

The Rabies Reporter

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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 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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Rabies in the Fourth Quarter and a Review of Rabies in 2003

The final quarter of 2003 was very quiet with only 22 cases bringing the total for the year to 122. This makes 2003 the fourth lowest year for total rabies cases. It was also a record setting year with both record highs and record lows.

For the second consecutive quarter, there were no confirmed cases of raccoon strain rabies in Ontario. This is great news as this case-free stretch has extended to March 1. Traditionally, the peak number of cases appears in the late winter/early spring as a result of increased inter-animal contact during the mating season. Although the 2003 total of 16 cases is only slightly lower than the 2002 total of 19, the extended absence of cases is an optimistic sign.

Of the 22 fourth quarter cases, exactly half were bats. This brings the 2003 total to 74 bats (one higher than the record-setting high of 2002). In 2002, there were also three non-bat animals which were infected with bat strain of rabies. In 2003, there was only one fox infected with bat strain of rabies. Typically, there are a couple of non-bat animals infected with the bat strain of rabies each year.

The rabid bats were fairly evenly distributed throughout Ontario with 16 cases in eastern Ontario, 16 in central Ontario, 13 in western Ontario and 27 in southern Ontario.

There has been a slow but steady increase in the number of rabid bats over the past several years. Although the cause of this increase is unknown, it could be due to several factors including increased awareness of rabies and increased media coverage. Interestingly, while the number of rabid bats has increased, the percentage of submitted bats which are rabid has not increased significantly. This is an indication that there are not really any more rabid bats

now than there has been in the past. People are just more aware of bats and rabies.

Another record for the year was the number of animals infected with arctic fox strain of rabies. There were only two rabid foxes and nine skunks during the last three months of 2003. These were restricted to western Ontario and Simcoe county (which borders western Ontario). The four rabid foxes (with arctic fox strain) in 2003, is also a record low. There were also four rabid foxes in 1998 making these the only two years with less than ten rabid foxes.

For all of 2003, there were only 34 animals infected with arctic fox strain of rabies. The previous lowest year was in 1998 when there were 49 animals infected with the arctic fox strain. Even if you exclude the animals from northern Ontario in 2002, there were still 57 cases of arctic fox strain of rabies. This is a remarkable feat. Prior to aerial baiting, the average annual number of cases in terrestrial species was approximately 1,500. This is a decrease of almost 98%.

Although the number of domestic and livestock animals which are infected with rabies is low, these animals can be an indication that wild animals which are infected with rabies are being missed during regular surveillance. A prime example of this is the goat in Victoria county which was infected with arctic fox strain of rabies. This was unexpected since no other animal in central Ontario had been discovered with arctic fox strain of rabies in approximately two years.

With continued aerial baiting and trap-vaccinate-release programs, 2004 may have even more record lows!

Beverly Stevenson
RRDU
Peterborough, ON

Baiting 2003 - The Best Laid Plans Go Totally Astray

After a lot of careful planning, a schedule was developed for consecutive baiting to occur in Brockville, Ontario; Houlton, Maine; Newport, Vermont; Ogdensburg, New York; Niagara, New York; Dunkirk, New York; and Stratford, Ontario. All staff were to arrive in Brockville on August 17th and begin baiting with two aircraft the following day. The third aircraft would arrive after some routine maintenance was completed and the bait machine was installed.

Brockville baiting should be completed by the 21st and staff would travel to Houlton, Maine on August 22nd. Maine baiting should be completed by August 24th and we would move to Newport, Vermont to begin baiting on the 25th. Vermont baiting operations should also be completed within two days. From there, we would shift operations to Ogdensburg, New York on August 28th. By September 1st, we would complete the baiting in Ogdensburg and would move to Stratford, Ontario for baiting on September 2nd. Another two days would complete Stratford baiting. On September 5th we would move to and complete baiting in Niagara Falls, New York. The next day would finish the baiting in Dunkirk, New York. On September 7th, the aircraft would move to Ohio and baiting in Ohio and West Virginia would be completed from September 8th – 29th. By September 30th, all staff would have returned home.

We should have known that things weren't going to go according to plan when the big blackout occurred on August 14. With much of Ontario and the northeastern United States trying to conserve electricity to prevent even more power outages, we were uncertain how baiting would proceed. If the power failed at the airport we were working out of, we would not have radio coverage for flight watch and we

probably wouldn't be able to refuel the planes. While most of the rest of the Ontario government took a few days off to help conserve electricity, the baiting staff remained on the job.

On August 17, the baiting staff enthusiastically arrived in Brockville, Ontario to begin the fall baiting programs. We had a very busy schedule and we wanted to stick to it. Although the schedule did include weather delays, we wanted to complete as much of the baiting as possible before we encountered any problems.

The fantastic weather on August 18 was one of the few things that was in our favour. One of the very first flights flew directly over a prison. Although hazards are marked on our flight maps, we have not marked prisons on them. Before September 11, this had not been an issue.

One of the aircraft, OGA, had also developed a fuel leak. The engineers investigated the leak and thought they had fixed the problem. After a slow

start, we managed to distribute just over 175,000 baits with two aircraft.

August 19 dawned with an incredible sunrise and our enthusiasm was still holding. OGA was still leaking fuel and the engineers decided to send the aircraft home so the fuel bladder could be replaced. With only one aircraft and enough baiting staff for three aircraft, we had plenty of time to cheer OPJ on. Our enthusiasm quickly disappeared when OPJ radioed that they were landing at another airport. A rubber slush guard seal had come apart and the end of the seal was banging on the bottom of the aircraft. The baiting crew could hear something hitting the bottom of the aircraft but they weren't sure what the problem was so the pilot decided to land. The pilot fixed the seal by cutting the protruding part off with a knife and they resumed their flight. We distributed a disappointing 145,000 baits that day. (This was still a good day compared to what lay ahead of us.)

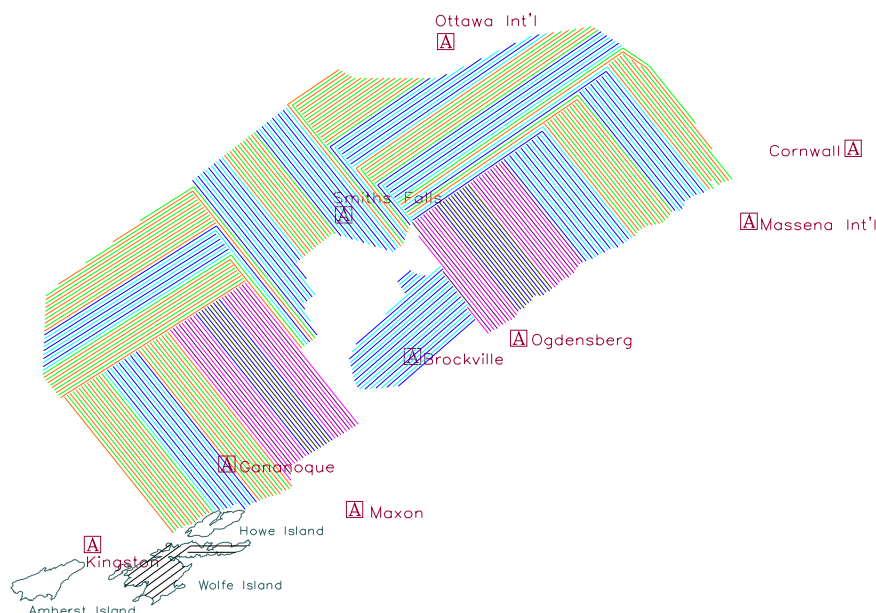


Figure 1. Baited area in eastern Ontario. Baits contained VRG vaccine to control the raccoon strain of rabies.

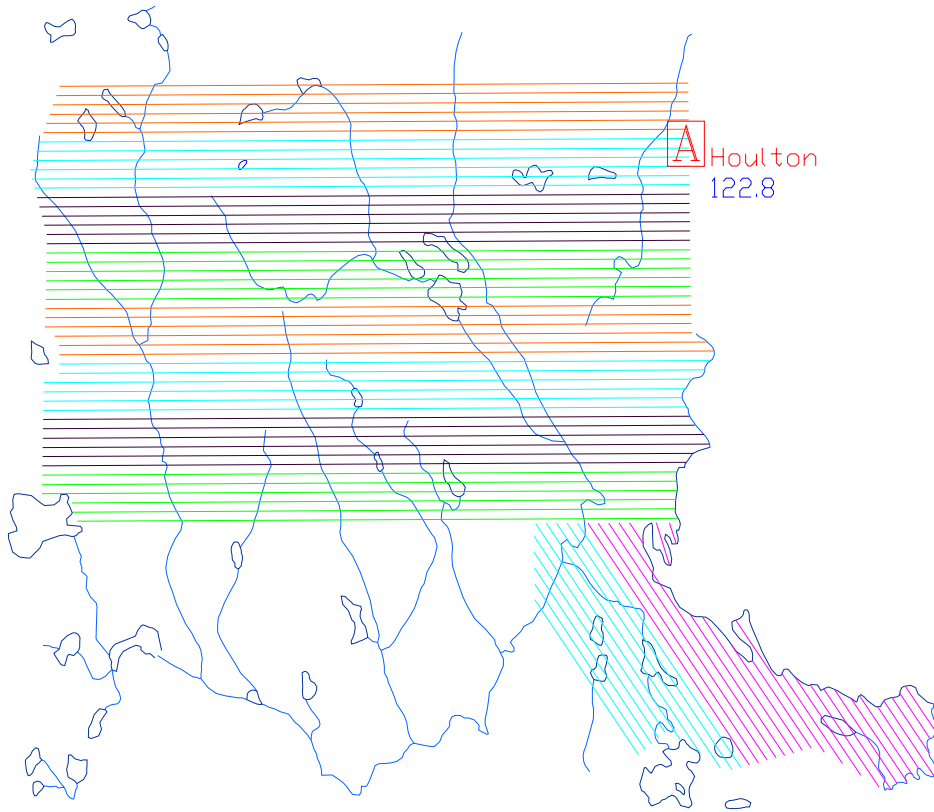


Figure 2. Baited area in Maine adjacent to the New Brunswick border. Baits contained VRG vaccine to control the raccoon strain of rabies.

