

Order Diptera

Flies (Di = two, pteron = wing)



<https://www.nps.gov/articles/chocolate-midge.htm>



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



https://en.wikipedia.org/wiki/Mydas_fly



https://en.wikipedia.org/wiki/Stalk-eyed_fly

Worldwide Diversity

It is estimated there are over 1,000,000 species of flies worldwide. About 150,000 species have been described so far. Flies are important pollinators (second only to bees and wasps). This is arguably one of the most dangerous groups of animals on earth (since mosquitos carry many diseases such as yellow fever, malaria, West Nile virus and more). Flies are holometabolous (passing through life stages of egg, larva, pupa, and adult).

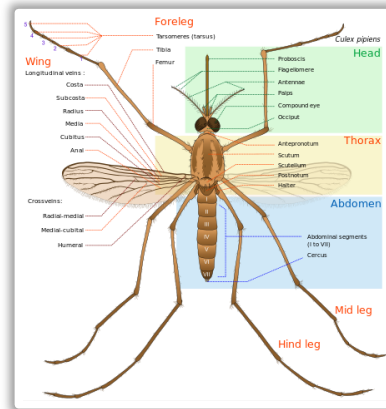
Fun fact

Without flies, we would not have chocolate. Various chocolate midges (family Ceratopogonidae) of the genera *Forcipomyia* and *Euprojoannisia* pollinate cacao plants (which is where we obtain chocolate). Source:

<https://www.nps.gov/articles/chocolate-midge.htm> (see image above on the left).

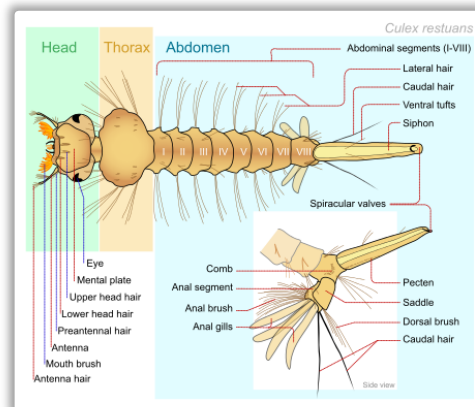
Illinois species

There are roughly 20,000 species of insects known from Illinois. About 10% are estimated to be species of flies. Roughly 60 species of mosquitoes are known to occur in Illinois.



Anatomy of adult mosquito (source:

<https://en.wikipedia.org/wiki/Mosquito>)



Anatomy of larval mosquito (source:

<https://en.wikipedia.org/wiki/Mosquito>)

Classification

The higher-level classification of flies is still a work in progress. Our current understanding of relationships is shown in the image to the right.

Keep in mind that over 125,000 species are sorted into these groups. Source:

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

Diversity

“Flies are often abundant and are found in almost all terrestrial habitats in the world apart from Antarctica. They include many familiar insects such as house flies, blow flies, mosquitoes, gnats, black flies, midges and fruit flies. More than 150,000 have been formally described and the actual species diversity is much greater, with the flies from many parts of the world yet to be studied intensively. The suborder Nematocera include generally small, slender insects with long antennae such as mosquitoes, gnats, midges and crane-flies, while the Brachycera includes broader, more robust flies with short antennae. Many nematoceran larvae are aquatic. There are estimated to be a total of about 19,000 species of Diptera in Europe, 22,000 in the Nearctic region, 20,000 in the Afrotropical region, 23,000 in the Oriental region and 19,000 in the Australasian region. While most species have restricted distributions, a few like the housefly (*Musca domestica*) are cosmopolitan. *Gauromydas heros* (Asiloidea), with a length of up to 7 cm (2.8 in), is generally considered to be the largest fly in the world, while the smallest is *Euryplatea nanaknihali*, which at 0.4 mm (0.016 in) is smaller than a grain of salt.” Source:

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

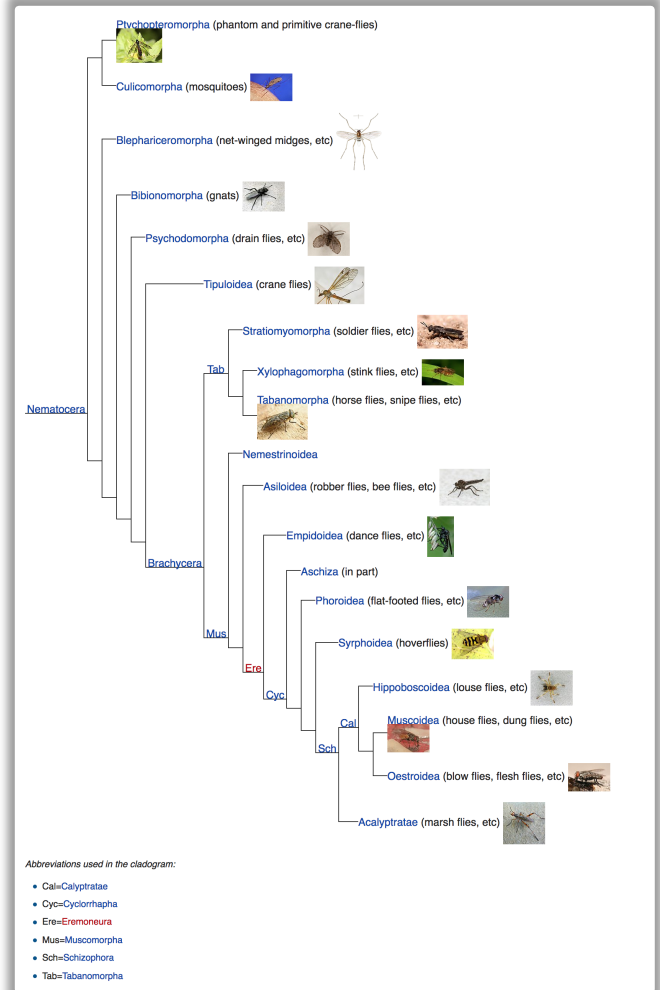
Geological history

Flies are first known from the Triassic (roughly 240 million years ago). Source:

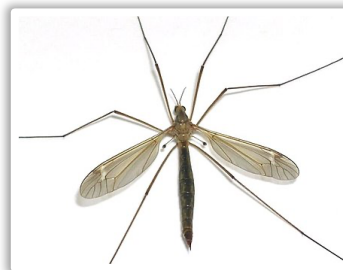
<https://en.wikipedia.org/wiki/Fly>.

The earliest mosquito is known from Lebanese amber (Early Cretaceous). Source:

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



Fly classification (source: <https://en.wikipedia.org/wiki/Fly>)



Crane fly [Tipulidae]- note reduced hind wings (halteres) (source: <https://en.wikipedia.org/wiki/Fly>)



Head of a horse fly [Tabanidae] (source: <https://en.wikipedia.org/wiki/Fly>)