



Ontario Owl Survey Newsletter June 2022



Our 28th season has come and gone but the Owl Survey carries on!

All the staff of Birds Canada want to extend our heartfelt thank you! Thank you for continuing to support bird conservation, be it by conducting surveys or by making the tough decision that you could not survey in 2021. Last year we were all concerned about the loss of data due to the COVID lockdowns in the 2020 season, but thankfully the Owl Survey has seemed to have bounced back. While 2022 data is still trickling in, this latest season brought with it heavy snows and lots of surveyors dealing with COVID illness and isolations. That said, we have high hopes for the 2023 analysis using your data collected through 2022 and hope that, through all of our combined efforts, we will soon achieve pre-2020 survey numbers.

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2021 Survey Summary and Owl Survey Trends

The 2021 survey season lasted 30 days, which was a big improvement from 2020. However, the survey was still impacted by self-isolations and travel advisories. Even with these constraints, Birds Canada received 138 Ontario Owl Surveys, with 62 surveys conducted in northern Ontario and 62 surveys in central Ontario. This is approximately 69% of the normal annual returns. In comparison, 2020 saw a return of 8 northern and 22 central surveys, while 2019 surveyors provided 80 northern and 121 central routes. Note that the data from the 2020 survey years were removed from the analysis due to the small amount of data collected, but they were entered into the database to ensure that the information are archived for future use.

In northern Ontario, Great Gray Owl continued to show stability with no significant changes in the proportion of stops occupied per route. Great-horned Owls showed a non-significant trend in contrast to the significant decline seen in 2019 (-1.10%). There was a negative significant trend for Northern Saw-whet Owls (-0.94%) and Boreal Owls (-4.55%).

Get your data in – All data returned or entered online this summer will be part of our inaugural cross-Canada Nocturnal Owl Survey Analysis.

The negative trend is steeper for Northern Saw-whet owls than seen in 2019 (-0.70%) and the Boreal Owl decline is less steep (-5.30%).

In central Ontario, Barred Owls continued to increase significantly at a rate of 2.88% of occupied stations per year between 1995 and 2021, slightly greater than the trend seen in 2019 (1.90%). Central Ontario's Great Horned Owls (-4.86%) and Northern Saw-Whet owls (-5.06 %) continue to show significant decreases (Fig. 2), but again with lower rates of decline than seen in 2019 (5.40% and 5.10 %, respectively).

Game bird species, including American Woodcock, Ruffed Grouse and Wilson's Snipe, continue to show a large amount of year-to-year variation with no obvious patterns over time (Fig. 3).

A big **thank-you** to the dedicated Owl Survey participants who have stuck with us during 2020 and 2021 seasons. Thanks also to the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry for its continued support, to Birds Canada's Dr. Danielle Ethier for both the 2021 Ontario data analysis and the preparatory work for the upcoming National Owl trend analysis.

2021 Owl Analysis

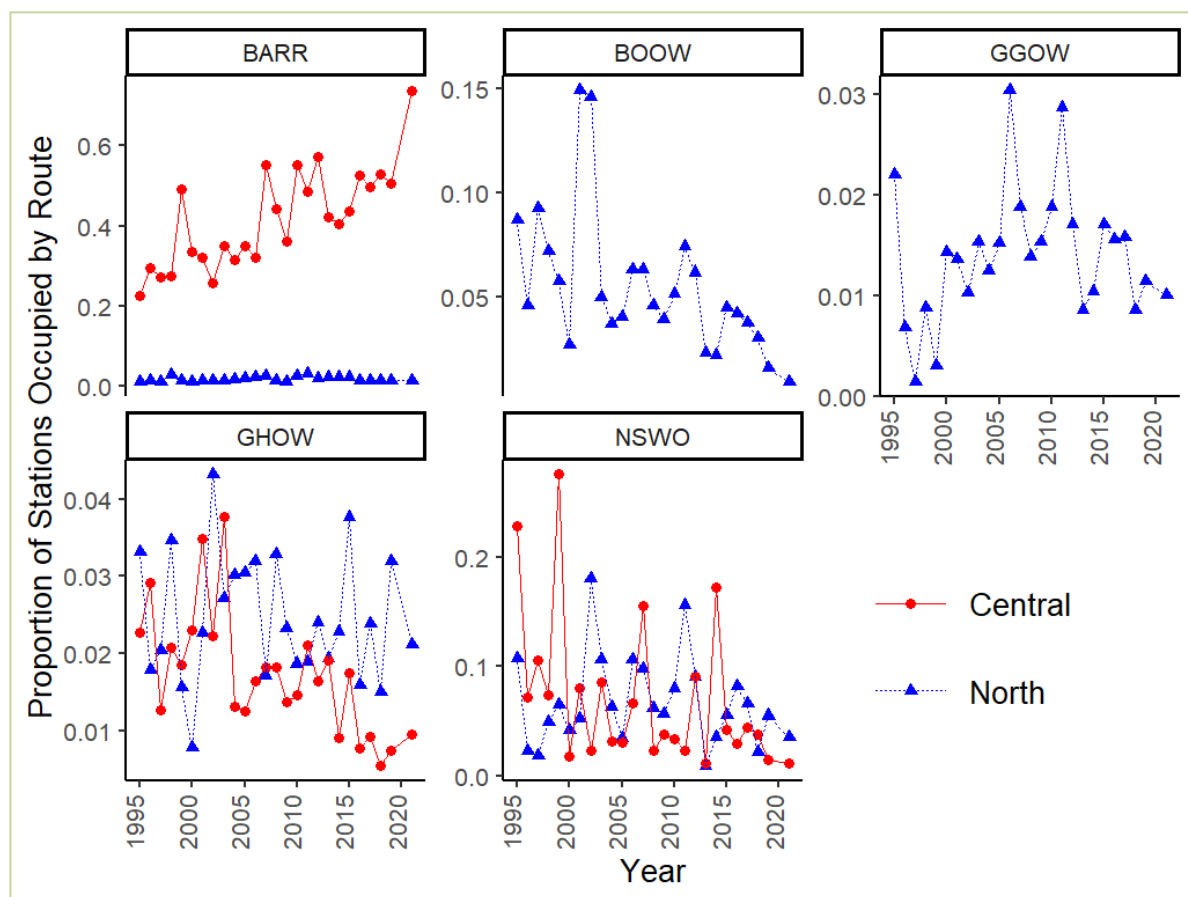


Figure 1: Ontario Owl Survey Trends, 1995-2021, showing the mean proportion of stations occupied (with owls) per route in central and northern Ontario.

