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| <b>Subject</b>   | <b>Insect Taxonomy</b> |
| <b>Lect. No.</b> | <b>6</b>               |
| <b>Date</b>      | <b>10 / 31/ 2023</b>   |

**5-Order: Orthoptera (Grasshoppers, Locust, Katydid, Cricket, Mole cricket)**

**Synonyms: Saltatoria, Saltatoptera**

**Etymology: Ortho - straight; ptera-wings.**

**Common Characters:**

- 1.They are medium to large sized insects.
- 2.Antenna is filiform.
- 3.Mouthparts are chewing type.
- 4.Prothorax is large. Pronotum is curved, ventrally covering the pleural region.
- 5.Hindlegs are saltatorial (i.e. modified for jumping),
- 6.Forewings are leathery, thickened and known as tegmina. Hindwings are membranous with large anal area.
- 7.Cerci are short and unsegmented.
- 8.Ovipositor is well developed in female.
- 10.Specialized stridulatory (sound-producing) and auditory (hearing) organs are present.

## **Classification:**

This order is sub divided into two suborders;

### **I. Sub order: Caelifera**

#### **1. Family: Acrididae: (Locusts, Grasshoppers)**

1-Antenna is short

2-Tarsus 3 segmented

3- Ovipositor is short and horny

4- Tympanum is located one on either side of the first abdominal segment.

5- Sound is produced by femoro-alary mechanism. A row of peg like projections found on the innerside of each hindfemur is rubbed against the hard radial vein of the closed tegmen.

#### ***Schistocerca gregaria* Forks**



## 2- Sub order: Ensifera

### 1. Family: Tettigoniidae: (Katydid, Long horned grasshoppers)

#### Identifying characteristics for the family Tettigoniidae include:

- 1-Antennae long and threadlike (cf Acrididae).
- 2-Tarsi 4-segmented.
- 3-Tympanum at base of front tibia.
- 4-Ovipositor long and sword shaped.

#### *Decticus albifrons* (Cyr.)



## 2. Family-Gryllidae (Cricket)

Identifying characteristics for the family **Gryllidae** include:

1-. Ovipositor long and slender.

2-Antennae long.

3-Tympanum at base of front tibia, if present.

4-Tarsi 3-segmented.

5- Cerci are long and unsegmented.

6- Auditory organs and stridulatory organs are similar to long horned grasshopper. Males stridulate during night. They produce a shrill chirping noise

. *Gryllus sp.* - household pest.



### 3.Family: Gryllotalpidae : (Mole crickets)

#### Identifying characteristics for the family Gryllotalpidae include:

- 1-They are brown colored insects. Eyes are reduced.
- 2-Ovipositor long and slender.
- 3-Antennae long.
- 4-Tympanum at base of front tibia, if present.
- 5-Front legs broad and modified for digging (= fossorial).
- 6- Special stridulatory structure are absent. A humming sound is produced by rubbing the forewings.
- 7- A pair of tympanum is found on the outer surface of the tibiae.

#### *Gryllotalpa Gryllotalpa L.*



**4.Family: Gryllacrididae: Common name: camel cricket**

**Identifying characteristics for the family Gryllacrididae include:**

- 1-Large, hump-backed, with large femora and long, spine tibiae.
- 2-Usually wingless.
- 3-Tarsi usually 4-4-4.
- 4- Stridulatory and auditory organs absent.
- 5-Long antennae contiguous.



James L. Costner

#### 4. Family: *Stenopelmatidae*:

Identifying characteristics for the family *Stenopelmatidae* include:

1-A large, wingless insect, with a large orangish-yellowish head with eyes and antennae spread widely apart.

2-Abdominal segments are banded with black and whitish stripes.

3-Legs are stout with strong heavy spines for digging.

4-Jerusalem crickets can bite when handled. They are not poisonous.

#### ***Stenopelmatus fuscus***



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## 6-Order: Mantodea

Praying Mantids get their common name from the stance they commonly adopt. The fore legs are raised as if in the act of prayer, the name mantis is also derived from the Greek word for prophet.

### Main characteristics

#### Family: Mantidae ( Mantis )

1-Mantis are large, elongate, rather slow-moving insects.

2- Head is highly movable, s triangular in shape.

3-They have two very large compound eyes.

4-Prothorax is greatly longth.