August 20 and still only one aircraft. Fortunately, the weather (although turbulent) was flyable. OPJ distributed more than 110,000 baits.

August 21, the day we were supposed to complete baiting in eastern Ontario, was also productive. OPJ distributed about 130,000 baits.

August 22 dawned with only one flight left to complete in Brockville. The baiting crew would complete the lone flight and then fly to Houlton, Maine. While they were finishing in eastern Ontario, the remainder of the crew would drive to Maine and hopefully leave our problems behind us.

OGA, although expected to return within a couple of days, had still not returned. The new fuel bladder which was delivered did not have the special modifications that were required. All of the fuel bladders which had the modifications were currently installed in other aircraft. The engineers were now forced to salvage a fuel bladder

from a downed twin otter. OGA would arrive in Brockville just in time to

travel to Maine.

With two aircraft, we were ready to do some serious baiting. We should have known that things were going too well. A cold front was moving into the area and none of the volunteers appreciated the turbulent flying weather that resulted. Although some lines had to be aborted due to the weather, we still managed to distribute over 210,000 baits. To celebrate, some of the baiters went to a local seafood restaurant and three of them wound up ill from eating bad scallops.

August 24 and we were keen to finish the flights in Maine and proceed to Vermont. Although the drive from eastern Ontario to Maine had seemed long we found a few surprises on the way to Vermont. We didn't realize that we would have to drive through Dryden, Mexico, Peru and Santa's Village to get to Vermont.

August 25 and we finally had three aircraft. We could make real progress now. OPG departed on its first flight and returned without dropping any baits. OPG is wired differently from the other aircraft so the bait machine had inadvertently been

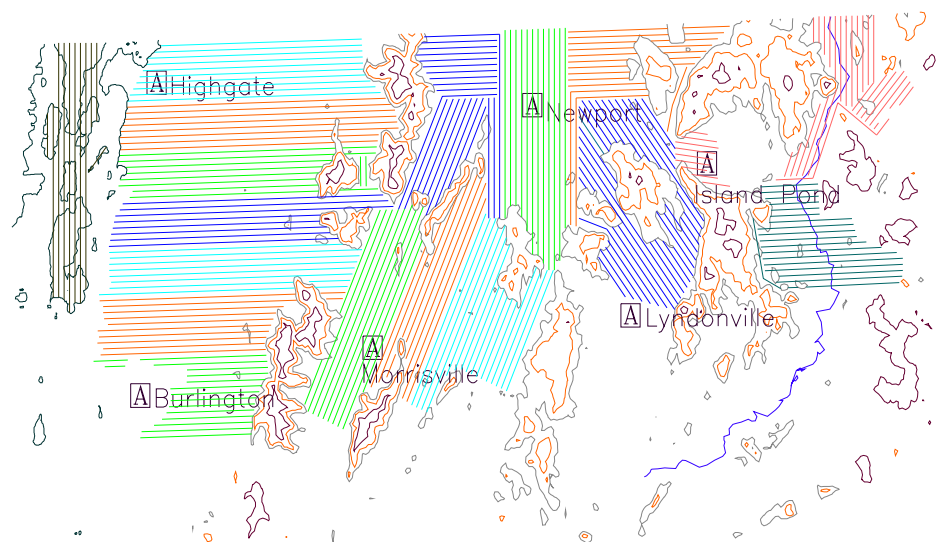


Figure 3. Baited area in Vermont. Baits contained VRG vaccine to control the raccoon strain of rabies.

plugged into the wrong power source. This wasn't apparent on the ground because there is a battery backup on the computer. The battery power lasted until we were almost at the first waypoint! Another aircraft aborted their flight because a fuel sensor light was on. By the time all of the mechanical glitches were sorted out, the weather had turned on us. One flight was aborted after two lines and the remainder of the days flying was scrubbed. All three aircraft only dropped about 93,000 baits!

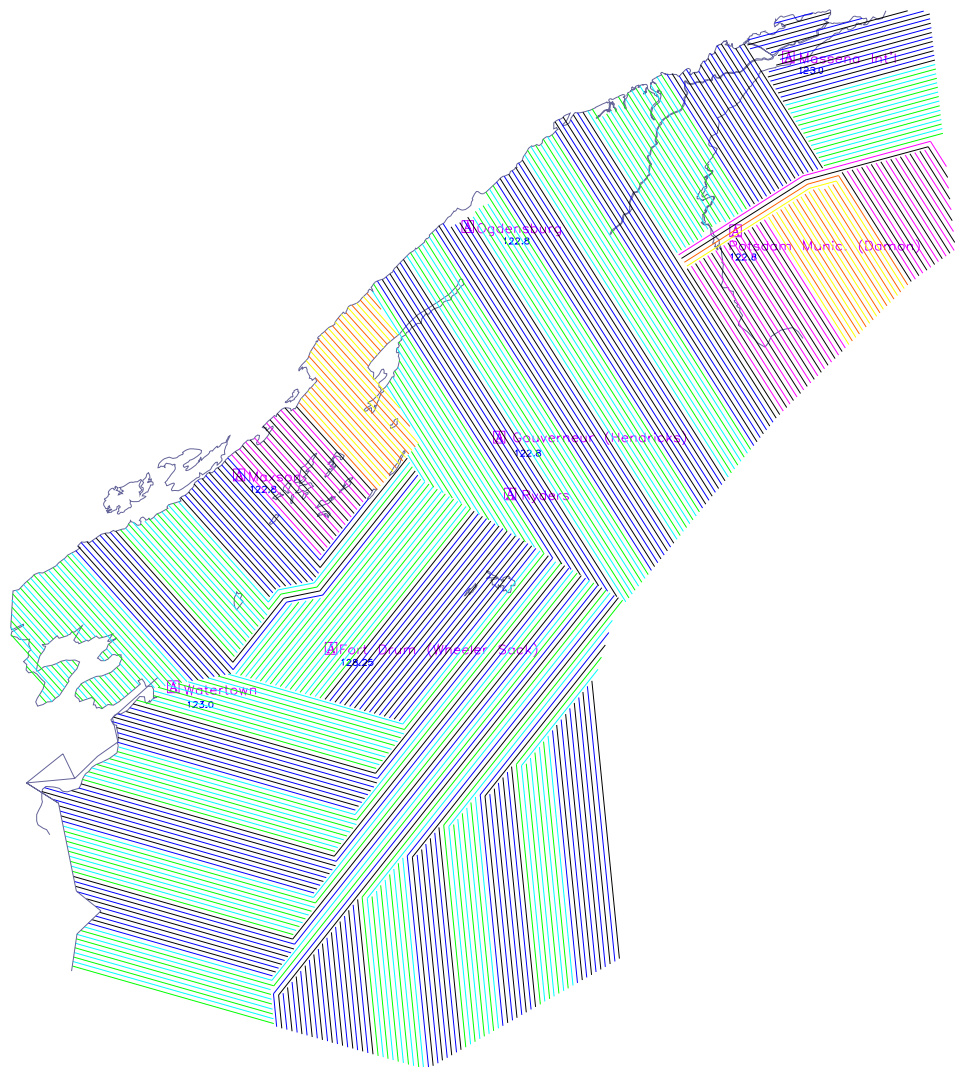
August 26 still had dismal skies. The flights departed at 8:00 a.m. and returned 15 minutes later. Another aborted attempt at flights in the morning and we settled for lunch. One aircraft had now attempted baiting three times without actually completing a flight. After lunch, the weather cleared and the second shift of pilots decided to try their luck. I accompanied a pilot who was new to the baiting program so I could train him on the baiting electronics. Because it was his initial flight with baiting, he assumed that the aircraft were only given enough fuel to complete the flight. After

all, this is how it is done on fire (his normal job). As navigator, it is not part of my responsibility to check the fuel gauges prior to take-off. With the best weather we had seen in a while, we had to abort our flight due to insufficient fuel. Fortunately, the aircraft on the flight beside us had sufficient baits to complete the flight for us so an extra flight was not necessary. We distributed just over 175,000 baits that day.

August 27 and we only had one flight left to complete in Vermont. OGA had redeveloped a fuel leak and was being sent home again. We moved

▲ Fulton (Oswego Co.)

Figure 4. Baited area in St. Lawrence region of New York state. Baits contained VRG vaccine to control the raccoon strain of rabies.



to Ogdensburg, New York and in order to make up some lost time, decided to begin baiting immediately. We managed to distribute almost 126,000 baits in Ogdensburg.

August 28 started off with a nice sunrise. This seems to be a bad omen for baiting. We did distribute just over 151,000 baits before we called it a day because of inclement weather.

August 29 had even worse weather in store for us. OPJ aborted its' second flight halfway through because of incoming thunderstorms. OPG was unable to return to Ogdensburg before the

bad weather hit and they were forced to land in Watertown. The cell phones came in handy when we were able to call the pilot at Watertown to let him know that there was a window of clear weather at Ogdensburg. There also happened to be a window at Watertown so the crew were able to return to Ogdensburg without having to find rooms for the night in Watertown. Both aircraft distributed a paltry 39,000 baits for the day.

August 30 seemed like a godsend. We were able to bait for the entire day and distributed 218,000 baits.

August 31 was another good day. Two in a row was almost unbelievable. OPG did abort one flight because the crew could smell smoke in the aircraft but this proved to be a short delay. Over 230,000 baits were distributed.

On September 1, we completed baiting in Ogdensburg and moved to Dunkirk, New York to begin baiting the next day.

