Hemiptera of Alberta:
Visual Guide to Common Terrestrial Families (Adults)

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Homoptera terrestrial families found in Alberta

Auchenorrhyncha

Cicadomorpha

Aphrophoridae (p. 12)
Cercopidae (p. 12)
Clastopteridae (p. 12)
Cicadidae (p. 10)
Cicadellidae (p. 11)
Membracidae (p. 11)

Fulgoromorpha (p. 9)

Acanaloniidae*
Achilidae*
Caliscelidae*
Cixiidae*
Delphacidae
Derbidae*
Dictyopharidae*
Flatidae
Issidae*
Kinnaridae*

Sternorrhyncha

Coccoidea (p. 13)

Asterolecaniidae*
Coccidae
Cryptococcidae*
Dactylopiidae*
Diaspididae
Eriococcidae
Kermesidae*
Margarodidae*
Matsucoccidae*
Orthezиidae*
Pseudococcidae
Putoidae*
Rhizoecidae*
Steingeliidae*
Xylococcidae*

Other Sternorrhyncha (p. 14)

Aleyrodoidea

Aleyrodidae

Aphidoidea

Aphididae

Phylloxeroidea

Adelgidae
Phylloxeridae*

Psylloidea

Aphalaridae
Calophyidae*
Liviidae*
Psyllidae*
Triozidae*

black text = families
green text = other taxonomic levels
bold text = included in identification guide
* = family unlikely to be found

Homoptera families you can identify with this guide

Auchenorrhyncha

Aphrophoridae
(true spittlebugs)

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Cercopidae
(froghoppers)

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Cicadellidae
(leafhoppers)

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Cicadidae
(cicadas)

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Clastopteridae
("spittlebugs")

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Membracidae
(treehoppers)

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Sternorrhyncha

Aleyrodidae
(whiteflies)

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Aphididae
(aphids)

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Heteroptera terrestrial families found in Alberta

Cimicomorpha
- **Anthocoridae** (p. 16)
- **Cimicidae** (p. 21)
- Lasiochilidae*
- Lyctocoridae*
- Microphysidae*
- **Miridae** (p. 17)
- **Nabidae** (p. 18)
- **Reduviidae** (p. 19)
- **Tingidae** (p. 20)

Dipsocoromorpha
- Ceratocombidae*
- Schizopteridae*

Enicocephalomorpha
- Aenictopecheidae*
- Enicocephalidae*

Pentatomomorpha
- **Acanthosomatidae** (p. 24)
- **Alydidae** (p. 22)
- **Aradidae** (p. 21)
- Artheneidae*
- Berytidae*
- Blissidae*
- **Coreidae** (p. 22)
- **Cydnidae** (p. 24)
- Cymidae*
- **Geocoridae** (p. 23)
- Heterogastridae*
- **Lygaeidae** (p. 26)
- Oxycarenidae*
- Pachygronthidae*
- **Pentatomidae** (p. 24)
- Piesmatidae*
- **Rhopalidae** (p. 25)
- **Rhyparochromidae** (p. 26)
- **Scutelleridae** (p. 27)
- **Thyreocoridae** (p. 27)

black text = families
purple text = other taxonomic levels
bold text = included in identification guide
* = family unlikely to be found

Heteroptera families you can identify with this guide – page 1

Cimicomorpha

Anthocoridae
(minute pirate bugs)

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Cimicidae
(bed bugs)

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Miridae
(plant bugs)

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Nabidae
(damsel bugs)

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Reduviidae
(assassin bugs)

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Tingidae
(lace bugs)

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Heteroptera families you can identify with this guide – page 2

Pentatomomorpha

Acanthosomatidae
(shield bugs)

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Alydidae
(broad-headed bugs)

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Aradidae
(flat bugs)

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Coreidae
(leaf-footed bugs)

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Cydnidae
(burrowing bugs)

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Geocoridae
(big-eyed bugs)

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Lygaeidae
(seed bugs)

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Pentatomidae
(stink bugs)

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Rhopalidae
(scentless plant bugs)

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Rhyparochromidae
(dirt-colored seed bugs)

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Scutelleridae
(jewel bugs)

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Thyreocoridae
(ebony bugs)

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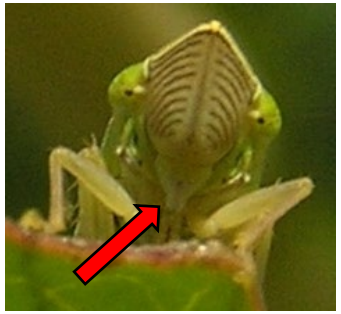
Hemiptera: Homoptera vs. Heteroptera

Homoptera

- **beak** arises further back on head
- forewings: uniform texture; held tent-like over abdomen
- forewing tips do not, or only barely, overlap



Auchenorrhyncha

- **antennae short, hair-like**
- 3-segmented tarsi

proceed to next page

Sternorrhyncha

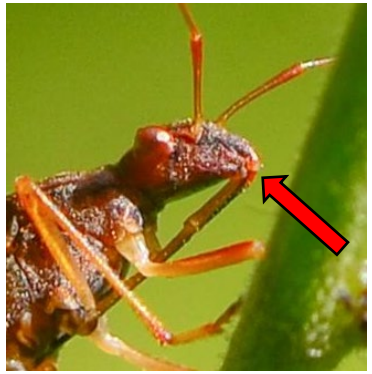
- **antennae long, segmented**
- 1- or 2-segmented tarsi

proceed to page 13

Heteroptera

- **beak** arises from front of head
- forewings: thickened anteriorly and membranous posteriorly; held flat over abdomen
- forewing tips overlap

proceed to page 15



Auchenorrhyncha: Fulgoromorpha or Cicadomorpha?

