



Forest Entomology

Photo: Ponderous borer

Eukaryota

Domain

Animalia

Kingdom

Arthropod

Phylum

Insecta —————

Class

To cut up

Order

→ Segmented

bodies in 3 parts

Family

Pliny the Elder

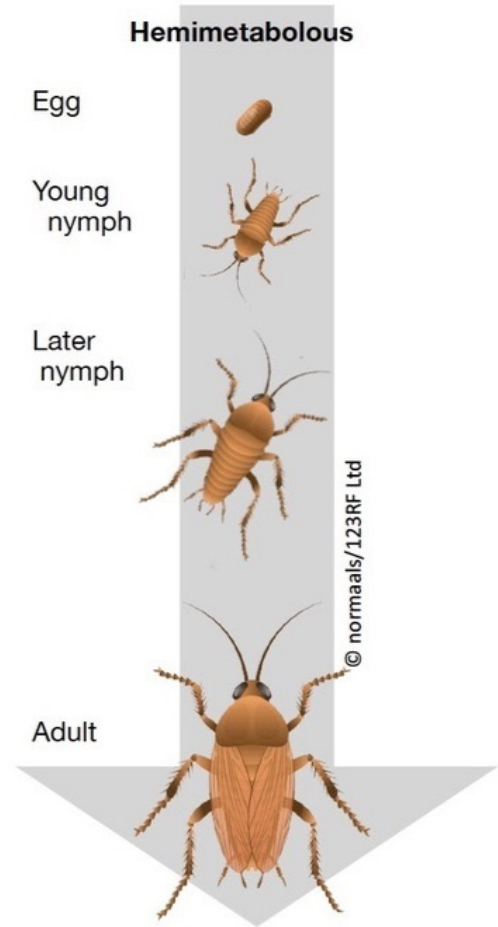
Genus

Species

Hemimetabolous insects

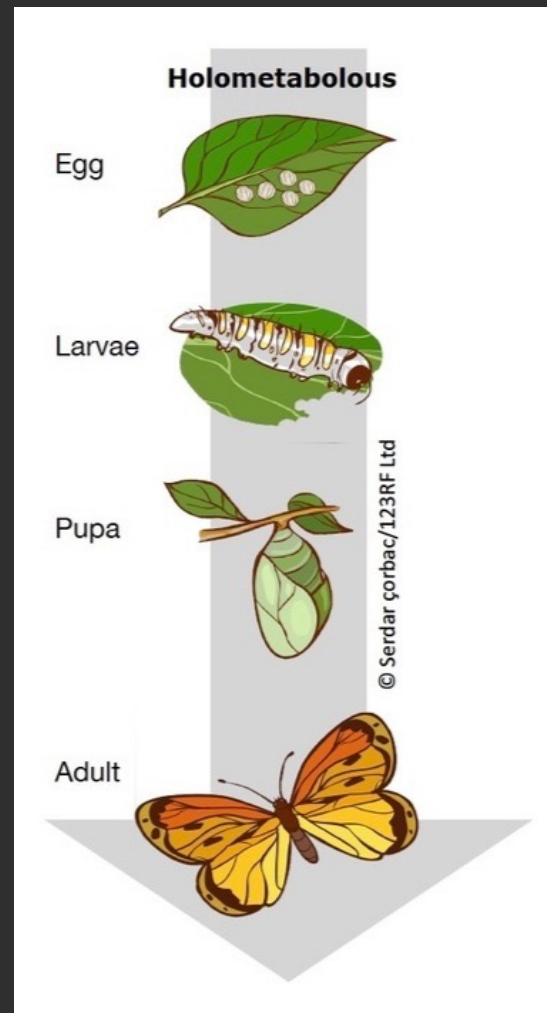
→ Development is a series of molts
↳ shed exoskeleton
where nymphs look like adults.