September 2 had more inclement weather in store for us. Our bad luck was starting to spread. The local organizers were planning on providing Kentucky Fried Chicken for our lunch but the restaurant had run out of chicken!! We had more weather delays in the morning and had to call it a day early because of bad weather. Only 49,000 baits were distributed.

September 3 dawned and we were heading to Niagara Falls to start and finish baiting in that region. The humidity and turbulence were high but we managed to complete all of the Niagara region flights and distributed about 194,000 baits.

September 4 dawned. At least we think it did but with all of the fog, it was hard to see anything. We did manage to drop the final 114,000 baits and we had plenty of time to take group photos while we were waiting for the weather to improve.

Other than not even beginning the baiting in southwestern Ontario, we were close to being on schedule.

On September 5, the baiting crews returned to Peterborough and the aircraft proceeded to Ohio for their baiting program. The aircraft would return to Ontario on October 8 to begin baiting there.

October 9 dawned clear in Kitchener where we were staying. However, the airport in Stratford that we were working out of was fogged in. Two

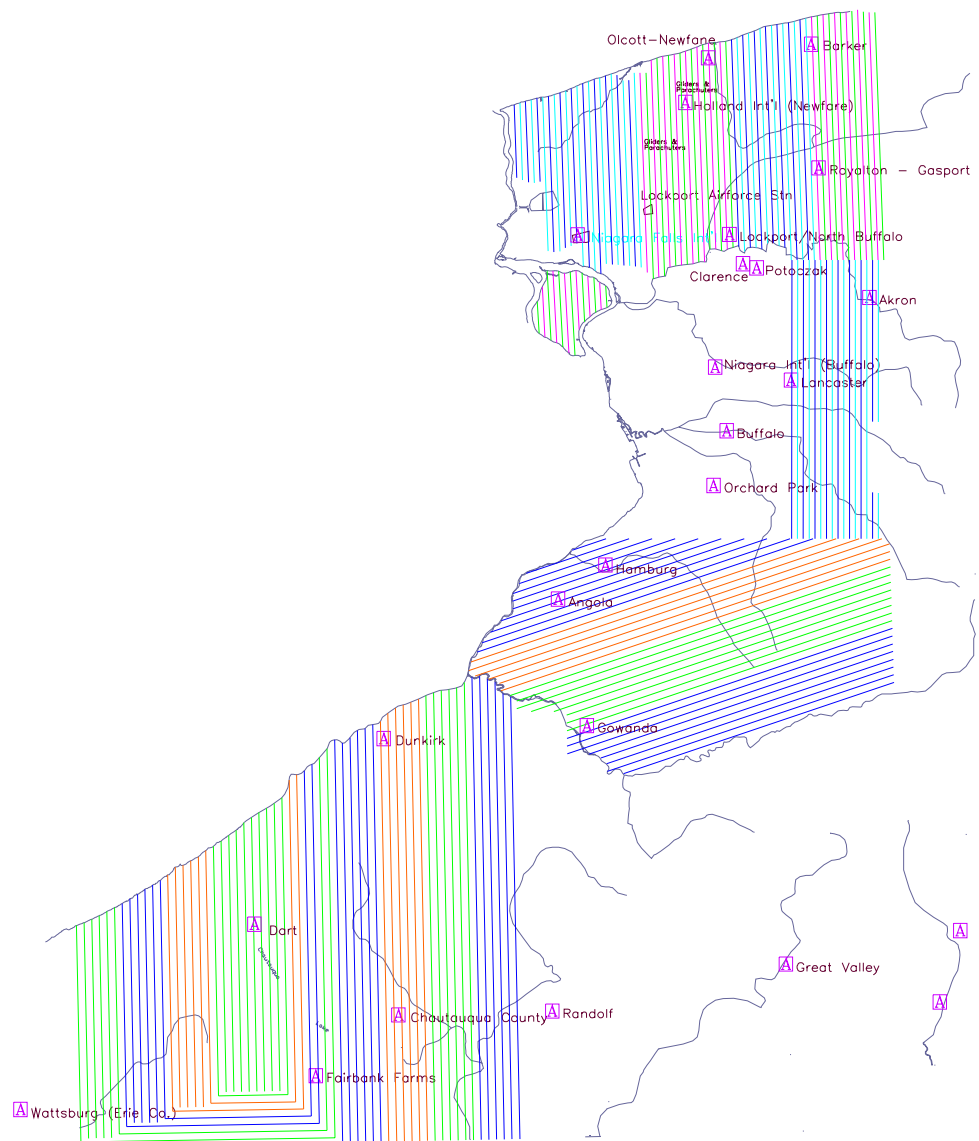


Figure 5. Baited area in Niagara and Dunkirk region of New York state. Baits contained VRG vaccine to control the raccoon strain of rabies.

aircraft only managed to distribute 121,00 baits.

October 10 was very similar to the previous day. Scheduling volunteers was proving extremely difficult with the weather delays. Normally, volunteers are told to arrive at the airport about 30 minutes before the flight is supposed to depart so they aren't forced to stand around for hours waiting on their flight. Another 121,000 baits were distributed today.

October 11 was another bad weather day. Flights were delayed until late morning. And for those super-

stitious people, we had a special flight — flight number 13 (which required 13 tubs of baits) departed at 13:13. It was one of the few flights without incident. Only 104,000 baits were dropped today.

October 12 was even worse than the previous days. Despite strong winds, it was still foggy. Flights could not depart until almost noon. Only 63,000 baits were distributed.

October 13 had more fog in store for us but it was the final day of baiting in Stratford. With a very scenic flight on the Bruce Peninsula and a

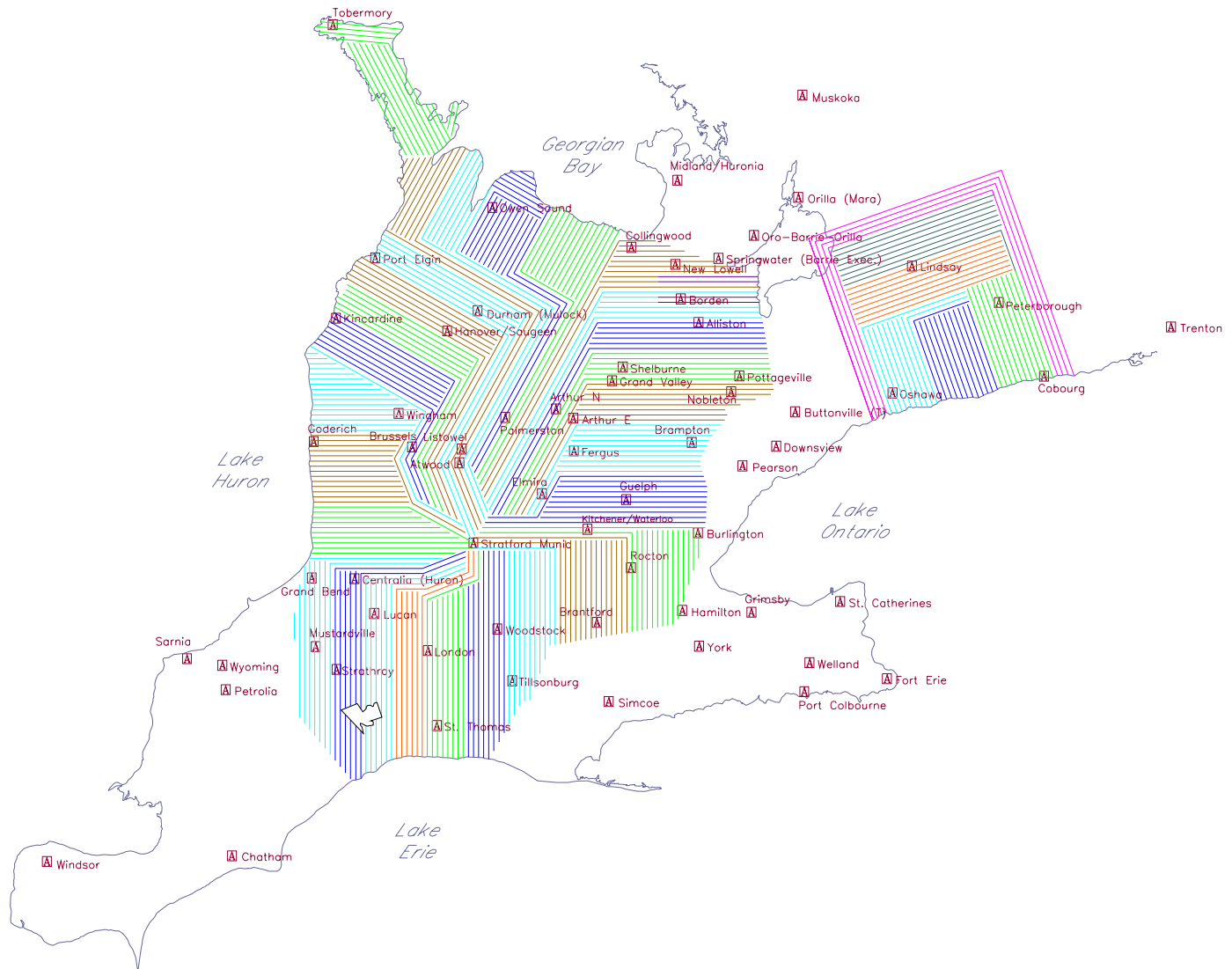


Figure 6. Baited area in southwestern and southcentral Ontario. Baits contained ERA vaccine to control arctic fox strain of rabies.

stop to refuel at Wiarton, we dropped the remainder of the southwestern Ontario baits.

According to the original schedule, we would have been completely finished baiting for the year. Unfortunately, a rabid goat with arctic fox strain of rabies was diagnosed in central Ontario on September 9. We had not planned to bait this area in 2003 because there hadn't been a confirmed case of arctic fox strain of rabies in over two years.

