

The Rabies Reporter

November 1995

Volume 6, Number 3

ISSN 1186-8961

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THIRD QUARTER 1995 RABIES CASES SOME GOOD NEWS AND SOME MEDIOCRE

The data and maps in this issue of Rabies Reporter show continuing progress in rabies control. There are two especially encouraging developments. The first is that there were no cases at all of arctic fox strain virus in the whole of eastern Ontario during this quarter. The four cases in the region were all bats. The second piece of good news is that there were no rabid foxes, and only three rabid skunks in the whole of the region from Toronto east to the Quebec border. Those were the only fox strain cases east of York Region this quarter. That means that half of the rabies zone was almost clean for three months!

The bad news is that a rabies outbreak started in Grey County during the quarter, in an area which was baited last year. That was not a big surprise, but it will bear watching. In October, news came of additional cases in the western edge of Simcoe County. The area affected was one of the first that we baited in September, and those flights brought back more baits than expected. Therefore, at the end of the Stratford operations, we dropped second loads of baits across the area, so I hope the next three quarters' data will show fewer cases than this summer. The other active outbreak was centered in Elgin

County, which was not baited last year, but was covered in this year's drops.

We do not have an estimate of the numbers of humans given post-exposure treatment. However, consider the data for rabid farm animals. At the end of the third quarter, from 1989 to 1994, the numbers were: 301, 286, 124, 148, 129, 82, compared to 41 this year. Dog cases show a similar trend: 56, 41, 24, 32, 15, and 13, compared to 4 this year. We expect to see a big drop

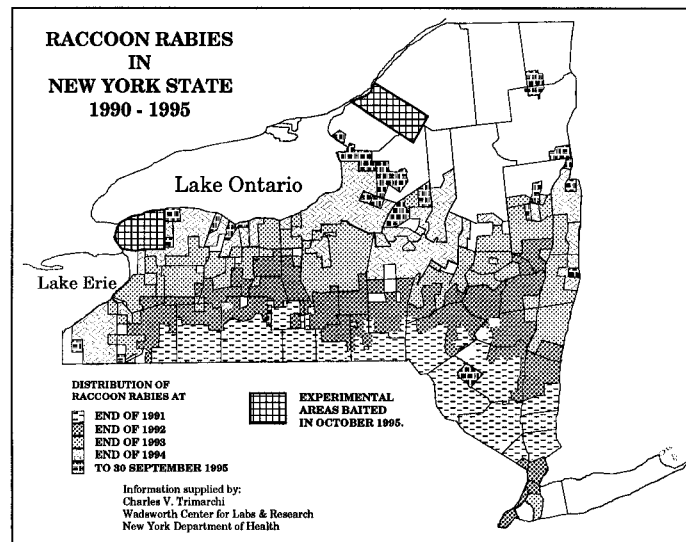


Figure 1. Map of New York showing the rabies-infected areas, and the experimental bait drop zones.

in human treatments this year. However, remember that many treatments are the result of an incident where the biting animal ran away, and couldn't be submitted for testing. It is still prudent to assume that such individuals did have rabies.

Overall, the prediction is still that 1995 will set another record for low numbers of rabies cases. We are now three quarters through the year, and the total cases in 1995 are just over a third of last year's total.

*Charlie MacInnes
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NEW YORK BAIT TRIALS 1995

The dropping of almost 180,000 baits in New York State during 14 - 17 October marked a major step forward in rabies control in the U.S.A. It is the fourth trial aimed at raccoon rabies, and covered a larger area than all the others, combined.

There were two experiments involved. The first was to see if baiting can stop raccoon rabies while it is at the height of an epizootic outbreak. That trial covered the whole of Niagara County, including all of its cities and villages (e.g., cities of Niagara Falls and Lockport). The second is an experiment to see if a wall of baits can stop raccoon rabies from moving into an uninfected area, an intent similar to the trial in Cape May, New Jersey.

Built within these two experiments there were direct comparisons of the Ontario bait and the fishmeal-polymer bait. In addition, in Niagara, two bait densities were used. Also in Niagara, all towns and cities were baited by hand, to ensure complete coverage of the whole area.

