

LIVE WORKSHOP ON:

INSECTS INSIDE-AND-OUT



SOFRONIOS ZAFEIRIADIS
GEORGIA BALIOTA



WHY ANATOMY?

1. Insects are **key models** in genetics, behavior, and physiology.
2. Anatomy underpins effective **sexing, staging, dissection, and rearing**.
3. Knowing what to look for **enhances success in lab and applied research**.

MEET THE CAST!

Starring today:



*Alphitobius
diaperinus*



*Hermetia
illucens*



*Zophobas
morio*



*Rhyzopertha
dominica*



*Tenebrio
molitor*



*Tribolium
castaneum*



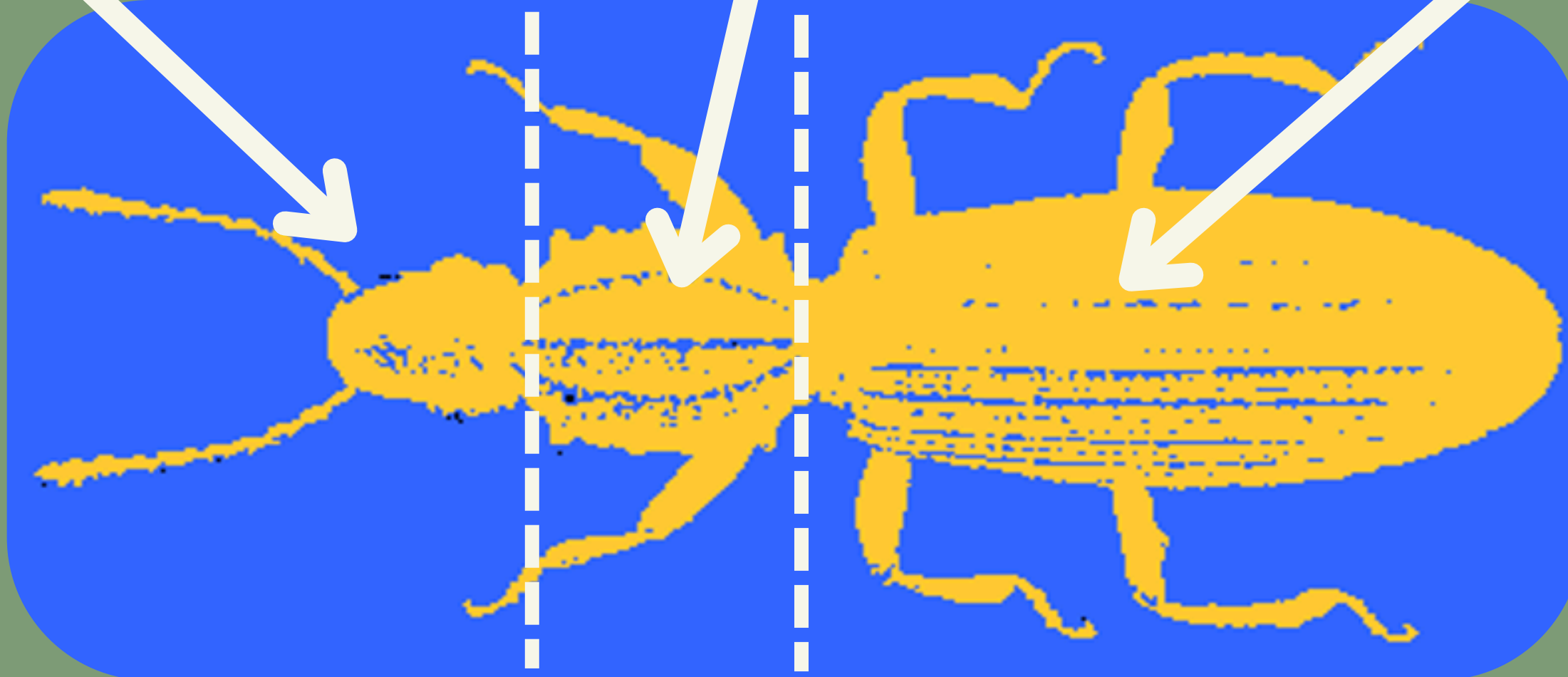
*Prostephanus
truncatus*

BASIC BODY PLAN

HEAD

THORAX

ABDOMEN



HEAD & SENSES



COMPOUND
EYES
& OCELLI



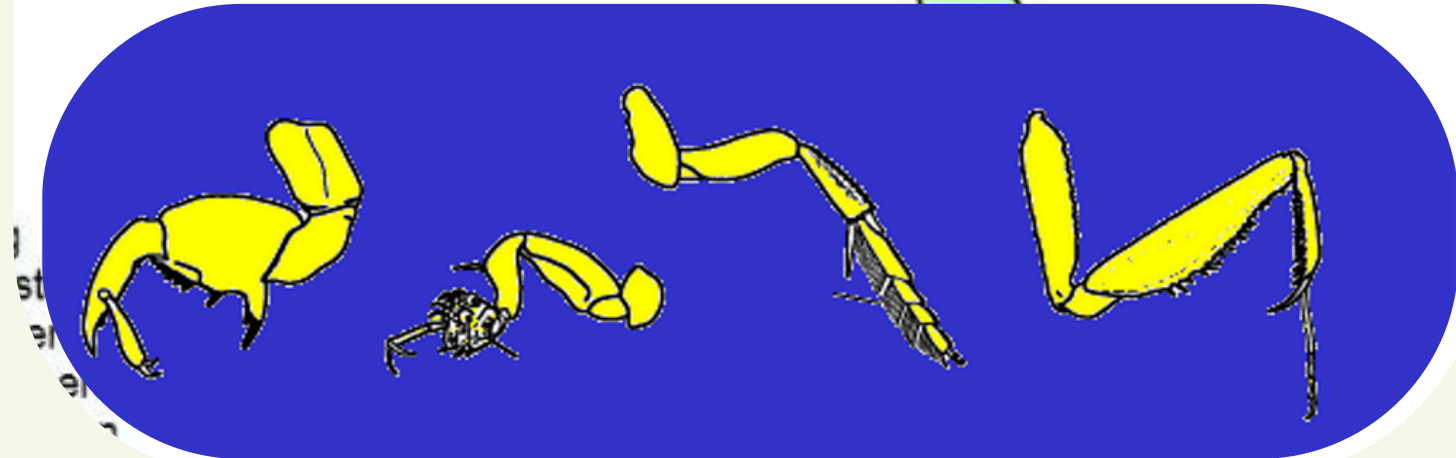
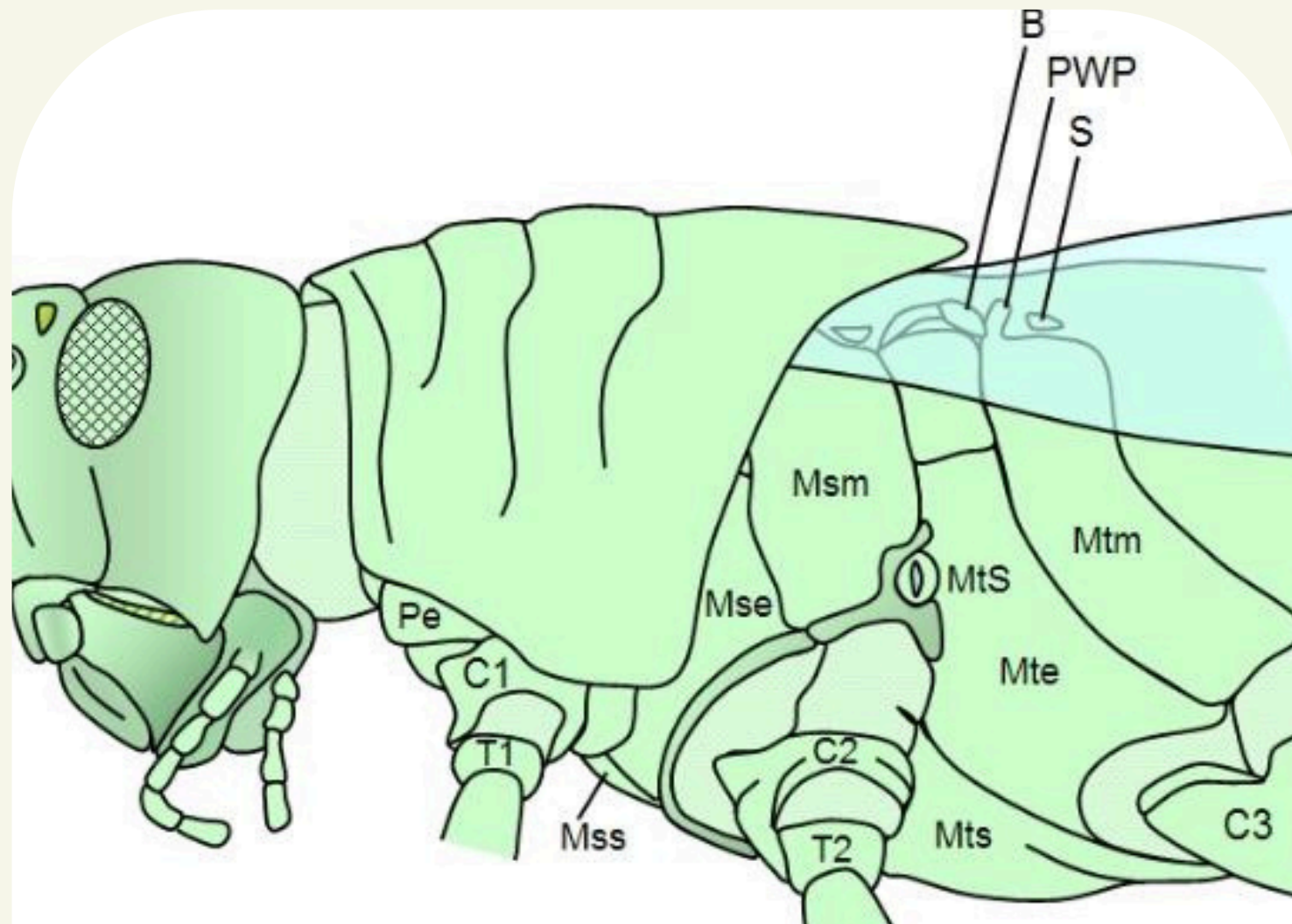
ANTENNAE



