

Mosquitoes: An Informative Article

Life Span

Mosquitoes go through four stages throughout their life. Their life begins as an egg laid in stagnant water. Eggs cannot survive out of the water and can die if laid in fast moving water. When the eggs hatch they are called larva, the second stage of their lives. In the larval stage, the mosquitoes must remain in water to survive. They feed on bacteria and algae in the water as they progress through four instars, or stages, through each one shedding their skin. On their final molt, they metamorphosize into a pupa. During this stage in the mosquitoes' life they do not feed, however they are capable of swimming freely. After a few days, the pupa splits and out emerges the adult mosquito. The adult mosquito only lives for a few weeks. In that time the females search for a blood meal which provides the energy to form and lay eggs. If done quickly, she repeats this cycle a few times before she dies. The male mosquitoes feed on nectar and other sources of sugar. At dusk, they swarm with the female mosquitoes to mate. Adult males generally will only live 5-6 days.

Types

There are three main genera of mosquitoes in Southern Ontario. These genera include Aedes, Culex, and Anopheles. These types vary in what time they prefer to feed, what their preferred host is, how long they spend in each life cycle, and what diseases they carry.

Aedes: The Aedes genera are day-time biters, and prefer humans as their host. These mosquitoes can transmit diseases such as Zika, Chikungunya, Yellow Fever, and Dengue. They mate, feed, rest and lay eggs during the day around human habitats.

Culex: This genera of mosquitoes are night biters and prefer birds as their host. This type of mosquito can transmit West Nile Virus and Western/Eastern Equine Encephalitis.

Anopheles: The final most common genera, Anopheles, are dusk and dawn biters and prefer mammal and human hosts. These mosquitoes can carry the well known disease, Malaria.

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Habitat

Mosquitoes live all around the world, but vary in which species dominate different areas. In North America, mosquitoes prefer moist, dark areas, but again the specific selection of habitat depends on the species. Common areas that mosquitoes reside near are natural areas, live ponds, wetlands, and ditches. Some man made areas you can find mosquitoes are bird baths, old tires with water in them, rain basins, and any collection of stagnant water. Mosquitoes prefer to be cool in the summer, so they often hangout in shrubs and hedges on the underside of leaves.

Migration

Due to global warming there is an increase in the populations of mosquitoes in North America, as well as an increase in the diversity of the species seen. A study by Ludwig A *et al.*, discusses how over the past 20 years incidences of mosquito-borne diseases increased by ten percent largely due to climate change. Scientists believe that increasing temperature and precipitation will continue to influence the range and lifespan of mosquito populations in North America.

Diseases

For the longest time mosquitoes in Canada were not known to carry any deadly diseases. Recently, with the increase in temperature and rainfall, scientists have noted an increase in the genera of mosquitoes that can carry harmful diseases. This includes the warmer climate-tolerant *Aedes* and *Anopheles* genera. These genera of mosquito are capable of transmitting Malaria, Zika, Yellow Fever and Dengue. Although the *Culex* genera of mosquitoes have been around for a long time in North America, instances of the West Nile Virus are found few and far between. In a study by Ng v *et al.*, exotic and endemic mosquito populations are on the rise in Canada, and in turn the rate of occurrence of mosquito-borne diseases (MBD) has also increased. Although the relationship is not linear between climate change and the occurrence of MBDs, other factors influenced by climate change such as demographic changes, urbanization and land use can influence the occurrence of MBDs in Canada. It is difficult to quantify the impact of climate change on the increase in MBDs in Canada, but determining levels of mosquito populations and increasing public awareness of these environmental implications should be made a priority for the future.

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How to Protect Yourself

Not only can mosquitoes cause itchy, annoying bumps on the skin, but they are also capable of causing allergic reactions in some and are also capable of transmitting deadly disease. In order to reduce the exposure to mosquitoes, skin must be covered up with loose fitting fabrics to deter the bites. Tight clothes such as leggings or sport tops should not be worn in mosquito areas because mosquitoes are able to bite through the material. Because most animal skin is a dark blue/black colour, it is recommended to wear light coloured clothing to appear less appetising to the mosquitoes. A good application of DEET is also recommended when outdoors for extended periods of time in mosquito territory. DEET stands for *diethyltoluamide* and functions as a “mask” of sorts to hide the smell that biting flies are attracted to. DEET is the main ingredient in most insect repellants and varies in percent. To deter mosquitoes from populating an area, all standing water should be overturned and emptied. This includes bird baths, rainwater basins, empty flower pots, old tires, and anything that could hold stagnant water for mosquitoes to breed in.

More information

For more information about mosquitoes and the studies mentioned in this article, please scroll to the bottom of the Mosquito/Tick Control page on our website.