

# Florida Hemiptera

(Recognizing suborders; with diagnostic keys  
to some families of the suborders

## **Auchenorrhyncha and Sternorrhyncha)**

- *Note:* identification of families of s.o. **Heteroptera**, online at  
<http://entnemdept.ifas.ufl.edu/choate/ZcfjXUS\YhfcdhYfUSZLaJjYg.pdf>



**g"5 i W Ybcff\ nbW U- Membracidae**

Document created for use in Insect Classification  
ENY 4161/6166, University of Florida

**P. M. Choate**

**20%**

# Artificial Key to suborders of Hemiptera:

(diagnostic keys modified from your textbook;

- 1. Beak arising from back of head or apparently from between front coxae, antennae bristle-like (**fig. 1**) OR with more than 5 segments (**fig. 2**); front wings of uniform texture throughout (**Fig. 3**) ..... 2
- Beak arising from front part of head (**Figs. 4, 5a**); antennae 4-5 segmented, not bristle-like; front wings, if present, usually thickened at base, membranous apically (hemelytra) (**Fig 5b**) ..... s.o. **Heteroptera**  
(for family key, see handout - Identification Key to the Principal Families of Florida Heteroptera - online at [http://insectclass.ifas.ufl.edu/heteroptera\\_new1.pdf](http://insectclass.ifas.ufl.edu/heteroptera_new1.pdf))
- 2. Antennal flagellum short, bristle-like; beak arising from back of head; tarsi 3 segmented; free-living insects ..... s.o. **Auchenorrhyncha**
- Antennae (when present) long and filiform, with evident segmentation; beak, when present, arising between front coxae; tarsi 1-2 segments; often sessile insects. .... s.o. **Sternorrhyncha**

## Artificial key to commonly encountered Families of “Homopteroid” insects

**Note:** This is a greatly simplified family key to some of the “Homoptera” families. Please Do not rely on this for your final determinations. Be sure to consult your textbook for confirmation, and compare with reference material.

- 1. Tarsi 3-jointed; antennae short and bristle-like (s.o. **Auchenorrhyncha**) ..... 2
- Tarsi, when present, 1 or 2-jointed; antennae prominent, segmented and threadlike, **OR** absent (s.o. **Sternorrhyncha**) ..... 15
- 2. Antennae arising on sides of head beneath eyes, separated from front of head by vertical carina (**Fig. 6**); (Fulgoroidea) - **Delphacidae, Fulgoridae, Flatidae, Tropiduchidae, Acanaloniidae, Issidae, Derbidae, Achilidae, Dictyopharidae, Cixiidae** (bolded families figured here) ..... 3
- Antennae arising on front of head between eyes, **not** separated from front of head by vertical carina (**Fig. 7**), (Cicadoidea); Cicadidae, Membracidae, Cicadellidae, Cercopidae ..... 12
- 3. **Hind tibia** with broad, movable spur (**Fig. 8**) ..... **Delphacidae**
- **Hind tibia** without broad movable spur ..... 4
- 4. Anal area of **hind wings** reticulate, with many crossveins ..... **Fulgoridae**
- Anal area of **hind wings** not reticulate, without crossveins ..... 5
- 5. Second segment of hind tarsi with 2 apical spines (1 on each side) and with apex usually rounded or conical ..... 6

