

Dragonfly Notes

- Dragonflies are among the largest insects alive today.
- They are harmless to people. They don't sting and will not attack or bite.
- They only fly in warm, sunny weather.
- 45 Species live in Great Britain (there are 5,900 species in the world).
- Key features of dragonflies are their large eyes and two pairs of large wings which have a dense network of veins.
- Dragonflies are the most ancient group of flying insects. Early ancestors were the largest flying insects known, some with a wingspan of 70cm.
- There are two main types:
 - Damselflies – delicate insects with a rectangular head and large eyes on each side.
 - Dragonflies – robust insects with a spherical head almost entirely covered by a pair of large eyes.
- Large eyes provide keen eyesight for finding prey and a mate- they are able to see in front, to the side and behind all at the same time.
- On top of the head are three additional small eyes that help inform the dragonfly of its attitude in flight.
- Dragonflies are fast and manoeuvrable insects. They can reach speeds of 35km per hour using their enormous flight muscles and by beating their wings 30 times per second.
- Attached to the body by flexible joints, the wings can twist in flight, enabling the dragonfly to pursue dodging prey or outmanoeuvre predators.
- Dragonflies can fly forwards, backwards and change direction rapidly. They can hover and glide.
- When feeding in flight dragonflies hold their sharp bristly legs forward forming a trap to catch their prey.
- The adults are unable to walk due to the forward projection of their legs.
- The adults mostly eat flies, mosquitos and midges but larger ones like the Emperor do catch butterflies.
- Dragonflies have three life cycle stages: egg, larva and adult.
- Dragonflies breed in aquatic habitats. Their aquatic larvae live in both standing and running freshwater.
- Male dragonflies try to mate with as many females as possible to increase the number of eggs he fertilises. He will attack and drive away competing males.
- On finding a female the males tries to grasp her wings and thorax with his legs. He then uses claspers at the end of his abdomen to grasp her head or thorax. The claspers are specifically shaped to fit the contours and grooves on the female's head. This stage is called the Tandem Position.
- Sometimes a second male also attempts to mate with the female and one can see a train of dragonflies in flight: female – male –male.
- Before mating the male transfers sperm from his genitals in the 8th abdominal segment to an opening in his 2nd abdominal segment, the location of his flexible penis. He encourages the female by swinging his abdomen forward so his 2nd abdominal segment comes into contact with her reproductive organs, adopting the Wheel Copulatory Position (see picture).
- Mating may only take a few seconds but some damselflies maintain the wheel position for over six hours.

- Some species lay their eggs into the water protected by a sticky gel. Others, for example the Emperor, lay their eggs into submerged plant tissue, giving them protection.
- The larva has similar mouthparts to the adult and often feed on similar food. They are ambush predators.
- Although development from egg to adult can take a year or more, the adult is short-lived, perhaps only a few weeks.
- Larvae and emerging adults are eaten by fish, amphibians and birds. In Kent in spring at Stodmarsh a small falcon called the Hobby can be seen catching dragonflies. They use their talons to catch the dragonfly in mid-air, then bite off the wings before eating the insect.