On October 14 we departed Stratford for Peterborough with plans on baiting that day. We hadn't counted on

Peterborough being fogged in. Both aircraft were forced to land in Oshawa and wait for clearer skies. We managed to complete two full flights and distribute 58,000 baits. Most of the short-term baiting staff were sent home. There were only seven flights for the Peterborough area and one of them had been completed from Stratford.

October 15 proved to be our worst day yet. We called it a day without dropping a single bait.

October 16 had slightly improved weather. With skeletal crews, we managed to sneak the final four flights in

before the weather closed in on us once again. The only thing left to do was remove the baiting electronics from the aircraft and load the aircrew's luggage before sending the plane's on their way. Doing this in the rain somehow seemed appropriate!

*Beverly Stevenson
and
Mark Gibson
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Rabies Eradication on the Island of Newfoundland and a Call for a National Rabies Strategy Forum

The Province of Newfoundland and Labrador has predictable outbreaks of red and arctic fox rabies in Labrador with peaks occurring every 4-5 years (1988, 1992, 1996, 2001/02). The first recorded southern movement from Labrador onto the Island of Newfoundland occurred in 1988 when a rabid red fox was found in the community of Roddickton (March 24th) on the Great Northern Peninsula. At that time a fox eradication program was initiated with no further related cases seen after December. The total number of cases was 5 including red and arctic foxes. The extent of the known spread of the disease is shown on the map.

In December 2002, this disease was again diagnosed on the Island of Newfoundland with a first case seen in the community of St. Paul's. Since then, 21 cases have been diagnosed by CFIA including 17 red fox, 3 sheep and one cat, all within an 80 km radius from the first case. As a result of these cases and other potential contacts with animals that were never recovered, 23 people received post-exposure treatment.

In response to this outbreak, an eradication program was established based on the oral vaccine bait technology developed in Ontario. Since the beginning of this program over 600,000 ERA vaccine baits have been dropped by helicopter on the Great Northern Peninsula and adjacent areas (southern limit shown on map). Monitoring for additional cases has not shown any sign of the disease in foxes since April 2003, with over 1,400 animals tested so far. Surveillance will continue until the end of March 2004.

The ability to perform such control with such a low environmental impact is truly remarkable. For this, we would like to thank OMNR for the years of research and development that went

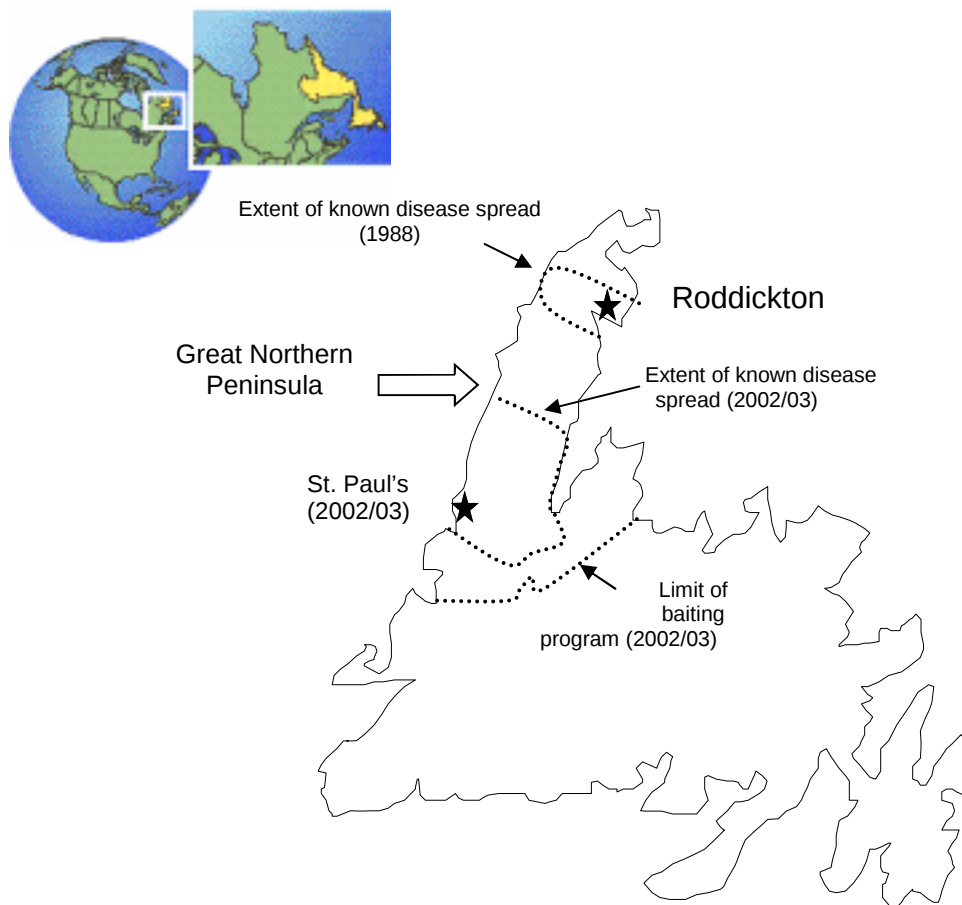


Figure 7. Baited area and limit of known spread of arctic fox strain rabies on the Island of Newfoundland.

into this field. Our own successes are completely due to the expertise that exists within OMNR, CFIA, Artemis Technologies and Johnston Biotech. We would like to thank all of these agencies for their support.

Within Newfoundland this was a good example of problem solving with full interdepartmental government co-operation involving public health, animal health and wildlife staff as well as the federal employees of CFIA and Parks Canada (Gros Morne National Park).

Through our own experience in this program we have realized that there would be value in holding a national forum on rabies strategies for Canada.

We feel that such issues as an inter-provincial agreement on aerial baiting, the creation of a national vaccine bank and an agreement on rabies virus variant typing would be amongst those topics that could be discussed and coordinated. I feel that there is support for such an idea within a number of jurisdictions so would be pleased to discuss with any interested groups or individuals, ways to make this happen.

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Chris Nunan - A Celebration of Life

Chris Nunan arrived at the Wildlife Research Section in 1989. A freshly minted graduate in fisheries sciences at the University of Guelph, Chris saw the light and emerged from the waves into the field of wildlife biology on the dry side of the bank.

It was almost preordained that Chris would opt for a career with the Ministry of Natural Resources. It was bred in the bone. His father, Peter, was a renowned Conservation Officer in the Thunder Bay area. With this family background, Chris developed a love of the outdoors and a passion for learning more about the mysteries of our natural environment. He also inherited his father's physical prowess, energy, focus, and a predilection to question the status quo – a definite asset to the progress of science and the development of the rabies program.

In this respect, Chris was always a source of new ideas (there were many) and he pursued them tenaciously. We soon learned to “read” when something new was on the boil. Seemingly calm on the surface, Chris' demeanor would be betrayed by his body language. Typically he would carefully sit down, take a slow breath, stiffen his back and pull in his chin. And then an interesting and wide-ranging conversation would ensue. In retrospect, his batting average was very respectable – even if it sometimes took him longer to get around the bases than he would have liked.

As I got to know him, I learned yet more about his special qualities: his intense curiosity about the world and his willingness to explore and develop new dimensions to his life. At his retirement event this summer I noted that most people play one or two tunes in life. Chris is a symphony: gardener, passionate reader in many fields, athlete (kayaker, competitive swimmer, martial artist), music aficionado, crafter of origami (it is amazing to watch a

powerful man create delicate and fragile things), gourmet cook – these are only some of the manifestations of his curiosity. Rare among men, Chris exhibits an open vulnerability. Grounded in unbounded strength, this gives him the capacity to be open to new things and experience life as few can. These qualities have served him well in recent years.

In the early 1990's, I well remember a conversation with Charlie MacInnes during the early period of Chris' career. The State of Texas was interested in enlisting the services of the Ministry to distribute rabies baits. It had the potential to be one of the largest commercial contracts ever signed by the Ministry. Charlie and I decided to give Chris his wings and see what he could do. He rose to the challenge and in short order, three yellow birds graced the winter skies of Texas. He and other members of the rabies crew that year were made Honorary Citizens of Texas. Over time, Chris developed into an important and respected member of the international “rabies community”, a real credit to the Rabies Unit and the Province.

It was clear that Chris had great management potential and on this basis, he was assigned as Executive Assistant to Dr. David Balsillie, Assistant Deputy Minister with the Ministry of Natural Resources in 1995.

It was during this time that Chris experienced difficulties with vision and balance – to the point where he checked into Toronto Western Hospital for a battery of inconclusive tests. This uncertainty persisted over the ensuing years and, with his typical curiosity, Chris became extremely well versed in medical testing procedures and autoimmune conditions. He accepted and did not fear his state. On one occasion, he confided that he actually fell asleep in an MRI machine!

Despite this uncertainty, Chris car-

ried on with his rabies work, figuring prominently in the organization of Rabies in the Americas Conferences.

Chris finally retired from the Ontario Government in June 2003 on a medical disability. However, in no way did he retire from his professional life. At present, he is working on five scientific papers with colleagues in the Ministry of Natural Resources, the University of Guelph and the CDC in Atlanta. The topics range from risk-based decision making in the Ontario Oral Vaccination Program to the potential redistribution of wildlife parasites and diseases due to climate change. He is also a co-organizer of the Rabies in the Americas Conference (October 2004) and a volunteer organizer for the Rabies in Eastern Europe Conference, tentatively scheduled for 2005. At the same time, he also founded an Internet company, “Artisans of Mexico”, to bring Mexican artisan handicrafts to Canadians.

Above all, he has maintained his outward looking perspective on life – looking after his own needs - but overwhelmingly driven by his interest in the world about him.