## ENY 4161/6166 Insect Classification

- Second segment of hind tarsi with a row of apical spines, with apex truncate or emarginated ..... 9
  - 6. Front wings longer than body, with numerous costal crossveins,; clavus with numerous small, pustulelike tubercles (**Fig.9**) ..... **Flatidae**
  - Front wings as long as or shorter than body, without numerous costal crossveins; clavus without tubercles ..... 7
  - 7. Front wings with a series of crossveins between costal margin and apex of clavus separating off the apical, more densely veined portion of the wing ..... **Tropiduchidae**
  - Front wings without differentiated apical portion ..... 8
  - 8. Front wings very broad, longer than body, venation reticulate,; at rest held vertically at sides of body; hind tibiae without spines except at apex (**Fig. 10**) ..... **Acanaloniidae**
  - Front wings variable in size and shape, often shorter than abdomen; hind tibiae usually with spines on sides, in addition to apical ones ..... **Issidae**
  - 9. Terminal segment of beak short, not more than 1.5 times as long as wide.... **Derbidae**
  - Terminal segment of beak longer, at least twice as long as wide ..... 10
  - 10. Front wings overlapping at apex; claval vein extending to apex of clavus ... **Achilidae**
  - Front wings not overlapping at apex; claval vein not reaching apex of clavus ..... 11
  - 11. Head usually prolonged in front; median ocellus absent (**Fig. 11**)..... **Dictyopharidae**
  - Head not prolonged in front; median ocellus usually present ..... **Cixiidae**
  - 12. Ocelli 3 in number (**Figs. 12, 13**); large robust insects >15mm ..... **Cicadidae**
  - Ocelli 2 in number (**Fig. 7**), OR absent; size “small”, <12mm. .... 13
  - 13. Prothorax prolonged behind over the abdomen, often shaped as spine (**Fig. 14**) ..... **Membracidae**
  - Prothorax not prolonged behind ..... 14
  - 14. Hind tibiae armed with 1 or 2 stout spines and the apex with a crown of spines (spittle bugs) (**Figs. 15, 16**) ..... **Cercopidae**
  - Hind tibiae with a double row of spines (**Fig. 17, 18**) ..... **Cicadellidae**
- s.o. Sternorrhyncha**
- 15. Tarsi 2-segmented, with 2 claws; wings two pair (males) or absent; mouthparts usually well developed in both sexes, with long beak (also includes Adelgidae and Phylloxeridae, not keyed here) ..... 16
  - Tarsi 1-segmented, with 1 claw (when present); females wingless, scale-like, gall-like, grub-like, or clothed with wax; males with 2 wings, beak absent ..... Superfamily **Coccoidea** - Scale Insects, Mealybugs

**Note:** For photographic key to Families of Florida Scales, consult online document [http://www.fsca-dpi.org/Homoptera\\_Hemiptera/scales/Scale\\_Families.pdf](http://www.fsca-dpi.org/Homoptera_Hemiptera/scales/Scale_Families.pdf)

**Florida Hemiptera**

- 16. Antennae 3-7 segments; Wings opaque or covered with fine powdery, white wax (whiteflies) ..... **Aleyrodidae**
- Wings when present transparent, not covered with wax-like powder; antennae with 3-10 segments ..... 17
  
- 17. Legs fitted for walking, the hind legs not enlarged for jumping; antennae 3 to 7-jointed, abdomen usually with 2 cornicles (Aphids). Note: when cornicles are absent, their location is indicated by dark pigmented circular areas. .... **Aphididae**
- Hind legs enlarged, fitted for jumping; antennae 7 to 10 jointed, abdomen never with cornicles (**Fig. 19**); ..... **Psyllidae**



**Fig.1. Dictyopharidae?** Bristlelike antenna.



**Fig. 2.** Antennae long, filiform, with many segments. **Aphididae.**  
Photo D. Almquist



**Fig. 3.** Front wings with uniform texture throughout. Cicadellidae.

## ENY 4161/6166 Insect Classification



**Fig. 4.** Side view of beak attachment in Heteroptera.

**Figs. 4, 5a,** s.o. **Heteroptera.** Beak arising from front of head.



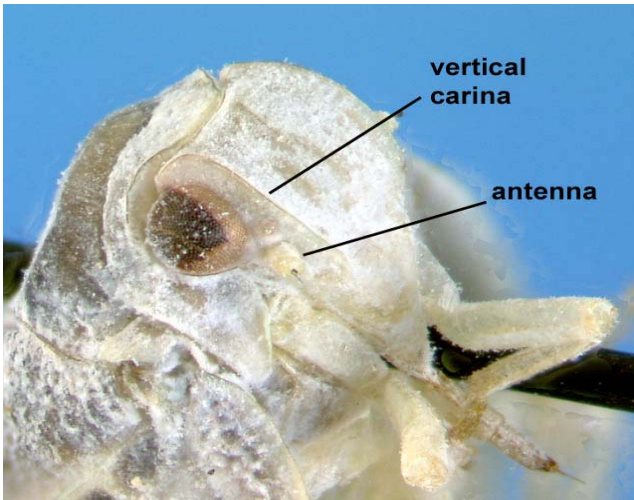
**Fig. 5a.** Ventral view of beak attachment in Heteroptera



