Ministry of Natural Resources and Forestry

Ontario

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The rabies reporter

MNR Publication 51709 Volume 25, Number 2 July - December 2014

Recap of rabies during 2014

Beverly Stevenson, Ministry of Natural Resources and Forestry

There were only 18 reported rabies cases in Ontario during 2014. All of them occurred in bats.

This it the first year since rabies became established in Ontario in the 1950s that there has not been a single reported terrestrial case. This is a remarkable accomplishment. The last confirmed terrestrial case in southern Ontario was in June 2012. Based on World Organisation for Animal Health guidelines, southern Ontario can now be declared free of Arctic strain rabies.

The approximately 35% decrease in rabies cases from 2013 to 2014 is not unexpected. It is after all only a difference of 10 rabid bats. The decline may be a result of the decreased number of submissions (submissions were slightly less than half of what they were in 2013) or of the change in rabies responsibilities between the federal and provincial governments. During the transition of collecting potential rabid animals from the Canadian Food Inspection Agency to the health units and the Ontario Ministry of Agriculture, Food and Rural Affairs, there was a period of time when not all areas had staff trained to collect and ship suspect rabid animals.

The rabid bats from 2014 were distributed throughout the province - Ottawa-Carleton (1), Frontenac (1), Leeds-Grenville (1), Peterborough (2), Durham (1), Waterloo (2), Huron (1), Wentworth (1), Brant (1), Niagara (3), Elgin (1), and Middlesex (3).

Figure 1. A cluster of bats roosting in a cave. Photo credit: S. Dodsworth, NHIC Archives

The Rabies Reporter, a scientific newsletter about current issues in rabies research and control, is a joint effort of the Widlife Research and Monitoring Section of the Ontario Ministry of Natural Resources and Forestry; the Rabies Laboratory at the Ottawa Laboratory (Fallowfield) of the Canadian Food Inspection Agency; and the Ontario Ministry of Health and Long-Term Care. Articles for future issues will be welcomed by the editor. The Rabies Reporter is not refereed, and should not be cited in papers intended for refereed journals. Send contributions, letters and inquiries to:

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Oral rabies vaccination in Ontario and Quebec during 2014

Beverly Stevenson, Ministry of Natural Resources and Forestry

Southeastern Ontario

In order to prevent re-incursion of 'raccoon' variant rabies from New York State, UL baits containing ONRAB® were distributed by MNRF Twin Otter (DHC-6) aircraft in an area along the St Lawrence River in eastern Ontario (Figure 2). On August 17th, despite a couple of computer glitches which caused minor delays, 21,586 baits were distributed on the mainland bordering the St. Lawrence River near Brockville. All baits were dropped along flight lines spaced 0.75 km apart and distributed at a density of 75 baits/km^2 over non-urban, agricultural and forested habitats. The St Lawrence River area was once a hot spot for 'raccoon' strain rabies but Ontario has not had a case in over 9 years.

Quebec

In 2014, UL baits containing ONRAB® were distributed in southern Quebec (Figure 3) through a cooperative partnership between the Ministère des Ressources naturelles et de la Faune and MNRF. This was the ninth consecutive year that baiting was conducted in Quebec to help contain the spread of 'raccoon' strain rabies.

Baiting did not begin until the afternoon of August 18. There had been a large airshow at the Bromont airport on the weekend and baiting had to be delayed until most of the aircraft departed and the numerous tents and fences were dismantled. The airshow created unexpected complications for the baiting staff! As I watched one of the snowbirds warm up right beside the bait reefer before take-off, I was concerned that the jet exhaust would create problems with the bait reefer. Sure enough, when I went over to check the reefer a few minutes later, the blast of the jet exhaust had caused the computer that controls the temperature in the reefer to malfunction. A quick call to the trucking company was made and they were able to walk me through restarting and resetting the computer controls. The rest of the baiting in Quebec continued with only minor delays due to fog and computer glitches.

From August 18-21, a total of 383,760 baits were distributed using an MNRF Twin Otter (DHC-6) aircraft over an area of 4,341 km^2 adjacent to the Vermont border.