The Emperor Dragonfly

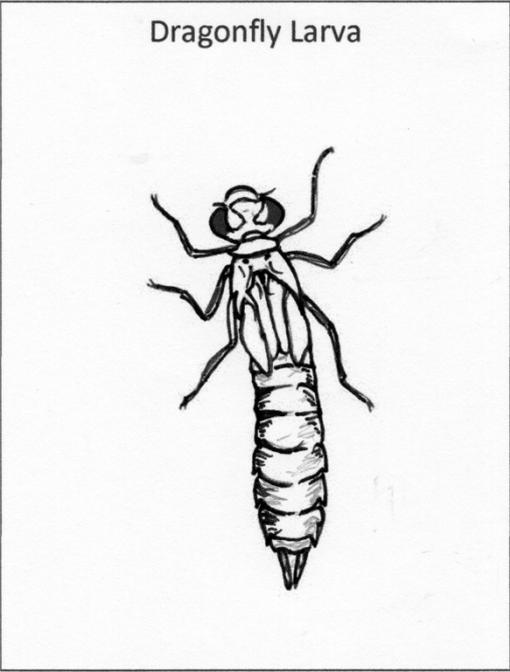


- The Emperor is a large dragonfly common in southern Britain.
- It inhabits lakes, ditches and canals but can also be found by ponds. It can breed in garden ponds and so can be seen in urban areas.
- The larvae eat small aquatic invertebrates but also hunt small fish and tadpoles.
- The process of Emergence (larva to adult) starts after sunset with the body and wings fully extended by the middle of the night. The new adult whirrs its wings to warm its muscles and makes its first flight before sunrise.
- The adult has the most acrobatic flight of all our dragonflies. They can be seen from the end of May through to early September. They normally live for about a month.

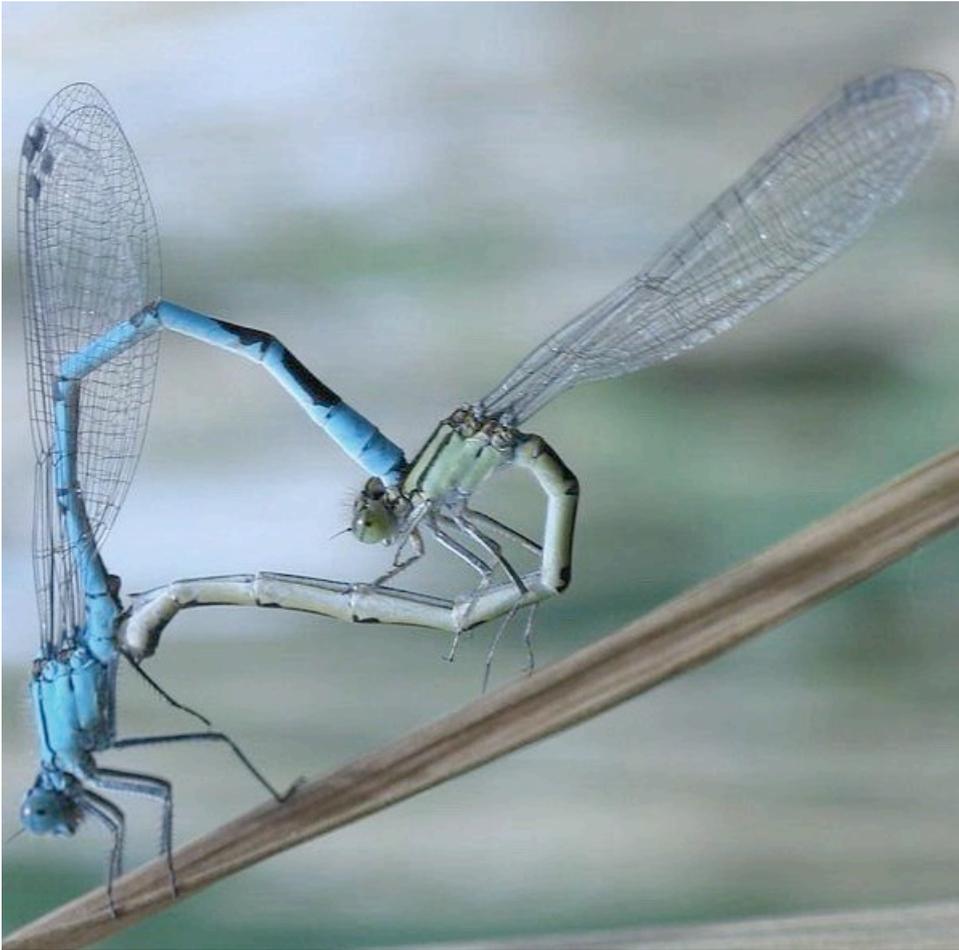
Dragonflies mating



Dragonfly Larva



Damselflies mating



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