

Conserving Lakes and Wetlands through Waterbird Citizen Science

By Doug Tozer



Photo: Missy Mandel



Douglas C. Tozer, PhD | Director, Waterbirds and Wetlands

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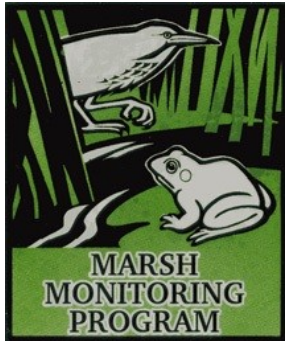


1



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Leading waterbird citizen science
monitoring programs in Ontario:



2

Successfully conserve
lakes and wetlands

Benefits?

Property
Owners

Lake and River
Associations

Land Trusts



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Canadian co-partner of
une partenaire canadien de



Mission: To conserve wild birds of Canada through sound science, on-the-ground actions, innovative partnerships, public engagement, and science-based advocacy.

National Headquarters, Port Rowan, Ontario



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Citizen Science

Research and Conservation

Education

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Featured News

Young Ornithologists' Workshop



Celebrating our latest cohort

Tens of thousands of volunteers help our scientists monitor and conserve birds

[Volunteer...](#)



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Canadian Lakes
Loon Survey

Canadian Migration
Monitoring Network

Christmas Bird
Count

eBird Canada

Great Backyard Bird
Count

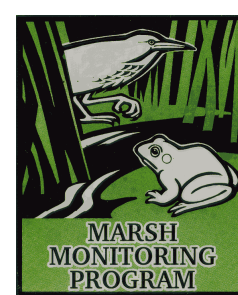
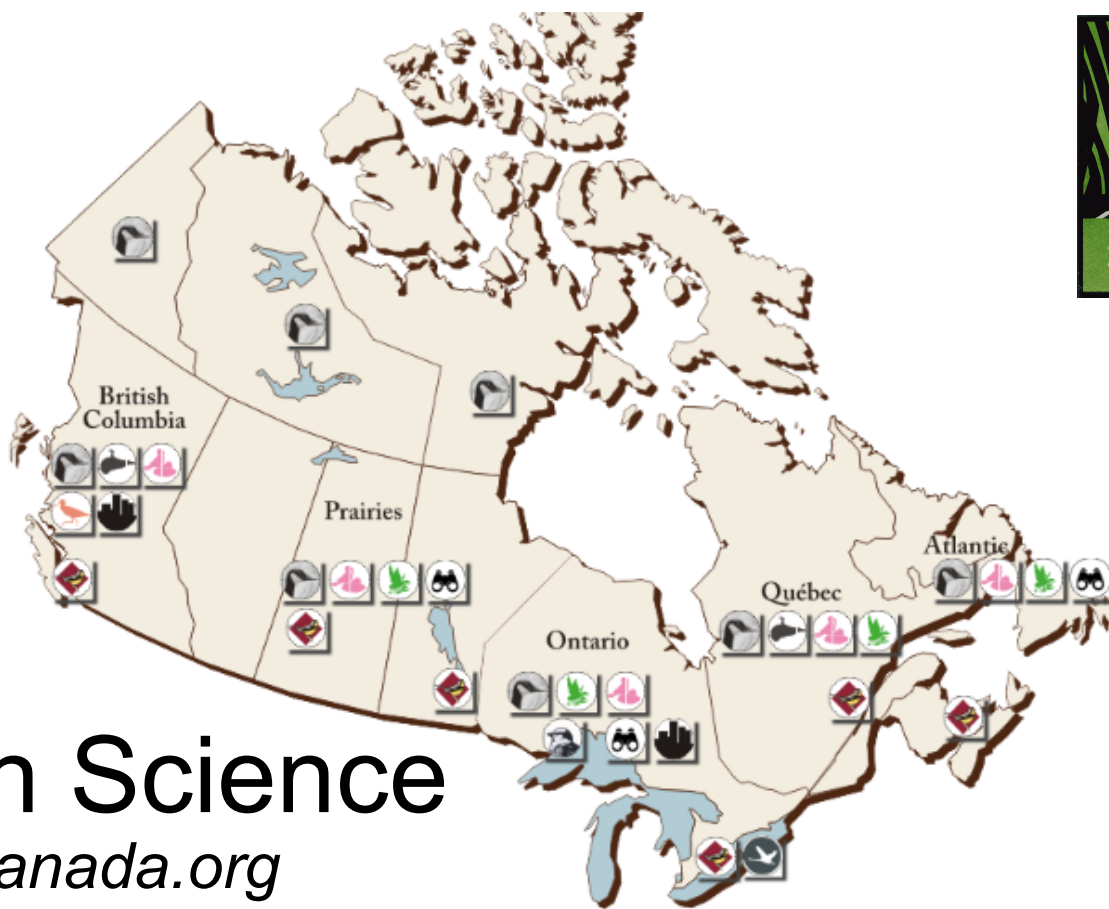
The Great Canadian
Birdathon

Important Bird Areas
Program

Nocturnal Owl
Survey

Project FeederWatch

Project NestWatch



*Just two of our many,
many programs*

Black Tern

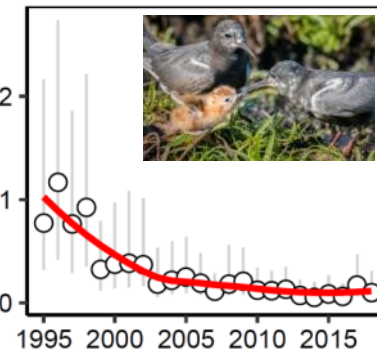


Photo: Prism Photography

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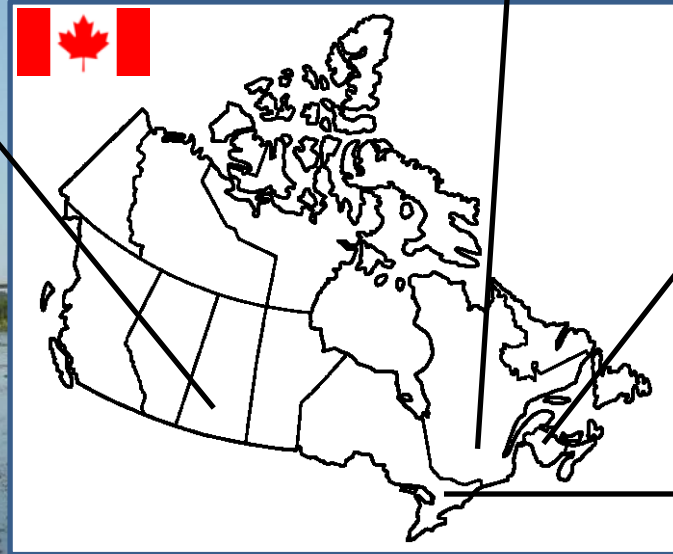
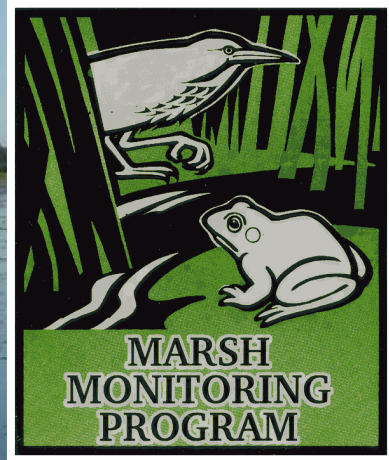
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2008
Prairie
MMP