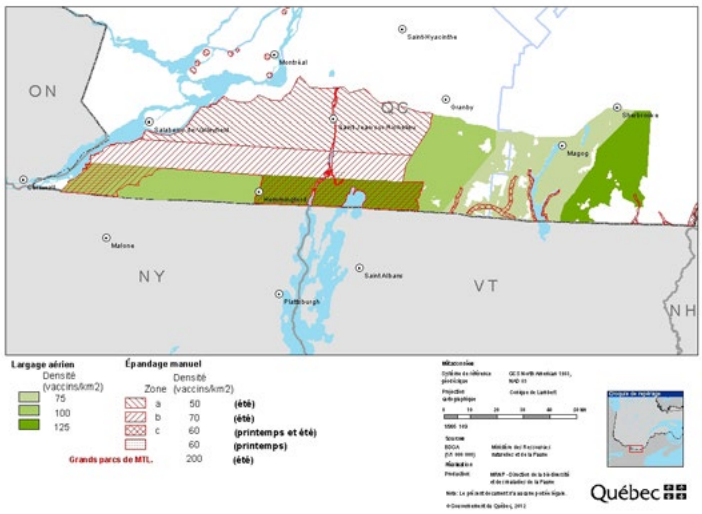


Figure 3. Location of rabies baiting in southern Quebec.

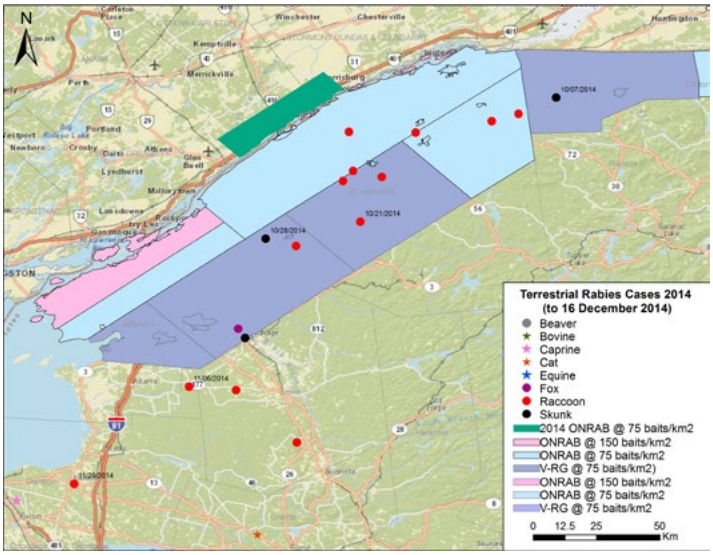


Figure 2. Location of rabies baiting in the St. Lawrence area in relation to recent rabies cases in New York.
Data provided by Wadsworth Center, New York State Dept. of Health

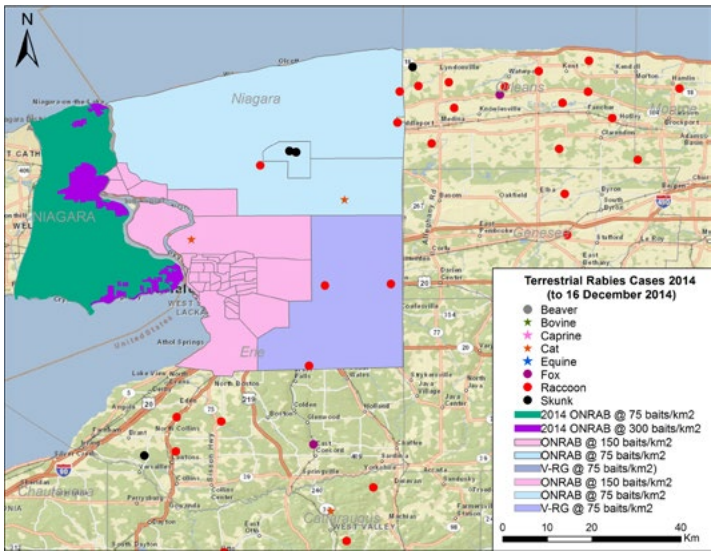


Figure 4. Location of rabies baiting in the Niagara area in relation to recent rabies cases in New York.
Data provided by Wadsworth Center, New York State Dept. of Health

This created a buffer zone in the event that animals infected with 'raccoon' strain rabies crossed over from Vermont where this strain still persists in local raccoon and skunk populations. Flights were flown 150m above ground at an average ground speed of 265 km/h. The plane flew along predetermined parallel flight lines spaced 0.75 km apart at densities of 75, 100, and 125 baits/km^2 over both agricultural and forested habitats.