MOUThPARTS



THORAX



THORAX

3 thoracic segments:

- prothorax, mesothorax, metathorax

LEGS

Specialized:

- digging, grasping, swimming, suction

WINGS

Attached either to:

- Mesothorax
- Metathorax

ABDOMEN

Many segments/spiracles for respiration

Flexible for oviposition, digestion, movement

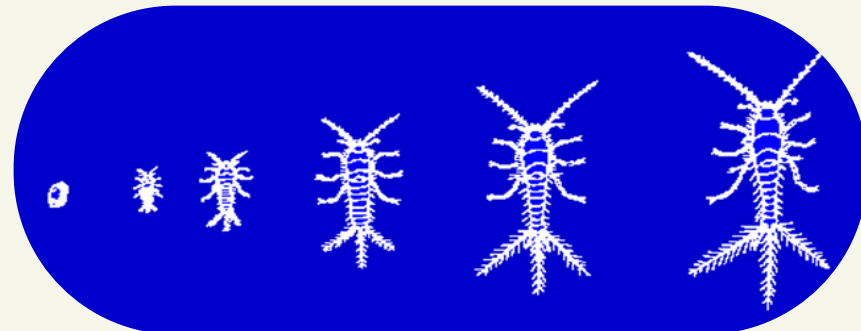
Contains reproductive and excretory systems



