dorsal; B) head.

35. Antenna reddish brown, apical 2 segments black (Fig. 69 A, C). Head tapering in front, apex narrowly rounded (Fig. 69 A-B). Length 5.5-8.0 mm.

Trichopepla semivittata (Say)

35'. Antenna black with segment 1 (and occasionally segment 2) pale (Fig. 70 A). Head with sides subparallel, apex broadly rounded to subquadrate (Fig. 70 A-B). Length 6.0-8.0 mm.

Trichopepla atricornis Stål

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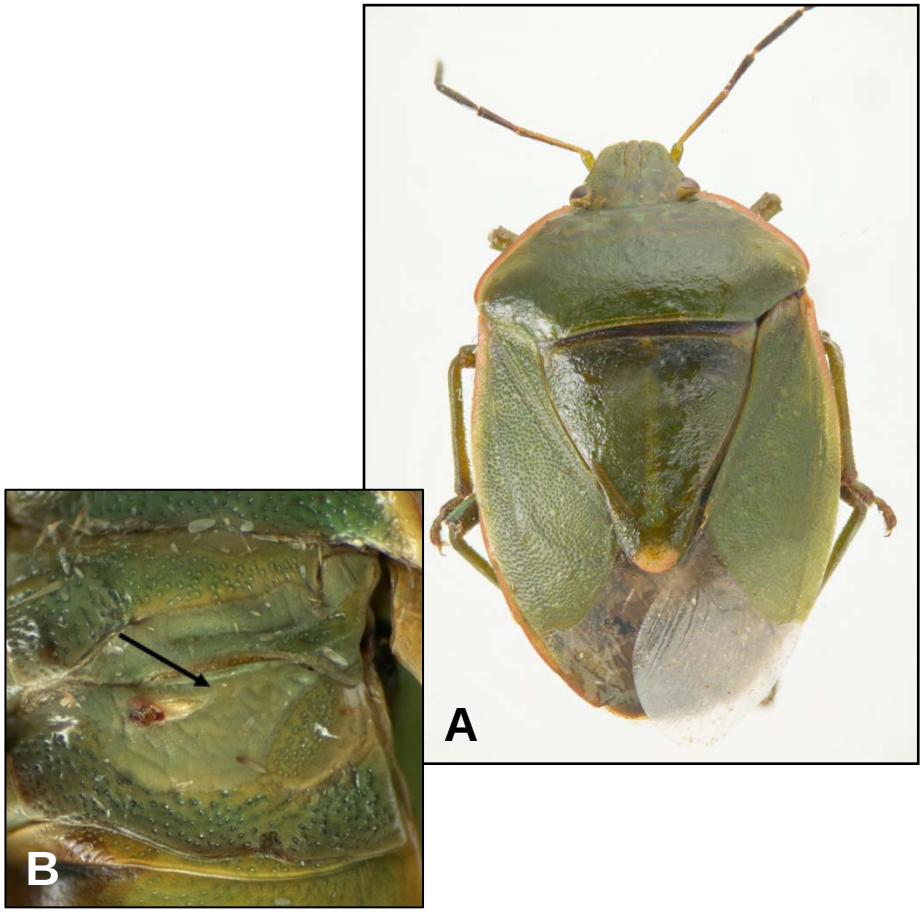

Fig. 71 A-B. *Chlorochroa persimilis*: A) dorsal; B) ostiolar canal.

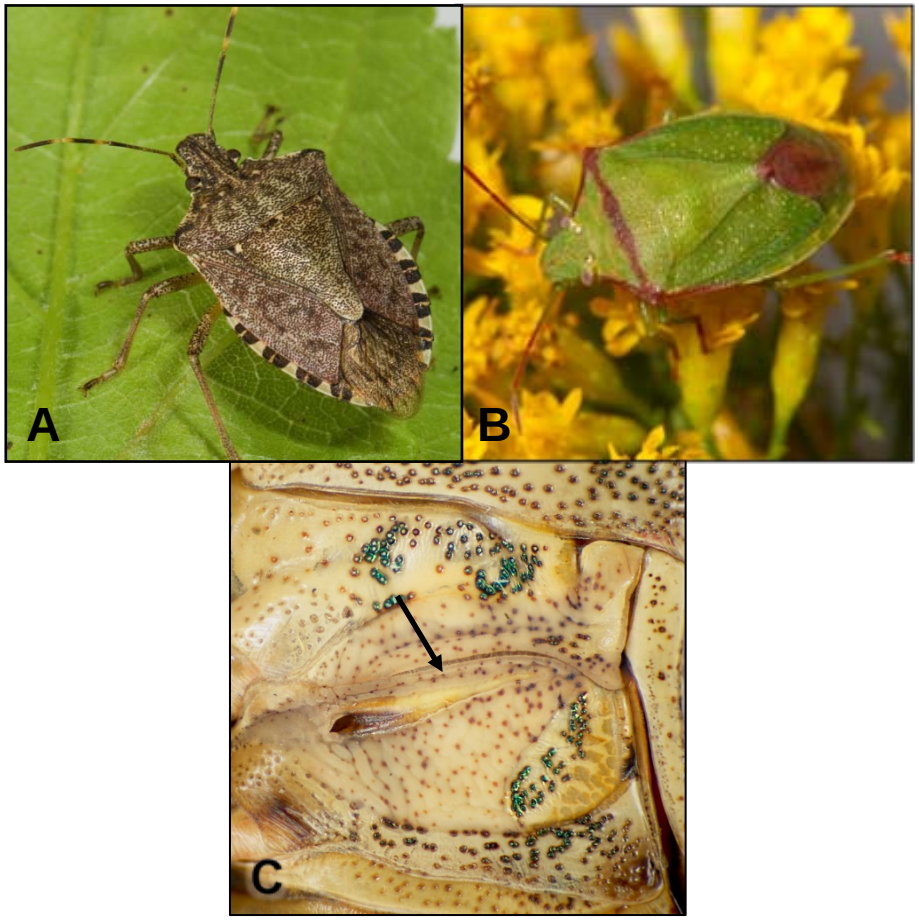

Fig. 72 A-C. A) *Halyomorpha halys*. B) *Thyanta custator accerra*. C) *H. halys*, ostiolar canal.

36. Entire lateral margin of pronotum with well-defined pale yellow to orange band (Fig. 71 A). Ostiolar canal not extending laterally beyond middle of metapleuron (Fig. 71 B). Length 11.0-15.0 mm.

Chlorochroa persimilis Horváth

36'. Anterolateral margin of pronotum variable in colour, but without a yellow to orange band along its entire length (Fig. 72 A-B). Ostiolar canal extending laterally beyond middle of metapleuron, almost reaching anterolateral angle (Fig. 72 C). Length variable.

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Fig. 73. *Halyomorpha halys*.

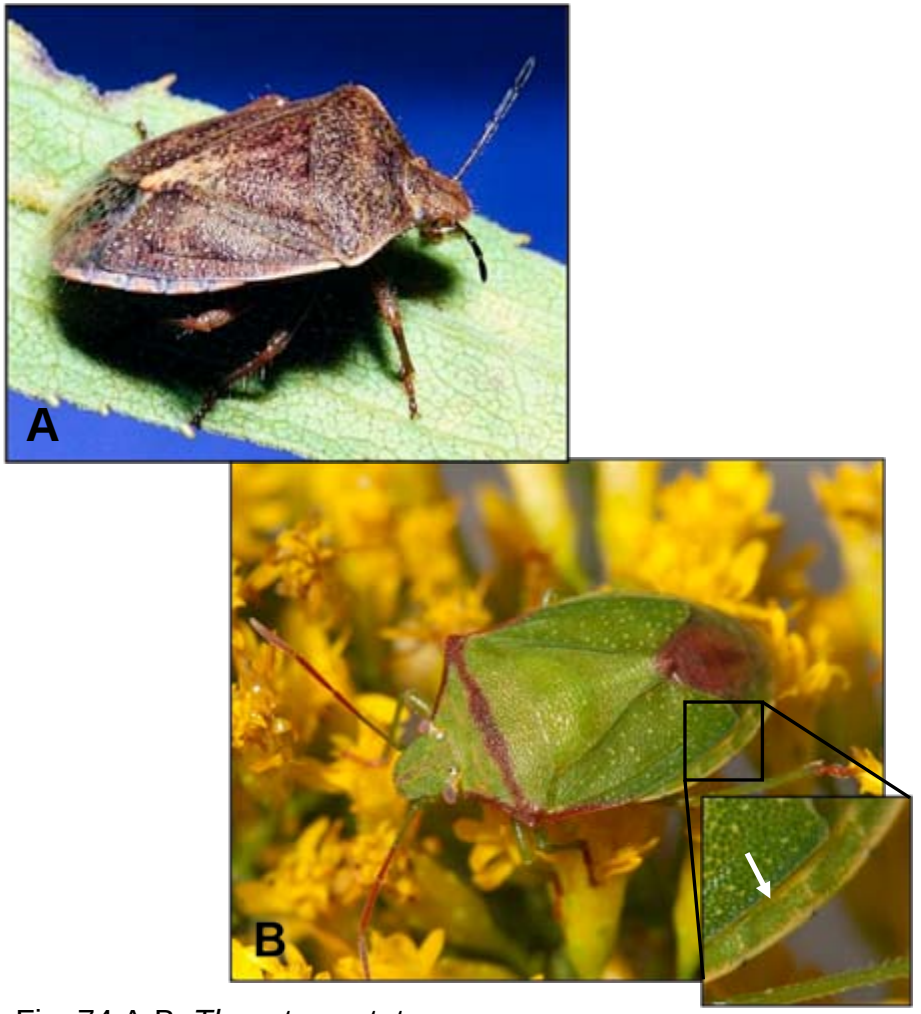

Fig. 74 A-B. *Thyanta custator accerra*.

37. Body with mottled appearance; antennal segments 4 and 5 with alternating dark and light bands; connexivum with alternating distinct dark and yellowish white bands (Fig. 73). Length 12.0-17.0 mm.

Halyomorpha halys (Stål)

37'. Body green, green with orange or red markings, or brown; antenna green or brown, segments 4 and 5 often darker, not banded; connexivum concolourous or weakly edged with orange or red (Fig. 74 A-B). Length 9.0-13.0 mm.

Thyanta 38

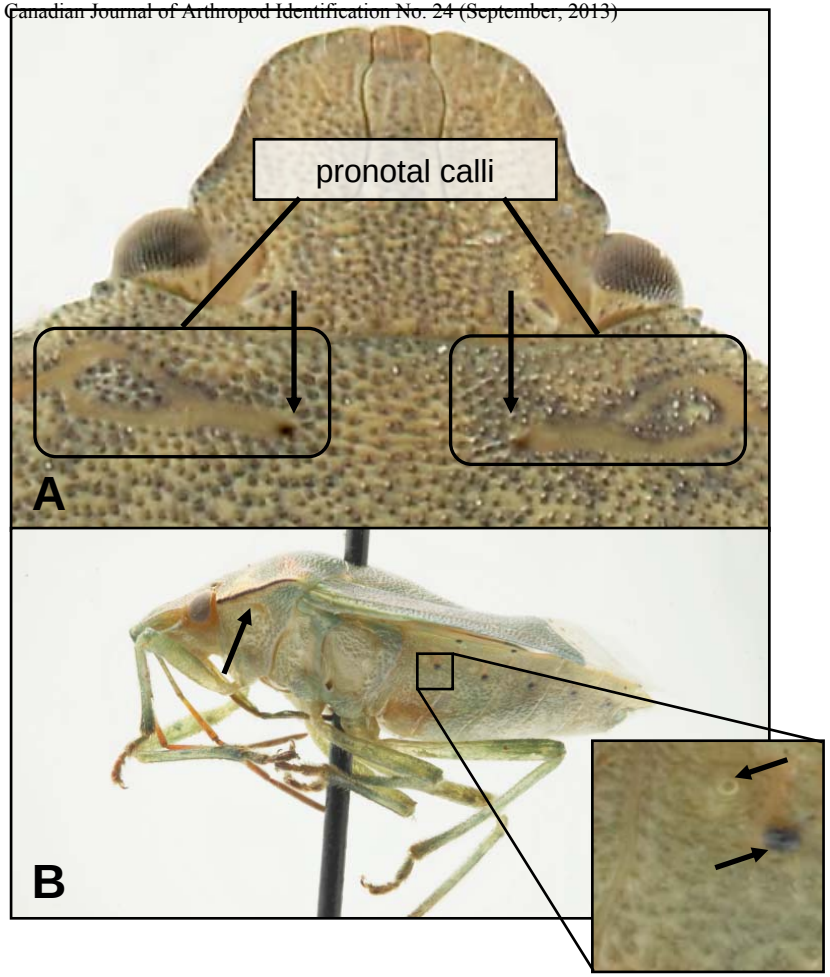

Fig. 75 A-B. *Thyanta calceata*: A) head and pronotum; B) lateral with inset showing region around spiracle.

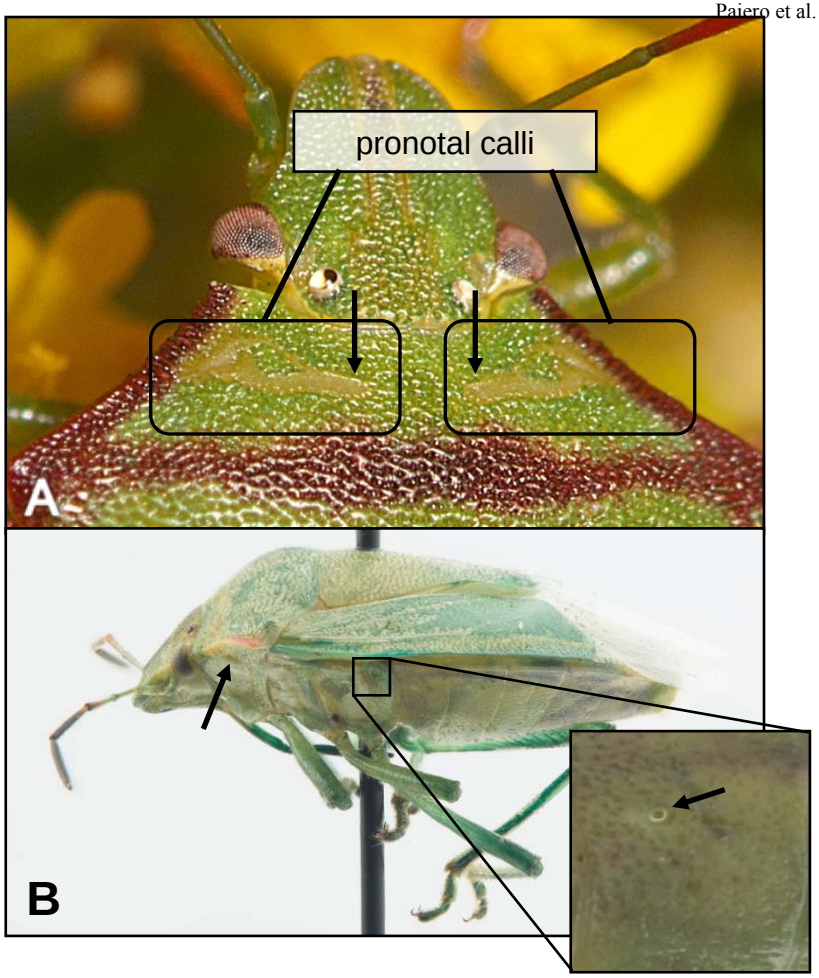

Fig. 76 A-B. *Thyanta custator accerra*; A) head and pronotum; B) lateral with inset showing region around spiracle.

38. Anterolateral pronotal margin black (Fig. 75 B). Inner angle of each pronotal callus with black spot (Fig. 75 A). Lateral margin of abdominal connexivum with row of dark spots (Fig. 75 B). Abdominal venter with row of black postspiracular spots (Fig. 75 B). Length 10.0-11.0 mm.

Thyanta calceata Say

38'. Anterolateral pronotal margin not black (Fig. 76 B). Inner angle of each pronotal callus pale (Fig. 76 A). Lateral margin of abdominal connexivum without row of dark spots (Fig. 76 B). Abdominal venter with postspiracular spots reduced or absent (Fig. 76 B). Length 9.0-13.0 mm.

Thyanta custator accerra McAtee

doi:10.3752/cjai.2013.24

Fig. 77. *Stiretrus anchorago*.

