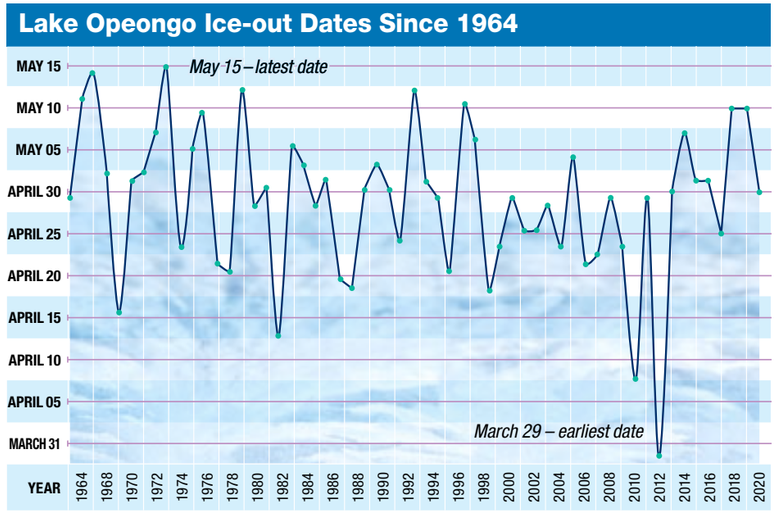

Compiled by Ontario Ministry of Natural Resources and Forestry: Algonquin Fisheries Assessment Unit

inside the nursery. If the web is disturbed, they may all begin moving at once – a startling scene. The young spiderlings soon leave the nursery and grow quickly. Arachnids and many other invertebrates have their hard body parts (exoskeleton) on the outside of their bodies; in contrast, our skeletons are on the inside. The spider's exoskeleton does not grow, so it must be molted for the young spider to grow. A cap-like structure on top of the cephalothorax (the head/body part where the legs are attached) of the spider pops open and the spider inside pulls itself through this. The new, soft exoskeleton begins to expand and stiffen, ending up much larger than it originally was. An empty suit of armour remains, and a larger spider moves on. If you look carefully where spiders live, you can often find these cast-offs.

If you are interested in observing Dark Fishing Spiders, all you have to do is get down to a rocky shoreline this summer. During the day you can find them waiting to ambush prey, or maybe find a "nursery web" on shoreline shrubs. At night you can find them doing the same, but you can also use a headlamp or flashlight held at eye-level to spot the shine of their reflective eyes which is a greenish colour and can be seen from many metres away. This technique is called "spider sniffing" and is even more fun than it sounds. Many other kinds of spiders also have eye shine and looking in a variety of habitats will turn up many different kinds.

Many people are drawn to Algonquin's rocky shorelines for camping, swimming and fishing—so too is the Dark Fishing Spider. Not everyone will be pleased to share a campsite with one of these impressive spiders, and that is a real shame. They are fascinating and harmless animals and we should at least appreciate their amazing abilities and complex lives. While they may not have the cute fuzziness of an American Marten or the majesty of a Moose, spiders deserve our attention. They are remarkable predators capable of handling prey many times their size, and devoted parents that often sacrifice their own lives to ensure the survival of their offspring. So why not get over your mammalian hang-ups about what you think is a "normal" number of legs or eyes and go admire a spider!

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).

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.

Black Fly

Mosquito

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.

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The Raven

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Toes in the Water

by David LeGros

Part of Algonquin's appeal is certainly its vast numbers of lakes and rivers. There is something perennially appealing about spending time on Algonquin's water, and many of us consider canoe-tripping or swimming while in the Park among our annual highlights. Speaking of swimming, you may have noticed that Algonquin doesn't have many natural beaches—in fact, along Highway 60, there are only a few. For this, we have receding glaciers to thank, whose torrents of meltwater flushed much of the sand and gravel that was here far downstream. What we do have are many, many rocky shorelines that are commonly studded with driftwood and shrubs. These bouldery, shrubby, wild shorelines make habitat for many kinds of wildlife. And, in my case, they make for a great place to swim and look for spiders.

