

the middle of winter. This means that these canary-sized birds must attend a nest and chicks while also dealing with temperatures that regularly drop below -30° C at night and raging blizzards bringing several centimetres of snow. The female will incubate eggs and brood chicks for a nearly continuous twenty-four hours per day while the male brings her food during the daytime hours. Remarkably, though unsurprisingly, crossbills feed their chicks conifer seeds—a diet on which no other birds could survive, much less grow. To say these little birds are hardy is an immense understatement—but it comes with this great reliance on such an irregular source of food.

Algonquin in the winter may be cold and harsh for people—but we invite you here to see how the animals and plants have adapted to not only survive but thrive at this time, and crossbills and conifers are a perfect example of an arms race that has resulted in some incredible adaptations for both trees and birds. While we talked about crossbills in this article, other finches such as the large and impressive Pine and Evening Grosbeaks, Hoary and Common Redpolls, Pine Siskins and Purple Finches often also arrive in the park during this season, if there is lots of food. We believe that a little chilly weather is worth tolerating by anyone with an interest in the natural world, to witness an amazing and unlikely spectacle: the sight and sound of a forest filled with colourful songbirds in the middle of winter.



Unlike crossbills, Pine Siskins are generalists and feed on a variety of tree species. They often show up with crossbills and other finches in the winter if there is lots of food.

Want to know if there are finches in Algonquin? Read the weekly bird report which can be found during winter on the Algonquin website (www.algonquinpark.on.ca). The bird feeders at the Algonquin Visitor Centre (km 43 on Highway 60) provide a great opportunity to view winter finches.

Gray Jay Research Update

The Gray Jay project, now in its 53rd year, had another season of low reproductive success in the 2017 breeding season. From mid-February until early-May, nests were located on 20 territories along the Highway 60 Corridor. Eleven of these nests successfully reached the nestling stage with only 26 total nestlings produced, a record low for the project. An unseasonably warm February and a mid-April snowstorm may have played a role in increasing nest failures and reducing the number of nestlings produced. Research into what may be causing low reproductive output and its consequences on the population are currently being conducted by the University of Guelph.



Algonquin Provincial Park's

7th Annual WINTER IN THE WILD

February 17th, 2018

All activities are free with the purchase of a valid Park Permit

- Snowshoeing
- Winter Birding
- Ice Skating
- Special Presentations
- Cross-country Skiing
- Winter Camping Demos
- Wolf Howl
- Roasting Marshmallows and more...

For more details check algonquinpark.on.ca



ALGONQUIN VISITOR CENTRE

HOURS OF OPERATION

Open Daily

9 am - 4 pm
(limited services)

Museum • Bookstore & Nature Shop • Café **WiFi**

Weekends & Holidays

9 am - 5 pm
(full services)

Winter Hours — October 30 to April 20, 2018

Holidays — Christmas (December 27 to January 7, 2018 | **Closed December 24-26**) • Family Day (February 19)
March Break (March 10-18, 2018) • Easter Weekend (March 30-April 2, 2018)

Algonquin Logging Museum - Reception Centre is closed. The 1.3 km trail with outdoor exhibits is available year-round.

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Algonquin

The

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The Cone Wars

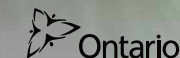
by Lev Frid

The busy summer and fall seasons here in Algonquin are over, and the woodlands are, once again, relatively silent. While many of the mammal species in the Park become easier to see against a winter backdrop of white and grey, most of the birds leave to spend the winter in warmer locales. Besides the frigid winter temperatures, the availability of food is their greatest challenge. Most birds that breed in Algonquin feed on insects, and these become very scarce in the cold months. Some birds, like the familiar Black-capped Chickadee, are good at finding tiny, hidden insect cocoons and other small tidbits of food that allow them to

make it through the winter. Other species, such as Spruce Grouse, are able to subsist on low-quality food like the needles of conifers and survive the winter that way.

These birds are the exception rather than the rule—however, this summer we noticed something happening in the woods of Algonquin that may just drown out the silence of winter, and fill woodlands with a spring-like chorus of birdsong. Our coniferous trees—spruces, pines, Eastern Hemlock and the like—began developing a large crop of cones early in the summer. We all remarked about how certain trees were even bending under the weight of all the new green cones! This is not something that happens every year—in fact, this is something that has not happened here in Algonquin in several years! But why was this happening?

Red Crossbill
PHOTOS BY: LEV FRID





A close inspection of this White Spruce tree shows that the branches are bending due to the weight of hundreds of cones

Many tend to think of trees as benign, even not much more than a backdrop to the wildlife we come here to see. We forget the fact that trees, of course, are living things and just like the animals of Algonquin, they are also under the constant stresses of living and reproducing in a wild, competitive ecosystem. Unlike animals, however, plants are immobile and we interpret them to be quite limited in their ability to protect themselves from predators. This cannot be further from the truth - trees have developed ways to thwart their predators, and make sure as many of their seeds as possible have a chance to grow rather than getting eaten.

Perhaps one of the most dramatic ways trees do this is through a process called “masting”. Trees can “sense” what is happening around them – climate patterns, level of predation, and so on – and act accordingly by adjusting their seed production. For many animal species, tree seeds are a major source of food. Deer Mice, for example, feed heavily on maple seeds in Algonquin. Another good example for coniferous trees is Red Squirrels, which feed on the seeds that they extract from cones. For these animals, trees ultimately “decide” their fate. In years of high seed production, Deer Mice and Red Squirrels become abundant and breed prolifically. As the saying goes – what goes up, must come down. A few years of good seed production are followed by a year when the trees produce little, if any seeds at all.