Fulgoromorpha: Fulgoroidea (planthoppers)

- **antennae arise on sides of head beneath eyes**
- **antennal pedicel round or oval with wart-like sensilla**
- hard to ID to family
- very unlikely to collect or observe

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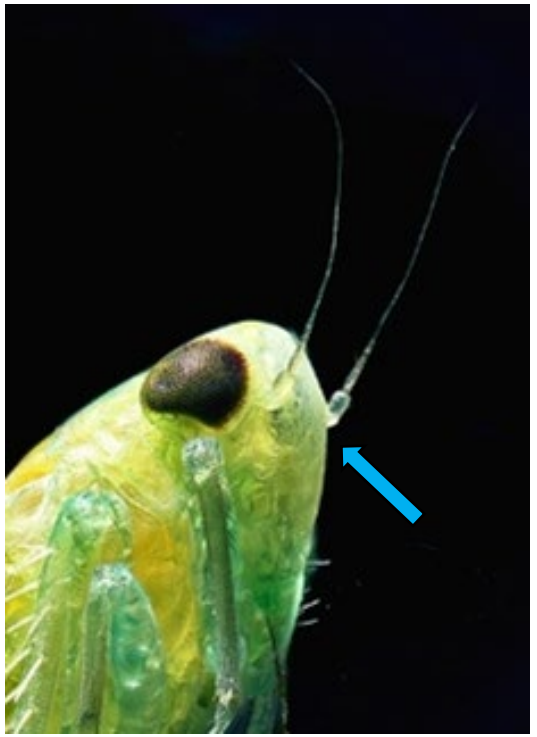
Cicadomorpha

- **antennae arise in front of or between eyes**
- **antennal pedicel small**

proceed to page 10



Fulgoroidea (planthoppers)

Acanaloniidae

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Achilidae

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Caliscelidae

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Cixiidae

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Delphacidae

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Derbidae

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Dictyopharidae

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Flatidae

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Issidae

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Kinnaridae

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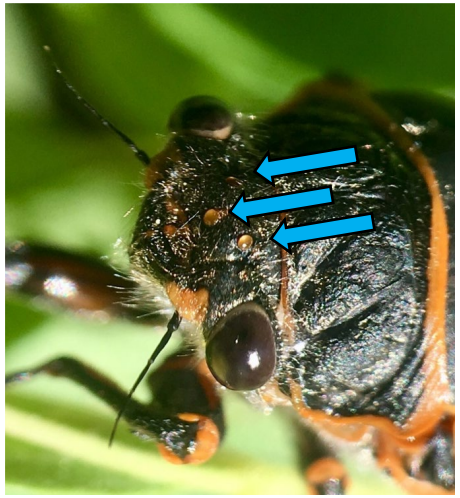
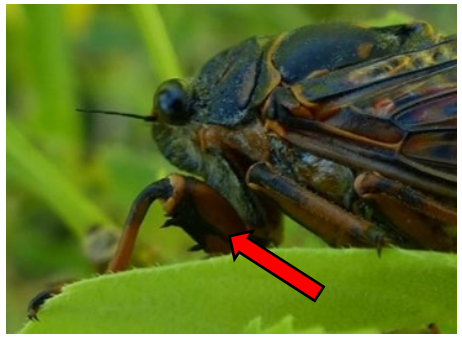
Cicadomorpha

Cicadidae (cicadas)

- 2-6 cm long
- **3 ocelli arranged in triangle**
- **foreleg femora enlarged**





Okanagana sp.

Other families

- < 1.5 cm long
- **2 or no ocelli**
- **foreleg femora not enlarged**

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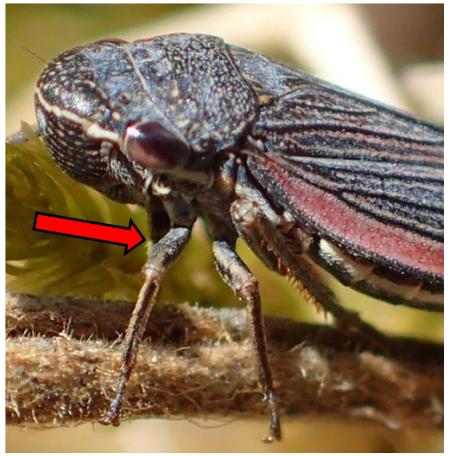

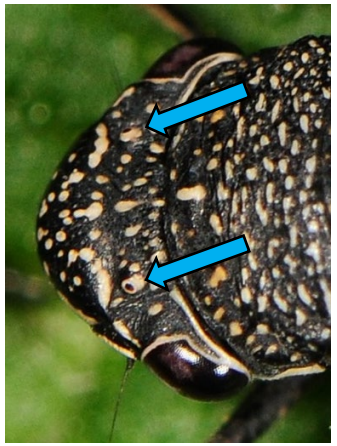

Other Cicadomorpha families

Membracoidea: hind tibiae have **rows of enlarged setae**

Membracidae (treehoppers)

- **pronotum extends over abdomen**, may cover head
- hind tibiae have **≤ 3 rows of enlarged setae**

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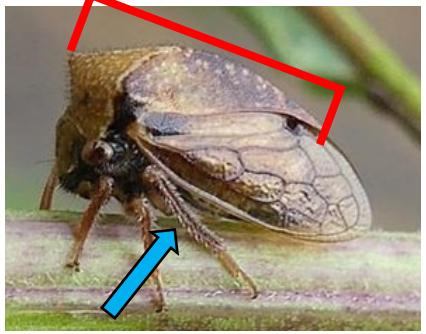
Campylenchia latipes



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Ceresa sp.

Cicadellidae (leafhoppers)

- **pronotum does not extend over abdomen**
- hind tibiae have **4 rows of enlarged setae**

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Athysanus argentarius

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Cuerna alpina

Cercopoidea ("spittlebugs")

- hind tibiae have only a **few stout setae**

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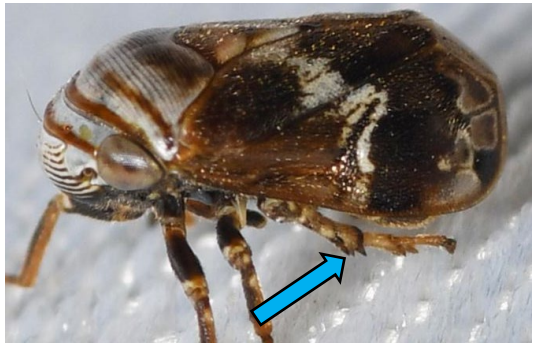

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Cercopoidea

Clastopteridae (“spittlebugs”)

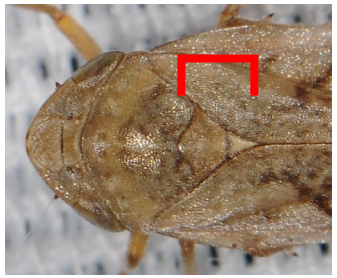
- **scutellum length > width**
- **≤ 7 mm long**

Clastoptera obtusa

Clastoptera obtusa

Aphrophoridae (true spittlebugs)

- **scutellum length ≤ width**
- **< 1/2 eye width between eye and forewing**
- **eyes depressed** (wider than tall)
- **> 7 mm long**



