

The Rabies Reporter

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RABIES IN FOXES AND SKUNKS

PREDICTIONS FOR OCTOBER 1994 - APRIL 1995

This fall OMNR's oral vaccination campaign covered major portions of eastern, central and southwestern Ontario, as described in the next article. Thus, rabies predictions for this fall and winter are based on the expected success of the vaccination campaign as well as the patterns of rabies incidence in the preceding months.

The baited areas of eastern Ontario have had only one skunk, one horse and three bats since 1 October 1993,

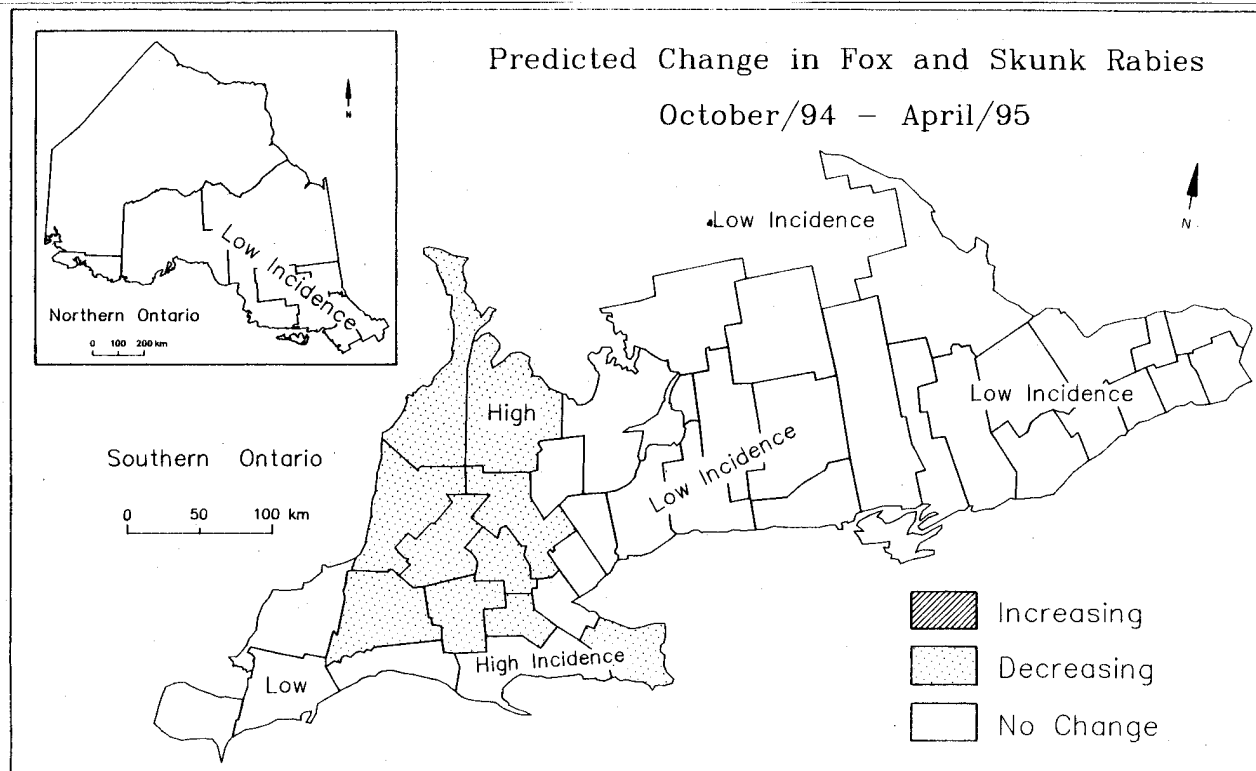
so the region should continue to be rabies-free. The probability of re-invasion from Quebec or the northern U.S.A. is diminishing as the epidemics in those regions are far to the east, and dying down, at least in Quebec. There has not been a fox strain case in northern New York since April 1993, but there is still significant activity in Vermont and New Hampshire.