This of course, is disastrous for many of the animals that rely on them. The high numbers of

Deer Mice and Red Squirrels that built up during a period of good seed abundance now starve. Their population plummets, and in turn so does that of their own predators—a huge ripple effect in an ecosystem caused by those same benign-appearing organisms growing quietly in the background that we so often ignore! How does this benefit the trees? A poor seed production year means that there will be fewer predators. Eventually, when the trees do produce a lot of seeds, there will be many more than the lowered number of predators can handle, and that means greater chances for those seeds to survive and grow into trees. For the coniferous trees in Algonquin, as we mentioned earlier, this seems to be one of those years!



White-winged Crossbills are easily told from Red Crossbills by their white wing-bars.

Trees do a good job of managing the numbers of their predators using this technique. Unfortunately for predators such as mice and squirrels, this means that many starve to death. Though there are always enough to re-populate the area eventually, this takes time and this is what trees rely on. There is, however, another clan of seed predators that have an adaptation for when their trees of choice fail to produce a crop. Instead of simply starving to death, they move out of an area and search for somewhere the trees did produce a good crop—even if that means having to travel hundreds of kilometres across North America to get there. That adaptation is wings, and the predators are birds.

A variety of birds feed on tree seeds in Algonquin, but none are more specialized to specific trees and the boom-and-bust nature of their seed production than the crossbills. We have two species of crossbill in Canada and in Algonquin—the Red and the White-winged. They are finches, not dissimilar in size to a pet store canary and share with that species their very lovely and complex songs. Their most unique feature is their bill—as their name suggests, the upper mandible crosses over the lower. This is a specialized tool for extracting seeds out of conifer cones. The birds insert their bill into a cone, move the scales apart by moving their lower mandible sideways, and get the seed out with their tongue. Small cones are often clipped off using the bill and manipulated using the feet, and larger cones such as Eastern White Pine are processed while still on the tree.

How efficient are crossbills at eating seeds? Well, consider a Red Squirrel—the animal clips a selection of cones from the top of a tree, then moves to the ground to feed on the fallen cones one-by-one. It has to manually remove the scales to get to the seeds inside, and then move on to another cone. White-winged Crossbills are specifically adapted to feeding on small cones, such as Tamarack. When they are feeding on their preferred trees, it has been shown that they will eat almost all the seeds they possibly can, at a consumption rate of 98%! A single White-winged Crossbill can eat 3000 Tamarack seeds per day. If a stand of Tamarack has an average of ten seeds per cone (this which varies based on the year and individual trees

but is quite accurate), this means a single bird can process 300 cones per day, eating almost every single seed in each cone! Consider that these birds often travel in flocks of over 100, and are capable of moving over large distances, and you’ve got an extremely formidable seed predator.



Female White-winged (shown) and Red Crossbills are yellowish-green.

What happens during a year when the cone crop fails? When crossbills are not finding a certain minimal amount of seeds, this tells them that it is time to move. The birds move across large portions of North America, settling in areas where there is enough food and bypassing areas where there is not. Crossbills may linger in an area for many weeks—finding enough cones to keep them around, but not enough for most of them to begin breeding. It is only in years when the cone crop is truly immense that crossbills drown out a normally silent winter with their warbles and trills as hundreds of birds simultaneously begin to breed.

White-winged Crossbills occur throughout the boreal forest regions of the world, are specialists on small cones, and are similar throughout their range. The second species of crossbill, the Red Crossbill, has a larger range in North America, all the way down to Nicaragua, and throughout their range, there are different “versions” or “types”, specialized to feed on specific types of conifers. There are small, slight-billed types that are specialists on small cones such as hemlock, and large, thick-billed types that specialize on the larger cones



Be cautious while driving and honk to get them off the road.

Crossbills and other finches often come to the road to pick up salt and grit.

of pines. In total, at least 10 “types” of Red Crossbills have been identified, each with unique flight calls, differing bill thickness, range and genetics—but otherwise looking extremely similar to each other. In fact, the only reliable way to tell many of them apart is to get a recording of the call they make in flight, and examine it in a sonograph! We know that they do not tend to interact with types other than their own. In fact, two types of Red Crossbills may be nesting in an area simultaneously, but very rarely do they actually pair with a bird of a different type. This suggests that these types may actually be separate, recently diverged species, each suited specifically to forage on certain trees, travelling independently in search of food. Not only are trees dictating the density of their predators in the surrounding ecosystem, but also influencing the bill structure of Red Crossbills to become more efficient at extracting seeds from their specific cones, altering the crossbills’ movements

to take advantage of their specific seeding times, isolating populations and as a result essentially creating new species of crossbills! Rather than trees—except perhaps in the fall—the main attractions in Algonquin are Moose and bears, which are impressive and powerful animals, but their role in shaping the Algonquin ecosystem and everything in it pales in comparison. Talk about not seeing the forest for the trees!

Considering their dependence on only a few specific trees, both crossbills “make hay while the sun shines” and breed whenever conditions are right. Only when there is a crop of cones large enough do the males begin to sing and the birds pair up. Unlike most birds, which rely on factors such as the length of daylight to let their bodies know that it is time to breed, crossbills can essentially breed at any time of year, provided there is enough food. As a result, sometimes crossbills arrive in Algonquin and begin breeding in

Checklist and Seasonal Status of the Birds

This publication features a list of all of the 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 are normally found. There is also information on recommended sites to go birding and to find some of Algonquin’s specialties.

ONLY \$3.50

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Or at Algonquin Visitor Centre Bookstore and Nature Shop, the East Gate or West Gate