Philaenus spumarius

Cercopidae (froghoppers)

- **scutellum length ≤ width**
- **> one eye width between eye and forewing**
- **eyes spherical**
- **> 7 mm long**
- unlikely to find in Alberta

Prosapia bicincta

Sternorrhyncha page 1: Coccoidea

Coccoidea (scale insects)

- **1 tarsal segment, 1 claw at end**
- males rarely seen but look aphid-like, have hindwings reduced to club-like balancing organs
- females, usually sessile, covered by protective waxy "**scale**"
- most families look similar and need a microscope to distinguish

Coccidae

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Diaspididae

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Eriococcidae

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Pseudococcidae (mealybugs)

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15 families of Coccoidea in Alberta:

Asterolecaniidae*
Coccidae
Cryptococcidae*
Dactylopiidae*
Diaspididae
Eriococcidae
Kermesidae*
Margarodidae*
Matsucoccidae*
Orthezиidae*
Pseudococcidae
Putoidae*
Rhizoecidae*
Steingeliidae*
Xylococcidae*

Family names followed by * are unlikely to be observed and collected.

Sternorrhyncha page 2: other families

- **2 tarsal segments, 2 claws at end**
- most hard to ID due to small size, similarities between groups, and variations within groups
- females motile and not covered by protective “scale”; males have two pairs of wings or none
- some life stages or species lack wings

Aleyrodidae (whiteflies)

- **wings opaque**
- **wings and body covered with white waxy powder**
- cornicles absent

Aphididae (aphids)

- wings membranous (if present)
- **cornicles present**
- antennae usually 6-segmented (rarely 4- or 5-segmented)

Phylloxeroidea (pine/spruce “aphids”)

- wings membranous
- cornicles absent
- **antennae 3- to 5-segmented**
- two families in Alberta:
  - Adelgidae
  - Phylloxeridae

Psylloidea (jumping plant-lice)

- wings membranous
- cornicles absent
- **antennae 10-segmented**
- five families in Alberta:
  - Aphalaridae
  - Calophyidae
  - Liviidae
  - Psyllidae
  - Triozidae

Heteroptera: narrow choices down using visible traits

antennae
4-segmented? see pp. 16 – 18, 21 – 23, 25
5-segmented? see pp. 24, 27

eyes and ocelli
eyes large, wrap around anterior corners of pronotum? see p. 23
ocelli present? see pp. 16, 18, 19, 22 - 27
ocelli absent? see pp. 17, 20, 21

scutellum
reduced or absent? see p. 20
extends less than half-way to end of abdomen? see pp. 16 – 19, 21 – 23, 25, 26
extends at least half-way but not to end of abdomen? see p. 24
extends almost or all way to end of abdomen? see p. 27

forewings
membranous parts have only 2 closed cells? see p. 17
membranous parts have numerous closed cells? see p. 20
membranous parts lack veins? see p. 16
membranous parts have 4 or 5 longitudinal veins? see p. 26
membranous parts have > 5 longitudinal veins? see pp. 18, 22, 25
cuneus present? see pp. 16, 17

other
scent gland openings conspicuous on metapleuron? see pp. 18, 22, 26

body extremely flat and broad? see p. 21

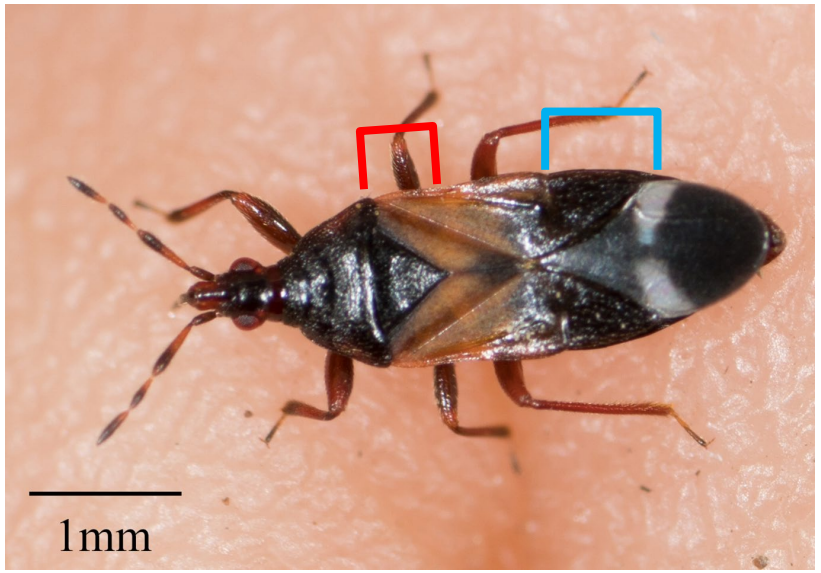
short beak with 3 segments, tucks into prosternal groove? see p. 19

Heteroptera: Anthocoridae

Anthocoridae (minute pirate bugs)

- antennae 4-segmented
- **scutellum** extends **less than half-way** to end of abdomen
- ocelli present
- **membranous parts of forewings lack defined veins**
- **cuneus on forewings** (also in Miridae, but they lack ocelli and have defined wing veins; see p. 17)
- black and white markings

Orius insidiosus



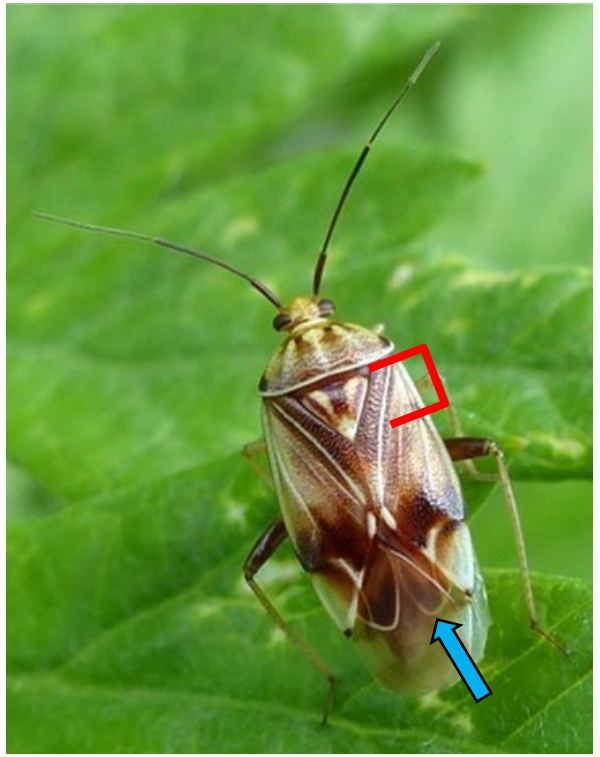
Anthocoris sp.

