

Order Hymenoptera

Ants, bees, and wasps (hymen = membrane, pteron = wing)



<https://en.wikipedia.org/wiki/Hymenoptera>



<https://www.antweb.org/>



<https://www.bumblebeewatch.org/>



<https://bugguide.net/node/view/59>

Worldwide Diversity

Over 154,000 species of sawflies, wasps, bees, and ants have been described so far. 2,000+ extinct species are also known. Females have a specialized ovipositor for laying eggs; it is often modified into a stinger. Members of this order are holometabolous (passing through life stages of egg, larva, pupa, and adult). Many adults are important pollinators.

Fun facts

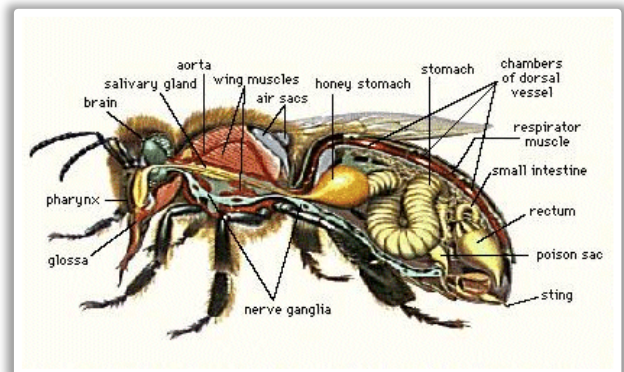
Pelicanid wasps use their flexible abdomen to lay eggs on scarab beetle larvae buried in soil. Only 3 species are known (all restricted to the New World). Source:

<https://en.wikipedia.org/wiki/Pelecinus>.

More than half of all fruit and vegetable crops are pollinated by honey bees (an introduced species).

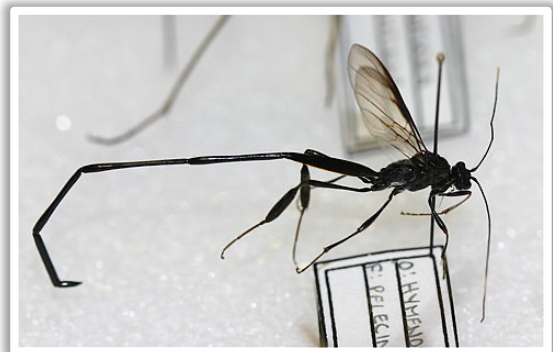
Illinois species

There are roughly 2,000 species of Hymenoptera known from Illinois; Over 120 species of ants have been documented. Source: Mark DuBois (who published a checklist of Illinois ants).



Anatomy of bee (source:

<http://www.anakpintar.web.id/2011/10/bee-anatomy.html?m=1>)



Pelicanid wasp (source: <https://en.wikipedia.org/wiki/Pelecinus>).

Classification

The insect order Hymenoptera is divided into 2 groups (Symphyta and Apocrita).

“The suborder Symphyta includes the sawflies, horntails, and parasitic wood wasps. ... They have an unconstricted junction between the thorax and abdomen. The larvae are herbivorous, free-living eruciforms, with three pairs of true legs, prolegs (on every segment, unlike Lepidoptera) and ocelli...”

“The wasps, bees, and ants together make up the suborder (and clade) Apocrita, characterized by a constriction between the first and second abdominal segments called a wasp-waist (petiole), also involving the fusion of the first abdominal segment to the thorax. Also, the larvae of all Apocrita lack legs, prolegs, or ocelli. The hindgut of the larvae also remains closed during development, with feces being stored inside the body, with the exception of some bee larvae where the larval anus has reappeared through developmental reversion. In general, the anus only opens at the completion of larval growth.”

Source: <https://en.wikipedia.org/wiki/Hymenoptera>.

