

The Rabies Reporter

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RABIES IN ONTARIO DURING 1996

There were 156 laboratory confirmed cases of rabies in Ontario during 1996. That was less than half as many as in 1995, about a quarter of the 1994 total, and less than 10% of the annual average during 1980-89. Rabies control is really taking hold. Figure 1 shows graphically how rapid the decline of rabies has been since we started to drop baits across the whole rabies zone, in 1994.

There were two subjects for concern. The major one was that there were still rabies cases all over southern Ontario. Although these were thinly scattered, rabies was still widespread. There was one rabid skunk in eastern Ontario, taken on 20 November near Renfrew, the first case since

March 1995 in the areas first treated in 1989. There was also a rabid skunk in Scarborough during the fourth quarter, the third case of rabies in Metro Toronto in 1996. Also during the fourth quarter, there were two rabid skunks in the Havelock area (Peterborough County). There had been a flurry of rabid skunks early in the year, but no cases during the third quarter. Renewed activity was disappointing. The cluster of fox rabies cases on the tip of the Bruce Peninsula was also a new feature, and another example of how widespread rabies was in southern Ontario during the year.

The second area of major concern was the continued presence of rabid foxes in northern Ontario and Quebec during the year. That indicates that re-invasion of southern Ontario remains a possibility. Although there were not many cases, that may be more a reflection of the sparse human population to report rabid animals than a scarcity of rabies.

On the optimistic side, the signs continued to show that the downturn in rabies is a result of the baiting pro-

gram, not just a natural low in rabies. The strongest indicator was that rabid skunks outnumbered rabid foxes by 70 to 34. When you note that 10/34 rabid foxes during the year were in northern Ontario, this difference looms even larger. In normal times, fox cases outnumbered skunk cases by about 2.5:1. Remember that the vaccine in the baits is effective in foxes but not so in skunks.

The goal of the fox rabies program is to have the fox strain of rabies completely eliminated from southern Ontario by 2001. A second objective is to have rabies reduced by 90% from 1980's levels by 1998. We have passed the latter benchmark early and convincingly. The 1996 case total was only 7.6% of the 2050 average of the 1980's. Experience in eastern Ontario indicates that we need to keep baiting for at least 1997 and 1998, but after that we will have to plan a year at a time, trying to figure out where the last remnants are hiding..

There were 24 rabid bats during the year, more than in either of the past 2 years, but 1 less than in 1993. If you subtract the bats and the foxes from northern Ontario, the total for fox-strain rabies in the baiting zone in southern Ontario during the year was only 122 cases.

It was a good year for rabies control. Also, there has not yet been a single case of raccoon rabies in Ontario, and the threat to our borders was no worse during 1996 than it was in 1995. In fact, the Cornell sponsored baiting programs in New York probably lessened the threat to the Ontario border. That was especially noticeable along the Niagara frontier.

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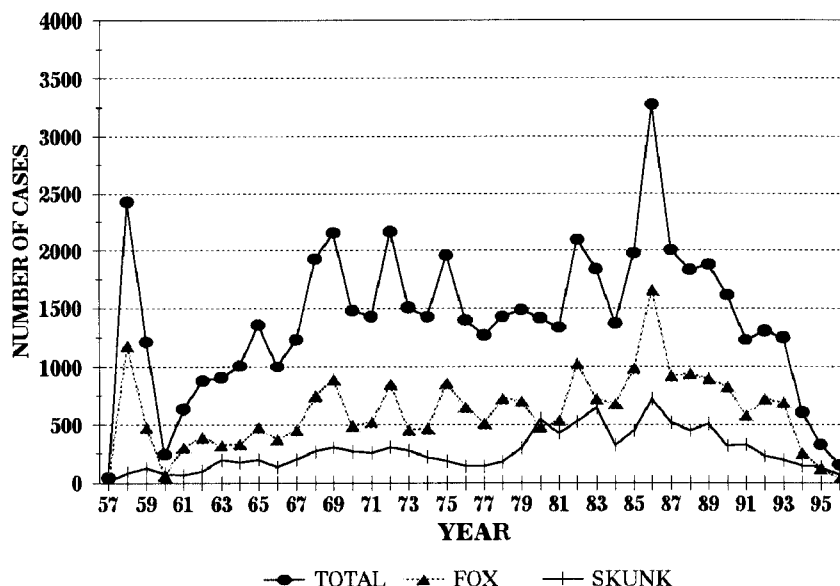