Heteroptera: Miridae

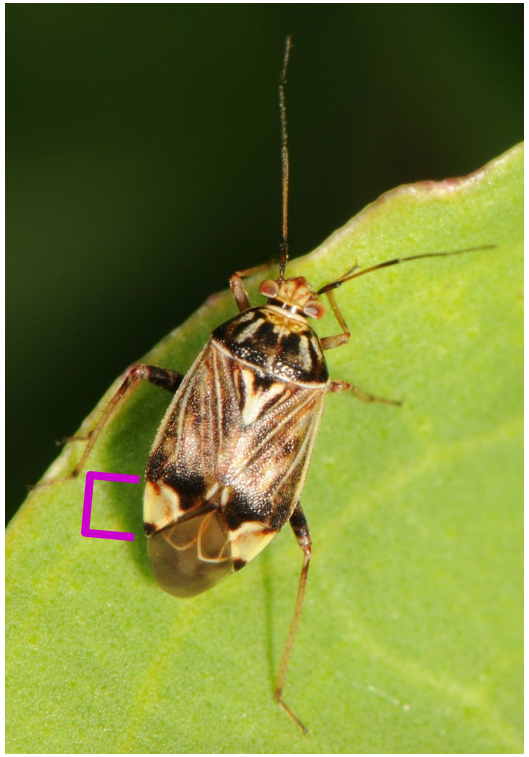
Miridae (plant bugs)

- antennae 4-segmented
- **scutellum** extends **less than half-way** to end of abdomen
- **membranous parts of forewings have only 2 closed cells**
- **cuneus on forewings** (also in Anthocoridae, but they have ocelli; see p. 16)
- **ocelli absent**

Adelphocoris lineolatus



Lygus lineolaris



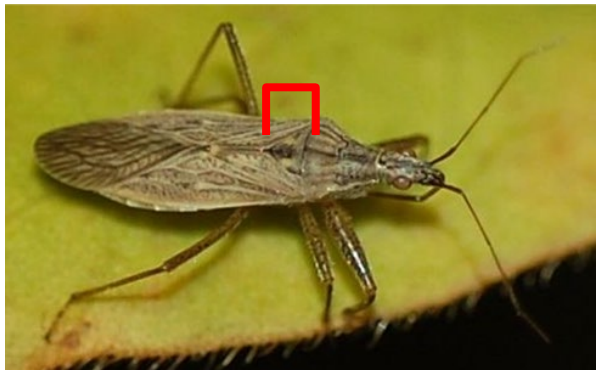
Lygus lineolaris

Heteroptera: Nabidae

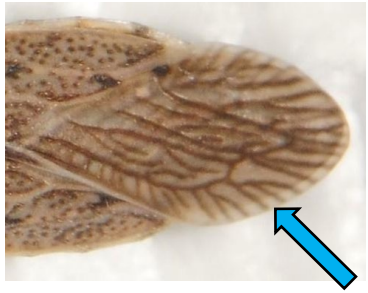
Nabidae (damsel bugs)

- antennae 4-segmented
- **scutellum** extends **less than half-way** to end of abdomen
- membranous parts of forewings have **> 5 longitudinal veins**
- **numerous closed cells along forewing margin**
- **scent gland openings visible on metapleuron** (less conspicuous than in other families)
- **foreleg femora slightly enlarged (predatory)**
- < 10 mm long
- ocelli present

Nabis americoferus



Nabis americoferus



Nabis subcoleoptratus
(wings greatly reduced; body shiny black)

Heteroptera: Reduviidae

Reduviidae (assassin bugs and ambush bugs)

Note: some resources list Phymatidae as a separate family, but it is included in Reduviidae

- **scutellum** extends **less than half-way** to end of abdomen
- **abdomen widest in middle and wider than wings**
- **beak has 3 visible segments**
- **beak tucks into prosternal groove**
- **enlarged raptorial front legs**
- elongated head
- ocelli present

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Apiomerus spissipes

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Apiomerus spissipes

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Phymata americana

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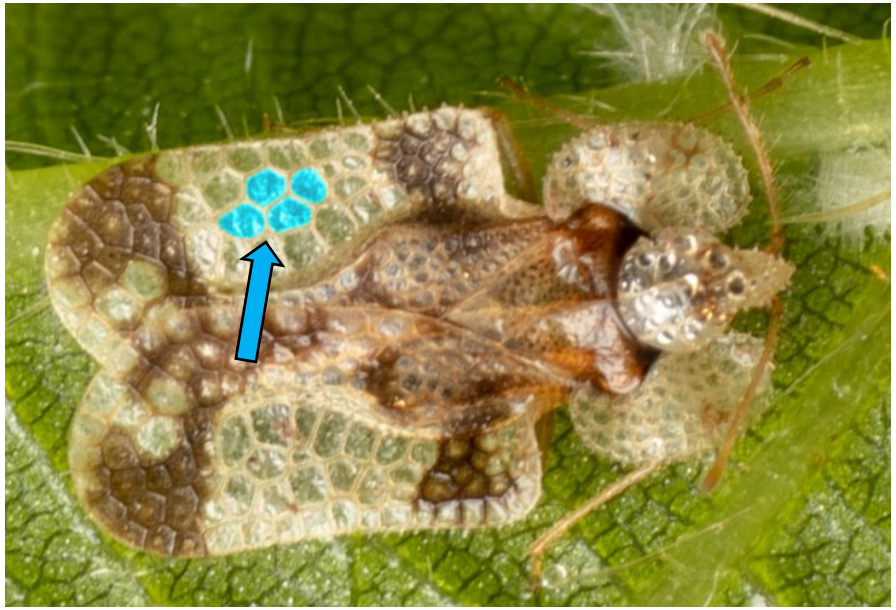
Phymata americana

Heteroptera: Tingidae

Tingidae (lace bugs)

- **front wings have a lacy pattern of numerous closed, rounded cells**
- **pronotum is pointed at the base**
- scutellum reduced or absent
- **ocelli absent**
- tarsus 2-segmented



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Corythucha sp.

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Corythucha sp.