**Fig. 5b.** Heteroptera: Alydidae; Front wings with thickened anterior section, differing in texture from membranous area of hind portion. Photo D. Almquist



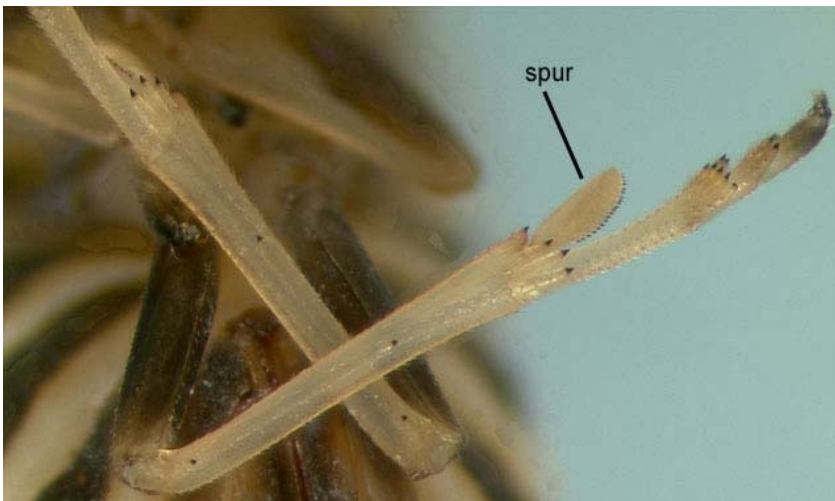
Florida Hemiptera



**Fig. 6. Flatidae** - antenna beneath eye, separated from front of head by vertical carina



**Fig. 7. Cercopidae** - antenna arising on front of head between eyes, not separated from front by vertical carina. Ocelli 2.



**Fig. 8 Delphacidae** - broad, movable tibial spur

Below- Left. **Fig. 9.** Flatidae. Right, **Fig. 10.** Acanaloniidae.





Fig. 11. Dictyopharidae. Head elongated.

Figs. below. 12 (left), 13 (right). Cicadidae - Ocelli 3 in number

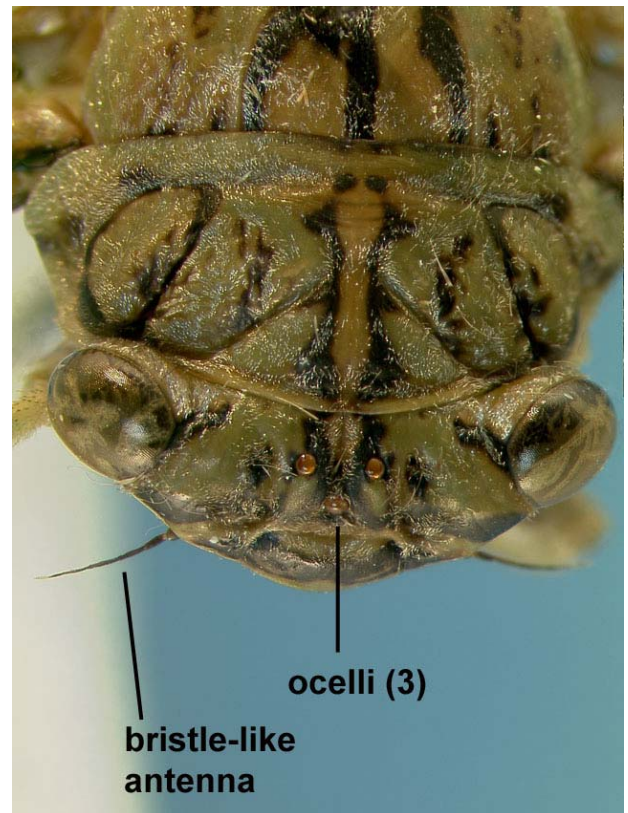
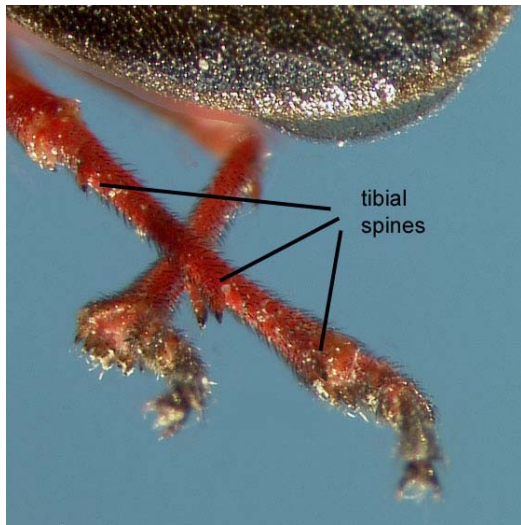