2004
Quebec
MMP

2012
Maritimes
MMP



1995
Great Lakes
MMP

MMP = Marsh Monitoring Program

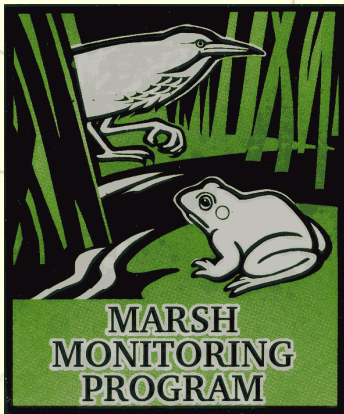
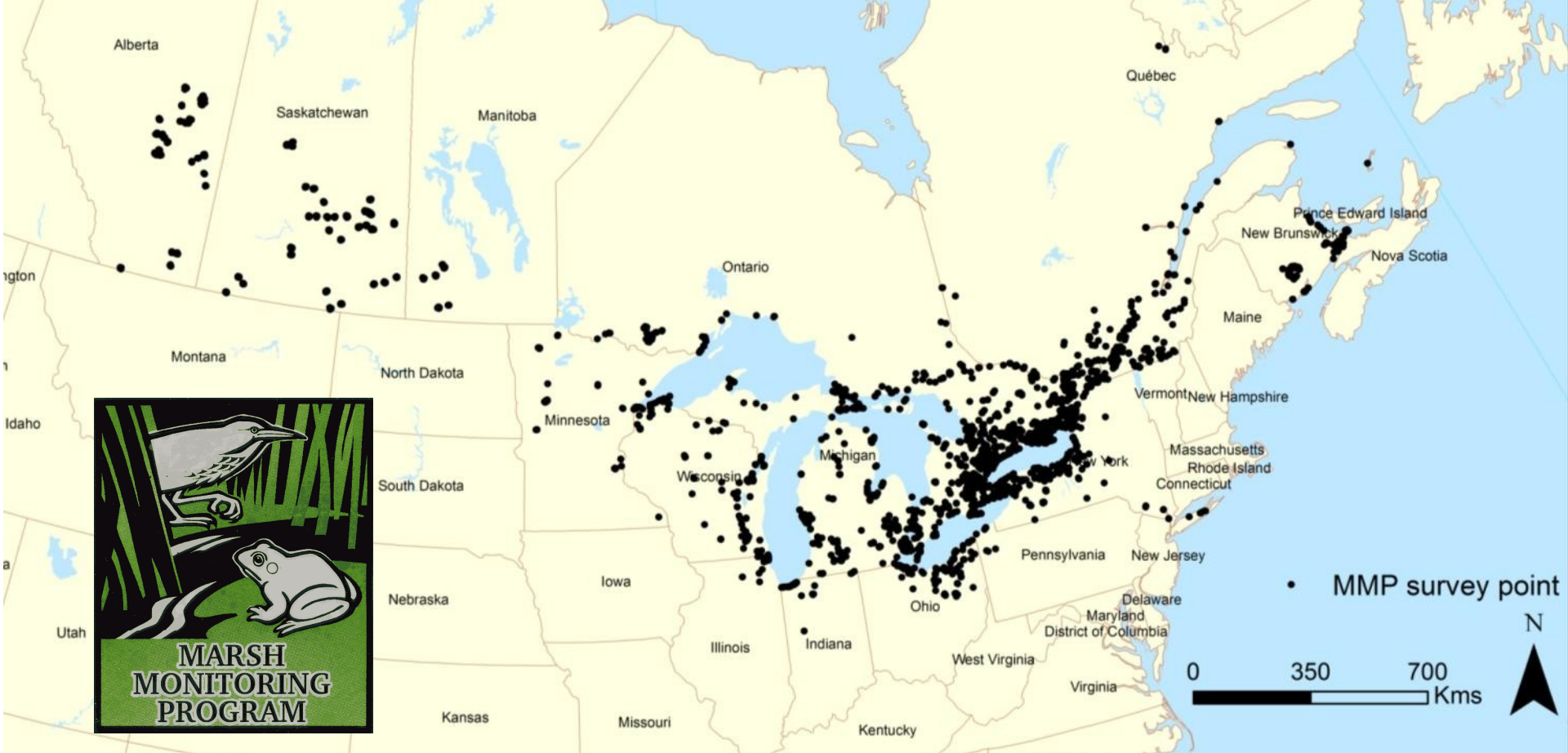
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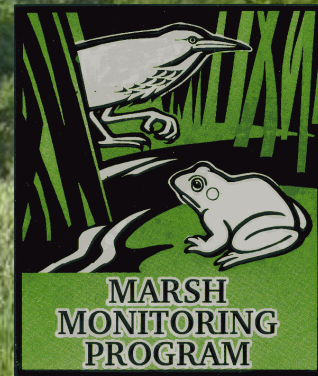
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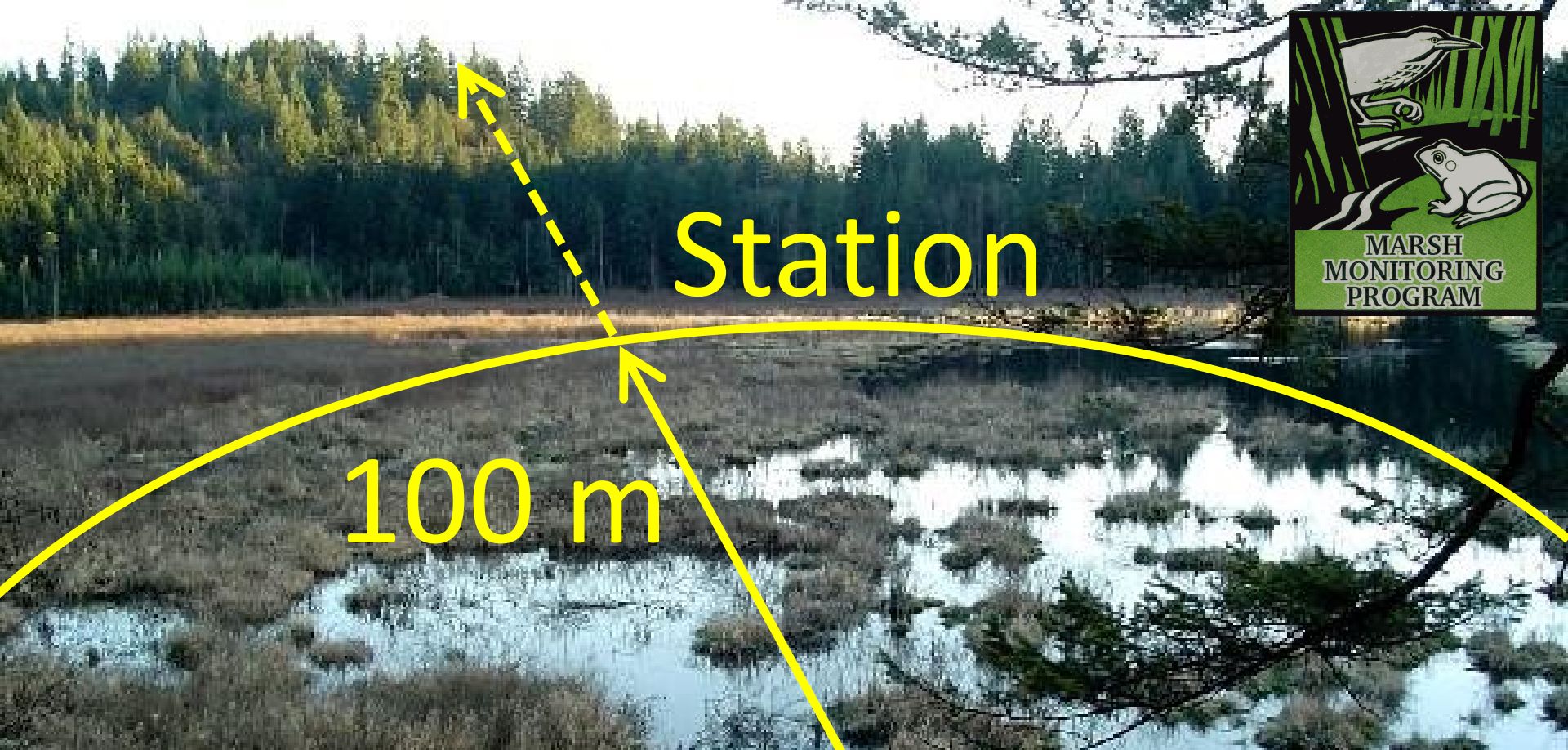
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Station

100 m



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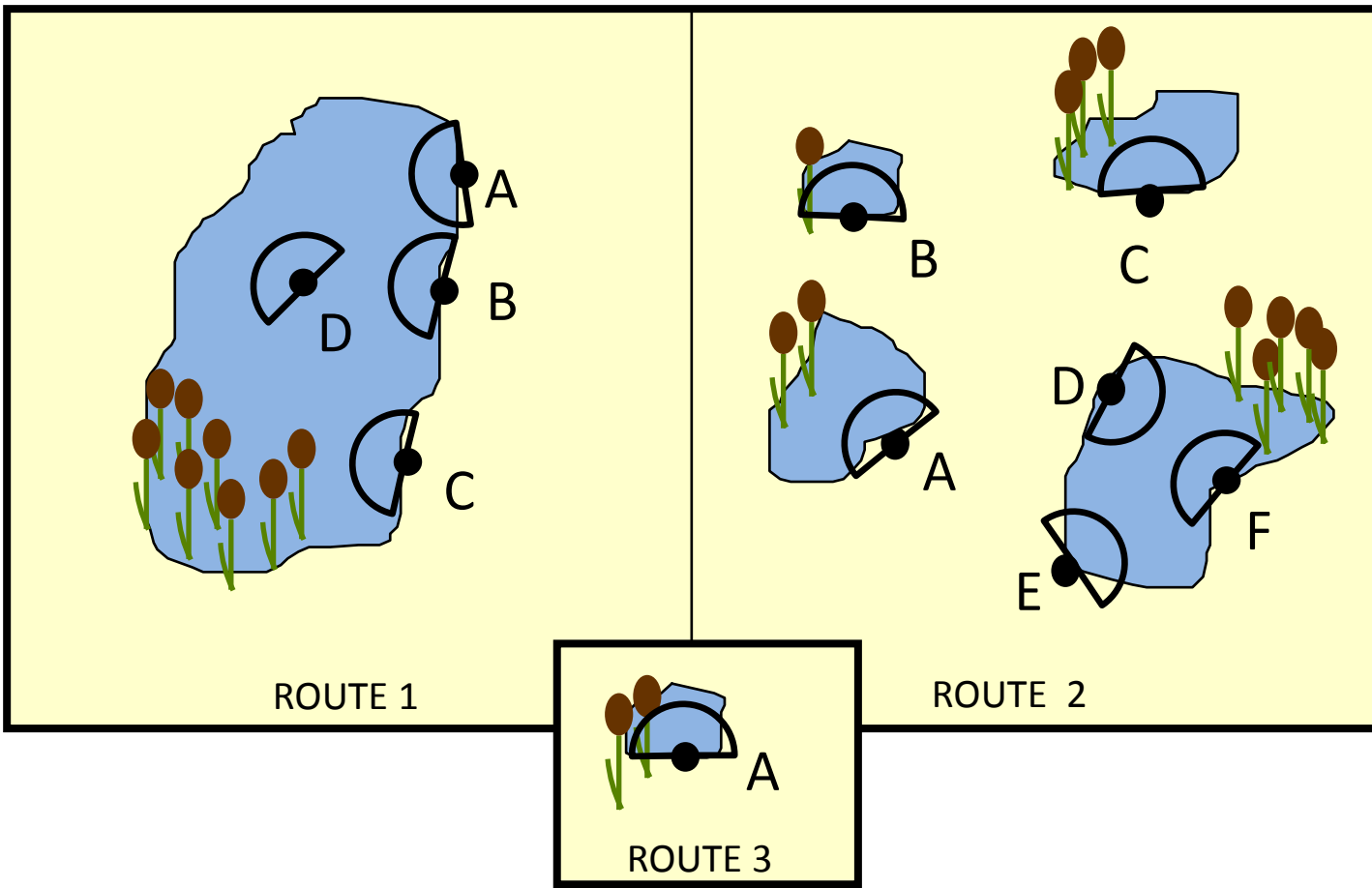
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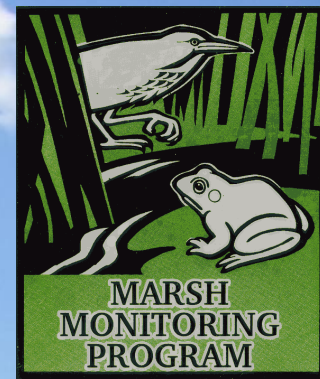
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Bird surveys

