

Enhanced Fujita Scale		
	Wind Speed range (km/h)	Damage
EFU Unknown	Unknown	None Detectable
EF0	90-130	Light damage
EF1	135-175	Moderate
EF2	180-220	Considerable
EF3	225-265	Severe
EF4	270-310	Devastating
EF5	>315	Incredible

Tornadoes and severe wind events in Algonquin Provincial Park

Date	Location	Approximate Size	Rating	Notes
July 22, 1972	South of Lake Lavielle	25 kms long		Damage to portage and forest
August 27, 1973	Near Manitou Lake	11 kms long		Flattened forest
Summer 1983	Area from Lake Travers to McManus Lake			Flattened forest
July 5, 1999	Area from Lake Travers to McManus Lake	6600 ha		Flattened forest
June 10, 2020	Lake Lavielle	11.4 km x 460 m 524.4 ha	EF1	Downburst
June 10, 2020	Canisbay Lake		EF1	Downburst
July 15, 2021	Sunbeam Lake	7.14 km x 320 m 228.5 ha	EF2	Overland Tornado
July 15, 2021	Lake Travers	11.9 km x 340 m 404.6 ha	EF2	Overland Tornado Flattened Forest

Revised **ONLY \$6.95**

Official Park Publications

Birds of Algonquin Provincial Park

Visitors to Algonquin are often unaware that it offers a unique opportunity for seeing and hearing many of the birds of Ontario. Through 155 colour photographs and short accounts this book will introduce you to the main habitats of the Park, some of the most striking birds, and recent changes including the dramatic decline of 19 species.

Revised **ONLY \$4.25**

Checklist and Seasonal Status of the Birds of Algonquin Provincial Park

This publication features a list of the 290 bird species that have been recorded within Algonquin Park, as well as their status (e.g., common, uncommon, rare) and the time of year when they occur. There is also information on recommended sites to go birding and to find some of Algonquin's specialties.

CONTRIBUTE TO COMMUNITY SCIENCE!

As of early 2022, the Algonquin Provincial Park iNaturalist project had over 67,000 observations of 4130 species!

Available on iOS, Android and at [inaturalist.org](https://www.inaturalist.org)

- 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.



By submitting your observations and photos to Community Science platforms like [iNaturalist.ca](https://www.inaturalist.ca), you can help park staff document biodiversity in the Park and even protect habitat. For more information join [iNaturalist.ca](https://www.inaturalist.ca), and check out Algonquin Provincial Park under projects.

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



ALGONQUIN VISITOR CENTRE

HOURS OF OPERATION

Algonquin Visitor Centre
April 23 to October 30, 2022
Open Daily 9 am - 5 pm
October 31 to December 23, 2022
Weekends 9 - 5 pm, full services
Weekdays 9 - 4 pm, limited services

Algonquin Logging Museum
June 11 to October 16, 2022
Open Daily 9 am - 5 pm
The 1.3-km trail with outdoor exhibits is available year-round.

OntarioParks.com • algonquinpark.on.ca

The Raven

A Natural and Cultural History Digest

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A new twist on old disasters

by David LeGros

While camping, the weather can make or break the trip. Warm weather and calm winds certainly make for an enjoyable experience. If you are prepared for it, even a little rain won't bother you too much. A windy day on the lake can really slow your progress. But what if the wind really picks up? Under certain conditions, the wind can become very dangerous.

On warm spring and summer days, a supercell thunderstorm may emerge. Stoked with energy from conflicting hot and cold air masses and loaded with humidity. The result can be a huge storm, with an internal area that rotates at high speed many kilometres above the ground, called a mesocyclone. The mesocyclone lowers and starts to take in cool, moist air. The meeting of warm air in the updraft, and cool air creates a wide

area of rapidly rotating clouds. As the updraft at the centre of the rotating mesocyclone becomes more powerful, an area of lower pressure is created at the base, drawing it towards the ground, which causes it to become more narrow, like the end of a funnel. Within minutes of the funnel reaching the ground, it generates dangerous winds and damage occurs. The rotating column of air can reach speeds of several hundred kilometres per hour, and send debris hurtling through the air.

