THROXA

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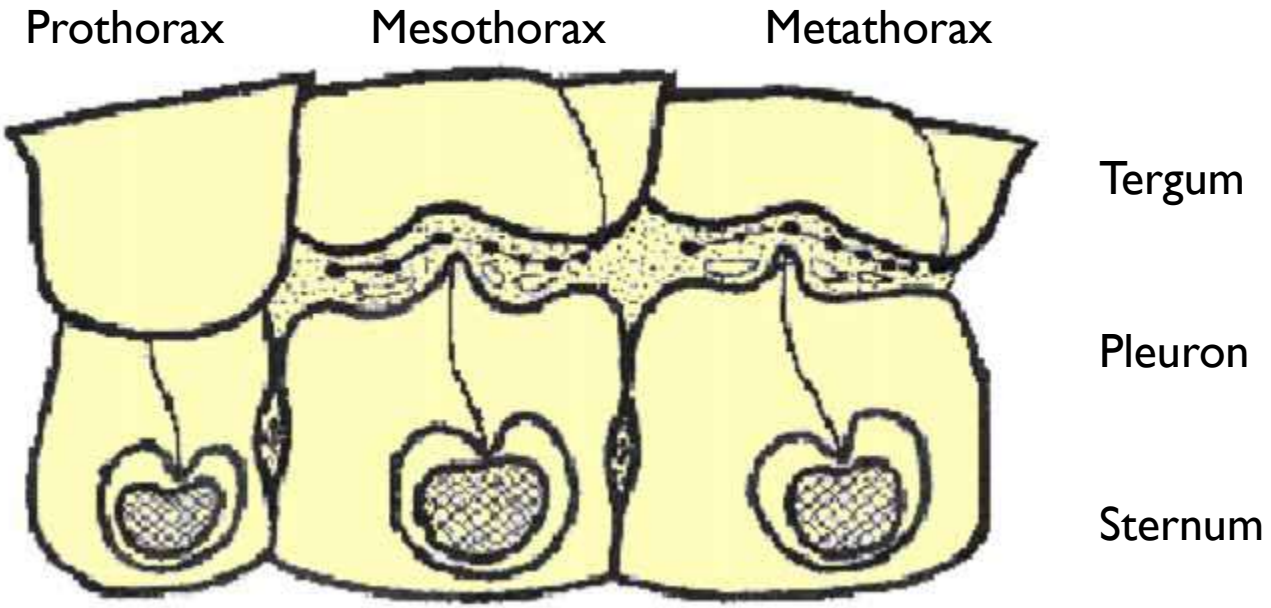
Why Study the Insect Thorax?

- Structure determines how an insect moves through its habitat.
- Wings determine flight capability
- Legs determine how it moves and digs on land


Prothorax
Mesothorax
Metathorax
Tergum
Pleuron
Sternum

Insect wings

- Insects are the only invertebrates that can fly. Their wings develop as evaginations of the exoskeleton during morphogenesis but they become fully functional only during the adult stage of an insect's life cycle.

- Forewing attached to mesothorax, hindwing to metathorax. Meso and metathoracic segments are reinforced, to help support wing muscles during flight.

- Wings serve not only as organs of flight, but also may be adapted variously as
- Protective covers (Coleoptera and Dermaptera)
- Thermal collectors (Lepidoptera)
- Gyroscopic stabilizers (Diptera)
- Sound producers (Orthoptera)
- Visual cues for species recognition and sexual contact (Lepidoptera).

Wing adaptations and modifications

membranous wings

- membranous wings: are characterized by having thin, unscleritized (meaning not leathery or hard) membranes between the veins of the wings, ex. Butterflies

Lancewings

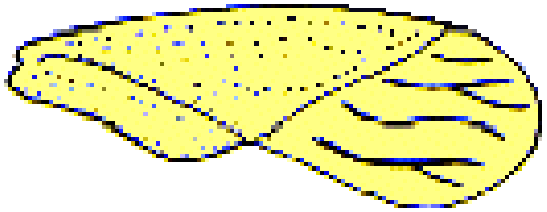
- Lancewings: They are characterized by a wide coastal field in their wing venation, which includes the cross-veins. **Chrysopidae**

Elytr

- Elytr: hard, sclerotized front wings that serve as protective covers for membranous hind wings, ex. Coleoptera and Dermaptera