Evaluation of success will include checking dead raccoons, and live-trapped individuals for biomarkers, and for antibody to rabies. Also, of course, a close watch will be

kept on the numbers of rabies cases in and near the treated areas.

So far the funding for these ventures is on a one-year-at-a-time basis. We in Ontario sincerely hope that the effort will continue, for several reasons.

First, rabies control will not be accomplished by a single baiting. One of the more important things to be found out by these New York experiments is how many years of baiting are required to eliminate raccoon rabies completely. That objective probably requires a large treatment area, large enough that the core is beyond the range of dispersing raccoons. Although it is important to keep on baiting until raccoon rabies is gone, it is perhaps more crucial to show that raccoon rabies can be completely eliminated from an area. The costs of vaccinating raccoons are high, and if the effort must go on forever, the strategy will not be cost-effective. However, if, as we are attempting with fox rabies in Ontario, it is possible to clear terrestrial rabies out of an area completely, then the rabies-free "forseeable future" makes the whole effort worthwhile.

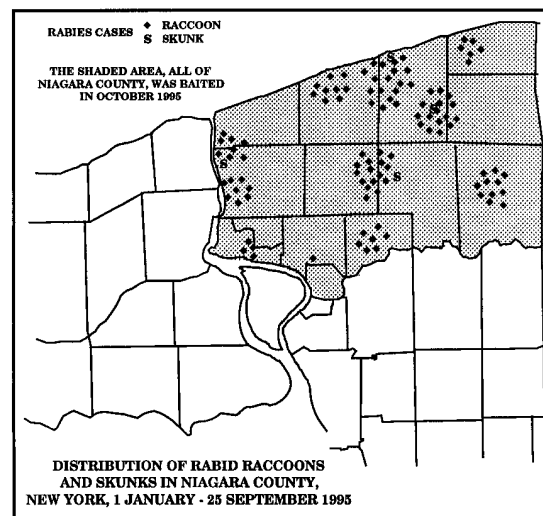
Secondly, taking a long-term view, eliminating raccoon rabies will work only if there is regional cooperation aimed toward pushing this strain out of the whole of the mid-Atlantic area which is currently infected. This trial is a critical demonstration that the technique will work, needed to stimulate inter-state planning and cooperation. There is a problem here, as several jurisdictions currently believe that once they start dropping baits, they will be committed to that forever, because the conventional wisdom is that raccoon rabies cannot be eliminated by vaccination. The experience with foxes in Europe and Ontario is not well understood, and everyone "knows" that the raccoon situation is different.

The third reason that we in Ontario hope the New York trials succeed is that success in New York

will greatly lessen the probability that raccoon rabies will enter Ontario. Eventually this hope will also require cooperation with Vermont and Quebec, to prevent an "end run" around the New York border.

The fourth reason that Ontario supported the New York trials is that these involve verification of the baits and air drop tactics that we will use in Ontario if necessary. If New York had not undertaken this year's trials, we would eventually have needed a comparable effort (and expense) in Ontario. Success of the Cornell trials will be very useful to Ontario.

In addition to the air-drops, which were organised by the team from the Diagnostic Laboratory of the New York College of Veterinary Medicine at Cornell University, there were baits deployed by the New York Department of Health. The experiments in Albany and Rensselaer Counties continued during 1995. These involve ground distribution of baits in an area where raccoon rabies is temporarily reduced after the initial outbreak. The hope is to eliminate the disease completely. Also, NYDH staff dropped baits from a DEC



helicopter around the outlying outbreak in Clinton and Essex Counties, in the northeastern part of the state.

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Ministry of Natural Resources

RISK OF INVASION: WHEN WILL RACCOON RABIES GET INTO ONTARIO?

Southern Ontario has lived in high suspense for at least three years, goaded by media who smelled a good disaster story. Now that the raccoons are mostly denned up for the rest of 1995, perhaps it is time to assess the current situation, and make some cautious predictions of what might happen next year.