A few years ago, while swimming along one of these shores, the kind with a sheer face of

Dark Fishing Spiders are found where rocks meet water. Make sure to look in the shadowy parts, too!

PHOTO: MICHAEL LEVEILLE

Arachnids in Algonquin Park

Arachnids are a diverse group of invertebrates. They all normally have 8 legs.

Wolf Spider DAVID LEGROS

Spiders – there are likely thousands of species of spiders in Ontario. Spiders have two main body parts, the cephalothorax (head/body) and abdomen. Some common spiders in Algonquin include Wolf Spiders on the forest floor, Crab Spiders on flowers and Orb Weavers, building elaborate webs between vegetation.

Daddy Long-legs or Harvestman – These extremely common and distinctive arachnids are not true spiders. They have one main body part instead of the two of spiders. They are non-venomous and feed on other invertebrates, plants and fungi.

Harvestman WIKIMEDIA

Winter Tick JASON DOMBROSKIE

Ticks – Small, hard-bodied arachnids. Most are parasites, feeding on blood. The Winter Tick is common in Algonquin but does not feed on humans. Other species, such as the Black-leggd Tick are spreading to new areas of Ontario but are not common in the Park yet. Some ticks are capable of spreading disease, so visitors should perform tick checks as a precaution when visiting natural areas.

rock typical of the Canadian Shield, I saw a dark blur move among the broken-up rubble at the water's edge. I swam up a bit closer to have a look behind the rock that concealed the mystery creature. As I swam closer I was able to see it was an enormous spider. I recognized the species right away—it was a Dark Fishing Spider. This might have sent many people right back onto shore in a hurry, but I enjoyed watching it up close as it carried out its business. As I looked around, I noticed many more similar spiders, some big and some small, but all the same species. I was intrigued by these large arachnids and wanted to find out more.

The Dark Fishing Spider, commonly called the "Dock Spider", is large by Canadian standards but attains dinner-plate sizes only in our imaginations (a typical leg-span is up to 9 cm). The spider is dark grey overall with thin whitish chevrons on the abdomen. The long legs have large, coarse hairs pointing straight outwards, which are used like "whiskers" to detect the slightest motion near it. Even these details may be more than most people care to notice, but if you do lean in for a closer look you may also notice the fascinating eyes of the spider. Most spiders in our area have eight eyes, and paying attention to the arrangement of the eyes can be helpful in determining what kind of spider you are looking at (and who is also looking back at you!). The Dark Fishing Spider is in the Nursery Web Spider family, and they have two rows of eyes. The lower row consists of four small eyes close together, and the upper row has two large eyes in the centre, with the two smaller outer eyes each directed slightly sideways. As far as spiders go, the Dark Fishing Spider has relatively good eyesight (most spiders don't see very well) and they are able to hunt day and night.

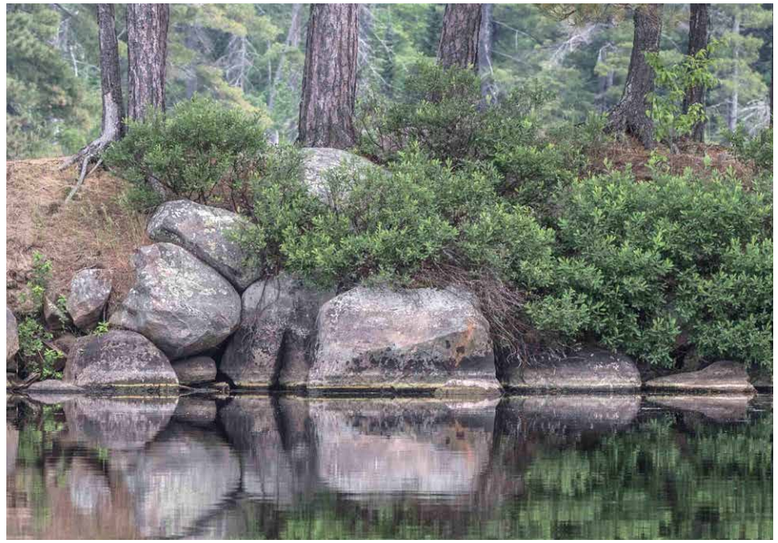
A female Dark Fishing Spider on her nursery web. Look on the tops of shrubs near the shore for these devoted mothers. PHOTO: DAVID LEGROS