Figure 1. Annual rabies case totals for Ontario, 1957 to 1996

ANNUAL SUMMARY FOR 1996 OF RABIES IN NEW YORK STATE

With 1084 laboratory-confirmed cases in the State during 1996, New York secured for the sixth consecutive year the dubious distinction of being the state with the greatest number of rabid animals. While the vast majority of cases were attributable to the raccoon rabies outbreak, the continued emergence of bat rabies as a source of human rabies cases nationally caused heightened awareness and a dramatic increase in submissions of bats during the year. Two cases of rabies in domestic animals that caused massive epidemiologic investigations served as vivid reminders of the potential public health implications of spillover of wildlife rabies into domestic species.

There were 9,876 animals examined for rabies in the State in 1996: 8,979 at the Wadsworth Center, 896 at the New York City Health Department, and 1 at a Department of the Army laboratory. Once again, cats were the animal most often submitted for rabies testing, with 2,390 examined. There were 2,353 bats examined, and 2,033 raccoons. Among all animals examined at the Wadsworth Center, 26% (2,356) bit a human, 28% (2,522) had other non-bite human contact, 19% (1,748) had reported contact with a dog, 15% (1,340) had contact with a cat, and 23% (2,103) were strictly surveillance specimens with no reported contacts. Among all the domestic animals examined, 89% had potentially exposed one or more humans. Rabies infection was confirmed in 1080 animals examined at the Wadsworth Center, 3 examined at the New York City laboratory, and one raccoon captured at Fort Drum and examined at the Army's Ft. Sam Houston laboratory. Wild species accounted for 62% of all examinations, and 96% (1,039) of rabies cases. Rabid wildlife included 688 raccoons, 229 skunks, 74 bats, 23 grey foxes, 13

red foxes, 10 woodchucks, 1 coyote and 1 deer. There were 45 rabid domestic animals, including 28 cats, 9 cattle, 4 dogs, 2 horses, 1 goat and 1 rabbit. Domestic animals accounted for 37% (3,679) of all submissions, but just 4% of all rabid animals. Among rabid domestic animals 80% (36) had reportedly exposed one or more humans: one rabid goat resulted in nearly 400 human exposures (see below).

The raccoon rabies outbreak continued in a predictable pattern characterized by: a spread from existing areas into adjacent, previously unaffected areas (24 newly affected towns in 1996); an intense area with high incidence at the epizootic front (e.g. 76 cases in Jefferson County, 55 cases in Lewis County); a dramatic decrease in incidence to an enzootic level 1.5 - 2 years after initial introduction (e.g., Oswego County down from 73 cases in 1995 to 10 in 1996, Erie County down from 42 to 8 cases); and a resurgence of cases after two to three years of enzootic rabies (Delaware County up from 1 case in 1995 to 14 in 1996, Greene County up from 4 to 26, and Albany County up from 32 to 93). Of all raccoons tested, 33% (688) were rabid, and among 45 raccoons that had bit a human 33% (15) were positive for rabies. However, 66% (390) of the 590 raccoons that had fought with a dog were rabid.

Two 1996 rabies cases in domestic animals necessitated major public health investigations. A cat that had been at large in a campground in Orange County was determined to be infected with rabies on June 18. The effort to locate campers at potential risk required tracking camp registrants into 500 other campsites in the U.S., Canada and Mexico and to home addresses in twenty states and six other countries. A goat from Tioga County tested positive for rabies on August 19. During the period it may have been infectious it had been displayed at a county fair visited by 25,000 people. More than 2,700 people were evaluated for exposure to the goat, as

it had been walked on leash in the fairgrounds and spent time at the petting zoo. Nearly 400 people received rabies treatment due to this one case, and the cost of the incident was estimated at \$500,000.