Anatomy

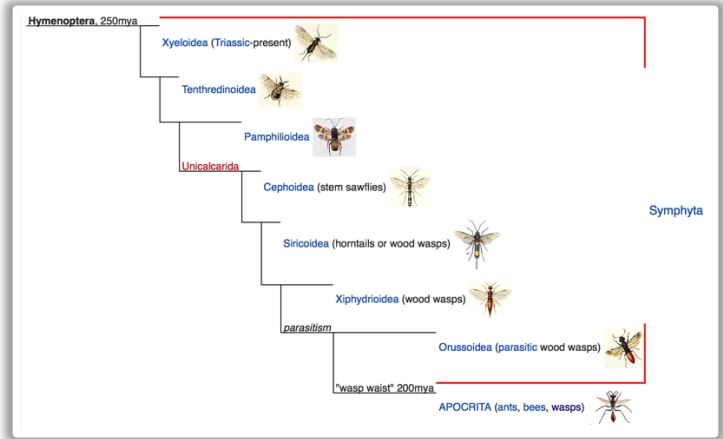
“Hymenopterans range in size from very small to large insects, and usually have two pairs of wings. Their mouthparts are adapted for chewing, with well-developed mandibles (ectognathous mouthparts). Many species have further developed the mouthparts into a lengthy proboscis, with which they can drink liquids, such as nectar. They have large compound eyes, and typically three simple eyes, ocelli.

The forward margin of the hind wing bears a number of hooked bristles, or “hamuli”, which lock onto the fore wing, keeping them held together. The smaller species may have only two or three hamuli on each side, but the largest wasps may have a considerable number, keeping the wings gripped together especially tightly. Hymenopteran wings have relatively few veins compared with many other insects, especially in the smaller species. Source:

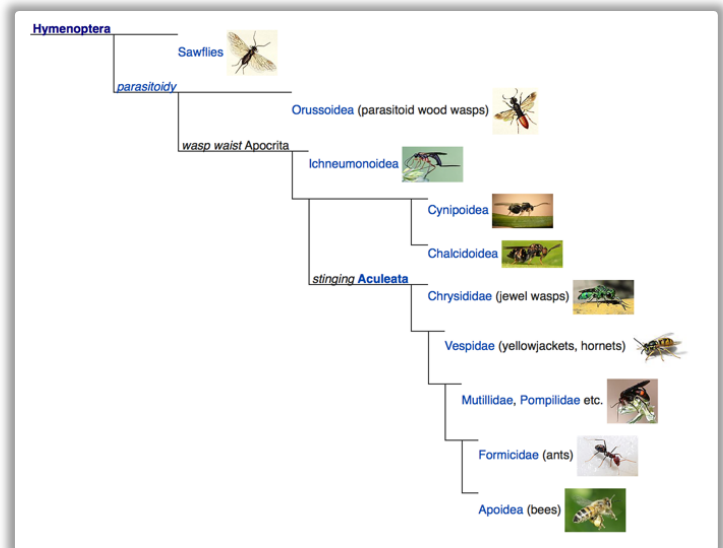
<https://en.wikipedia.org/wiki/Hymenoptera>.

Geological history

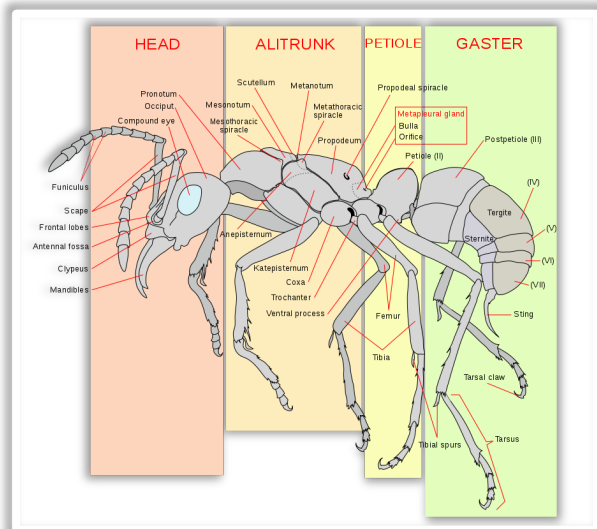
The earliest known Hymenoptera fossils are from the Triassic (roughly 240 million years ago) and are members of the sawfly family Xyelidae. Source: <https://en.wikipedia.org/wiki/Hymenoptera>.



Source: <https://en.wikipedia.org/wiki/Hymenoptera>



Source: <https://en.wikipedia.org/wiki/Apocrita>



Source: <https://en.wikipedia.org/wiki/Ant>