

# The Rabies Reporter

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## GOOD NEWS AND BAD NEWS — RABIES IN ONTARIO DURING THE FIRST QUARTER

We have three terrestrial rabies events in progress in Ontario. One had high numbers of cases from January to April, one had much fewer cases, and one was the same as last year. Meanwhile, there were twice as many rabid bats to the end of March this year than last year, which means two instead of one!

Sudbury was the rabies hot spot this quarter. Table 1 shows historical records of rabid animals in northeastern Ontario. It clearly shows that there are rabies episodes, with long rabies-free periods between them. Sudbury's troubles began in April of 2001, with one case in Chelmsford (a northern suburb) and a small cluster at the western end of Lake Nipissing (Nipissing District). By the end of August, there had been 24 rabies

cases, of which 19 were red foxes. Five of the cases were in Nipissing; the rest were close to Sudbury. Then, there were almost 5 months case-free. The first case in the new year was on 29 January. In the first quarter of 2002, there were 24 new cases (20 foxes). Since 1 April, there have been an additional 14, of which 12 occurred in April. Of more concern, there was a rabid fox at Ramore, in the south end of Cochrane District, on 27 March, and a rabid cow on 23 April. There were also 3 rabid foxes in Timiskaming in April, all in the vicinity of Kirkland Lake. The real outlier was a rabid horse in White River, in northern Algoma, on 3 April.

Rabies drew a lot of attention in the Sudbury area because several of the cases occurred in green spaces within the city itself. At least two rabid foxes attacked cross-country skiers, and one rabid fox was killed with a ski pole. There was an attack right on the campus of Laurentian University. Baits will definitely be deployed over quite a large area in and around Sudbury. The decision of whether to drop additional baits further north has to wait until we see the pattern of cases in June and July.

There was a potentially rabid dog submitted from Manitoulin Island. On a request from the Sudbury and District Health Unit, whose area includes the island, I queried the old records, and found, as shown in table 1, that there was quite a

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**The Rabies Reporter**, a scientific newsletter about current issues in rabies research and control, is a joint effort of the Rabies Research Unit of the Ontario Ministry of Natural Resources; the Rabies Laboratory at the Animal Diseases Research Institute of the Canadian Food Inspection Agency; the Ontario Ministry of Health; and the Geographic Information Systems Laboratory of the Department of Geography at Queens University, Kingston. 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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[www.mnr.gov.on.ca/mnr/rabies/](http://www.mnr.gov.on.ca/mnr/rabies/)

Table 1: Numbers of all rabies cases in northern Ontario.  
<sup>a</sup> 1 January to 31 May

Year	Manitoulin	Nipissing	Sudbury	Timiskaming	Cochrane
1954-59	24	8	0	56	88
1960-69	88	118	0	0	0
1970-79	0	48	0	0	0
1980-87	0	23	3	0	0
1988	0	5	43	0	0
1989	0	32	74	0	0
1990	0	74	31	0	1
1991	0	68	12	8	2
1992	1	6	2	241	11
1993	0	0	0	6	17
1994	0	0	0	2	8
1995	0	0	0	0	0
1996	0	0	0	1	10
1997	0	0	0	0	10
1998	0	0	0	0	0
1999	0	0	0	0	0
2000	0	0	0	0	35
2001	0	6	19	1	8
2002 <sup>a</sup>	0	0	39	3	2

Rabies drew a lot

big outbreak during the initial invasion, and nothing subsequently. It was an interesting exercise, extracting that information from a dusty database!

Notice how typical this event has been, for a northern outbreak. Most of the cases occurred in 3 months, and, hopefully, the worst is over, as there were only 3 new cases in May. Northern events are typically fierce but short.

