

What is the fencing for along Highway 60?



Anyone driving along the Park's Highway 60 corridor will notice the black drift-fencing that has been temporarily installed in various places by both Park staff and construction contractors working on the highway. It is intended to keep Snapping and Painted Turtles off the roadway in an attempt to reduce their mortality. These turtles prefer soft ditches and banks of roads for nesting.

Scan for more information about Ontario Turtles at Risk in Algonquin Park

youtu.be/FnGGVLHpwsW



Painted Turtle: Note the brilliant colours!



Snapping Turtle: Be careful to avoid its jaws as it will feel threatened and may snap!

Help Protect Us!

If you see a turtle on the road, slow down!
If possible, you may want to try to assist the turtle by moving it in the direction it was heading.



Be careful with Snapping Turtles — you should not try to pick one up!
Avoid its jaws as it will feel threatened and may snap!
And, always remember, watch out for other traffic!

ALGONQUIN VISITOR CENTRE

HOURS OF OPERATION

Open Daily

9 am - 7 pm

Museum • Bookstore & Nature Shop • Café

WiFi

June 15 to October 14, 2019

Algonquin Logging Museum - Open 9 am - 5 pm June 15 to October 20, 2019.
The 1.3 km trail with outdoor exhibits is available year-round.

BEING BUGGED?

This can be a challenging time to be outdoors with both black flies and mosquitoes being present. Here are some tips to help you cope:

Wear light-coloured clothing (white, tan, khaki, etc.)—black flies are attracted to dark colours.

Cover up. Wear long-sleeved shirts with cuffs and collars that can be buttoned tight, as well as long pants with elastic cuffs (or tuck your pants into your socks).



Black Fly



Mosquito

Use insect repellent when outdoors—something with DEET works best. The concentration of DEET should be no greater than 30% for adults and no greater than 10% for children.

If you cannot, or prefer not to, use insect repellent, try some type of netting (a **bug hat or bug jacket**), available at most outdoor stores. When camping, you can try a bug tarp shelter to avoid biting insects.

CONTRIBUTE TO CITIZEN SCIENCE!

By submitting your observations and photos to Citizen Science platforms like iNaturalist.ca, you can help park staff document biodiversity in the Park and even protect habitat. For more information join iNaturalist.ca, and check out Algonquin Provincial Park under projects.

- Upload a picture of any wild plant, animal, or fungus
- iNaturalist's community and image recognition software will help you identify it
- Help out other naturalists by identifying their observations
- Every observation becomes part of a growing record of Earth's biodiversity

iNaturalist Canada is run by the Canadian Wildlife Federation, the Royal Ontario Museum, and iNaturalist.org at the California Academy of Sciences.



Available on iOS, Android, and at inaturalist.org!

Over 7000 observations of over 2600 species in Algonquin Provincial Park in 2018

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One Moose's Trash is Another Fly's Treasure: Antler Flies Teach Biologists about Love, Life, and Death

by Chris Angell

In summer and fall, male Moose sport a majestic pair of antlers for attracting mates, sorting out dominance and rarely, fighting rivals. These massive ornaments of bone are great for determining mate quality and social status but are rather heavy and cumbersome for travelling through the forest and avoiding predators, so each winter they discard them

Finding a Moose antler is certainly a highlight for anyone, but no creature in Algonquin is more excited to find one than an Antler Fly. DAVID LEGROS

on the ground. When snow finally gives way to spring rain, the Moose begin growing a new, potentially larger pair; the discarded antlers long forgotten. You may have had the good fortune to discover one of these majestic status symbols while exploring the woods in Algonquin Provincial Park, thrown away like an outdated smartphone. Unknown to their former owners and to most park visitors, the shed antlers' stories are not over. They are about to host a miniature echo of last year's glory—the mating season of the Antler Flies.



Antler Flies are tiny black flies, no larger than fruit flies, which swarm on shed antlers every summer. Their lives are brief and boisterous. Antler Flies only live about one week after they reach adulthood, and they are desperate to leave behind offspring to replace them. Females fly from antler to antler, where males spend all their energy fighting and flirting to get their attention.

Moose Antlers



PETER FERGUSON

Moose shedding his velvet.

- Antlers are grown under a soft skin of “velvet”. The developing antlers are soft and can easily be damaged during growth – a bull Moose is careful to avoid damaging them.
- Male Moose grow a new set of antlers each year. Antlers are among the fastest growing animal tissue in the world, growing from 0 to over 20 kg in less than 160 days.
- Antlers are a “disposable” bone, shed each winter after the breeding season.
- Antlers are composed mostly of calcium and phosphorus, which are uncommon elements in nature. Once the antlers are on the ground, many animals begin to chew and eat them for the minerals. Rodents, such as squirrels, mice, voles and porcupines quickly eat the antlers, and wolves are known to chew on them, much like a dog on a bone.
- Many animals rely on antlers for homes, nutrition and mating arenas, so please leave them where you find them!

Each male will claim and defend a Toonie-sized patch of the antler surface. The males are belligerent. They challenge any insect that dares enter their territory, even beetles and flies much larger than themselves. When two males meet, they circle one another for a moment, then suddenly one flicks his wing straight out and barrels in. The pair box and wrestle one another, sometimes rolling around the antler’s surface, until one finally retreats, leaving the victor in control of the territory. While this may not sound overly impressive to us because the flies are so small, if you had a front row seat to this duel, you would be amazed.

