

The March of Climate Warming? By Ron Tozer

The winter of 2011-2012 across Canada was the warmest and had the least snow of any during the last 65 years, according to Environment Canada. High temperatures of over 21° C (higher than 70° F) in Algonquin Park on several successive days during mid March resulted in many earlier than ever appearance dates for birds, reptiles and amphibians, and butterflies. Lakes in the Park became ice-free on record-early dates. Lake Opeongo, our largest lake, is usually the last to open up. Its ice disappeared on March 29, the earliest date in 49 years of records. The previous earliest ice-out date for Opeongo was 7 April 2010, and the average during the last decade was April 22.

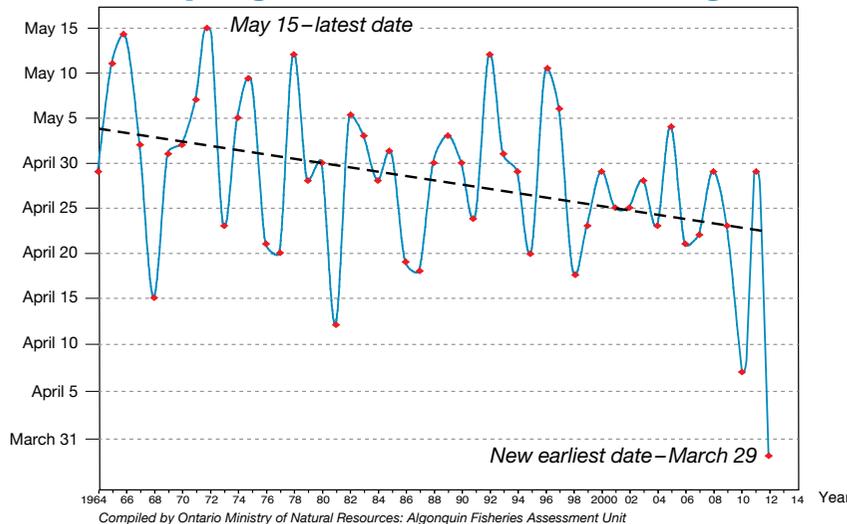
Thirteen species of migrant birds were observed during March in Algonquin on dates that were earlier than ever before. These birds with the number of days that they were earlier in brackets are: Blue-winged Teal (15 days), Ring-necked Duck (8 days), Bufflehead (10 days), Great Blue Heron (2 days), Turkey Vulture (4 days), Northern Harrier (3 days), Sandhill Crane (6 days), Long-eared Owl (33 days), Belted Kingfisher (2 days), Eastern Phoebe (7 days), Winter Wren (8 days), Fox Sparrow (8 days), and Eastern

Meadowlark (2 days).

Five species of reptiles and amphibians were recorded in March and all were earlier than ever before in the Park. The species, and the number of days they were earlier, are: Spring Peeper (13 days), Wood Frog (12 days), Snapping Turtle (15 days), Painted Turtle (9 days), and Garter Snake (13 days). Several Algonquin Park butterflies that overwinter as adults and always become active very early in spring set earliest or second earliest ever dates for appearance this year, including Green Comma, Compton Tortoiseshell, and Mourning Cloak. The Eastern Pine Elfin, a butterfly that overwinters in the pupal stage, had never been recorded earlier than April 17 in Algonquin but one was photographed near the Visitor Centre on March 22! This butterfly had not been reported earlier than April 8 anywhere in Ontario according to records going back to 1969.

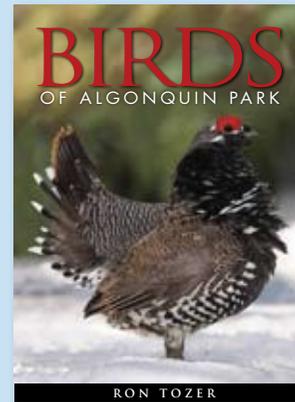
While everyone enjoyed the summer-like days in March, what might be the effects of this unusually early warm spell on the Park's flora and fauna? Were the high temperatures due to climate warming and likely to become more frequent in the coming years? Stay tuned.