Central Ontario has now been baited twice. In the fall of 1993, the area from Clarington (Durham Region) to Lake Simcoe, and across the northern half of Simcoe county to Georgian Bay was baited as an extension of the "wall" strategy originally employed to isolate eastern Ontario. This fall, the core of central Ontario was baited, as well as the wall. Using the eastern Ontario experience as a guide, rabies incidence in central Ontario should be reduced to a few scattered cases this fall and winter.

The remaining baits were used to cover about three quarters of

southwestern Ontario, leaving only Essex, Kent, Elgin and parts of Lambton, Haldimand-Norfolk, Middlesex and Essex untreated. Given the high level of rabies activity in Middlesex and Grey Counties, expect that rabies in those counties will continue this fall and winter, but will decline in the spring. Skunk cases will continue in those areas since rabies in skunks tends to lag behind peaks in rabies in foxes by about six months. Although there was strong rabies activity in Niagara through the summer, that epidemic has persisted for over a year, and should start to decline soon. The area was baited this fall. Rabies incidence in the remainder of the baited areas in southwestern Ontario will decline.

The difficult areas to predict are the unbaited areas along Lake Erie, and especially the hand-baited areas in the Golden Horseshoe. The best guess for the unbaited areas is that fox and skunk rabies will continue to decline, except in western Haldimand-Norfolk.



Rabies should continue in Haldimand-Norfolk this fall and winter and will then decline next spring and summer as rabies declines in neighbouring areas. Based on recent history and the expected impact of baiting, there should be little or no rabies in the Golden Horseshoe over the next six months.

In sum, rabies in foxes and skunks are on the decline across Ontario. Provided the oral vaccination campaign continues for several years, the arctic fox strain of rabies, spread by red foxes and striped skunks, should be eliminated from southern Ontario.

Rowland Tinline

Department of Geography

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AERIAL BAITING OPERATIONS IN 1994, BIGGER AND REALLY BETTER

Three twin Otters, C-FOPJ from Timmins, C-GOGA from Thunder Bay, and C-GOGC from Sudbury arrived in Stratford on Sunday 18 September, and were met by 30 MNR Rabies Unit staff. Operations base was the Stratford Municipal Airport, a modern building which provided all the support facilities we needed, and a considerable degree of comfort. Special thanks to manager Andy Woodham and his assistant Elaine, who went far beyond the normal call of duty to be helpful. Everyone lived and ate at the Victorian Inn on the Park.

Monday morning the weather was fine. OGC had its bait machine installed at Sudbury, and we planned for it to fly at least three flights. First glitch: when Carolyn tried to upload the first flight from her laptop computer, it wouldn't work. The same routine which worked in the same aircraft a year ago would not work! The phone lines to the avionics group in Sault Ste. Marie heated up. In fact, it was an indication of Monday that when Paul Quinn, the chief of avionics, finally

called Neil Ayers at noon, the cellular phone batteries died before Neil had a chance to explain the problem. The final explanation for the problem, after calls to Arnav in Seattle, to Roly Tinline in Kingston, etc. was that Neil had asked to have another small problem in the navigation unit fixed last spring. When they fixed that problem, they also upgraded another card, and so the old software was no longer valid.

The other two aircraft were to have their bait machines installed during Monday morning, and be ready to fly in the afternoon. That almost worked, and by the end of the day, four flights were completed. However, we must have worked out all the teething problems, because on each of the next three days, Tuesday to Thursday, each aircraft completed four 2-hour flights. Twelve flights a day! We were busy! Friday the weather delayed start in the morning, and flying was rough. Late Friday all the crew were tired, very tired. Several asked if we could take a day off on Saturday, but the old hands said we fly as long as the weather holds. Saturday it rained, and everyone sighed with relief, and rolled over to sleep on. Sunday it rained, but it was Sunday, so that was OK. We did manage one flight. When the weather was still down on Monday, the crew grew restless. In fact, it was Thursday noon before we were in the air again. Six 3-hour flights on Thursday and Friday, and we ran out of baits. We had a flights worth of baits in the freezer at Maple, and the plan was to fly the last flight out of Buttonville on Saturday, but the weather postponed that until Sunday. Sunday aircraft and crew gathered at Irvine Lake to drop the eastern Ontario baits. This time the weather co-operated, and we flew 28 flights in 3 days. We cleaned the aircraft on Thursday, and dispersed at noon.