- no rain, little wind, not too cold
- 15 min at each station per visit
- morning or evening
- at least two visits per year



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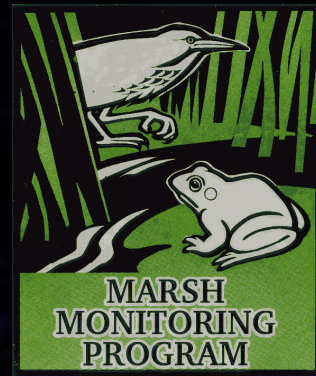
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Frog surveys

- some rain okay, little wind
- 3 min at each station per visit
- night only
- at least three visits per year according to temperature:
1st >5°C 2nd >10°C 3rd > 17°C



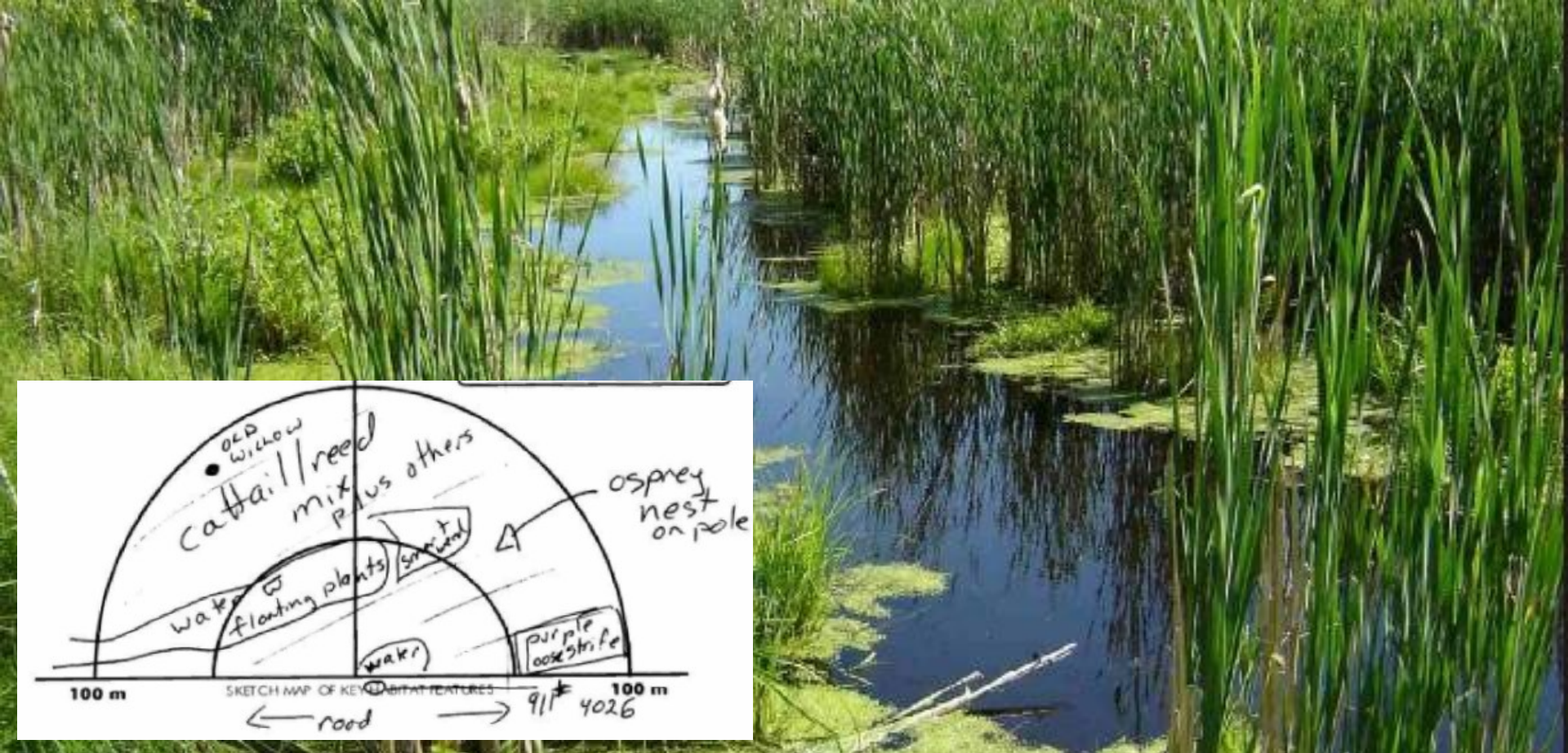
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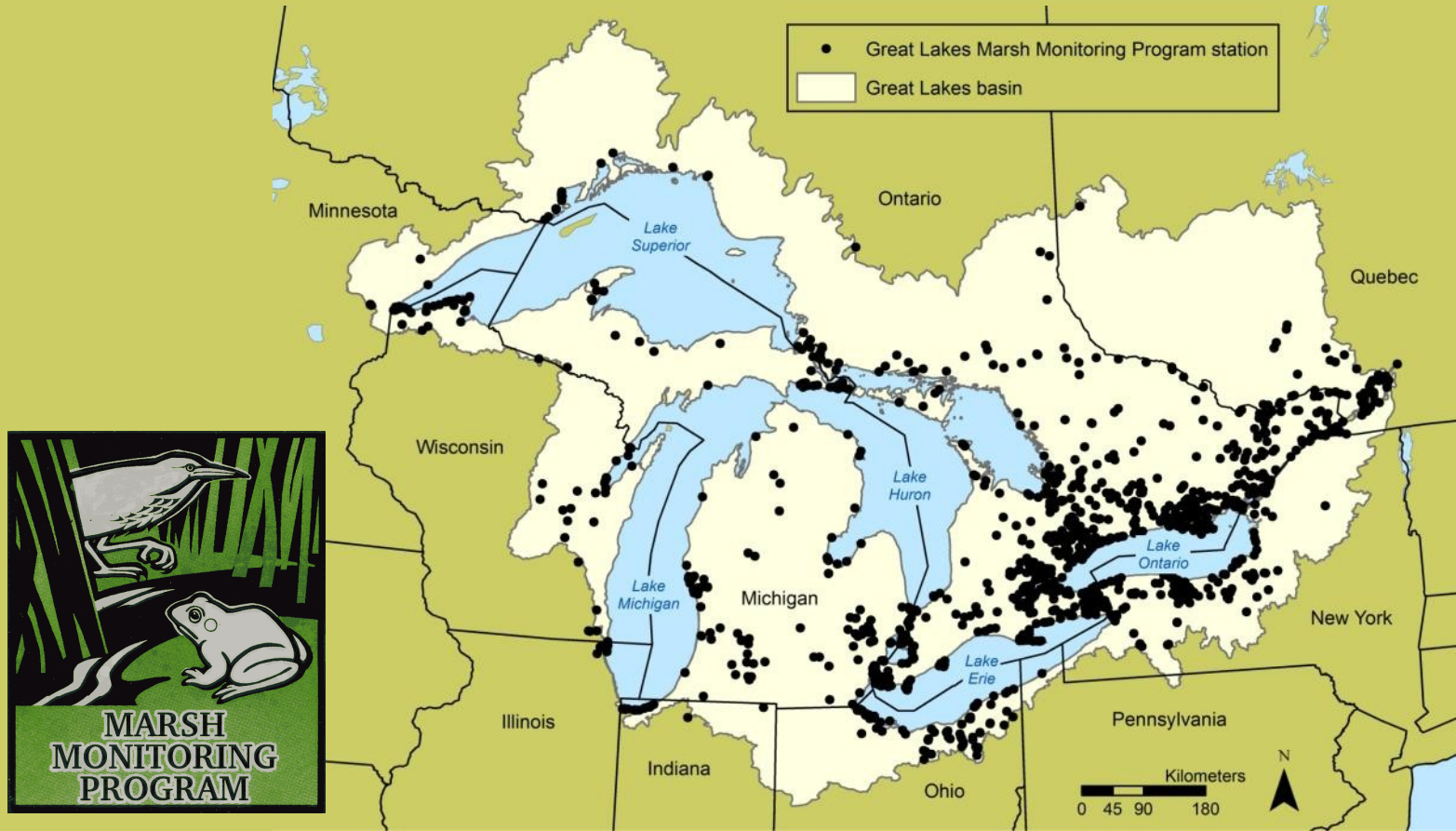