LIFE STAGES & METAMORPHOSIS

AMETABOLOUS

**Without
metamorphosis**



HEMIMETABOLOUS

**Gradual
Metamorphosis**

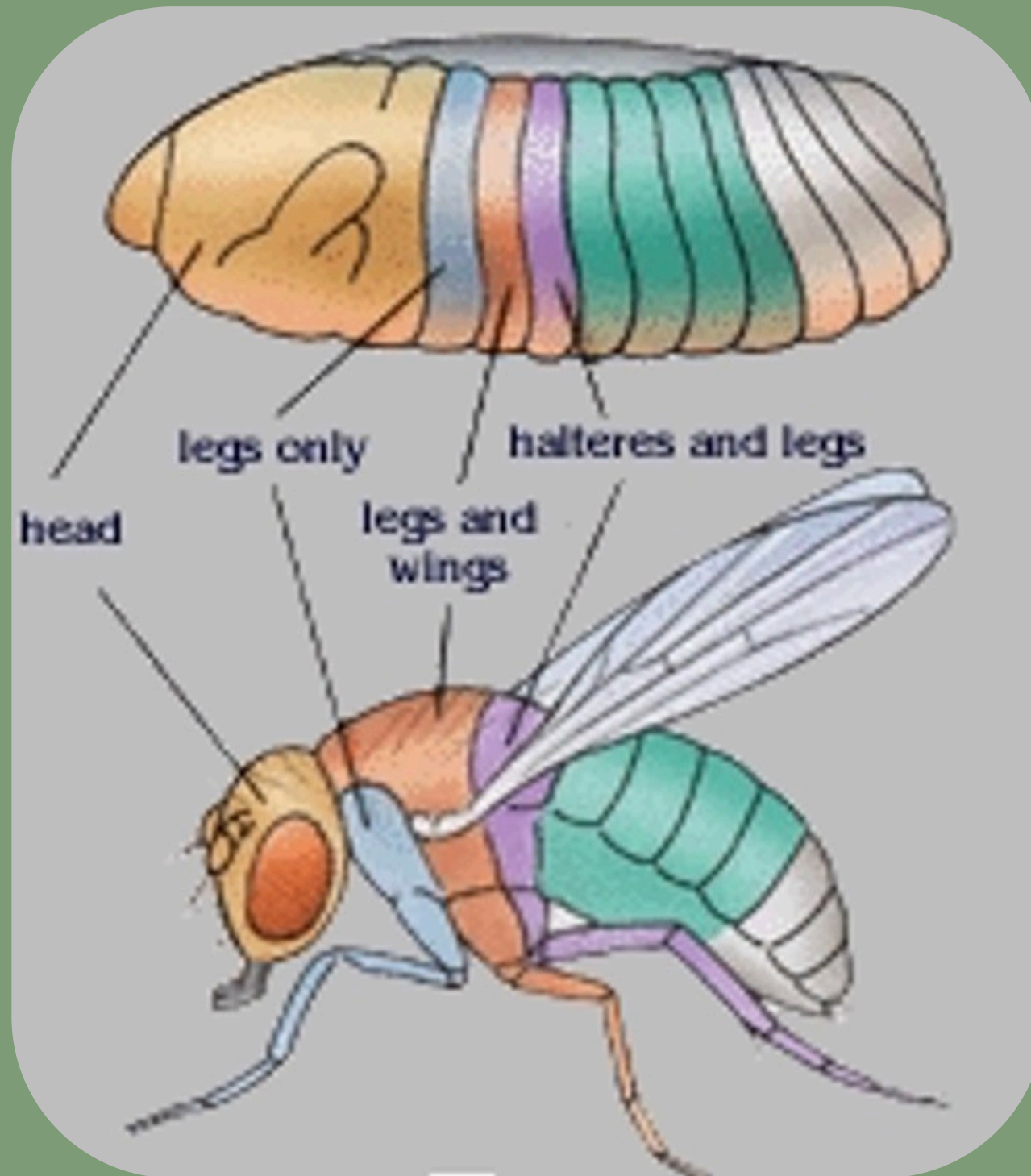


HOLOMETABOLOUS

**Complete
Metamorphosis**



ADULTS



Adult insects develop as a composite of fused segments with specific body part associations.