Nymph = young stages; not reproductive nature



Holometabolous

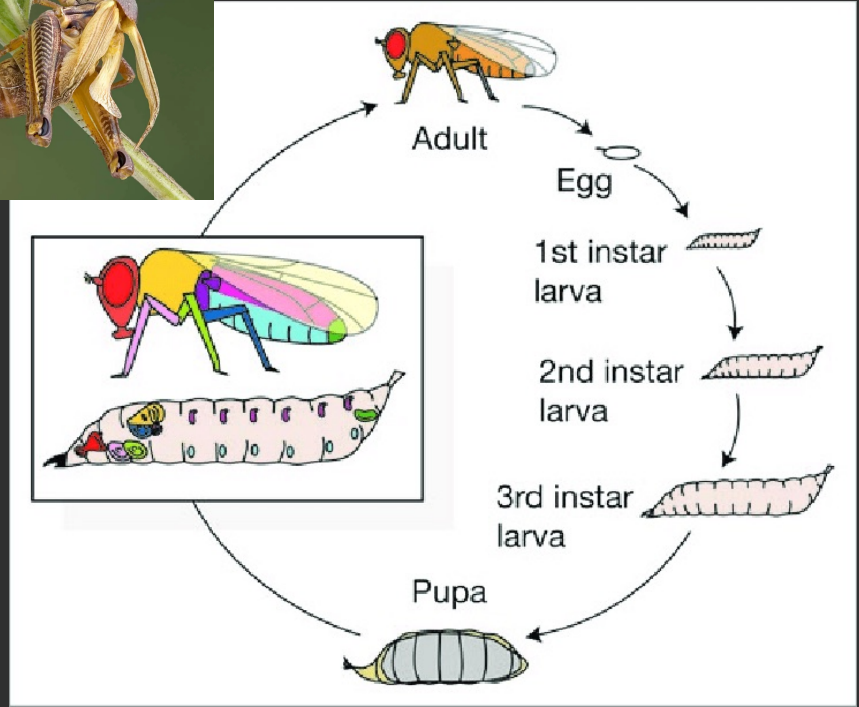
→ complete metamorphosis
occurs, nymphs unlike adults



