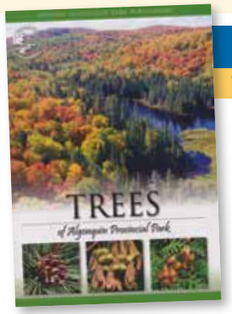
Notes from the Field

By Peter B. Mills

Supercanopy - Old Pine

One of the best places to see immense, "supercanopy" Eastern White Pines in Algonquin Park is near Big Crow Lake. Each year, canoe-trippers go to appreciate an impressive stand of ancient pines located about 3km east of the lake (in the "Big Crow White Pine Nature Reserve Zone"). What is less well-known is that there is another stand of such pines about 6km northeast of here (the "Old Pine Nature Reserve zone") but it is not regularly visited since the trees are not accessible from a canoe route. We checked on this lesser-known stand of pines last year to update our records on just how many supercanopy trees were still standing (there were fifteen or sixteen in the late 1960s). Our aerial inventory confirmed only a single supercanopy pine remains standing at this site. Even at a great distance this pine was very conspicuous since it appears to stand about twice the height of the canopy around it. The other fourteen or fifteen supercanopy pines seem to have died from natural causes. During a ground inspection we found a very large stump that was charred on the inside, leading us to suggest at least one of the supercanopy pines at this site may have been killed when a lightning strike ignited a fire inside the trunk of the tree itself.



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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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ALGONQUIN VISITOR CENTRE

HOURS OF OPERATION

Algonquin Visitor Centre
April 18 to October 26, 2025
Open Daily 9 am - 5 pm
October 27 to December 23, 2025
Weekends 9 - 5 pm, full services
Weekdays 9 - 4 pm, limited services

Exhibits • Theatre
Bookstore & Nature Shop

Algonquin Logging Museum
June 14 to October 19, 2025
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The 1.3-km trail with outdoor exhibits is available year-round.

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A Spine in our Sides

by David LeGros

The plants and animals that call this mighty park home are not just here by chance, they had to work hard to get here in the first place. Most made their way here after the last glaciers melted about 11 000 years ago. They arrived in waves. First were aquatic species that could live in cold water, as the Algonquin dome was submerged by the melt waters of the glacier known as Lake Algonquin. As the water levels dropped, smaller lakes then dotted the landscape in the indents of the land instead. The fish and aquatic organisms that made it here were typically able to swim up the then-cold rivers, or at least tolerate frigid, moving melt water. As the rushing melt waters subsided, natural barriers like waterfalls were created, which in turn also kept many species out. Eventually, the organisms that did get here would become isolated in their watershed – a time capsule of what aquatic communities looked like not long after the glaciers melted. Later, more plants and animals would arrive, covering new ground, but they had to be hardy. The new, post-glacial landscape changed over ten thousand years, from one that resembled the sub-arctic with stunted conifers and mosses to the hardwood forests of Algonquin Park we see today. We may be surprised to learn that pretty much every plant or animal we see in Algonquin, and Ontario, for that matter, arrived here after the glaciers melted, and they got here under their own power. But there are a few species that got here late, and some of them had help and this isn't a good thing.

While hard to put an exact finger on it, what people like so much about Algonquin is that it feels so different from the places we may call home. In many ways, it feels like a wilderness. It is vast and appears to be unchanging. Nature lives here. A big part of the appeal is what isn't here. We have few paved roads, no towns or cities or big box stores, very little light pollution, it's quiet, and the forests and lakes "look like they should" – to our eyes they appear intact, complete, and natural. There are fewer invasive species here compared to other areas of the province. Through hard work

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and special rules for the Park, in cooperation with park users, we have maintained some of the character of the Park, while outside our boundaries this is just a memory. While we can be happy with what we have managed to maintain, it is no time to relax. The Park of only a few decades ago no longer exists, and the world has become a much smaller place.

By the 1980s, international trade had made the movements of goods from around the world simple. The Great Lakes has a long history of international seaports, that are accessible to ocean-going freighter ships.