Check out the Refreshed Owl Survey Protocols at birdscanada.org/on_owls

The 2021 editions of the Owl Survey Protocols are refreshed to include modern technologies as well as NatureCounts and data entry tips.

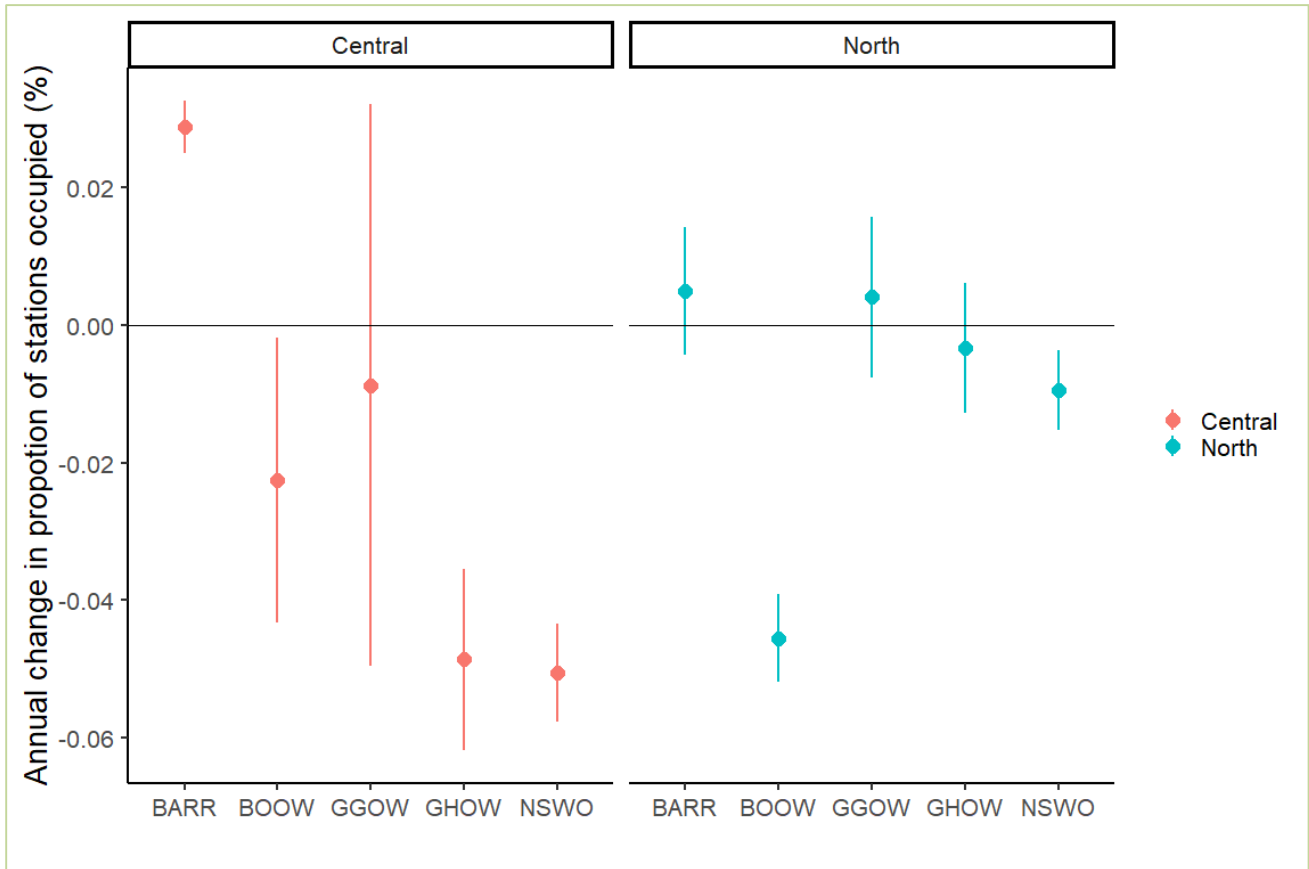


Figure 2: Trends in number of survey stations occupied by owls between 1995 and 2021 in northern (blue) and central (red) Ontario, based on data collected by the Ontario Nocturnal Owl Survey. Vertical lines are 95% confidence intervals. Statistically significant trends do not have confidence intervals overlapping the horizontal line at zero.

Learn about Owls through the digital Ontario Breeding Bird Atlas #2

birdsontario.org/atlas-2/book

What is one of the best tools for learning about Ontario's birds? The Atlas, of course! While Atlas-3 is presently underway, Atlas-2 (2001-2005) is now available digitally. Learn more at birdscanada.org/second-ontario-atlas-makes-digital-leap/ or look up your favourite owl at birdsontario.org/atlas-2/book.