Heteroptera: Aradidae and Cimicidae

- antennae 4-segmented
- **scutellum** extends **less than half-way** to end of abdomen
- **body extremely flat and broad**
- **ocelli absent**

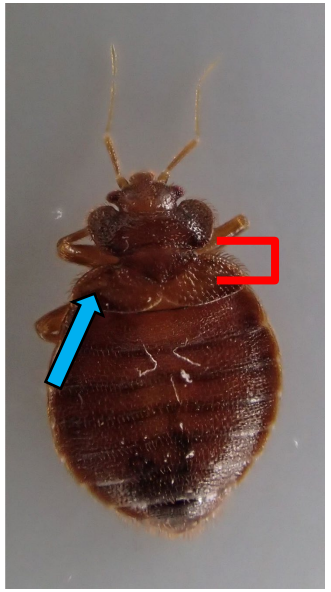
Aradidae (flat bugs)

- **wings do not cover entire abdomen**
- **2-segmented tarsus**

Aradus sp.

Cimicidae (bed bugs)

- **wings vestigial, pad-like**
- **3-segmented tarsus**



Cimex lectularius (bed bug)

Cimex pilosellus (bat bug)

Heteroptera: Alydidae and Coreidae

- antennae 4-segmented
- **scutellum** extends **less than half-way** to end of abdomen
- membranous parts of forewings have **> 5 longitudinal veins**
- **scent gland openings conspicuous on metapleuron***
- ocelli present
- > 10 mm long

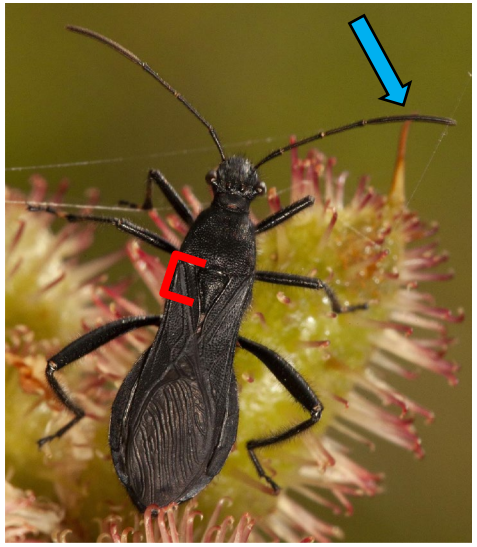
* also in Lygaeidae and Rhyparochromidae, but they have ≤ 5 longitudinal veins (see p. 26)

* less visible in Nabidae, but they have numerous closed cells along forewing margin (see p. 18)

Similar family: Rhopalidae, but they have enlarged hind femurs (see p. 25)

Alydidae (broad-headed bugs)

- **head about as wide as pronotum**
- **distal antennal segment elongated and curved**



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Alydus eurinus

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Alydus eurinus

Coreidae (leaf-footed bugs, squash bugs)

- **head narrower than pronotum**
- **hind tibiae often with leaf-like expansion**

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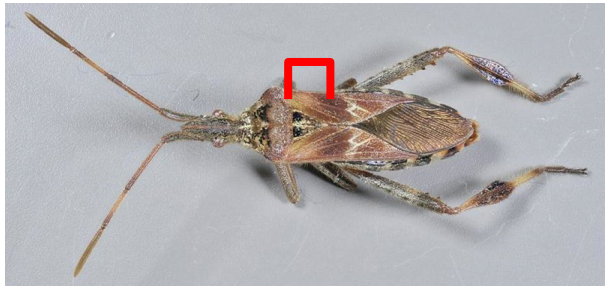

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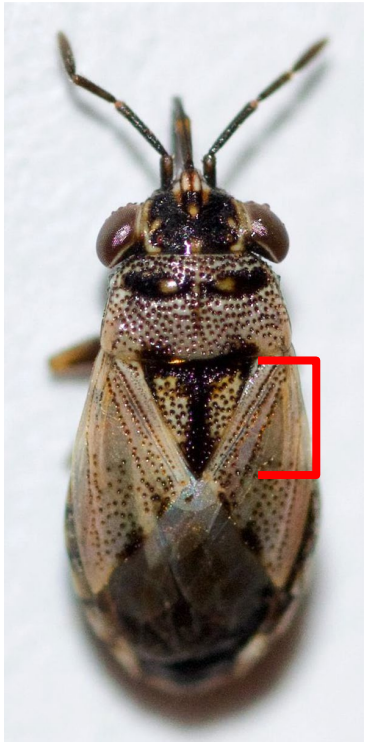
Leptoglossus occidentalis

Heteroptera: Geocoridae

Geocoridae (big-eyed bugs)

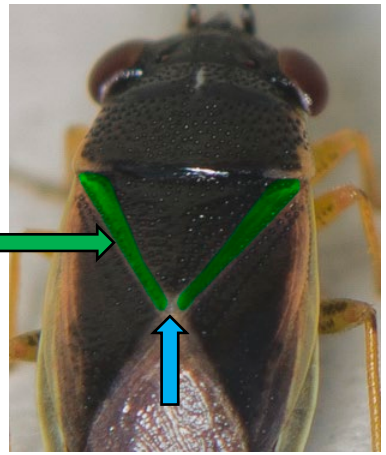
- antennae 4-segmented
- **scutellum** extends **less than half-way** to end of abdomen
- **eyes very large, partially wrap around anterior corners of pronotum**
- **claval commissure** (**"joint") very short or absent** (contrast with Lygaeidae)
- ocelli present
- body < 5 mm long

Geocoris bullatus



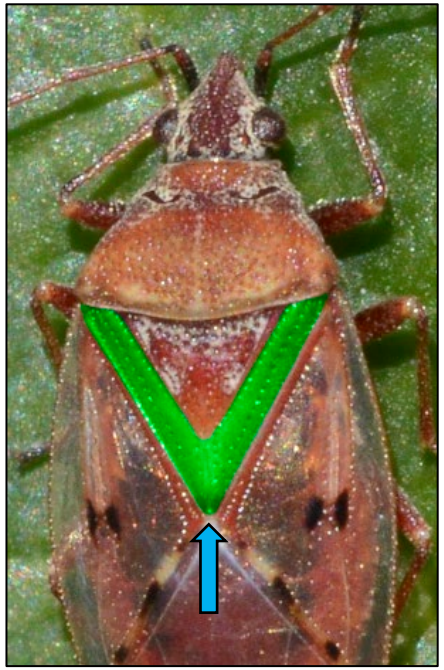
Geocoris sp.