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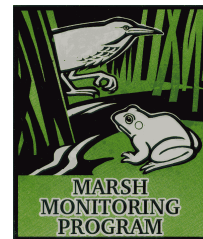
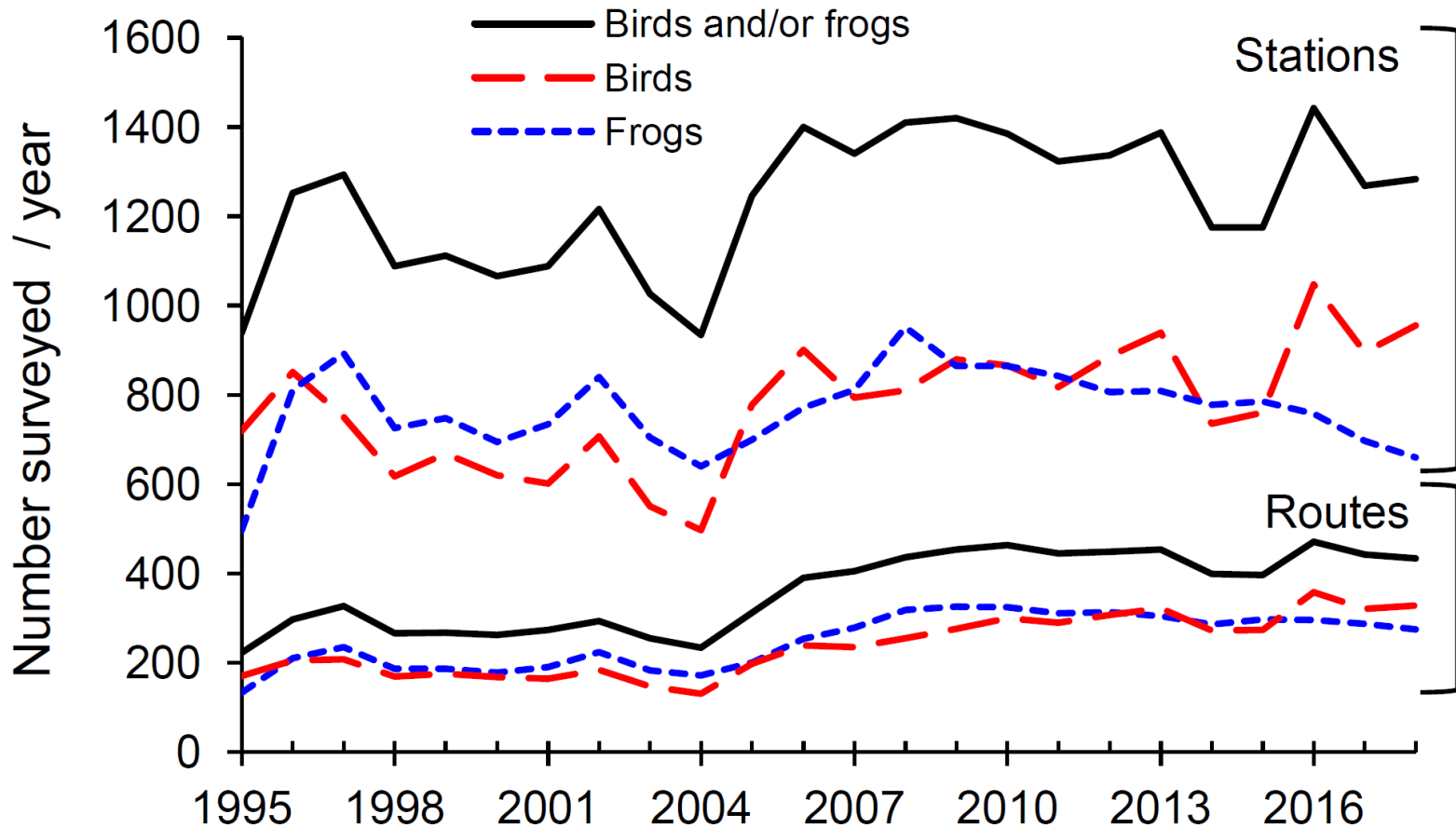
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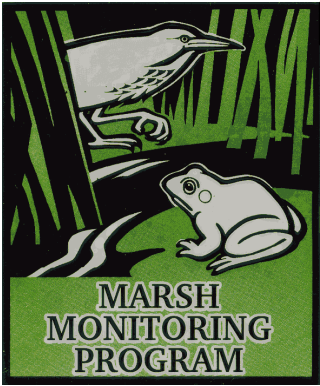
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Canada

Nature Counts

Photo: Ralph Hocken

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Knowledge
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Nature Counts

Nature Counts is the Canadian natural inventory and monitoring data node, with a particular focus on birds, but also other vertebrates such as amphibians, reptiles and bats.



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Publications:

Marsh bird occupancy dynamics, trends, and conservation in the southern Great Lakes basin: 1996 to 2013

Douglas C. Tozer *

Bird Studies Canada, Box 160, 115 Front Street, Port Rowan, ON N0E 1M0, Canada

Journal of Great Lakes Research 42 (2016) 136–145

Hydrology influences generalist–specialist bird-based indices of biotic integrity in Great Lakes coastal wetlands

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^b Bird Studies Canada, 115 Front Street, Port Rowan, Ontario N0E 1M0, Canada

^c Faculty of Environmental Studies, York University, 4700 Keele Street, Toronto, Ontario M3J 1P3, Canada

Journal of Great Lakes Research 40 (2014) 281–287

Comparing disturbance gradients and bird-based indices of biotic integrity for ranking the ecological integrity of Great Lakes coastal wetlands

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^a York University, 4700 Keele Street, Toronto, Ontario M3J 1P3, Canada

^b Bird Studies Canada, 115 Front Street, Port Rowan, Ontario N0E 1M0, Canada

^c University of Wisconsin – Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311, USA

Ecological Indicators 57 (2015) 475–485

Using citizen science monitoring data in species distribution models to inform isotopic assignment of migratory connectivity in wetland birds

Aurélien M.V. Fournier, Kiel L. Drake, Douglas C. Tozer

JOURNAL OF
AVIAN BIOLOGY

Using Digital Recordings and Sonogram Analysis to Obtain Counts of Yellow Rails

KIEL L. DRAKE,¹ *Bird Studies Canada, 115 Perimeter Road, Saskatoon, SK S7N 0X4, Canada*

MATTHEW FREY,² *Bird Studies Canada, 115 Perimeter Road, Saskatoon, SK S7N 0X4, Canada*

DANICA HOGAN,³ *Bird Studies Canada, 115 Perimeter Road, Saskatoon, SK S7N 0X4, Canada*

RICHARD HEDLEY,⁴ *Bird Studies Canada, 115 Perimeter Road, Saskatoon, SK S7N 0X4, Canada*

(2016) *Wildlife Society Bulletin*; DOI: 10.1002/wsb.658

CANADIAN WILDLIFE BIOLOGY & MANAGEMENT



CWBM 2019: Volume 8, Number 2

ISSN: 1929-3100

Original Research

Control of Invasive *Phragmites* Increases Breeding Marsh Birds but not Frogs

Douglas C. TOZER¹ and Stuart A. MACKENZIE²

COMMUNITY-LEVEL RESPONSE TO CLIMATE CHANGE: SHIFTS IN ANURAN CALLING PHENOLOGY

AARON A. WALPOLE^{1,3}, JEFF BOWMAN¹, DOUGLAS C. TOZER², AND DEBBIE S. BADZINSKI²

Herpetological Conservation and Biology 7(2): 249–257.

Modeling detection probability to improve marsh bird surveys in southern Canada and the Great Lakes states

Douglas C. Tozer¹, Kiel L. Drake¹ and C. Myles Falconer¹

Avian Conservation and Ecology 11(2):3.

Influence of call broadcast timing within point counts and survey duration on detection probability of marsh breeding birds

Douglas C. Tozer¹, C. Myles Falconer¹, Annie M. Bracey², Erin E. Gnass Giese³, Gerald J. Niemi^{2,4}, Robert W. Howe^{3,5}, Thomas M. Gehring⁶ and Christopher J. Normet⁷

Multispecies benefits of wetland conservation for marsh birds, frogs, and species at risk

Douglas C. Tozer ^{a,*}, Owen Steele ^b, Mark Gloutney ^c

^a Long Point Waterfowl and Wetlands Research Program, Bird Studies Canada, P.O. Box 160 (Courier: 115 Front Street), Port Rowan, ON N0E 1M0, Canada

^b Ducks Unlimited Canada, 740 Huronia Road, Unit 1, Barrie, ON L4N 6C6, Canada

^c Ducks Unlimited Canada, 35 Sparks Street, Suite 702, Ottawa, ON K1R 7S8, Canada

Journal of Environmental Management 212 (2018) 160–168

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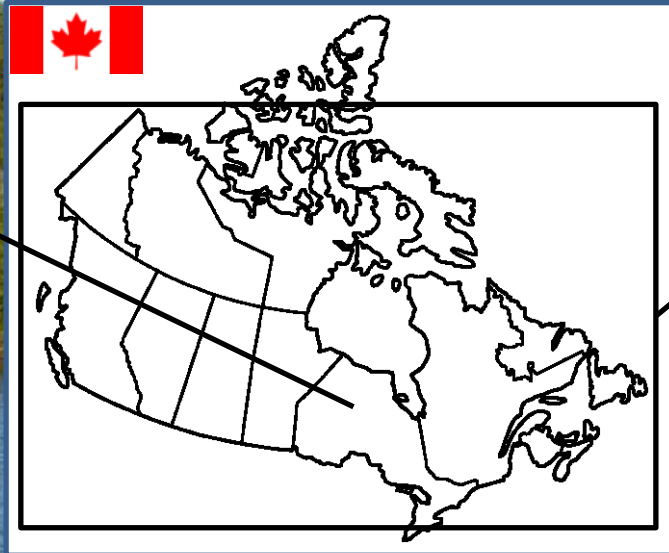
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1981
Ontario