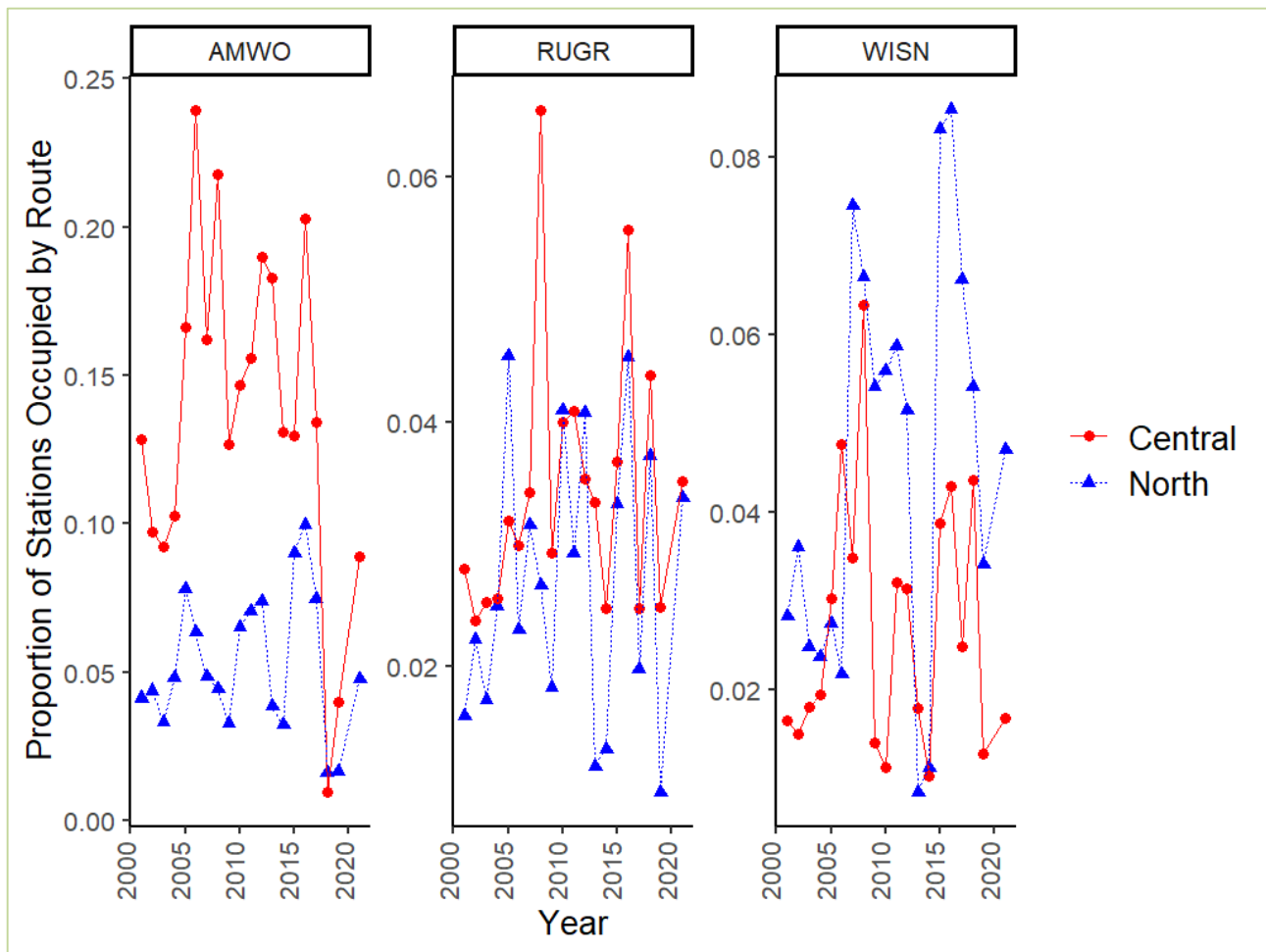
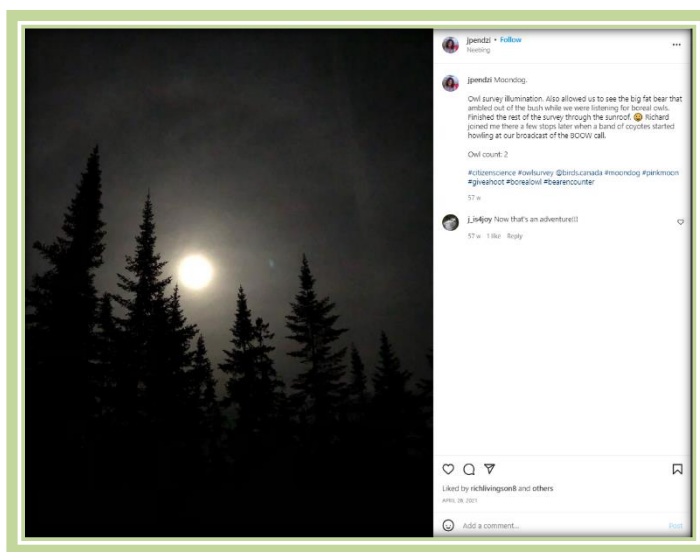


Figure 3: Trends for Ruffed Grouse, American Woodcock and Wilson's Snipe, 2001-2020, showing the mean proportion of stations occupied per route in central and northern Ontario.



frogs croak in crane creek
clouds conduct rain symphony
shrewd owl joins night show

by [Subimal Sinha-Roy](#)

See our annual photo albums:

2021:

twitter.com/i/events/1408070632420618240

2022:

twitter.com/i/events/1531420335043665920

Want to learn more about surveying?

Visit the Birds Canada YouTube channel www.youtube.com/user/BirdStudiesCanada and enjoy these recent webinars.