There have now been 22 human rabies deaths in the United States since 1990, of which 5 were acquired abroad. Of the 17 indigenously acquired cases, 15 have been associated with bat rabies, and only one resulted from a reported bite exposure. Two of the 15 cases occurred in New York State (1993 and 1995) following bat encounters in the home, with no recognized bite or known contact in either case. These data encouraged the New York State Department of Health to follow the lead of the Centers for Disease Control and Prevention, and broaden its definition of bat encounters that require rabies examination of the bat and human postexposure treatment when the bat proves rabid or cannot be examined. This new policy resulted in a dramatic increase in the number of bats received for examination: 2,353 bats were tested during 1996, a number 83% greater than the average for the previous five-year period (1,288).

There were 74 rabid bats confirmed in the State in 1996, which is 28% greater than the average for the previous five-year period (58). Otherwise, the distribution of bat rabies was not unlike previous years. It was widespread geographically, with cases occurring in 66 different towns in 24 counties. The disease was also widespread among the indigenous bat species, with rabies confirmed in 64 big brown bats, 4 little brown bats, 2 hoary bats, 1 Keen's bat, 1 pipistrelle, 1 silver-haired bat and 1 bat unidentifiable to species. Characteristically, big brown bats accounted for most (81%) of the cases. Among the bats received at the Wadsworth Center for testing (2,230), 5% (119) had bitten a human, 24% (552) has other non-bite human contact, 9% (207) contact with a dog, 35% (809) contact with a cat, and 35% (823) no reported contacts.

Among the 74 rabid bats, 9% (7) bit a human, 19% (14) had other non-bite human contact, 15% (11) contact with a dog, 37% (27) contact with a cat and 30% (22) no reported contacts. Among big brown bats, 4.4% (64 of 1,461) were rabid, while among little brown bats 0.6% (4 of 646) were rabid. Overall, the rabies positivity rate in tested bats was 3.1%, significantly lower than the average for the previous five-year period (4.4%). This is at least in part the result of a greater number of normally behaving bats being submitted because of the newly defined criteria for testing bats.

Trials to evaluate the efficacy of the distribution of baits containing vaccine for oral rabies vaccination of wildlife continued in several areas of the State, with programs in Albany, Rensselaer, and Essex Counties conducted by the Department of Health, and programs in Jefferson, Lewis, Niagara, Erie and Chautauque Counties conducted by the Diagnostic Laboratory of the New York State College of Veterinary Medicine at Cornell. The trials are designed to evaluate the effectiveness of the method to establish a barrier to spread of the disease into new areas, as well as its potential use to eliminate rabies in affected raccoon populations.

The demand for serologic testing of human sera to determine the need for rabies vaccination booster injections increased significantly again in 1996. The Wadsworth Center rabies laboratory received 1,623 samples during the period, 50% greater than the annual average for the previous five-year period. The laboratory also performed serologic tests for antibody in 281 animal sera in support of the oral wildlife vaccination trials. The Wadsworth Center performed 138 monoclonal antibody panel analyses to determine the causative variant of rabies virus associated with selected cases: all cases examined in terrestrial mammals occurring in New York in 1996 were identified as the raccoon rabies variant, and all bats were infected with one of the four common

bat variants previously identified in the State.

New York City Health Department Laboratory data were provided by Dr. Igbal Poshni.

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THE TEXAS TEAM RIDES AGAIN

Ontario's support of the two Texas projects to control wildlife rabies continued in 1997. The two projects involve eliminating coyote rabies from south Texas, and containing, then eliminating grey fox rabies from central and west Texas. We dropped 2.5 million baits, raising the total for the Ontario team over 15 million baits served since 1989.

As reported in previous issues, the coyote project is definitely successful, and data obtained from Dr. Guy Moore about the fox project are also very encouraging.

The Ontario team left Sault Ste. Marie at dawn on 4 January, and returned home on 8 February. This year our role was strictly air support for the drop, plus making sure the baiting equipment in the aircraft worked according to specifications. The Texas Department of Health sent two staff to Queen's University during the fall to learn the software for preparation of the flight lines, and TDH staff were completely in charge of mapping and uploading flight information, as well, of course, as designating and scheduling flights, navigators and baiting crews. Queen's also wrote new software for keeping track of baiting crews, and compiling all of the statistics about each day's operations. This worked very well, and provided reports literally on demand.