1990s
National



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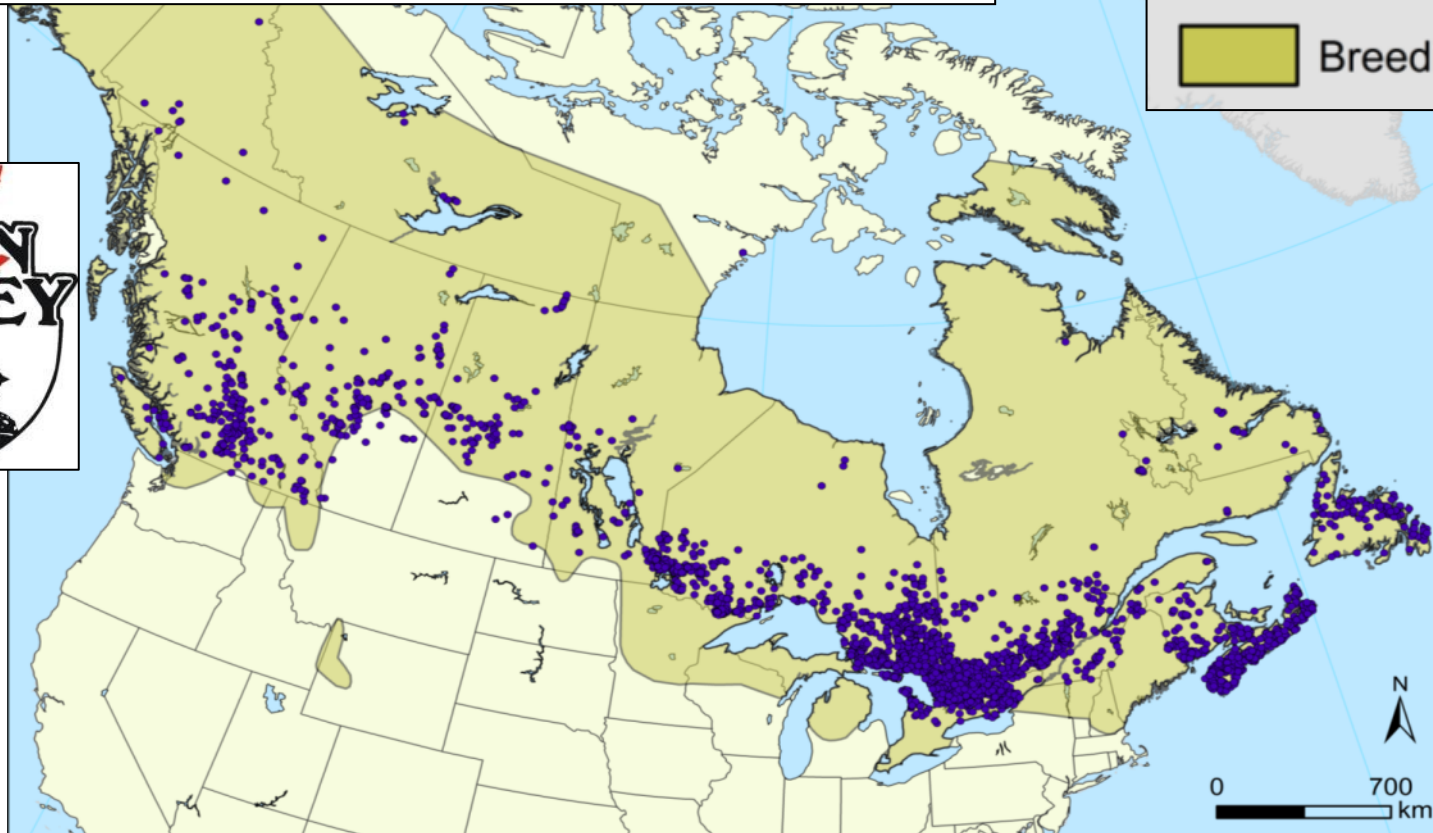
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Lakes surveyed by the CLLS between 1992 and 2010

- CLLS lake
- Breeding range



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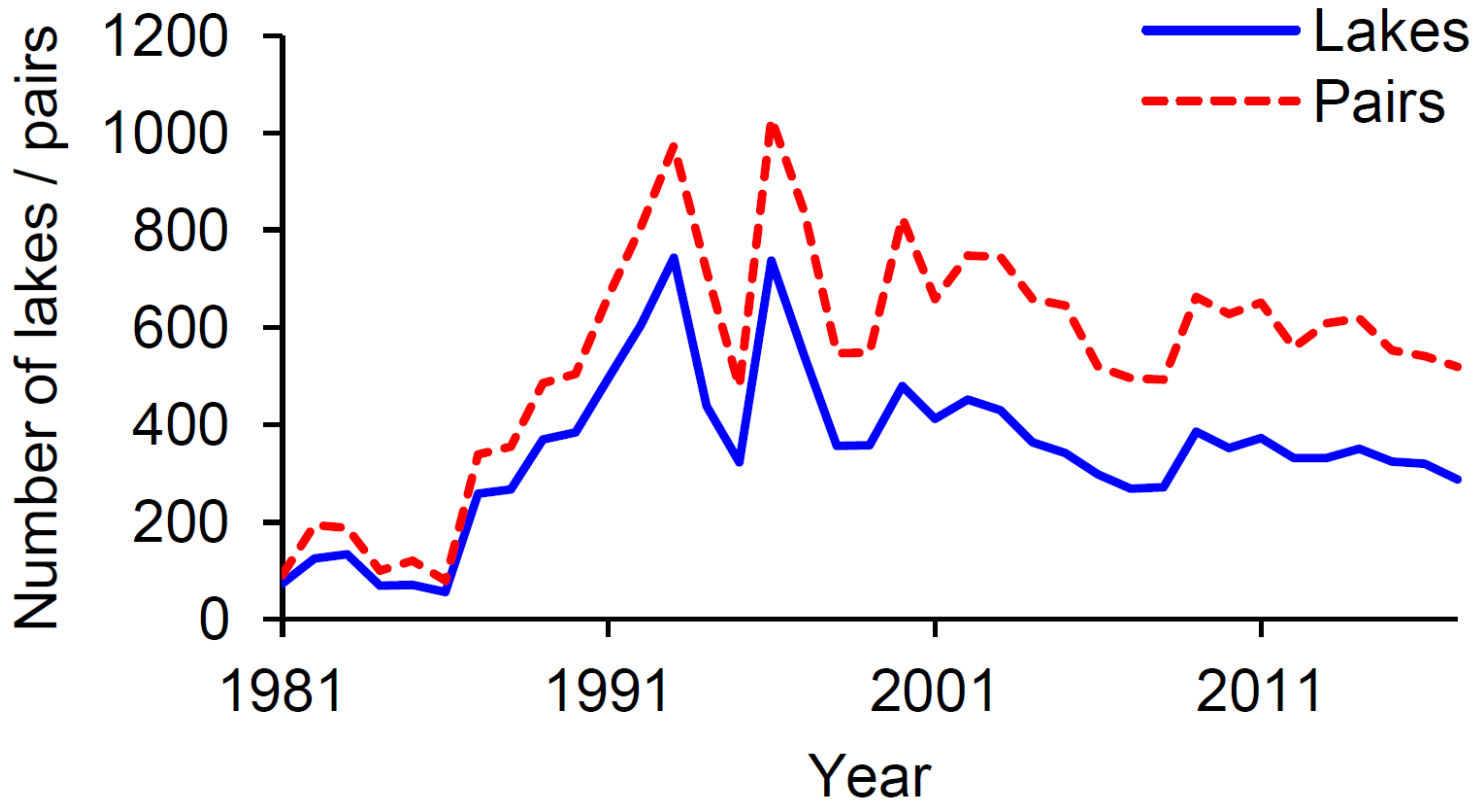
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Projects:

Common Loon Reproductive Success in Canada: the West is Best but Not for Long

*Douglas C. Tozer*¹, *C. Myles Falconer*¹ and *Debbie S. Badzinski*¹
Avian Conservation and Ecology 8(1): 1. <http://dx.doi.org/10.5751/>

Factors influencing productivity of common loons (*Gavia immer*) breeding on circumneutral lakes in Nova Scotia, Canada

Shannon S. Badzinski*¹ & Steven T.A. Timmermans*²

USING VOLUNTEERS TO MONITOR THE EFFECTS OF ACID PRECIPITATION ON COMMON LOON (*Gavia immer*) REPRODUCTION IN CANADA: THE CANADIAN LAKES LOON SURVEY

D. K. MCNICOL¹, M. L. MALLORY¹ and H. S. VOGEL²

Water, Air and Soil Pollution **85**: 463–468, 1995.

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1. Collect lots of data!

form_id	Route_Num	Year_surv	Month_no	Day_no	Start_Time	user_id	station	Survey_no	Species_Co
11	IL002	1996	6	11	1825	37622 A		1	MODO
13	IL002	1996	6	11	1825	37622 A		1	RWBL
3208	CH0185	2000	5	30	1840	17456 A		1	MODO
3208	CH0185	2000	5	30	1840	17456 A		1	RWBL
1868	NY057	2001	6	25	1822	66418 A		1	BCNH
1868	NY057	2001	6	25	1822	66418 A		1	MODO
1575	NY021	2001	5	31		58826 E		1	RWBL
333	M017	1996	6	19	1855	29725 D		1	MODO
333	M017	1996	6	19	1855	29725 D		1	RWBL
31	IL004	1998	6	15	1800	44622 A		2	RWBL

2. Engage lots of people.



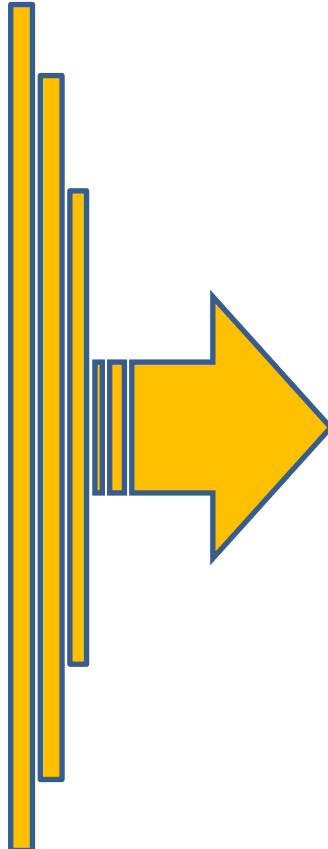
3. Publish “a paper or two.”