- Ontario Nocturnal Owl Survey Refresher <https://youtu.be/sn5kAiCe8yo>
- An Evening of Owls - Atlantic Region <https://youtu.be/uzCdKxaK8Q4>
- 2018 Owl Survey Webinar <https://t.co/utVWY29WsB>



The People Report

We decided to look at Owl participation a little differently this year. When we ask “How many owls are on a route” that is a cool number for those who see lots of owl, but not so much for those dedicated volunteers who survey in locations where owls are rare. As you hear from us so often: **“No data is also important data.”** This year we decided to start celebrating those folks who have conducted more than 20 surveys and celebrate routes that have been surveyed for many years. So a shout out to our Double Decade Owl Surveyors and our most consistently surveyed routes. If you are one of these owlers or survey one of these routes, thank you for your support of this program! For those newer routes not on the list – eventually their time will come. To see the route history for all routes visit

https://drive.google.com/file/d/1-kiSMYLi_9z7_MyUKglzv_Wslq6s9ZXz/view?usp=sharing.

Table 1: Double Decade Owlers

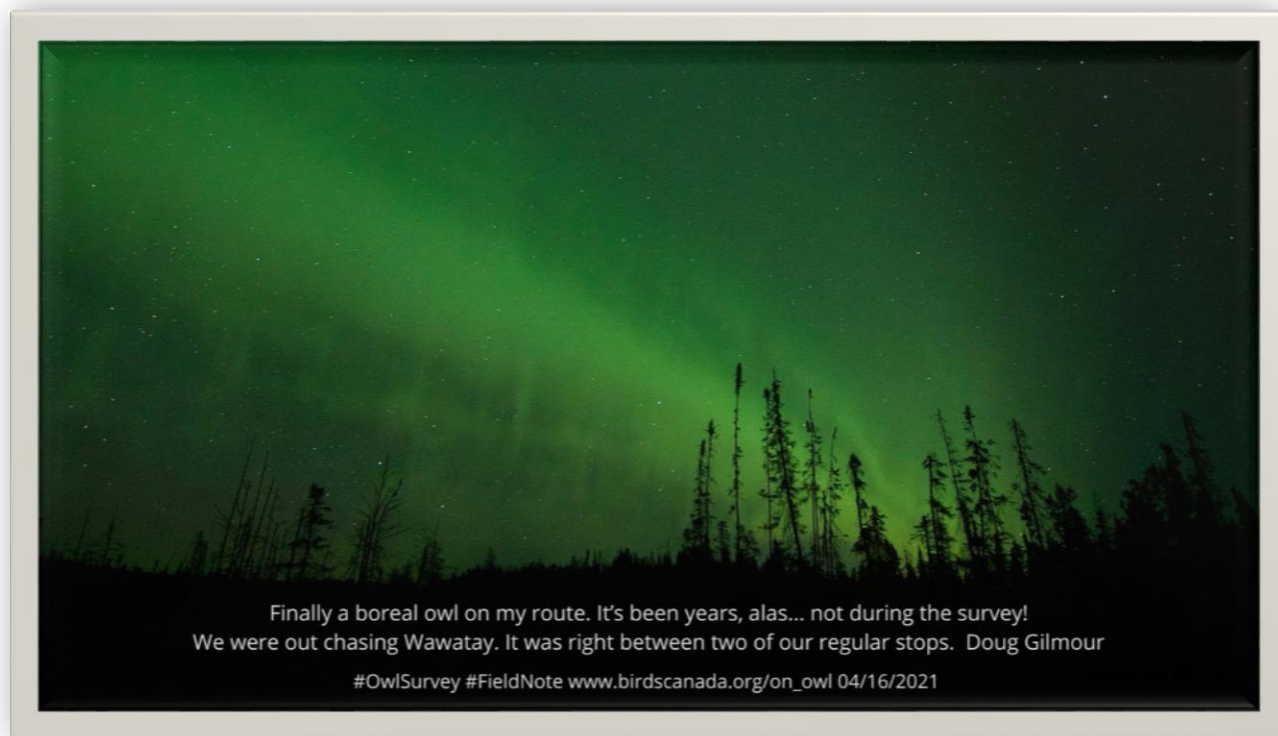
Name	First Year	# surveys
Randy Moratz	1995	26
Doug Gilmore	1995	25
Ron Tozer	1995	25
Brian Ratcliff	1996	25
Richard Tafel	1996	25
Christopher Bell	1995	24
Rob Swainson	1995	24
Jim Trottier	1996	24
Carol Dersch	1995	24
Grant Hudolin	1999	22
Stan Vasiliauskas	1999	22
Darlene Salter	2000	22
Floyd Cosby	1997	21
Rick Stronks	1999	21
Bill Hay	1999	20
Elizabeth Gammell	1999	20
Lynn Ovenden	2001	20
Tom Nash	1995	20
Pauline Plooard	1999	20

Table 2: Owl surveyors are a dedicated bunch!