A note to Chris:

You should realize that you are in our thoughts more than you can know. One of the frailties of human society is our seeming inability to communicate thoughts of others as they arise. And if we took the time to compose letters to communicate those thoughts, the postal system would be the prime global enterprise. And in the event that it did, your mailbox would be overflowing.

*Mark Garscadden
Former Manager
Wildlife Research and Development Section*

New York State 2003 Annual Summary

Introduction

In the year 2003 the New York State Rabies Diagnostic Laboratory tested 8236 animals. The New York City Rabies Diagnostic Laboratory tested 566 animals. The 429 animals diagnosed rabid in 2003 was 20% less than the average yearly total for the five years ending in 2002, and 42% fewer than the number in 2002 (732). A large decrease in 2003 terrestrial rabies cases was responsible for this observed change. Rabies cases in terrestrial animals in 2003 was 49% (297/577) fewer than the previous year and a 61% decrease (297/771) over the annual average for the previous five years. Forty of the fifty seven counties in New York State (excluding NY city) had fewer rabid terrestrial animals, eight counties saw an increase and nine counties saw no change in terrestrial rabies cases, as compared to the previous year. The 198 rabid raccoons in 2003 was the smallest number diagnosed in New York State since 1990, the first year that the raccoon epizootic entered the state. However, the disease remains enzootic in the vast majority of the counties in New York State. In 2003, the disease was confirmed in raccoons in 43 of the 62 counties, including Bronx County. The reduction in diagnosed terrestrial cases can in part be explained by a reduction in the submission of raccoons. The 562 raccoons tested for rabies in 2003 is the lowest number tested since 1989 and only 39% of the yearly average for the decade ending in 2003. This may, in some part, be the result of other county mandates accumulating in recent years (SARS, WNV, biodefense initiatives). Additionally, new Federal hazardous material shipping regulation were enacted early in 2003 that required the redesign of shipping containers used for the submission of rabies specimens. These new containers replaced a very familiar shipping pro-

cedure that was in place for over 30 years.

Rabies in Wildlife

Over 50 species of mammals were submitted for rabies diagnosis in 2003. Wild species accounted for 66.5% of all animals tested. The Wadsworth Center rabies laboratory examined animals from every county in New York, including 24 animals from New York City. For the sixth straight year, bats comprised the single largest taxa of animals tested. The 4015 bats tested in 2003 is the second highest yearly total, surpassed only by the 4564 bats tested in the year 2000, and represents 49% of the total specimens tested for the year of 2003. This is evidently following national guidelines requiring increased testing of bats suspected of being in contact with humans. Of the 4015 bats tested for rabies, 42% had some reported contact with either a human or a domestic animal. Most of the remaining bats were found inside a human dwelling and posed a potential exposure to rabies for the inhabitants. The 90 bats found rabid in 2003 represent 2.2% of all bats tested this year. The laboratory also examined 1669 cats (20.2% of all animals tested), 827 dogs (10%), 562 raccoons (6.8%), 260 skunks (3.2%) 109 bovines, 108 foxes, 103 deer and 43 horses. For the first time since 1989 the number of dogs tested exceeded the number of raccoons. Among all animals tested in 2003 the rabies-positivity rate was 5.1%.

Rabid wildlife accounts for 91% (386) of the total rabies cases this year. This consisted of 195 raccoons (50.5% of all rabid wildlife), 90 bats (23.3%), 74 skunks (19.1%), 16 grey foxes (4.1%), 4 woodchucks, 3 red foxes, 2 bobcats, 2 deer, 1 coyote, 1 otter and 1 black bear. The bear was a one year old male black bear from

Orange County. It was found in a YMCA campground and was exhibiting neurological symptoms. The bear was euthanized by gunshot. There were no known animal or human exposures. Antigenic typing of the virus by a panel of monoclonal antibodies identified the virus strain as raccoon virus. There were three raccoons and three skunks diagnosed positive by the New York City Department of Health; all six animals were reported from Bronx County.

Rabies in Domestic Animals

Rabies infection was identified in 35 domestic animals in 2003, including 27 cats, 3 bovines, 2 goats, 1 dog, 1 horse and 1 guinea pig. The rabid guinea pig is an unusually rare occurrence. The guinea pig was a pet of a resident of Madison County. While being allowed to exercise in a backyard during daylight hours the rodent was attacked by a raccoon. The owner heard the pet squeal and as she approached, the raccoon ran off. There were no visible wounds on the pet. Twenty six days later the owner was bitten on the clavicle while holding the pet. Because rabies was originally not suspected, an additional eight days elapsed before the pet was euthanized and submitted for testing. The positive diagnosis was confirmed by isolation of the virus in cell culture and antigenic typing. The variant was identified as the raccoon strain of rabies virus. Further analysis of the distribution of rabies virus in the organs of the guinea pig revealed extensive proliferation of the virus into many areas of the body, including the salivary glands. The owner received rabies prophylaxis.

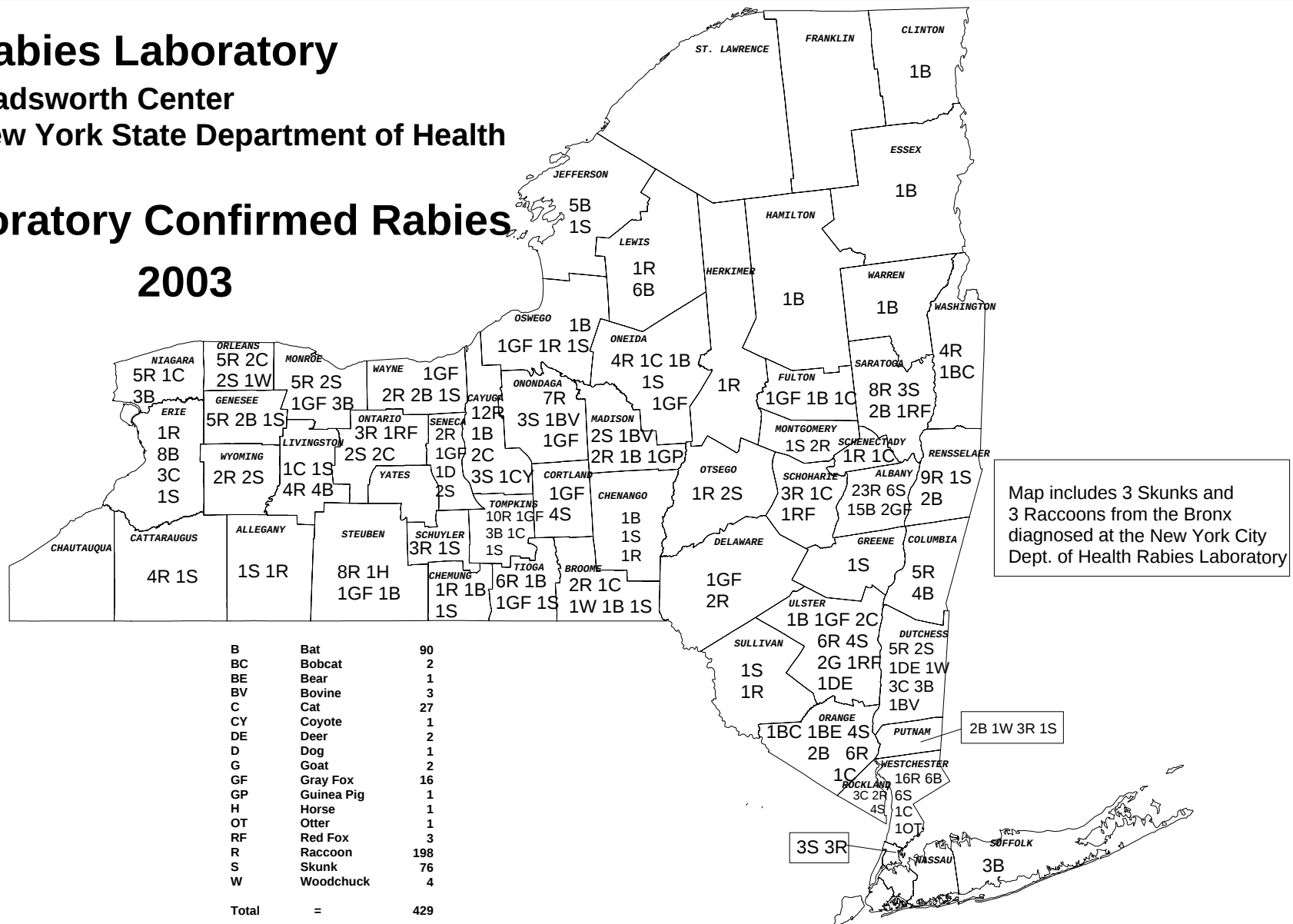
*Chuck Trimarchi
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New York State*

Rabies Laboratory

Wadsworth Center

New York State Department of Health

Laboratory Confirmed Rabies 2003



Keeping Rabies Out of Ohio

Raccoon Rabies and Oral Vaccine

2003 Summary

Rabies is a viral disease that affects animals, people and is virtually 100-percent fatal. In 1997, a new strain of rabies, raccoon rabies, entered northeast Ohio. It created an epidemic of rabies in raccoons and a public health threat to other animals and people. That year, 116 animals were confirmed rabid, of which 62 were associated with the raccoon strain. This compared to a prior five-year average of 11 rabid animals. In 1997, a record 5,321 animals were tested, a 60 percent increase from 1996.

In response, the Ohio Department of Health (ODH), with support of local, state and federal agencies, began using an oral rabies vaccine (ORV, Raboral V-RG ©Merial) along Ohio's Northeast border to vaccinate wild raccoons. By immunizing enough of the wild raccoon population, the disease was controlled, thus reducing rabies exposures to residents, pets, livestock and other wildlife. ORV, in conjunction with other rabies-prevention activities, has been effective in keeping raccoon-strain rabies from spreading through the rest of Ohio and into other Midwestern states. In 2003, there were 53 animals reported positive, with only two cases due to the raccoon strain. Both raccoons were only one mile from the Pennsylvania border.