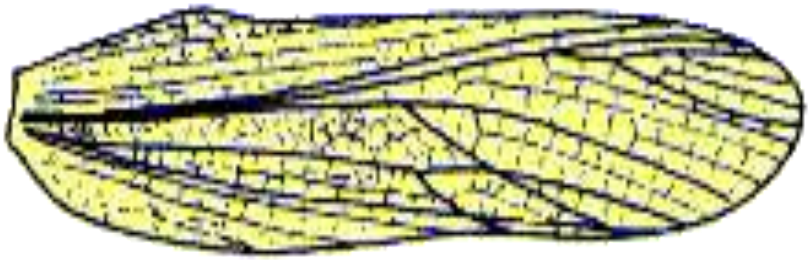
Hemelytra

- Hemelytra: half membranous forewing of true bugs, ex. Heteroptera



Tegmina

- Tegmina: front wings that are completely leathery or parchment-like in texture, using to protect back wing. Orthoptera

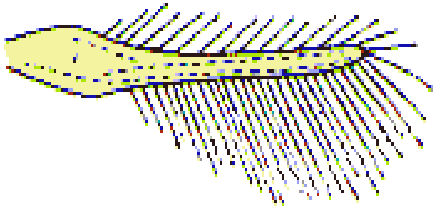


Halteres

- Halteres: small, club-like hind wings that serve as gyroscopic stabilizers during flight. Diptera

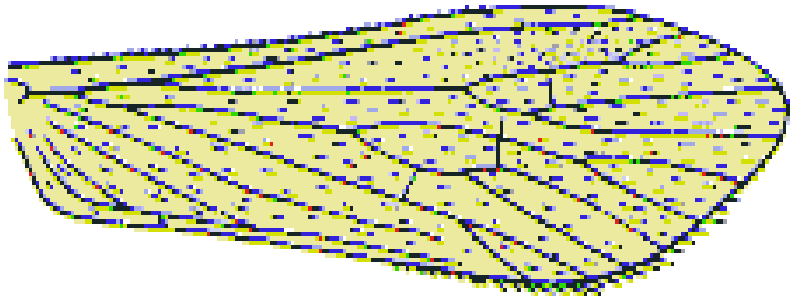
Fringed wings

- Fringed wings: slender front and hind wings with long fringes of hair, Thysanoptera



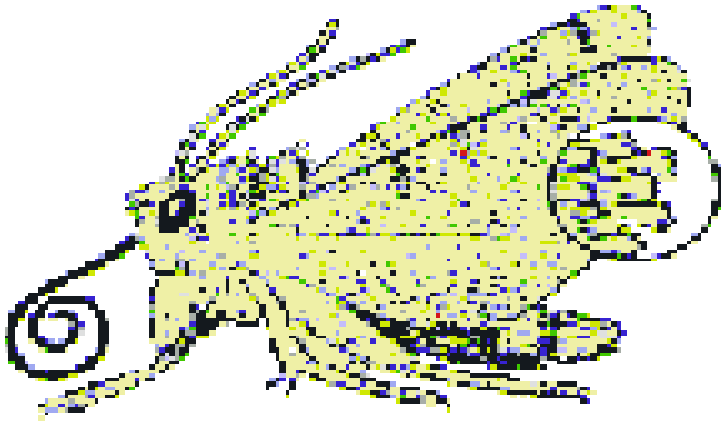
Hairy wings

- Hairy wings: front and hind wings clothed with setae, Trichoptera



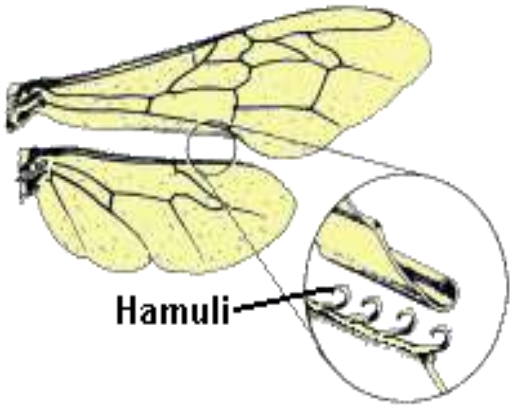
Scaly wings

- Scaly wings : front and hind wings covered with flattened setae (scales). Lepidoptera



Coupling mechanism

- Hamuli: tiny hooks on hind wing that hold front and hind wings together, Hymenoptera



Frenulum : Bristle near base of hind wing that holds front and hind wings together, Lepidoptera