# Surveys	# Participants	# Routes
20 Plus	21	59
15-19	35	78
10-14	60	65
5-9	128	69
1-4	472	87

Table 3: Routes which have been surveyed 20 years or more

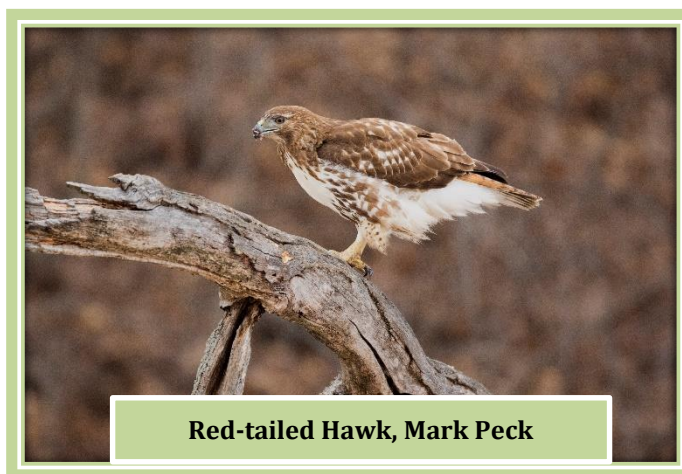
No. of years	First Survey Year	Latest Survey Year	Route Name	No. of years	First Survey Year	Latest Survey Year	Route Name
26	1995	2021	Fraserburg	22	1995	2019	Fort St. Joseph
26	1995	2021	Arrow River	22	1996	2019	Rutherglen-Bonfield
25	1995	2021	Algonquin Hwy 60 West	22	1998	2019	Deer Trail South
25	1995	2021	Suffel Road	22	1998	2019	South Portage Road
25	1996	2021	Larder Lake Highway	21	1996	2021	Splitrock Road 600 619
25	1996	2021	Farlain Lake	21	1996	2021	Manitouwadge Local
25	1996	2021	McConnell Lakes Road	21	1997	2021	Lake Manitou NW Shore
25	1995	2019	Ottertail Lake	21	1999	2021	Pine River
24	1995	2021	Sandstone West	21	1999	2021	White Lake
24	1995	2021	Paint Lake Rd / Obatanga	21	1995	2019	Mile 11 Ranger Lake–Curtis Rd.
24	1995	2021	Nipigon River North	21	1995	2019	Milford Haven
24	1995	2021	Algonquin Hwy 60 Central	21	1995	2019	Carpenter Lake Road
24	1995	2021	Sheguiandah Township	20	1995	2021	Algonquin Hwy 60 East
24	1997	2021	Grind Stone Creek	20	1996	2021	North Baptiste Lake Road
24	1996	2019	Tiny Marsh	20	1996	2021	Eagle River
24	1995	2016	Zenmac Road	20	1997	2021	Paint Lake Road
23	1995	2021	Foreman 7	20	1997	2021	Uffington
23	1995	2021	Laclu – Muriel Lake	20	1998	2021	Upper Nungesser Road
23	1995	2021	Waubamik	20	1998	2021	Killarney
23	1996	2021	546 West/639 South	20	1999	2021	Sauble Beach
23	1997	2021	Kukagami Road	20	1999	2021	Lac des Mille Lacs
23	1995	2019	Turtle River	20	2001	2021	Larose Forest
23	1997	2019	Highway 637 East	20	2001	2021	Lasswade
22	1995	2021	Clear Glade Minden	20	2001	2021	Iroquois Falls North
22	1995	2021	Manitoulin-Allan	20	1995	2019	Alcona
22	1996	2021	Pine Street South Sctn 1	20	1995	2019	Atikokan Hwy 11 West
22	1996	2021	Panel Mine Road	20	1995	2019	Snake Bay Road
22	1999	2021	Foleyet Timber Road	20	1996	2019	Murphy's Point
22	2000	2021	Bear Narrows (Eagle Lk)	20	2000	2019	Middleville/Tatlock
22	1995	2020	Terminal Lake Survey				



Research Highlight: How do rodenticides impact Birds of Prey?

Second generation anticoagulant rodenticides (ARs) are a commonly used tool for rodent control. When the target rodent, like a rat or mouse, eats the bait containing ARs, the ARs interfere with clotting and cause death by internal hemorrhage. But how do ARs impact birds that eat contaminated rodents?

As owl lovers, many of our volunteers are concerned about the potential trophic effect of ARs but there is limited information on the secondary effects of ARs on birds of prey. To better educate myself and our volunteers, I will share my summary and thoughts on a recent publication on this topic, followed by some advice for protecting your home and property from rodents *without* the use of ARs.



Thornton, G.L., Stevens, B., French, S.K. et al. **Anticoagulant rodenticide exposure in raptors from Ontario, Canada.** *Environ Sci Pollut Res* 29, 34137–34146 (2022). <https://doi.org/10.1007/s11356-022-18529-z>

Thornton et al. (2022) assessed the presence of AR residue in the livers of 133 raptor species submitted to the Canadian Wildlife Healthy Cooperative in Ontario, Canada, between 2017 and 2019. Their

results show that 62% (82/133) of the raptors sampled had AR residues. Of these samples 87% (34/39) of Red-tailed hawks and 88% (15/17) of Great Horned Owls had AR residues. ARs were found in the majority of raptor species including some species that don't generally consume rats or mice, such as Peregrine Falcons, American Kestrels and Merlins. Further, ARs were found in a Bald Eagle, which is a generalist that usually consumes fish. In the majority of cases AR levels were trace or sub-lethal, with only two birds identified as dying of AR poisoning. Thorton et al. (2022) noted that the sub-lethal effects on ARs in free ranging wildlife are not known. Based on captive species, effects may or may not include decreased body condition, decreased fitness, increased susceptibility to disease, behavioral changes including lack of appetite, lethargy, wing droop, or decreased reproductive success.



