

Subphyllum Myriapoda

- Terrestrial arthropods, 13000 species, 10-750 legs
- 1 pair of antennae, simple eyes
- Tagmata: head and nearly uniform body

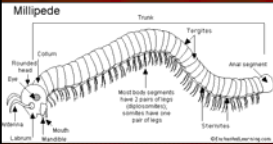


symphyla

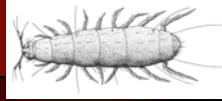
chilopoda



diplopoda



pauropoda



Myriapoda

- 2 segmented mandibulae
- Malpighian tubes – excretory organs
- More than 6 pairs of walking legs in adults
- Progoneata (opening of genitalia in front part of body) or opisthoneata (rear part of body)
- 4 classes



Pauropoda

- 500 species of soil dwelling myriapods
- Small (up to 2 mm)
- Diplosomites (more legs than segments)
- Mostly 9 pairs of legs (8-11)
- No eyes, 5 pairs of long sensory setae
- Feed on fungal hyphae.



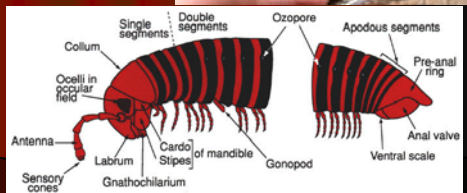
Symphyla

- 200 species superficially resembling small centipedes
- 2-10 mm, soft bodies
- 1st larva 6 pairs of legs, adult: 10-12
- No eyes
- Tip of abdomen with cerci
- Herbivores, detritivores, maybe serious pests in gardens, greenhouses etc.



Millipedes (Diplopoda)

- 10 000 species
- Most segments are diplosomites (fused 2 segments)
- Detritivores, rarely pests
- Up to 40 cm long, black to brown
- *Archispirostreptus gigas* (up to 40 cm) as pet animal
- defense mechanism is to curl into a tight coil
- Poisonous glands, nearly harmless to humans
- Anamorphic



Polyxenus lagurus,



Polyxenus



● *Polydesmus*

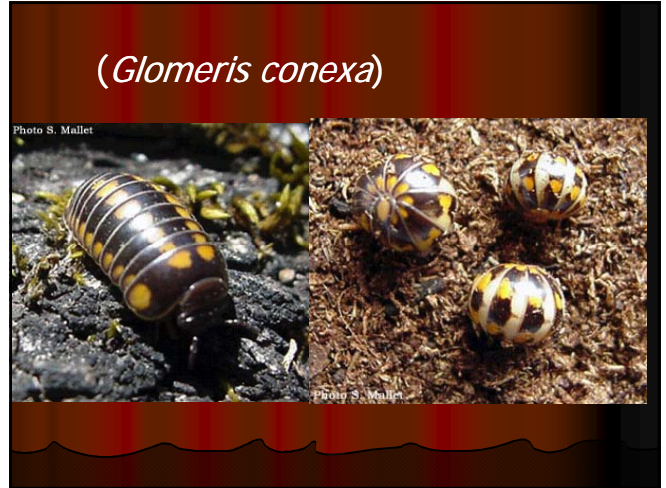


Photo S. Mallet

Photo S. Mallet

Centipedes (Chilopoda)

- 3 000 species, predators
- 1 st legs form **maxillipeds** ending in sharp claws and include poison glands
- Dorsoventrally flattened or rounded body up to 30 cm (*Scolopendra gigantea*)
- Opening of reproductive organs on last segment
- Primitive forms are anamorphic, more advanced epimorphic

● *Scolopendra*

- **Lithobiomorpha**

- **Scolopendromorpha**

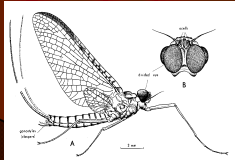
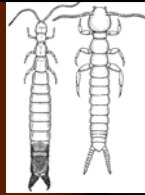
- **Scutigeroformorpha**
- 15 pairs of long legs

● **Geophilomorpha**
more than 31 pairs of legs, small head

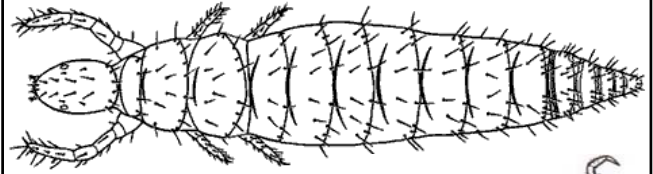
<h3>Centipedes</h3> <ul style="list-style-type: none"> ● Predators ● 1 segment-1pairs of legs ● Genital opening on last segment 	<h3>Millipedes</h3> <ul style="list-style-type: none"> ● Detritus feeders ● Mostly diplosegments ● Genital opening on front part of body
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Hexapoda