SEXUAL DIMORPHISM

DIPTERA

Eyes: Males have holoptic (touching) eyes; females are dichoptic (separated)

Abdomen: Narrow and tapered in males; broader in females with visible ovipositor in some species

TENEBRIONIDAE

Size: Females are typically larger with a fuller abdomen

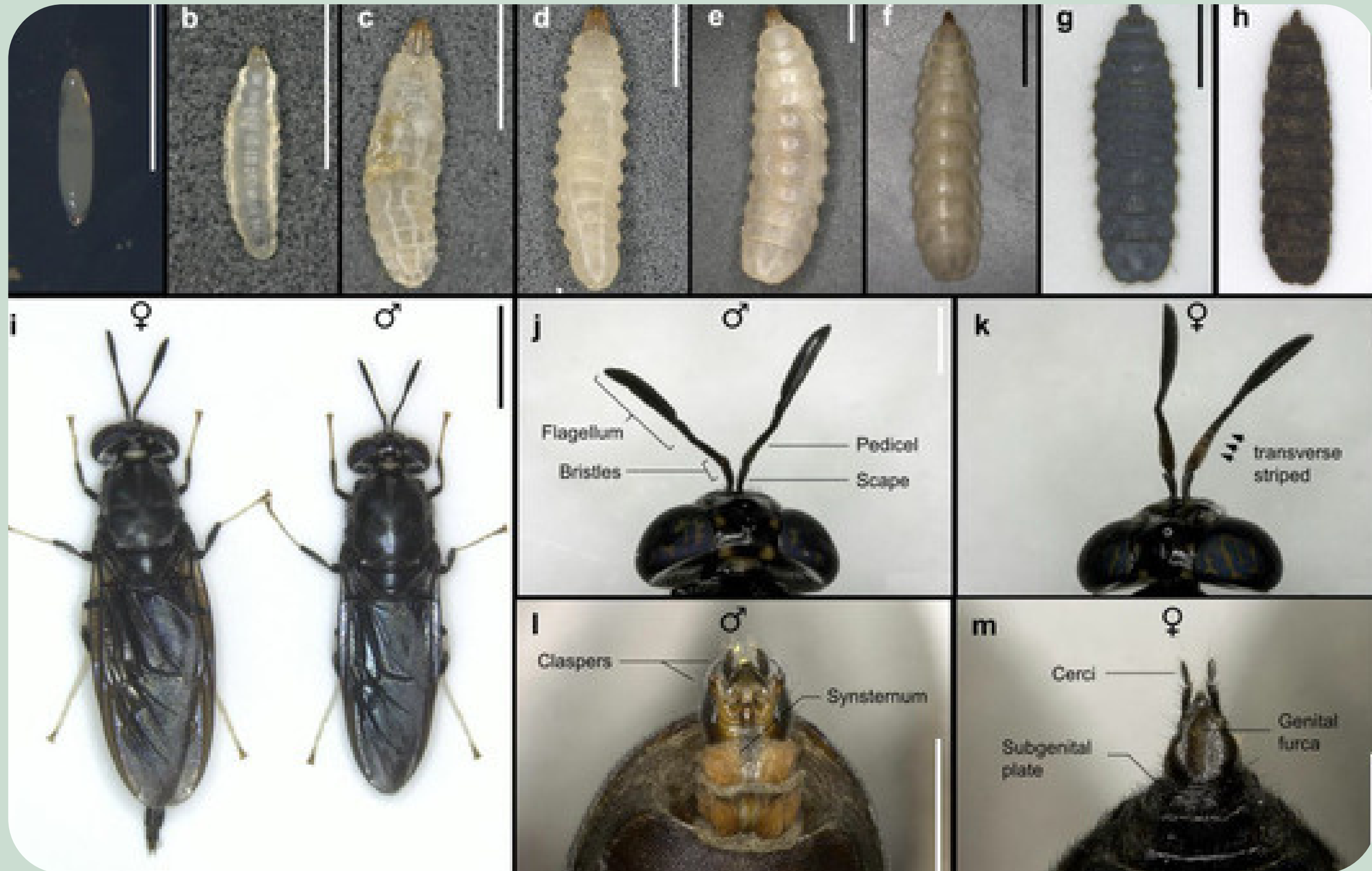
Genital Tip: Males may show everted genitalia or darkened last tergites

