

The Rabies Reporter

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RABIES IN FOXES AND SKUNKS

PREDICTIONS FOR APRIL - SEPTEMBER 1994

Rabies for the first quarter of 1994 was at its lowest level for the period for the last several years. As a result of OMNR's continued oral vaccination campaign, wildlife rabies has essentially been confined to southwestern Ontario. The baited areas in northern and eastern Ontario have had no reported cases and this should continue. The possibility of migration in from

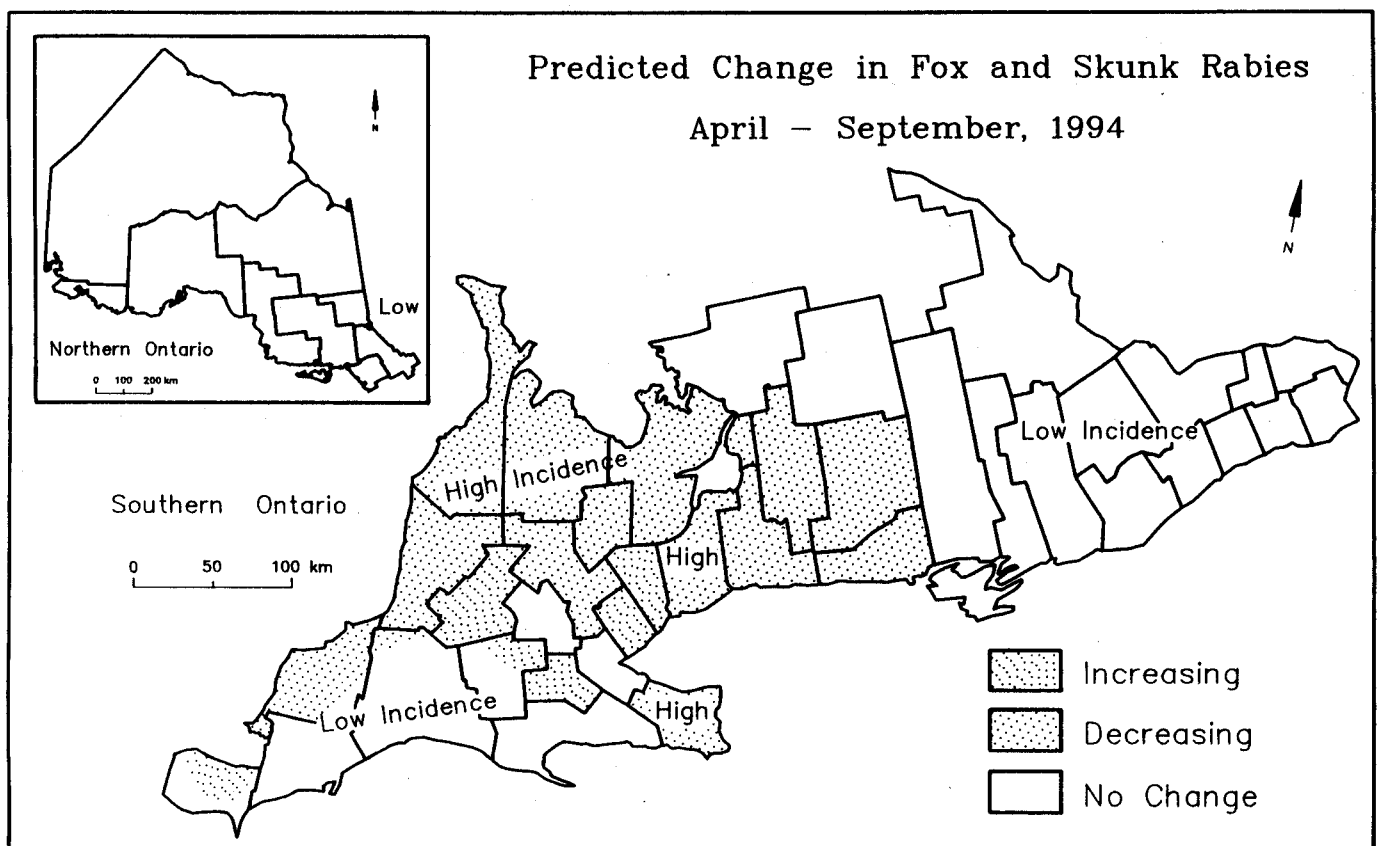
infected areas in Quebec remains, but the vaccination zone seems quite robust. Last fall, an area from Clarington to Lake Simcoe and across the northern half of Simcoe County was baited to isolate central Ontario from southwestern Ontario. Rabies had been waning in central Ontario, and, without reintroduction, that decline should continue.