This year we made a bold move, and hired contract staff to do all the baiting, instead of manning the bait machine with short-term volunteers. The move paid off! There was the

usual airsickness for the first three days, but then almost everyone got used to flying, and in eastern Ontario, in relatively smooth air, no one was seriously sick. In fact, we narrowed the flight-line spacing from 2.0 to 1.8 km based on the experience that 3 volunteer loaders could not keep the machine full at 3.6 baits/second. This year most baiting was at 3.2 baits/second, and the experienced crews only needed two people in the back of the aircraft. The lesson will be incorporated into next year's operation.

I watched two people keep the bait machine loaded even when there were line segments 11 nautical miles long to be baited at double speed - about 6.4 baits/sec. On the high speed runs the belt was never even half empty. Another big factor in the two-person operation is that the modifications made to the bait machines over the winter result in their running much more cleanly, so the "bomber" tending the bait machine had very little to do. Couple that with the lack of machine problems and you have a two-person operation. Why is this important? An average person weighs as much as 2.5 tubs of baits - fewer people means more baits aboard.

Compliments, and great thanks, to the whole crew! Everyone worked hard. Teamwork was everywhere, among people who mostly met at the beginning of the Stratford operation. I appreciated the suggestions for improvement which came from everyone. Those that I could remember were worked into our post-mortem, and may be implemented next year. The spirit of the crew is exemplified by one member who was so sick on her first three flights that she had to be assigned a job on the ground: she asked to fly again from Irvine Lake, and succeeded! Incidentally, most crew found that no medicine was the best way to beat airsickness in the long run, just grin and bear(f) it.

The baiting equipment worked exceptionally well. Only one flight had to come home for repairs, due to an

electrical short in the bait machine. A special award goes to Berj Sailian of the Air Service in Sudbury. Berj designed a new seat set-up for the loaders to use. It worked well, and saved us space and load capacity. Also, Neil Ayers found some bump helmets which made flying a bit safer - no concussions this year! The Sudbury crew modified the intercom headsets to make them easier to use!

The crew this year was large: From the Air Service there were Jane Rowe, Neil Ayers, Eldon Germaine, Berj Sailian, Bill Turcotte, John Harding, Ken Stirret, Charlie Brown, Garry Stewart, Al Quinn, Peter Crosby, Randy Godda and Dave Russell. From other units of the Southern Terrestrial Ecosystems Research Section came Kathy MacDonald and Damien Joachim. From other agencies we had Laura Bigler (Cornell University), Gayne Fearnough (Texas Department of Health), Don James (Agriculture and Agri-Food Canada) and Roly Tinline and Carolyn Fielding (Queen's University). The Rabies Unit was represented by Charlie MacInnes, Chris Nunan, Laurie Calder, Dave Grieve, Bev Stevenson, Cindy McLeod, Laura Fietz, Alison Varga, Kathryn MacDonald, Craig Chaytor, Mike Eves, Chris Whynot, Nancy Eaton, Cathy Ashby, Brian Stapleton, Dwayne Tremblay, Derrek Wiedel, Kim Bennett, Pat O'Dwyer, Mark Gibson, Joe Lugarich, Mike Pedde, Scott Taylor, Sarah Crosgrey and Peter Bachmann. Peter Smith of Redford Robotics was indispensable in getting the bait machines and new control panels running. To all of the above I say both corporate and personal thanks for a job well done.

Thanks to the staff at the Machesney Lake Ranger Camp, Harold Lyon, Dan Hertengdy, Suzanne O'Brien and Lana Vaness, and their boss, Helmut Dumbrowsky. We weren't there long this year, but their hospitality was, as traditional, first class. Our radio communications were set up by the Southern Region communications

crew, Doug Austin, Dan Marshall and Kelly Drinkwalter. Thanks also to a lot of MNR district and area staff who fielded a lot of calls about low-flying aircraft and stray baits. Thanks to the anxious range officer at Base Borden who smoothed the way for us to bait over the base, and made sure we were not shot down.