Fig. 78. *Perillus circumcinctus*.

39. Scutellum U-shaped, broadly rounded apically with apical third 2 or more times width of each corium, reaching almost to apex of abdomen (Fig. 77). Frenum about one-fourth the length of scutellum. Colour black and white. Length 7.0-10.0 mm.

Stiretrus anchorago (Fabricius)

39'. Scutellum not U-shaped, apical third, at most, slightly wider than corium, obviously not reaching apex of abdomen (Fig. 78). Frenum about one-half or more length of scutellum. Colour variable. Length variable.

40

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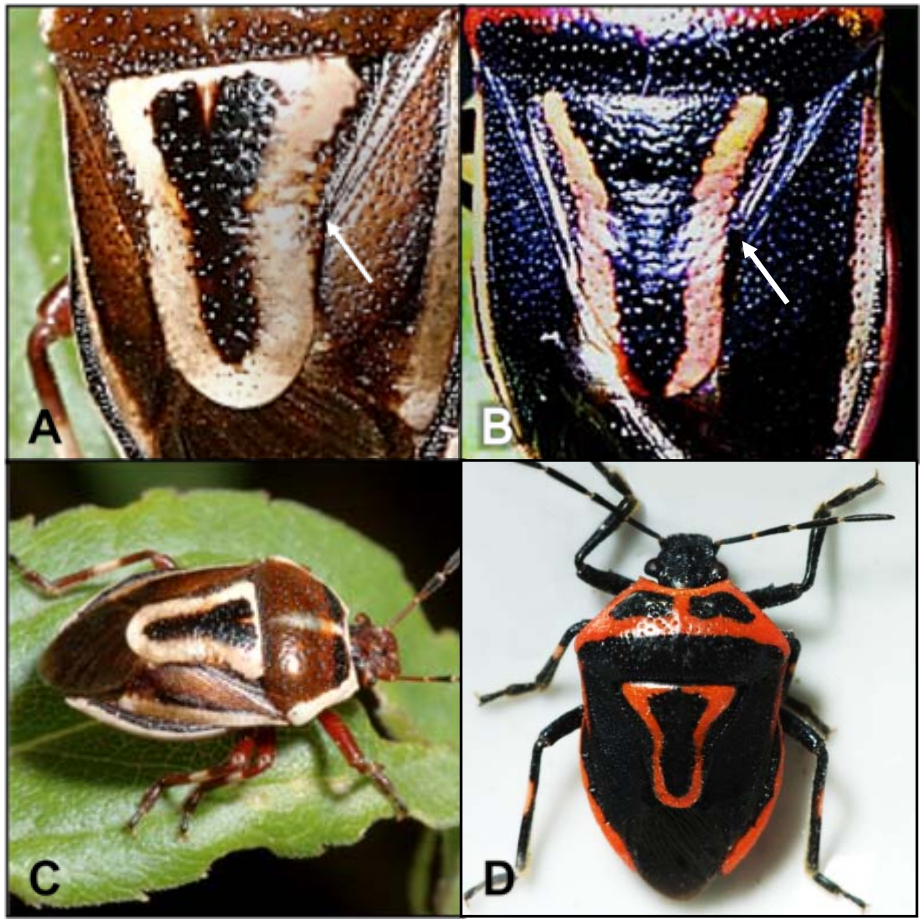

Fig. 79 A-D. A) *Perillus circumcinctus*, scutellum. B) *P. exaptus*, scutellum. C) *P. strigipes*. D) *P. bioculatus.*

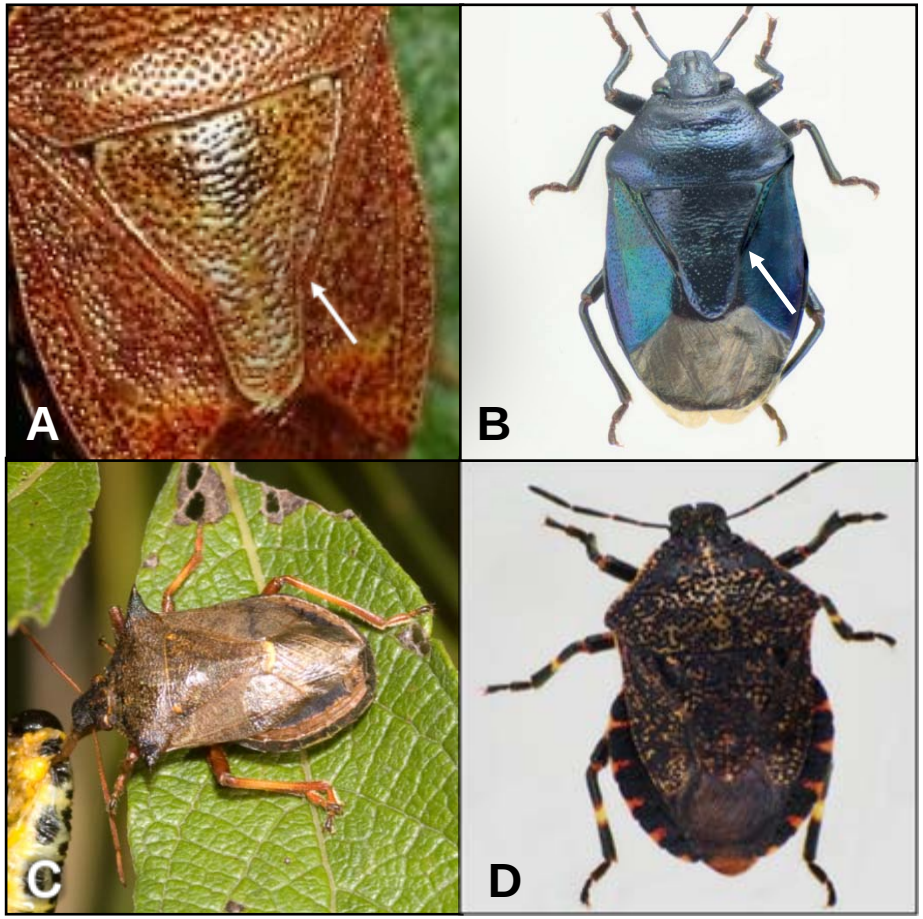

Fig. 80 A-D. A) *Podisus brevispinus*, scutellum. B) *Zicrona caerulea*. C) *Picromeris bidens*. D) *Rhacognathus americanus.*

40. Frenum about half as long as scutellum (Fig. 79 A-C). Colour black with orange/red markings or yellow with brown/black markings (Fig. 79 A-D).

Perillus 41

40'. Frenum more than half as long as scutellum (Fig. 80 A-B). Body colour variable (e.g., Fig. 80 A-D) but not as in Fig. 79.

44

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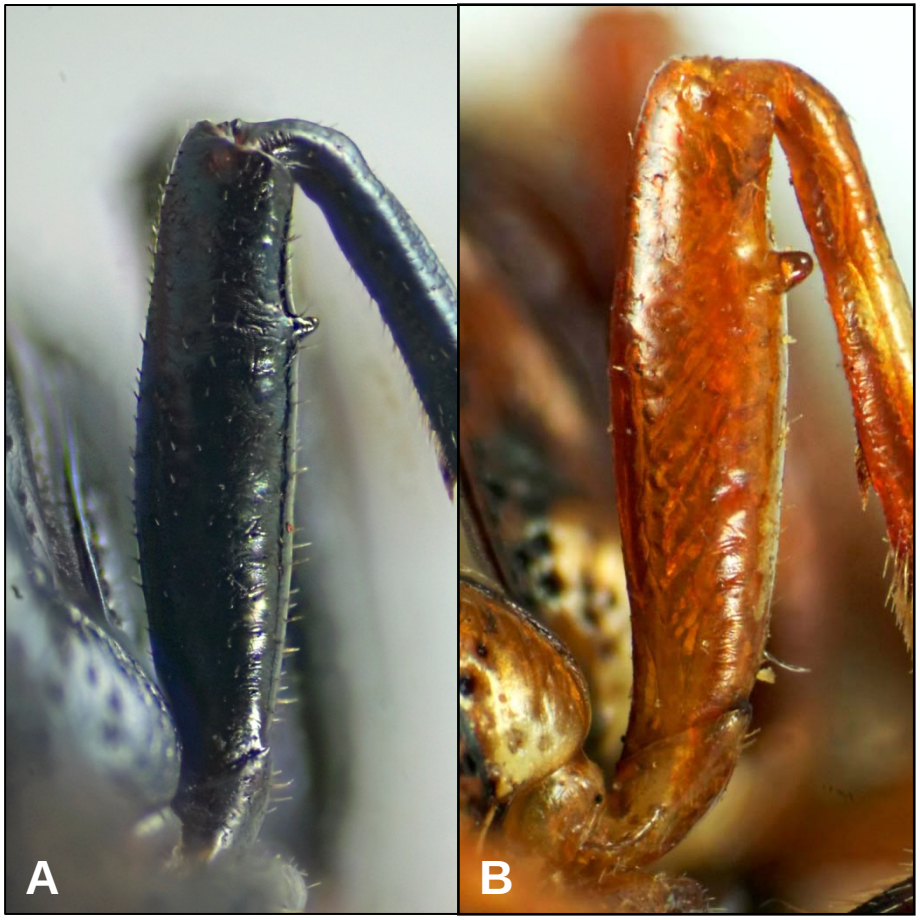

Fig. 81 A-B. A) *Perillus bioculatus,* front femur. B) *P. circumcinctus*, front femur.

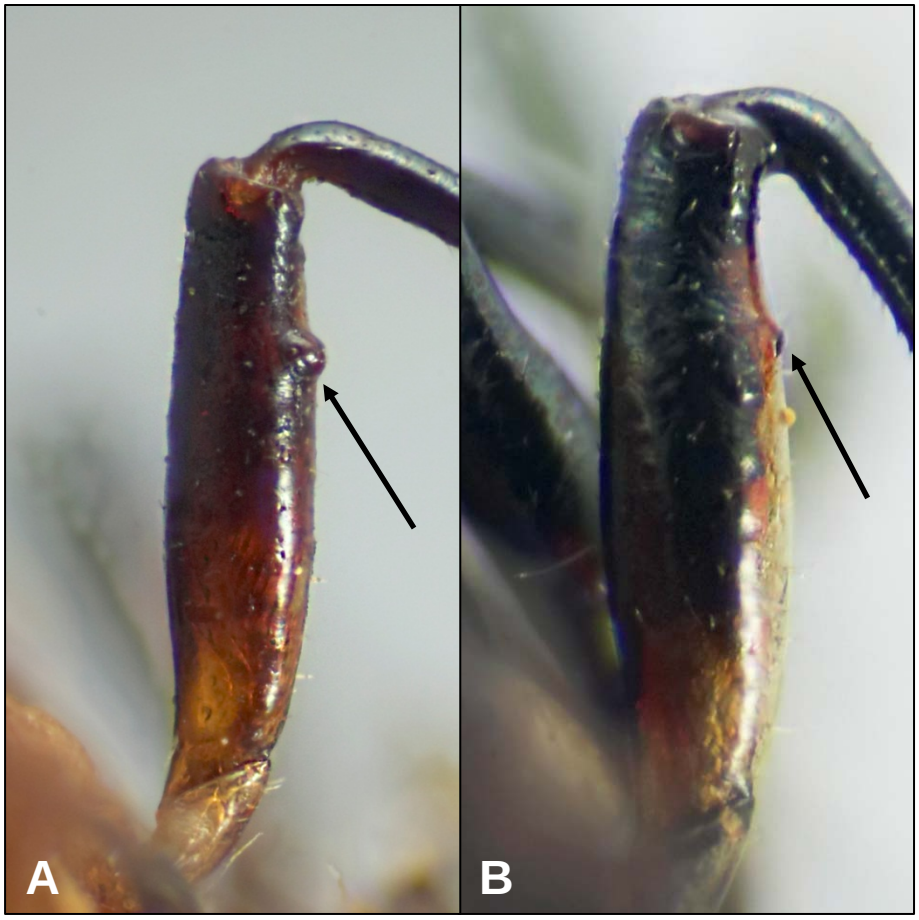

Fig. 82 A-B. *Perillus exaptus* , front femur.

41. Front femur with well developed ventral anteapical spine or tubercle (longer than wide) (Fig. 81 A-B).

42

41'. Front femur with ventral anteapical spine reduced (not longer than wide) (Fig. 82 A-B) or absent.

43

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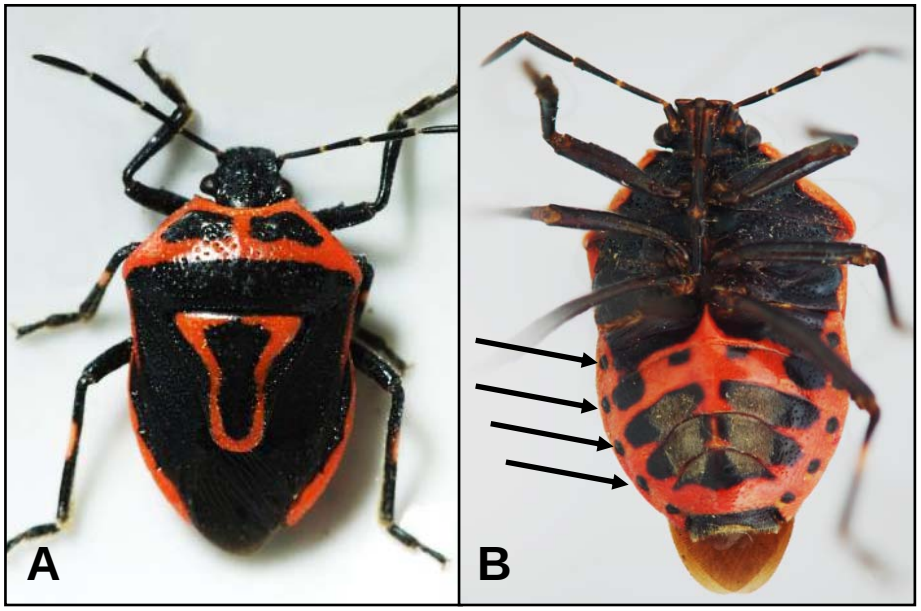

Fig. 83 A-B. *Perillus bioculatus*: A) dorsal; B) ventral.

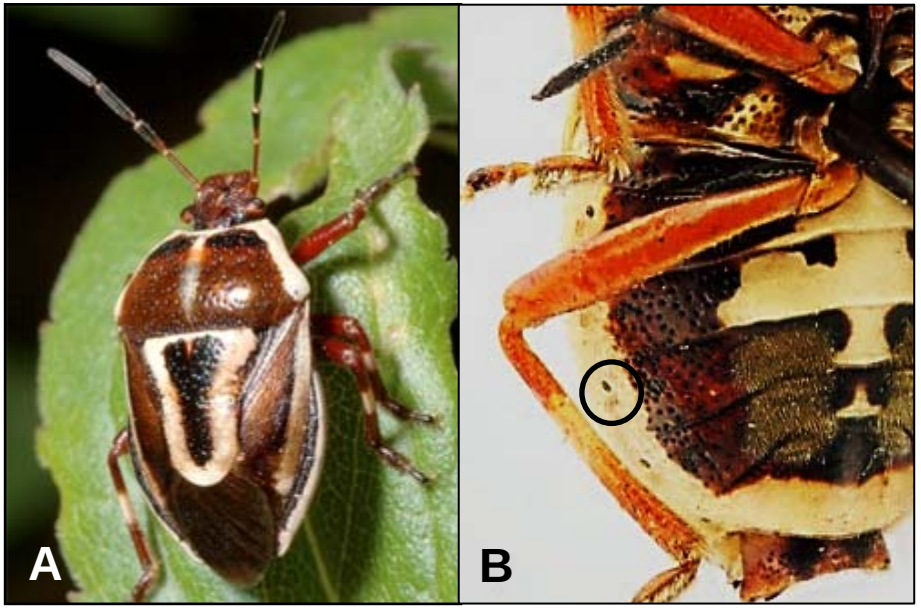

Fig. 84 A-B. *Perillus circumcinctus*: A) dorsal; B) ventral.

42. Pronotum with transverse dark stripe interrupted at middle to form 2 spots (Fig. 83 A). Abdomen with ventral submarginal and submedial rows of black spots, sometimes fused to form stripes or broader black areas; spiracles each surrounded by black spot (Fig. 83 B). Antenna black (Fig. 83 A-B) with joints of segment 1 and 2 occasionally pale. Length 8.5-11.5 mm.