You may be surprised to learn that while ships travel the ocean, they navigate more easily when heavy. If a ship is not carrying heavy cargo, it will take on ballast water. Ships have special ballast tanks that hold water, and they will take on water, hold it while navigating, and drain it before they take on cargo. A ship could take on ballast water from freshwater ports in Europe or Asia, traverse the Atlantic, enter the St. Lawrence Seaway and arrive to the lowest Great Lake, Lake Ontario or beyond. The ship, arriving at one of the 20 seaports on Lake Ontario for example, would dump its ballast water then be ready to take on its heavy cargo like grain. While this seems like a simple and tidy process, the water that entered the ship in Europe may have had stowaways, which can survive the transatlantic trip. Now, released into another freshwater habitat thousands of kilometers away, the stowaways may have found a new home that is to their liking. Many species have arrived in the Great Lakes this way, among them the infamous Zebra Mussels. To date, over 190 invasive species have been documented in the Great Lakes – making them the most invaded freshwater ecosystem in the world. It is believed that the Spiny Waterflea arrived this way in 1982, and quickly spread throughout all the Great Lakes and beyond. Please note readers, that there are now ballast water regulations in place that require ships to flush out freshwater at sea, before entering the Great Lakes. This regulation has helped, but it is impossible to completely remove the threat.

You may have never heard of Spiny Waterflea, and we won't be surprised. Spiny Waterflea

Researcher using a plankton tow net to sample for Spiny Waterflea in an Algonquin Park lake.
Photo credit: Aly Andersen

(Bythotrephes longimanus) is crustacean; imagine a small, thin, shrimp-like creature (8-12 mm), visible to the naked eye. They have pale bodies, dark eyespots on the head and a long tail with several small spines. Spiny Waterflea is in a group of organisms known as plankton, which are kinds of plants and animals that rely on water currents and wind to move throughout their habitat. In their native range, the freshwater lakes of northern Europe and Asia, Spiny Waterflea prefers large, deep, clear lakes, but can also be found in shallower waters. Interestingly, Spiny Waterflea not only move with the flow of water, but also move up and down in the water column; remaining in deeper, cooler waters during the day and swim towards the water surface at night to feed. Despite being small, they are predators with big appetites — large numbers of Spiny Waterflea can consume huge quantities of other plankton, dramatically altering the foundation of aquatic food webs.

In lakes where Spiny Waterflea are abundant, they can totally destabilize the food web that the native species have adapted too as the new competitor. The abundant Spiny Waterfleas may eat a lot of the available food, and they are difficult for some species of fish to eat because of their spines, allowing their numbers to increase without much predation. In some

The Spiny Waterflea (Bythotrephes longimanus) is a crustacean; imagine a small, thin, shrimp like creature measuring round 8-12mm making it visible to the human eye. *Photo credit: Kevin Keeler and Lynn Lesko*

Spiny Waterfleas caught on fishing line.
Photo credit: Andrea L. Jaeger Miehls, Michigan State University

The collapse of the aquatic community that supports Brook and Lake Trout among other fish, may not be noticeable to some backcountry campers, but if this happens, something fundamental will be lost. Slowly, we will lose one of the last wild places in southern Ontario.

cases, having Spiny Waterflea in the food chain not only reduces the population but also the biomass (the amount of living tissue produced, so not just the number of fish but their weight) of sport fish like Walleye, but also the overall size of fish.

Spiny Waterflea is a very effective invasive species as they can reproduce in two ways, and they can switch it up seasonally. In the fall as food supplies dwindle, they multiply very quickly through sexual reproduction by mating and laying eggs, which sink to the lake bottom to over-winter. These eggs are very hardy and can survive tough conditions such as freezing or even drying. During the summertime when conditions are good and food plentiful, the Spiny Waterflea can also make clones of itself, meaning just a single individual can make more copies of itself – a handy adaptation when invading new lakes.