BOSTRICHIDAE

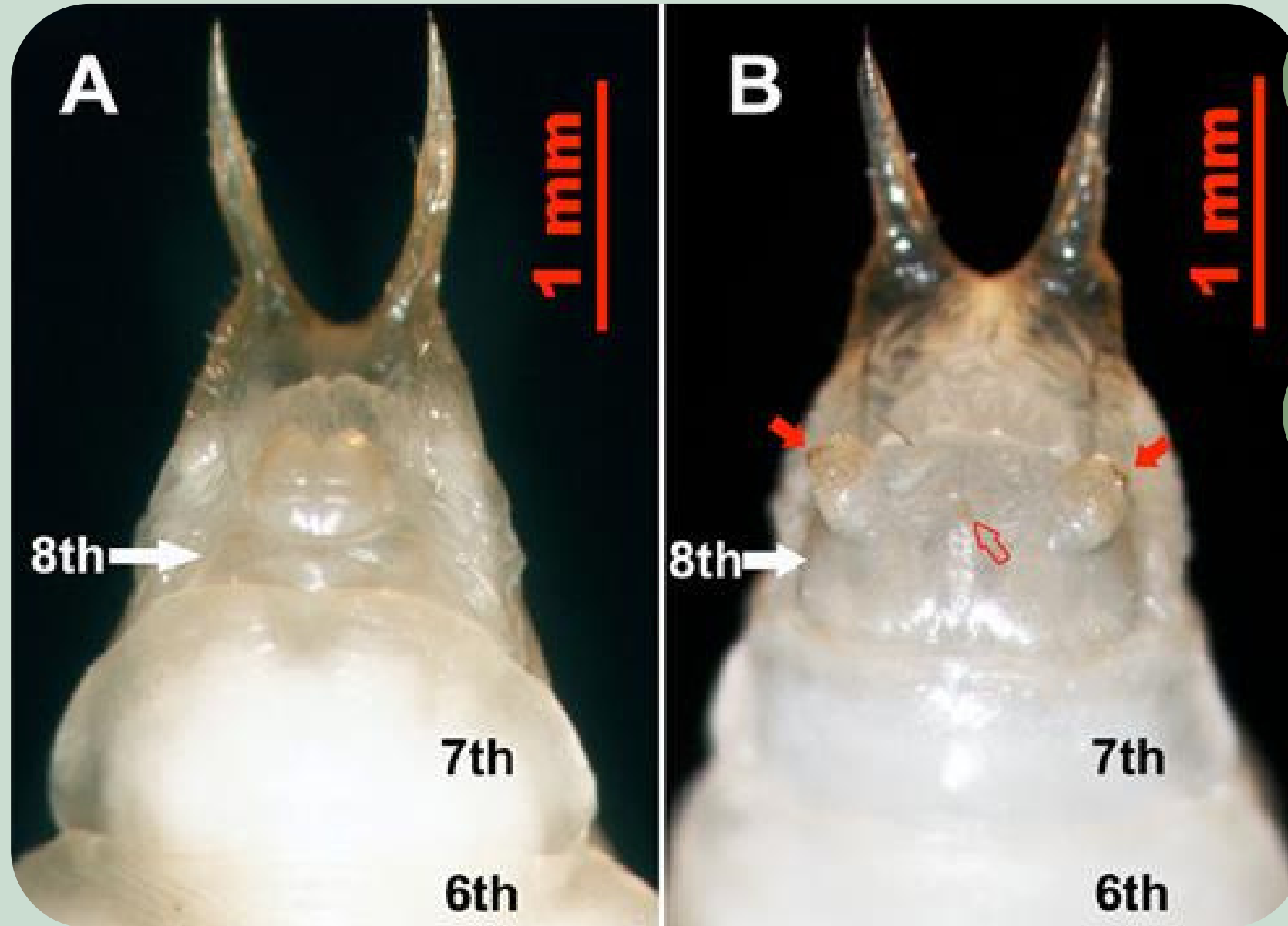
Sexual dimorphism is subtle

Head: Females may show pronounced horns or tubercles

Hermetia illucens



TENEBRIONIDAE

