



9.ORDER Ephemeroptera: Mayflies

Etymology: Ephemeroptera is derived from the Greek “ephemera” meaning short-lived, and “ptera” meaning wings. This is a reference to the short lifespan of most adult mayflies.

Hemimetabola - incomplete metamorphosis

Adult mayfly	Sub imago
 <p>By Kees Guequierre - Imported from 500px (archived version) by the Archive Team. (detail page), CC BY 3.0, https://commons.wikimedia.org/w/index.php?curid=71295815</p>	

Key Characters:

- Triangular wings; hindwings smaller
- 2 or 3 long abdominal filaments
- Short, bristle-like antennae
- The immature stages of mayflies are aquatic. They generally live in unpolluted habitats with fresh, flowing water.
- Once a mayfly completes development as a naiad, it leaves the aquatic environment, often rising to the water surface in a bubble of air.
- The final moult of the nymph is to a winged stage called a **subimago** that physically resembles the adult, but which is usually sexually immature and duller in colour. The subimago is a brief transitional stage that moults again into a sexually mature adult or **imago**.



Source: https://www.flickr.com/photos/matthias_lenke/




The male mayfly has 7 eye structures – 3 simple eyes, 2 compound eyes, and **2 turbinate eyes** (orange) used to locate females when they enter a swarm of male flies.

Most adults are delicate insects with a very short lifespan. They do not feed (mouthparts are vestigial), and some species emerge, reproduce, and die in a single day. Males generally fly in swarms that undulate in the air 5-15 meters above the ground. Females fly into the swarm and are quickly grabbed by a male. Copulation takes place in flight, and the female usually lays her clutch of eggs within minutes or hours. Males die shortly after mating; females usually die soon after oviposition.

Economic Importance:

- The naiads are “ecological indicators” of good water quality and are an important source of food for fish and other aquatic wildlife.
- In some mayfly species, summer emergence of winged stages is a sudden and dramatic event that occurs almost simultaneously throughout the entire population. These mass emergences are often regarded as a major nuisance.

Major Families:

<p>Ephemeridae — Adults are among the largest of mayflies. Naiads of this family burrow into the sand.</p>	 <p>https://www.inaturalist.org/observations/295935385</p>
<p>Baetidae — These insects are usually small (less than 10 mm). The naiads are typically found in warm water.</p>	 <p>https://www.inaturalist.org/observations/274954116</p>
<p>Heptageniidae — Naiads of this common family are usually found under stones in fast-moving water.</p>	 <p>By Richard Bartz, Munich aka Makro Freak - Own work, CC BY-SA 2.5, https://commons.wikimedia.org/w/index.php?curid=3834430</p>

Trivia

- The subimagos of mayflies are the only insects that moult when they have wings.
- Mayflies are a favourite bait of fishermen, and many popular fishing “flies” are tied to resemble mayflies.
- Anglers have names for the stages — dun is the subimago and spinner is the imago.
- A few species of mayflies reproduce parthenogenically — no males have ever been found.
- Although most mayflies are herbivores, a few are predaceous — e.g. Siphonuridae and Oligoneuriidae.
- Some mayfly species require up to four years to complete development during which time they may moult 20 times or more.