Perillus bioculatus (Fabricius)

42'. Pronotum with transverse dark stripe interrupted at middle by narrow light stripe but not forming two distinct spots (Fig. 84 A). Abdomen with ventral broad brown to black submarginal stripes and submedial rows of spots sometimes fused to form a broad dark venter (Fig. 84 B); spiracles not surrounded by black spots (Fig. 84 B). Antenna black, with segments 1 and 2 and basal half of 3 pale (Fig. 84 A). Length 9.0-11.0 mm.

Perillus circumcinctus Stål

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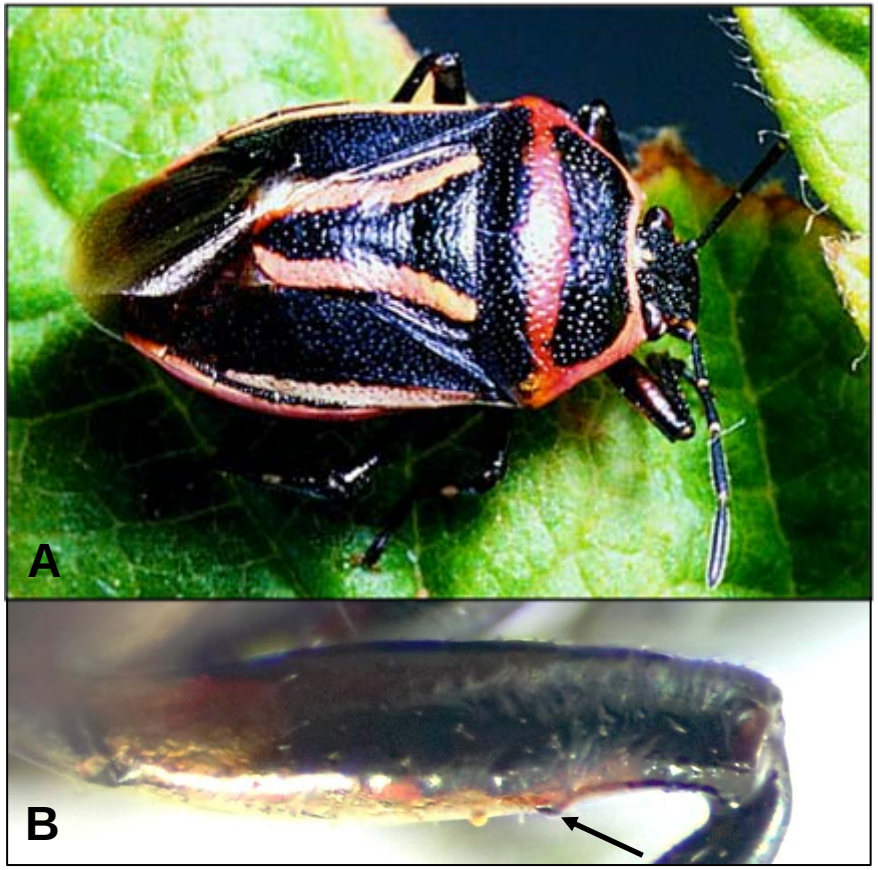

Fig. 85. *Perillus exaptus*: A) dorsal; B) front femur.

Fig. 86. *Perillus strigipes*.

43. Front femur with a small ventral anteapical spine (occasionally represented only by swelling) (Fig. 85 B). Pronotum with a continuous, anterior, transverse dark stripe, never divided by a longitudinal lighter stripe; scutellum with margins forming a yellow to orange U-shaped band but never a chevron (Fig. 85 A). Length 5.0-8.0 mm.

Perillus exaptus (Say)

43'. Front femur without ventral anteapical spine. Pronotum with yellow or orange mediolongitudinal stripe and/or scutellum with a yellow or orange chevron (Fig. 86). Length 7.0-10.0 mm.

Perillus strigipes (Herrich-Schäffer)

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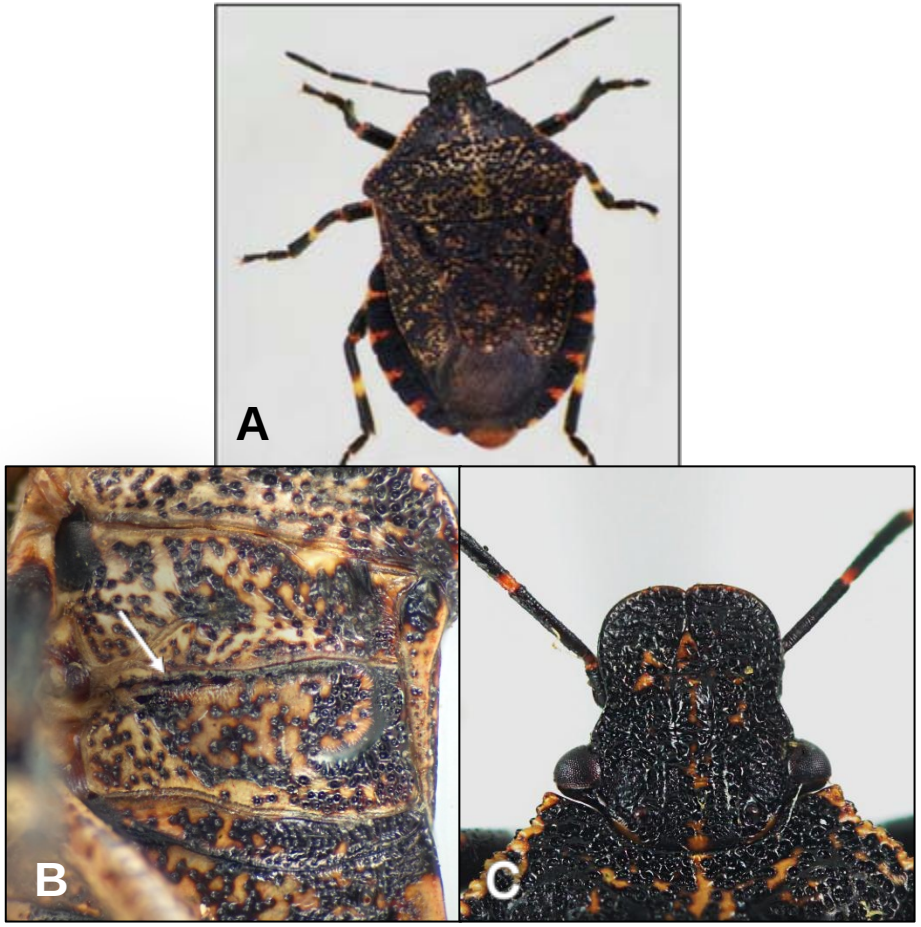

Fig. 87 A-C. *Rhacognathus americanus*: A) dorsal; B) ostiolar canal; C) head.

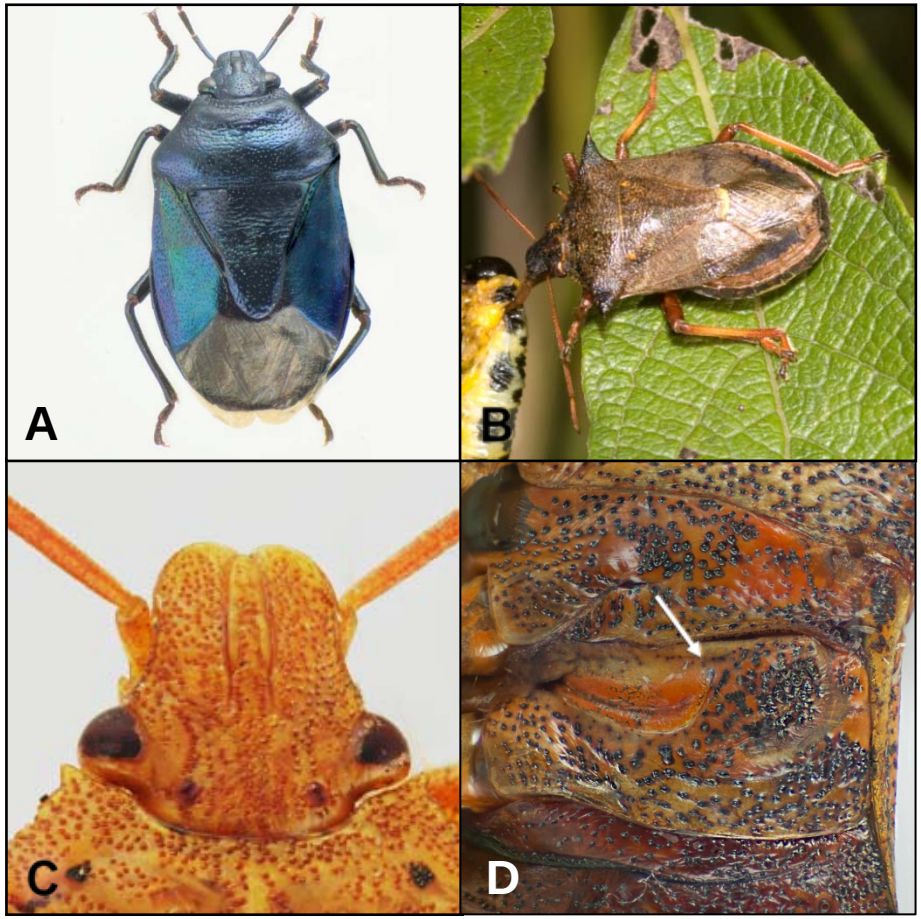

Fig. 88 A-D. A) *Zicrona caerulea*; B) *Picromerus bidens*; C) *Apoecilus cynicus,* head; D) *P. bidens*, ostiolar canal.

44. Colour blackish; tibiae with pale annulus (Fig. 87 A). Juga much longer than tylus and contiguous anteriorly (Fig. 87 C). Ostiolar canal short, not reaching middle of metapleuron (Fig. 87 B). Length 9.0-11.0 mm.

Rhacognathus americanus Stål

44'. Colour variable, generally light to dark brown or bluish (Fig. 88 A-C); tibiae without pale annulus (Fig. 88 A-B). Juga at most slightly longer than tylus, generally not contiguous anteriorly (Fig. 88 A, C). Ostiolar canal long and curved, reaching or exceeding middle of metapleuron (Fig. 88 D). Length variable.

45

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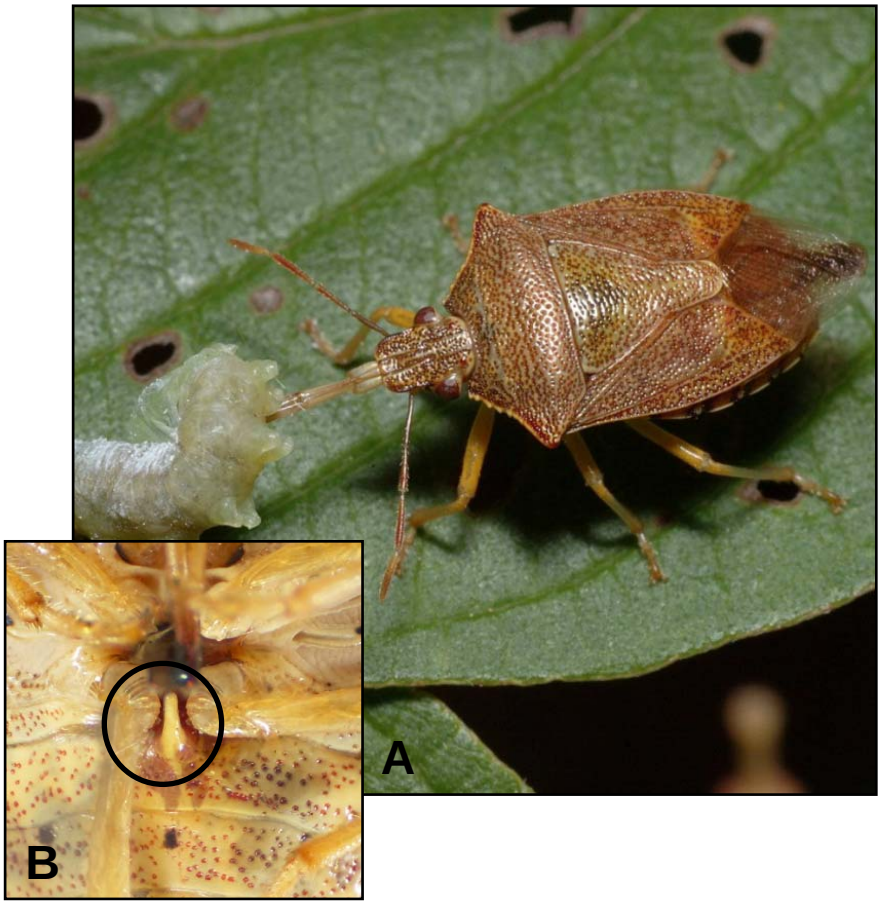

Fig. 89 A-B. A) *Podisus brevispinus.* B) *P. maculiventris,* abdomen, ventral.

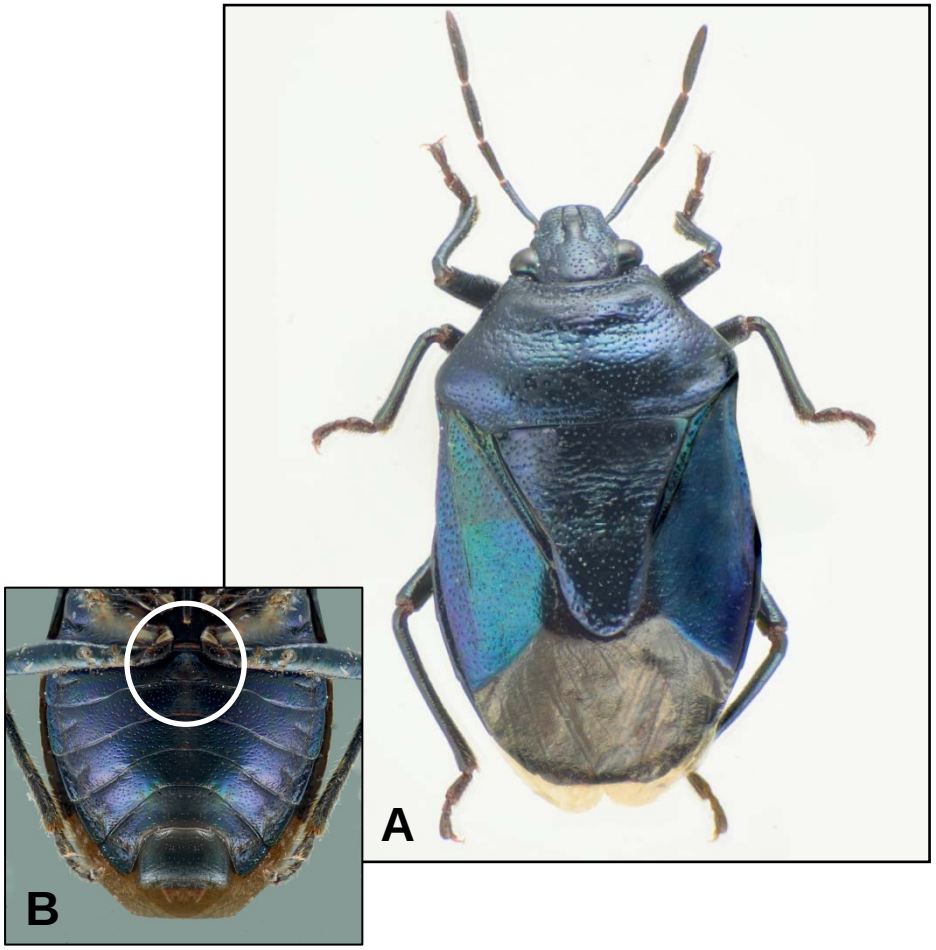

Fig. 90 A-B. *Zicrona caerulea*: A) dorsal; B) abdomen, ventral.

45. Abdominal sternite 2 armed with anteriorly directed acute to obtuse spine (Fig. 89 B). Colour not metallic blue or black (Fig. 89 A). Length 7.5-20.0 mm.

46

45'. Abdominal sternite unarmed (Fig. 90 B). Colour metallic purplish blue, greenish blue or bluish black (Fig. 90 A-B). Length 7.0-9.0 mm.

