

Short Ears, Long Tales

Courte Oreilles Lakes Association

Mighty Merlin

There's magic in the bird and in a powerful app that identifies bird songs, from the Cornell Lab of Ornithology

By Allison Slavick

A merlin, a handsome and fierce little falcon, larger than a robin and smaller than a crow, has been spotted in a nest along the eastern shore of LCO. How lucky you are if you see this bird and its fledglings soaring over the lake, which is at the extreme southern limit of its breeding range. The word merlin derives from the Old French word *esmerillon*, which means falcon. Then there's Merlin the Magician, the mythological figure found in the Legend of King Arthur. That Merlin's name has a different derivation, but his supernatural powers could apply to the savvy hunting skills and powerful flight of the bird.

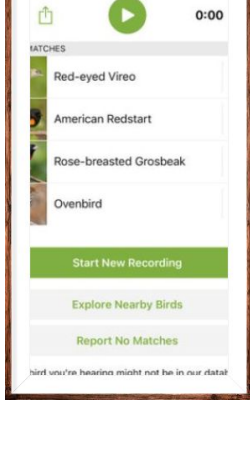
Thus, Merlin is a pleasing pun and an apt choice for the name of an app from the Cornell Lab of Ornithology in Ithaca, New York, introduced last year. Merlin is a free and, indeed, magical aide to bird identification. But as the folks at the Bird Lab say, "It might seem like magic, but it's powered by science."



Merlin on the east shore of LCO

Photo by Jim Coors

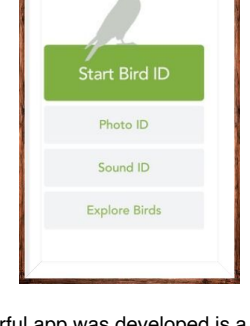
What makes the app marvelous is the sound identification feature. Your phone acts as a recorder and provides "real time" diagnostics for birds you're hearing. A scroll of sound waves – what the bird's song or call looks like – appears on your phone with a list of the birds within range, along with the birds' photos. Earlier in the spring, it was astounding to see six different warblers on the list at once, their cacophony of calls and songs emitting from a thickly overgrown area that burned about a decade ago in Chequamegon National Forest. The app untangled the overlapping sound waves and identified the calls of individual species. LCO resident Ann Pollock had similar success in early June with the melodic songs of grosbeaks, redstarts, vireos, and more; you can see her results below.



Think of using the app just as you would a printed field guide but, with the content for more than 8,500 bird species worldwide, a highly powerful one. You can use the app to explore and identify birds, look at photos and read about the bird, with the bonus of having recordings of hearing calls and songs available at the tap of a finger. Merlin goes far beyond serving as a catalogue of information about birds in a couple unique ways: it is enhanced with artificial intelligence, and it provides a means to save your bird sightings in a life list with all the relevant data you might want to access in the future.

To use the Merlin app, install it on your phone or tablet, and select the regional pack for "US: Midwest" for forays around LCO and Little LCO. There are many packs to choose from. For example, if you spend the winter in Arizona, there's a separate pack for Arizona and New Mexico. Scroll through an alphabetical list of birds, or use the app's simple search, essentially a taxonomic key that uses characteristics and behavior that even a beginner can decipher.

Merlin will have questions for you, like where did you see or hear the bird? Having downloaded the relevant pack helps narrow your choices. Select "current location," or select from a list of previous locations you've visited. Next is the date of the observation, the bird's size (helpful comparisons are given), and the main colors of the bird's feathers (the user chooses up to three). Finally, the user is asked what the bird was doing, with choices such as "eating at a feeder," "swimming," and "on a fence or wire." You're presented with a list of possibilities and the option to click on "This is my bird!" Here's where it gets really nifty. You select the bird you saw from the list and it pins the location to a map. Click next, select save to confirm, and the bird is added to your life list.