As expected, rabies incidence in southwestern Ontario in those counties adjacent to Georgian Bay, Lake Huron and Lake Erie has been declining after recent peaks. The exception is Essex County where moderate increases of rabies in foxes and skunks is expected as a result of continued spread from Kent and Lambton. Incidence has been increasing in counties in the center of southwestern Ontario (parts of Brant, Perth, Wellington and Waterloo), and this should continue into the fall.

The unknown is York, Halton and Peel. Rabies from central Ontario is sweeping across York and should move into Halton and Peel. Unlike many other areas, York, Halton and Peel have not had predictable cycles of incidence or predictable responses to outbreaks in adjacent counties. The best guess is that there will be moderate increases over the summer and fall in those counties.

In sum, rabies is in retreat in much of Ontario. Over the next six months any increases in incidence will be moderate and limited to a small number of counties.

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BAIT DEVELOPMENT IN 1993

The thrust of bait development for 1993 was to find a good bait for raccoons, but there were two major constraints on that search. Since we have a very effective mass-production system, we wanted a bait which could be made and dropped with the existing machinery. Secondly, it will be much cheaper and easier from an operational sense if one bait can be used to vaccinate raccoons and foxes, and it would be useful if skunks like it too.

Ken Lawson was one leader of the project. Ken tested over 40 substances for their attractiveness to raccoons, and experimented with combinations of bait components which would allow the baits to be manufactured easily, but retain or enhance the baits' attractiveness to raccoons and foxes.

An early problem was the raccoon reaction to Microbond. That wax is essential to the strength of the bait. It shrinks on cooling, ensuring that the baits come out of the molds easily, and it holds the baits together when they hit the ground. Unfortunately, raccoons don't like Microbond. Ken had clear results, from a variety of baits, that without Microbond, raccoons ate over 85% of the baits, but the same bait with 32% Microbond would be eaten only 22% of the time. This seemed to be a problem of consistency rather than taste. Microbond is tasteless, at least to humans. Microbond is the substance used to waterproof most milk cartons - have you ever tried chewing it? Ken then found that powders added to the bait mixture seemed to mask the consistency problem, but allow the bait to retain its structural integrity.

From all this screening, Ken chose six mixtures: Cheese Powder (CP), Icing Sugar and Marshmallow (ISM), Peanut Butter (PB), Honey and Beeswax (HB), Banana and Beeswax (BB) and Seafood and Cod Oil (SC).

Rick Rosatte led the next stages. First, 100 caged raccoons were each offered one bait per day until each of

the six baits named above had been presented. Order of presentation was random. The results were not conclusive, but indicated that CP, ISM and SC baits were the top group of choices, and the others were less attractive. The next experiment involved concealing single baits of two types in the leaf litter of 5m x 5m pens. A single raccoon was released into the pen, and observed for 20 minutes, after which it was returned to its regular cage. If it did not find the baits, it was returned to the arena pen overnight, to see which bait it would eat when left alone. Fifteen combinations of baits were each tried on three raccoons. Again, CP, ISM and SC baits were the top group, while the other three aroused less interest.

In the next series of experiments, CP and ISM were compared. Baits were made around radio transmitters. Groups of 8 baits, 4 of each type, were placed on a raked sand area. There were 9 sites in urban habitats, and 9 in rural areas. Baits were placed in late afternoon, and tracked the following morning to determine their fate. At 6 sites, an automatic receiving system recorded the exact time each bait was moved. In the urban settings, 48% of the CP baits were 90+% eaten during the first night, compared with 54% for ISM. At rural sites, the figures were CP - 76% and ISM - 73%. This first test on wild raccoons indicated that both baits were attractive, and that there was no difference between them. Ken Lawson then recommended that we do the next experiment using ISM baits, because he felt that such a mixture would cause fewer problems during mass-production. (A test in January at Langford indicated that Ken was right, the bait machine took the ISM mixture with fewer problems, but the group at Langford said the problems with the CCP mixture were easily overcome.)