One incident made our job worthwhile! Our pilots are very careful to advise all the small airports we fly over (and drop baits on) that we are coming. I overheard the following exchange on the radio: "Collingwood traffic, this is Twin Otter C-FOPJ, northbound about five miles south of the airport. We are at low level, 500 feet AGL, and will pass over the field in about 2 minutes, any conflicting traffic, please advise". "Twin Otter over Collingwood, are you part of that rabies bait program"? "Yes sir" "Keep it up, that's good work you're doing!"

During 88 flights we dropped 1.45 million baits. This was the start of a campaign to eliminate the arctic fox strain of rabies from southern Ontario. We hope that process will be complete in seven years or less. The map of where we baited appeared in the last issue of the Rabies Reporter.

Charlie MacInnes

OMNR Rabies Unit, Maple

UPDATE ON RACOON T-V-R IN THE NIAGARA REGION

Between 2 May and 21 October 1994, 5 trapping teams live-trapped and vaccinated raccoons against rabies between the Niagara River and the Welland Canal. The theory is to create a buffer zone of vaccinated raccoons to prevent the progression of raccoon rabies from New York State into the Niagara Frontier. In total, 4,335 different raccoons were captured, ear-tagged, vaccinated against rabies and released at the point of capture. From the capture data we were able to estimate the raccoon population at 6,738

individuals (95% confidence limits 5,815 - 7,672). Overall 64% (95% C.I. 57 - 75%) of the raccoon population in the treated area was vaccinated.

Trapping took place in three stages. The area was divided into 77 cells, roughly 12 km² in rural habitats and 3 km² in city areas. Each cell was trapped with 100 live-traps for 4 nights. The following week, 25 traps were used in the cells for 4 nights, to collect the information for population estimates. Five trappers, with summer assistants, covered the whole area between 2 May and 9 September. Thirty cells along the Niagara River were trapped a second time between 12 September and 21 October. This was very revealing, as only 32% of the animals caught had been tagged in the first round of trapping. The reason was simple: adult female raccoons and their young move around very little in May and June, and so are not available to be trapped. In future we recommend that trapping not begin until 1 July.

You will notice that a lot more trapping effort was expended in urban areas. This was necessary because trapping is more difficult. In particular, 42% of cat and 37% of opossum captures were made in urban areas, despite the fact that only 9% of the total area was classed as urban.

Overall, the program was a learning experience, but highly successful. This is the first time OMNR has conducted large-area T-V-R in rural habitats. The 64% vaccination rate for the whole zone should be enough to keep rabies out. Overall density was 11 raccoons/km². Some cells, particularly those comprised of agricultural cropland interspersed with mature deciduous trees, or with near-urban parkland, had densities as high as 47/km² and 39/km², respectively. This program will continue in 1995. You will hear more details in future issues of the Rabies Reporter.

Rick Rosatte

OMNR Rabies Unit, Maple.

UPDATE ON T-V-R IN SCARBOROUGH

1994 marked the eighth consecutive year of the Scarborough T-V-R project. An estimated 68% of the skunks and 88% of the raccoons were captured and vaccinated. Skunk density was 3.8/km², while raccoon density jumped to 17.9/km². The skunk population increased by only 16%, while the raccoon increase was 58%.

Rick Rosatte

OMNR Rabies Unit, Maple

RABIES IN COYOTES IN SOUTH TEXAS

For the past seven years, a strain of canine rabies has been spreading across southern Texas (figure 1), spread by coyotes but infecting a lot of dogs. The outbreak is probably related to an epidemic of canine rabies in Mexico, just across the US/Mexican border along the Rio Grande. This strain of rabies is related to the skunk strains which are common on both sides of the border. The Texas outbreak is concentrated in the dry, relatively flat mesquite country inland from the Gulf Coast (figure 2).