The Ontario team included 3 aircraft, OGA, OGC and OPG. Pilots were Neil Ayers, Bill Turcotte, Carl Hannson, Garry Stewart, Eldon

Germain and Red Seguin. Engineers were Berj Sailian, Charlie Brown, Tom Thompson, Ken Wong and Marc Benoit. Pierre Verhelst and Pat Boudreau covered avionics and part of the flight watch. The pilots and Berj Sailian stayed for the whole operation, whereas the remainder traded places after the first two weeks. The Rabies Unit Team was Charlie MacInnes, Andrew Silver (in charge of bait machines), Bev Stevenson, Kim Bennett and Kathy MacDonald.

The teamwork between the Texas and Ontario personnel was exceptional. The Texas crews came from three organizations, Texas Department of Health, Texas Animal Damage Control, and The Texas National Guard. In addition, there were several volunteers, from local veterinarians to municipal Animal Control Officers.

ADC is a joint state-federal program which covers many roles regarding damage caused by wildlife, the largest of which is killing coyotes and other predators which depredate on cattle, sheep, goats or other livestock. ADC staff are resourceful, hard working and characters all! The National Guard is an institution of the Texas drops, providing the top of the morning to all, every day. Their future involvement is, unfortunately, clouded, as the unit which has been supporting the bait drops for three years will be disbanded during the coming year, and the redoubtable Colonel Leo Staley will retire. Somehow, Texas operations won't be right without his cheerful greetings and great efficiency.

Each year operations get better, as the crews get more experience and more familiar with working together. This year we met mostly old friends, and the few newcomers fitted in quickly and pulled their weight. It was hard to imagine a better operation than last year, but I think we achieved it.

Flight lines continued to be half a mile apart, except on two experimental plots, where one mile spacing was tried. Maps of the flights will appear in future issues.

The base for the coyote program this year was the town of Alice, about 50 miles west of Corpus Christi. Unfortunately, Alice will not be fondly remembered by the baiters, because the weather was terrible while we were there. There was rain, freezing rain, fog, and cold which numbed Canadians and Texans alike! A two week operation took three weeks, just because of the weather. The people in Alice were typical friendly Texans. However, the whole area was rather depressed, as the real industry was oil. When the oil boom ended in the early 1980's, a lot of people left the region. In consequence, plus the arrival of Wal-Mart and a huge HEB store the business on Main Street were not thriving.

The sight-seeing in Corpus Christi was interesting, the bird-watching along the coast was great, despite the weather, and the shoppers visited Mexico regularly. The airport at Alice was well run. There was a disused building we could use as a lounge and storage area, right next to the headquarters trailer. On cold days the ADC crew, with a lot of help, cooked some excellent soups and stews. I missed the evening tailgate cookouts we had last year, but they would not have been fun in the cold and rain which was daily fare this year! There were some interesting presentations. Red Seguin, our pilot who bought almost all the cowboy "parts" to make him look Texan, and rode whenever he could borrow a horse, received a huge, red belt buckle, you know, the kind real cowboys wear. Manny Pena, an ADC stalwart and super organizer, was made an honorary sherriff, complete with badge and (toy) gun, in recognition of his efforts to keep order in the local bar.

Our other two bases were at Fort Stockton and Burnet, both familiar to anyone who was on last year's team. The weather cooperated, and we completed operations in quick time.

There was a wonderful party at the Turman ranch outside Fort Stockton. Hoppy Turman is a regional

supervisor with ADC,m and a pillar of strength for the rabies drops. He and his brother Gil, and their families helped, flew with us, and threw a great bash. Another ADC trapper, John Callentyne, is a professional musician on weekends, and he and a colleague sang and played for us several times. At the Turman Ranch the performance was in a horse barn, and the music was good enough that we had to water the dance "floor" to keep the dust down.

From Burnet, Austin was handy, and staff went there and San Antonio on off hours. The weather was good until the last flights, which had to be put off a day, but we were done quickly.