Lake Opeongo Ice-out Dates Since 1964 Showing Trend



Birds of Algonquin Park Has Landed!

After gathering data for 40 years and actively writing for the past 15, birder extraordinaire and retired Algonquin Park Naturalist Ron Tozer has finally produced his life work in the widely anticipated *Birds of Algonquin Park*. It presents detailed accounts of all 278 birds known to have occurred in Algonquin, including information on migration timing, nesting habits and behaviour of the 144 breeding species, winter occurrence, historical records and population trends. The influence of



climate warming on the arrival and departure time of migrants, and the declining numbers of many species are discussed. The book is enhanced by

colour photographs of 46 species that are representative of the rich diversity of Algonquin's birdlife, including Spruce Grouse, Black-backed Woodpecker, Gray Jay, Boreal Chickadee, warblers and winter finches. Ron donated the manuscript to The Friends of Algonquin Park and it has published the book with the generous support of The Gordon & Lorraine Gibson Family Foundation. This 480-page masterpiece is now available for purchase through all Friends of Algonquin Park stores at \$49.95.

Be FishingSmart...

Here are a few rules, regulations* and reminders while fishing in Algonquin:

- Trout fishing season opens April 28, 2012.
- No live baitfish are permitted.
- No fishing within 100 metres of a water control dam.
- No fishing within 300 metres downstream of Lake Opeongo's Annie Bay dam.
- Daily catch and possession limit for Lake Trout is 2 per person (1 per person with a Conservation Licence).
- Daily catch and possession limit for trout is 5 per person, no more than two of which can be Lake Trout (2 per person with not more than one Lake Trout with a Conservation Licence).
- Be aware some lakes have slot limits. Check the Algonquin Information Guide for a list.
- Worms are not native to Algonquin and remaining worms should be taken home or thrown in the trash—not on the ground!

* refer to the Ontario Recreational Fishing Regulations Summary for complete details

The Raven is available online and a limited number of complete sets of the previous year's Raven are available at the Visitor Centre and the main gates along Highway 60.

www.algonquinpark.on.ca

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A Fair Hearing for Owls

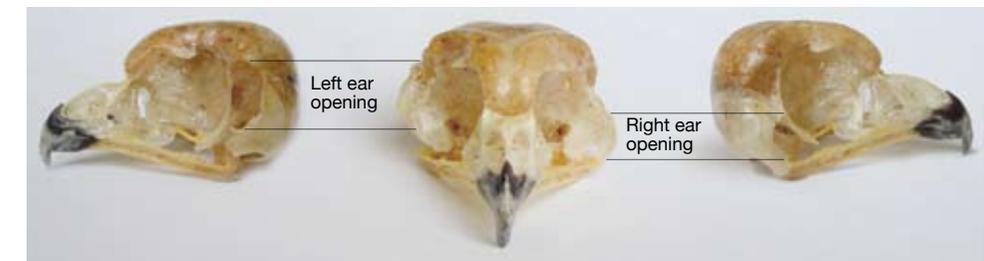
By Rory MacKay

Few birds create as much awe as owls. And it is easy to understand why: they have mysterious and eerie calls; large faces with captivating eyes; and most of them, including the ones commonly found in Algonquin Park, are active at night. But much of their behaviour remains a mystery to us. In the last issue of The Raven, we mentioned that the facial discs, which are the feathers on an owl's face arranged in a roughly circular pattern around the eyes, appear to help owls hear and locate prey at a distance, even through a covering of snow or in almost total darkness. That statement was questioned by a regular reader, prompting further investigation into hearing in owls. What we find is that – yes – owls do have excellent hearing, but what makes for “good hearing” is much more sophisticated than we realize. Here, we share some of those findings with you.