So, you have probably noticed that Algonquin does not have a shoreline on the Great Lakes or a seaport, and you would be correct. So, we don't need to be worried about Spiny Waterflea then? That would be entirely false. The invasive crustacean, once established in the Great Lakes was able to get to inland lakes. It is not, however, travelling in ballast water this time. It is catching a ride on your stuff. The spines and long tail of the Spiny Waterflea easily get caught on things that are dragged through the water, like a boat trailer, fishing line or anchor ropes. While they are aquatic, they can survive for a time out of the water, especially if kept wet. For the past four decades, this species has been inching closer and closer to Algonquin, one introduction at a time. For over fifteen years, it has been on Algonquin's doorstep, in Lake Nipissing, several lakes in Muskoka, Haliburton and the Ottawa Valley.

By late summer of 2022, the Spiny Waterflea was detected in Lake Kioshkokwi (known affectionately as Kiosk). A week later, park biologists found it in North Tea Lake and Manitou Lake. In 2023, it was detected in even more lakes, like Rock Lake, Three Mile, Mink and Cauchon. A total of seven infected lakes in three watersheds. Our defenses had been breached, and it was and is a shocking blow to the park and its staff.

The Park doesn't have a fence around it and wardens are not checking every single vehicle entering, so invasive species may get here if we don't stay vigilant. We have tried to prevent the spread of invasive species through a variety of means:

- **Limitations on which lakes can have boats.**
- **Live baitfish ban.**
- **No fishing near dams.**
- **Boat washing stations.**

In addition, the Province of Ontario has introduced new laws in the Invasive Species

Stomach contents from a Lake Whitefish that consumed Spiny Waterflea in Kioshkokwi Lake. Stomach samples were used to help confirm the presence of the waterflea.
Photo credit: Aly Andersen

Action Plan, which among other rules makes it illegal to "place a boat, boating equipment or any vehicle or trailer into any body of water if there are any aquatic plants, animals or algae attached to it." In other words, your equipment must be clean before arriving to a new lake.

Kiosk Lake does allow boats, and the headwater of this watershed is outside the Park. It may be less of surprise that this species would turn up here first. The Northwest corner of Algonquin maybe the weakest part of our armour. But you may be asking, "so what, there is Spiny Waterflea in a few lakes. The Park has 2400 other lakes, what's the big deal?". Well, most lakes are connected by many streams or rivers to other lakes, which make up what is called a watershed. Lakes near the headwater of a watershed flow downstream. Plankton flows downstream too. Even if the lakes aren't connected, people can still accidentally transport this species from lake to lake unknowingly on their gear, like a spool of fishing line or on the hull of a canoe. Most of our backcountry users travel throughout the backcountry, and even that 2800 m portage between Manitou and Three Mile Lake isn't long enough to dry out and kill off Spiny Waterflea.

We can easily transport it from one watershed to another. The jewel of Algonquin's watersheds is arguably the Petawawa. It contains most of the naturally reproducing Brook Trout left in the Park, some unique Lake Whitefish populations and the Black-finned Cisco. The havoc that Spiny Waterflea would cause once in this watershed may spell the end of our cherished aquatic communities that have evolved here over the past 11 000 years.

You may not immediately notice the establishment of this invasive species, or a few of them, but over time they can erode the very quality and nature of Algonquin forever. The collapse of the aquatic community that supports Brook and Lake Trout among other fish, may not be noticeable to some backcountry campers, but if this happens, something fundamental will be lost. Slowly, we will lose one of the last wild places in southern Ontario.

There is no way to remove Spiny Waterflea from a lake once it is established, and the prospects are grim once it enters a watershed. There may not be much that we can do for the affected lakes. We can, however, prevent the spread of Spiny Waterflea. We are asking campers and visitors to:

- **Clean, drain and dry their boats and equipment – it's the law!**
- **Avoid fishing in lakes known with Spiny Waterflea if they are travelling to other lakes.**
- **Be on the lookout for Spiny Waterflea and other invasive species. Report sightings of Spiny Waterflea or other invasive species to inaturalist.ca or to a Park office.**

This Park is where many people go on their first canoe trip, see a moose, catch their first trout, and spend a night under the stars. They come from near and far to do this. We see them, enchanted by their experience every day in Algonquin. Their experience here, though only one of many, is important to them. Their actions — your actions, are also important. What you do while in Algonquin matters, and we need you to care for it, and do your part.