The windup party was a cook-out at the motel, featuring fajitas prepared by a crew under the able direction of master chef Hoppy Turman. Laura Robinson (TDH - Harlingen - deep in "The Valley") made a gallon of guacomole, and Hoppy supervised the blending of a super pico de gallo.

The end of the party was a dance at the Highlander, just down the road. We Canadians were all presented with Texas flags, and various members of the team received special awards for merit. Andrew Silver won an Oscar (shaped suspiciously like Snoopy), for his heroic production of working bait machines!

*Charlie MacInnes
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THE RABIES UNIT HAS MOVED

By the time you get this issue, the Southern Research Station, home of MNR wildlife research for 50 years, will be closed. However, our quarters at Trent University will not be ready until late July. In the meantime the Rabies Unit will be dispersed, with staff workin either at home, or at our animal compound in Midhurst. The Rabies Reporter Editor will be at home, equipped with both telephone

and FAX, as well as MNR and internet e-mail. Phone numbers are (905) 640-6832, FAX (905) 640-4317, e-mail (net) macinnch@netrover.com. Once I learn to use the internet e-mail, I should be quite accessible!!!.

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RABIES IN THE AMERICAS IN 1997 WILL BE IN KINGSTON, ONTARIO

Mark your calendar for 2-6 November, 1997. The Rabies In The Americas Conference will take place in Kingston, Ontario, hosted by Dr. Roly Tinline and the GIS Lab at Queen's University. Stay in touch with the Rabies Reporter. We will do our best to get the program to you in each issue. Note also the Rabies Reporter Home Page, which I am sure will be kept up-to-date.

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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, 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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<http://www.gis.queensu.ca/RReporter/>

Animal Rabies Report: October to December 1996

Animal Type	Fox			Skunk			Other Wildlife			Dog			Cat			Livestock			Total		
County or Area	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		96	95		96	95		96	95		96	95		96	95		96	95		96	95
Eastern																					
Stormont																			0	0	0
Dundas																		1	0	0	1
Glengarry																			0	0	0
Prescott																			0	0	0
Russell								1	1										0	1	1
Carleton								7	4									1	0	7	6
Renfrew																			1	1	0
Lanark																			0	0	0
Grenville										1									0	0	1
Leeds																			0	0	0
Frontenac									3										0	3	0
Lennox-Addington										1									0	0	1
Central																					
Hastings			1			3			1	1									0	4	2
Prince Edward																			0	0	0
Northumberland			1						1										0	1	1
Victoria	1	1				1	2												1	2	2
Haliburton																			0	0	0
Peterborough	1	2	1	6	17	7		2	2						1				7	21	11
Durham		1				3												1	0	1	4
York Region						4		2	2									1	0	2	7
Scarborough				1	1										1				1	2	0
East York																			0	0	0
City of Toronto		1																	0	1	0
City of York																			0	0	0
North York																			0	0	0
Etobicoke																			0	0	0
Simcoe			3				3		1	1									4	0	1

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Animal Type	Fox			Skunk			Other Wildlife			Dog			Cat			Livestock			Total						
County or Area	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative					
		96	95		96	95		96	95		96	95		96	95		96	95		96	95				
Northern (continued)																									
Thunder Bay																			0	0	0				
Rainy River																			0	0	0				
Kenora																			0	0	1				
Subtotals																									
Eastern				1	1														2	1	12	10			
Central	2	5	6	7	22	19									1	1			6	9	35	39			
Western	2	14	58	9	36	64									3	4			2	14	40	13	68	170	
Southern	1	5	61		11	16													7	5	8	18	6	31	108
Northern	1	10																					1	10	1
Totals	6	34	125	17	70	99	0	25	19	0	1	7	0	4	12				7	22	66	30	156	328	

Livestock this quarter: 5 cows, 2 horses. No other wildlife this quarter

Livestock this year: 18 cows, 1 goat, 1 sheep, 2 horses, 1 red deer

Other wildlife this year: 21 big brown bats, 1 hoary bat, 1 Keen's myotis (bat), 1 silver-haired bat.

