

Subject	Insect Taxonomy
Lect. No.	7
Date	11/7 /2023

11-Order: Phasmida

Common name: walking stick (Phasma = apparition)

Phasmids are nocturnal, herbivorous insects found in most temperate to tropical climates. They are excellent examples of organisms that utilize crypsis, a form of camouflage wherein the insect mimics its surroundings, in this case plant matter. Not only do phasmids look like sticks and/or leaves in body shape, their camouflage extends to their movement.

Identifying characteristics for the order Phasmida include:

1-Slender, long-bodied insects, adults of some tropical species being up to 300 mm in length.

2-Antennae long and slender; mouthparts chewing.

3-Some species wingless, other brachyptery, and can be winged.

4-Tarsus 3 to 5 segments.

5-Prothorax is long and the mesothorax is short.

7-Males are smaller more than the females.

8-Reproduction is typically sexual, but parthenogenesis occurs on the species.

Families of the Phasmida

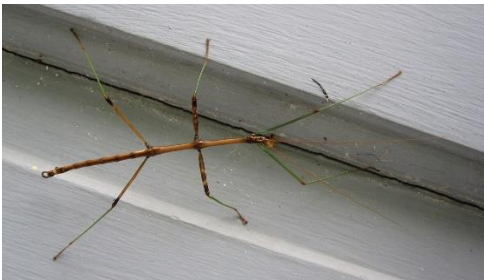
1-Family: Timemidae - walking sticks *Timema* sp.



2-Family: Pseudophasmatidae-- striped walking sticks.



3-Family: Heteronemiidae -- common walking sticks



4-Family: Phasmatidae -- winged walking sticks



12-Order: Psocoptera: Booklice

Booklice they are commonly known are small usually dull colored. All psocids possess silk glands and in some species large webs are formed in which the community lives. Psocids are sometimes mistaken for aphids.

Description and identification:

1-Soft bodies, length of 1-10 mm.

2-Mandibulate mouthparts.

3-Large head with protruding eyes.

4-Long antennae.

5-2 pairs of membranous wings held rook-like over the abdomen when at rest. Wings have reduced venation and forewings are larger than hind wings. Some species are wingless.

Major Families of Order:

1-Amphipsocidae

2-Philotarsidae

3-Trogiidae .Many of the common indoor species of worldwide, such

as *Lepinotus reticulatus*.



13- Order: Phthiraptera

A-SubOrder: Mallophaga (Biting Lice)

wingless, hemimetabolous, ectoparasites (living on the outside of their hosts) of mostly birds but also of some mammals, there are about 2 800 species worldwide.

Description and identification:

- 1-The range in size from 0.5 - 10 mm long. Body flattened, wingless, with poorly-developed, small eyes or eyeless. no ocelli
- 2-Chewing mouthparts.
- 3-Head usually broader than thorax.
- 4-Claws well-developed for clinging to the host.
- 5-All ectoparasitic in both adult and nymphal stages upon birds and sometimes mammals.

Bovicola bovis Cattle Biting Louse

Bovicola caprae, Goat Biting Louse



Bovicola ovis, Sheep Body Louse

B-SubOrder:Anoplura –Sucking lice

Sucking louse, any of some 500 species lives on blood and tissue fluids of mammals as an ectoparasite (external parasite). The adult sucking louse, or true louse, glues her eggs, to the host's hair. The young, which resemble with adults when they hatch, become sexually mature after several molts. The sucking louse ranges in color from whitish to yellow and shows distinct host specificity.

Description and identification:

- 1-The sucking lice are wingless, flat-bodied insects that look much like the chewing lice.
- 2- Head narrower than the thorax.
- 3- Mouthparts piercing the skin and sucking blood.
- 4-They develop with gradual metamorphosis, the life stages being the egg, nymph, and adult. All adults are wingless. Sucking lice are parasitic on mammals but never attack birds

Pthirus pubis

Pediculus humanus humanus



Pediculus humanus capitis

14-Order: Hemiptera -- True bugs

Description and identification:

1-Head is erect or horizontal

2-Front wings generally hemelytrous, thickened at the base and membranous at the tip. Hind wings membranous and shorter than the front wings.

3-Antennae with 5 or fewer segments.

4-Mouthpart Opethognathus with 3- or 4-segmented beak arising from the front of the head

5-Pronotum usually greatly enlarged.

6-Scutellum (triangular plate found between the wing bases) well developed. •

7-Tarsi with 3 or fewer segments.

8-Honey dew secretion uncommon.

9-Both terrestrial and aquatic.

Taxonomy of Order **Hemiptera** -- true bugs

A-Suborder Cryptocerata -- shorthorned bugs

1-Family **Corixidae** -- water boatmen

2-Family **Notonectidae** -- backswimmers

3-Family **Nepidae** -- water scorpions

4-Family **Belostomatidae** -- giant water bugs

Family : Belostomatidae

Common name: giant water bugs



Identifying characteristics:

1-Elongate-oval, robust insects, 25-50 mm long.

2-Front legs raptorial; middle and hind legs adapted for swimming.