The major test of these two mixtures occurred on 2 - 147 km² plots between Barrie and Bradford. ISM baits were dropped at 50/km² on one

plot, and 100/km² on the other, for a total of 22,547 baits. Baits were dropped on 4 August, and Rick Rosatte and Laurie Calder began live-trapping raccoons in 3 - 3 km x 3 km plots within each baited area on 9 August. The results were very encouraging. Overall, 58% of raccoons on the 100 baits/km² were tetracycline positive, compared to 47% on the 50/km² area. That difference is statistically significant. In fact, the results were probably better than indicated, because 2/3 of the 100/km² plots were trapped too soon after baits were dropped. If we look only at the individuals caught in the last 3/10 days of trapping, acceptance approached 70%. In addition, presence of tetracycline was determined from premolar teeth, which are very small, and probably cause underestimation of the true rate of acceptance. That possibility will be investigated further.

There was another surprise from this project. In the late 1970's, the Rabies Unit requested estimates of raccoon densities from MNR offices across southern Ontario. The range reported was 4 - 8 / km². The 6 plots in 1993 indicated 9.6 - 18.2 raccoons/km². This may be a local effect, as the sample contained an unusually high proportion of older adults. However, it is equally likely that the mild winters of the 1980's, compared to the much harsher conditions during the 1970's, have allowed raccoons to increase to a higher level. Add to that the turmoil in the fur industry during 1989 - 93, and very low pelt prices, and these high densities may turn out to be widespread.

A hand-baiting trial was conducted in Scarborough with the ISM baits. Densities were 200 and 400/km². Three 4 km² plots were treated at each density. Overall, acceptance was 82% at 400 and 74% at 200, but the difference was not significant.

It appears that we have a good raccoon bait, which should, from these preliminary tests, perform well at 75/km² in rural habitats, and

somewhere in the 100-200/km² range in the city. For 1994, we have several experiments planned. A large test of the influence of density on acceptance of ISM baits will be done in southwestern Ontario. Details will appear in the next issue of the Rabies Reporter. An air-drop comparison of the CP and ISM baits will be conducted on the Barrie-Bradford plots. We will also do a series of mark-recapture plots across most of southern Ontario to estimate raccoon densities.

*Rick Rosatte and Ken Lawson
Rabies Research Unit
Maple*

THE SCARBOROUGH T-V-R EXPERIMENT IN 1993.

This was the seventh consecutive year for the Scarborough study. Trapping lasted 4 nights in each 1 km² cell, with 75 traps/km². After a week's break, each cell was subject to a week's further trapping, in order to get the recapture information needed for population estimates. A total of 18,888 trap-nights were expended, and 1779 animals were captured. That included 571 different raccoons and 129 different skunks.

The 1993 skunk and raccoon populations were lower than those for 1992. Skunks declined by 15%, to 3.3/km², while raccoons dropped 26% to 11.3/km². Full analysis is still in progress, but there are two possible contributors to the decline. Scarborough Animal Control removed over 800 raccoons from the city during 1993. The T-V-R study area is only a part of the City, but thanks to the great cooperation the Rabies Unit receives from Scarborough Animal Control, we have the locations for all the animals they handled. The second possible contribution to the decline was canine distemper, which was known to be present in the study area. Claudia Schubert, working on a Ph.D. under Dr. Tom Nudds at the University of Guelph, is studying the raccoon po-

pulation in detail, and we await her thesis with great interest.

The Scarborough study area has not had a reported case of rabies since May 1989. Based on the prevalence of rabies before the study began, we might have expected about 25 rabies cases during that period. However, since we have also been distributing vaccine-baits for foxes in all the ravines in Metro since 1989, it may be that effective control of rabies in foxes has delayed the arrival of rabies into the T-V-R area.