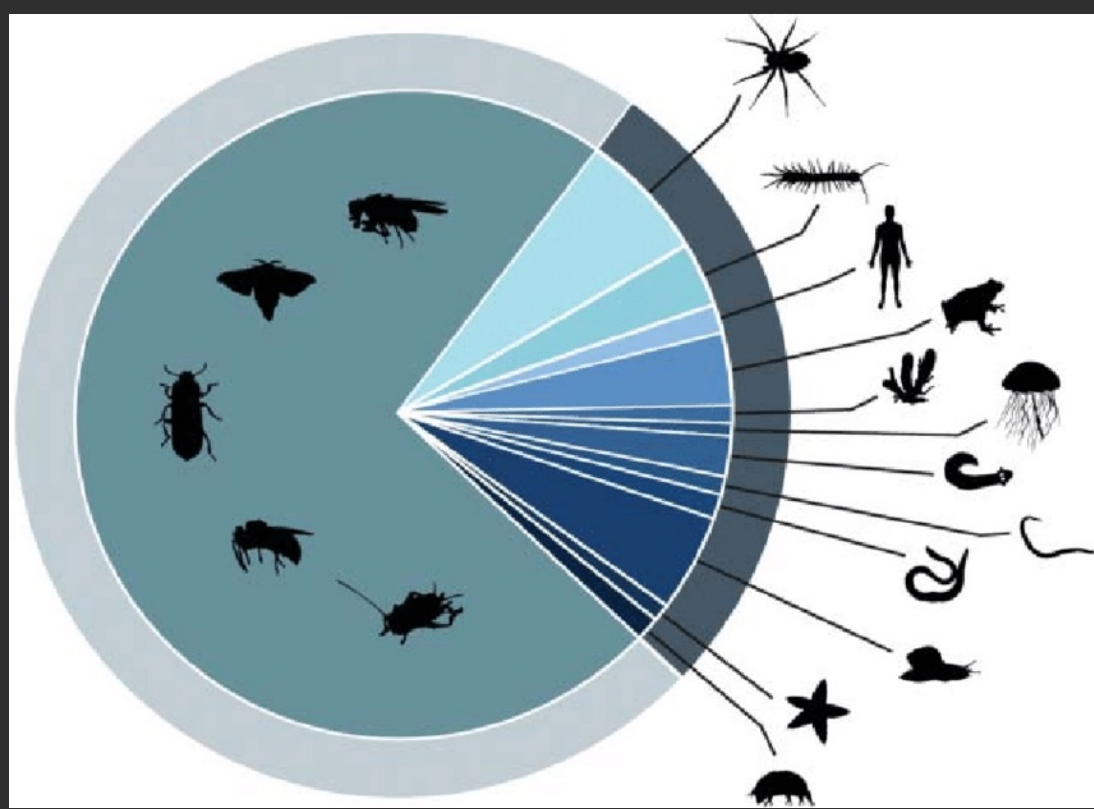
All insects
have eggs

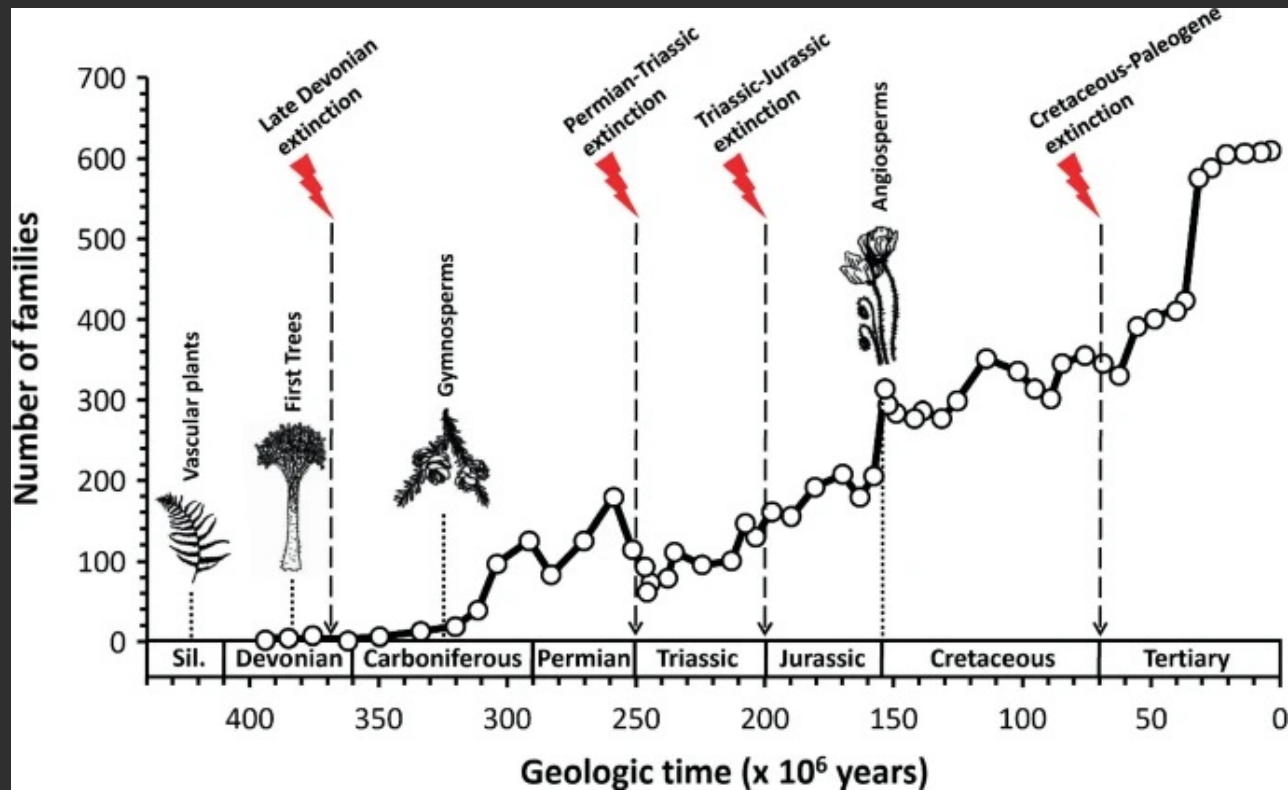


→ Each stage of
life that is
free living and nymph
is called instar



Insects are
the most
diverse
animal group.