Zicrona caerulea (Linnaeus)

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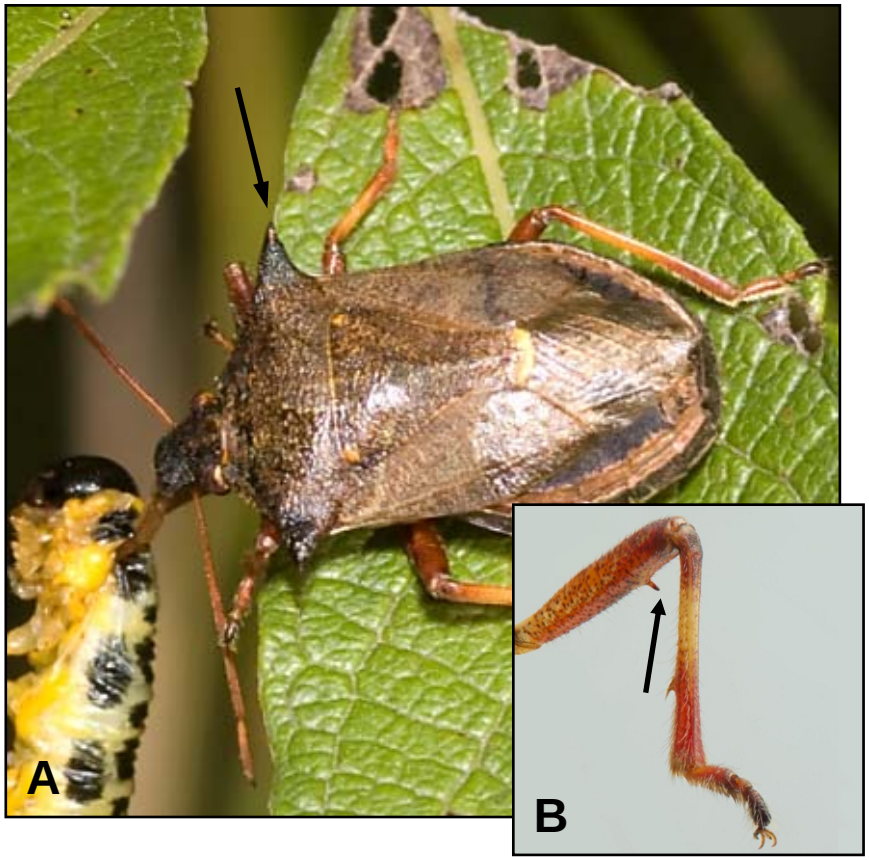

Fig. 91 A-B. *Picromerus bidens*: A) dorsal; B) front leg.

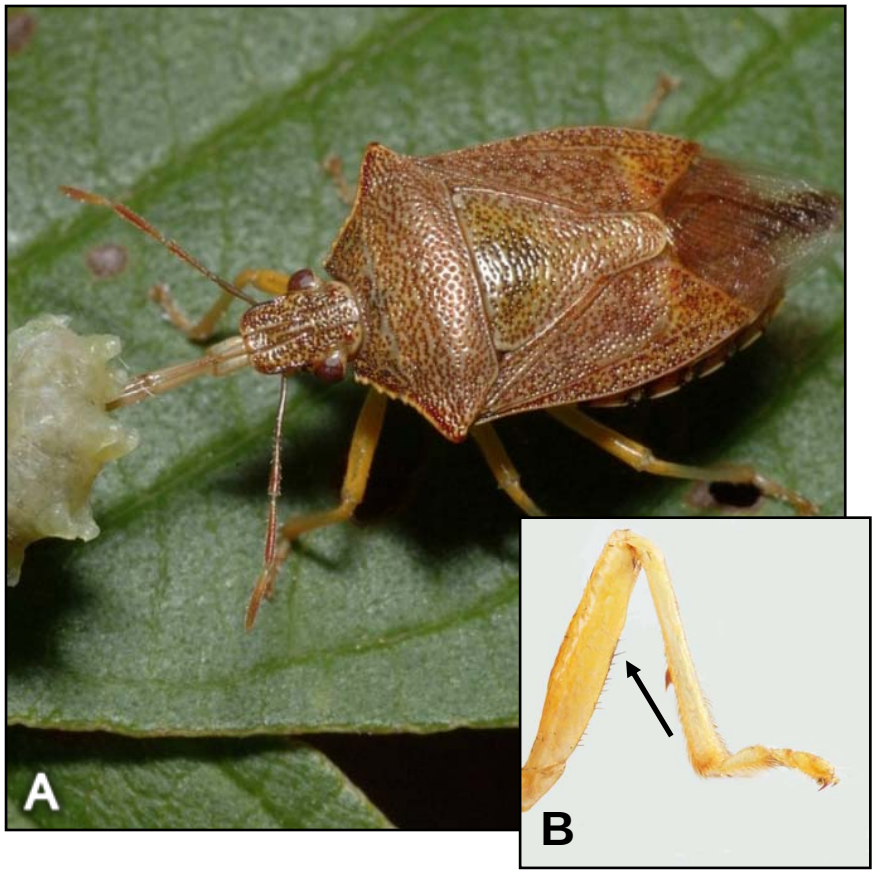

Fig. 92 A-B. *Podisus brevispinus:* A) dorsal; B) front leg.

46. Humerus acute, spinose (Fig. 91 A). Front femur with short ventral anteapical spine (Fig. 91 B). Length 11.0-14.0 mm.

Picromerus bidens (Linnaeus)

46'. Humerus variable, acute to obtuse (Fig. 92 A). Front femur without ventral anteapical spine (Fig. 92 B). Length 7.5-20.0 mm.

47

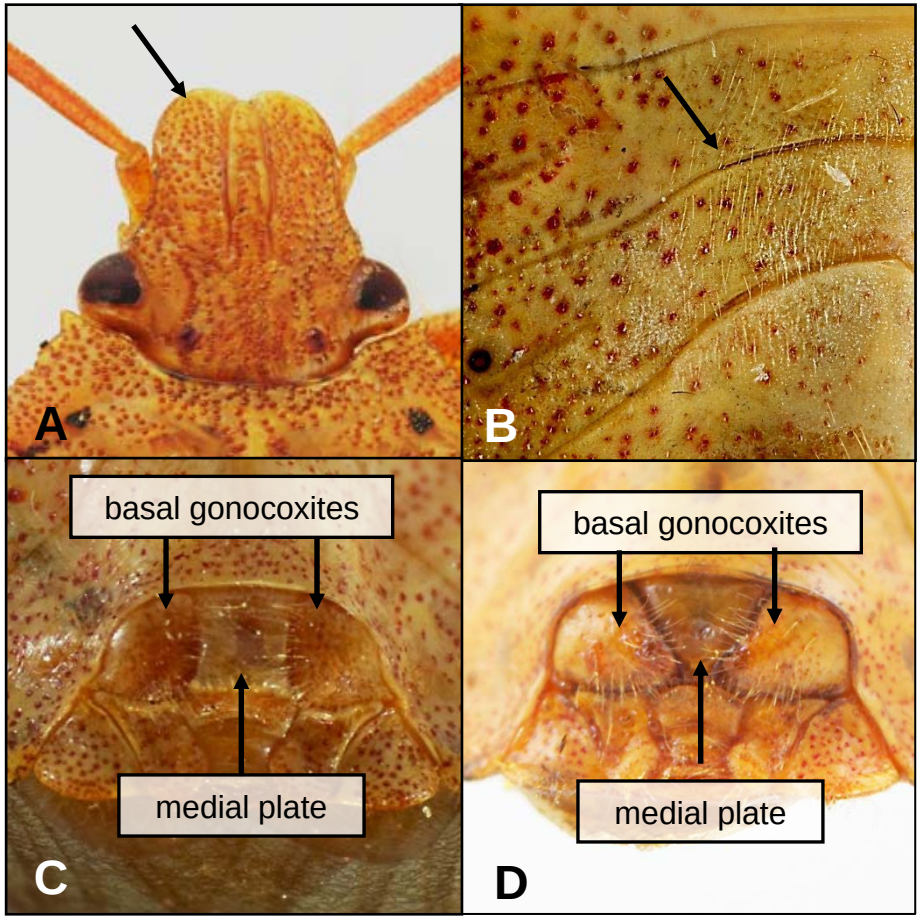

Fig. 93 A-D. A) *Apoecilus cynicus,* head. B) *A. cynicus*, abdominal venter. C) *A. cynicus*, female genitalia. D) *A. bracteatus*, female genitalia.

47. Length usually more than 14 mm. Juga slightly exceeding tylus, inner margins distinctly convergent apically (Fig. 93 A). Male with submedian pubescent patches on abdominal sternites 4-6 (Fig. 93 B; difficult to see); female with basal gonocoxites separated by medial plate (Fig. 93 C-D).

Apoecilus 48

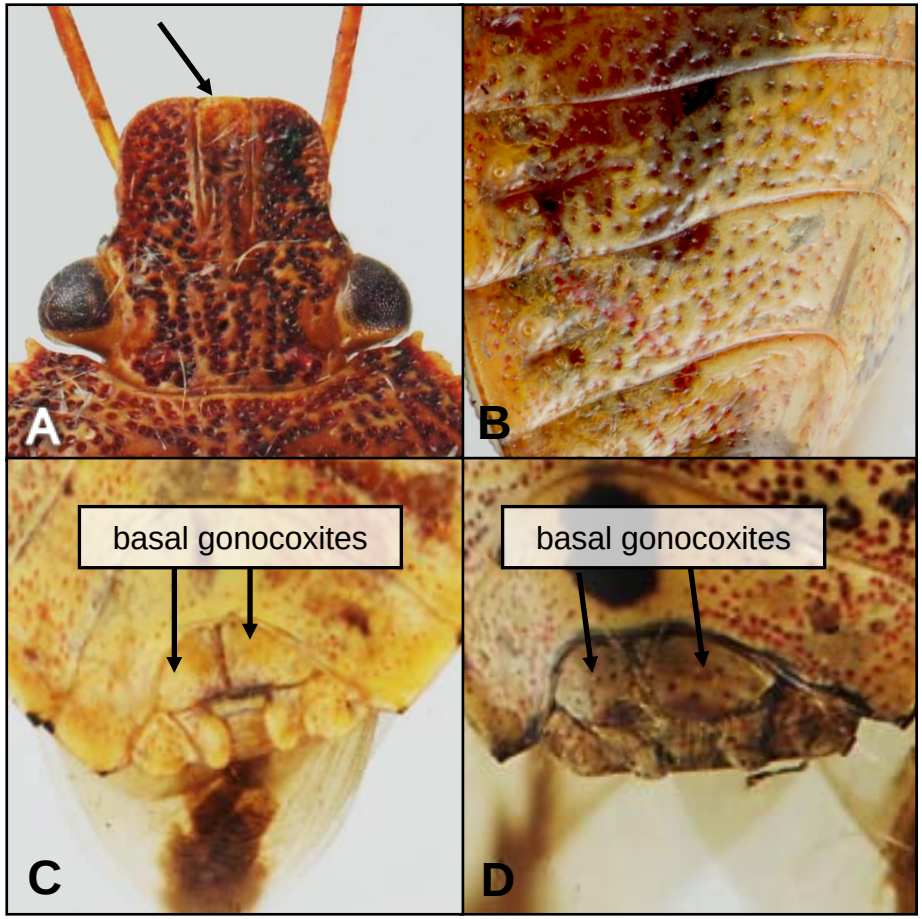

Fig. 94 A-D. A) *Podisus pladicus,* head. B) *P. placidus,* abdominal venter. C) *P. brevispinus*,female genitalia. D) *P. serieventris*, female genitalia.

47'. Length usually less than 12 mm. Juga equaling tylus, inner margins subparallel apically (Fig. 94 A). Male without submedian pubescent patches on abdominal sternites 4-6 (Fig. 94 B); female with basal gonocoxites contiguous (Fig. 94 C-D).

Podisus 49

doi:10.3752/cjai.2013.24

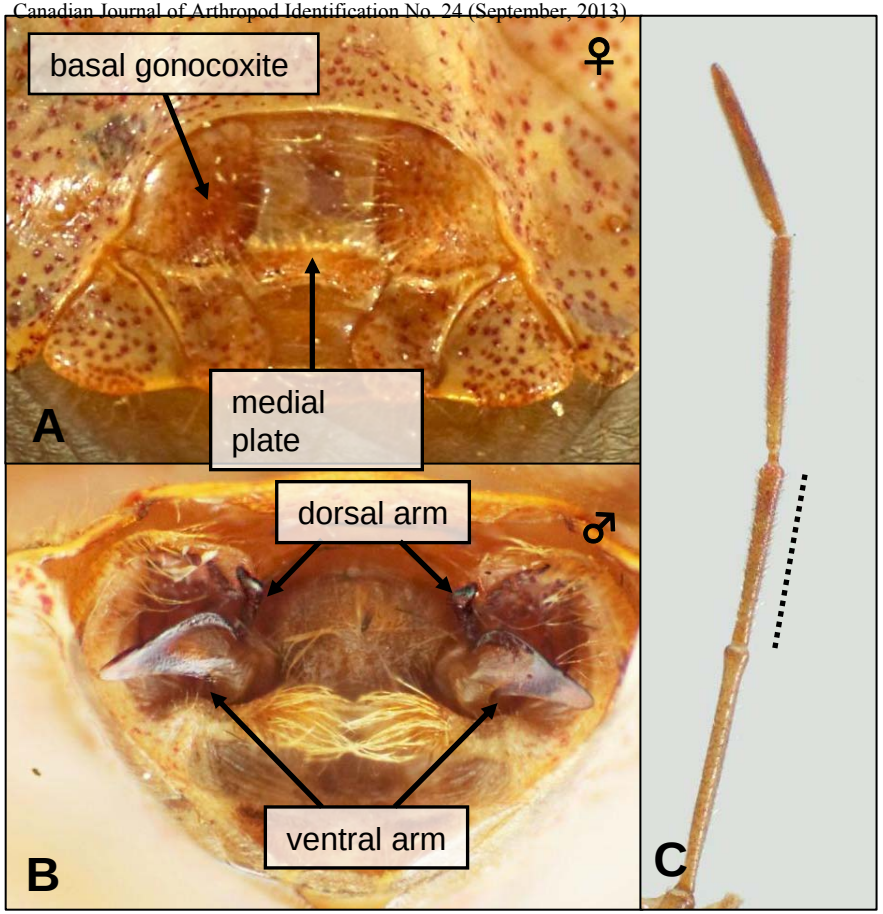

Fig. 95 A-C. *Apoecilus cynicus*: A) female genitalia; B) male genitalia; C) antenna (dotted line beside third segment equal in length to fifth segment).

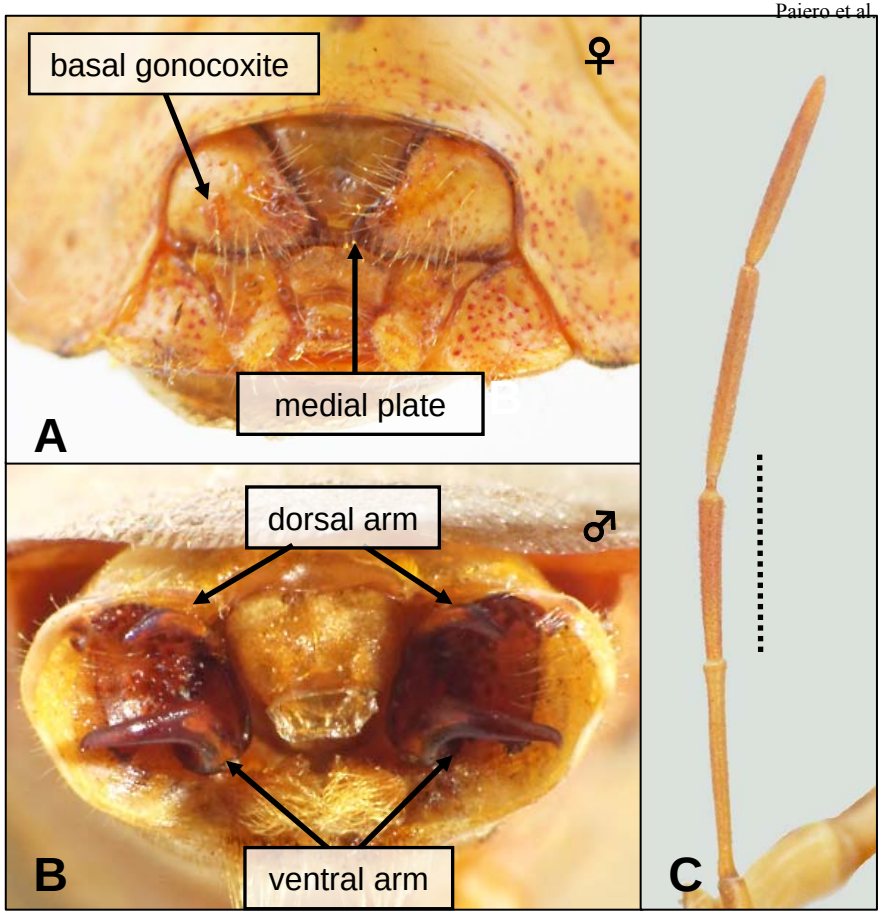

Fig. 96 A-C. *Apoecilus bracteatus*: A) female genitalia; B) male genitalia; C) antenna (dotted line equal in length to fifth segment).