*Rick Rosatte
Rabies Research Unit
Maple.*

RAVINE BAITING IN TORONTO - 1993

The ravine baiting continued for the fifth year in 1993. Baits were placed in the ravine systems and other major green spaces from the Credit River to Oshawa in June and November. The major limitation on the program has been finding volunteers. However, we have only sought volunteers within MNR, and we probably should investigate asking naturalists to participate, as we did in Ottawa. Another possibility is the use of a helicopter. As long as we are paying for mileage and meals for volunteer MNR staff, the helicopter, believe it or not, is competitive for costs.

*Rick Rosatte
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THE RABIES REPORTER MAILING LIST

Thank you for your enthusiastic response to our request to update the Rabies Reporter mailing list. We were literally swamped with replies. Unfortunately, we are faced, as usual, with a further reduction in the budget for reproduction and mailing. In fact, for the first time the postage will come from the Rabies Unit budget. As a

result, we are forced to limit distribution to one copy per address. We hope that you will either copy the one that gets to you, or circulate it among interested colleagues.

By the way, we encourage articles or letters from our readers. Please stir up some discussion, or let us know what you would like to hear about. It's hard to write in a vacuum.

Rick Rosatte

*Rabies Research Unit
Maple.*

RABIES IN THE AMERICAS THE CONFERENCE TAKES SHAPE

We have now received more than 60 papers for the conference, with the promise of a few more to come. Participants will come from South, Central and North America, and from Europe, and several eastern countries. The range of topics will cover everything from the molecular biology of rabies virus to evaluation of cost-effectiveness and communications efforts associated with wildlife vaccination campaigns. A detailed program will be included with the June issue of RR. Plan to come, it will be an interesting conference.

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 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: January to March 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
Eastern																					
Stormont																		0	0	0	
Dundas																		0	0	0	
Glengarry						1												0	0	1	
Prescott						1								1	1	1	1	1	2	2	
Russell																		0	0	0	
Carleton																		0	0	0	
Renfrew						1												0	0	1	
Lanark																		0	0	0	
Grenville																		0	0	0	
Leeds									1									0	0	1	
Frontenac																		0	0	0	
Lennox-Addington									1									0	0	1	
Central																					
Hastings	1	1	1	1	1	1	2	2		1	1							5	5	1	
Prince Edward																	1	0	0	1	
Northumberland			1						1									0	0	2	
Victoria	2	2	2			2							2	2				4	4	4	
Haliburton																		0	0	0	
Peterborough				3	5	5										1		5	5	5	
Durham	3	3	8	1	1	6							3	3				7	7	14	
York Region	5	5	2	2	2	2							1	1	3			8	8	7	
Scarborough																		0	0	0	
East York																		0	0	0	
City of Toronto																		0	0	0	
City of York																		0	0	0	
North York																		0	0	0	
Etobicoke																		0	0	0	
Simcoe	1	1	2			1	2	2										3	3	3	