Niagara region

In order to prevent re-incursion of 'raccoon' variant rabies from New York State and to maintain a buffer of vaccinated raccoons on the Niagara peninsula between Ontario and New York, urban areas (300 baits/km^2) and rural areas (75 baits/km^2) were baited aerially using an EC130 helicopter (Figure 4).

A total of 52,726 baits were distributed over 627 km^2 during August 25–27, 2014. We were once again able to distribute baits more efficiently in many areas in 2014 using the EC130 helicopter, thereby reducing staffing and time to complete the project.

The remainder of the Niagara area (680 km^2 in total), which was inaccessible by helicopter, was hand-baited by 6 MNRF staff during the period of August 25 – September 3. We drove around the areas inaccessible by helicopter, mainly high density urban areas such as the core of Niagara Falls and Fort Erie, tossing baits from vehicles at a density of approximately 300 baits/km^2, delivering 24,908 ONRAB® rabies vaccine baits to the area.

Southwestern Ontario

Traditionally, baits have been distributed in Southwestern Ontario (SWONT) by MNRF Twin-Otter (DHC-6) aircraft flying approximately 150m above ground along parallel flight lines spaced 2.0 km apart, at a density of 20 baits/km^2. This oral rabies vaccination (ORV) program was conducted to control rabies in foxes and help prevent re-infection of fox populations by isolated cases of rabid skunks in SWONT, and to help to contain 'Ontario fox' strain rabies to this area and prevent it from re-entry into the rest of southern Ontario,

The initial ORV program for SWONT was in 1994. Since that time, portions of SWONT have been baited annually.

As of June 2014, southern Ontario had been free of 'Ontario fox' strain cases for two years. The World Organisation for Animal Health recommends that an area can be declared free of rabies after two full years without a case using adequate surveillance. Although surveillance has decreased recently, t is still being conducted. As a result of this accomplishment, traditional fox and skunk oral rabies vaccination (ORV) was not conducted in southwestern Ontario during 2014.

An overview of 2014 surveillance and control activities in Québec

Marianne Gagnier, Ministère des Forêts, de la Faune et des Parcs

Even though Québec has been considered raccoon rabies free since 2010, the threat of a new introduction from the U.S. is still real and worrying. In 2014, 46 cases were found less then 80 km from the border in New-York and Vermont. Moreover, 4 cases (skunks) were located less then 21 km from the border in New York and Vermont states. This situation has lead us to keep our rabies surveillance and control program active and up to date.

We collected 716 specimens through our enhanced surveillance in the southern area of Québec, mainly in Estrie and Montérégie regions. Of these, 80% were raccoons, 16% were skunks and <4% were foxes. Most of these animals were collected through our road patrol (62%) or following a citizen report (33%). For the fifth consecutive year, no positive cases were found. Compared to 2013, we received 7% fewer reports from citizens (n=738) and 1% less specimens were collected after a citizen report (n=234). Unfortunately, budget cuts reduced the road patrol effort and this led to a decrease of 21% in the specimens collection (n=442) through this method.

ORV was conducted in the same regions as our enhanced surveillance activities (Figure 3). ORV operations included both hand (beginning of May and early-September) and aerial baiting (mid-August). Overall, 678,700 ONRAB® baits were distributed over 4,000 km^2. In 2014, bait densities ranged from 50-70 baits/km^2 (hand baiting) to 75-125 bait/km^2 (aerial baiting). The baits were distributed in preferred raccoon habitat, forest patches and adjacent edges of agricultural fields.

Unlike 2013, where only 6,750 baits were distributed in the Estrie region at the end of April, 56,000 ONRAB® were hand baited in the spring of 2014 in two main areas. One area was located at the extreme south-west of the province where 2 positive cases were found in New York State less than 25 km from Québec. The other area was around baie Missisquoi (northern part of Lake Champlain), where 2 rabid skunks were detected in Vermont - 20 km from Québec.

A post ORV study was conducted from October 13-24 to assess the percentage of raccoons positive for rabies virus antibodies in the areas where ONRAB® baits were used. Blood serum was collected from 319 raccoons in three trapping cells. Antibody prevalence ranged from 38-42% (c-ELISA, CFIA).

For further information on the Québec rabies program, please contact Marianne Gagnier at marianne.gagnier@mffp.gouv.qc.ca / 418-627-8694 ext.7422.