48. Antennal segment 3 equal or subequal to 5 (Fig. 95 C). Male with ventral arm of paramere broad, flattened, and bent, dorsal arm palpus-like, small, nearly straight, and about half the length of ventral arm (Fig. 95 B); female with basal gonocoxites not convergent apically, medial plate quadrate (Fig. 95 A). Length 13.0-20.0 mm.

Apoecilus cynicus (Say)

48'. Antennal segment 3 shorter than 5 (Fig. 96 C). Male with ventral arm of paramere narrow and curved, dorsal arm similar and subequal in length to ventral arm (Fig. 96 B); female with basal gonocoxites convergent apically, medial plate triangular (Fig. 96 A). Length 13.0-17.0 mm.

Apoecilus bracteatus (Fitch)

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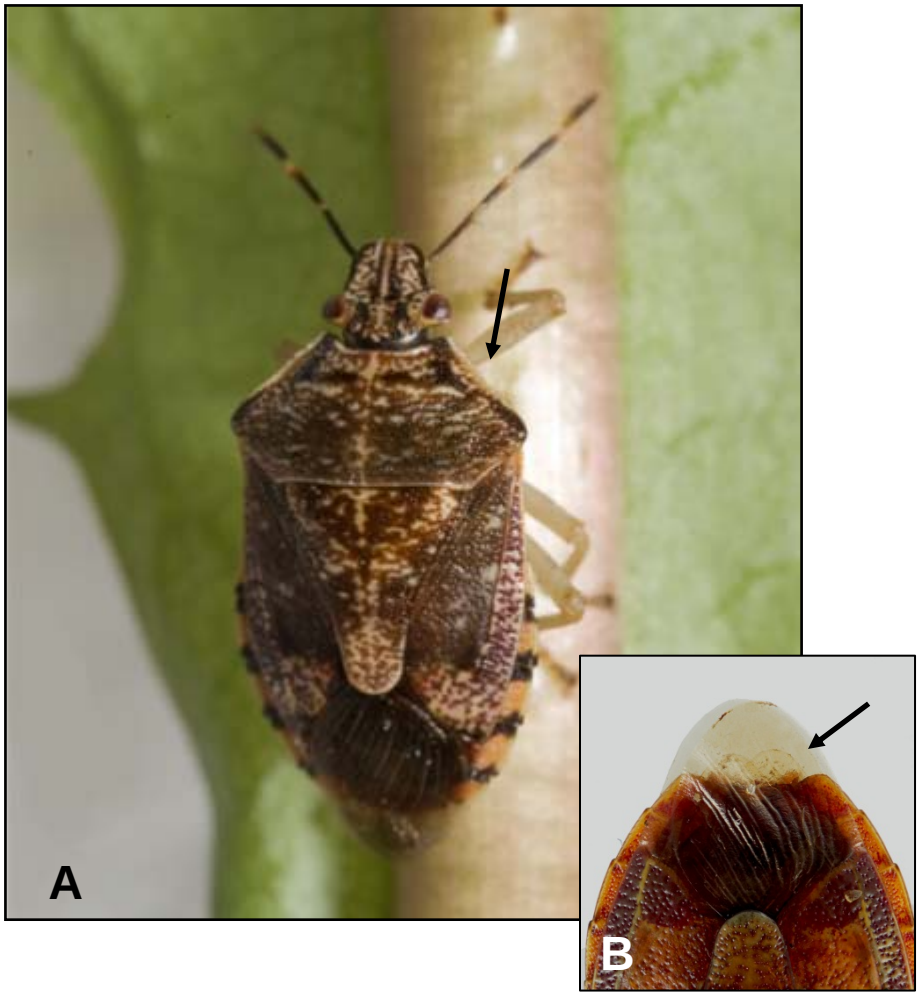

Fig. 97 A-B. *Podisus placidus*: A) habitus; B) wing membrane.

Fig. 98 A-B. A) *Podisus brevispinus*. B) *P. serieventris*.

49. Wing membrane without dark stripe or blotch (sometimes with faint stripe) (Fig. 97 B). Pronotum with anterolateral margin straight. Humerus rounded at apex, not produced (Fig. 97 A). Length 7.5-11.0 mm.

Podisus placidus Uhler

49'. Wing membrane with dark stripe or blotch (Fig. 98 A-B). Pronotum with anterolateral margin weakly to moderately concave (Fig. 98 A-B). Humerus variable in shape. Length 8.0-14.0 mm.

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doi:10.3752/cjai.2013.24

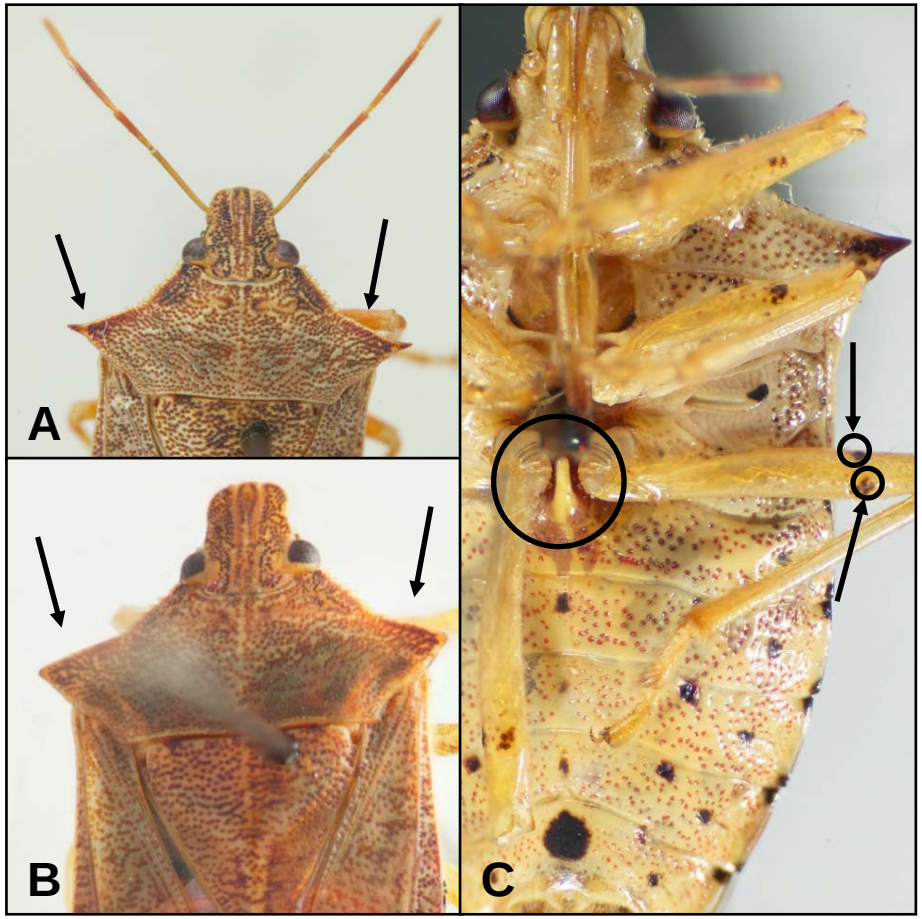

Fig. 99 A-C. *Podisus maculiventris*: A-B) humeri. C) ventral.

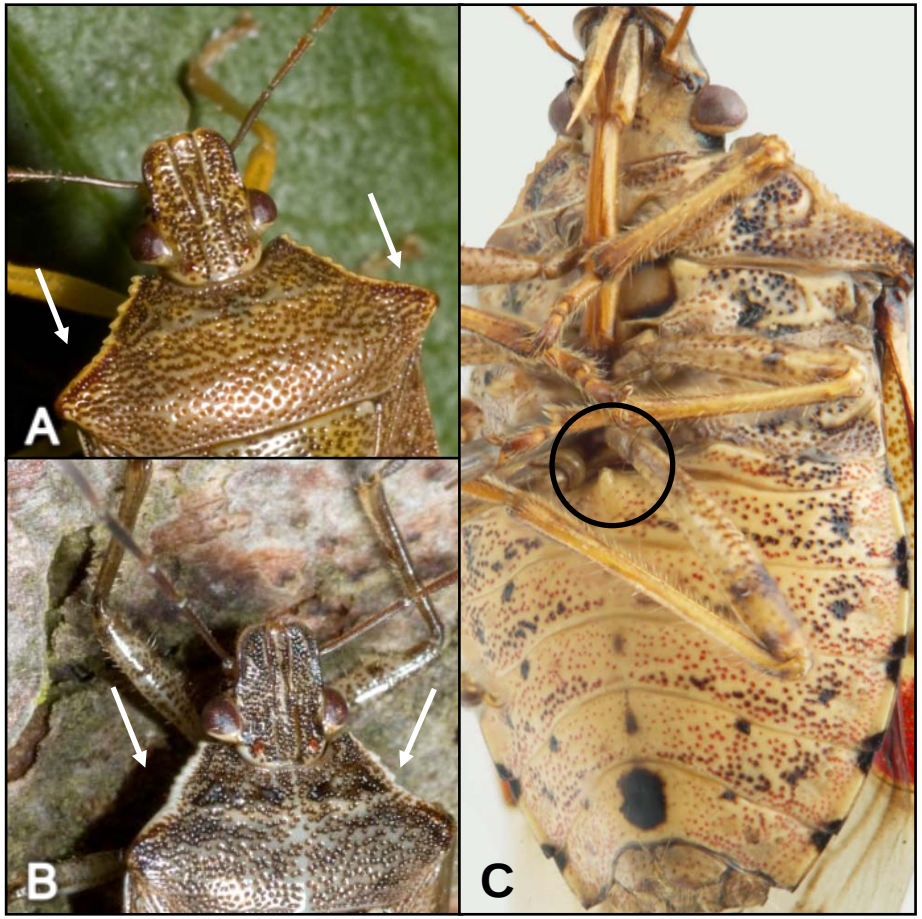

Fig. 100 A-C. A) *Podisus brevispinus*. B) *P. serieventris*, anterolateral margins of pronotum. C) *P. serieventris*, ventral.

50. Humerus produced into outward-projecting slender spine (Fig. 99 A-B). Hind femur with 1 or 2 anteapical spots on anterior surface (Fig. 99 C). Spine of abdominal sternite 2 long, reaching between hind coxae (Fig. 99 C). Length 8.5-13.0 mm.

Podisus maculiventris (Say)

50'. Humerus not produced into outward-projecting spines, either bluntly acute or obtusely angled (Fig. 100 A-B). Markings of hind femur variable but not as in Fig. 99 C. Length of spine of abdominal sternite 2 variable. Length 8.0-14.0 mm.

51

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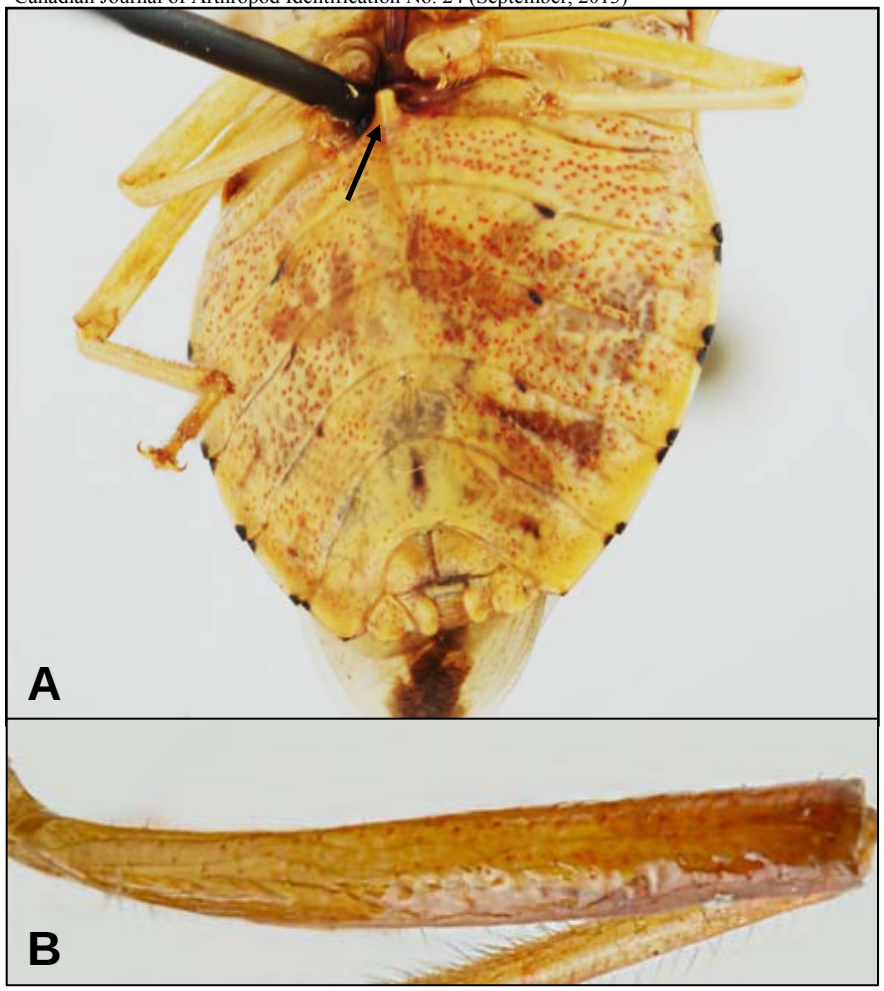

Fig. 101 A-B. *Podisus brevispinus*: A) abdomen, ventral; B) hind femur.

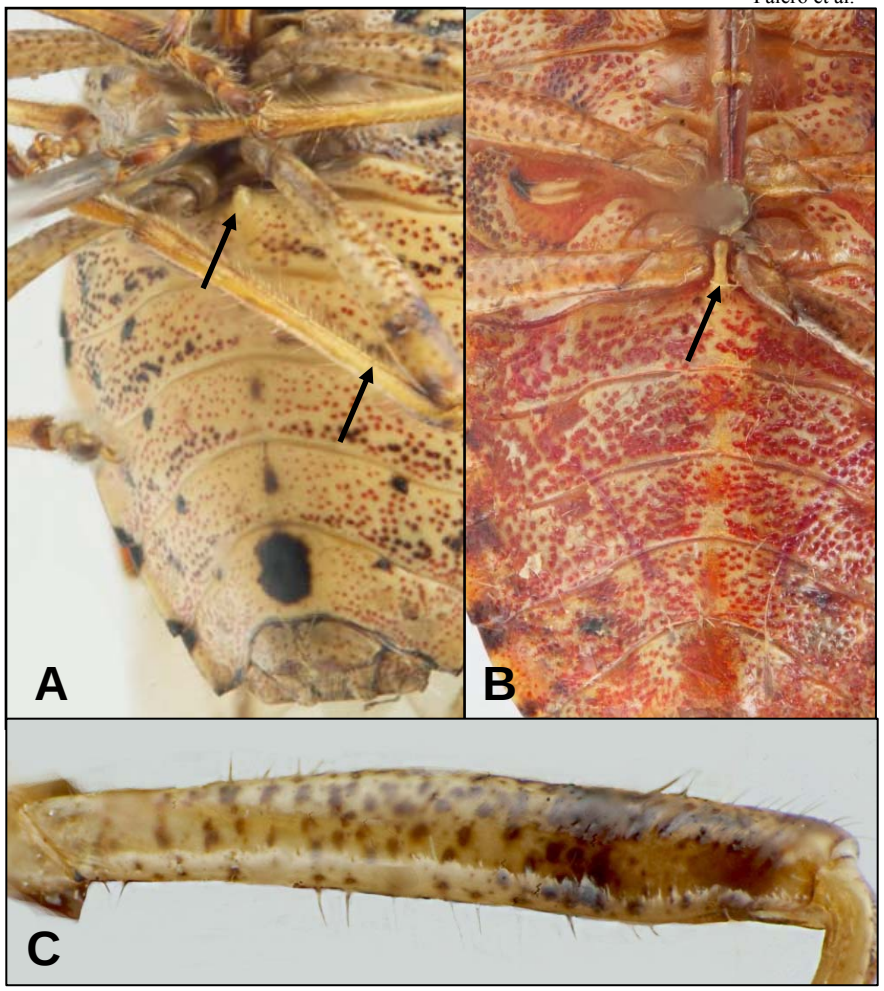

Fig. 102 A-C. A) *Podisus serieventris*, abdomen,ventral. B) *P. neglectus*, abdomen, ventral; C) *P. serieventris*, hind femur.