Animal Rabies Report: January to March 1994

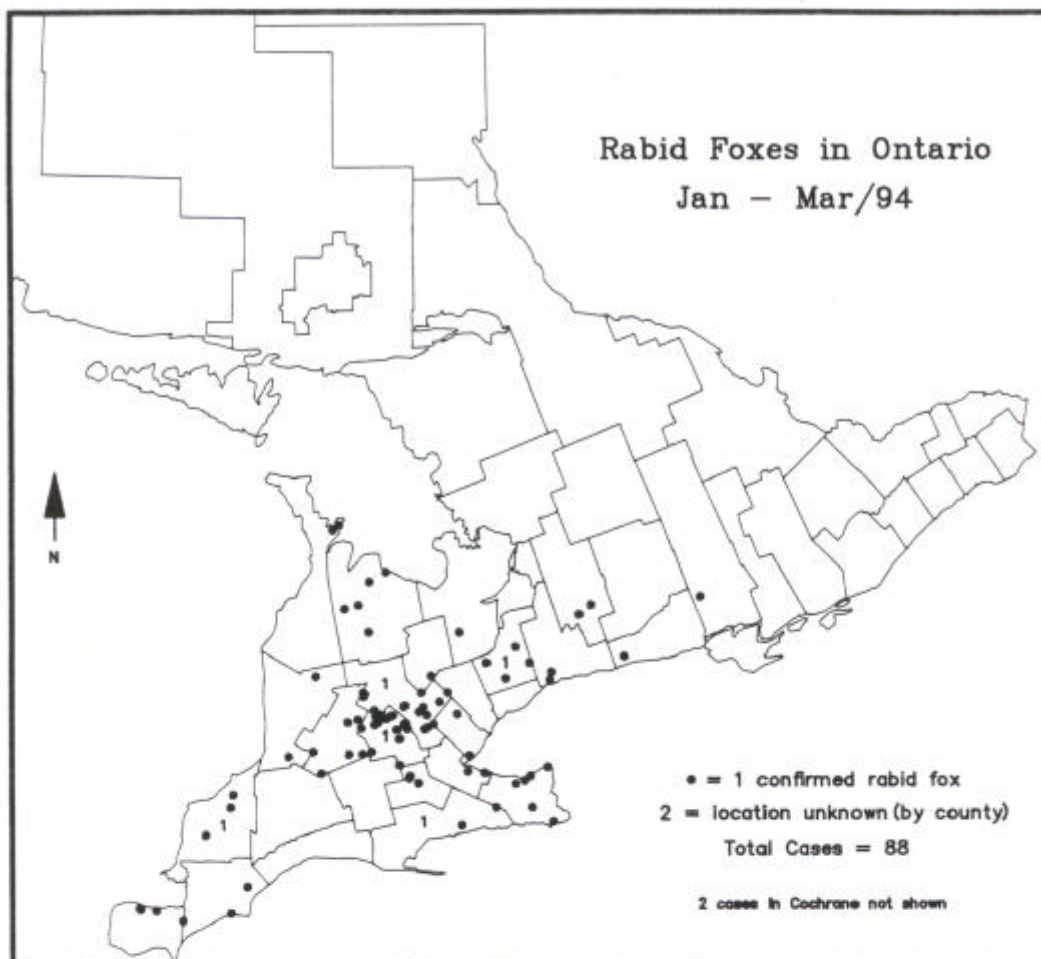
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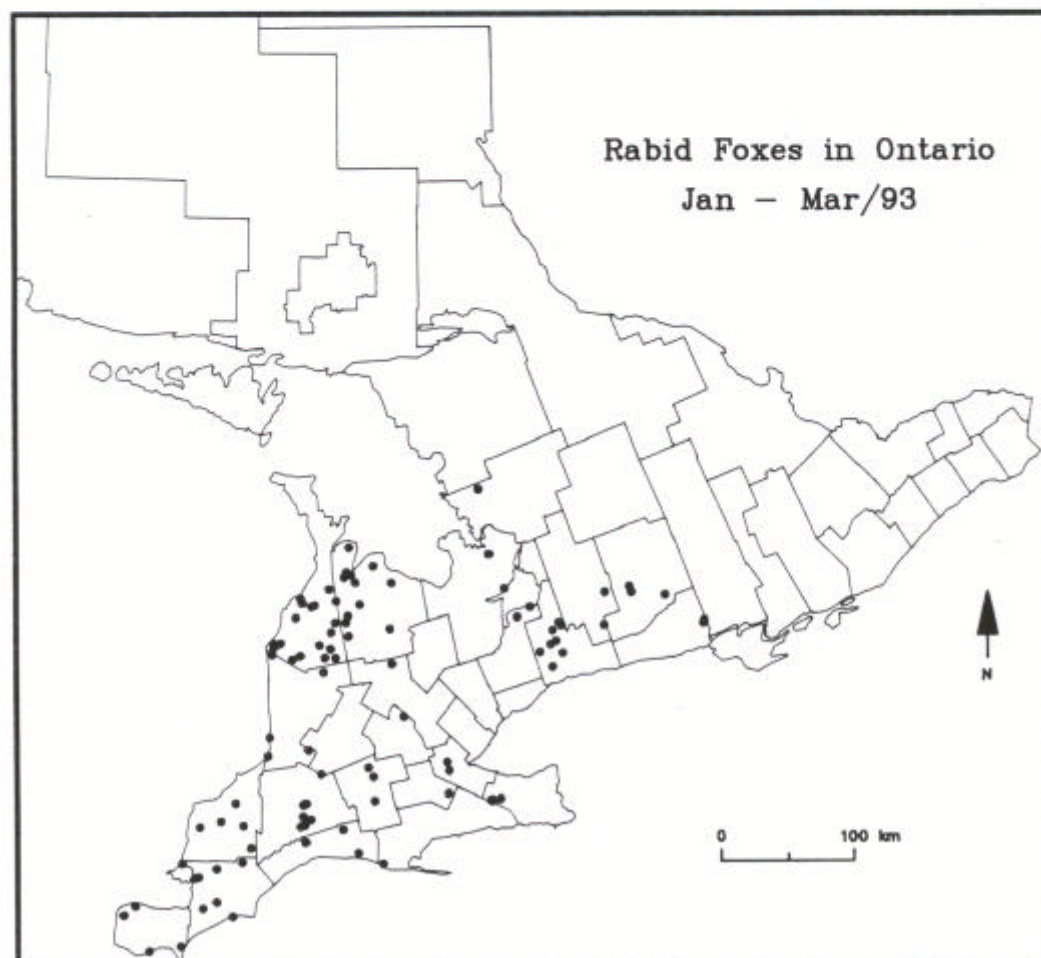
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County or Area	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative
		94	93		94	93		94	93		94	93		94	93		94	93		
Northern (continued)																				
Thunder Bay																				
Rainy River																				
Kenora																				
Subtotals																				
Eastern						3			2						1	1	5	1	1	10
Central	12	12	19	9	9	11	4	4	1	1	1			1	6	6	1	32	32	33
Western	49	49	41	13	13	17	3	3		2	2		8	8	3	21	21	30	96	91
Southern	25	25	39	11	11	9				5	5	4	8	8	11	8	8	17	57	80
Northern	2	2	7						1							1	1		3	8
Totals	88	88	106	33	33	40	7	7	4	8	8	4	16	16	15	37	37	53	189	222