- Largest group of organisms
- Tagmata: head, thorax (3 pairs of walking legs), abdomen (no walking legs)
- Probably allied to crustaceans



Protura



Small (less than 2 mm) soil dwelling, anamorphic, 750 spp., lacking eyes and antennae, styli on 1-3 abdominal segments, no cerci, feed on fungi, vectors of mycorrhizae, entognathous



Diplura

2-5mm, 800 species, soil dwelling, two long cerci (Campodeidae) or pincer-like (Japygidae), feed on fungi or (Japygidae) predatory, entognathous



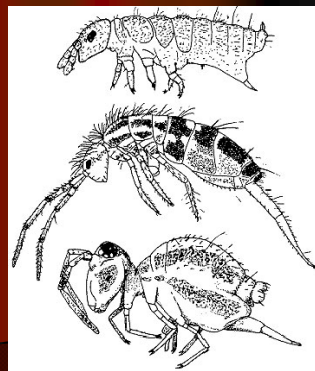
Campodeidae

Japygidae



Springtails (Collembola)

- The largest taxon of entognathous hexapods (8000 species)
- Up to 10 mm, up to 6 abdominal segments, three appendages: ventral tube (1st segment), 3-segmented furca (4th) and retinaculum (3rd)
- Small prothorax, no tracheae
- Tibiotarsus, eye: max 8 ommatidia



Entomobrya



Folsomia



Tetrodontophora



Tomocerus

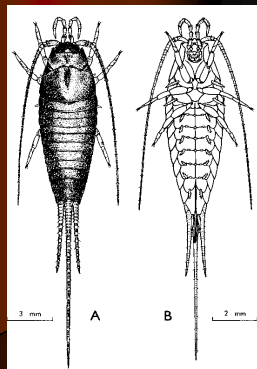


Sminthurus



Archaeognatha

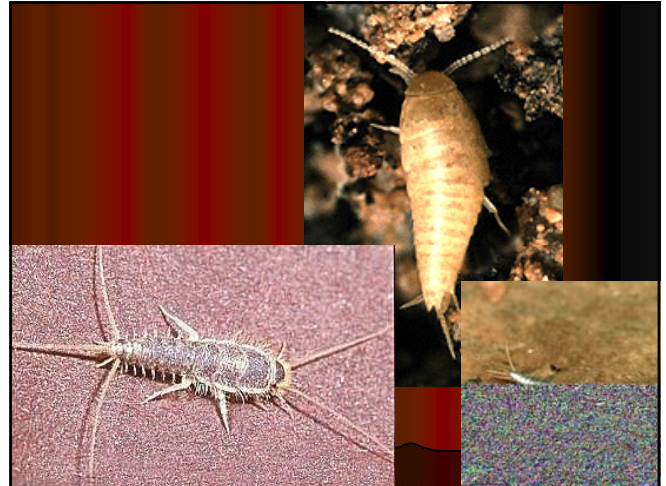
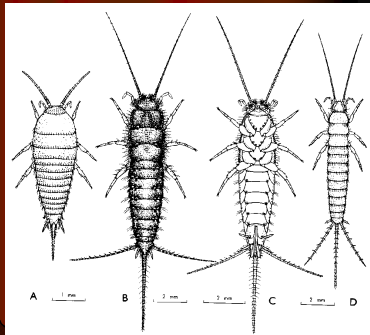
- Primarily apterous insects
- A single condylus on mandibles (all other insects have two condyli)
- About 350 poorly known species, many endangered
- Long antennae, large compound eyes that meet on frons
- Three long appendages on tip of abdomen (cerci and epiroct)
- Ability to jump
- Feed on algae, mosses, lichens, or saprophagous
- Molting throughout life – up to 4 years



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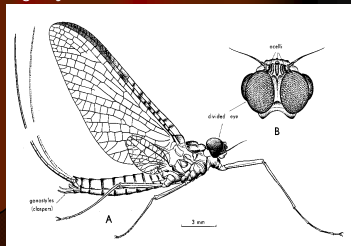
Thysanura (Zygentoma)

