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Dragonfly Days

In July, it's hard to go anywhere near water and not notice dragonflies and damselflies. Because of their relative abundance, striking colours, spectacular mastery of flight and the fact that most can be easily observed and identified in the field, they are ideal animals to watch and study. Belonging to an ancient order of insects known as Odonata, our knowledge of the Kawartha's dragonflies and damselflies dates only back to 1993 when a small group of local naturalists began keeping detailed records of their sightings. About 100 species of Odonata have been recorded so far in Peterborough County but more species are almost certainly present.

Watching these creatures is like looking into the Earth's past. In their huge eyes, we are seeing life as it existed 250 million years ago. As old as the first reptiles and far older than the first flowering plants, their basic structure has hardly changed in all this time. The head has two large compound eyes and three simple eyes. The antennae are minute and hair-like. The adults have biting mouthparts and two pairs of similar-sized, net-veined wings. The abdomen is long and slender and divided into segments. Odonata have a three-part life cycle, consisting of an egg, larva (also called nymph) and adult. The larvae are aquatic and develop without a pupa (resting stage). Larvae also have a unique lower "lip" which serves as an extendible, biting organ for feeding. Equipped with hooks, it is a formidable tool at capturing prey such as fly larvae, tadpoles and even small fish.

Dragonflies and damselflies are easy to tell apart. Damselflies tend to be small, often only an inch or so in length, with a very thin body. They are weak fliers, staying close to the ground or water. They hold their wings closed or partially spread when at rest. Dragonflies, on the other hand, have a thick body, are strong fliers and keep their wings completely open when resting.

The larval stage lasts anywhere from one month to five years, depending on the species. When the larva is ready, it crawls out of the water onto a support such as a rock or plant stem. Its cuticle splits along the back of the thorax and the adult slowly emerges from the larval skeleton. Soft but complete, the dragonfly then spends the next hour pumping blood into its wings which expand and harden. The glistening adult then flies off, leaving behind the larval skin, or exuvia. The freshly emerged adult will not develop its true colours for a few weeks. During this time, they tend to frequent upland habitats far from water and can often be found even in suburban yards clinging to walls.

One of the most interesting and noticeable dragonfly behaviours is mating. The extraordinary acrobatics they go through are definitely worth watching. There are three stages to Odonate sex. First of all, the male bends his abdomen beneath him in order to transfer sperm from his genitalia at the tip of the abdomen to a second set of sex organs located near the base of the thorax. Then, the male forms a tandem with the female by grabbing her behind the head with special claspers, also located at the tip of his abdomen. Finally, the pair alight and form the "wheel" position, their two abdomens resembling the shape of a wheel. The female bends the tip of her abdomen around until her genitalia, located at the tip, are brought into contact with the male's secondary sex organs at the base of his thorax. He then may use special "scoopers" to clear out any sperm that another male may have deposited in the female. This helps to assure that only his genes will be transferred to the next generation. Having cleaned house, the male injects his sperm into the female, and the wheel position is broken. Because the male wants to ensure that

a rival suitor does not impregnate the female, he usually stays around and actively guards her until she has finished laying her eggs. In some species, including most of the damselflies, the male actually continues to clasp the female by the back of the head until egg-laying is complete.

The Odonata are opportunistic predators, meaning they will try to catch and eat just about anything. These include mosquitoes, flies, midges, moths, butterflies and even others of their own kind. Dragonflies tend to hunt on the wing, while damselflies usually glean perched insects directly from leaves and stems.

On warm, sunny days, dragonflies and damselflies can be found in just about any wetland. Some of my favourite spots for dragonfly watching include Petroglyphs Provincial Park, Lakefield Marsh and the Miller Creek Conservation Area. Don't forget to bring a pair of binoculars and a guide book to help with identification. One of the best guides is Stokes "Beginners Guide to Dragonflies and Damselflies", published by Little, Brown and Company. When you are first learning the Odonata, it's also helpful to see the field marks up close. The only way to do this is by catching them in a butterfly net and either hand-holding the insect (gently raise all four wings and press them together over the thorax) or transferring it to a transparent jar or plastic bag. Despite what many people think, dragonflies cannot sting you!

When you are trying to identify a given damselfly or dragonfly, it's important to pay attention both to its field marks and to its behaviours. For example, does it fly high or low? Does it perch often and, if so, how and where? Are there any special markings or colours on the wings? What colour is the abdomen and is it striped, spotted or ringed? How is the thorax coloured and marked? When viewed from above, do the eyes touch in the middle or are they separate?

Locally, some of the more common dragonflies you're likely to see in July include the common green darner, beaverpond baskettail, calico pennant, dot-tailed whiteface, common whitetail, chalk-fronted skimmer, four-spotted skimmer and twelve-spotted skimmer. As for damselflies, watch for the marsh bluet, Hagen's bluet, eastern fork-tail and ebony jewelwing. Later in the summer, small dragonflies of the genus *Sympetrum* become quite common. They are also known as meadowhawks. In most species, the male meadowhawks are red and the females are yellow.

For detailed information on the dragonflies and damselflies of Peterborough County, go to the Ontario Odonata Atlas website at <http://nhic.mnr.gov.on.ca/MNR/nhic/odonates/atlas.html>. The atlas was initiated in 1995 by the Natural Heritage Information Centre (NHIC) and the Ontario Ministry of Natural Resources in an effort to compile all available information on the distribution and abundance of the Odonata of Ontario.

What to watch for this week:

When it comes to biting insects, July's claim to fame is the deer fly. They can be identified by their black-spotted wings and annoying habit of buzzing around your head. Only the females bite. The less common horsefly is larger and usually blackish in colour. Horseflies tend to bite lower on the body, preferring the legs. They are among the fastest flying insects known.

Drew Monkman is a local naturalist, teacher and author of *Nature's Year in the Kawarthas*.