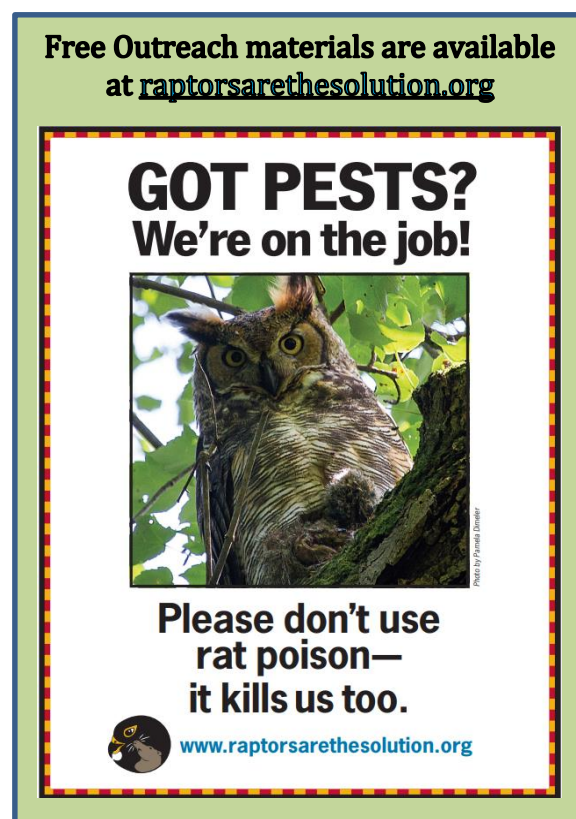
This article hits close to home for many of us, as it clearly shows the presence of ARs in species we see in our nearby woodlots, particularly in the urban and agriculture areas of southwestern Ontario. The article also discussed the broader presence of ARs in our environment with mention of evidence of ARs in songbirds, carrion beetles, slugs and contaminated wastewater, and the need for more research to understand the secondary pathways involved in AR biomagnification (i.e., accumulation of toxins up the food web).

Thorton et. al. (2022) brings more questions to bear than answers. Are these sub-lethal levels of ARs impacting birds of prey behavior and condition? Do these contaminant levels need to be considered in Species at Risk management? How does a Bald Eagle end up with AR contamination but an Osprey does not (both primarily fish-eating species)? What are the secondary pathways where falcons receive the poison? It also exposes the limitations of the opportunistic sampling collection used in the study. The article itself is behind a paywall but there is a related blog available at <http://blog.healthywildlife.ca/raptors-and-rodenticides/>.

Rodents are not going away anytime soon and we really shouldn't want them too. They are a food source for so many of the birds of prey we enjoy watching. But, if not rodenticides, what other control options are available? Here are some suggestions from the Urban Raptor Conservancy, Owl Watch B.C., B.C. S.P.C.A and the Earth Island institute of Berkeley:

- Remove any potential food sources for rodents (i.e., keep pet food in tightly-sealed containers).
- Store your garbage in sealed containers.
- Ensure your compost does not include protein sources, especially meat.
- If you have a rat infestation, consider other ways to help birds other than bird feeding (i.e., water features, shelter habitat, bird gardens (www.birdgardens.ca) or at minimum, change to a type of feeder that has less waste such as a tube feeder or a squirrel proof feeder.

- Exclude Exclude Exclude! – Bring in a professional to ensure all holes in buildings are plugged. Repair cracks or crevices and ensure there are no gaps at the edges of doors.
- Keep the debris away and the grass short near the buildings. Consider replacing grass in some parts of the garden with native plants, as they may help to attract beneficial species.
- If you must control rodents, avoid poisons. Snap traps, electronic traps (zap traps) and live traps are other options.
- **Take advantage of natural ecosystem services to control rodents**
 - Build nest boxes for Kestrels and Eastern Screech Owls.
 - Encourage habitat for snakes (i.e., look into habitat structures, winter shelters).
 - Provide perches for raptors where they can watch over your property
 - Take other steps to keep your bird populations healthy and keep common birds common – provide and protect habitat, use visual deterrents on windows to prevent window collisions, keep cats from roaming outside, reduce plastic use and take action on the climate crises.



You asked! Research on forest practices and Owls in Canada

After a review of the available research these four articles provide some insights into the impact of forest practices and owls. Note that the Ontario Owl Survey itself is a great tool to understand the health of Owls populations in forests.

Leonard, O.D., Moore, J.W., Riegel, J.K., Meier, A.R., Dunning, J.B., Jr., Kellner, K.F. and Swihart, R.K. (2015), **Effect of variation in forest harvest intensity on winter occupancy of Barred Owls and Eastern Screech-Owls in deciduous forests of the east-central United States.** *J. Field Ornithol.*, 86: 115-129.
<https://doi.org/10.1111/jofo.12095>

Rayfield, B, P. M.A. James, A. Fall, and M. Fortin, 2008. **Comparing static versus dynamic protected areas in the Québec boreal forest.** *Biological Conservation* 141 (2): 438-449
<https://doi.org/10.1016/j.biocon.2007.10.013>.

Kathrin J. Munro "Testing a Habitat Suitability Index Model for Boreal Owls in Western Newfoundland, Canada," *Journal of Raptor Research* 50(4), 325-337, (1 December 2016). <https://doi.org/10.3356/JRR-15-51.1>

Shonfield, J. 2018. **Using Bioacoustics to Examine the Effects of Industrial Disturbance on Owls and their Prey.** PhD Thesis submitted to the Department of Biology, *University of Alberta* 239 pages
<https://era.library.ualberta.ca/items/975d8caf-6eb1-4921-a48b-e811f18b7524>

Research Sampling

For your interest here is a selection of informative owl research papers that were published in the last year.

Shonfield, Julia & Bayne, Erin. (2021). **Using bioacoustics to study vocal behaviour and habitat use of Barred Owls, Boreal Owls and Great Horned Owls.** 29. 416.

https://www.researchgate.net/publication/352821360_Using_bioacoustics_to_study_vocal_behaviour_and_habitat_use_of_Barred_Owls_Boreal_Owls_and_Great_Horned_Owls

Duncan, J. R. (2021). **An evaluation of 25 years of volunteer nocturnal owl surveys in Manitoba, Canada.** *Airo* 29: 66-82.

https://www.airo-spea.com/files/ugd/8fea7e_ba923983307e4e8aae00e0f81643247f.pdf

Passarotto, A., Rodríguez-Caballero, E., Cruz-Miralles, Á., & Avilés, J. M. (2022). **Ecogeographical patterns in owl plumage colouration: Climate and vegetation cover predict global colour variation.** *Global Ecology and Biogeography*, 31, 515– 530. <https://doi.org/10.1111/geb.13444>

Krista Le Piane, Christopher J Clark, (2022). **Quiet flight, the leading edge comb, and their ecological correlates in owls (Strigiformes),** *Biological Journal of the Linnean Society*, 135: 1, 84–97.

