Homoptera Classification & Required Families

I. Suborder Auchenorrhyncha
A. Superfamily Cicadoidea
   1. Cicadidae - Cicadas
   2. Membracidae - Treehoppers
   3. Cercopidae - Spittlebugs and Froghoppers
   4. Cicadellidae - Leafhoppers

B. Superfamily Fulgoroidea
   1. Delphacidae - Delphacids
   2. Derbidae - Derbids
   3. Cixiidae - Cixiids
   4. Dictyopharidae - Dictyopharids
   5. Fulgoridae - Fulgorids
   6. Acalylidae - Achilids
   7. Flatidae - Flatids
   8. Acanaloniidae - Acanaloniids
   9. Issidae - Issids

II. Suborder Sternorrhyncha
A. Superfamily Psylloidea
   1. Psyllidae - Jumping plantlce

B. Superfamily Aleyrodoidea
   1. Aleyrodidae - Whiteflies

C. Superfamily Aphidoidea
   1. Aphididae - Aphids or Plantlce
   2. Eriosomatidae - Woolly and Gall-making aphids
   3. Adelgidae - Pine and spruce aphids
   4. Phylloxeridae - Phylloxeras

D. Superfamily Coccoidea
HOMOPTERA

Common Name: Scale insects, aphids, whiteflies, planthoppers.

Etymology: Homo = alike, uniform; -ptera = wing.

Metamorphosis: Hemimetabolous (?); pupal stage in some males.

CHARACTERISTICS

Body: Minute to quite large; form variable; many species exhibit degenerate structuring.

Head: Variable.

Mouthparts: Piercing-sucking; beak arising at the posterior end of the head and extending back between the legs.

Eyes: Compound eyes usually well-developed; 2-3 ocelli if present, absent in some.

Antennae: Variable.

Wings: Present or absent; front wings uniform in texture throughout; either leathery or membranous; male scale insects with only one pair of wings, these on mesothorax; wings held roof-like at rest.

Legs: Present or absent; variable in form; tarsi 1- or 3-segmented; one or 2 post-tarsal claws.

Abdomen: Highly modified in some scale insects; cerci absent.

Comments: All Homoptera are plant feeders; bisexual and parthenogenetic generations occur; can transmit plant diseases.

SUBORDERS

Auchenorrhyncha: Beak arises from neck region; antennae bristle-like; 3 tarsal segments.

Sternorrhyncha: Mouthparts arise between front coxae; antennae usually filiform; 1 or 2 tarsal segments.
Order Homoptera
Cicadas, Planthoppers, Aphids, Scale insects, etc.
HEMIPTERA: Coleorrhyncha
Superfamily Peloridioidea
Family Peloridiidae
Pelorid bugs

— *Hemiodocus fidelis* Ev. (*Peloridiidae*) (d'après nature).

*Xenorrhys cascus* Berg., New Zealand.
HOMOPTERA: Auchenorrhyncha
Superfamily Cicadoidea
Family Cicadidae
Cicadas

Fig. 124.—Eggs of the Periodical Cicada.
(After Riley.)
HOMOPTERA: Auchenorrhyncha
Superfamily Cicadoidea
Family Cicadidae
Cicadas
HOMOPTERA: Auchenorrhyncha
Superfamily Cicadoidea
Family Membracidae
Treehoppers
HOMOPTERA: Auchenorrhyncha
Superfamily Cicadoidea
Family Membracidae
Treehoppers
HOMOPTERA: Auchenorrhyncha
Superfamily Cicadoidea
Family Cercopidae
Froghoppers/Spittlebugs
HOMOPTERA: Auchenorrhyncha
Superfamily Cicadoidea
Family Cicadellidae
Leafhoppers

[Diagram of various leafhopper species]
HOMOPTERA: Auchenorrhyncha
Superfamily Fulgoroidea
Family Delphacidae
Delphacid planthoppers
HOMOPTERA: Auchenorrhyncha
Superfamily Fulgoroidea
Family Derbidae
Derbid planthoppers