By late 1990, when raccoon rabies was firmly established in two areas of southern New York State, it appeared, based on rates of advance of the rabies front through Pennsylvania, that raccoon rabies would most likely reach the New York banks of the Niagara River during 1994. The big question was whether the river would act as a barrier. There were two precedents. The Susquehanna River, near Harrisburg, PA, held up eastward movement of raccoon rabies for 21 months, and the first cases which appeared on the east bank were near bridges. Strangely, that part of the

Susquehanna has a lot of small and medium sized islands, most of which harbour or are visited by raccoons. Raccoons are willing and competent swimmers, yet rabies did not hop from island to island. The second large river crossed by raccoon rabies was the Hudson in downstate New York. This is a big, deep, wide river, yet raccoon rabies appeared on the east side, in fact at least 30 km east of the shore, before there were cases on the west side.

Was this human transport or an example of hitch-hiking? We will never know. However, given these two case records, what would you have predicted with respect to whether the Niagara River would act as a barrier, and if so, for how long? The Rabies Unit chose the conservative approach, and assumed no barrier

effect. We were ready for raccoon rabies in the Niagara during the summer of 1994. Well, the river has held raccoon rabies back through the summer of 1995. One can now be cautiously optimistic. As the map on page 2 shows, there has been a lot of rabies in Niagara County, New York during the past summer, including at least two clusters right on the bank. Because of the high prevalence of rabies this summer, there should be fewer cases next year, if the pattern in other parts of New York is repeated. Add to that the vaccination efforts of the Cornell Diagnostic Lab, and we can suggest that there will be fewer cases along the river next year, so the risk of rabies crossing into Ontario in the Niagara area will be less in 1996 than it was in 1995. The high success of the Niagara T-V-R (75% of raccoons vaccinated) makes it less likely that raccoon rabies could take hold on our side. We will still need an intensive T-V-R program to immunize the young raccoons born in 1996, but the risk of invasion should be lower in 1996 than it was this year.

The major advances of the raccoon rabies front in New York seem to occur in April-May, and in late summer. The spring jump may be related to the fact that raccoons mate in February and March. Some males travel considerable distances over the snow in search of females. It is also in spring that young males disperse in search of an adult range. Some individuals have been observed moving over 100 km, but the frequency of such movements is unknown. The relevance of these details is that during March, the Niagara River is normally mostly open, but in many winters the St. Lawrence can be mostly frozen by March. Thus, even though the St. Lawrence is wide and imposing as rivers go, Ontario may be vulnerable because of the ice cover.

Raccoon rabies should reach the banks of the St. Lawrence during 1996, but only for 20-50 km north and west of Watertown NY. Hopefully

the combination of baiting in New York plus T-V-R at the bridges will lower the risk that raccoon rabies will cross the St. Lawrence during 1996, but perhaps the Rabies Unit's attention should shift from Niagara to St. Lawrence as the highest risk area for next year.

On the longer term, raccoon rabies might get into Quebec in 1996, although 1997 seems more likely. Depending on whether the first invasion is from Vermont or New York, Ontario has 2-4 years before raccoon rabies reaches our frontier with Quebec. That assumes that Quebec takes no countermeasures. At the moment a Quebec government committee is studying the situation, and suggesting possible responses. Conclusion: the situation is still unpredictable.

The risk of hitchhiking raccoons remains, but I believe that it has not increased during the last 2-3 years. A lot of the truck traffic coming into Ontario originates in New York City or in other major centers where raccoon rabies has been established for several years. By contrast, the areas of northern New York that were first invaded by raccoon rabies in 1994 or 1995, while they are close to Ontario, are not sources of a lot of transport traffic. Therefore, the risk of invasion by a road hitchhiker is not increasing as the raccoon rabies front gets closer to Ontario. There may be increased risk of a raccoon incubating rabies being accidentally dropped off in Ontario from a pleasure boat, as raccoon rabies becomes more common along the St. Lawrence River.

It appears, then, that the prospects for raccoon rabies arriving in Ontario are not substantially greater for 1996 than they were for 1995. Meanwhile, we in Ontario have done a lot of contingency planning, so we are better prepared for a quick and effective response than we were. However, please note that while the logic given above sounds reasonable, there is no scientific evidence to support it. It is

only a series of best guesses. The message remains - **DON'T PANIC!**

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RABIES IN THE AMERICAS - 1995 SUMMARY

This meeting was held 24 - 27 October 1995 in Merida, the capital of the State of Yucatan in Mexico. The meeting was well attended, but, as you should expect, there were more attendees from Mexico and other latin American countries, and fewer North Americans than last year.