Research article
Multispecies benefits of wetland conservation for marsh birds, frogs, and species at risk



Douglas C. Tozer ^{a,*}, Owen Steele ^b, Mark Gloutney ^c



Successful Lake and Wetland Conservation



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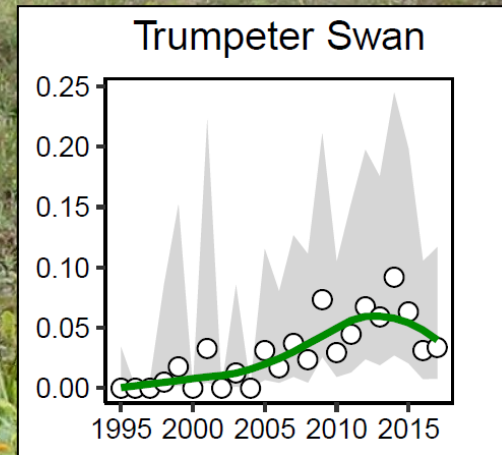
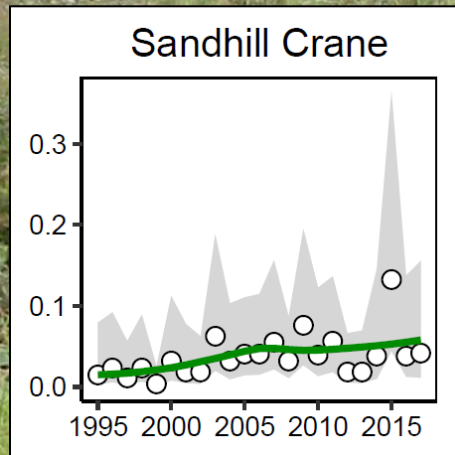
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1. Collect lots of data!

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13	IL002	1996	6	11	1825	37622	A		1 RWBL
3208	ON035	2000	5	30	1840	17456	A		1 MODO
3208	ON035	2000	5	30	1840	17456	A		1 RWBL
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1575	NY021	2001	5	31		58826	E		1 RWBL
333	MI017	1996	6	19	1855	29725	D		1 MODO
333	MI017	1996	6	19	1855	29725	D		1 RWBL
31	IL004	1998	6	15	1800	44622	A		2 RWBL



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3. Publish lots of papers.



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Journal of Environmental Management

journal homepage: www.elsevier.com/locate/jenvman



Research article

Multispecies benefits of wetland conservation for marsh birds, frogs, and species at risk