51. Hind femur almost or entirely unmarked (Fig. 101 A-B). Spine of abdominal sternite 2 short, not reaching anterior margin of hind coxae (Fig. 101 A). Length 8.0-11.0 mm.

Podisus brevispinus Phillips

51'. Hind femur heavily flecked with brown or black spots (Fig. 102 A-C). Length of spine of abdominal sternite 2 variable (Fig. 102 A-B). Length 8.5-14.0 mm.

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doi:10.3752/cjai.2013.24

Fig. 103. *Podisus neglectus*, ventral.

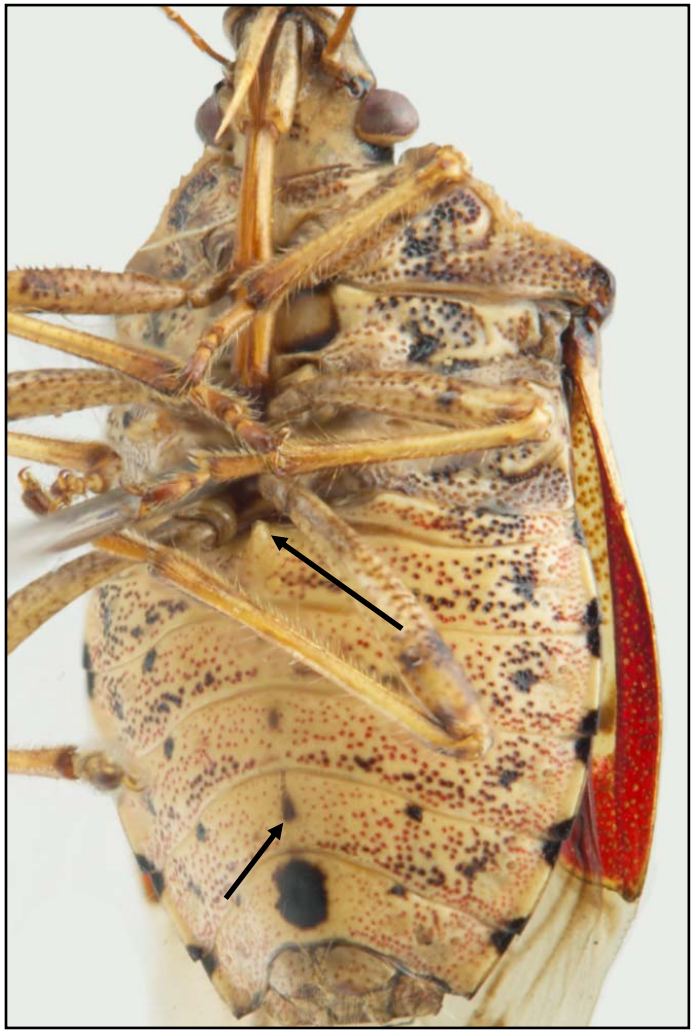


Fig. 104. *Podisus serieventris*, ventral.

52. Spine of abdominal sternite 2 long, reaching between hind coxae (Fig. 103). Midventral abdominal spots, if present, reddish brown and generally poorly defined. Length 12.5-14.0 mm.

Podisus neglectus (Westwood)

52'. Spine of abdominal sternite 2 short, just reaching posterior margin of hind coxae (Fig. 104). Midventral abdominal spots brown or black and well defined. Length 8.5-13.0 mm.

Podisus serieventris Uhler

STINK BUGS (PENTATOMIDAE) AND PARENT BUGS (ACANTHOSOMATIDAE) OF ONTARIO: SPECIES SYNOPSES

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Apoecilus bracteatus (Fitch)

These predaceous stink bugs, previously known as *Apateticus bracteatus*, are infrequently encountered in Ontario but are most likely to be found in open meadows. *Apoecilus bracteatus* is easily confused with the similar *A. cynicus*, from which it can be separated using the characters in the key. *Apoecilus* species also superficially resemble *Podisus* species, which are much smaller. *Euschistus* species that superficially resemble *Apoecilus* species are also smaller, usually have the humeri less pronounced, and are plant feeders (with thinner, less robust rostra). *Apoecilus bracteatus* occurs across Canada and the northern United States. Length 13.0-17.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Apoecilus cynicus (Say)

This uncommon predaceous stink bug, previously known as *Apateticus cynicus*, is even less frequently encountered than the other Ontario *Apoecilus* (*A. bracteatus*) and typically occurs in open meadows or forest margins. It is easily confused with *A. bracteatus*, from which it can be separated using the characters in the key. *Apoecilus* species also resemble *Podisus,* which are smaller in size, and *Euschistus*, which are smaller in size and are plant-feeding stink bugs (with thinner, less robust rostra). *Apoecilus cynicus* is known from scattered records from across the United States and eastern Canada. Length 13.0-20.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Perillus bioculatus (Fabricius)

This attractive species is infrequently encountered in Ontario, usually in open meadows but sometimes indoors as well. The common colour form in Ontario is red and black, but an ivory and black colour form is occasionally found in the province. This ivory and black form differs from the similarily coloured *P. circumcinctus* in having a row of submarginal black spots on the abdominal venter. The red and black form resembles *Cosmopepla lintneriana* supeficially, which is smaller in size, has a slender rostrum (a plant feeder) and lacks the distinctive red scutellar margin of *P. bioculatus. Perillus bioculatus* occurs throughout most of the United States and southern Canada from British Columbia to Quebec. Length 8.5-11.5 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Perillus circumcinctus Stål

This infrequently collected species differs from other predaceous stink bugs in Ontario by its distinct white and black colouration. Usually found along forest margins or in meadows, *Perillus circumcinctus* is most likely to be confused with the ivory and black colour form of *Perillus bioculatus*, which differs from *P. circumcinctus* by the row of submarginal black spots on its abdominal venter. *Perillus circumcinctus* also resembles the much smaller *Mormidea lugens*, which has a slender rostrum (plant-feeding stink bug) and a pronotum marked with two transverse pale lines. *Perillus circumcinctus* occurs throughout the northeastern United States and southern Canada from Quebec to Saskatchewan. Length 9.0-11.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Perillus exaptus (Say)

This infrequently to rarely collected species is distinguished from the other red-and-black coloured stink bugs in Ontario by the transverse black stripe on the pronotum. It is most likely to be confused with *Perillus bioculatus*, which has two distinct black spots on the pronotum, and the plant-feeding species *Cosmopepla lintneriana*, which has a slender rostrum and a scutellum not completely margined in red. Most Ontario records of *P. exaptus* are from wet meadows. *Perillus exaptus* occurs across Canada and much of the United States. Length 5.0-8.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Perillus strigipes (Herrich-Schäffer)

Perillus strigipes has not yet been found in Canada but it occurs in nearby states (New York, Ohio, and Michigan). It resembles other *Perillus* (such as *P. circumcinctus*), but *P. strigipes* can be easily distinguished by its V-shaped scutellar markings along with the absence of a femoral spine. *Perillus strigipes* occurs throughout the eastern and southern United States. Length 7.0-10.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Picromerus bidens (Linnaeus)

This exotic (introduced from Europe) predator is commonly encountered in agricultural fields and natural grasslands, where it can be easily recognized by its sharp humeri and the distinct ventral spine on the fore femur. *Picromerus bidens* occurs throughout northeastern North America. Length 11.0-14.0 mm.

Pentatomidae: Asopinae

Podisus brevispinus Phillips

Like *P. maculiventris*, this common predator is often found in meadows feeding on a variety of insects, usually caterpillars or bees. *Podisus brevispinus* most obviously differs from other Ontario *Podisus* by the absence of any markings on the hind femur and the short spine on abdominal sternite 2. It occurs over most of eastern North America and its range extends west in Canada to British Columbia. Older literature refers to this species as *P. modestus* (Dallas). Length 8.0-11.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Podisus maculiventris (Say)

Commonly found in meadows, especially on goldenrod and other flowers where it feeds on caterpillars and bees, *P. maculiventris* is the most commonly encountered *Podisus* in Ontario. It can be distinguished from other *Podisus* by the two dark spots near the apex of the hind femur, the spinose humerus, and the long spine on abdominal sternite 2. *Podisus maculiventris* is found across Canada and throughout the United States. Length 8.5-13.0 mm.

Pentatomidae: Asopinae

Podisus neglectus (Westwood)

Podisus neglectus is not yet recorded from Ontario but its occurrence in the northeastern United States including both Michigan and New York (McPherson 1982) indicates that it will eventually be found here. It is most likely to be confused with *P. serieventris,* from which it differs by the spine on abdominal sternite 2 that extends between the hind coxae, the hind femur that is flecked with dark spots, and the abdominal venter that lacks well-defined midventral spots. Length 12.5-14.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Podisus placidus Uhler

This infrequently encountered predator, like other *Podisus species*, is usually found in meadows or along forest margins where it feeds on a variety of insects. It is distinguished from other Ontario *Podisus* by the straight anterolateral pronotal margin and the lack of any marks on the wing membrane. *Podisus placidus* occurs from British Columbia to Ontario and in the northern United States. Length 7.5-11.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Podisus serieventris Uhler

This infrequently encountered species usually occurs on vegetation in meadows and other grassland communities in Ontario. It occurs across Canada and throughout the eastern United States. *Podisus serieventris* can be separated from similar Ontario species of *Podisus* by the short spine on abdominal sternite 2, the well defined midventral abdominal spots, and the hind femur, which has dark flecks and a dark preapical annulus. Length 8.5-13.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Rhacognathus americanus Stål

This rarely collected predaceous species is recorded from Ontario to Alberta, as well as the northern United States, but we know of no Ontario records of this species since the 1960s. Although it is possible that this rare species has simply been overlooked, the lack of recent collections raises the possibility it has been extirpated from the province. *Rhacognathus americanus* is fairly distinct among the predaceous stink bugs but bears some resemblance to the plant-feeding species *Brochymena quadripustulata*, *Parabrochymena arborea,* and *Halyomorpha halys*. In *Rhacognathus americanus*, the juga are longer and contiguous anteriorly, the ostiolar canal is short, and the tibiae have a pale annulus. Length 9.0-11.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Stiretrus anchorago (Fabricius)

This predaceous bug has several colour forms but the only form encountered in Ontario is the black and white form (upper photo). In addition to its distinctive colour pattern, it can be recognized by the U-shaped scutellum and short frenum. *Stiretrus anchorago* has only been found in the extreme southern part of the province (Windsor), where it was first confirmed from Canada during a survey of tallgrass prairie insects (Paiero *et al.* 2003). It is unlikely that such a distinctive bug could have been overlooked elsewhere in Ontario, so Essex County is probably at the northern limit of its range. The species occurs throughout much of the midwestern and eastern United States. Length 7.0-10.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Asopinae

Zicrona caerulea (Linnaeus)

This predaceous species is widely distributed, occurring across North America, Europe and Asia. Its metallic blue colouration instantly distinguishes it from all other Ontario pentatomoids. The only superficially similar eastern North American species are *Stiretrus anchorago* (unmarked colour form, not known to occur in the northeast) and the burrower bug *Sehirus cinctus.* The latter species differs from *Zicrona* in having spined legs and pale margins on the pronotum, corium, and abdomen, and the former has a distinctively large scutellum. *Zicrona caerulea* occurs across Canada, but is uncommon, or at least rarely collected in Ontario. It is also known from scattered records throughout the United States as far south as Texas. Length 7.0-9.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Aeliini

Aelia americana Dallas

Aelia americana is rarely collected in Ontario and appears to be a grassland species with a mostly western distribution. Although its specific hosts are unknown, *Aelia americana* is thought to feed on a variety of grasses (McPherson 1982). The distinctive dorsal colour pattern, bare dorsum, declivent head and contiguous juga make this species easy to recognize. It superficially resembles *Coenus delius*, which differs in having the tylus distinctly raised above the juga, the head is horizontal, and the dorsal colouration indistinct. It also resembles *Trichopepla* species, but these species have a hairy dorsum and non-converging juga. *Aelia americana* occurs from Ontario to British Columbia and in the central United States. Length 7.0-9.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Aeliini

Neottiglossa trilineata (Kirby)

Neottiglossa trilineata is a rare species throughout its range and is known from only a few records in Ontario. Host plants are unknown, but specimens have been collected on White Spruce and Boxelder (Scudder 1997). The colouration, especially the dark head with no pale median line, make this species easy to separate from similar species. It most closely resembles the more common *N. undata*, which has a yellowish brown head and a yellow median line on the tylus. *Neottiglossa trilineata* occurs across most of Canada and is also known from a few specimens collected at scattered localities across the northern half of the United States. Length 5.5-6.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Aeliini

Neottiglossa undata (Say)

Neottiglossa undata is a common species that often occurs in large numbers in dry grasslands and meadows. It feeds mostly on grasses, but it has also been taken from other herbaceous plants and trees (McPherson 1982, Scudder 1997). The small size and distinct colouration of this species, including the yellowish brown head with a median yellow line on the tylus, distinguish it from most Ontario stink bugs. The most similar species, *N. trilineata*, has a dark black head without a yellow median line on the tylus. *Neottiglossa undata* occurs across Canada and the northern half of the United States. Length 4.5-6.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Cappaeini

Halyomorpha halys (Stål)

Recently introduced from Asia into the northeastern United States (Hoebeke and Carter 2003), *H. halys* (Brown Marmorated Stink Bug) was found for the first time in Ontario during the fall of 2010 (Fogain and Graff 2011). Although it has not yet emerged as a pest in Ontario, this highly polyphagous species has become a pest of some crops and ornamentals in nearby states (Nielson and Hamilton 2009), and is spreading rapidly. Presently, this species is most common in the northeast but has been recorded south to Florida and west to Washington, Oregon, and California. *Halyomorpha halys* is superficially similar to *Brochymena quadripustulata*, which has the anterolateral margin of the pronotum distinctly toothed, and *Euschistus* species, which do not have distinctly banded antennae. Length 12.0-17.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Coenus delius (Say)

This grayish-brown stink bug is common and widespread in Ontario but is nonetheless infrequently collected. Host plants include a variety of grasses and herbaceous plants (McPherson 1982). The colouration, raised tylus, and relatively short corium make this species easy to recognize. The most similar species, *Aelia americana,* is readily distinguished from *Coenus delius* by its distinct colouration (pair of dark broad bands on the head and pronotum on each side of median), sloped head, and slightly raised tylus. *Coenus delius* occurs across Canada and throughout the eastern and central United States. Length 8.5-10.5 mm.