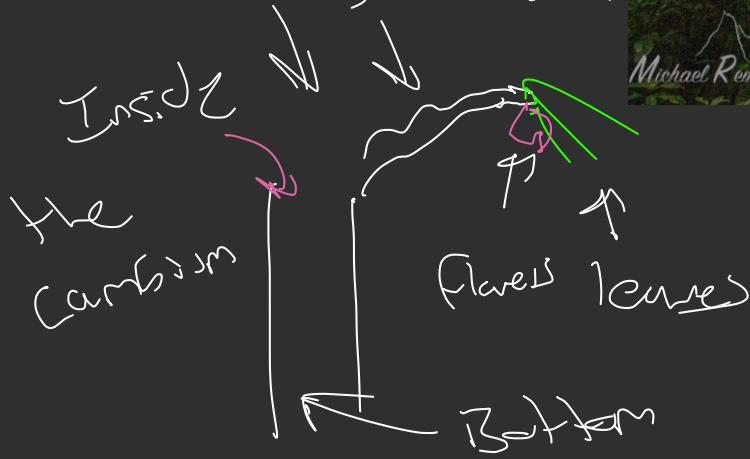


→ Insects

depend on
trees for

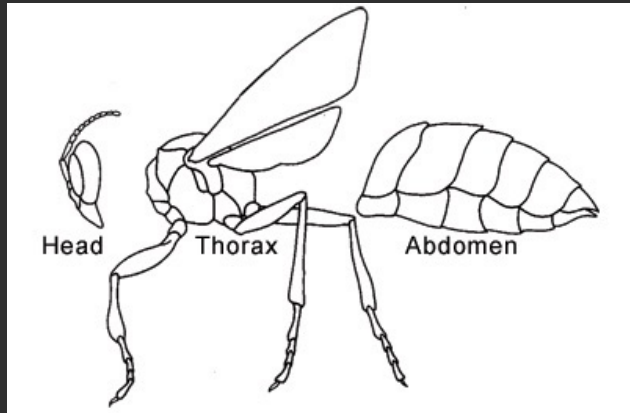
food/habitat

for Branches & fruits



Cambium = living tissue
just inside bark = phloem

1. 2. 3.



3 pairs of legs attached @ thorax





Lepidoptera

4
Orders
important
for pests



Hymenoptera



Coloptera



Hemiptera



optera = wings



Lepidoptera = Butterflies and moths
↳ scale

Hymenoptera = bees, wasps, ants
↳ membrane saw flies
Marriage?



Coleoptera = True beetles
↳ sheath



Hemiptera = True bugs
↳ half wing



Feeding Guilds

↳ Phytophagus

↳ leaf ↳ feeding

- Leaf feeding

insects of lepidoptera and
hymenoptera



Phloeophagus

↳ Phloem feeding
of what order?