3-Short, retractile terminal breathing tubes and the middle and hind legs flattened and fringed with hairs.

B-Suborder Gymnocerata -- longhorned bugs (34 families)

1-Family **Gerridae** -- water striders

2-Family **Miridae** -- leaf bugs, plant bugs

3-Family **Phymatidae** -- ambush bugs

4-Family **Reduviidae** -- assassin bugs

5-Family **Tingidae** -- Sugarcane lace bug, Avocado lace bug, Lace Bugs on Ornamental Plants

5-Family **Lygaeidae** -- seed bugs, bigeyed bugs, milkweed bugs

6-Family **Coreidae** -- leaf-footed bugs, squash bugs

7-Family **Pentatomidae** -- stink bugs

Family :Lygaeidae ; seed bugs, chinch bug, milkweed bugs

Identifying characteristics:

1-Antennae, 4-segmented; **ocelli**, 2; **beak**, 4-segmented; **front wing** with 4 or 5 veins; **tarsi**, 3-segmented.



Milkweed bug, *Oncopeltus* sp.

Family : Pentatomidae : stink bugs

Identifying characteristics:

1-Antennae, 5-segmented; **beak**, 4-segmented; **tarsi**, 3-segmented.

2-Body somewhat shield-shaped in dorsal view.

3-Triangular scutellum about as long as the corium of the front wings.

Nezara viridula



Family : Reduviidae

Common names: assassin bugs, thread-legged bugs, kissing bugs, conenoses

Identifying characteristics:

1-Antennae, 4-segmented; **ocelli**, 2; **tarsi**, 3-segmented.

2-Short, stout, 3-segmented beak.

3-Head elongate with transverse groove behind eyes.

and Rhodnius prolixus are the vectors of chagas disease caused by •

Trypanosoma cruzi which causes human trypanosomiasis.



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Family : Notonectidae

Common name: backswimmers

Identifying characteristics:

1-Dorsum convex, light colored.

2- Hind legs fringed for swimming.

3-Usually large up to 15 mm.

4-Aquatic predators that swim upside down, thus the common name backswimmer.



Family: Cimicidae (Bed bugs)

1-Body is dorsoventrally flattened so that they can hide in cracks and crevices, oval and reddish brown in colour.

2-Stink glands are located in the dorsal surface of first three abdominal segments.

3-They are blood sucking ectoparasites on birds and mammals, hide in crevices of beds, furniture, etc., during the day and emerge at night They are known for their irritating bite.

Cimex lectularis and *Cimex hemipterus* are two important species affecting man in temperate and tropical conditions respectively.



15-Order: Homoptera: aphids and cicadas

Characteristics

The insects in this order are extremely diverse in their size, shape and colour., ranging in size from (1 – 110) mm in length.

Characteristics:

1-Head is deflexed.

2-Piercing - sucking mouthparts appearing as a sharply pointed tube known as a rostrum, which extends from the underside of the head.

3-2 pairs of wings, although some species may be wingless and others have only forewings. Wings are generally membranous.

4-Compound eyes of various forms

5- Antennae vary in shape (short, or long)

6-Scutellum not well developed

7-Many have glands secreting unpleasant odor honey dew • secretion.

8- Terrestrial living.

Major Family:

1-Family: Cicadellidae (Leaf hoppers or Jassids)

Characteristics:

- 1-Elongate insects. Attractively coloured.
- 2-Hind tibiae have a double row of spines.
- 3-They suck the plant sap and transmit diseases.

eg. Green leaf hopper *Nephotettix virescens*



2-Family: Cicadidae,

- 1-Have two pairs of membranous wings,
- 2- prominent [compound](#) eyes, and three simple eyes (ocelli).
- 3-Cicadas are medium to large in size, ranging from 2 -5 cm.
- 4-Male cicadas produce loud noises by vibrating membranes ([tymbals](#)) near the base of the [abdomen](#).



3.Family:Aphididae (Aphids or Plant lice or Greenflies)

1- Body is pear shaped

2- Both apterous and alate forms are found.

3- A pair of cornicles or siphunculi or wax tubes is present in the dorsum of fifth or sixth abdominal segments which secretes wax honey dew like substance.

The green apple aphid *Aphis pomi*



4-Family: COCCIDAE (Scale insects, Soft scales, wax, scales)

1-Sexual dimorphism is present.

Male : They are gnat like,

- with long antennae,
- lateral eye and vestigial mouth parts.
- Mesothorax is enlarged bearing one pair of wings with one or two veins.
- Hind wings are reduced to **halteres**. A quiescent stage is present in the life history.
- **Female** : Body segmentation is indistinct.
- Body wall naked and covered with a waxy coating.
- They are wingless, legless and suck the plant sap.

* The first instar nymph is active and is known as **crawler** which moults and becomes legless.

e.g. Coffee green scale *Coccus viridis*.



5. Family: Aphrophoridae (Frog hopper) - e.g. *Aphrophora parallela*



6. Family: Aleyrodidae (Whiteflies) e.g. Cotton whitefly *Bemisia tabaci*