- Superficially similar to Archaeognatha, however, small or absent eyes (and many other differences)
- About 250 species, many synanthropic
- Feed on organic substrates
- Molting throughout life (several adult stages)



Ephemeroptera-mayflies

Paleopterous order, greek ephemeros = short lived
 2500 species, nymphs are aquatic
 Indicators of water quality
 Imago: mouthparts vestigial, wing venation complicated, metathoracic pair reduced or absent
 Two long cerci at tip of abdomen, large eyes



Larvae with tracheal gills on abdomen, feed on algae or predators
 Important part of food chains (fish)



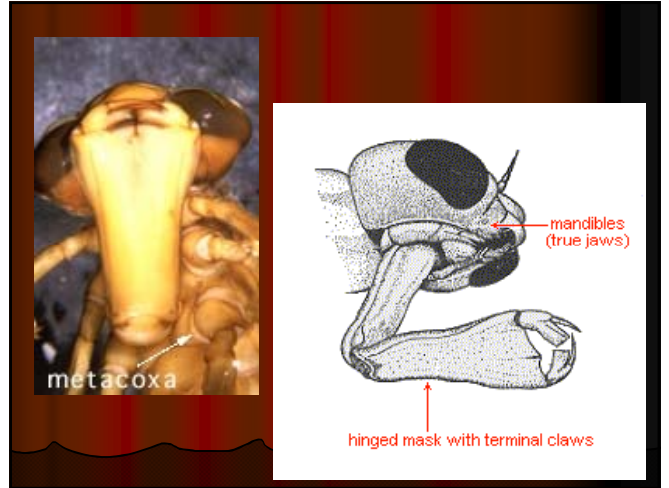
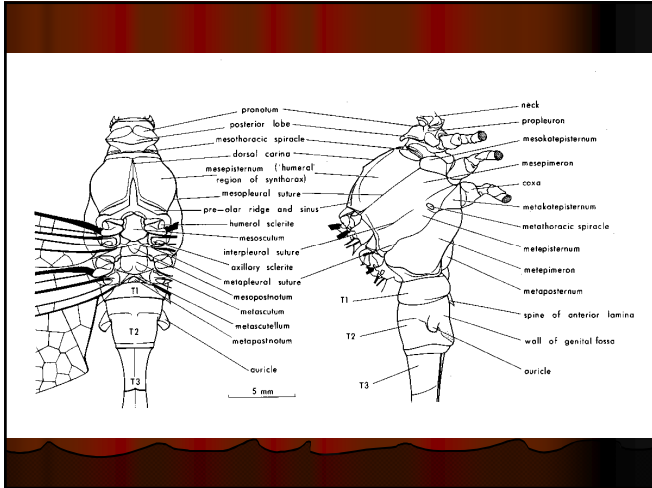
subimago



Odonata

Member of paleoptera
 Adults are predators



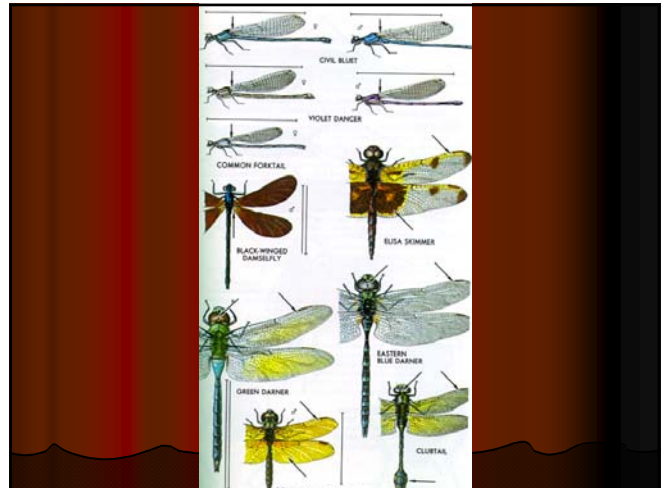


Two suborders: dragonflies (Anisoptera) and mayflies (Zygoptera)
 large eyes, chewing mandibles

Anisoptera differently shaped wings
 Larvae without tracheal gills in the end of abdomen

Zygoptera subequally shaped wings
 Larvae with tracheal gills in the end of abdomen





Zygoptera




Anisoptera




Plecoptera - stoneflies

Primitive Neoptera with aquatic larvae
1700 spp., long antennae, wings with rich venation, two cerci, chewing mandibles
Important part of aquatic food chains