Coleoptera

Family Scolytidae

↳ Gnawing

Bark beetle

Xylophagous

Xylem feeding

- Mostly hymenoptera

- Aphids; other insects with sucking structures



Mycophagus
— Fungus Feeding



Ambrosia
beetle larvae
feed on blue
stain fungus

— Zoophagy

— Saprophagy

— Feces feeding



Collembola

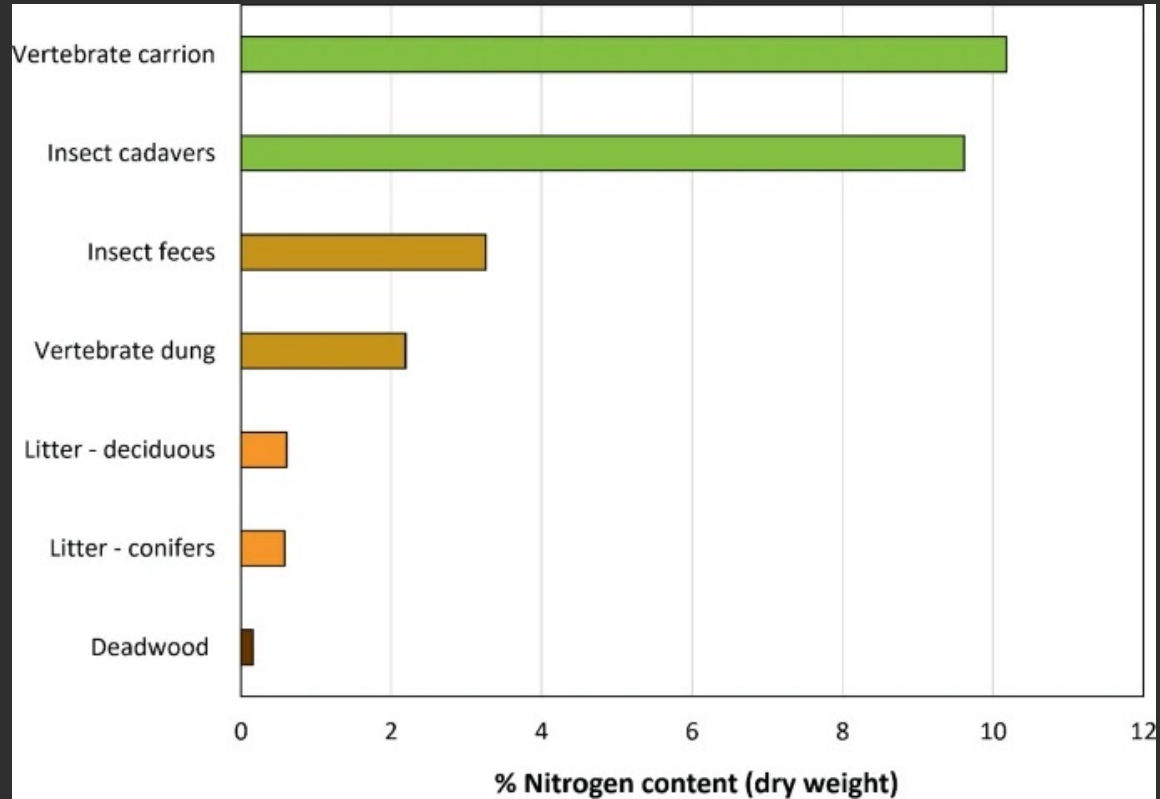
-Arthropods



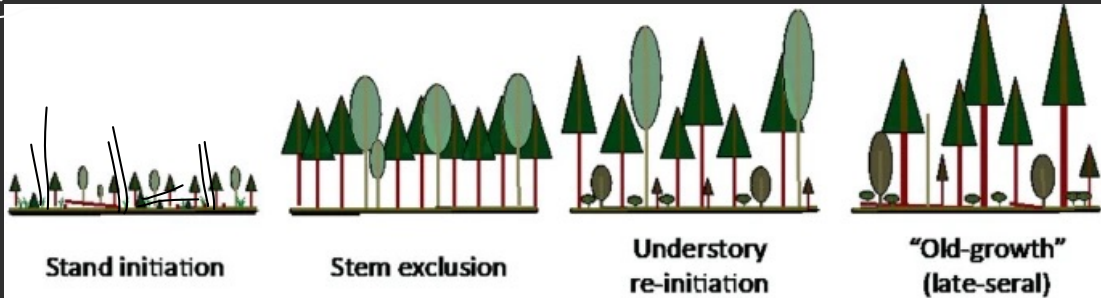


Insects

= nutrition



Disturbance



Standing Dead & down dead
high density
structural complexity
Dead & down

Where is insect diversity highest?