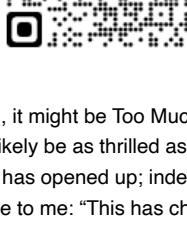


How this powerful app was developed is a marvel of science, creativity, and technology. The functional model was formed from 140 hours of bird sound audio, and 126 hours of ambient sounds such as cars and sirens. If that doesn't sound like a lot, realize that most of the recordings were about thirty seconds long. The entire complex process involved engineering, gradient descent algorithms, and custom tools. Sound identification experts who worked "by ear" for hours, a machine learning team, and testers in the field made this happen:

As your phone records sound, Merlin converts the audio into an image called a spectrogram. The spectrogram plots sound frequencies that appear in the recording, as a function of time. This spectrogram image is then fed into a modern computer vision model called a deep convolutional neural network.

For those who wish to geek-out on the backstory and science of Merlin's Sound ID; follow the link below or point your phone or tablet's camera at the QR code (the square of dots with the dinosaur) below.

[Merlin's Sound ID Backstory- Click Here](#)



For the rest of you, it might be Too Much Information. Either way, you'll likely be as thrilled as I was by the new world of birds that has opened up; indeed, a friend I shared it with wrote to me: "This has changed my life!"

Another option on the Merlin app is to upload a photograph of your mystery bird. This feature again uses artificial intelligence, developed from millions of photographs. I tested Photo ID with grainy photographs I'd taken of a pileated woodpecker and a wild turkey through windows during the winter and – success! – the turkey's identity was certain. For the pileated, I was offered a few woodpeckers from which to choose.

Mid-July is late to hear a lot of morning birdsong – the so-called dawn chorus of the spring, the early hours when males claim their territories and attract their mates. But it was with enthusiasm I tested and Merlin at the LCO boat landing off County Highway K. It was a hot and windy morning, and I explored the forested areas around the parking lot and shoreline. Overhead, an immature bald eagle and a turkey vulture floated in place on the air currents. Over the lake, a gull did the same. A family of common mergansers scooted away from me in the choppy water. My first three recordings brought up the message "Merlin has no matches," with a reminder to stand still in a quiet place, close to the bird. My fourth attempt brought up a crow, which I'd heard in a conifer north of the parking lot. A black-capped chickadee and a blue jay appeared next.

I can identify all three of those birds without technology, by sight and sound but, nonetheless, I added them to my Merlin life list. Crows, blue jays, robins, mallards, chickadees, and bald eagles are easy to identify birds, common around Lac Courtes Oreilles. There is reassurance in knowing that a diversity of birds exists, and documenting it and keeping that information close at hand, on your phone or on a paper checklist, is an affirmation. The delightful Merlin will not disappoint you in discovering that diversity. As well, I hope it provides personal fortitude to advocate for the protection of birds and their habitats around northern Wisconsin lakes and elsewhere.

To download the Merlin application please click below

[Merlin App- Click Here](#)

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Please consider a tax-deductible donation today!

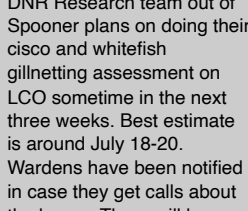
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THE ECO-BEAST MAKES SOME NEW FRIENDS

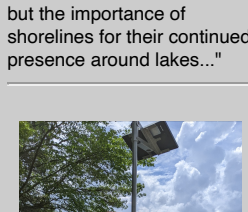
From Kevin Horrocks: "While working in Chicago Bay with the Eco-Harvester today a couple of us struck up conversations with a couple men at the end of their dock...one of them Ryan Johnston, and all were COLA supporters and appreciated what we were doing.

"So, shortly after Ryan's three kids came out to scoop up fragments just like our regular satellites. And they were out there for quite a long time! But, what a fun way to point out that it takes work to save the Lakes for the future."



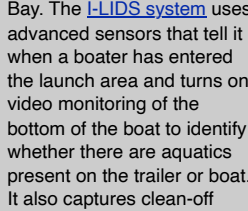
CISCO AND WHITEFISH SURVEY

From Max Wolter, DNR Fisheries Biologist: "...our DNR Research team out of Spooner plans on doing their cisco and whitefish gillnetting assessment on LCO sometime in the next three weeks. Best estimate is around July 18-20. Wardens have been notified in case they get calls about the buoys. There will be several nets set around the lakes."