Rick Rosatte and Peter Bachmann retire!

Beverly Stevenson and Mike Allan, Ministry of Natural Resources and Forestry

Rick Rosatte

After 32 years, Senior Research Scientist Rick Rosatte has retired from the Ministry of Natural Resources and Forestry (MNRF).

After graduating from the University of Guelph in 1977 with a BSc in biology, Rick began his career in wildlife and disease research in Alberta, where he completed his masters in zoology and wrote his thesis on the epidemiology, history and control of rabies in Alberta.

Rick was hired by MNR in 1985 and continued working on his PhD from Walden University in Minnesota, with his dissertation focusing on a strategy for urban rabies control. At the same time, he was working out of the Maple Research Station with his colleagues developing an oral rabies vaccine to control rabies in foxes in Toronto and rural Ontario. Rick also designed a wildlife vaccination strategy called trap-vaccinate-release for foxes, skunks and raccoons, which was instrumental in eliminating Ontario fox strain rabies from Toronto and likely prevented the invasion of raccoon strain rabies into Niagara from New York.

In 1996, when MNR moved the wildlife research section to Peterborough, Rick and his family followed and Rick worked as the senior research scientist for Wildlife Research and Monitoring Section for the remainder of his career. Rick was instrumental in eliminating raccoon rabies from Ontario by designing and implementing a raccoon rabies response plan to the invasion of raccoon strain rabies into eastern Ontario. Rick and his colleagues also received an Amethyst Award for the elimination of fox rabies from eastern Ontario.

Figure 5. Rick Rosatte.

After his success in rabies control, Rick played a lead role in the restoration of elk to Ontario, published evidence of the existence of cougars in Ontario, and lead MNRF's chronic wasting disease surveillance program. His list of publications on rabies, elk, cougars and other wildlife diseases and research is very long and attests to his dedication and contributions to research and science.

Outside of work, Rick enjoys fishing with his family and friends in the Kawarthas and Bay of Quinte. He also enjoys moose, deer, elk and duck hunting with his father and brothers. He is fond of fishing in Florida and will no doubt spend many winter months enjoying the sun, sand and other attractions in the south. Rick enjoys renovating homes, playing guitar, working on cars, and cruising on his motorcycle -- all of which should agree with his retirement plans. Rick's colleagues wish him a healthy and happy retirement and congratulate him on a very successful career. His dedication and contributions to science and research have marked his place in time, and his colleagues will continue to build from the cornerstone of expertise he left behind.

Peter Bachmann

After 30 years with MNR(F), Senior Resource Technician Peter Bachmann has decided to retire! Peter has been a technician and field supervisor for the MNR(F), a lab technician for the Ontario Ministry of the Environment, a wildlife technician for the B.C. Fish and Wildlife Department, a game warden in Kootenay National Park, and a game keeper in Germany.

Peter's career has focused primarily on rabies control, but he has also been involved in a number of other wildlife-related projects.

Since 1979, he has worked for MNR(F) studying the population dynamics of coyotes, red and gray foxes, raccoons, and skunks, as well as their behaviour using radio telemetry; developing and implementing the rabies vaccine-baiting program; aging mammals

using tooth histology (used to analyze biomarkers to determine bait ingestion rate in small carnivores); necropsying animal cadavers; and testing specimens for rabies.

Peter was a diligent coordinator of the many aerial rabies baiting campaigns, which resulted in the elimination of raccoon strain rabies from southeastern Ontario and fox strain rabies from southeastern and eventually all of southern Ontario. For this remarkable achievement and giant first step in rabies control, Peter was one of a group of people that received an Amethyst Award in 1998 for eliminating fox strain rabies in southeastern Ontario. Peter was also made an honorary Texan for his participation in the rabies vaccination program there.

More recently, Peter was responsible for the development and certification of a bio-safety level III laboratory at WRMS' facilities at Trent University. Peter has also authored many articles on rabies control and associated topics including (co-)authoring three chapters for a book chronicling rabies in Canada, which should be available in the next year or two.

Thanks to both Rick and Peter for their many years of service with rabies research and wildlife research. Your long hours of professionalism and dedication to the job have paid finally paid off. Enjoy your well-deserved retirements!

Figure 6. Peter Bachmann.