During the first week of October, Dr. Gayne Fearneyhough, director of

the Texas Department of Health's rabies control program visited OMNR's eastern Ontario baiting program at Irvine Lake. He was here to discuss the possibility of using OMNR's bait delivery and flight control systems in an Air Service Twin Otter to help halt the northward movement of rabies in coyotes in Texas. His plan is to drop baits in a 30-mile-wide strip across southern Texas near San Antonio. The strip will be placed in advance of the leading edge of the epidemic, and will cover approximately 10,400 square miles. The planned bait density is 50 per square mile, which is almost the same as the Ontario fox program's bait density (20/km²).

The major difference between the planned Texas drop and the Ontario program will be the bait and vaccine. Texas will use a bait of their own design - a bait made from ground dry dog food and plastic polymer, extruded into a rectangle longer and thicker, but the same width as the Ontario bait. This bait will be more than twice as heavy - 30-40 gm compared to 17-18gm for the OMNR bait. The choice

was made because the Ontario bait will probably melt at Texas ground temperatures. The core of the bait will contain a flimsy plastic sachet with a dose of Rhone-Merieux's Raboral vaccine. The ends of the bait will be sealed with wax plugs. Placebo dog food baits have proven very attractive to coyotes, and trials of the vaccine in coyotes are nearing completion.

Provided the vaccine trials are successful and details of the Texas-Ontario co-operation can be worked

(in cases per 1000 square miles)

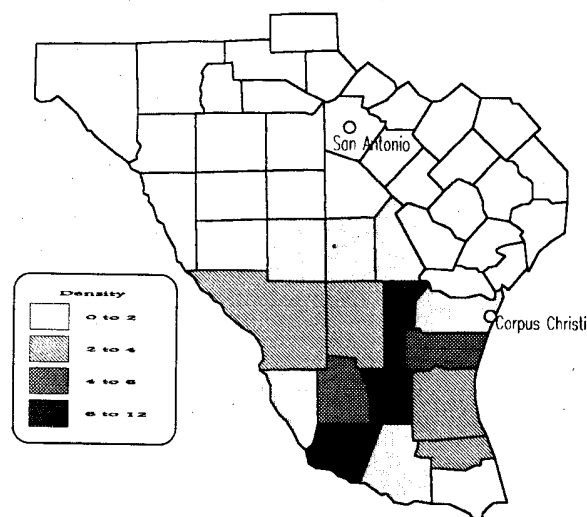


Figure 2 Density of coyote rabies cases in Texas

out, members of the Ontario Rabies Unit, and Air Service staff will be in Texas in late January. Present plans call for one Twin Otter with two pilots and an engineer, plus two rabies unit staff to go south. There is already a line-up of Texas staff wanting to take part, and there would be enough Ontario volunteers to do the job twice if we took everyone who has volunteered. Look forward to tall Texas tales in future issues of the Rabies Reporter.

Roly Tinline

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(year of first case)

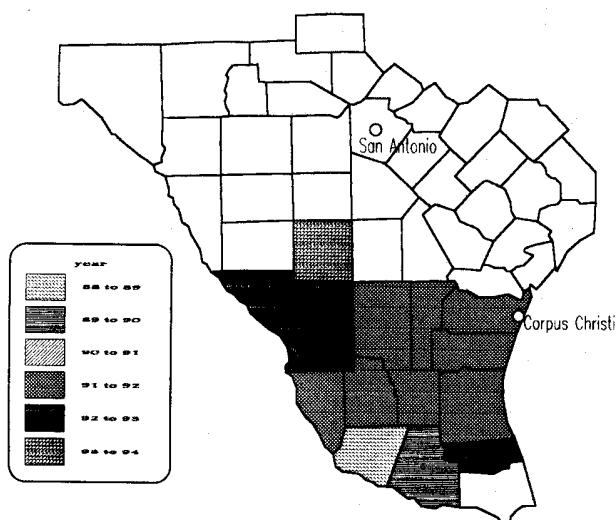


Figure 1. The spread of rabies into south Texas.

