

#### 4. ORDER Orthoptera: Grasshoppers Crickets and Katydid

**Etymology:** Greek “ortho” meaning straight and “ptera” meaning wing, refers to the parallel-sided structure of the front wings (tegmina).

Hemimetabola - incomplete metamorphosis

##### **Key Characters:**

- Filiform antennae
- Hind legs modified for jumping
- Front wings thickened and parallel-sided (tegmina) to protect membranous, fan-shaped hind wings

##### **Common Families:**

##### **I. Short horned Grasshoppers**

Acrididae - Grasshoppers

Tetrigidae - Pygmy grasshoppers

Tettigoniidae - Long horned grasshoppers

##### **II. Tettigoniidae — Katydid**

Gryllidae - House, field, and tree crickets

Gryllotalpidae - Mole crickets

Rhaphidophoridae - Cave and camel crickets


##### **Economic Importance:**

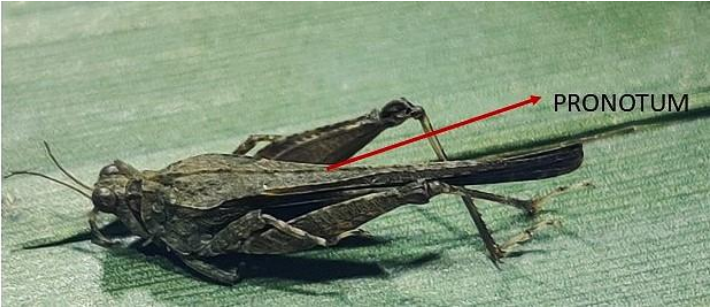

- Orthoptera is generally regarded as a dominant group in most terrestrial habitats. These insects feed on all types of plants and often cause serious economic damage.
- Swarms of grasshoppers (locusts) regularly appear in parts of Africa, Asia, and North America and destroy crops over wide land areas.
- Mole crickets are major pests in lawns and golf courses in the southern United States.
- Several species of field crickets are reared commercially as fish bait.

##### **Major Families:**

1. Caelifera – Grasshoppers & locusts


(Short antennae, diurnal, strong jumpers)





| Family    | Common Name           | Key Features  |
|-----------|-----------------------|---|
| Acrididae | Grasshoppers, locusts | Most common; short antennae; powerful hind legs; swarming species (e.g., locusts)<br> |


| Family                | Common Name        | Key Features   |
|-----------------------|--------------------|--|
| <b>Tetrigidae</b>     | Pygmy grasshoppers | <p>Small size; pronotum extends over abdomen; found near water</p>   |
| <b>Pyrgomorphidae</b> | Gaudy grasshoppers | <p>Brightly coloured; often toxic or unpalatable; stout-bodied</p>  |

## 2. Ensifera – Crickets & katydids

(Long antennae, mostly nocturnal, sound-producing)

| Family           | Common Name   | Key Features   |
|------------------|---------------|--|
| <b>Gryllidae</b> | True crickets | <p>Long antennae, males chirp by stridulation, flattened bodies</p>  |

| Family          | Common Name             | Key Features  |
|-----------------|-------------------------|---|
| Gryllotalpidae  | Mole crickets           | <p>Burrowers; shovel-like forelegs; produce sound from underground</p>  <p>Burrowing/ Fossorial legs</p> <p><a href="https://commons.wikimedia.org/w/index.php?curid=1635440">https://commons.wikimedia.org/w/index.php?curid=1635440</a></p> |
| Tettigoniidae   | Katydid / bush crickets | <p>Leaf-like appearance; long antennae; loud, musical calls</p>    |
| Stenopelmatidae | Jerusalem crickets      | <p>Large, heavy-bodied; mostly nocturnal; dig in soil</p>  <p>By Calibas, <a href="https://commons.wikimedia.org/w/index.php?curid=12001909">https://commons.wikimedia.org/w/index.php?curid=12001909</a></p>                                |
| Mogoplistidae   | Scaly crickets          | <p>Covered in fine scales; live in leaf litter or under bark</p>  <p>By © entomart <a href="https://commons.wikimedia.org/w/index.php?curid=850475">https://commons.wikimedia.org/w/index.php?curid=850475</a></p>                          |

| Family           | Common Name    | Key Features  |
|------------------|----------------|---|
| Rhaphidophoridae | Camel crickets | <p>Scavengers. Most species have a distinctly hump-backed appearance; a few are cave dwellers.</p>  |

### Stridulation in Orthoptera

- In many species of Orthoptera, the males use sound signals (**chirping or whirring**) to attract a mate. The sound is produced by stridulation.
  - Each stridulating species produces a unique mating call.
  - Many grasshoppers produce ultrasonic mating calls.
  - Species that produce sound also have auditory (tympanal) organs on the tibia of the front legs or on the sides of the first abdominal segment.
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- The snowy tree cricket, *Oecanthus fultoni* (family Gryllidae), is also known as **temperature cricket**. Adding 40 to the number of chirps it makes in 15 seconds will equal the ambient temperature in degrees Fahrenheit.
  - The red-legged grasshopper *Melanoplus femurrubrum* is not only a crop pest but also **the intermediate host for a tapeworm *Choanotaenia infundibulum*** that infests poultry