I learned a great deal about the rabies situation in Mexico. There were presentations from the Health Departments of most of the Mexican states, and all pointed in the same direction: the Mexican federal government's campaign to vaccinate dogs against rabies is having real effects. In 1990 there were over 15,000 laboratory confirmed rabid dogs, but in 1994, that had been reduced to just over 5,000. The annual average of human deaths for 1980-89 was 293. Recent totals are 1990 - 251, 1991 - 212, 1992 - 224, 1993 - 215, 1994 - 144. Even these figures showed that progress is being made. However, there were some much more interesting figures. A rough estimate was that, for every 40 people bitten by dogs, only 1 starts post-exposure treatment, but over 80% of those who started treatment finished the WHO recommended course of injections. Of 140 people who died in 1994, only one sought treatment. That means that the largest remaining problem is one of public education. Communicating is especially difficult because children under 14 are the group most vulnerable to dog bites, and both dogs and children are mostly unsupervised.

Human deaths due to vampire bat rabies are becoming more prominent in Mexico as dog rabies is brought under control. The basic problem is

that, where vampires are common, many people are bitten, but most of the bats are not rabid. Therefore, people do not seek treatment until it is too late.

There have been at least four cases of extended survival of rabies victims when modern treatment was administered too late. In at least one case, vaccination did not begin until after the diagnosis of clinical rabies had been made. However, these are perhaps not good news cases, as all four suffered severe neurological problems, and eventually died. One child survived for 2 years and 10 months.

A number of papers indicated that Mexico is making real progress in setting up modern laboratories which use the most modern tools for diagnosis of rabies and typing virus.

Perhaps the most interesting paper from North America was by Jean Smith of CDC, Atlanta. She explored the management implications of recent work in typing rabies virus strains. There were 6 human death to rabies in the U.S.A. during 1994, the highest annual total for over 20 years. Of 27 recent human deaths in the U.S.A., 10 infections were incurred outside the country, and 17 domestically. Of the 17 domestic infections, only 3 came from terrestrial vectors, two from the coyote/dog strain in south Texas and one from a skunk. The remaining 14 cases were of bat origin. Three of those were Mexican free-tailed bat strain, 2 were a strain found in *Myotis* bats in the western U.S., and the other 9 came from the silver-haired bat, *Lasionycteris noctivagans*. The worrisome points of a majority of cases is that there was no obvious contact with a bat. In one of the *Myotis* cases, a six-year-old girl complained to her mother that there was a bat in her bedroom: a month later the girl developed rabies. In the case of a teenaged girl in Connecticut, her brother remembered that there had been a bat in her bedroom. Based on these problems, CDC now recommends post-exposure treatment

for anyone who knows they have been in the same room as a bat, unless the bat is tested for rabies and proves to be negative.

On another tack, Dr. Smith noted that coyotes are common, and locally abundant, through most of the U.S.A., and that therefore the coyote strain of rabies might have the potential to spread as far north as Canada. It has already been spread to Alabama and Florida by transport of coyotes for hunting purposes, although fortunately both small outbreaks were contained before the disease got into wild coyotes. Given the two recent human deaths in Texas due to this strain, coyote rabies might be a more serious problem than raccoon rabies. She suggested that states north of Texas should be thinking of helping to stop this strain.

There was a very interesting report from California, where rabies is now spread by foxes more than skunks in three northwestern counties. This is identified as northern Mississippi skunk strain by monoclonal antibodies, but is distinctly identifiable by RNA sequencing. This situation has developed since 1990, and may represent the start of a new strain, skunk rabies adapted to passage by foxes.

There were few major developments in vaccination of wildlife since last year's conference. The Massachusetts trial continues, and has so far successfully excluded raccoon rabies from the Cape Cod Peninsula. There was a one-county baiting against raccoon rabies in Florida during 1995, but no-one from the project attended the conference, so details were lacking. There was no update on the Cape May trial in New Jersey. The Texas campaign against coyote rabies appears successful, although it is too early to be sure that the results are due to baiting. At least the advance of the front was only 5 miles in the ten months since the baits were dropped, whereas in previous years it moved at about 40 miles per year.