2003 was the seventh year of the Ohio ORV Program. In 2002, additional states joined the effort to now include Maryland, West Virginia, Pennsylvania, Virginia and Tennessee. This multi-state effort, coordinated by United States Department of Agriculture (USDA) Wildlife Services, is known as the Appalachian Ridge Oral Rabies Vaccination Program. During the fall 2003 Appalachian Ridge operation, more than 4.7 million doses of

rabies vaccine were distributed over 25,000 square miles.

The current immune barrier in Ohio is 3,200 square miles. It runs along the Pennsylvania and West Virginia borders from Lake Erie south along the Ohio River. In 2003, about 638,000 baits were distributed between Sept. 8 and 17.

Baiting

The rabies vaccine packet is inserted into the hollow center of a fishmeal polymer block that is held in place by wax. Raccoons are attracted to the fishmeal and are immunized against rabies when they eat the vaccine packet. Protective immunity lasts for about one year; therefore, revaccination is necessary.

Baits are distributed by aircraft in rural areas or by car in urban/residential areas. The vaccine-laden baits are distributed once a year. The baited area includes all of Ashtabula, Trumbull, Mahoning, Columbiana and Jefferson counties, and parts of Belmont, Carroll, Harrison and Monroe counties. Following the baiting, USDA wildlife biologists trapped and collected blood and tooth samples from 154 raccoons to determine the number successfully vaccinated. Results are pending.

ORV Program Goal

The goal of the Ohio program is to protect Ohioans from raccoon rabies by:

Reducing raccoon-rabies incidence in northeast Ohio and preventing its spread through the rest of the state.

Eliminating raccoon-rabies from Ohio in the long term.

Experience of Other States

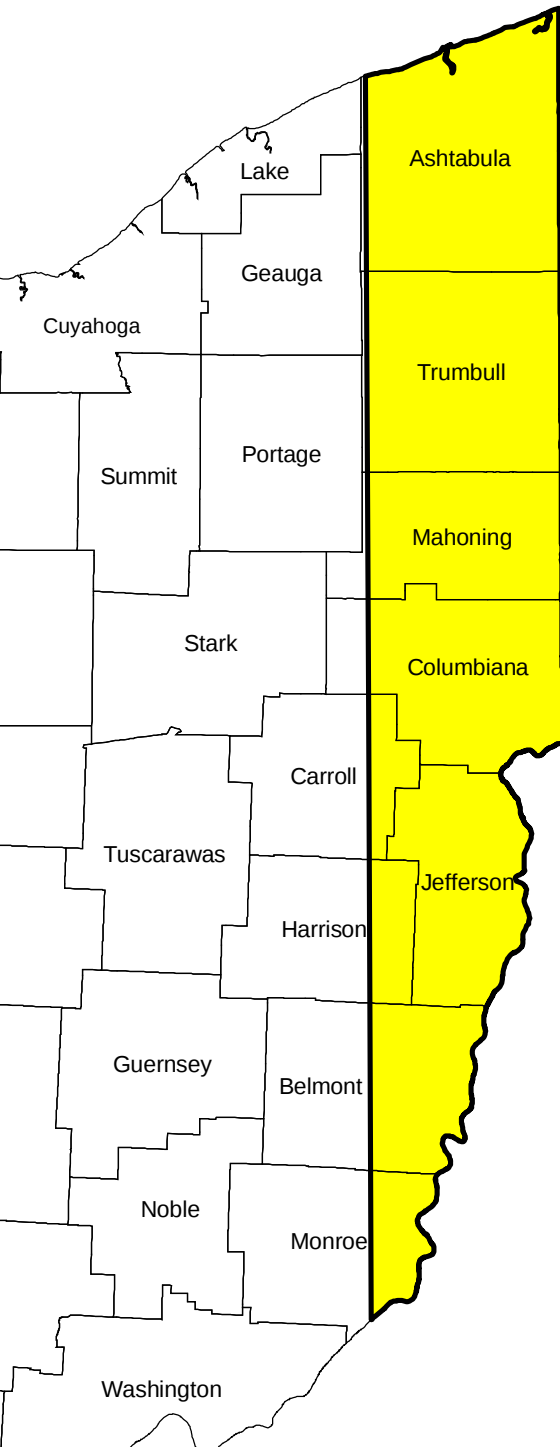
The oral rabies vaccine was not available until 1997. East Coast states that were affected prior to this time had no recourse to deal with raccoon rabies. They experienced severe outbreaks of raccoon rabies that spilled over into a wide variety of animals, especially cats. In 1990, before raccoon rabies hit New York State, officials there reported an average of 50 positive animals per year. In 1992 at the peak of the epizootic (epidemic in animals) New York reported more than 2,700 positive animals. Human exposures requiring rabies post-exposure treatments increased dramatically, from about 100 people a year to more than 3,000 people in 1992. With the average post-exposure treatment costing at least \$1,500 per person, this increased New York's treatment costs by more than \$4 million per year.

Future Plans

As long as there is raccoon rabies in western Pennsylvania and West Virginia, ORV treatments must continue to maintain the immune barrier and to avoid the raccoon rabies outcomes as seen on the East Coast. ODH continues to work closely with other states and federal partners to develop cost-effective, coordinated initiatives.

ODH will need to continue to support local health agency's efforts to maintain public awareness and to conduct on-going surveillance to assure that any possible rabies cases are identified early. Therefore, maintenance of public education and established partnerships will be pivotal as long as the

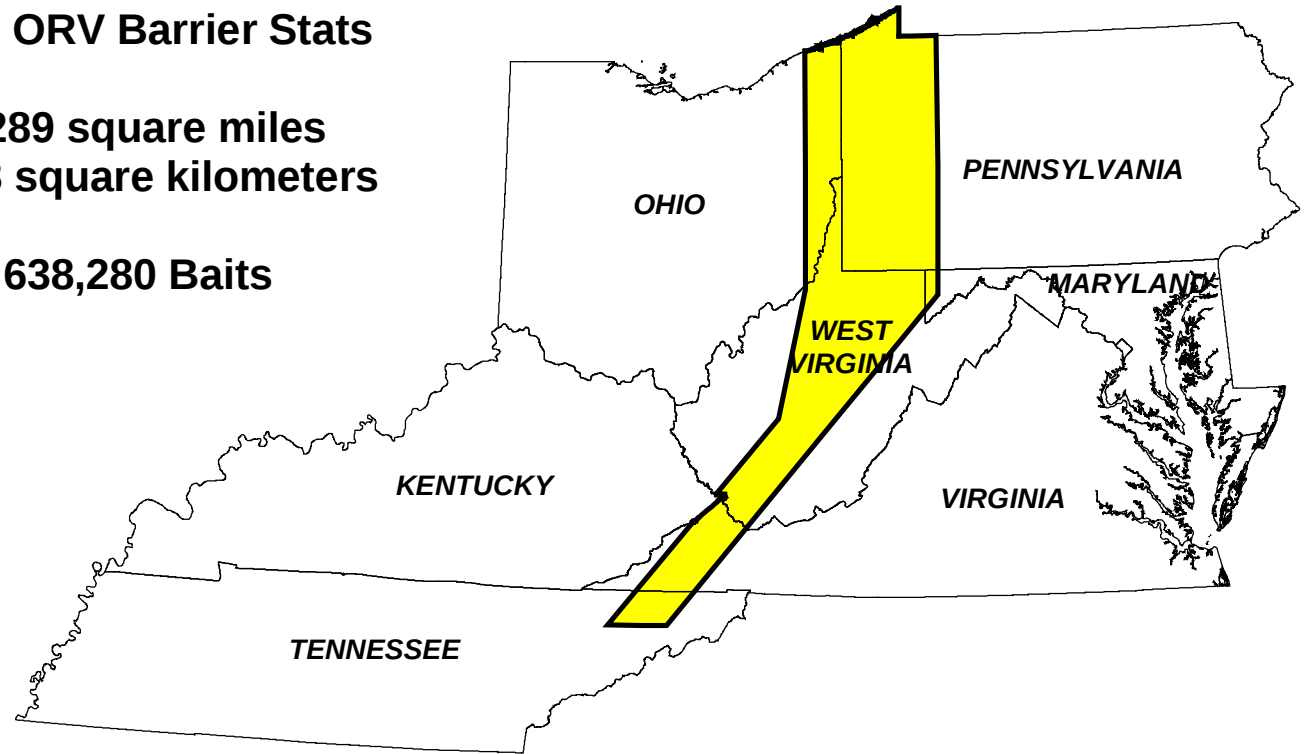
Appalachian Ridge ORV Barrier 2003



Ohio ORV Barrier Stats

3,289 square miles
8,518 square kilometers

638,280 Baits



Appalachian Ridge ORV Barrier Stats

25,428 square miles
65,770 square kilometers

4,708,044 Baits

ORV Facts

- * Ohio's Raccoon-Rabies Prevention Program continues to protect the state against the spread of raccoon rabies.
- * A key to Ohio's success is an Oral Rabies Vaccination (ORV) effort to vaccinate wild raccoons along the Ohio-Pennsylvania border.
- * In 2003, 53 animals tested positive for rabies. Only two were raccoons in Ohio, both only a mile from the Ohio – Pennsylvania border.
- * Continued surveillance and ORV treatments are needed as long as raccoon rabies is endemic in our eastern neighboring states.
- * In 2002, Pennsylvania, West Virginia and Virginia, with USDA support, joined the battle against raccoon rabies.
- * In 2002, Maryland and Tennessee joined what is now known as the Appalachian Ridge ORV Program.