Figure 7. Bruce Pond, Neil Ayers, Charlie MacInnes, Peter Bachmann, and Rick Rosatte accept an Amethyst Award for their work on eliminating Arctic strain rabies from eastern Ontario.

Animal Rabies Report: July to December 2014

Animal Type	Fox			Raccoon			Skunk			Other Wildlife			Bat			Dog			Cat			Livestock			Totals		
County or Region		Cumulative			Cumulative			Cumulative			Cumulative			Cumulative			Cumulative			Cumulative			Cumulative			Cumulative	
	#	14	13	#	14	13	#	14	13	#	14	13	#	14	13	#	14	13	#	14	13	#	14	13	#	14	13
Eastern																											
Stormont, Dundas & Glengarry																									**0**	**0**	**0**
Prescott-Russell																									**0**	**0**	**0**
Ottawa-Carleton													1	1	2										**1**	**1**	**2**
Renfrew																									**0**	**0**	**0**
Lanark																									**0**	**0**	**0**
Leeds and Grenville													1	1											**1**	**1**	**0**
Frontenac														1	1										**0**	**1**	**1**
Lennox & Addington															2										**0**	**0**	**2**
Central																											
Hastings																									**0**	**0**	**0**
Prince Edward															1										**0**	**0**	**1**
Northumberland																									**0**	**0**	**0**
Victoria																									**0**	**0**	**0**
Haliburton																									**0**	**0**	**0**
Peterborough													2	2											**2**	**2**	**0**
Durham													1	1	3										**1**	**1**	**3**
York Region															1										**0**	**0**	**1**
Toronto															2										**0**	**0**	**2**
Simcoe																									**0**	**0**	**0**
Western																											
Peel																									**0**	**0**	**0**
Halton															2										**0**	**0**	**2**
Dufferin																									**0**	**0**	**0**
Wellington																									**0**	**0**	**0**
Waterloo													2	2	1										**2**	**2**	**1**
Perth																									**0**	**0**	**0**
Grey															1										**0**	**0**	**1**
Bruce															1										**0**	**0**	**1**
Huron														1											**0**	**1**	**0**

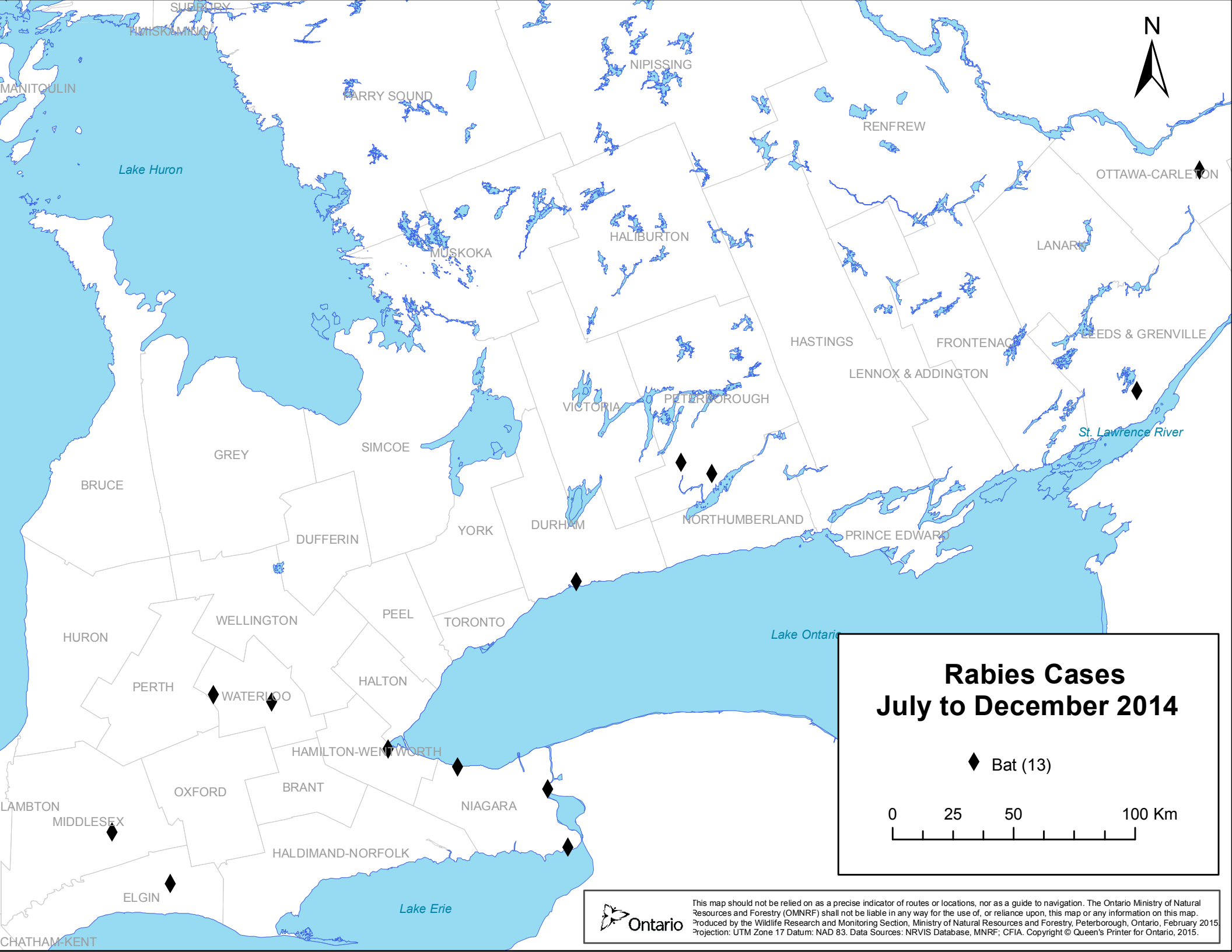
Animal Rabies Report: July to December 2014