Douglas C. Tozer ^{a,*}, Owen Steele ^b, Mark Gloutney ^c



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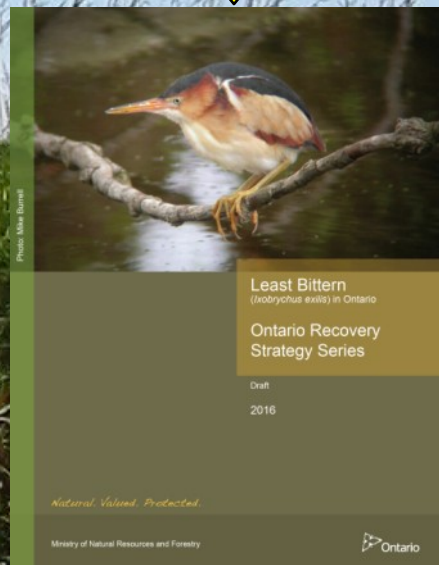
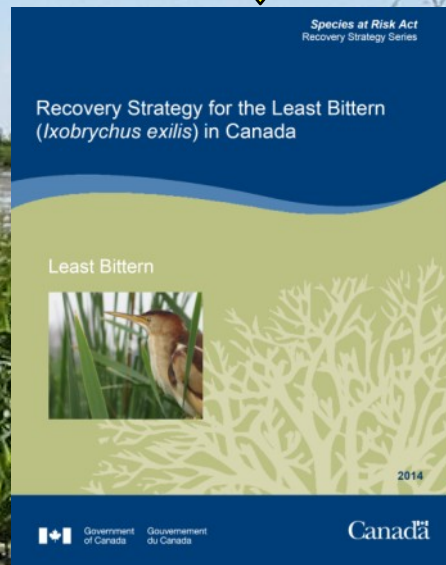
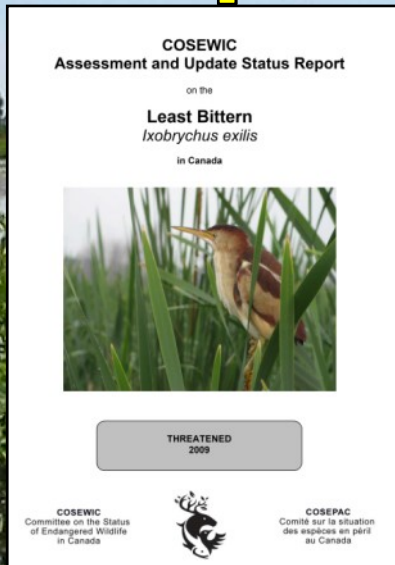
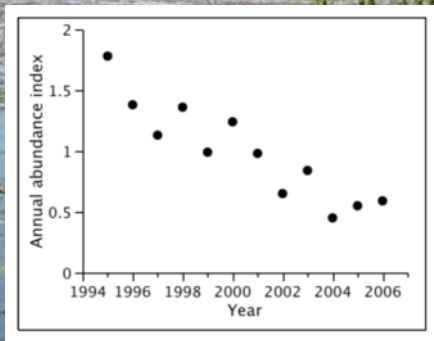
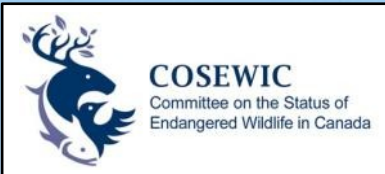
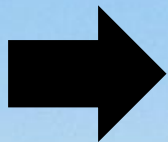
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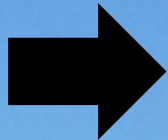
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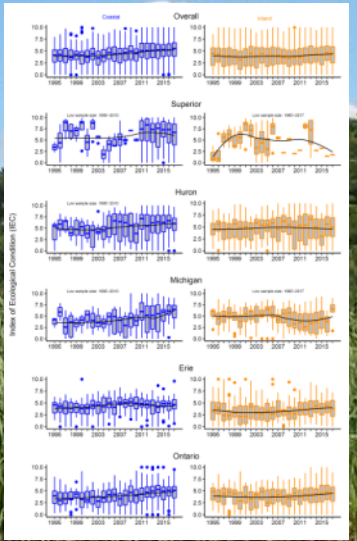
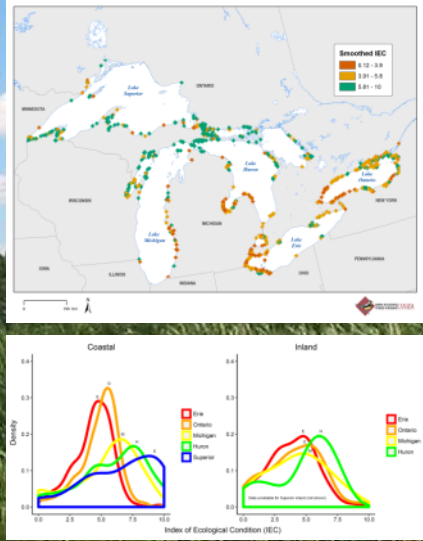
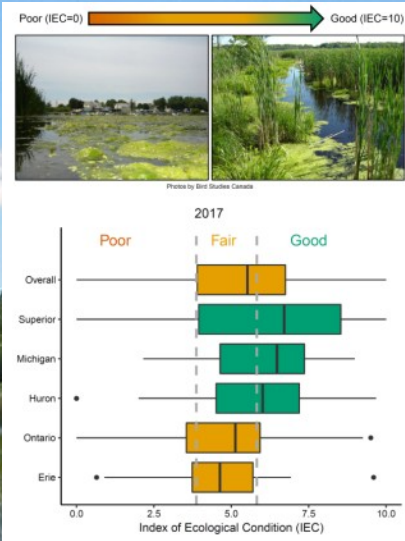
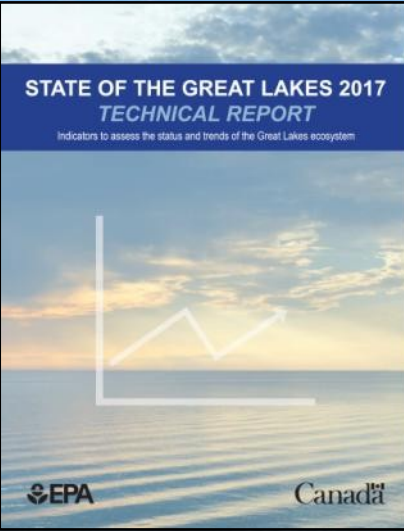
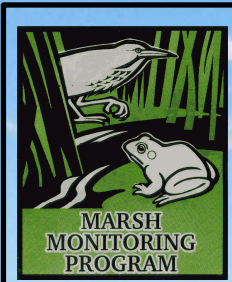
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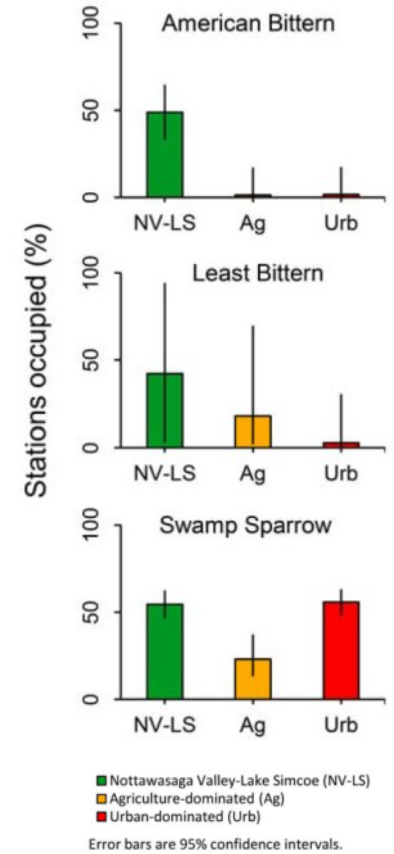
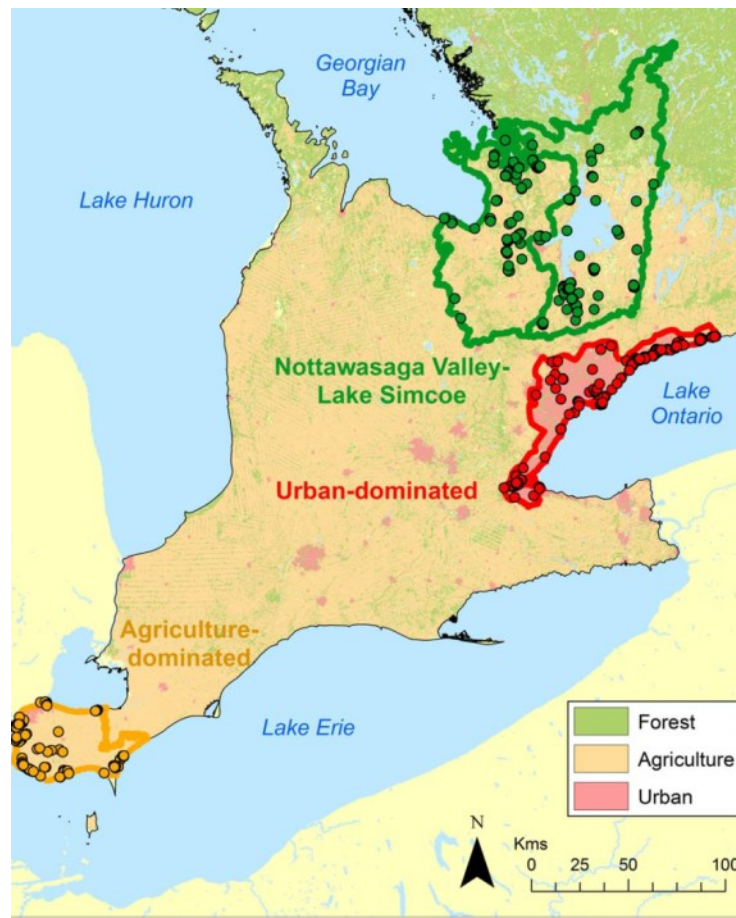
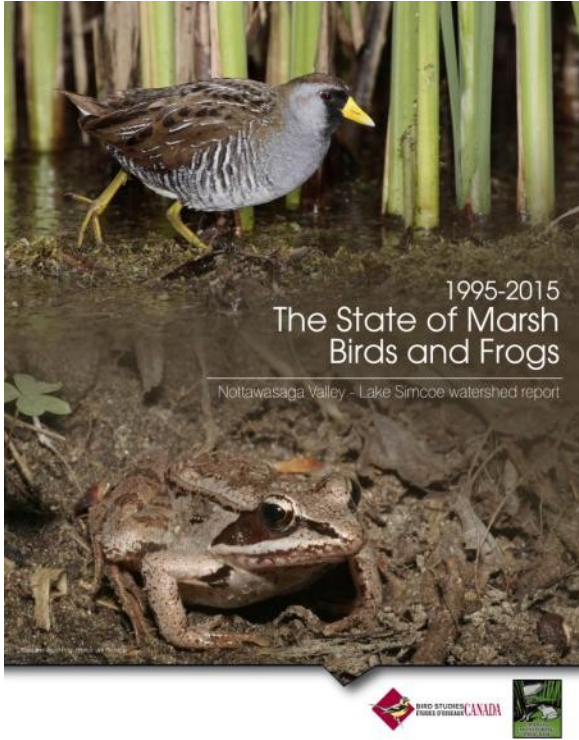
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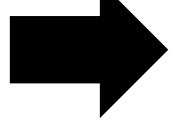
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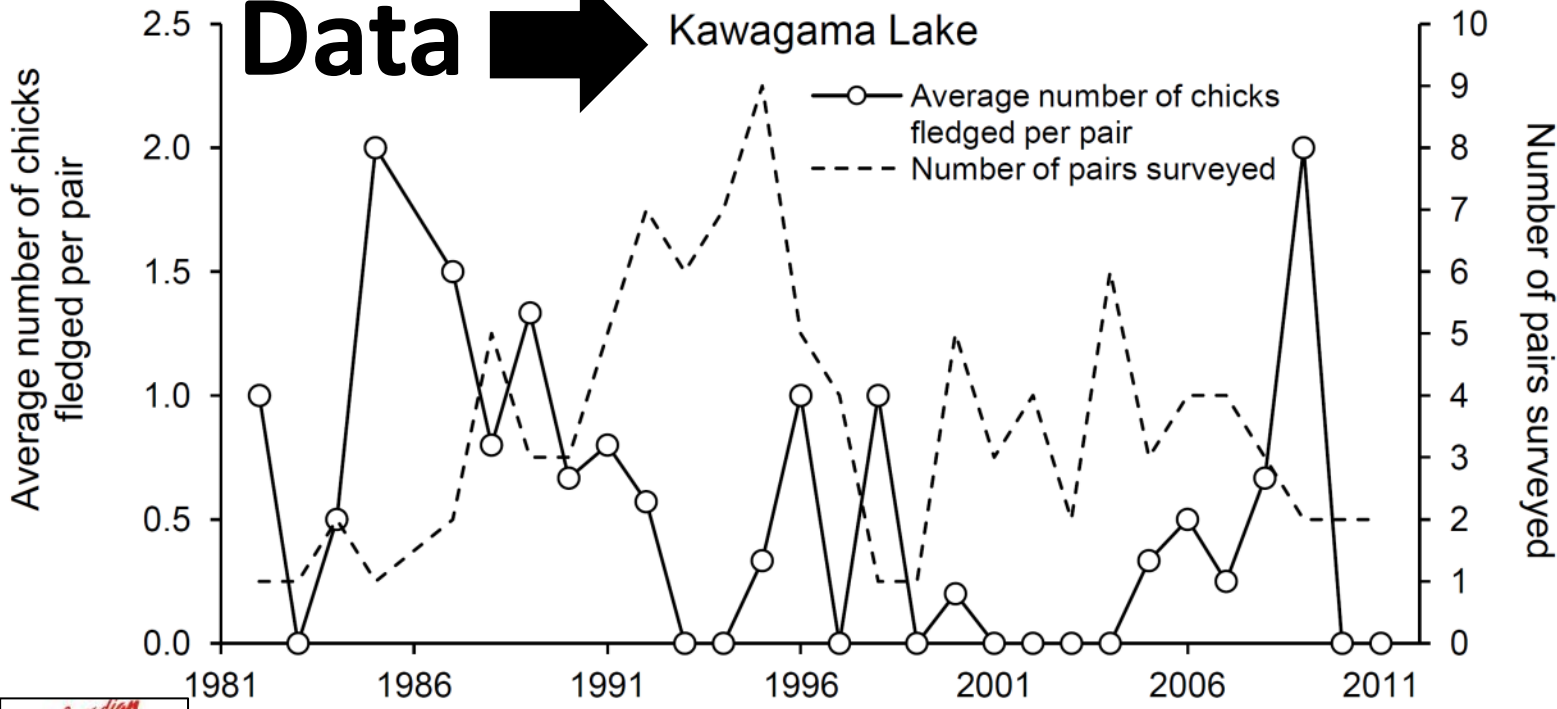
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Data



Kawagama Lake



Number of pairs surveyed

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Citizen Scientists



LOON ALERT



Please remember, we share our lakes with loons and other wildlife.

• **Slow down your boat where loons nest.** Loons nest near the water's edge in protected coves, around small islands and in marshy areas. Approaching boats, even quiet canoes, can cause loons to leave their nests and eggs unprotected. Loon nests can be flooded by waves created by watercraft.

• **Steer clear of loons and their chicks.** Disturbing loon parents and their chicks distracts parents from feeding and protecting their chicks. If a nearby loon calls out in a tremolo ("trazy-lah") while resting up out of the water, please move away quickly and quietly.

• **Retrieve fishing line and tackle.** Loons may become entangled in fishing line and other refuse, restricting their ability to preen and dive and eventually leading to death.

• **Dispose Responsibly.** Take trash and fishing line to shore to recycle or dispose of properly. Garbage including plastics and tackle can injure birds and other wildlife. Keep food and scraps contained, as they may increase the number of nest predators in the area.

• **Use lead-free tackle.** Loons ingest small pebbles to help digest their food. If they mistakenly swallow lead sinkers and jigs, lead poisoning and eventually death may occur. Request lead-free alternatives at your local tackle shop.

Loons are protected by the Migratory Birds Convention Act.



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TOP 6 WAYS YOU CAN HELP LOONS



Keep it Wild

Let native wetland plants grow along your shoreline, or replant if the shoreline is bare. Natural shorelines provide shelter and food for both fish and loons.



Keep it Calm

Slow down near wetlands and shorelines and keep your wake to a minimum. Waves can wash-out nests or separate young loons from their parents, which makes chicks easy pickings for predators.



Steer Clear

Slow down and steer clear of loons, waterbirds, and other wildlife. They may not be able to escape your path. If adults become separated from their young, they can't protect them.



Dispose Responsibly

Take trash and fishing line to shore for proper disposal. Garbage including plastics and tackle can injure birds and other wildlife. Keep food and scraps contained, as they may increase predators around nests.



Reduce Your Impact

Use less electricity and fossil fuels. Climate change raises lake temperatures, which causes more heavy metals to accumulate in valuable tissues. Do not add pollutants, such as household hazardous wastes, to our rivers and lakes.