A Barred Owl with captured prey

Scientific investigation in Germany — on the Barn Owl, a species of owl not found in Algonquin Park — has revealed some interesting details about owl hearing in general. Examination of a Barn Owl skull reveals that the left ear is different in size, shape and position on the skull than the right ear. In particular, one ear is higher on the skull than the other. Experiments using microphones and dead Barn Owls (from a captive population raised for study) have revealed that the anatomical differences between the ears permit



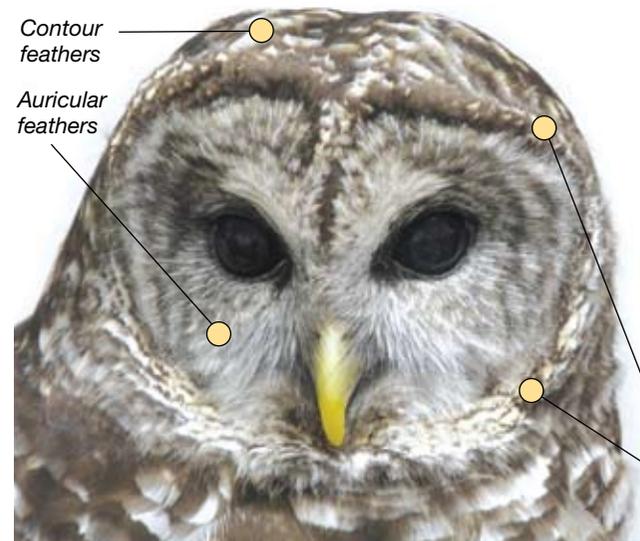
Different views of a Northern Saw-whet Owl skull (common breeding owl in Algonquin Park) reveal the different position, size and shape of the left and right ears. Photo: Dawn Sherman

the owl to locate a sound exceptionally well in the vertical plane (up-down), as well as in the horizontal (side-to-side) plane. By comparison, humans – having ears at the same height on the skull – locate sounds as well as owls do, only in the horizontal plane. The different shape of owl ears enhances the ability of the owl to hear sounds over a wide range of intensity and pitch. As in humans, it is the difference in timing of the sound reaching the different ears that allows for determination of direction. Barn Owls can distinguish left/right timing differences as fine as thirty millionths of a second and presumably owls found in Algonquin Park have a similar ability.

Scientists have also discovered that the feathers in an owl’s facial disc can play an important role in an owl’s hearing, as we alluded to earlier. When scientists took a close look at a Barn Owl’s facial disc, they found that it is made of two types of feathers, somewhat different in structure than the contour feathers that give the general shape of the head and body (including the apparent “ear”-tufts in the Great Horned Owl and Long-eared Owl, which are for display, not hearing.) The outside feathers of the facial disc are made of feathers with few air spaces; the vanes (or flat parts) lie close to the shaft of the feather making it quite dense. Those feathers act as reflectors

which direct sound toward the ears. The vanes of the feathers that make up the inner part of the facial disc are “fluffy”, and transparent to sound. The orientation of the left facial disc is tilted slightly downwards compared with the right. In some owls, perhaps all, the shape of the facial disc can be adjusted by the facial muscles, which can control the orientation of the feathers.

But the layout of the feathers is just part of the story. An additional set of experiments determined how the facial discs actually help owls to locate prey. Once again, sensitive microphones were placed in the ear position on the heads of dead Barn Owls. Feathers were removed – first the auriculars, then the reflectors, and then from the rest of the head – and the response from the microphones was measured. When the auricular feathers were removed, it was found that there was little difference in the ability of the owl to locate sounds in the vertical and horizontal planes. Removal of the reflector feathers, which form the border of the facial disc, had a pronounced effect, diminishing both the intensity of sound reaching the ears and the accuracy with which the sound could be located. Removal of the contour feathers had little additional effect. This appears to confirm that the facial discs aid owls in hearing and locating their prey.



Feather types on a Barred Owl. The contour feather is the typical feather found on the head and body, except in the facial disc; and shows no specialization. Auricular feathers fill the disc and are less dense so that it becomes acoustically transparent. Reflector feathers, which form the border of the facial disc, are very dense and, thus, able to influence the path of the sound.