The Rabies Reporter, a scientific newsletter about current issues in rabies research and control, is a joint effort of the Rabies Research Unit, Ontario Ministry of Natural Resources; the Food Production and Inspection Branch of Agriculture and Agri-Food Canada; The Ontario Ministry of Health and the Department of Geography, Queens University, Kingston. Articles for future issues will be welcomed by the editor. Comments, letters, submissions and enquiries should be sent to:

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Animal Rabies Report: July to September 1994

Animal Type		Fox		Skunk		Other Wildlife		Dog		Cat		Livestock		Total	
County or Area	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		94	93		94	93		94	93		94	93		94	93
Eastern															
Stormont														0	0
Dundas			1											0	1
Glengarry					1									0	1
Prescott			3			1						1		0	4
Russell														0	0
Carleton							1	2	1					1	2
Renfrew			1											0	1
Lanark							1	1	1					1	1
Grenville														0	0
Leeds									2					0	2
Frontenac														0	0
Lennox-Addington									3					0	3
Central															
Hastings	4	6	3		3		2	1	5	2	2	3		1	2
Prince Edward															9
Northumberland	1	1	1		2	1	1	1	1	2	1	1		3	5
Victoria		2	13	3	9	7				2			1	4	15
Haliburton														0	0
Peterborough	4	6	15	2	11	8	3	3	3	2		1	1	10	21
Durham	4	10	44	1	4	16				3		2	3	5	17
York Region		6	31	2	8	9					1	1	1	3	16
Scarborough														0	0
East York														0	0
City of Toronto														0	0
City of York														0	0
North York									1					0	1
Etobicoke														0	0
Simcoe		2	18				8	1	3	2		2		1	5

Animal Rabies Report: July to September 1994

[illegible]

Animal Rabies Report: July to September 1994

Animal Type	Fox			Skunk			Other Wildlife			Dog			Cat			Livestock			Total		
County or Area	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		94	93		94	93		94	93		94	93		94	93		94	93		94	93
Northern (continued)																					
Thunder Bay																					
Rainy River							1	1											1	1	
Kenora																					
Subtotals																					
Eastern			5		1	1	2	3	8								1		2	5	
Central	13	33	125	8	37	52	6	12	14	4	5	4	3	1	6	4	17	23	38	105	
Western	45	108	201	10	30	55	2	6	2		2	1	3	16	18	8	35	78	68	197	
Southern	39	80	184	6	22	21	4	6	9	1	6	8	6	17	35	11	25	28	67	156	
Northern	1	7	15			2	1	1	2			2					1		2	9	
Totals	98	228	530	24	90	131	15	28	35	5	13	15	12	34	59	23	79	129	177	472	
																				899	

Livestock this quarter: 22 cattle; 1 sheep

Other wildlife this quarter: 4 coyote; 9 big brown bat; 1 little brown bat; 1 red bat

Animal Rabies Report: April to June 1994 Corrected October 1994

Animal Type	Fox			Skunk			Other Wildlife			Dog			Cat			Livestock			Total		
County or Area	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		94	93		94	93		94	93		94	93		94	93		94	93		94	93
Northern (continued)																					
Thunder Bay																					
Rainy River																					
Kenora																					
Subtotals																					
Eastern			1	1	1	3	1	1	4								1	1	2	3	9
Central	8	20	70	20	29	23	2	6	3		1	4	1	1	2	7	14	12	38	71	114
Western	14	63	92	7	20	32	1	4	1		2	1	5	13	6	6	27	48	33	129	180
Southern	16	41	84	5	16	15	2	2	2		5	7	3	11	19	6	14	22	32	89	149
Northern	4	6	14			1			1			2					1		4	7	18
Totals	42	130	261	33	66	74	6	13	11	0	8	14	9	25	27	19	57	83	109	299	470

Livestock this quarter: 10 cattle; 8 sheep; 1 horse

Other wildlife this quarter: 1 coyote; 4 raccoons; 1 big brown bat

In the original of this table, the livestock cases for this quarter were accidentally exchanged with the cumulative column (94) for the western region.

Correction