Rabies Facts

- * Rabies is almost always fatal in people unless treatment is initiated soon after the bite.
- * Wild animals remain the major source of rabies in Ohio.
- * Prior to 1997, skunks and bats were the major source of rabies infection to pets, livestock and people. Only about 11 animals per year were confirmed rabid.
- * In 2003, there were 53 confirmed rabid animals; all were bat strain other than the two raccoons.
- * It is still very important to vaccinate your pets. Since 1996, five cats have contracted rabies from raccoons and one cat was infected with rabies from a bat.
- * Anyone bitten by any animal should report the bite to their local health department and see their doctor.
- * If a pet has contact with a wild carnivorous animal or bat, contact your veterinarian immediately.

threat of raccoon rabies exists. Eight Ohio counties bordering Pennsylvania and West Virginia have on-going rabies prevention grants with ODH.

Ohio is monitoring Pennsylvania and West Virginia program results to help dictate how Ohio will proceed with baiting in the future. Once the disease is under control in their western counties, efforts will be directed toward moving the ORV barrier eastward. This has the potential to reduce the need for continued baiting efforts in Ohio.

Program Partners

The success of the Ohio ORV Program is dependent on continued financial support from the Ohio General Assembly and assistance and support from other agencies, including:

- * Ohio Department of Agriculture
- * Ohio Department of Natural Resources
- * The Centers for Disease Control and Prevention
- * United States Department of Agriculture Wildlife Services and Veterinary Services
- * The Ohio State University
- * Ontario Ministry of Natural Resources

Information provided by:

*Mike Collart
Ohio Department of Health*

IN LOVING MEMORY OF

Dave Antonio

April 4, 1941 – December 23, 2003



*Grieve not for me, nor mourn the while,
For happier would I be to see you smile.*

*Let no tears fall since I have passed away,
But miss me and remember me each day.*

*Live your lives as I would want you to,
And treat thy fellowman as I would do.*

*And when the time has come,
Your lives be through,
I shall be waiting here for each of you.*



MORSE & SON FUNERAL HOME

It was with extreme sadness that the RRDU mourned the passing of Dave Antonio. An article on Dave and his contributions to the Rabies Research and Development Unit and to life will appear in an upcoming issue of the Rabies Reporter.

HOW TO REACH US:

Rabies Research and Development Unit
Ontario Ministry of Natural Resources
P.O. Box 4840
Peterborough, ON K9J 8N8
Canada

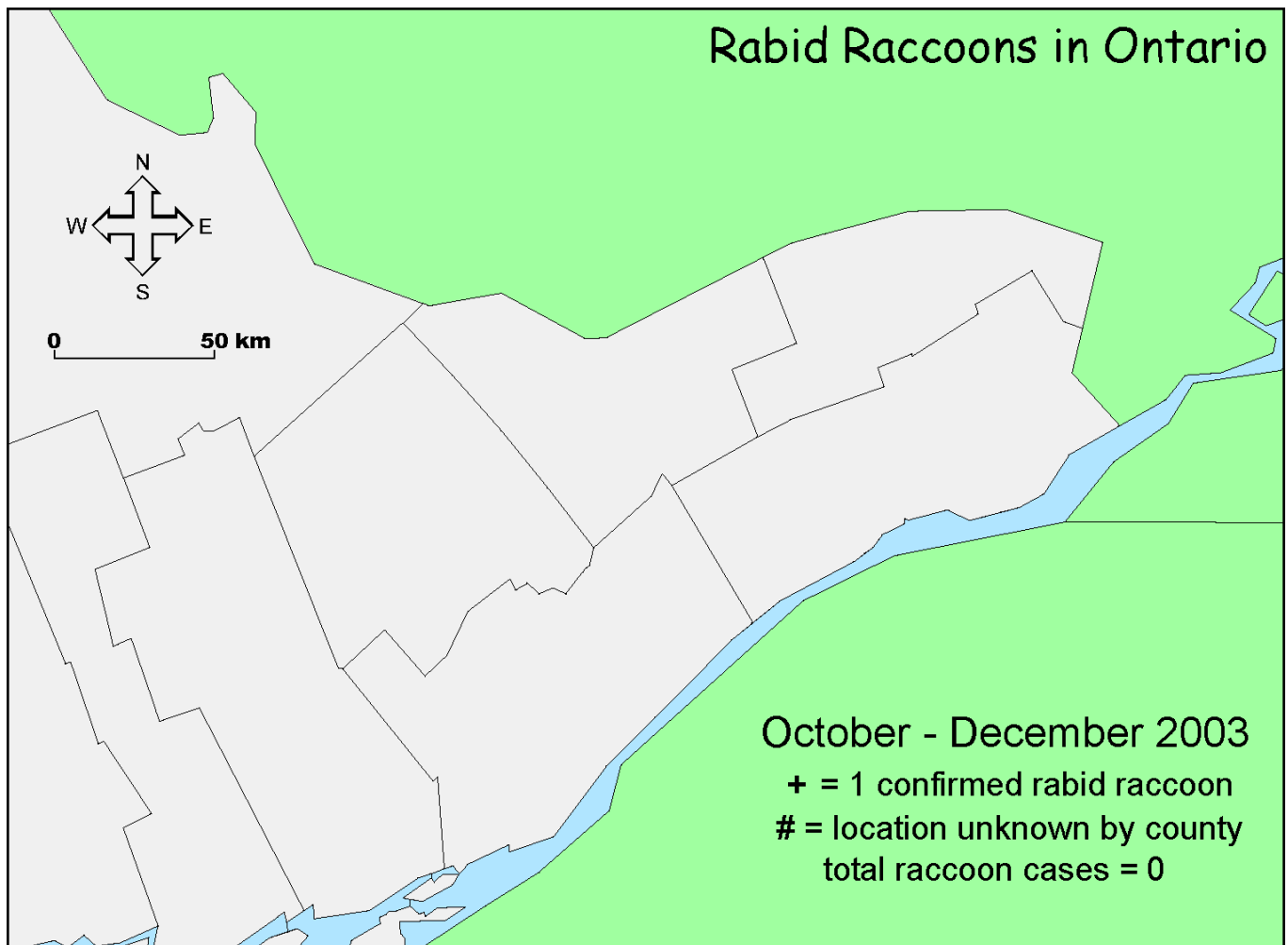
Office phone: 705-755-2272
Office fax: 705-755-2276
Email: beverly.stevenson@mnr.gov.on.ca

Animal Rabies Report: October to December 2003

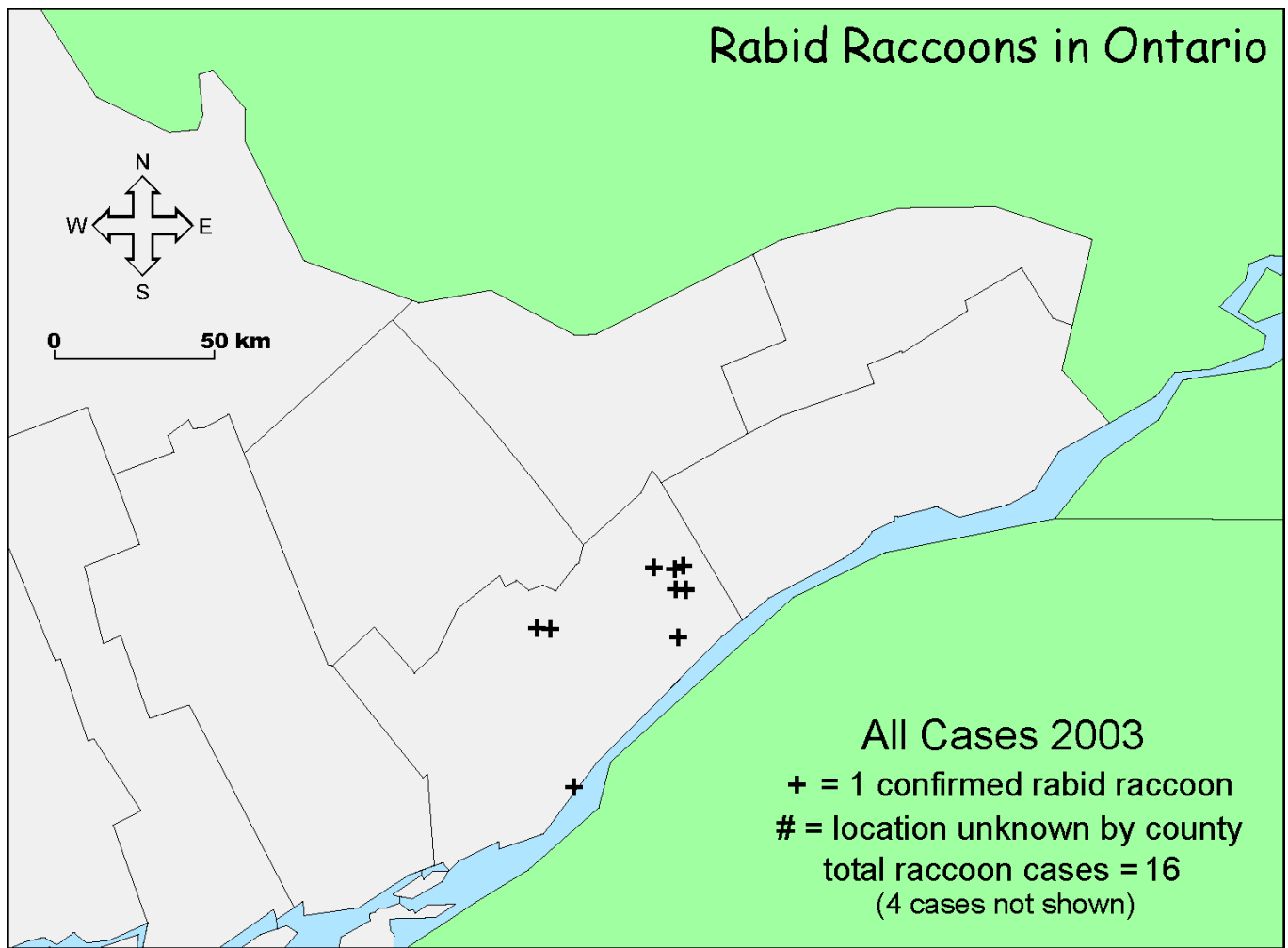
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Animal Rabies Report: October to December 2003