Animal Type	Fox			Raccoon			Skunk			Other Wildlife			Bat			Dog			Cat			Livestock			Totals		
County or Region		Cumulative			Cumulative			Cumulative			Cumulative			Cumulative			Cumulative			Cumulative			Cumulative			Cumulative	
	#	**14**	**13**	#	**14**	**13**	#	**14**	**13**	#	**14**	**13**	#	**14**	**13**	#	**14**	**13**	#	**14**	**13**	#	**14**	**13**	#	**14**	**13**
Southern																											
Wentworth													1	1	1										**1**	**1**	**1**
Haldimand-Norfolk																									**0**	**0**	**0**
Brant														1											**0**	**1**	**0**
Niagara													3	3											**3**	**3**	**0**
Elgin													1	1	1										**1**	**1**	**1**
Oxford																									**0**	**0**	**0**
Middlesex													1	3	3										**1**	**3**	**3**
Lambton															3										**0**	**0**	**3**
Kent																									**0**	**0**	**0**
Essex																									**0**	**0**	**0**
Northern																											
Muskoka																									**0**	**0**	**0**
Parry Sound															1										**0**	**0**	**1**
Nipissing															1										**0**	**0**	**1**
Sudbury																									**0**	**0**	**0**
Cochrane																									**0**	**0**	**0**
Timiskaming																									**0**	**0**	**0**
Algoma																									**0**	**0**	**0**
Thunder Bay																									**0**	**0**	**0**
Rainy River																									**0**	**0**	**0**
Kenora																		1							**0**	**0**	**1**
Regional Totals																											
Eastern	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5	0	0	0	0	0	0	0	0	0	**2**	**3**	**5**
Central	0	0	0	0	0	0	0	0	0	0	0	0	3	3	7	0	0	0	0	0	0	0	0	0	**3**	**3**	**7**
Western	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5	0	0	0	0	0	0	0	0	0	**2**	**3**	**5**
Southern	0	0	0	0	0	0	0	0	0	0	0	0	6	9	8	0	0	0	0	0	0	0	0	0	**6**	**9**	**8**
Northern	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	**0**	**0**	**3**
Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**18**	**27**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**18**	**28**

CFIA·ACIA

Notes for this quarter: All bats were big brown bats.