The good news part of the provincial picture is raccoon rabies in eastern Ontario. From 1 Jan to 26 May 2002, there were only 3 rabid raccoons. That compares with 23 in 2001, and 26 in 2000 within the same time span. There was an additional case on 29 May, but that animal had been dead for some time. Our total for the whole outbreak is 99 cases, to 1 June. Two were skunks; the rest were raccoons

The tables show 5 cases in the first quarter, but at least two of these actually died in December 2001. It is the MNR

surveillance and other trapping operations that cause problems such as this. The two specimens in this case were taken by fur trappers within a baited zone. The MNR surveillance program collected the carcasses to extract teeth for tetracycline analysis and serum for antibody testing. It took more than a month to process these, from capture, to collection by MNR, to necropsy, to getting the brain samples taken during necropsy to ADRI for testing. Although the animals were caught in December, the samples did not reach ADRI until January. (ADRI assigns a date based on when they receive the specimen for testing.) Another specimen was a dead and partially decomposed raccoon found in January. Exactly when did it die?

However you look at the raccoon rabies situation, it is a good news story so far in 2002.

Arctic fox strain rabies still persists in western Ontario. As I have com-

mented many times in the past 4 years, it is staying there at remarkably stable levels, maintained by skunks. For the first quarter, there were 18 cases, of which 15 were skunks. That compares to 17 (10 skunks) a year ago, 19 (15 skunks) in 2000, 12 (5 skunks) in 1999, 12 (7 skunks) in 1998, 11 (7 skunks) in 1997. In 1996, fox rabies was still quite widespread, although numbers were dropping fast. Bait drops aimed at foxes in western Ontario began in 1994.

Overall, the rabies picture is favorable. If you live in Sudbury, case numbers are dropping fast. In eastern Ontario, raccoon rabies is way down. In western Ontario, there has been very little change over the past 5 years.

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## HUMAN POST-EXPOSURE TREATMENTS IN ONTARIO

One of the expected side-effects of controlling rabies in Ontario was a reduction in the number of people requiring post-exposure treatment (PET). In theory, fewer rabid animals should result in fewer people being exposed to suspect animals which should result in fewer people requiring PET. Some PET would always be necessary since the animal which comes into contact with a human is not always available for testing.

Since the beginning of the aerial baiting control campaign in eastern Ontario in 1989 and in southwestern Ontario in 1994, PET numbers have declined substantially. From 1995 to 2000, the number of people requiring PET was approximately half the number that required PET during the 1980's and early 1990's. Everything seemed to be working out as expected.

However, in 2001, the number of people receiving PET was 1640 as compared with 1073 in 2000 and 890 in 1999.

What caused this sudden rise? The number of rabies positive animals in 2001 was 210 compared to 186 in 2000. Surely, 14 extra animals couldn't be re-

sponsible for almost 600 extra PET.

There are many possible causes for the sharp increase in PET but, unfortunately, none of them can be proven or disproven because the cause of exposure is not currently recorded.

One possible cause for the increase was the 'Rabies Awareness Month' campaign in 2001. May is recognized as

'Rabies Awareness Month' and each year a different theme is promoted. In 2001, the theme was 'Rabies in Bats'. During May, information is provided to the public via websites, new releases, information packages, and public talks.

The death of a child in Quebec after being bitten by a rabid bat may also have lead to an increase in the number of

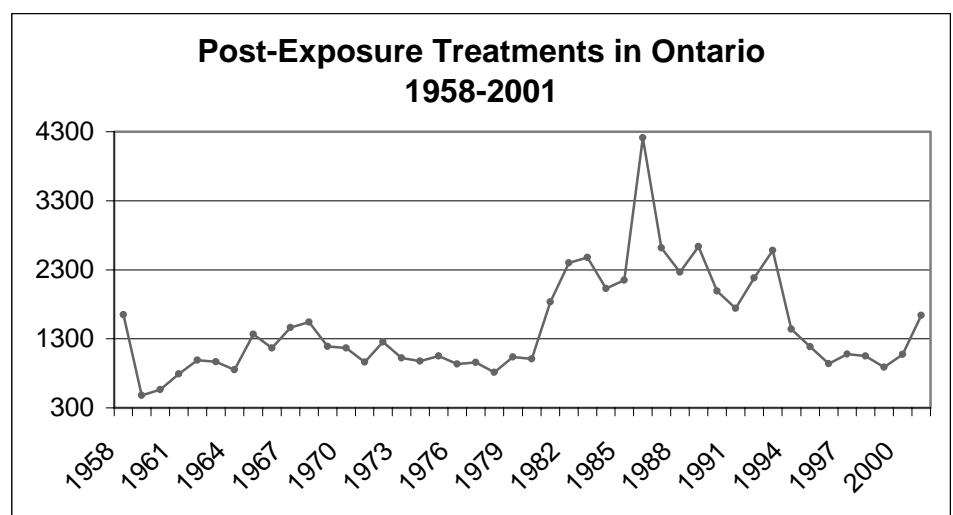


Figure 1. Number of humans receiving post-exposure treatments for rabies in Ontario from 1958 to 2001.