In our part of the world, we don't often think of tornadoes, but they do occur. In fact, there are approximately a dozen tornadoes annually in Ontario. However, there were 46 tornadoes confirmed across Ontario in 2021, according to Western University's Northern Tornadoes Project.

Continued on Next Page...



Photo: Dawn Sherman

On Thursday, July 15, 2021, conditions for widespread high winds, including the possibility of a tornado occurred. A large and powerful thunderstorm developed in southern Ontario and moved from southwest to northeast. Much of central Ontario experienced high winds, rain, damage to trees and utilities, plus in a few locations, tornadoes. On that day, a total of six known tornadoes touched down. A cluster of tornadoes occurred in the Lake Simcoe area, at Zephyr-Little Britain, Lorneville and Barrie. The latter being the most severe in the province that day, with winds at 210 km/h, creating a track 12.5 km in length, and 510 m at the widest. Dozens of homes were damaged or destroyed and an estimated \$83 million of damage occurred. The other cluster was in our area: Dwight, just west of the Park along Highway 60, Sunbeam Lake about 10 km north of Canoe Lake, and lastly, an area just south of Lake Travers. Needless to say, this was a very important date for weather in Ontario.

The tornadoes in southern Ontario received a lot of attention due to the scale of destruction, and rightfully so. In Algonquin, we have very few permanent structures, few public roads and infrastructure, but we do have vast forest, with many trails and portages. When a big storm does hit, it can make getting around in the backcountry pretty difficult.

In our area, the first tornado to touch down was in Dwight at 4:15 pm. It caused damage to many trees and some buildings, some of which will be visible for years to come. It is estimated that windspeeds reached 190 km/h, an EF2 tornado. The track was measured at 4.76 km in length and 360 m wide. The storm that produced this tornado headed northeast. Only 15 minutes later at 4:30 pm, another touched down with similar force at Sunbeam Lake, 45 km to the northeast. Here, the track was

Imagine the power of the wind capable of flattening a forest! This aerial view shows only a part of the damage near Lake Travers. Photo: Patrick Weller



7.14 km long and 320 m wide. Moving farther to the northeast, the storm landed again at 5:10 pm, 60 km away at Lake Travers. With a track 11.9 km long and 340 m wide, this was the largest swath damaged in the storm in our region. The tornado flattened an area of forest of approximately 400 hectares. Large White and Red Pines were toppled and smaller trees in the forest nearby looked as though they had been lifted and pulled towards the path of the tornado. Once the wind died down, and Park staff were able to inspect the damage, they were busy for many hours just clearing the road to access the area.

Such storms, while infrequent are not new to the area, and several have occurred in

the past. In the 1970s, two tornadoes occurred well away from Highway 60, including one near Manitou Lake that had a trail of 25 km in length, which is the longest recorded in the Park.

While the destruction caused by severe weather like tornadoes is devastating in the short term, for our forests at least, it is an opportunity. As we know, trees need sunlight to produce their own food through photosynthesis. Depending on the species of tree, its need for sunlight may be great or less. Many trees, like Sugar Maple, American Beech, Balsam Fir, Eastern Hemlock and spruces can tolerate rather shady conditions, such as those found in mature deciduous forests. Other species, including Red Maple, Yellow Birch, Red Oak and Eastern White Pine, are intermediately

Following a large-scale disturbance like a tornado or forest fire, sun-loving species flourish and begin to form a dense layer of regenerating vegetation. Jack Pines grow in full sun and, on the Park's east side, commonly grow in recently disturbed areas. The Macoun's Arctic is a very interesting butterfly that lives in these open Jack Pine forests. Despite the close association with Jack Pine, the foodplant the caterpillars rely on is not the pines themselves, but grasses that also occur in this unique habitat. Macoun's Arctic's are marked with delicate greys and browns on the underside of the wings,

