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LIVING

Bites and buzz are blossoming

Wild cherry trees flower, mosquitoes feed on nectar . . . and then on us

When the wild cherry trees flower in May as they are doing right now, the relative abundance of mosquitoes once again becomes a popular topic of conversation in the Kawarthas. The relationship between mosquitoes and cherry trees is no coincidence. Both male and female mosquitoes feed heavily on the nectar of cherry flowers and, in the process, are important pollinators.

Drew Monkman
OUR CHANGING SEASONS

Before discussing our local mosquitoes in more detail, I'd like to begin with some interesting facts and figures about these notorious insects.

ALL THE BUZZ

• There are believed to be 59 species of mosquitoes in Ontario and probably 25 or more in the Kawarthas. Many do not bite humans and most produce only one generation of adults a year. The larvae of one species, the pitcher plant mosquito, are found only in the water-filled leaves of this carnivorous plant. They feed on the decaying carcasses of invertebrates that become trapped in the pitcher-like leaf.

• Mosquitoes are most noticeable from mid-May to late July. They can bite at any time during the day, but most species tend to be more active at dawn and dusk and into the first couple of hours of darkness. They also prefer hot, humid weather.

• Female mosquitoes don't bite because they are hungry. The mosquito diet is actually nectar (sugar) from plants, not blood. Females bite because they are pregnant and need protein from the blood so the eggs in their body can develop properly. A single meal of blood enables the female to lay hundreds of healthy, protein-rich eggs.

• It may or may not make you feel better to know that a female mosquito doesn't actually bite you; rather, she stabs you. As for the famous itch, it is not caused by the stabbing itself, but rather by the mosquito's saliva. The saliva contains an anti-coagulant that allows the insect to more easily suck up the blood. It also causes our bodies to produce a histamine response. Histamine helps fight off infection by making capillaries more permeable to white blood cells which fight pathogens. In the process, we develop an allergy response which makes the skin around the bite area itchy and also creates a bump.

• Mosquitoes do not have very good vision. They rely on the carbon dioxide you exhale in order to locate you. They can smell their victim from an impressive 36 metres away, so this doesn't bode well for sporty types, pregnant women or bigger people, all of whom typically emit large quantities of carbon dioxide. In addition to the carbon dioxide, mosquitoes are also drawn to movement, body heat and even to the lactic acid from your sweat glands. Mosquitoes have chemoreceptors on their antennae that are stimulated by lactic acid.

• Mosquitoes seem to really like people with type O blood, a common blood type. Those of us with type A blood are least often bitten.

• An unfortunate fact to keep in mind at your next barbecue is that alcohol consumption can increase your chances of being bitten. When drinking, your body temperature tends to rise, and mosquitoes take note. Beer drinkers seem to be especially popular with mosquitoes.

• The famous buzz of the mosquito that keeps you awake at night is made by the rapid beat of its wings, about 500 wing beats per minute. It is between the musical pitches of D and F.

• Mosquito repellents ranging from garlic to DEET seem to work by blocking the insect's sense of smell.

• The World Mosquito Killing Championship is held every year in Pelkosenniemi, Finland. The goal is to see who can kill the most mosquitoes by hand in five minutes.

Wikipedia Commons photos

Female mosquitoes draw blood (top) after they mate so their eggs will have protein for nourishment. At right is a mosquito larvae.

Many of the mosquitoes found in the Kawarthas belong to the genus Aedes. They go through a fairly typical mosquito life cycle. The larvae hatch from hardy "rafts" of eggs laid in mud or on standing water the previous year. In the spring, these muddy areas are flooded by melting snow and rainfall and create an ideal habitat - generally devoid of predators - for the larvae to develop. The larvae feed on organic matter in the water. They progress through several stages of larval growth before transforming into a pupa. Adults emerge from the pupa and rest on the water's surface before taking flight. Only a day or so after emergence, they are ready to mate. After mating, the female mosquitoes begin to seek a blood meal. 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.

BLOOD, THEN EGGS

One mosquito species that gets a lot of bad press is Culex pipiens, the northern house mosquito. It is found typically in urban areas and is present from spring until fall. It breeds in locations where water collects and stands still. These can include anything from flower pots and old tires to discarded pop bottles and coffee cups. They also like bird baths, so be sure to change the water at least once a week. The eggs develop into adults in about a week to 10 days. Unlike Aedes mosquitoes which overwinter as eggs, the house mosquito overwinters as adult, pregnant females. They find winter shelter in locations where the temperature remains above freezing, such as basements, sewers, well pits and even animal burrows. With warm spring days, these females seek a blood meal and begin the cycle again. Although their numbers are low in the spring, northern house mosquitoes often become quite common later in the summer. Interestingly enough, their flight range is quite small which means that the mosquito that bit you in the driveway may well have hatched in the backyard.

Northern house mosquitoes are the primary suspect for transmission of West Nile virus to humans. 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. There is no way to predict how serious West Nile virus will be in any given year. For most people, the risk of contracting West Nile is very low, and the risk of serious health effects is also low.

MIXED BREEDING SEASON

The exceptionally warm winter and month of March we had this year probably caused a lot of northern house mosquitoes to become active early and possibly for some to have even laid eggs. However, the cool weather and heavy frosts that we had in April may have killed many of the larvae. Still, it is hard to predict with any certainty what kind of mosquito season we'll have this spring and summer. If the relatively dry conditions of recent weeks continue, there will be fewer damp spots for mosquitoes to breed. The ground was already quite dry this year when spring began because of a lack of winter snow. Suffice it to say that mosquito activity this spring and summer will pretty much depend on how much rain we get.

Although most of us know how to avoid getting bitten, a few reminders may still be helpful. Maybe most importantly, consider using personal insect repellents that contain DEET. According to Health Canada, the concentration of DEET should be no greater than 30% for adults and no greater than 10% for children aged two to 12. Children aged six months to two years can be given a 10% concentration, too, but it should be applied no more than once daily. One application of 30% DEET should be effective for six hours, while a single application of 10% DEET does the job for about three hours. Apply the repellent sparingly, and only on exposed skin surfaces or on top of clothing. Heavy application is unnecessary for effectiveness. Sunscreen and personal insect repellents can be used safely at the same time but be sure to apply the sunscreen first. It is also important to cover up as much as possible. You can do this by wearing long-sleeved shirts, full length pants and closed shoes. Light-colored clothing, too, is a better choice than dark colours such as blue denim.

Malaria concerns

In addition to the threat posed by West Nile virus, there is also concern about how climate change will affect mosquito populations and their ability to spread diseases such as malaria. Malaria is most commonly transmitted by mosquitoes which, in turn, are very sensitive to precipitation and humidity. Mosquito species capable of spreading malaria already exist in Canada. An overall warming trend, in conjunction with increased precipitation, could conceivably lead to a northern migration of disease epidemics. In a 2008 McGill University study, L. Berrang-Ford and fellow researchers concluded that "climate change will increase the occurrence of temperature conditions suitable for malaria transmission in Canada, which, combined with trends in international travel, immigration, drug resistance, and inexperience in both clinical and laboratory diagnosis, may increase malaria incidence in and permit sporadic autochthonous cases (cases contracted in the area where they were reported). "At this point, however, we just don't know for sure how real the threat is.

Despite the problems mosquitoes cause us, it is important to remember the central role they play in ecosystems. Mosquitoes can be thought of as an energy pipeline. The 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 are an important food source for everything from little brown bats to chimney swifts, both of which are increasingly threatened. When people spray or destroy mosquito habitat, the energy pipeline is shattered and myriad species suffer.

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