Animal Type	Fox			Raccoon			Skunk			Other Wildlife			Bat			Dog			Cat			Livestock			Totals		
County or Region	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		03	02		03	02		03	02		03	02		03	02		03	02		03	02		03	02		03	02
Northern																											
Muskoka																								0	0	0	
Parry Sound																								0	0	0	
Nipissing			2																					0	0	2	
Sudbury			33			2					1	2					2			1			3	0	1	43	
Cochrane			1																					0	0	1	
Timiskaming			3																				1	0	0	4	
Algoma																							1	0	0	1	
Thunder Bay																								0	0	0	
Rainy River																								0	0	0	
Kenora																								0	0	0	
Regional Totals																											
Eastern		1			16	19							3	17	18									3	34	37	
Central							4	4	2				2	17	24			1					1		6	22	27
Western	2	4	2			1	5	17	44				3	13	7			1			3		6	2	10	40	60
Southern													3	27	24						2			1	3	27	27
Northern			39			2					1	2						2			1			5	0	1	51
TOTALS	2	5	41	0	16	22	9	21	46	0	1	2	11	74	73	0	0	4	0	0	6	0	7	8	22	124	202
Notes for this quarter:	The bats in Wellington included one hoary bat and two little brown bats. One of the bats in Halton was a little brown bat. All other bats were big brown bats. The livestock was two cows in Bruce, a cow in Wellington, two cows in Dufferin, a goat in Victoria, and a horse in Grey.																										

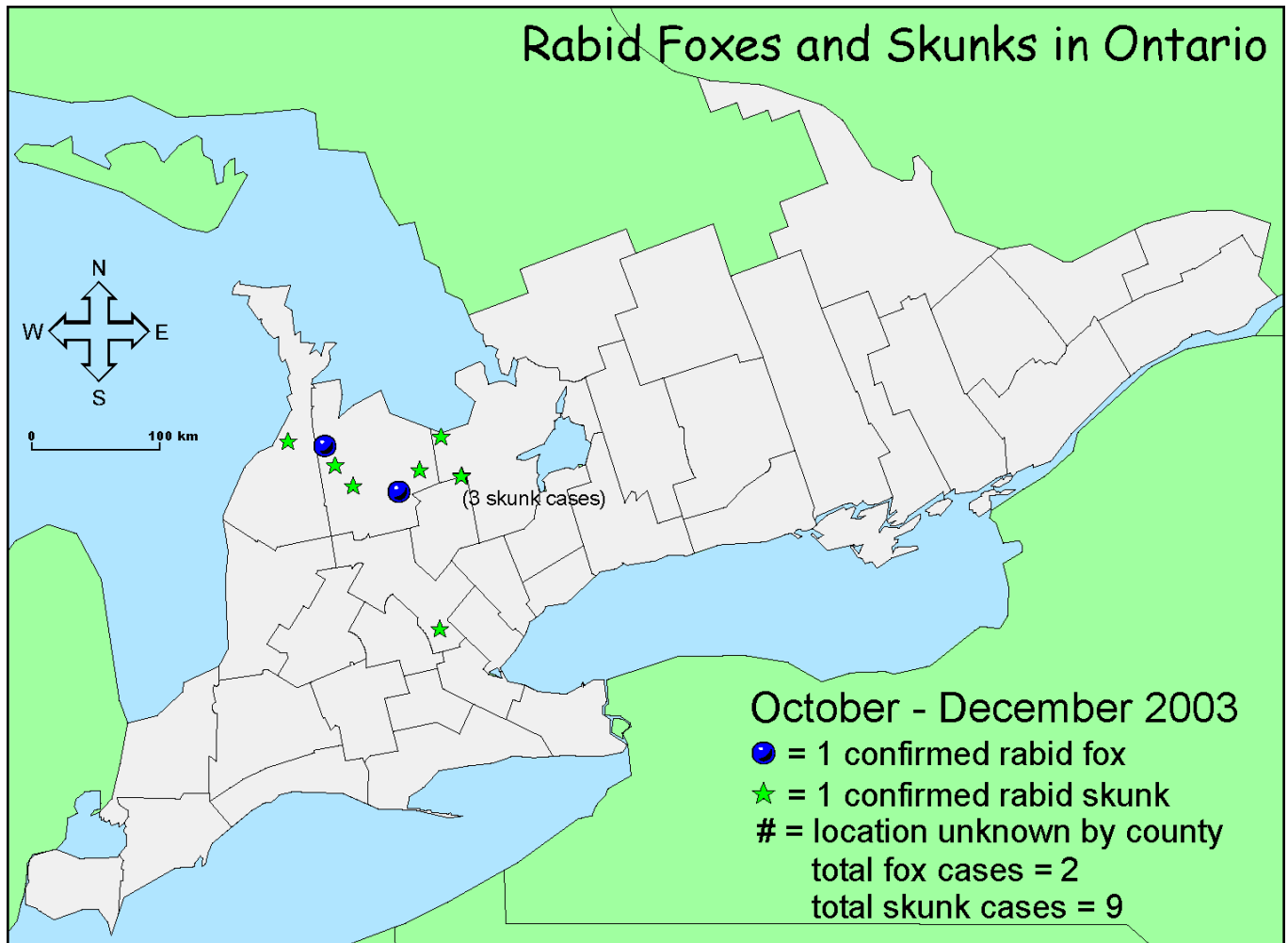


GIS Lab, Queen's University
Data Source: Ontario Laboratory-Fallowfield (CFIA)

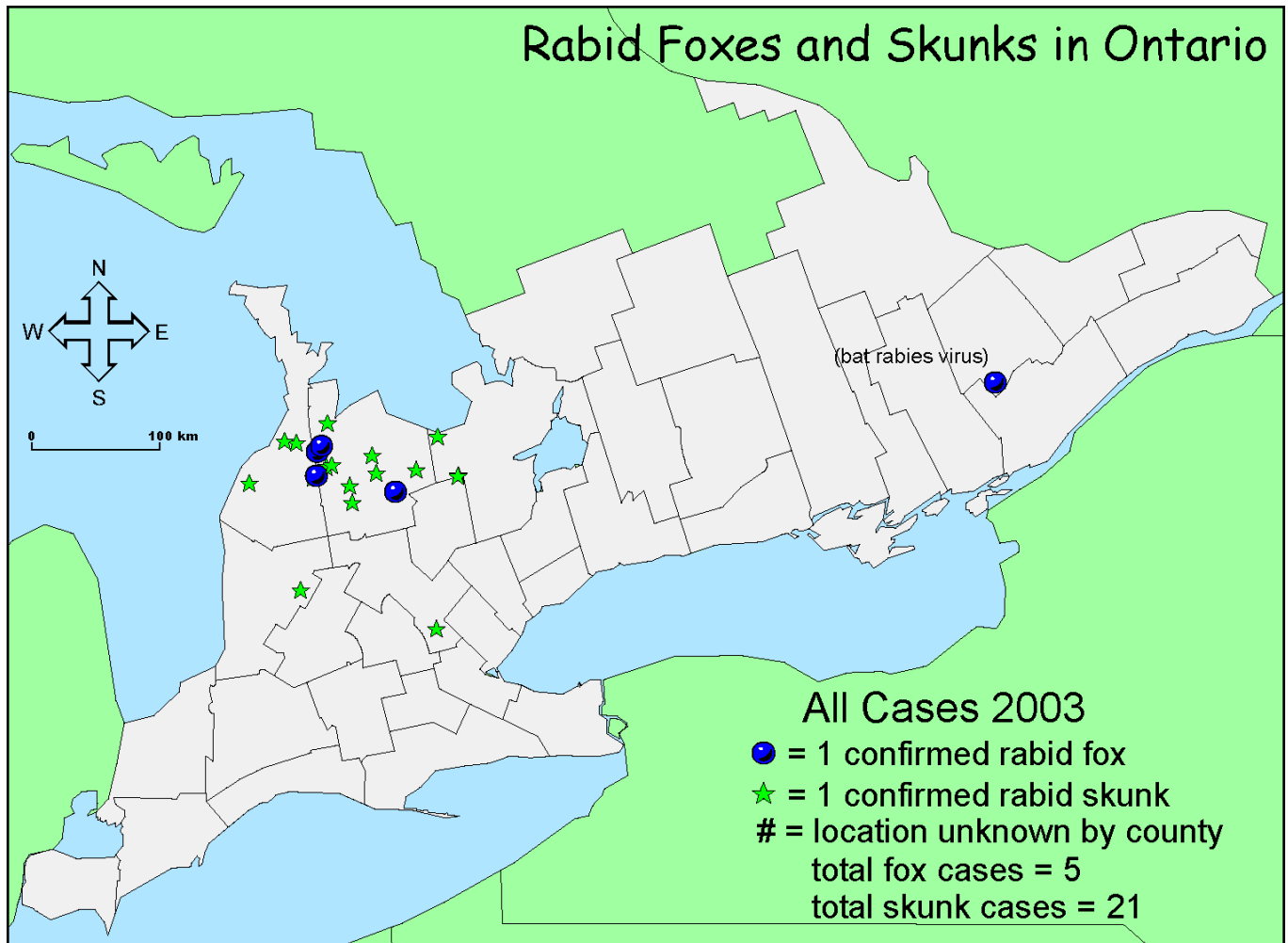


GIS Lab, Queen's University

Data Source: Ontario Laboratory-Fallowfield (CFIA)



GIS Lab, Queen's University
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