The largest, strongest fighters drive other males away from the cracks and pores in the antler where females gather to feed and lay their eggs. Female Antler Flies don’t accept advances from just any male, though. They use their antennae to smell the waxy molecules on a suitor’s body—the perfect mate is not just big and strong, he must smell good too! While most of the activity takes place on the antler’s surface, mating takes place on the underside – hidden away from rival males and potential predators.



An Antler Fly larva, photographed in the lab, curls up as it prepares to leap. Its head is on the bottom left.

ANTOINE MORIN

Approximately a week later, the eggs will hatch into tiny white maggots, less than a millimetre long, that feed on the bone marrow left inside the antler. Protected within their bony nursery, each little larva will grow to about 10 times their initial size over about a month and a half, growing to the size of a grain of rice. If summer ends before they are fully grown, the maggots remain inside the antler through winter’s deep freeze. Eventually spring comes, and they thaw to finish growing.



On the surface of a Moose antler, one male Antler Fly marked with an “E” guards his mate from a rival marked “X”.

RUSSELL BONDURIANSKY

The maggots must burrow into the soil to transform into adult flies, but they are slow and blind; they won’t leave the safety of their antler except under the cover of rain! When the Antler Fly maggots hear the drumming of raindrops on their roof, they know it is time to take flight—quite literally. They squeeze their soft bodies through whatever openings they can find, exposing themselves to the dangers of the outside world.

Using only their sense of touch, the maggots find a high vantage point. Then, they do something remarkable. Each larva rears up its body and reaches its head down to form a loop. For a moment, it stands still, tensing all its muscles. Suddenly it releases all this tension and straightens its body, launching itself through the air. The maggot falls unceremoniously on the ground, where it burrows into the soil to complete its transformation. Two weeks later, it will emerge as an adult Antler Fly and find an antler—maybe the one it emerged from, or perhaps a brand new one—and continue the Antler Fly life cycle.

Antler Flies are amazing insects, but scientists only discovered that they existed in 1988. Dr. Ron Brooks, then a professor of biology at the University of Guelph, noticed a host of flies swarming a Moose antler someone pulled out of the woods in Algonquin Provincial Park. Brooks studied turtles, but he wanted to learn more about these highly specialized insects—apparently unknown to science!

A few years later, he offered the opportunity to his student Russell Bonduriansky. Bonduriansky chose their scientific name, *Protophila litigata* (“litigata” is Latin for aggressive, an apt title for a brash little insect), and published detailed descriptions of their mating behaviour. To study individual Antler Flies, he figured out a way to paint numbers on their backs using a finely pointed piece of paper under a microscope. Using this technique, Bonduriansky discovered something interesting: male Antler Flies almost always stay on the same antler their whole lives, even if there are other antlers around. This made it possible to track individuals their whole lives and build the “biography” of each male.

In 2002, while at the University of Toronto, Bonduriansky worked with theoretical biologist Chad Brassil to use this biographical data to prove something previously thought unlikely. Biologists had observed that laboratory-kept insects such as fruit flies eventually deteriorate due to ageing, but many assumed that wild insects lead such short, perilous lives that they don’t have a chance to age before they die.

Bonduriansky and Brassil showed this was not the case. As a male Antler Fly gets older, his ability to mate and survive decreases dramatically! Plants and animals do their best to pass on their genes to the next generation, and individuals that reproduce effectively are said to have high “fitness.” In this case, ageing lowers male Antler Flies’ fitness by 20 percent: a major cost!

Russell Bonduriansky eventually moved to Australia, where he is now a professor at the University of New South Wales, but the study of Antler Flies is ongoing, now supervised by Howard Rundle at the University of Ottawa. Researchers there continue to answer questions about both mating and ageing in this fascinating species. Recent studies by Brian Mautz, Mathieu Oudin, and Chris Angell have focused on how nutrition of juvenile and adult Antler Flies influences how fast they age.



Chris Angell (right) and undergraduate assistant Olivia Cook (left) observing flies on an antler at the Algonquin Wildlife Research Station.

PATRICK MOLDOWAN

We all know that what people eat has a big impact on their health, so it should come as no surprise that the same is the case for these little flies. Differences in adult diet had only a small effect on how long male Antler Flies lived and how successful they were at finding mates, but diet quality during growth as a larva had a big impact. Individuals that grew up with poor nutrition took longer to develop, reached smaller sizes, and had shortened lives.

Surprisingly, these seemingly crummy males also mated more often! This could increase their fitness and compensate somewhat for their poor upbringing.

The story of the Antler Fly is far from over. They have only been known for a few decades: we have learned a lot from them, but there’s much more to discover. No one can say what scientific insights they still may provide us. The flies themselves have no time to wonder. They still have the same goal they always had—do whatever it takes to find a mate! So, the next time you come across a discarded antler, take a closer look and watch the Antler Flies’ tiny world of love and war unfold.

Antler Flies



RUSSELL BONDURIANSKY

Antler Flies prefer fresh antlers.

- Antler Flies prefer fresh antlers, less than 2 years on the ground. Very fresh antlers can host a few hundred flies at a time during the peak season, but as the antler ages it attracts far fewer flies.
- They do not appear to have a preference over large or small antlers but do prefer Moose to White-tailed Deer antlers.
- It is thought that fly larvae feed on the bone marrow within the antler, as well as bacteria and fungi found in the bone matrix.
- Antler Flies are thought to be at least uncommon, but they do occur from Newfoundland to Alberta, however few specific surveys have been conducted for this species. They likely occur wherever Moose are found.
- Predators of Antler Flies include beetles, predatory flies, damsel bugs and spiders.