PET. In September 2000, the child was admitted to the hospital exhibiting symptoms of rabies. The child passed away in October and information on the incident was broadcast nation-wide by the media. This may have resulted in increased concerns by the public to seek medical treatment after a possible exposure and by medical personnel to administer PET more frequently. After all, it is better to err on the side of caution – especially where rabies is concerned.

We can't be certain whether either of these contributed to the increase in PET but either or both of them may have had a substantial impact. Perhaps, the geography of rabies cases played an important role. Rabies reappeared in the northern areas surrounding Timmins and Cochrane which had been rabies free. Two skunks infected with the raccoon strain of rabies in eastern Ontario may have caused people to become more concerned about raccoon rabies spreading to other species.

Unfortunately, we may never know the cause for the increase in PET but it will be interesting to see what happens with the PET numbers in 2002.

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## MONITORING COLLECTION PROGRAMS

Each year, the Rabies Research and Development Unit (RRDU) collects carcasses from fur harvesters throughout the baited portions of Ontario. These carcasses are examined for the presence of tetracycline (a biomarker which indicates the animal consumed a bait), the presence of rabies antibodies (which indicates immunity to rabies), and the presence of rabies virus.

Historically, the RRDU has collected only a small number of rabies positive animals each year. The primary focus of the collection is to determine the bait acceptance rate by the target species. Recently, however, the RRDU collection

and trapping programs have played a significant role in the total number of rabies positive animals diagnosed in Ontario.

Since the incursion of raccoon strain of rabies in Ontario in July 1999, only 36 of the 99 animals confirmed with raccoon strain of rabies have been acquired through normal public submissions. The remaining 63 animals were either submitted directly by Ministry of Natural Resources staff or MNR staff instructed the landowner to submit the animal for testing instead of disposing of it otherwise. Bob Watts, a seasonal trapper for the RRDU, has been responsible for submitting 29 of these 63 cases himself.

From 15 October 2001 to 15 February 2002, animals were collected from numerous fur harvesters in Ontario. During this period, ADRI in Nepean confirmed 10 raccoons as being infected with rabies. Nine (90%) of those ten were collected as part of the RRDU surveillance program. ADRI also confirmed nine rabid foxes and 25 rabid skunks during this period. Of these, one (11%) fox and four (16%) skunks were also obtained through the collection program. *[Two of the skunks and one of the raccoons were not tested by ADRI until early March.]*

Of special interest are two fur harvesters from southwestern Ontario. One fur harvester from southern Bruce County submitted two rabies positive skunks in the fall of 2001 and two more in the fall of 2000. This fur harvester is now seriously considering obtaining pre-exposure rabies vaccination!

The other fur harvester from northern Huron County joined our program for the first time in late 2001. Of the two skunks which he submitted for rabies testing, both were rabies positive. The fur harvester wasn't surprised that one skunk was rabies positive since it woke him up one night when it was scratching at the door of his log cabin to get in. He was very surprised when I informed him that both animals were rabid.

Recently the Rabies Unit acquired two gray fox specimens that were submitted as part of the monitoring program. These specimens are significant since the gray fox is a rare sight in Ontario.

At one time, this tree-climbing fox

was abundant in southern Ontario. It seemed to disappear from most of its northern range for almost 300 years then reappeared once again in Canada between 1930 and 1940. Changes from once forested areas to agricultural land and the introduction of red foxes may have contributed to the decline in the population in Ontario.

The first gray fox received by RRDU was a road-kill from Drummond township (east of Perth) in December 2000. This male was aged at 2.5 years old by counting the number of annuli present in the cementum of the upper canine. The specimen has been mounted and is currently on display at the RRDU in Peterborough.