Pentatomidae: Pentatominae: Carpocorini

Cosmopepla lintneriana Kirkaldy

This easily recognized, small, black-and-red stink bug is common in Ontario, especially in meadows and grasslands where it feeds on a wide variety of herbaceous plants and grasses (McPherson 1982). The only other black-and-red bugs are nearly double the size of *C. lintneriana* and differently marked. *Cosmopepla lintneriana* occurs across Canada and throughout the central and eastern United States. Until recently, *Cosmopepla lintneriana* was treated as *C. bimaculata* (Rider and Rolston 1995). Length 5.0-7.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Euschistus ictericus (Linnaeus)

An uncommon species, *E. ictericus* is usually distinguished from other brown stink bugs by the presence of a pale raised line between the sharp humeri, and by its completely pale abdominal venter. As with other *Euschistus*, it feeds on a variety of herbaceous plants, often in wet or damp habitats (McPherson 1982) and is usually found in natural grasslands and agricultural fields. *Euschistus ictericus* occurs in Ontario and Quebec as well as the eastern and central United States. Length 10.5-12.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Euschistus politus Uhler

Euschistus politus resembles many of the other small brown stink bugs (especially *Holcostethus*) found in Ontario, from which it can be distinguished by the combination of rounded humeri and a submarginal line of dark punctures on the anterolateral margin of the pronotum. Infrequently encountered in Ontario, this relatively small *Euschistus* species occurs in grasslands and agricultural fields where it feeds on a variety of herbaceous plants (McPherson 1982). *Euschistus politus* occurs in Ontario, Quebec, and the eastern and midwestern United States. Length 8.0-10.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Euschistus servus euschistoides (Vollenhoven)

This common species is often encountered in natural and agricultural fields where it feeds on a wide variety of herbaceous plants and deciduous trees (McPherson 1982). It is often confused with other *Euschistus* species, especially females of *E. variolarius*, from which it differs in having the juga distinctly projecting beyond the tylus (at least in the subspecies that occurs in Ontario). Two subspecies of *E. servus* (Say) are recognized. Our subspecies, *Euschistus servus euschistoides,* is more northern in distribution, occurring from British Columbia to Quebec into the northern United States. The other subspecies, *E. servus servus* (Say), is more southern in distribution (McPherson 1982) and is not expected to occur in Canada. The two subspecies can be separated by the relative lengths of the juga and tylus, colour of the antennae, and exposure of the connexiva. In *E. servus euschistoides*, the juga are distinctly longer than the tylus, antennal segments 4 and 5 are usually dark brown, and the connexiva are nearly or completely covered by the hemelytra. In *E. servus servus*, the juga are equal or subequal in length to the tylus, the antennae are entirely yellowish brown or reddish brown, and the connexiva are broadly exposed. These two subspecies intergrade in a broad band from Maryland to Kansas (McPherson 1982). Length 10.5-14.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Euschistus tristigmus luridus Dallas

Euschistus tristigmus luridus is common in a broad range of habitats and feeds on a variety of deciduous trees and herbaceous plants (McPherson 1982). It superficially resembles other Ontario brown stink bugs (other *Euschistus* species, *Holcostethus*, *Hymenarcys*), but its rounded humeri and the distinct row of black spots along the middle of the abdominal venter render it easy to recognize. This subspecies occurs across Canada and the northern United States. Another subspecies, *E. tristigmus tristigmus,* occurs farther south and is not expected to occur in Canada.The two subspecies can be separated by the shape of the humerus and the colour of the antenna. In *E. tristigmus luridus* the humeri are rounded, and antennal segment 5 and the apical half of segment 4 are brownish black to black. In *E. tristigmus tristigmus*, the humeri are subtriangular to spinose and the antennae are pale to reddish brown (McPherson 1982). Length 10.0-12.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Euschistus variolarius (Palisot de Beauvois)

Commonly encountered in a variety of habitats, this species feeds on a variety of deciduous trees, herbaceous plants, and grasses (McPherson 1982). The males are distinguished from other brown stink bugs in Ontario by the large dark spot on the pygophore. Females are commonly confused with other *Euschistus* but can be distinguished by the presence of a small black spot on the lateral angles of the abdominal sternites, and by juga that are as long as the tylus. *Euschistus variolarius* occurs from Quebec, Ontario, and New England south to Florida, and west to Alberta, British Columbia, Idaho, and Utah. Length 11.0-15.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Holcostethus abbreviatus Uhler

This species is rarely collected in Ontario but is most likely to be encountered in meadows or fields where it feeds on variety of plant species (McPherson 1982). It resembles *Holcostethus fulvipes*, which also has the connexivum alternated with black and yellow. However, *H. abbreviatus* lacks zigzag bands on the abdominal venter in contrast to *H. fulvipes*, which has four bands on the venter. *Holcostethus abbreviatus* occurs from British Columbia to Ontario and is also found in the western and central United States. Length 8.0-9.5 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Holcostethus fulvipes (Ruckes)

Rarely encountered in Ontario, *H. fulvipes* is most likely to be found in wet meadows or forest margins. No host plants are currently known. It is distinguished from other brown stink bugs in Ontario by the distinct dark zigzag lines along the abdominal venter. As in other *Holcostethus* species, the juga are rounded and extend well beyond the apex of the tylus. It closely resembles *H. abbreviatus*, which also has the connexivum alternated with black and yellow markings. However, *H. fulvipes* has dark zigzag bands on the abdominal venter, unlike *H. abbreviatus.* *Holcostethus fulvipes* occurs in northeastern North America, including Ontario, Quebec and Manitoba. Length 9.0-10.0 mm.

Pentatomidae: Pentatominae: Carpocorini

Holcostethus limbolarius (Stål)

Although it is the most common of the four *Holcostethus* species in Ontario, *H. limbolarius* is infrequently encountered. Most records are from meadows, and host plants include a variety of herbaceous plants along with a few grasses and fruit trees (McPherson 1982). Diagnostic characters for the species include the pale margin of the pronotum and abdomen, and the contiguous or almost contiguous juga that extend beyond the apex of the tylus. Superficially similar brown species occur in several genera (*Thyanta, Banasa, Dendrocoris, Hymenarcys, Mcphersonarcys*), but in these the juga are separate at the apices and as short as the tylus, and the pronotum and abdomen do not have a distinct pale margin. *Holcostethus limbolarius* occurs across Canada and throughout most of the United States. Length 7.0-9.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Holcostethus macdonaldi Rider & Rolston

Rarely encountered in Ontario, *H. macdonaldi* is our only completely dark brown (dorsally and ventrally) stink bug; Ontario's other dorsally dark brown species are pale brown ventrally. As in other *Holcostethus*, the juga are broadly rounded and extend well beyond the apex of the tylus, where they touch or are narrowly separated. *Holcostethus macdonaldi* is usually found in open habitats and probably feeds on herbaceous plants although there are no published records. It occurs from British Columbia to Quebec and ranges into the north central United States. Until recently, *H. macdonaldi* was treated as *Holcostethus piceus* (Rider & Rolston 1995). Length 7.0-9.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Hymenarcys nervosa (Say)

This species, which has been found in Quebec but is not yet recorded in Ontario, occurs in meadows where it is associated with a variety of herbaceous plants and grasses (McPherson 1982). It can be distinguished from similar species by the anastomosing veins of the wing membrane; the few other regional species with similar veins are otherwise distinctly different in appearance (*Parabrochymena* and *Brochymena*). *Hymenarcys nervosa* most closely resembles some *Holcostethus* species, which have rounded, anteriorly contiguous or rounded juga distinctly longer than the tylus. It also resembles *Mcphersonarcys aequalis*, which has straight pronotal margins and simple (non-anastomosing) wing veins. *Hymenarcys nervosa* occurs in the eastern and central United States north to Quebec. Length 8.5-11.5 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Mcphersonarcys aequalis (Say)

Not yet recorded in Ontario but found in Quebec, *M. aequalis* is associated with open habitats, such as meadows or fields, where it feeds on a variety of grasses and herbaceous plants (as *Hymenarcys aequalis*, McPherson 1982). The small brown punctations and the alternating dark and pale bands on the edge of the abdomen distinguish this species from most other brown stink bugs in Ontario. A similar species, *Dendrocoris humeralis,* has more pronounced humeri, a short second antennal segment and reddish colouration on the hemelytra. *Holcostethus abbreviatus* also resembles *M. aequalis,* but differs in having the juga continuous anteriorly. *Mcphersonarcys aequalis* is known from the central and eastern United States, Quebec and Saskatchewan. This species was previously known as *Hymenarcys aequalis* (Thomas 2012). Length 6.0-8.5 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Menecles insertus (Say)

The explanate (or shelf-like) anterolateral margins of the pronotum distinguish *M. insertus* from other Ontario stink bugs other than *Sciocoris microphthamus,* which is smaller and much more flattened. *Menecles insertus* can be locally abundant in forested areas, where it feeds on a variety of deciduous tree species (McPherson 1982). It occurs throughout most of the United States, and north into Ontario, Quebec, and Nova Scotia. Length 12.0-14.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Mormidea lugens (Fabricius)

This common species is frequently encountered in native grasslands and agricultural fields and is easily recognized by its distinctive, ivory-coloured markings and relatively small size. *Mormidea lugens* feeds on a variety of herbaceous plants, sedges, grasses and a few deciduous trees (McPherson 1982). It occurs in Canada from Manitoba west to the Maritimes and throughout most of the central and eastern United States. Length 5.0-7.5 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Trichopepla atricornis Stål

This rarely collected species is recorded here as new to Ontario, where it has so far only been found in dry native grasslands on Manitoulin Island. It feeds on a few herbaceous plants (McPherson 1982), but almost all Ontario records are from Prairie Smoke (*Geum triflorum*). Rider (2012) stated that species of *Trichopepla* seem to prefer plants in the family Apiaceae. *Trichopepla atricornis* has a densely hairy dorsum, dark antennae with the basal segment pale, a head that does not taper in front, and a characteristic colour pattern that distinguishes it from other stink bugs in Ontario. Our other *Trichopepla* species, *T. semivittata*, differs in having reddish brown antennae with the last two segments dark, and a tapering head that is narrowly rounded in front. *Trichopepla atricornis* occurs from British Columbia to Ontario, and in the western and central United States. Length 6.0-8.0 mm.

Specimen Data: Ontario, Manitoulin Is.:1 spm., nr. Barrie I. causeway, 45 53'55"N 82 34'53"W, meadow, 26 Jun 2003, S.M. Paiero, debu00225929; Kip Fleming Tract, ~8 km SW Gore Bay, 45 52’13”N 82 32’31”W, oak savannah/alvar,: 10 spm. 27-29 May 2010, S.M. Paiero, debu00322997-323003; 3 spm, 27-29 May 2010, S.A. Marshall, debu00323311-312 & debu00323353; 2 spm., sweep, 15 Jun 2010, S.A. Marshall, debu00326169-170; 1 spm., pans, 21 Jun-3 Jul 2010, Marshall et al., debu00326302; 2 spm., 2-3 Jul 2010, S.M. Paiero, debu00324735-736; 1 spm., 5 Aug 2010, S.M. Paiero, debu00327787; 1 spm., pan trap, 28-29 May 2010, Paiero & Pivar, debu00323513; 1 spm., Misery Bay Prov., Nat. Res., 45 47’28”N 82 44’58”W, 5 Aug 2010, S.M. Paiero, debu00328039

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Carpocorini

Trichopepla semivittata (Say)

This infrequently encountered species occurs in meadows and grasslands where it feeds on a variety of herbaceous plants (McPherson 1982) although Rider (2012) stated that *Trichopepla* species seem to prefer plants in the family Apiaceae. The conspicuous dense covering of hairs on the characteristically pigmented dorsum and the dark lines on the abdominal venter distinguish *Trichopepla* from other Ontario stink bugs. The only congener in Ontario, the rarer *T. atricornis*, has dark antennae with the basal segment pale and the head with subparallel sides and broadly rounded front. *Trichopepla semivittata* occurs throughout much of the United States and Canada, including southern Ontario. Length 5.5-8.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Hyalini

Brochymena quadripustulata (Fabricius)

Although *Brochymena quadripustulata* is a common species, it is easily overlooked due to its cryptic, bark-like colouration. The most similar species are *Parabrochymena arborea*, from which it differs by having triangular (rather than square) humeri, and *Menecles insertus*, which has a smooth, explanate humeral margin. *Brochymena quadripustulata* occurs across Canada and throughout most of the United States and has been recorded from a variety of trees, herbaceous plants, and grasses (Larivière 1992). Length 10.0-18.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Hyalini

Parabrochymena arborea (Say)

This infrequently encountered species feeds on a variety of deciduous tree species (Larivière 1992) and is usually found on trunks or large branches, where it is easily overlooked due to its cryptic colouration. *Parabrochymena arborea* is most likely to be confused with *Brochymena quadripustulata*, from which it differs in having square (not triangular) humeri. There is also some resemblance to the rare predaceous species *Rhacognathus americanus*, which lacks the distinctive quadrate humeri of *P. arborea*. *Parabrochymena arborea* occurs throughout the eastern United States, Ontario, and Quebec. Length 12.0-17.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Nezarini

Chinavia hilaris (Say)

This large, conspicuous green bug is one of the most commonly encountered stink bugs in Ontario, both on vegetation and around lights at night. Its bright green colour, large size, narrower body, and straight or almost straight anterolateral pronotal margins make it easily recognizable. The only similar species are the closely related *C. pensylvanica*, which has a broader body and arcuate anterolateral pronotal margins, and the more southern *Nezara viridula,* which can be distinguished from *Chinavia* by the short, obtuse spine on abdominal sternite 2 and short ostiolar canal. *Chinavia hilaris* occurs over most of the United States, northward into Ontario and Quebec. It is recorded on a wide variety of herbaceous plant and deciduous tree species (McPherson 1982). Until recently *Chinavia* was treated as a subgenus of *Acrosternum* (Rider 2012) and it is still widely referred to as *Acrosternum hilare.* Length 13.0-19.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Nezarini

Chinavia pensylvanica (Gmelin)

This species is known from relatively few Ontario records, mostly from shrubby fields or forest margins in the Carolinian zone. Published hosts include herbaceous plants as well as trees (McPherson 1982). It differs from the similarly bright green *C. hilaris* in having a conspicuously broader body and arcuate anterolateral pronotal margins. *Chinavia pensylvanica* occurs throughout the eastern United States and in southern Ontario and Quebec. Until recently, *Chinavia* was treated as a subgenus of *Acrosternum* (Rider 2012) and this species is still widely treated as *Acrosternum pensylvanicum* (correct spelling) or *Acrosternum pennsylvanicum* (Froeschner 1988, Henry and Froeschner 1992). Length 12.5-14.5 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Nezarini

Chlorochroa persimilis Horváth

Chlorochroa persimilis is uncommon in southern Ontario but frequently encountered in central and northern Ontario. Its large, bright green body and distinct pale anterolateral pronotal margin distinguish this species from the similarly sized bright green *Chinavia* species, which lack the pale-margined pronotum, and the smaller *Banasa euchlora*, which has additional pale markings on the base of the scutellum. *Chlorochroa persimilis* feeds on a variety of plants (McPherson 1982) and occurs in dry open meadows or grasslands. It occurs throughout eastern Canada and the eastern and central United States. Length 11.0-15.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Nezarini

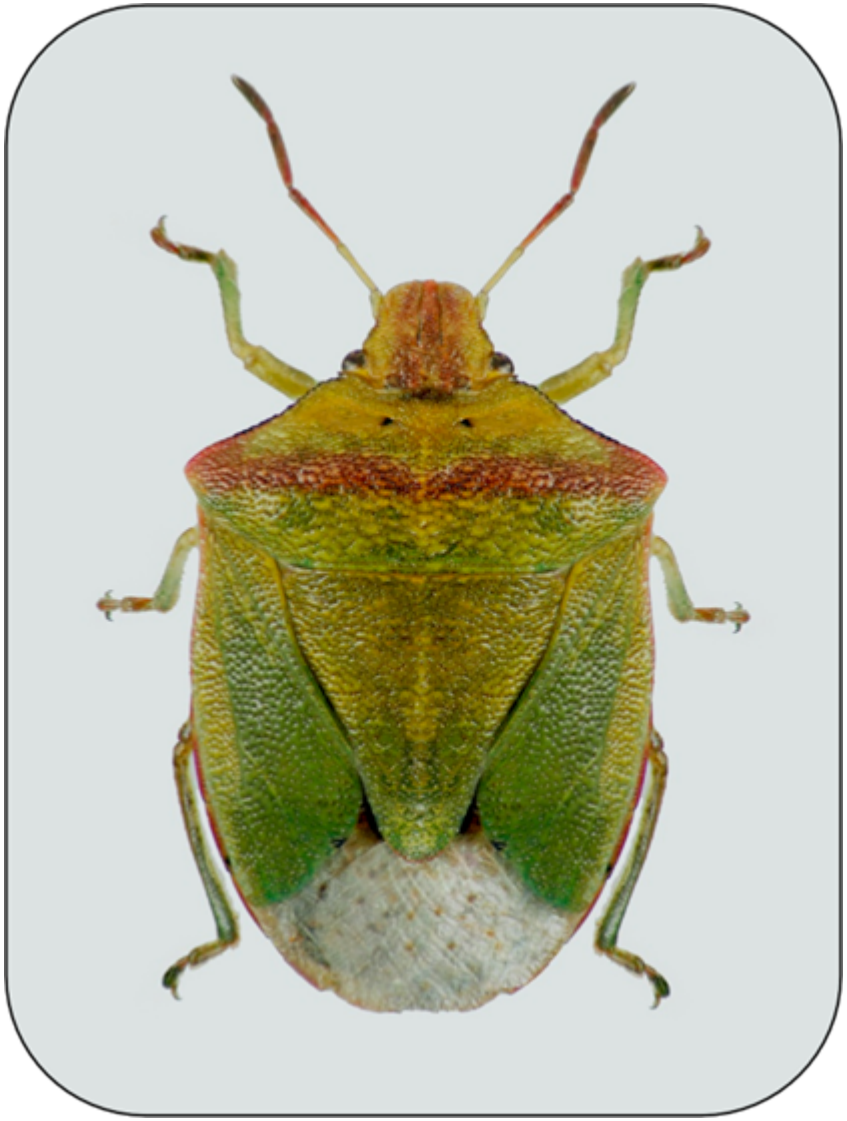
Nezara viridula (Linnaeus)