Livestock this quarter: 31 cattle; 2 goat; 3sheep, 7horses

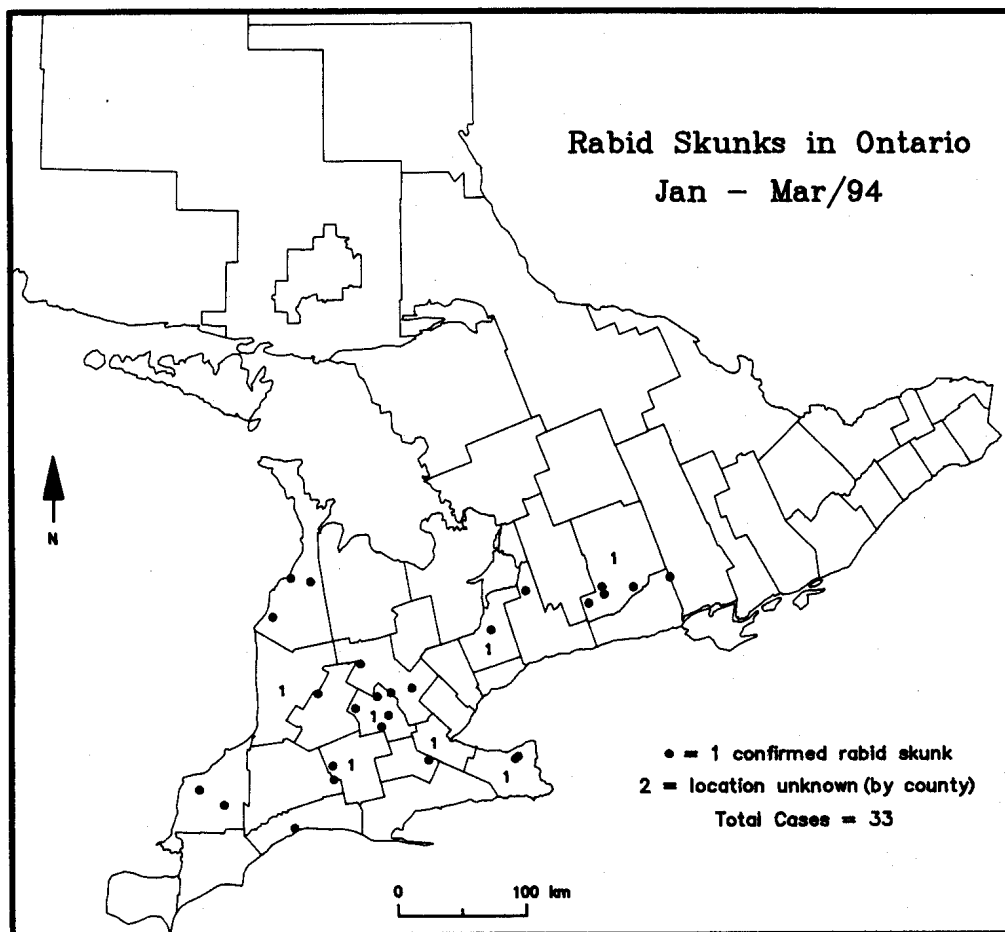
Other wildlife this quarter: 7coyote



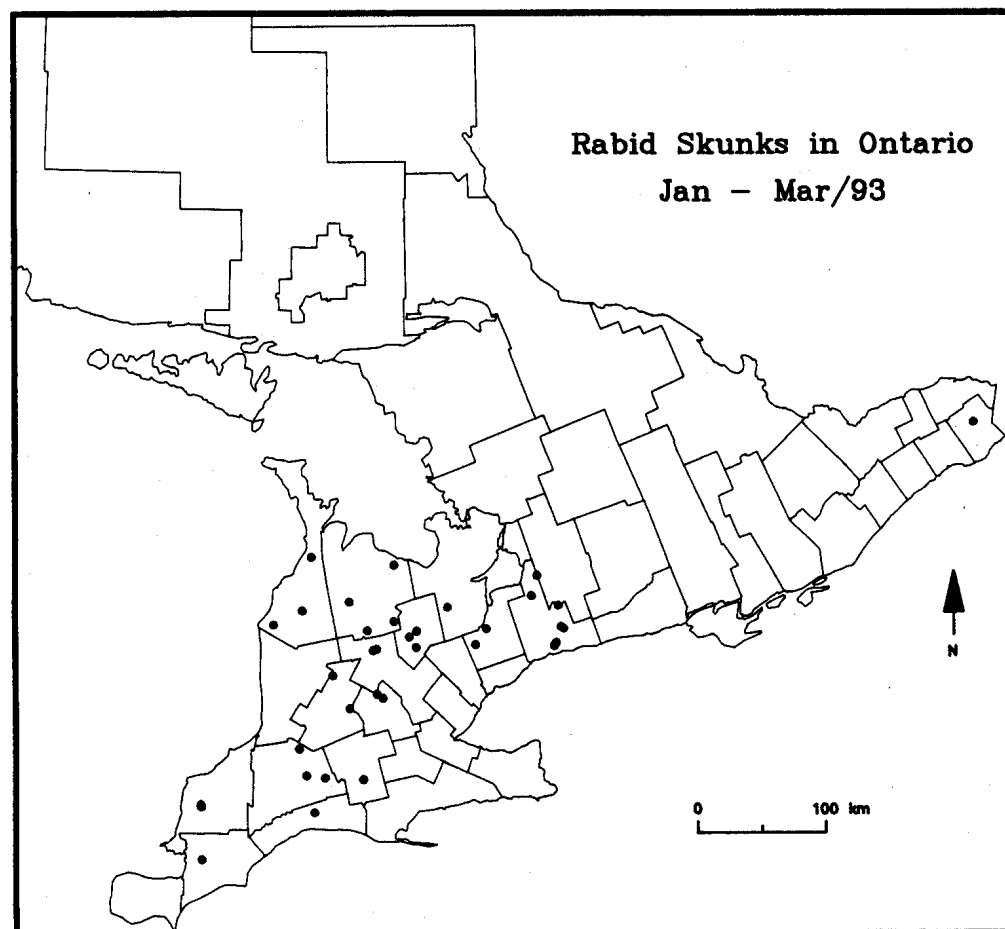
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