

**Lesson 4: Biodiversity/ Insects orders/ by Assis. Lecturer: Noor A. Zaki**

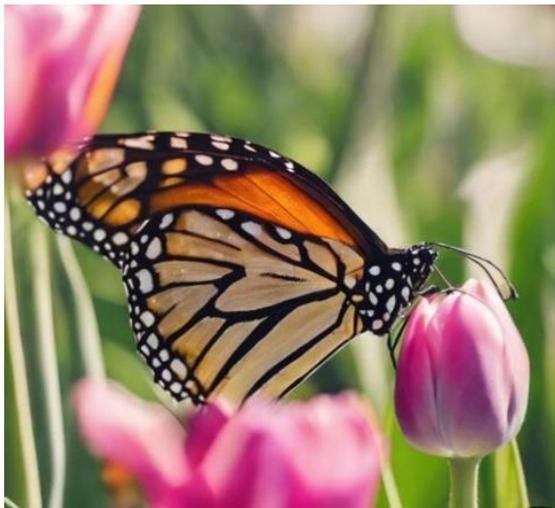
**1. Order Orthoptera**

- **Examples:** Grasshoppers, Crickets, Locusts.
- **Characteristics:** Straight front wings, chewing mouthparts.



**2. Order Lepidoptera**

- **Examples:** Butterflies, Moths.
- **Characteristics:** Scaled wings, siphoning mouthparts (proboscis).



### 3. Order Hymenoptera

- **Examples:** Bees, Wasps, Ants.
- **Characteristics:** Membranous wings, social behavior in some species.



### 4. Order Diptera

- **Examples:** Flies, Mosquitoes.
- **Characteristics:** One pair of wings, reduced hindwings (halteres).



## 5. Order Coleoptera

- **Examples:** Beetles.
- **Characteristics:** Hardened front wings (elytra) covering membranous hindwings.



## 6. Order Hemiptera

- **Examples:** True Bugs, Aphids, Cicadas.
- **Characteristics:** Piercing-sucking mouthparts, forewings partially hardened.



**7. Order Myriapoda** (Non-insect arthropods often studied alongside insects)

- **Examples:** Centipedes, Millipedes.
- **Characteristics:** Long bodies, many legs.



**8. Order Thysanura**

- **Examples:** Silverfish.
- **Characteristics:** Wingless insects with scaly bodies.



## 9. Order Neuroptera

- **Examples:** Lacewings, Dobsonflies, Antlions.
- **Characteristics:** Net-like wings, chewing mouthparts.



## 10. Order Isoptera (Now part of Blattodea)

- **Examples:** Termites.
- **Characteristics:** Equal-sized wings, social organization.



## 11. Order Dermaptera

- **Examples:** Earwigs.
- **Characteristics:** Shortened front wings, pincers on the abdomen.



## 12. Order Mantodea

- **Examples:** Praying Mantises.
- **Characteristics:** Raptorial front legs, triangular head.



### 13. Order Phthiraptera

- **Examples:** Head Lice, Body Lice.
- **Characteristics:** Parasitic, wingless insects.



### 14. Order Odonata

- **Examples:** Dragonflies, Damselflies.
- **Characteristics:** Strong membranous wings, chewing mouthparts.



### 15. Order Diplura

- **Examples:** Small soil-dwelling insects.
- **Characteristics:** Wingless, elongated bodies.

## 16. Order Blattodea

- **Examples:** Cockroaches, Termites.
- **Characteristics:** Flattened bodies, chewing mouthparts.

## 17. Order Ephemeroptera

- **Examples:** Mayflies.
- **Characteristics:** Short-lived adults, aquatic larvae.



## 18. Order Plecoptera

- **Examples:** Stoneflies.
- **Characteristics:** Aquatic nymphs, membranous wings.



## 19. Order Trichoptera

- **Examples:** Caddisflies.
- **Characteristics:** Hairy wings, aquatic larvae that build cases.



## 20. Order Psocoptera (Now merged with Phthiraptera)

- **Examples:** Booklice, Barklice.
- **Characteristics:** Small, winged or wingless, chewing mouthparts.