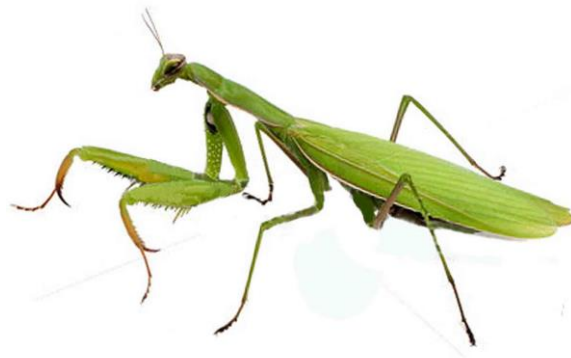
5-Fore-legs are modified for grasping prey.

6-Female mantids lay a large egg mass called an ootheca.

These insects are highly predaceous and feed on a variety of insects.

The Order Mantodea contains eight families of which the largest is the **Mantidae**.

#### *Mantis religiosa* L.





## **7-Order: Blattaria:** Cockroach

### **Identifying characteristics for the order Blattaria include:**

- 1-Body usually flattened and oval.
- 2-Head somewhat concealed from above by the pronotum.
- 3-Antennae long, bristle-like ( Setaceous ) type.
- 4-Legs long and slender, often spiny, adapted for running; tarsi 5 segmented.

### **Classification of the Blattaria**

- 1-Family: Cryptoceridae –
- 2-Family Blattidae -- oriental, American, and other cockroaches
- 3-Family Polyphagidae -- sand cockroaches and others
- 4-Family Blattellidae -- German, brown-banded, and wood cockroaches
- 5-Family Blaberidae -- Surinam cockroach and others

*Periplaneta americana* L.



## 8- Order: Dermaptera: earwigs

The order name is derived from Greek (derma=skin; pteron=wing). The common name is derived from the erroneous superstition that earwigs crawl into the ears of sleeping people. The order [Dermaptera](#) is cosmopolitan and currently consists of about 1200 named species. Dermaptera are most common in tropical and warm temperate regions.

### **Description:**

- 1- Elongate insects that measure up to 50 mm long. The head is prognathous, [mouthparts](#) are of the chewing type, and the [prothorax](#) remains free from [mesothorax](#).
- 2-The forewings are short, leathery, and elytriform or modified into tegmina. The hind wings are large, membranous, fanlike or circular, and folded under the forewings when the insect is at rest.
- 3-The legs are cursorial, tarsus 3 segments.
- 4-The abdomen is often telescopic, and the cerci are modified into forceps that can pinch if the earwig is handled.
- 5-Earwigs are typically nocturnal insects that are sometimes collected at lights.

## Major Families of Order:

1-Family: Forficulidae (Common earwings) — *Forficula auricularia*.



2-Family: Labiduridae — Reddish-brown earwing - *Labidura riparia*



3-Family: Carcinophoridae — Dark brown - *Euborellia annulipes*



## 9-Order: Thysanoptera – Thrips

Thrips are small winged insects ranging in size from 0.5-15mm in length. They are closely related to [bugs \(Hemiptera\)](#) with similar sucking mouthparts

### Description and identification:

- 1- Cylindrical, elongate body.
- 2-Sucking and rasping mouthparts.
- 3-2 pairs of slender membranous wings that are fringed with long hairs.
- 4-Legs that end in a bladder-like organs not a typical tarsal claw.

### Major Families of Order:

- 1-Family:Thripidae, common thrip e.g. *Belothrips morio*
- 2-Family: Heterothripidae e.g. *Heterothrips vitis*
- 3-Family: Melanthripidae e.g. *Melanthrips digitus*



## 10-Order: Embioptera-Webspinners/Embids

The order **Embioptera**, are a small group of mostly tropical and subtropical insects. More than 400 species in 11 families have been described, the oldest known fossils of the group being from the mid-[Jurassic](#).

### Description:

1-Usually reddish, range in length from 15 - 20 mm. The body form of these insects is completely specialized for the silk tunnels

2-cylindrical, long, narrow and highly flexible.

3-The head has projecting mouthparts with chewing mandibles.

4- The compound eyes are kidney-shaped, there are no ocelli.

5- Antennae the thread-like are long, with up to 32 segments, flexible.

### Major Families of Order:

1- Family: Embiidae e.g. ***Embia spp***

2- Family: Australembiidae

3- Family: Teratembidae