Reflector feathers

Owls have a difference “between the ears” that makes for better hearing as well: they have as many as three times the number of nerve cells dedicated to hearing in their brain as, for example, crows or ravens. Furthermore, recent studies have suggested that specific parts of the brain of a Barn Owl relate to specific positions within space; thus the owl has a ‘nerve map’ of its hearable surroundings right inside its brain.

So, so far, it appears that owls are supremely adapted for nocturnal hunting to the extent that a mouse, which is very quiet, would have little chance of escaping. But what if the sound of an owl’s own wings as it approached the mouse drowned out the sound of the prey, or warned the prey of the owl’s approach? Well, neither situation happens, because the wing feathers of an owl give it natural stealth technology. The leading edges of the primary or long feathers at the end of an owl’s wing are “frayed” at the leading edge and fuzzy on the upper surface. This makes owl flight almost silent to both the owl and its prey. To continue to hear and locate its prey accurately during flight, the owl continues to orient its head and ears with the prey to its front, until just the last second when it reaches its talons ahead to “grab a bite to eat”.

Owls may benefit, indirectly but importantly, by another trait, this one behavioural. Owls have a home territory in which they will spend most of their time. Thus an individual owl can become familiar with the sounds of a particular location, helping the bird find its way around in darkness. Such a “sound-familiar” home territory ensures that individual owls have a better chance for survival. Observations in the field suggest that Algonquin Park’s owls tend to have a larger range in winter than in the breeding season, likely as a result of greater difficulty in locating food when snow is on the ground.

So, because of their anatomy, special adaptations and behaviour, owls are among the most effective hunters of the night. One even might be led to say, that with batteries not only “not included” but not necessary,

owls have their very own “hearing aids”.

Of course, there is much more to learn about owls, including what species breed in Algonquin Park, in what habitats they can be found, and the frequency with which the rare owls visit. Fortunately The Raven can recommend a soon-to-be-published and excellent book on all of the birds of Algonquin Park, written over many years by former Park Naturalist Ron Tozer. This fine addition to any naturalist’s bookshelf is available for purchase at either of The Friends of Algonquin Park’s two bookstores, or on their website.



The leading edge of a Great Gray Owl primary feather

Recent Inventory Gives Picture of Moose Numbers in Algonquin

A winter moose inventory conducted by Ontario Parks staff in January 2012 shows that Algonquin’s moose herd numbers an estimated 3,600 animals. To complete the inventory, park staff flew in aircraft over a number of randomly selected 25-square kilometre plots in the park, counting the number of moose observed in each. The plots represent either high-quality or low-quality winter moose habitat. By considering the total amounts of each habitat type in the Park, and the total number of moose counted in each type of plot, we extrapolate the moose numbers to determine an estimate for the entire Park. The inventory, which is conducted every third winter, has shown considerable fluctuation in moose numbers over the years, from between 2,000 and 3,700 animals since the mid 1990’s. The current numbers represent a modest increase from the last count of 3,250 in 2009. It is impossible to predict what the future holds for our moose; however, we can say with confidence that our latest inventory shows that we have a healthy and viable moose herd.



Park Resource Technician Paul Gelok using GPS technology to navigate the aircraft to the count plots. Photo: Ashley Eckford



Photo: Justin Peter

Moose Viewing Tips

The Highway 60 Corridor is a great spot to see moose in spring. Starved of sodium after subsisting on a winter diet of twigs, moose hone in on the roadside ditches where the water is somewhat salty due to winter road maintenance activities. And they can drink many litres of roadside water at a time in order to replenish their sodium reserves. Since many moose are very tolerant of people, they can allow you to approach and take photographs for many minutes. But you should be very careful if you stop to watch a moose.

Consider the following:

- Pull completely off the travelled portion of the road, ensuring you are stopping on an area of shoulder wide enough to accommodate your vehicle.
- Be careful when exiting your vehicle and crossing the road.
- Respect a moose’s personal space. If a moose watches you initially, and then resumes its drinking, then it may be comfortable with your presence. However, if a moose stops and stares at you, or approaches you, then you should consider backing away.

Remember: moose are large and powerful animals. Please show them respect.