Dr Stewart and I had a very enlightening discussion with Jean Smith about the fate of rabies strains growing in the "wrong" species. Dr. Stewart wanted to know if a fox with raccoon strain rabies appearing ahead of the raccoon rabies front was a serious agent of faster spread. I wanted to know what happens when raccoon strain virus is passaged repeatedly in foxes. There is no definitive answer to Dr. Stewart's question. Dr. Smith stated, however, that raccoon strain could not be passaged serially in other species. For example, a fox infected by virus from a raccoon will develop rabies, and have virus in the saliva. That saliva can be used to infect a second fox, although not every attempt will succeed. The second fox will probably not produce virus in the saliva. Brain material taken from it will probably not succeed in passing the infection when injected intracerebrally into a third fox. That sequence is remarkably similar to the report by Lawson and Black in the early 1970's, when they tried to passage ERA vaccine virus from mouse to mouse.

Overall it was a good conference, with many interesting papers. The local committee provided simultaneous translation between english and spanish, without which we Norteamericanos would have been unable to follow most of the papers. It worked well. The conference also included visits to folk singing and dancing groups, and to the famous Mayan ruins near Merida. It also included a meal at a restaurant in part of an estate hacienda, built by the hemp trade, and now a national historic site because the owners could not afford to maintain it when the rope industry collapsed in the 1930's. These events really gave us visitors a crash course in local culture, and everyone I talked to was very enthusiastic. The local food was excellent, and everyone made at least one visit to the market area in the center of Merida. Did you know that

Merida, capital of Yucatan state, has a population close to a million?

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BAITING DIARY '95

Sunday, 17 September Three aircraft and most of the baiting crew arrived in Stratford. We thank all the staff of the Air Service for getting us three planes, given that August was a month of big fires and busy aircraft. The afternoon and evening were taken up with orientation and training. A major change this year was that the bait machines were fitted into all the aircraft during maintenance checks at Sault St. Marie. In past years fitting those machines has taken most of the first day. This year's planes were C-GOGC from Sudbury (Neil Ayers, Eldon Germain and Berj Sailian), C-GOGB, normally from Sioux Lookout, with the Thunder Bay crew of John Harding, Ken Stirrett and Marc Benoit, and C-FOPJ from Timmins (Al Quinn, Pete Crosby and Dave Russell). The Thunder Bay crew traded aircraft because their ship, OGA, was due for major maintenance, and because OGB was already on wheels.

Monday the 18th A fine day it was for the start, with bright sun and not much wind. There were a few mechanical problems early in the morning, but each plane got in three flights. All the work was on the flight line spacing experiment, using ISM baits.

Tuesday the 19th Another beautiful and very productive day. A total of 11 flights went out. It became obvious late in the day that there was a glitch in the new flight plan software, as all aircraft were bringing back up to 30% of the baits assigned. Adjustments were made.

Wednesday the 20th Stratford is renowned for rainy days. Pete Crosby took OPJ up to the Collingwood area in mid-day, and dropped a full load of

baits, but his report plus the forecasts washed out the rest of the day.

Thursday the 21st The day dawned cloudy and foggy. By mid-morning a few hints of sun dispelled the ground fog, and all planes took to the air at 11:00. Visibility was fine at ground level, but ceiling was below 1000 feet. The last two flights of the day ran into low cloud. Eldon in OGC got base Borden covered, but had to give up the rest of his flight. Ken in OGB got half way to Collingwood, but when he was down to 220 feet and still seeing the clouds lower ahead, he turned for home.

Friday the 22nd Friday was another slow start. There is a woodlot which you can see from the Stratford terminal, off the end of runway 35, which is one mile away. When you can just see its shadow in the fog, it's not flying weather at all. When you can see the bush, but not the trees, flying is marginal. It was noon before we could make out individual trees. But then the weather improved quickly as a cold front came through. Well, for pilots it improved, but for the loading crews it was different, as the front brought stiff west winds, which made the flying rough, and drained the white bag supply. However, we did get six flights done.