clavus



claval commissure
(absent here)

Lygaeidae



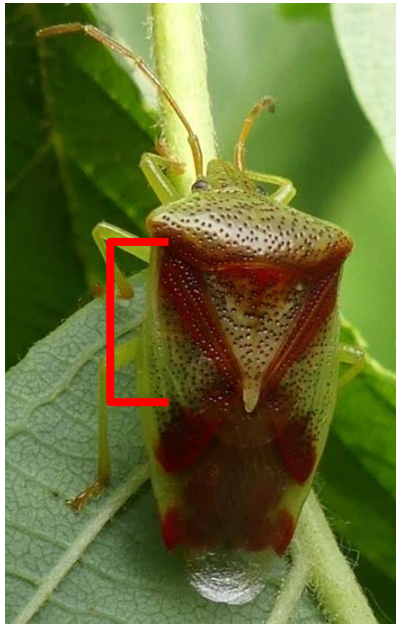
claval commissure
(present here)

Heteroptera: Acanthosomatidae, Cydnidae, and Pentatomidae

- antennae 5-segmented
- **scutellum** large, triangular or slightly rounded, extends **≥ half-way but not all way to end of abdomen**
- ocelli present

Acanthosomatidae (shield bugs)

- tibiae do not have strong spines
- **2-segmented tarsi**



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Elasmostethus cruciatus

Pentatomidae (stink bugs)

- tibiae do not have strong spines
- **3-segmented tarsi**
- usually > 7 mm long

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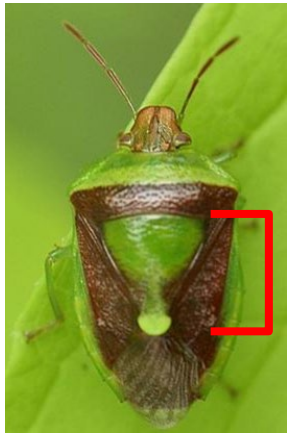
Cosmopepla lintneriana



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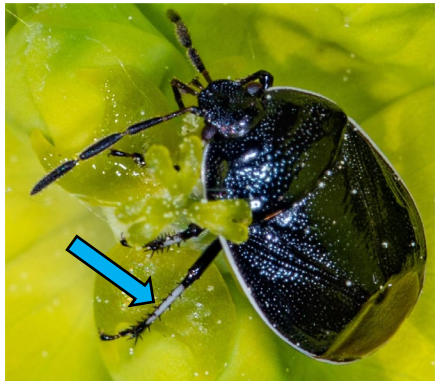
Banasa dimidiata

Cydnidae (burrowing bugs)

- **tibiae have strong spines**
- **3-segmented tarsi**
- usually < 7 mm long



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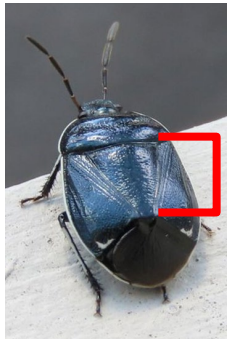
Sehirus cinctus



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Sehirus cinctus

Heteroptera: Rhopalidae

Rhopalidae (scentless plant bugs)

Similar family: Coreidae, but they have enlarged hind tibiae (see p. 22)

- antennae 4-segmented
- **scutellum** extends **less than half-way** to end of abdomen
- membranous parts of forewings have **> 5 longitudinal veins**
- **scent gland openings absent, or greatly reduced and not visible**
- hind leg femora may be enlarged compared to other legs
- ocelli present

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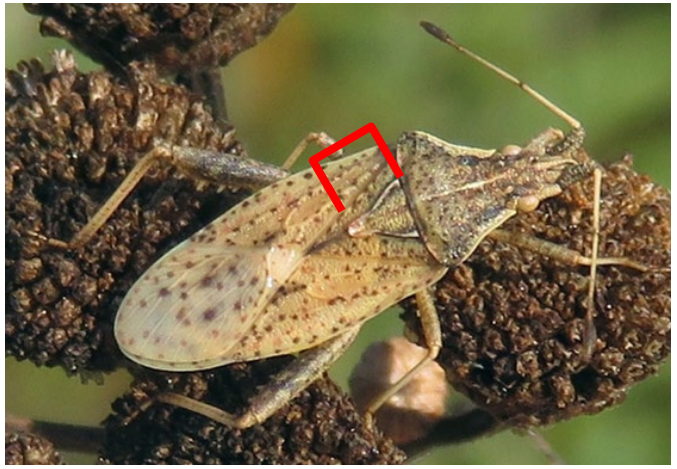
Boisea trivittata



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Harmostes reflexulus

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Harmostes sp.

Heteroptera: Lygaeidae and Rhyparochromidae

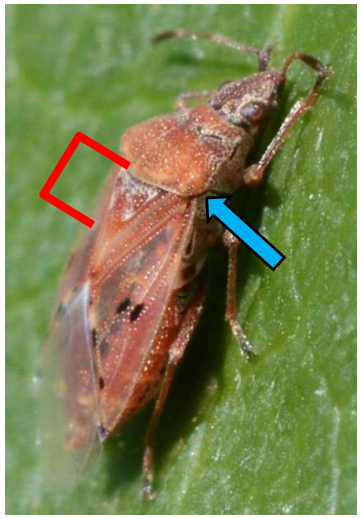
- antennae 4-segmented
- **scutellum** extends **less than half-way** to end of abdomen
- membranous parts of forewings have **4 or 5 longitudinal veins**
- **scent gland openings conspicuous on metapleuron^**
- ocelli present

^ also in Alydidae (p. 22), Coreidae (p. 22), and Nabidae (p. 18), but they all have > 5 longitudinal veins in membranous part of forewings

Lygaeidae (seed bugs)

- **lateral edges of pronotum rounded**

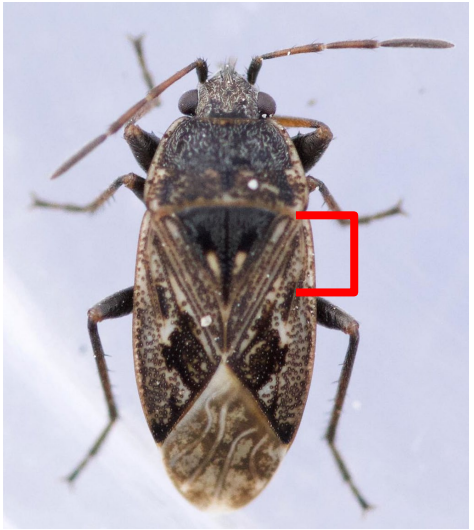
Kleidocerys resedae



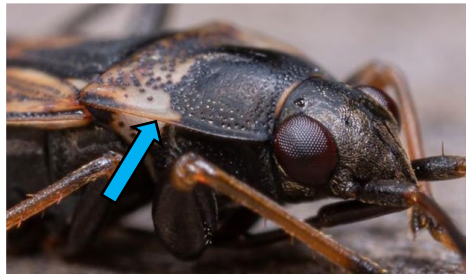
Kleidocerys resedae

Rhyparochromidae (dirt-coloured seed bugs)