-Lateral outlines of heads of species of Otioecerus, drawn to same scale (original).
HOMOPTERA: Auchenorrhyncha
Superfamily Fulgoroidea
Family Cixiidae
Cixiid planthoppers
HOMOPTERA: Auchenorrhyncha
Superfamily Fulgoroidea
Family Dictyopharidae
Dictyopharid planthoppers
HOMOPTERA: Auchenorrhyncha
Superfamily Fulgoroidea
Family Fulgoridae
Fulgorid planthoppers
HOMOPTERA: Auchenorrhyncha
Superfamily Fulgoroidea
Family Achilidae
Achilid planthoppers
HOMOPTERA: Auchenorrhyncha
Superfamily Fulgoroidea
Family Flatidae
Flatid planthoppers
HOMOPTERA: Auchenorrhyncha
Superfamily Fulgoroidea
Family Acanaloniidae
Acanaloniid planthoppers

Fig. 5.—Immature stages of A. conica. (A) egg; (B) 1st instar; (C) 2nd instar; (D) 3rd instar; (E) 4th instar; (F) 5th instar.
Vertical bar = 1.0 mm.
HOMOPTERA: Auchenorrhyncha
Superfamily Fulgoroidea
Family Issidae
Issid planthoppers
HOMOPTERA: Sternorrhyncha
Superfamily Psylloidea
Family Psyllidae
Psyllids/ Jumping plantlice
HOMOPTERA: Sternorrhyncha
Superfamily Aleyrodoidea
Family Aleyrodidae
Whiteflies

Fig. 110. ALEYRODIDÆ. A. adult and D, antenna of the whitefly, *Aleyrodes pruinosa* Bemis; B, nymphal exuvia and C, young of *Auleurodicus tridens* (Bemis); E, compound wax pores and F, eggs of *Aleyrodes holmesi* (Maskell); b, egg of *Auleurochiton forbesi* (Ashmead); c, egg of *Aleuroneura sugati* Ashby; d, egg of *Dialeurodes citri* (Riley and Howard). (B. C. E. F., after Quaintance and Baker, 1913.)
HOMOPTERA: Sternorrhyncha
Superfamily Aphidoidea
Family Aphididae
Aphids/Plantlice
HOMOPTERA: Sternorrhyncha  
Superfamily Aphidoidea  
Family Eriosomatidae  
Woolly and Gall-forming aphids

Fig. 113. The woolly apple aphid, *Eriosoma lanigerum* (Hausmann). A, winged ovoviviparous female (sexupara); B, stem-mother (fundatrix); C, egg; D, wingless female (alienicola); E, male (sexual); F, nymph of fall migrant; G, oviparous female (sexual). (After Baker. U.S.D.A., 1915.)

*The poplar stem gall aphid, Pemphigus populicola* Fitch. Winged migrant and stem mother removed from the galls.
HOMOPTERA: Sternorrhyncha
Superfamily Aphidoidea

Family Aphididae
Aphids/Plantlice

Family Eriosomatidae
Woolly and Gall-forming aphids

PRIMARY HOST PLANT
spindle tree

SECONDARY HOST PLANT
bean, sugar beet, and so on

Spring migrants
(aleate fundatrigeniae)

apterous virginoparvae
alate virginoparvae

Fundatrices

Eggs
Males
Oviparvae

Spring migrant
(aleate fundatrigenia)

Egg on poplar bark

Oviparvae
Male

Colony on broad bean plant

Colony on lettuce roots

1 or 2 generations
of apterous virginoparvae

Secondary host plant
roots of Compositae, etc.
HOMOPTERA: Sternorrhyncha
Superfamily Aphidoidea
Family Adelgidae
Pine and Spruce aphids

Chermes abietis,
HOMOPTERA: Sternorrhyncha
Superfamily Aphidoidea
Family Phylloxeridae
Phylloxerans

Phylloxeridae: Phylloxera salicis in ventral view, microscope slide mount.
HOMOPTERA: Sternorrhyncha
Superfamily Coccoidea
Family Margarodidae
Giant scales/ Ground pearls
HOMOPTERA: Sternorrhyncha
Superfamily Coccoidea
Family Coccidae
Soft scales

- Male of Pulvinaria menschyanthemi

Coccidae. First instar—dorsal on left, ventral on
HOMOPTERA: Sternorrhyncha
Superfamily Coccoidea
Family Diaspididae
Armored scales

Diaspididae: Chionaspis salicis, scales of two mature females and two male puparia.

Diaspididae. First instar—dorsal on left, ventral
HOMOPTERA: Sternorrhyncha
Superfamily Coccoidea
Family Diaspididae
Armored scales
HOMOPTERA: Sternorrhyncha
Superfamily Coccoidea
Family Pseudococcidae
Mealybugs

Pseudococcidae. First instar — dorsal on left.