The second gray fox was trapped in Goderich township in October 2001. This male specimen has not yet been aged. Surprisingly, another gray fox was captured from this same location in 1975. These two gray foxes are the only known captures from Huron County in recent history.

Another gray fox was reported from Beauceage Township (east of Sturgeon Falls). It was trapped in November 2001. The animal was not available for positive identification and the sex is unknown, but the pelt was sold by the Fur Harvesters Auction in North Bay.

Other reports of gray foxes have come from the Point Pelee area and Niagara region, but we have not yet received any specimens from these areas.

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## Animal Rabies Report: January to March 2002

Animal Type	Fox			Raccoon			Skunk			Other Wildlife			Bat			Dog			Cat			Livestock			Totals				
County or Region	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative						
		02	01		02	01		02	01		02	01		02	01		02	01		02	01		02	01	02	01	02	01	
<b>Eastern</b>																													
Stormont, Dundas & Glengarry																								0	0	0			
Prescott																									0	0	0		
Russell																									0	0	0		
Ottawa-Carleton																									0	0	0		
Renfrew											1	1													1	1	0		
Lanark																										0	0	0	
Leeds and Grenville				5	5	9																				5	5	9	
Frontenac																										0	0	0	
Lennox & Addington													1													0	0	1	
<b>Central</b>																													
Hastings																										0	0	0	
Prince Edward																											0	0	0
Northumberland																											0	0	0
Victoria																											0	0	0
Haliburton																											0	0	0
Peterborough									2				1	1													1	1	2
Durham																											0	0	0
York Region																											0	0	0
Toronto																											0	0	0
Simcoe																											0	0	0

## Animal Rabies Report: January to March 2002

Animal Type	Fox			Raccoon			Skunk			Other Wildlife			Bat			Dog			Cat			Livestock			Totals		
County or Region	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative				
		02	01		02	01		02	01		02	01		02	01		02	01		02	01		02	01	02	01	
<b>Western</b>																											
Peel							1	1																	1	1	0
Halton																									0	0	0
Dufferin									1															4	0	0	5
Wellington							3	3	1							1	1		1	1	1	1	1	1	5	5	2
Waterloo							1	1	2																1	1	2
Perth																1	1								1	1	0
Grey							2	2	1															1	2	2	2
Bruce							5	5	2															1	5	5	3
Huron							3	3	3																3	3	3
<b>Southern</b>																											
Wentworth																									0	0	0
Haldimand-Norfolk																									0	0	0
Brant																									0	0	0
Niagara																									0	0	0
Elgin																									0	0	0
Oxford																									0	0	0
Middlesex																									0	0	0
Lambton																									0	0	0
Kent																									0	0	0
Essex																									0	0	0

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Animal Type	Fox			Raccoon			Skunk			Other Wildlife			Bat			Dog			Cat			Livestock			Totals		
County or Region	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative				
		02	01		02	01		02	01		02	01		02	01		02	01		02	01		02	01	02	01	02
<b>Northern</b>																											
Muskoka																								0	0	0	
Parry Sound																									0	0	0
Nipissing	1	1																						1	1	0	
Sudbury	20	20	1						1	1					1	1					2	2		24	24	1	
Cochrane	1	1	1								2						1					2	1	1	6		
Timiskaming											1													0	0	1	
Algoma																								0	0	0	
Thunder Bay																								0	0	0	
Rainy River																								0	0	0	
Kenora																								0	0	0	
<b>Regional Totals</b>																											
Eastern				5	5	9							1	1	1									6	6	10	
Central									2				1	1										1	1	2	
Western							15	15	10									2	2		1	1	7	18	18	17	
Southern																								0	0	0	
Northern	22	22	2							1	1	3				1	1	1			2	2	2	26	26	8	
<b>TOTALS</b>	<b>22</b>	<b>22</b>	<b>2</b>	<b>5</b>	<b>5</b>	<b>9</b>	<b>15</b>	<b>15</b>	<b>12</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>9</b>	<b>51</b>	<b>51</b>	<b>37</b>

Notes for this quarter: The wildlife in Sudbury was a coyote.  
 The livestock was 2 cattle in Sudbury and 1 sheep in Wellington.  
 Both bats were big brown bats.