Fig. 14. Membracidae. Pronotum extended posteriorly over abdomen. Photo D. Almquist

Florida Hemiptera



**Delphacidae** - *Peregrinus maidis* (Ashmead). Photo by Lyle Buss, University of Florida Entomology and Nematology Dept.



**Fig. 15. Cercopidae** - tibial spines 1-2, apex with several spines.



**Fig. 16. Cercopidae** - Two lined Spittlebug, *Prosapia bicincta* (Say)



## ENY 4161/6166 Insect Classification



**Fig. 17. Cicadellidae** - tibial spines numerous, in double rows. Rows are difficult to see, but number and regular spacing of spines separate this family from the Cercopidae.



**Fig. 18. Cicadellidae. *Homalodisca coagulata* (Say)?** - "Sharpshooter"



**Fig. 19. Psyllidae** - front legs thickened, antennae with many segments.

Florida Hemiptera

Aphididae - Aphids



Asian wooly hackberry aphid - *Shivaphis celti* Das

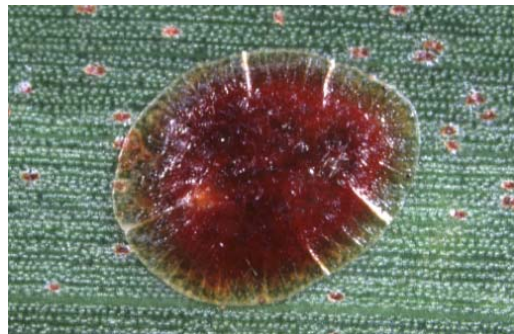
Aleyrodidae - Whiteflies



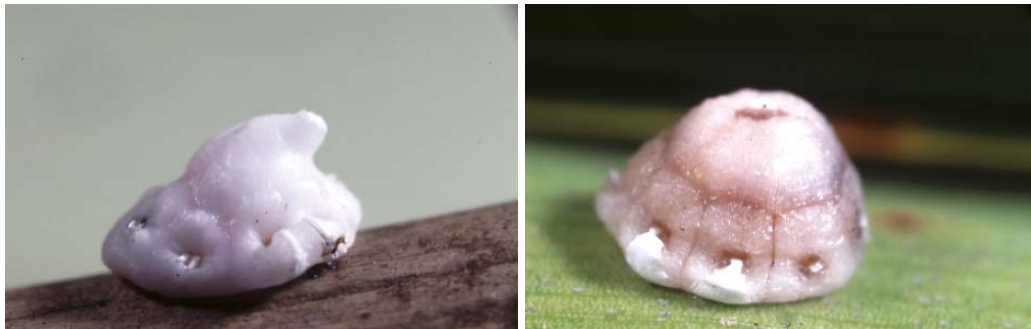
Scale Insects



**Margarodidae** - *Icerya purchasi* Maskell, Cottony cushion scale



**Coccidae** - *Eucalymnatus tessellatus* (Signoret) - Tessellated scale



**Coccidae** - Soft scales, Wax scales

## Florida Hemiptera

### Pseudococcidae - Mealybugs



Longtailed mealybug - *Pseudococcus longispinus* (Targioni - Tozzetti)