- used to be included in Lygaeidae
- **trichobothria on head** (need a microscope to see)
- **lateral edges of pronotum may have a keel**



Sphragisticus nebulosus

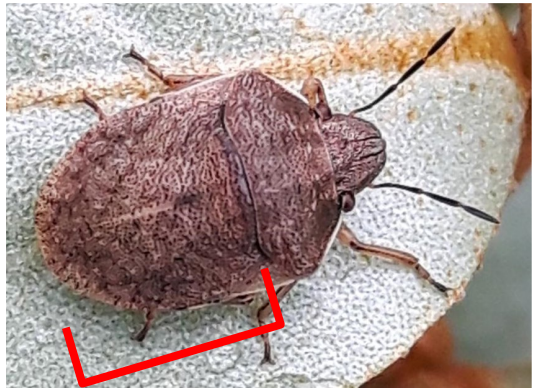


Heteroptera: Scutelleridae and Thyreocoridae

- antennae 5-segmented
- **scutellum** large, rounded, and **almost reaches end of abdomen** (or does reach)
- ocelli present

Scutelleridae (jewel bugs)

- **body usually brownish** (or if black then not shiny)
- **tibiae have barely visible, thin spines**
- > 8 mm long



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Homaemus sp.

"Photo 10789906" by Scott Loarie is licensed under CCO 1.0 / original cropped

Eurygaster sp.

Thyreocoridae (ebony bugs)

- **body shiny and black**
- **tibiae with visible thick spines**
- < 8 mm long

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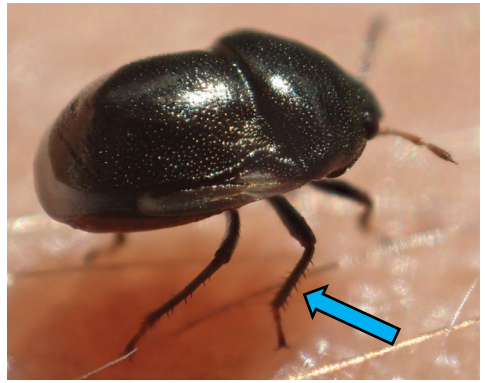
Corimelaena sp.



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Corimelaena sp.

Glossary

beak: mandibles and maxillae modified to form a piercing stylet, which is sheathed by a modified labium

cells: area of wings completely surrounded by veins (also called “closed cells”)

cornicles: paired tubes on postero-dorsal abdomen of Aphididae that exude defensive fluid (also called “siphuncles”)

clavus: the part of the forewing that lies next to the scutellum when the wings are folded

cuneus: a visibly distinct triangular-shaped region at distal end of hardened portion of forewing

metapleuron: exoskeletal plate covering the lateral surface of the metathorax (posterior thoracic segment)

pronotum: exoskeletal plate covering dorsal surface of the prothorax (anterior-most thoracic segment)

prosternal groove: short longitudinal groove along midline of prosternum

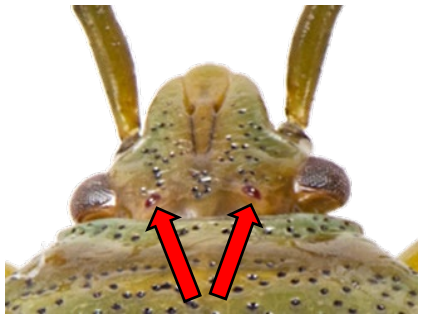
prosternum: exoskeletal plate covering ventral surface of the prothorax

setae: hardened hair- or bristle-like structures

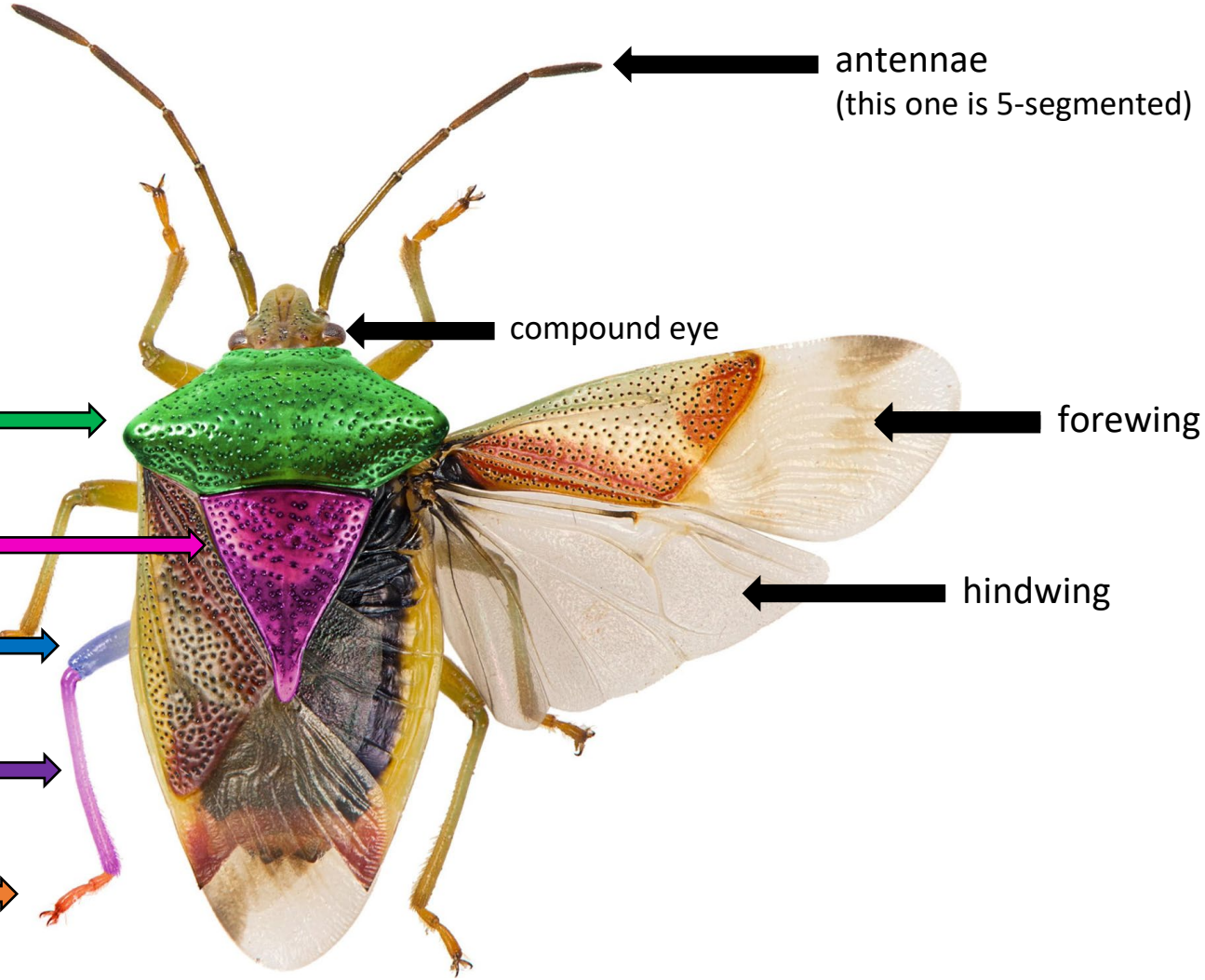
tarsus: distal segment of the leg; has 1 or more segments (plural: tarsi)