Spiders are predators. We are most familiar with spiders that build a web, patiently wait for some hapless flying insect to get entangled in that web, and then kill that prey with one quick act where the spider darts out and bites the insect, delivering a dose of venom to immobilize it. The venom works to predigest parts of the prey, and until the time is right the spider keeps its meal carefully wrapped in silk. However, many spiders make use of other ways to catch prey. Instead of tending a web, the Dark Fishing Spider finds a good place to wait, such as on a rock or stump at the water's edge. Here, they place the first two pairs of legs outstretched, just touching the water's surface. When the spider feels potential prey gently disturbing the surface of the water, the spider lunges out to grab and bite it. The "fangs" of spiders are like small hypodermic needles that are connected to glands that inject venom. The venom does its work and the spider consumes the partially digested prey. The menu includes insects and other invertebrates, and occasionally even tadpoles and small fish! It is quite astounding to consider a terrestrial invertebrate, dipping into the water to nab a small vertebrate!

Spending so much time at the water's edge means that Dark Fishing Spiders must have adaptations for a semi-aquatic lifestyle. Indeed, the tips of their legs make tiny convex depressions on the water's surface, and using this surface tension they can float, walk or even run! It is a remarkable and shocking sight to see one of these spiders skitter over the water. Dark Fishing Spiders can even dive under water for up to 30 minutes to catch prey or evade predators! Despite all these adaptations for life near water, they can also live some distance away from aquatic habitats. They can turn up even hundreds of metres from water – in buildings, fields, and even the outhouse.

Mating is risky business for many spiders since males often get eaten by the females. By consuming her partner, she gains a "snack" to help fuel the development of her brood. Male spiders have a pair of specialized limbs called pedipalps, which look a bit like small legs with boxing gloves at the end. The male has loaded these pedipalps with his own sperm. Upon meeting a female, he will try to fertilize her by putting the pedipalp to her reproductive opening. In many species, after mating the pedipalp shrinks back to normal size and the male will escape the female, or get eaten trying. Recent research has discovered something even more startling and strange about mating by the Dark Fishing Spider. The male remains stuck to the female once he has connected his pedipalp to her reproductive opening. Shortly thereafter, the male's legs curl under the body, he dies, and then drops off. Although mating with the female is what killed him, the female herself didn't harm a hair on him! As male Dark Fishing Spiders only get one chance at mating, they must be very choosy. They prefer un-mated females which improves the odds of paternity, and females are rarely interested in a second mating anyway. We might think this strategy rather strange, but it has likely happened in response to factors in the evolution of the Dark Fishing Spider. Males reach maturity in the same year as they are born whereas females over-winter and mature the following year. Mature males are much more abundant than mature females, out-numbering them 3:1, meaning few females live long enough to reach maturity. The females are also much, much bigger than males, which allows for taking larger prey and greater internal body space to produce more eggs. For the male, being the female's first mate is best as he alone will sire offspring, and apparently there is almost no point in trying again, so they die, putting all their effort into that one mating attempt.

A male Dark Fishing Spider showing off his enlarged pedipalps. PHOTO: MURPHY'S POINT PROVINCIAL PARK



Algonquin's shorelines are often rocky with pieces of driftwood. These are ideal places for the Dark Fishing Spider. PHOTO: MICHAEL RUNTZ

Dark Fishing Spiders do not construct a web for capturing prey, but the females do build a web for their offspring; after all, being in the Nursery Web Spider family, we would expect this of them! After carrying her silken ball of eggs, the female spider will scale a shrub, and begin wrapping the twigs and leaves in silk from her spinnerets (from the end of her abdomen) and the egg sac is placed inside the wrapped shrub. The mother waits on the outside of the "nursery" until the eggs hatch. There may be over a thousand little spiderlings