Ontario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SUDBURY
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RENFREW
Lake Huron
OTTAWA-CARLETON
HALIBURTON
MUSKOKA
LANARK
HASTINGS
FRONTENAC
LEEDS & GRENVILLE
LENNOX & ADDINGTON
VICTORIA
PETERBOROUGH
St. Lawrence River
GREY
SIMCOE
BRUCE
NORTHUMBERLAND
DURHAM
YORK
DUFFERIN
PRINCE EDWARD
WELLINGTON
PEEL
TORONTO
HURON
Lake Ontario
PERTH
HALTON
WATERLOO
HAMILTON-WENTWORTH
OXFORD
BRANT
NIAGARA
LAMBTON
MIDDLESEX
HALDIMAND-NORFOLK
ELGIN
Lake Erie
CHATHAM-KENT
Rabies Cases
July to December 2014
Bat (13)
0
25
50
100 Km
Ontario
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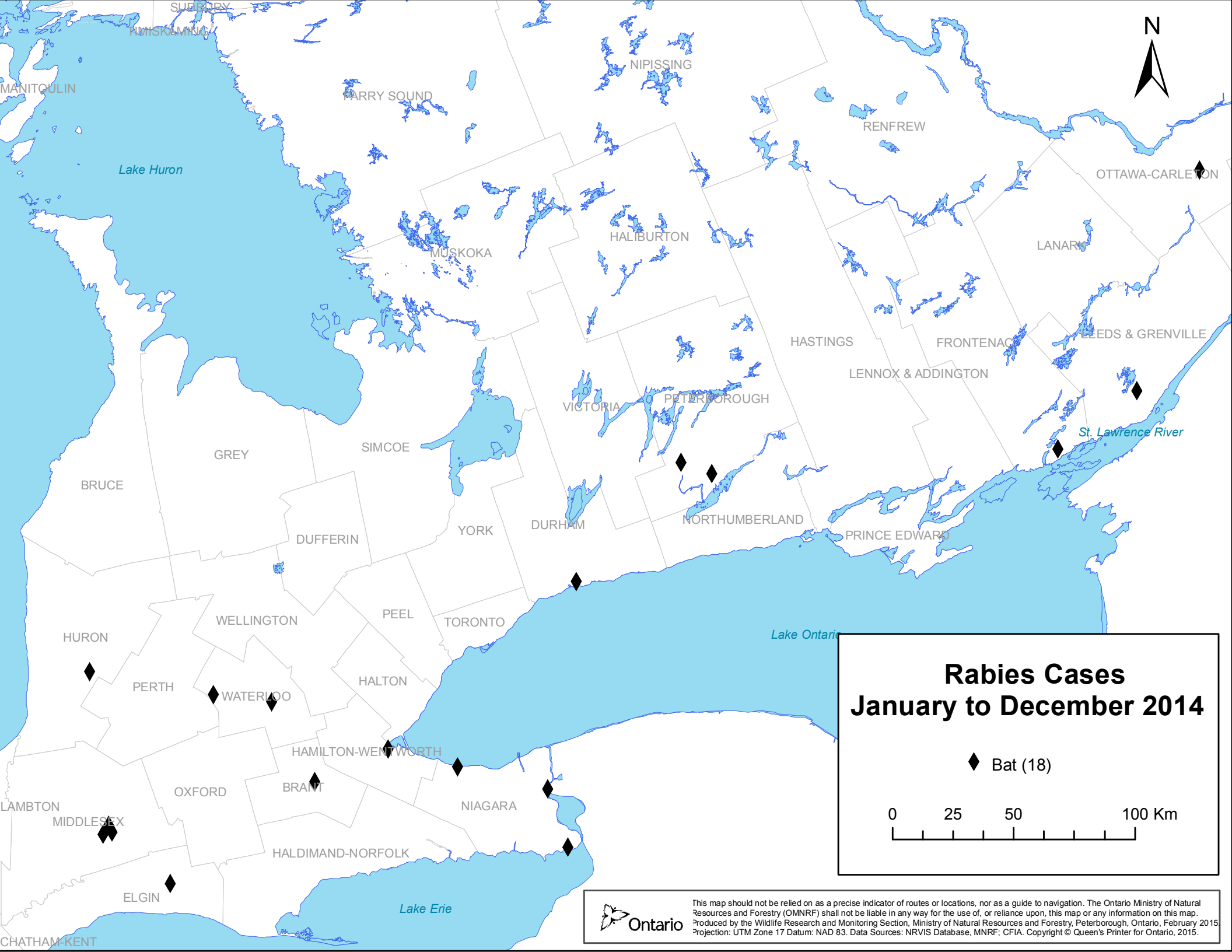
N
SUDBURY
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Lake Huron
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HALIBURTON
MUSKOKA
LANARK
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LEEDS & GRENVILLE
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VICTORIA
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Rabies Cases
January to December 2014
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100 Km
Ontario
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