

The Watery World of Dragonfly Larvae

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Dragonflies spend their youth in the water as aquatic larvae preying on other underwater animals. Dragonfly larvae have an enormous (for their size) hinged labium, a sort of lower lip armed with pincers. They use this labium as an extendible grasping organ for capturing prey.

Biologists divide dragonfly larvae into three types according to their behaviour.

- *Claspers* stalk their prey while using their legs to climb through underwater plants. Their patterned green and brown bodies help camouflage them among the vegetation.
- *Sprawlers* lie spread-eagled on the bottom mud and debris or on vegetation, waiting to ambush prey. They often hide under a coating of mud and algae.
- *Burrowers* dig into the sand and silt, where they wait for their prey.

Slender damselfly larvae have three leaf-like gills at the tip of the abdomen, laced with the fine tubes that carry oxygen and carbon dioxide throughout the body. But the stouter larvae of the true dragonflies have gills lining the rectum and pump water in and out of the gut in order to breathe! Damselflies use their gills to help them move around, sweeping them back and forth like swimming fins. Larvae of true dragonflies have gills lining the rectum and pump water through them. They can blast pressurized water out the end of the gut, jet-propelling them through the water – an effective tactic for escaping predators or attacking prey!

Dragonflies develop without a pupal stage. This is unlike butterflies and moths for example, which, in addition, go through a pupal stage before emerging as adults. After the larva pops out of the egg, it eats, grows and molts 8 to 17 times, depending on the species and the environmental conditions. All the dragonfly's growth occurs in the larval stage.



Four-spotted Skimmer (*Libellula quadrimaculata*) larva. The larvae of true dragonflies lack the external gills found in damselflies. Note the developing wings on the back of the larva, which is almost ready to emerge as an adult. Photo: RBCM, R. Cannings

For many dragonflies in BC, larval life lasts about a year. Many species overwinter as larvae and emerge the following spring or summer, while others spend two or more years in the larval stage. The length of development depends on the species and also on altitude, latitude and amount of daylight. Growth slows with the shorter summers and colder temperatures of northern habitats and high altitudes. Some species that live in temporary ponds overwinter as eggs, hatch in the spring, grow rapidly and emerge as adults in the summer before the water dries up.

When fully grown, the larva changes into an adult inside its last larval skin, then crawls out of the water, up a plant stalk or some other support, or even the shore itself. After the adult emerges from the larval skin, like a butterfly from its chrysalis, the empty larval skin is left, clinging to the support.