<https://doi.org/10.1093/biolinnean/blab138>

Paweł Mirski, Alexander Ivanov, Denis Kitel & Tomasz Tumiel (2021) **The ranging behaviour of the Great Grey Owl *Strix nebulosa*: a pilot study using GPS tracking on a nocturnal species,** *Bird Study*, 68:1, 129-134.

<https://doi.org/10.1080/00063657.2021.1965085>

Ratajc, U., Breskvar, M., Džeroski, S. and Vrezec, A. (2022), **Differential responses of coexisting owls to annual small mammal population fluctuations in temperate mixed forest.** *Ibis*, 164: 535-551.

<https://doi.org/10.1111/ibi.13029>

Sonerud, G.A. (2021) **Win – and stay, but not too long: cavity selection by Boreal Owls to minimize nest predation by Pine Marten.** *J Ornithol* 162, 839–855. <https://doi.org/10.1007/s10336-021-01876-y>

each owl (m)		Other Species (# heard)				
500-1000	1000+	Traffic Count (# cars)	Noise Level (1-4)	Amer. Woodcock	Ruffed Grouse	Snipe
		2	2	1	0	0
Comments: Both cars + 1 ATV passed during 3rd + 4th BARK calls. Also 7 cars on path 88						
		1	1	0	0	0
Comments: Attack-ey Guy has a mark! He still swoops uncomfortably low						
		1	1	0	0	0
Comments:						
		0	1	0	0	0
Comments:						
		0	1	0	0	0
Comments:						

Cross-Canada Round Up

Owl-ly bits and other learnings from Birds Canada programs. Sign up at www.birdscanada.org to receive Birds Canada monthly news.

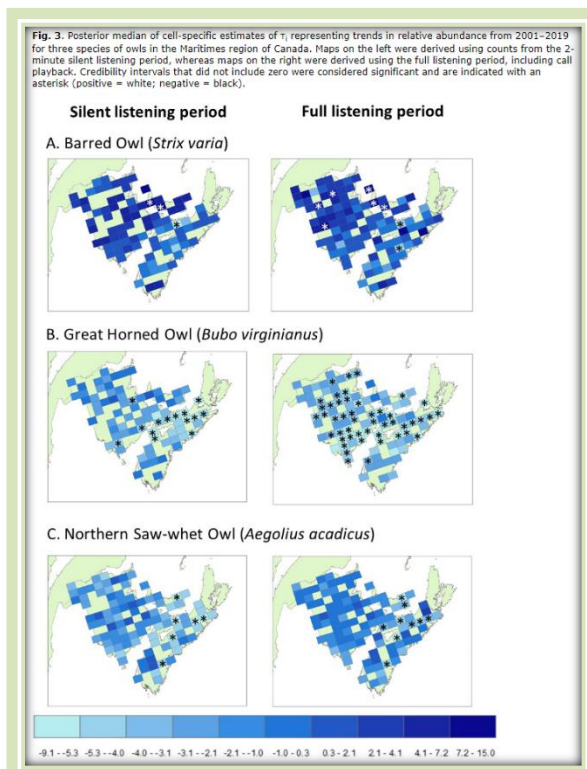
Polishing up the Protocol: During our spring 2022 National Owl survey Coordinators meeting we discussed the need for a mechanism to flag habitat concerns. To this end, a new field will be added to the data form and online data entry to allow you to flag habitat changes during the past year.

National Research: Birds Canada and its partners are working towards Canada's first ever national assessment of the status of owls using data collected by Nocturnal Owl Survey volunteers. Two data rescue interns, sponsored by the [Living Data Project](#), are assisting with the remaining data entry into the NatureCounts portal (Ablerta and Cape Breton Highlands). Once complete, Dr. Danielle Ethier, Population Scientist at Birds Canada, will use this unique national dataset to assess trends in owl populations and the drivers influencing these patterns. The Ontario Owl Survey will contribute to this important national assessment!

Atlantic Owl Survey produces its first scientific report!

Take a moment to read this free publication that is available in the journal Avian Conservation and Ecology. This research contains the framework for the National Assessment and provides insights on new ways Owl data can be analyzed at the provincial and regional level.

Ethier, D. M., R. Torrenta, and A.-L. Kouwenberg. (2022). **Spatially explicit population trend estimates of owls in the Maritime provinces of Canada and the influence of call playback.** Avian Conservation and Ecology 17(1):12. <https://doi.org/10.5751/ACE-02075-170112>



From Ethier et. al, 2022

[Birds Canada Online Courses](#) – great learning opportunities for long winter nights and rainy days.

Atlas Update (summarized from Atlas-3 November and February Updates)

Year two of the Ontario Breeding Bird Atlas #3 is well underway but I thought I would share a few updates relating to owls. **Please note that your owl survey data will be shared with Atlas-3.**

Owling in November and December: If you check the Safe Date charts, you will notice that it is safe to report breeding evidence for Eastern Screech-Owl in November and December, and for Great Horned Owl in December in southern Ontario. Both species are quite vocal at this time of year as they advertise their territories and seek mates. Although November is in the shoulder season for Great

Horned Owls (when some are starting breeding behaviours and some are still dispersing), calling birds can be counted as “S” for singing and “T” for Territory. So, to clarify, calling Screech-Owls and Great Horned Owls in November and December can be counted as breeding evidence for the Atlas. Great Horned Owls in November that are not calling should not be given breeding evidence.