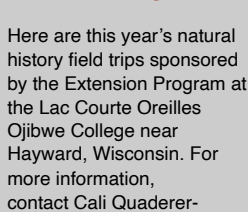
DRAGONFLIES!

From Tom Heinrich: "...this wonderful production from WTIP radio/Grand Marais talks about dragonflies and relates not only their traits but the importance of shorelines for their continued presence around lakes..."



I-LIDS ON THE LOOKOUT

The Internet Landing Installed Device Sensor (I-LIDS) is now operational at the DNR landing in Chicago Bay. The I-LIDS system uses advanced sensors that tell it when a boater has entered the launch area and turns on video monitoring of the bottom of the boat to identify whether there are aquatics present on the trailer or boat. It also captures clean-off activity by the user. The video capture is performed through a wireless Internet Video Camera that transmits images to the cloud for later analysis.

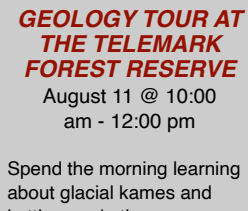


2022 NATURAL HISTORY FIELD TRIPS

Here are this year's natural history field trips sponsored by the Extension Program at the Lac Courte Oreilles Ojibwe College near Hayward, Wisconsin. For more information, contact Cali Quaderer-Cuddy, Extension Program Coordinator, at cquaderer@lco.edu

8/17 Brunswiler Canyon
9/17 Hawk Ridge, Duluth, MN
9/24 Blue Hills Felsenmeer
9/8 Juniper Bluff
9/15 Morgan Falls/St. Peter's Dome- autumn colors

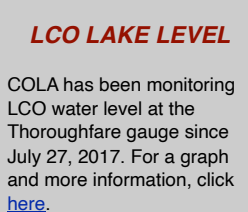
[\(more\)](#)



GEOLOGY TOUR AT THE TELEMARQUE FOREST RESERVE

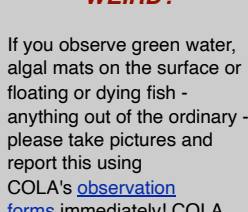
August 11 @ 10:00 am - 12:00 pm

Spend the morning learning about glacial kames and kettles, and other depositional landforms of the Telemarque Forest Preserve with Northland College Professor of Geoscience Tom Fitz. This event is part of Wisconsin Land Trust Days, which celebrates the protection of Wisconsin's land, water, and wildlife – the work of over 40 Wisconsin land trusts. [More information.](#)



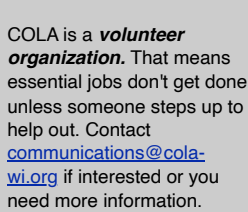
LCO LAKE LEVEL

COLA has been monitoring LCO water level at the Thoroughfare gauge since July 27, 2017. For a graph and more information, click [here](#).



SEE ANYTHING WEIRD?

If you observe green water, algal mats on the surface or floating or dying fish - anything out of the ordinary - please take pictures and report this using COLA's [observation forms](#) immediately! COLA will alert the WDNR, the LCO Tribe, collect water samples, etc.



LCO NEEDS YOUR HELP

COLA is a **volunteer organization**. That means essential jobs don't get done unless someone steps up to help out. Contact communications@cola-wi.org if interested or you need more information.

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[ARCHIVED ISSUES OF SHORT EARS](#)

COLA NEEDS YOUR ONGOING SUPPORT

Please consider a tax-deductible donation today!

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Allison Slavick is a nature lover who bicycles, skis, and picks berries near her home on Crystal Lake in southern Bayfield County.

Contact Allison at allison.slavick@gmail.com

Questions, comments or suggestions for future articles maybe sent to communications@cola-wi.org

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COLA Mission: 1) to protect, preserve and enhance the quality of Lac Courte Oreilles and Little Lac Courte Oreilles, their shorelands and surrounding areas, while respecting the interests of property owners and the rights of the general public; and 2) to consider, study, survey and respond to issues deemed relevant by COLA's membership.

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