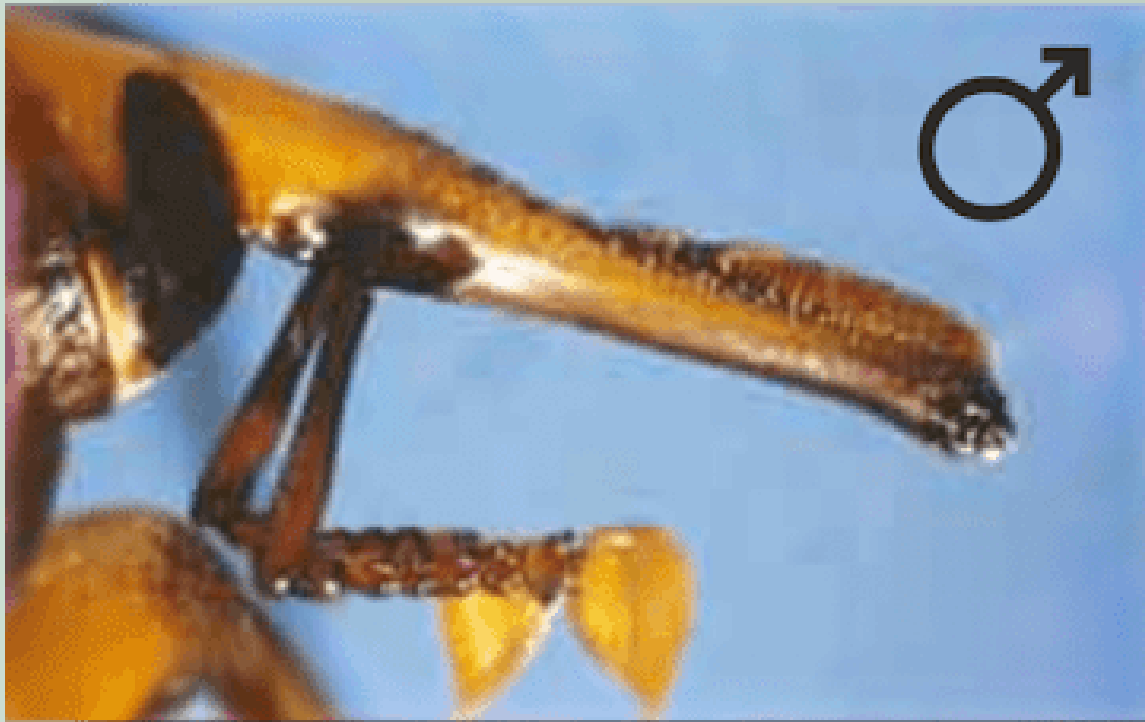


Tenebrio molitor

Alphitobius diaperinus

Zophobas morio

BOSTRICHIDAE



Sitophilus oryzae



Prostephanus truncatus

Rhyzopertha dominica