Get Involved

Be an advocate for loons and lakes. Raise awareness of all pollution issues and join your lake association. Participate in loon or lake monitoring.



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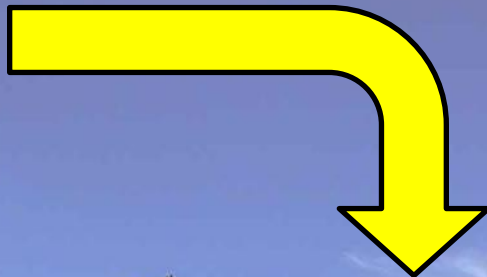
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We used our MMP data from our local state park as part of our testimony to successfully stop the creation of a golf course in the park around the headwaters of this valuable wetland.



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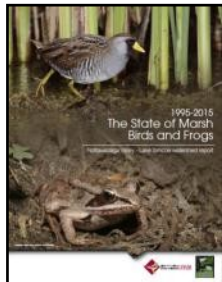
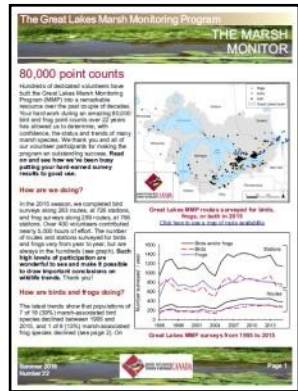
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Popular reports

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CANADIAN WILDLIFE BIOLOGY & MANAGEMENT



CWBM 2019, Volume 8, Number 2

ISSN: 1929-3100

Original Research

Control of Invasive *Phragmites* Increases Breeding Marsh Birds but not Frogs

Douglas C. TOZER¹ and Stuart A. MACKENZIE²

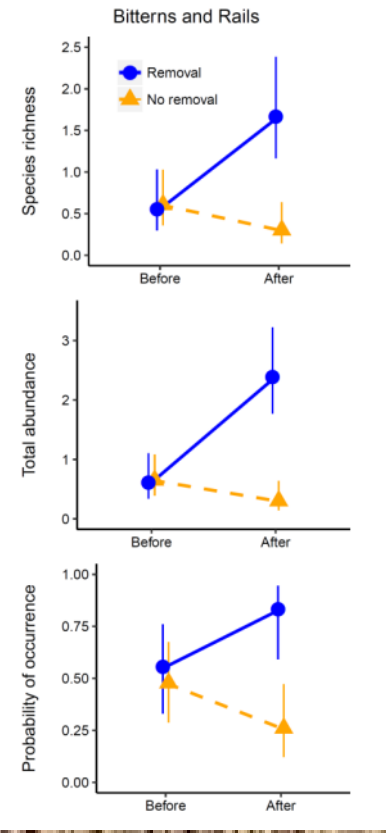
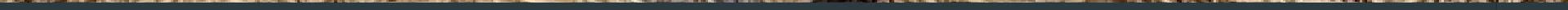


Photo by Janice Gilbert



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Research article

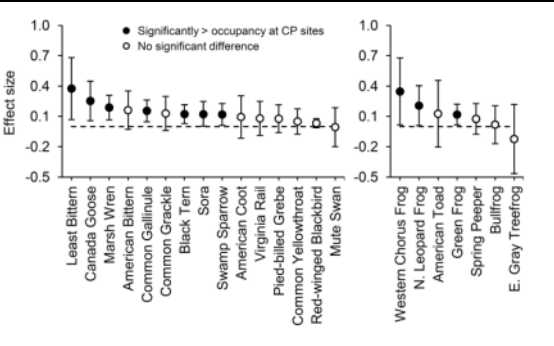
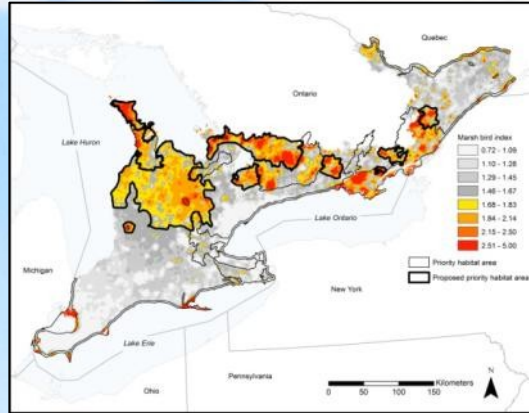
Multispecies benefits of wetland conservation for marsh birds, frogs, and species at risk

Douglas C. Tozer ^{a,*}, Owen Steele ^b, Mark Gloutney ^c



Species-habitat relationships and priority habitat areas for marsh-breeding birds in southern Ontario

Douglas C. Tozer, Rebecca L.M. Stewart, Owen Steele, Mark Gloutney



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Conserving Lakes and Wetlands through Waterbird Citizen Science

By Doug Tozer



Photo: Missy Mandel



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Mission: To conserve wild birds of Canada through sound science, on-the-ground actions, innovative partnerships, public engagement, and science-based advocacy.

National Headquarters, Port Rowan, Ontario



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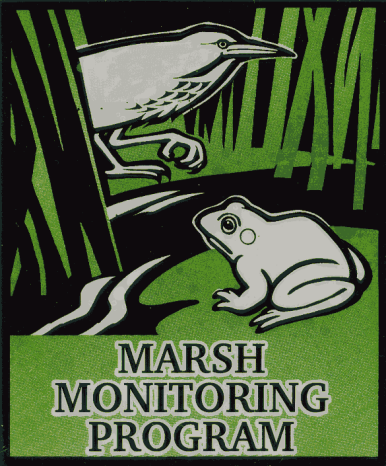
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1. Collect lots of data!

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3208 ON035		2000	5	30	1840	17456 A		1	RWBL
1868 NY057		2001	6	25	1822	66418 A		1	BCNH
1868 NY057		2001	6	25	1822	66418 A		1	MODO
1575 NY021		2001	5	31		58826 E		1	RWBL
333 MI017		1996	6	19	1855	29725 D		1	MODO
333 MI017		1996	6	19	1855	29725 D		1	RWBL
31 IL004		1998	6	15	1800	44622 A		2	RWBL

2. Engage lots of people.



3. Publish "a paper or two."

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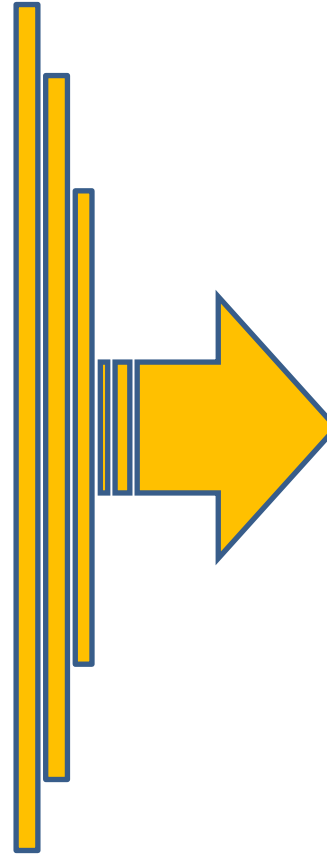
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Research article

Multispecies benefits of wetland conservation for marsh birds, frogs, and species at risk 

Douglas C. Tozer ^{a,*}, Owen Steele ^b, Mark Gloutney ^c



**Successful
Lake and Wetland
Conservation**



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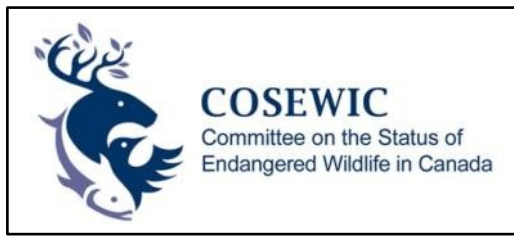
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Data



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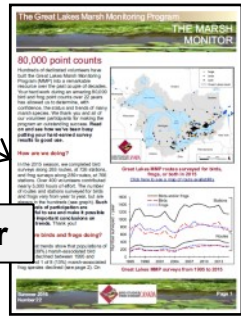
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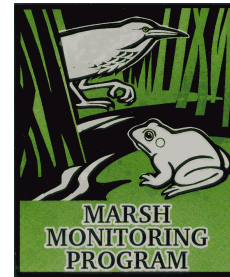
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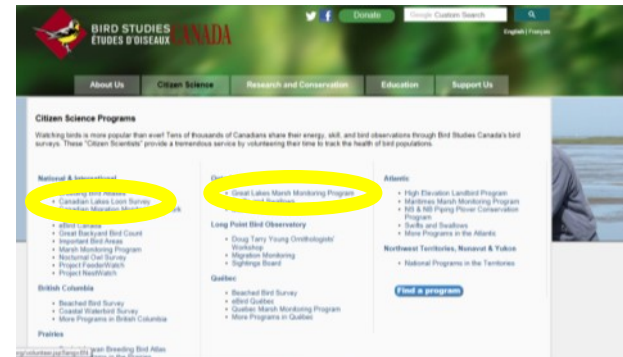
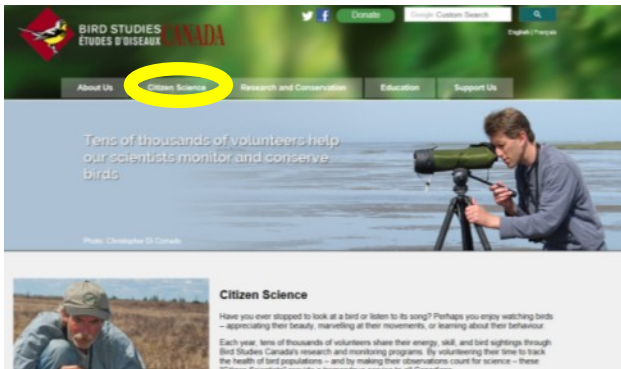
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