

This edition is based on a Continuing Education event taught by Kathy & Dave Biggs.

Dragonfly is a type of insect belonging to the order Odonata. As such, they have 3 prominent body parts—a head, a thorax to which the wings (in this case 4) and 6 legs are attached, and an abdomen. Their front and rear wings are not linked together, but can be operated independently. It is characterized by large multifaceted eyes, two pairs of strong, transparent wings, and an elongated body. Dragonflies typically eat gnats, mosquitoes, and other small insects like flies, bees, and even butterflies. They are valued as predators, since they help control populations of potentially harmful insects and “pests.”



Eight Spotted Skimmer - male
(*Libellula forensis*)
Mark A. Chappell

<http://faculty.ucr.edu/~chappell/INW/arthropods/8spot1.jpg>

Some Dragonfly “Wow” Facts

- Because of their compound eyes, they can see in all directions and can see flickers of movement 15 times better than humans.
- Predators like birds, especially the Black Phoebe, will eat them, but will drop the wings as they have barbs
- In most dragonfly species, the eyes touch
- Their legs are studded with spikes and they capture prey by claspng it in their legs.
- Dragonflies usually attack prey from below
- Like most bird species, males are more colorful than females
- In the United States dragonflies and damselflies are sought out as a hobby similar to birding and butterflying, known as oding. Oding, from the dragonfly’s scientific order name: Odonata.
- Dragonflies are survivors from before the dinosaur period.
- Impressive fossils of dragonflies with 27” wingspans have been found dating back over 200 million years. Today, the largest ones have wingspans about 5 to 6 inches



Cardinal Meadowhawk
(*Sympetrum (Tarnetrum) illotum*)

Don Roberson 2007
http://www.montereybay.com/creagrus/Mdwhwk-Car-mfaceLagG_2546-w.JPG

- They migrate, though a lot is not known. It is estimated that in one week, a dragonfly could travel approximately 300 miles as they migrate on the wind. It is thought that they fly one day, spend approximately 3 days feeding and then continue on — depending on the weather, especially the winds.

Reproduction and the Dragonfly Life Cycle

Female dragonflies lay eggs in or near water, often on floating or emergent plants. One species of Spreadwing lays eggs on willow branches; eggs hatch with rains & then fall into the water to



Flame Skimmer - male (*Libellula saturata*)

develop. Most eggs hatch within 1-2 weeks—some eggs overwinter before hatching. Most of a dragonfly’s life is spent in the naiad (that is, nymph) form, beneath the water’s surface, using internal gills to breathe, and using extendable jaws to catch other invertebrates or even vertebrates such as tadpoles, fish, etc. The larval stage of large dragonflies may last as long as five years and they may molt as many as 12 times. In smaller species, this stage may last between two months and three years. When the larva is ready to metamorphose into an adult, it climbs up a reed or other emergent plant. Exposure to air causes the larvae to begin breathing. The skin splits at a weak spot behind the head and the adult dragonfly crawls out of its old larval skin, waits for the sun to rise, pumps up its wings, and flies off to feed on midges and flies. The adult stage of larger species of dragonfly can last as long as four months. Typically it is around 2-4 weeks.

Sex Life: The adult abdomen is made up of 10 loose segments which can bend. The bump on the abdominal segment behind the thorax is where the sperm is stored. The male secretes sperm at the end of his abdomen or “tail” and then transfers sperm to his secondary sexual area under his second abdominal segment. When the male sees the female he grabs her behind the eyeballs. These attachments are species-specific. The sexual parts of the male and the females of a species fit together like puzzle pieces. The male stays attached to the female in order to keep other males away, as males have the ability to rid a female of approximately 98% of the sperm from a competing male.

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Blue Dasher - male (*Pachydiplax longipennis*)

Dorothy Pugh

Some Differences Between Adult Dragonflies & Damselflies



Western Pondhawk - male
(*Erythemis collacata*)

warm sunny days, it is not often that you see these predators perched. If the day is cool and perhaps cloudy and you spot a still one, take notice of how its wings are held; dragonflies sit with wings held out and damselflies hold their wings up together. Dragonflies are also much larger, about the size of a pinky, compared to the needle or matchstick size of damselflies. Also, dragonflies hunt on the fly while damselflies are gleaners.