Nezara viridula, the Southern Green Stink Bug, has been recorded as an adventive in Ontario (Maw et al. 2000) but is not established anywhere in Canada. *Nezara viridula* feeds on a variety of crops (McPherson 1982) and can be a significant agricultural pest in the southern United States. Both brown and green colour forms occur but the green form is more commonly encountered. Green *Nezara viridula* closely resemble *Chinavia hilaris* but *N. viridula* has a much shorter, blunter spine on abdominal sternite 2. Brown *N. viridula* would key to *Thyanta* species in the simplified key but these species lack a spine on abdominal sternite 2. *Nezara viridula* can be separated from other green stink bugs in Ontario by the three pale spots at the base of the scutellum. Length 14.0-17.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Nezarini

Thyanta calceata (Say)



Thyanta calceata has not yet been found in Canada but is known from nearby Michigan and New York (Rider and Chapin 1992). It differs from *T. custator accerra* and other similar stink bugs in Ontario by the its dark anterolateral pronotal margin. *Thyanta calceata* has been recorded from a variety of herbaceous and grass hosts (McPherson 1982). As with *T. custator accerra*, *T. calceata* can be found in a green summer colour form that has short pubescence and a brown fall/winter form that has longer pubescence. McPherson (1982) discusses the effects of photoperiod on colour forms of this species. It occurs throughout the eastern United States, including Michigan, Ohio, and New York. Length 10.0-11.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Nezarini

Thyanta custator accerra McAtee

This infrequently encountered species is associated with open meadows where it feeds on a wide variety of herbaceous plants (McPherson 1982). Identification of *T. custator accerra* can be problematic as it occurs in brown (fall) and green (spring/summer) colour forms. Some green individuals have a red or pink transverse band across the middle of the pronotum (thus the common name “Redshouldered Stink Bug”), but the band may be reduced or absent. The unmarked green forms resemble *Chlorochroa sayi*, which has pale anterolateral pronotal margins. The brown form resembles some *Holcostethus* species, which differ from *Thyanta* in having a broad scutellar apex and juga that converge in front of the tylus. *Thyanta calceata* also has two colour forms but differs from *T. custator accerra* by its black anterolateral pronotal margin. *Thyanta custator accerra* occurs in the southern and eastern United States, Manitoba, Ontario, and Quebec. The other subspecies, *T. custator custator* (Fabricius), occurs on the southeastern coastal plain (Rider and Chapin 1992) and is not expected to occur in Canada. The two subspecies can be separated by the colour of the anterolateral pronotal margin. In *T. custator accerra*, the margin is pale, pale reddish, or reddish orange whereas in *T. custator custator,* this margin is black. The black border also is present in *T. calceata* but differs in width from that in *T. custator custator*. In *T. custator custator*, the black border is limited to the ventral side of the margin whereas in *T. calceata*, the black border covers both the ventral and dorsal sides (McPherson 1982). Length 9.0-13.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Pentatomini

Banasa calva (Say)

Although not usually found in large numbers, *Banasa calva* is encountered regularly in southern Ontario. Known hosts include a variety of herbaceous plants and deciduous trees (McPherson 1982). This species has a light brown form and a green form. The brown form is more commonly encountered in Ontario and is distinct from other Ontario stink bugs. The green form, however, is easily confused with *Banasa dimidiata,* from which it differs by the presence of small black spots on the hind angles of the abdominal sternites*. Banasa calva* occurs in the eastern United States, Ontario, and Quebec, as well as a few western states and British Columbia. Length 8.5-12.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Pentatomini

Banasa dimidiata (Say)

This common plant-feeding species occurs on a wide variety of plants (McPherson 1982) including ornamentals and small fruits. It also can be abundant at lights. *Banasa dimidiata* resembles the green-brown form of *B. calva*, which usually has distinct dark spots on the posterolateral angles of the abdominal sternites. However, examination of the male and female genitalia is necessary to confidently separate these two species. *Banasa dimidiata* occurs throughout the United States and across Canada. Some references to this species use the original spelling (*B. dimiata*), but Hoffman (2005) argued that the more widely used *B. dimidiata* is the correct name. Length 8.5-11.0 mm.

Pentatomidae: Pentatominae: Pentatomini

Banasa euchlora Stål

This infrequently encountered species was only recently recorded for the first time in Canada (Paiero et al. 2003). All Canadian records are from Carolinian Ontario, with one record from Eastern White Cedar. Elsewhere, this species occurs on juniper (McPherson 1982). Its distinctive bright green colouration with large smooth pale spots on the corners of the scutellum make this species easy to recognize. The most similar species are *Chinavia* species or *Chlorochroa persimilis*, but these larger green bugs do not have large pale markings on the basal angles of the scutellum. *Banasa euchlora* occurs throughout the eastern and central United States and also is known from a few southwestern records. Length 9.0-11.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Pentatomini

Banasa sordida (Uhler)

Rarely collected in Ontario, *B. sordida* is a drab brown stink bug that could easily be confused with several similar bugs, including species of *Holcostethus*, *Hymenarcys,* and *Thyanta*. *Banasa sordida* can be separated from these species by the four rows of dark spots on the abdominal venter (the outer row sometimes coalesces into a line) along with the small spine on abdominal sternite 2. Like most congeners, this species probably feeds on a variety of plants. *Banasa sordida* is known from Ontario and British Columbia and from scattered records throughout the United States. Length 10.0-11.5 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Procleticini

Dendrocoris humeralis (Uhler)

This Carolinian species is infrequently encountered in Ontario but can be locally abundant. *Dendrocoris humeralis* occurs on a variety of host trees and herbaceous plants (McPherson 1982), but in Ontario it has been found largely in association with oak and hickory. The small size, reddish colouration, rounded but distinct humeri, and short second antennal segment make this species distinct from similar *Euschistus* and *Holcostethus*. *Dendrocoris humeralis* occurs throughout much of the United States, but in Canada it seems to be restricted to southern Ontario. Length 6.0-8.5 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Sciocorini

Sciocoris microphthalmus Flor

This northern, Holarctic, species is rarely encountered in Ontario. It is usually found in grasslands and probably feeds on herbaceous plants such as raspberry, knapweed, and possibly grasses (McPherson 1982, Scudder 1997). Its small size and distinctly flattened appearance distinguish it from other Ontario stink bugs except possibly *Menecles insertus*, which is much larger with a head that seems tucked into the pronotum. *Sciocoris microphthalmus* occurs from British Columbia to Quebec as well as the northern United States. Length 5.0-7.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Pentatominae: Strachiini

Murgantia histrionica (Hahn)

The brightly patterned Harlequin Bug is one of the most distinctive species of stink bugs in North America. It feeds on a wide variety of plants (listed by McPherson 1982) but is usually found in association with crucifers (Brassicaceae) and can be a pest species on crops. This species is known in Ontario from only a few scattered records, which are more likely to reflect periodic introductions than established populations. *Murgantia histrionica* is widespread in the southern and eastern United States. Length 8.0-11.5 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Podopinae

Amaurochrous brevitylus Barber & Sailer

Although this inconspicuous “turtle bug” has yet to be found in Ontario, it has been found in Quebec. *Amaurochrous brevitylus* is associated with weedy wetlands where it likely feeds on sedges or other wetland plants. It is similar to some shield bugs (family Scutelleridae) but the scutellum does not extend to the margins of the abdomen. The anterolateral margin of the pronotum is straight and the juga are distinctly longer than the tylus. *Amaurochrous cinctipes* is similar in appearance, but the anterolateral margin of the pronotum is sinuate and the juga are as long or slightly longer than the tylus. *Amaurochrous brevitylus* also occurs throughout the northeastern and midwestern United States. Length 5.0-6.0 mm.

doi:10.3752/cjai.2013.24

Pentatomidae: Podopinae

Amaurochrous cinctipes (Say)

This inconspicuous "turtle bug" is usually found in association with weedy wetlands where it feeds on a variety of wetland plants including cattails, sedges, and rushes (McPherson 1982). *Amaurochrous cinctipes* is infrequently collected, possibly due to its specialized habitat or its inconspicuous appearance. It is most similar to some shield bugs (family Scutelleridae), but the scutellum does not extend to the margins of the abdomen. The anterolateral pronotal margin is sinuate and the juga are as long or slightly longer than the tylus. *Amaurochrous brevitylus* is similar in appearance but the anterolateral pronotal margin is straight and the juga are distinctly longer than the tylus. *Amaurochrous cinctipes* occurs in southern Ontario and in most of the eastern United States. Length 5.0-8.0 mm.

doi:10.3752/cjai.2013.24

Acanthosomatidae

Elasmostethus atricornis (Van Duzee)

Elasmostethus atricornis occurs in southern Ontario forest understories, where it presumably feeds on Spikenard (*Aralia racemosa*), the only known host (Jones and McPherson 1980, McPherson 1982). It can be easily recognized by the brownish black “X” on its dorsum, black antennae, and pale punctures on the pronotum. The most similar species in Ontario is *E. cruciatus,* which has a red “X” on its dorsum, green basal antennal segments, and small dark punctures on the pronotum. *Elasmostethus atricornis* seems to be uncommon in Ontario, unlike the frequently encountered *E. cruciatus. Elasmostethus atricornis* is largely northeastern in distribution, occurring in Ontario, Quebec and the eastern (as far south as South Carolina) and midwestern United States. Length 9.0-10.0 mm.

doi:10.3752/cjai.2013.24

Acanthosomatidae

Elasmostethus cruciatus (Say)

Also called the Redcrossed Stink Bug, *Elasmostethus cruciatus* is common on alder trees (*Alnus*), its main host plant (Jones and McPherson 1980, McPherson 1982). The distinct red “X” on the dorsum, pale green antennae (apical three segments are sometimes darker) and dark punctures on the pronotum distinguish this species from other Ontario parent bugs and stink bugs (the similarily marked *E. atricornis* is marked with dark brown or black, has completely black antennae, and has pale punctures on the pronotum). *Elasmostethus cruciatus* occurs throughout most of North America, with records as far north as Nunavut in northern Canada. Length 8.0-10.0 mm.

doi:10.3752/cjai.2013.24

Acanthosomatidae

Elasmucha lateralis (Say)

A commonly encountered species, *Elasmucha lateralis* occurs in meadows and forests where it usually feeds on birch trees (Jones and McPherson 1980, McPherson 1982). The distinctive markings and a projecting pronotal hind margin make it easy to distinguish this species from other Ontario stink bugs and parent bugs. *Elasmucha lateralis* occurs across Canada and the northern United States but has been reported as far south as South Carolina. Length 6.5-9.0 mm.

doi:10.3752/cjai.2013.24

Glossary of scientific terms (mostly from Nichols and Schuh, 1989)

1. ACUTE: pointed, terminating in or forming less than a right angle.

2. ANTEROLATERAL: toward the front and side

3. ANTEROVENTRAL: toward the front and underneath.

4. ARCUATE: arched or bowlike.

5. ANASTOMOSING: to join, to connect, running together.

6. ANTEAPICAL: just before the apex.

7. APPROXIMATE: near to; applied to any parts close together.

8. ARCUATE: arched or bowlike.

9. AURICLE: an appendage resembling a little ear; variously shaped structure on metapleuron of adult bugs assisting in spreading the products of scent gland from the ostiolar canal.

10. BUCCULA (pl. BUCCULAE): a flange of the head on each side of the first segment on the resting labium.

11. CALLOUSED: having a hard lump, line, or swelling (callus) of the cuticule.

12. CHEVRON: a figure, pattern, or object having the shape of a V.

13. CONCAVE: hollowed out; the interior of a sphere as opposed to the outer or convex surface.

14. CONNEXIVUM (pl. CONNEXIVA): a sharp lateral margin of the abdomen, being a line of contact between the dorsal and ventral margins.

15. CONTIGUOUS: so near together as to touch.

16. CORIUM (pl. CORIA): the proximal differentiated part of the forewing exclusive of the clavus (inner area) and membrane.

17. CRENULATE: having the margin finely notched with small, rounded teeth.

18. DECLIVENT: sloping downward.

19. DENTATE: toothed; with toothlike prominences.

20. EMARGINATE:notched; with an obtuse, rounded or quadrate section cut from a margin

21. EXPLANATE: spread out and flattened; applied to a margin.

22. FRENUM (pl. FRENA): the lateral groove in the upper margin of the scutellum into which fits or catches the channeled locking device on the lower edge of the clavus of the hemelytron.

23. GONOCOXITE(S): female genital plate(s).

24. HUMERUS (pl. HUMERI): posterolateral angle of the pronotum.

25. METAPLEURON: the lateral region of the third primary section of the thorax , identified by the third pair of legs.

26. OBTUSE: an angle greater than a right angle.

27. OSTIOLE: external opening of the metathoracic scent gland.

28. OSTIOLAR CANAL: the external outflow pathway of the metathoracic scent gland.

29. PALPUS (pl. PALPI): fingerlike structure.

30. PEDUNCULATE: set on a stalk.

31. PERITREME: the hardened ring around the spiracle.

32. POSTEROLATERAL: toward the rear and side.

33. POSTEROVENTRAL: toward the rear and below.

34. PROSTETHIUM: anterior extension of the sternum of the prothorax.

35. PUBESCENT: downy; clothed with soft, short, fine, loosely set of hair.

36. SINUATE: wavy, undulating, curved in and out, applying specifically to edges and margins.

37. SPINOSE: spined.

38. SUBTRUNCATE: not quite cut off squarely at the apex.

39. SULCATE: deeply furrowed or grooved.

40. TRUNCATE: cut off squarely at the apex.

41. VARIEGATED: of several colours in indefinite pattern.

doi:10.3752/cjai.2013.24

Acknowledgements

All live photos were taken by Stephen Marshall with the exception of the *Hymenarcys nervosa* photo, which is by Scott Justis (bugguide.net contributor), and *Amaurochrous cinctipes*, which is by Tom Murray (bugguide.net contributor). All specimen photos were taken by Man-San Ma and Steven Paiero, with the exceptions of *Amaurochrous brevitylus* taken by Michael Schwartz (Canadian National Collection of Insects, Ottawa, ON) and *Mcphersonarcys aequalis* taken by Robert W. Sites (Enns Entomology Museum, University of Missouri, Columbia, MO); the latter photo was reproduced from the 2012 cover of The Great Lakes Entomologist 45 (3 & 4) with permission of Therese M. Poland (editor). The photo of the wing venation associated with the habitus photo of *M. aequalis* also was taken by R. W. Sites. The authors thank these individuals for allowing us to use their images.

We are particularly grateful to Tom J. Henry (Systematic Entomology Laboratory, USDA-ARS, c/o National Museum of Natural History, Washington, DC) and David A. Rider (Department of Entomology, North Dakota State University, Fargo, ND) who provided thorough and insightful reviews of earlier versions of the manuscript.

Man-San Ma was partially supported through the OMAFRA Undergraduate Summer Experiential Learning program, with OMAFRA supervisors Hannah Fraser, Jennifer Llewellyn, Joanne Handley and Denise Beaton.

We thank the Ontario Ministry of Natural Resources and the Nature Conservancy of Canada for their support of the study of Ontario's insect diversity.

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