Standard Owl Survey season begins annually on March 1

Standardized Owl surveys are a great way for us to learn about the distribution and abundance of owls and how they’ve changed since previous atlases. They are also a lot of fun and well suited to both experienced and inexperienced birders. There’s something special about the sound of an owl calling from the darkness or a Northern Hawk Owl perched atop a spindly spruce.

Here is the what, when and where:

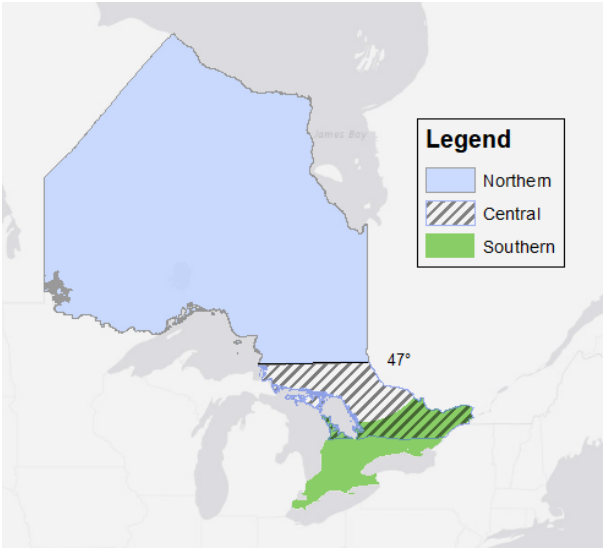
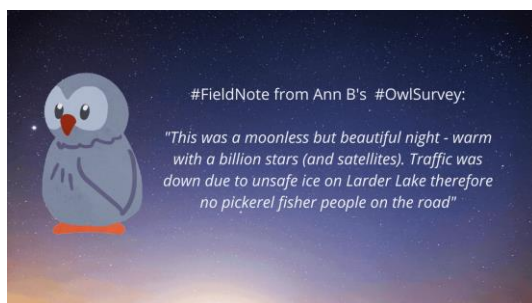
Survey	Date	Location	Playback?	
Eastern Screech-Owl	March 1 - April 30	"Southern" section in Figure 1.	Yes	
Northern Hawk Owl	March 1 - May 31	"Northern" section in Figure 1.	Yes	
Barred and Northern Saw-whet Owl	April 1- April 30	"Central" section in Figure 1.	Yes	
Great Gray and Boreal Owl	April 1 - April 30	"Northern" section in Figure 1.	Yes	
Long-eared Owl	July 1- August 14	In any section	No	

Figure 4. Ontario Breeding Bird Atlas -3 dates and locations of standardized owl surveys.



To learn more about these protocols visit birdsontario.org/owl-nightjar-surveys/, to participate please contact the Ontario Breeding Bird Atlas Regional Coordinator for your area (birdsontario.org/regional-coordinators/).

[Check out “The Warblers” podcast](#) – it will inform, entertain, inspire!



Need resources – look online!

Visit www.birdscanada.org/on_owls for all your owling needs.

If you are interested in participating: review the map, the volunteer position description and then complete the “Request a Survey Route” form.

If you are a current volunteer: use birdscanada.org/on_owls as your “one stop shop” that gives you access to the:

- | | | |
|--------------|---------------------------|--------------------|
| ✓ Newsletter | ✓ Survey Availability Map | ✓ Data forms |
| ✓ Protocols | ✓ Request a Route form | ✓ Volunteer Portal |

Use the “Volunteer Portal”, to **sign up/sign in** to the secure NatureCounts website for:

- | | | |
|--|-----------------------|---------------------------|
| ✓ Past Newsletters | ✓ Data submission | ✓ Training CD MP3 files |
| ✓ Stop coordinates | ✓ MP3 broadcast files | ✓ Owl survey vehicle sign |
| ✓ Owl surveyor in action cards (to hand out to concerned citizens) | | |

Congratulations to our Webinar Prize Winners
Don Rowlinson (virtual door prize)
John MacLachlin (post survey raffle)
Both receive a Birds Canada hat and a mystery Great Canadian Birdathon shirt

Birds Canada is on Facebook, Twitter and Instagram and Kathy Jones is on Facebook and Twitter. **For 2022 we would LOVE to hear and see photos about your #fieldsurveys and #naturemoments.** Tag us or use the hashtag: #owlsurvey so we can find and share your story or just email it directly to volunteer@birdscanada.org.



Thanks to our volunteers and sponsors!

We wholeheartedly thank the volunteers, who have become far too numerous to mention by name, for their participation in the 1995-2022 surveys. These people have generously donated their valuable time and equipment to venture forth on cold, dark nights to survey owls. They are making essential contributions to owl conservation across Ontario. We would also like to thank the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry – Provincial Wildlife Monitoring Program for their support of this program, and our local [Wiggan's W.F. Clover Farm](#) in Port Rowan who supplied our volunteers with the much appreciated hot chocolate.

Kathy Jones, Volunteer Manager, Ontario Program

email: volunteer@birdscanada.org; social media: twitter.com/Volunteer4Birds;

facebook.com/Volunteer4Birds; instagram.com/volunteer4birds; linkedin.com/in/kjonesvolunteer4birds

Ontario Owl Survey, Bird Studies Canada, P.O. Box 160, Port Rowan, ON N0E 1M0, 519-586-3531 ext. 124 , Toll-free 1-888-448-2473, birdscanada.org/on_owls



Learn about the
upcoming data entry
app in the Owl
Survey Refresher



Birds Canada fully endorses The American Birding Association's Code of Birding Ethics and encourages our supporters to abide by this code.

[CODE OF BIRDING ETHICS V.2.1, NOV. 2019](#)

.....
[Guidelines for Reporting Sensitive Species to eBird](#)

[The Ontario Breeding Bird Atlas Code of Ethics](#)

Please [donate](#) and help Birds Canada support critical efforts to keep our common birds common while taking direct action to conserve at-risk species.