Saturday the 23rd. This was the day we all dream about. It was clear, sunny, cold and still. Each aircraft logged more than nine hours in the air, and we broke the back of baiting western Ontario. This was also the day when crews traded positions from plane to plane so that as many as possible could fly over their homes.

Sunday the 24th. The last day of baiting. That even included five extra flights. While we were getting the new bait line programs worked in early in the week, not enough baits were dropped. Since there was an active rabies outbreak in Grey and Bruce, we dropped the extra baits there, hopefully to hasten the end of that focus of cases.

Monday the 25th This was cleanup day, when we restored the Stratford terminal to its normal state, with the operations room looking like a flight school again. I asked the squad to make sure there was no scotch tape left on the walls, and they cleaned up so thoroughly that they even took a flight school exercise off the wall. By afternoon I was back in the office for the week.

Friday 29 September. This was the day most people arrived at Irvine Lake. By the time I arrived, just before midnight, the airbase was all set up and ready for the morning.

Saturday and Sunday This was fall weather as it was supposed to be. Warm, sunny and still. Sunday the ground fog held up flights for about an hour, but otherwise we baited full blast for two days, and finished most of the non-Quebec parts of eastern Ontario, plus all of central Ontario. There were two interesting incidents on the weekend. On Saturday, as OGB took off for its second flight, pilot John Harding thought that the ground crew had not filled the aft main tank. As he and I were looking at the gauge, it began to smoke. John felt the glass face, and found it hot. We returned to Irvine, the first time in seven years that a plane has returned because of aircraft malfunction. We took off again an hour later, only to find that the navigator panel was not functioning, so back we went to change that. Even with the two hour delay, OGB finished three full flights that day. On Sunday, OPJ and OGB were flying different flights, with different maps, but soon realised that they were covering the same area. Both navigators took notes, after several radio conversations, and gave these to the experts to sort out.

Monday, 2 October Despite the forecast yesterday, this started as a beautiful warm day. A few clouds in the morning, but all aircraft were in the air by 08:05. Canada geese migrating overhead for the second day in a row.

Tuesday, 3 October The wonderful weather continued. Trouble was, there was no flying left to do except in Quebec. That could not start until after a news conference at Gatineau Airport on Wednesday. The forecast was ominous.

Wednesday, 4 October Damn! The forecasters were right! The day began with rain and fog. Finally, at 10:00, OGC left Irvine Lake for Gatineau flying IFR, and got to the news conference about an hour late. However, we had a very good session with the two TV reporters who stayed. Jane and I gave a briefing to a group of Quebec Public Health people. They were very interested in the program, and asked excellent questions. Quebec wanted to have an observer on each flight, and had not realized that there would be three aircraft involved. They adapted quickly, and arranged to have three observers arrive at Irvine Lake early on Thursday.

In early afternoon the two aircraft at Irvine Lake tried to get out baiting. However, the first plane off found that hilltops were still in the clouds, and came back to base. The second ship was warming up on the ground, waiting for "the word". When they heard, they taxied back to the parking area.

Thursday, 5 October Everything went well on Thursday. The weather was cloudy, but the ceiling stayed up, and the visibility was good. However, the remains of Hurricane Opal were predicted to arrive during the night, so everyone pushed to get the eight flights done. Then there were a few extra baits, so a fill-in flight went up to redo areas where previous flights had had troubles. The aircraft all left for Sudbury after the last baits were out. It was a good thing they did, because the night was very windy, with heavy rain which continued well into Friday. In previous years we have cleaned out the aircraft and taken the bait machines back to Maple. This year the machines were still needed for New York, and the Air Service volunteered to do the cleanup,

including thorough checks of the machines. That helped get the aircraft on their way home ahead of Opal! We packed up and left for Thanksgiving weekend on Friday.

