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Mosquitoes and Black Flies

In May, there is a price to be paid for the bird music and flowers that we enjoy so much. The price is biting insects. Most years, early May brings us black flies, while the middle of the month sees the arrival of legions of mosquitoes.

Unlike the “good and bad” years of mosquitoes, black flies are abundant almost every year. In fact, Canada is home to about 100 black fly species. They usually lay their eggs in cold, clear, running water, a type of habitat which is common on the Canadian Shield. So, if you live in northern Peterborough County, there is little escaping them. The first onslaught of black flies of the spring develops from eggs that hatched the previous fall. The larvae grow slowly over the course of the winter and then spin cocoons in the spring in which they transform into adults. A bubble of air carries them to the surface of the water, releasing a ready-to-fly adult when the bubble bursts. It’s possible to see this “popping out” taking place. The adult usually buzzes around on the water’s surface for a few seconds and then flies to a shaded area to rest and allow its body to harden. In other species of black flies, the eggs overwinter and hatch in the spring. These species do not mature into biting adults until June or later. Fortunately for us, those adults that emerge in mid-to-late summer never reach the huge numbers of spring black flies.

The majority of black fly species produce only one generation of adults in a year. A given female, however, is able to produce eggs two or three times during her short lifetime. A blood meal is usually necessary in order to provide the required nutrients for egg development. It often takes two or three blood meals for the female to fill her gut, each meal taking three to five minutes of uninterrupted eating! In some species, however, the females already have fully developed eggs when they emerge as adults and do not require a blood meal at all. Luckily, not all black fly species feed on humans; some prey on birds or other mammals. It might also be of some consolation to know that both male and female black flies feed heavily on nectar to obtain the energy necessary for flying and mating. In the process, they inadvertently pollinate many species of plants.

In addition, black flies are strictly daytime insects and seem to need natural light to go about their biting business. They won’t even bite you if they become confined to your tent or car. However, when you are outside during the day, wear light-coloured clothing, tuck your pants into your socks and use a good repellent.

When the cherries begin to blossom in mid-May, the appearance of the first mosquitoes is not far behind. Both sexes feed heavily on the nectar of cherry flowers. Like most black flies, the female mosquito also requires a blood meal for her eggs to develop properly. Although there are 59 different species of mosquitoes in Ontario, many do not bite humans and most produce only one generation of adults a year.

The majority of the mosquitoes found in the Kawarthas belong to the genus *Aedes*. The larvae hatch from eggs that were laid in low, damp locations the previous year. In the spring, these sites are flooded by melting snow and rainfall and create an ideal habitat - often devoid of predators - for the larvae to develop. A warm, damp May assures quick growth and means the breeding pools will not dry up before the adult mosquitoes emerge. Some *Aedes* species breed only once while others, such as *Aedes vexans*, breed continuously from June until September. *Vexans* is usually only a problem in wet summers, however, because it requires muddy areas

created by rainfall to lay its eggs on. For this species, the period from the time the eggs are laid until the adults emerge can be as little as four to five days under favourable conditions.

A species that is found typically in urban areas is *Culex pipiens*, also known as the northern house mosquito. They breed in any locations where water collects and stands still. These can include old tires, tin cans and even heavily polluted water. The eggs develop into adults in about a week. House mosquitoes are present from spring until fall. They overwinter as adult, pregnant females which find shelter in locations where the temperature remains above freezing, such as cellars, sewers, well pits and even animal burrows. With warm spring days, these females seek a blood meal and begin the cycle again.

Northern house mosquitoes are also the primary suspect for transmission of West Nile virus to humans. Although their numbers are low in the spring, the species often becomes quite common later in the summer, especially in urban areas. It's flight range is quite small, too, which means that the mosquito that bites you in the driveway may well have hatched in the backyard. It is therefore important to clean up and empty containers of standing water such as old tires, flower pots, wheelbarrows, tin cans or small containers like bottle caps that are outdoors. You should also change water in bird baths twice a week.

A mosquito becomes infected with West Nile when it feeds on the blood of a bird that is infected with the virus. About two weeks later, the mosquito becomes capable of passing the virus to people and animals by biting them. Consider using personal insect repellents that contain DEET. The concentration of DEET should be no greater than 30 per cent for adults and no greater than 10 per cent for children. It is also important to cover up as much as possible.

Despite the problems mosquitoes cause us, it is important to remember the central role they play in ecosystems and especially wetlands. Mosquitoes can be thought of as a pipeline channeling energy from decomposing plant material directly to birds. Mosquito larvae convert decomposing plant matter into living insect protein, fat and carbohydrates and serve as food for countless other animal species including fish and predatory aquatic insects. Adult mosquitoes provide food for numerous species of insectivorous insects such as dragonflies and for birds such as swallows, swifts and nighthawks. When people spray or destroy mosquito habitat, the energy pipeline is shattered and myriad species suffer.

What to watch for this week:

Don't forget to enjoy the wonderful fragrance of the May air, especially on damp, mild days and evenings. The dominant smell almost everywhere - even in the city - is that of balsam poplar. A sticky "resinous" substance that coats the buds is the main source of the balsam-like odor of this species. When the buds open and the leaves are still fresh, the smell of balsam fills the air for great distances from the trees. Once you learn this smell, you will never forget it, and it will always remind you of spring in the Kawarthas.

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