trichobothria: elongated sensory setae arising from enlarged pits; base of setae connected to flexible membrane; detect vibrations or air currents

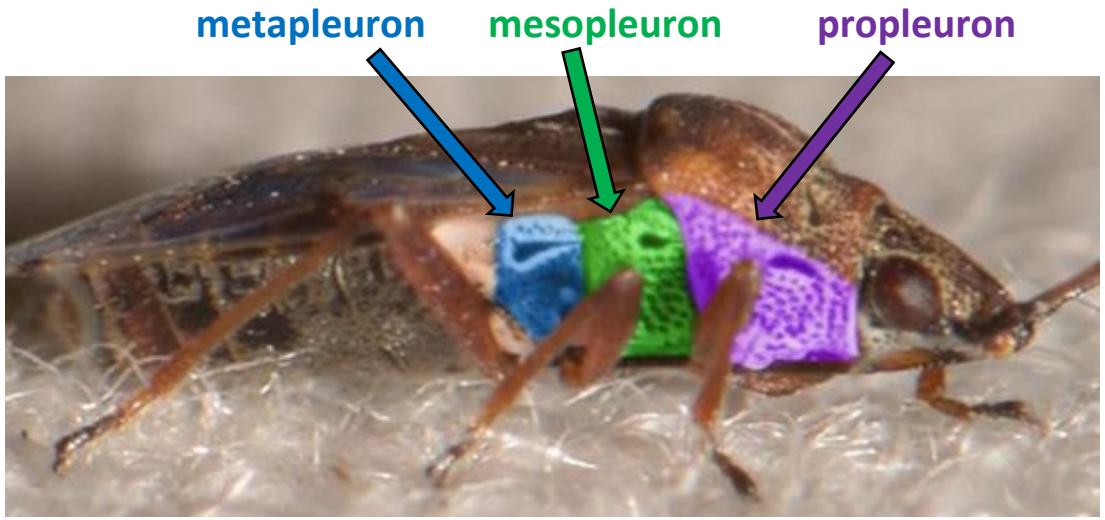
Glossary



ocelli



Glossary



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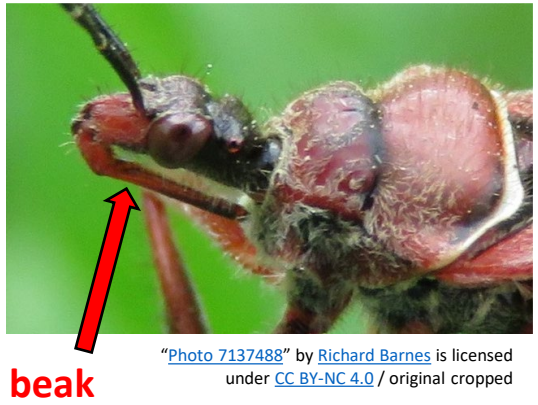

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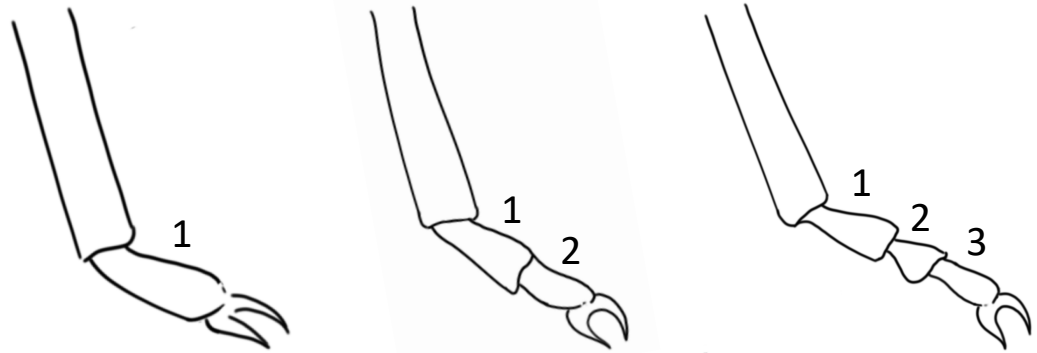
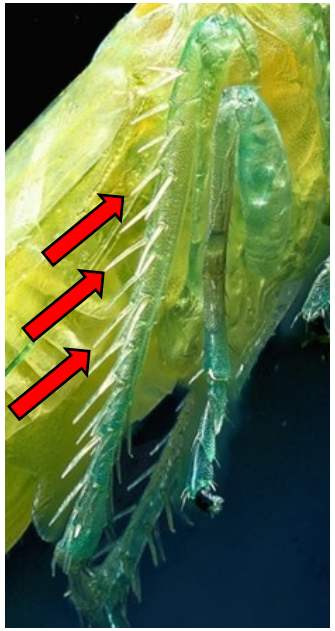
Number of tarsal segments (tarsomeres):



Drawings by Gabi Gee

setae



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