Friday, 13 October There was something ominous about starting the first major bait drops in New York State on Friday the 13th, but the actual start was delayed until Saturday by bait delivery problems. The two Twin Otters, OGB and OPJ flew from Sudbury to Watertown on Friday. OGB stopped by Buttonville to pick up Craig Chaytor and myself. The flight down was interesting, as we flew right over the Scarborough T-V-R study area on the way out. Craig pointed out good trapping areas, the rendezvous site for processing raccoons, and a lot of other landmarks, and I managed to get some nice slides. Friday was a beautiful day, the last of Indian Summer.

Laura Bigler of Cornell designed the experiments, and organized the overall operation and cooperation. She had the worst time on Friday the 13th, as she picked up baits from Ayerst in Guelph, and took several hours to get them through U.S. Customs in Buffalo. All her paperwork was in order, except for the truck manifest. She arrived in Watertown about midnight, after the rest of the crew were asleep. And she was up early next morning.

Saturday, 14 October A major weather system moved in during the night. The morning was rainy with low cloud and a building wind. Jean Bilow, the Director of Public Health for Jefferson County laid on a wonderful ground organization. In fact, she had more volunteers than we had spaces in the aircraft. There were public health staff, DEC staff, veterinarians from the surrounding area, DEC staff and trappers. We managed to do one flight a day with each aircraft on each of Saturday, Sunday and Monday, under about the roughest flying conditions I can remember. On the Sunday flight I was sicker than I have ever been. Three

days to do one day's work was not a good record.

Monday, 16 October. Monday we got the job finished out of Watertown, with some difficulty. The last load of baits took two tries to drop, as a bad patch of rain moved across the area. Both aircraft flew to Niagara Falls, New York in late afternoon. The weather was improving!

Tuesday, 17 October The Niagara County area needed only four flights to complete, and we were all done by afternoon, including a short press and VIP flight. Jim Devald and staff of the Niagara County Health Department had the ground and flight crew duties well organized, and the whole operation ran quickly and smoothly.

Did you know that it takes only about 25 minutes to fly a Twin Otter from Niagara Falls to Buttonville? We finished dropping baits after 15:00, and were unloaded in Canada by 17:30.

Thanks to everyone who contributed to the success of this year's operation. It was the biggest bait drop to date, and came off with fewer glitches than any other.

Charlie MacInnes

Rabies Unit

Ministry of Natural Resources

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: July to September 1995

Animal Type		Fox		Skunk		Other Wildlife		Dog		Cat		Livestock		Total	
County or Area	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		95	94		95	94		95	94		95	94		95	94
Eastern															
Stormont														0	0
Dundas												1		0	0
Glengarry														0	0
Prescott						1							1	0	2
Russell					1	1								1	0
Carleton					2	2	2	1						2	3
Renfrew														0	0
Lanark							1							0	1
Grenville					1	1								1	0
Leeds														0	0
Frontenac														0	0
Lennox-Addington														0	0
Central															
Hastings		1	6			3		1	5					0	2
Prince Edward														0	0
Northumberland		1	1			2			1					0	1
Victoria			2			9				1			3	0	2
Haliburton														0	0
Peterborough		1	6	3	5	11	2	2	3		1			5	9
Durham			10		1	4							3	0	1
York Region			6	2	3	8	2	2		1			1	4	5
Scarborough														0	0
East York														0	0
City of Toronto														0	0
City of York														0	0
North York														0	0
Etobicoke														0	0
Simcoe			2				1	1	3					1	5

Animal Rabies Report: July to September 1995

[illegible]

Animal Rabies Report: July to September 1995

Animal Type	Fox			Skunk			Other Wildlife			Dog			Cat			Livestock			Total		
	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		95	94		95	94		95	94		95	94		95	94		95	94		95	94
County or Area																					
Thunder Bay																					
Rainy River																					
Kenora																					
Subtotals																					
Eastern																					
Central		3	33	5	11	37	1	4	4	3											
Western	33	47	108	15	39	30	30	1	1	6			2	2	4	16	8	22	35	59	113
Southern	30	50	80	7	13	22	22	2	2	6	1	3	6	1	5	17	2	18	28	43	91
Northern			7																		
Totals	63	100	228	27	63	90	90	12	13	27	1	4	13	3	10	34	10	41	82	116	231
																					474

Livestock this quarter: 10 cattle; 1 horse

Other wildlife this quarter: 13 big brown bats