A small patch of wind throw in a Red Pine plantation. Note how the moss has seized the opportunity to grow in the sun, and forest floor nearby is red with pine needles. Photo: David LeGros



tolerant of shade but require some canopy gaps. Lastly, shade intolerant trees, such as Jack Pine, Red Pine, Pin Cherry, Large-tooth and Trembling Aspens, and a variety of willows, do best with full sun exposure. You may have noticed that trees in the tolerant category are pretty common throughout the Park, while those in the intolerant category are generally uncommon. That is because our forests are mostly mature, and the common species are ones that live in mature forests – mostly shaded. The intolerant species usually live in open sites, with lots of sun. But how did we get these occasional breaks in the forest? Our forests experienced a disturbance! Minor disturbances here and there such as wind-throw, a very small forest fire, a modest insect outbreak, a

lightning strike or even the activities of beavers, can create small gaps in the canopy of trees. A big disturbance is different. When a vast area is flattened by wind, defoliated by insects, or burned to the ground by fire, it creates an entirely new habitat. Instead of a small patch, where a few shade intolerant trees may grow, it could be hundreds of hectares where these "pioneering" species get established. Seeds from trees could be blown in or dropped from neighboring parent trees. In some cases, uniform stands of trees may grow up, like Jack Pine which needs heat to open their cones and responds immediately to fire. Tornado damage leaves behind so many trunks and branches on the ground that little sun may reach the forest floor, and regeneration may be challenging and feature a mix of species.

Following the storm damage near Lake Travers in 2021, there was an opportunity to do some salvage logging, facilitated by the Algonquin Forestry Authority. This has been conducted in the past, in certain regions of the Park where forestry is permitted to occur. Interestingly, at this location, on one side of the road forestry may occur, and on the other it is not permitted. By having salvage logging on one side of the road and not the other, we are conducting a simple, but elegant natural experiment to observe and compare regeneration following such a large disturbance. Over the coming years, you can see the comparison for yourself on the Barron Canyon Road, just south of Lake Travers.

The usual human thought following damage to our homes, for example, is to repair them and get back to normal as soon as possible. Interestingly, the aftermath of some earlier storms in Algonquin was actually preserved

by designating them Nature Reserve Zones. A close look at the Canoe Routes Map will even show you the location of a couple. The area near Manitou Lake, the result of the blowdown on August 27, 1973 was designated a Nature Reserve Zone, where no human intervention would occur. It should be noted that people paddling the length of Manitou Lake are no longer able to see the damage left behind by this storm – the forest has regenerated through it. A powerful downburst that occurred on July 22, 1972 in the Big Crow area, near Thomas Lake, was also preserved in a similar way. Former Chief Park Naturalist, Dan Strickland recalls visiting the site and trying to walk through the damage. He did so "without touching the ground", meaning there was so much debris, he was well above the soil, clambering over trees.

We wish all campers heading out into the Park excellent weather, but as we all know, bad weather does happen. We may not enjoy it at the time, especially if our safety is at risk, and we do need to take precautions. The short-term impacts of tornadoes can be devastating to our favourite places, but nothing in Nature stays the same. The devastation slowly heals. The longstanding impacts of severe winds and tornadoes can create some important breaks in our forest and produce trees and vegetation that provide habitat and food for wildlife. Over time, these patches become absorbed into the larger forest and centuries later, we are unable to detect them. If only all damage to a landscape could heal this way.

A special thanks to Dr. David Sills, of the Northern Tornadoes Project at Western University for providing technical expertise and commentary on this article. For more on the Northern Tornadoes Project, visit www.uwo.ca/ntp/



The butterfly in the pines

The mysterious Macoun's Arctic near Lake Travers

Photo by Colin D. Jones

but the uppersides are orange with eye-spots. Interestingly, this species requires two-summers as a caterpillar before it undergoes metamorphosis and becomes a butterfly. In Algonquin, this means the species only appears every other year. The Algonquin Park population can only be seen in even-numbered years, like 2022. If you happen to be camping on the Park's east side in late May or June, keep an eye out for the Macoun's Arctic. Otherwise, you'll have to wait until 2024 to see one!