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The rabies reporter

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2011 in review: rabies cases drop even lower

Beverly Stevenson, Ministry of Natural Resources

With only two reported rabies cases in the final three months of 2011, there is very little to be said.

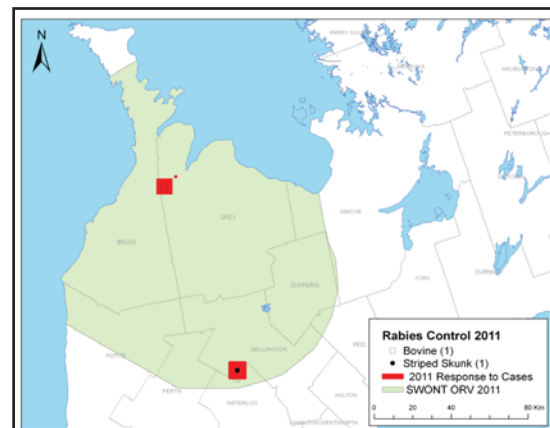
There was a rabid big brown bat from Ottawa-Carleton and a rabid skunk from Wellington County. This brings the annual total to 26 (24 bats, 1 cow, and 1 skunk) – a 33% drop in cases from 2010.

The only disconcerting news was that the rabid skunk was discovered near the Waterloo-Wellington boundary. Although it was only the second case of fox strain rabies in Ontario during 2011, it occurred almost five months later than the first case and over 100 kilometres away (Figure 1). Fortunately, it was still located within the much reduced oral rabies vaccination (ORV) zone for 2011. It would have been very troubling news if it had occurred outside of the ORV zone. The ORV zone is determined by mapping the cases for the previous two years and adding an approximately 50km buffer around the cases.

An 8km x 8km plot surrounding the skunk location was baited by helicopter on November 5th with 300 baits/km² to prevent cases from spreading further. In addition to this, the ORV area for 2012 will also be increased to the south as a result of this case.

Only time will tell whether the 2012 ORV zone will need to be increased further as a result of the unseasonably warm temperatures throughout southern Ontario for most of the winter. With the warm weather and lack of significant snowcover, wildlife have been more active and more mobile which could result in an upsurge in rabies cases. Keep your fingers crossed that 2012 will be as quiet as 2011.

Figure 1. Location of fox strain rabies positive cases and related baiting activities.



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 Ottawa Laboratory (Fallowfield) of the Canadian Food Inspection Agency; and the Ontario Ministry of Health and Long-Term Care. 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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Baiting expedition 2011

Beverly Stevenson, Ministry of Natural Resources

The annual oral rabies vaccination program got under way in southern Quebec in mid-August and continued for the next month ending in southwestern Ontario.

Quebec

The first stop for MNR's Twin Otters and the rabies baiting staff was Bromont, Quebec. From August 15th-18th, approximately 618,000 baits were distributed in southern Quebec to create a barrier of vaccinated raccoons along the Quebec-Vermont border. Although Quebec has been free of raccoon rabies since April 2009, cases still persist near the border in northern Vermont so it is necessary to maintain this vaccination zone to prevent reincursion of the disease into Quebec.

MNR staff Mark Gibson and Kim Bennett prepared the bait machines for the very first flight of the year on the morning of August 15th. Despite the machines working fine when being tested on the ground, both flights had issues once airborne. On the ground, the bait machines were tested with a generator and/or battery backup power so it was not noticed that the plugs which connect the bait machines to aircraft power had their polarities reversed. A quick switch and Twin Otters OPJ and OGA were airborne once again. OPJ continued flying for the remainder of the day without issues but OGA developed a fuel bladder leak and had to return to Sault Ste. Marie to have this repaired. Since the repair would take some time, it was decided to switch the bait machine to OPG; OPG would continue with the Quebec baiting while OGA underwent repairs. OPG joined the baiting in Quebec just in time for some bad weather.

Despite these glitches, 26 flights were completed in four days and the aerial baiting expedition proceeded to its next destination on August 19th.

Southeastern Ontario

Although the southeastern Ontario baiting was scheduled to be completed before Quebec baiting began, Mother Nature decided to rearrange our baiting schedule again this year. The weather forecast for August 14th was not conducive to baiting. A decision was made to complete the flight on the way back from Quebec. As usual, the weather forecast was wrong and the weather would have been fine for baiting.

On August 19th, Twin Otter OPG distributed approximately 23,000 baits on Wolfe, Howe, Simcoe, and Hill islands in the St. Lawrence River and along the mainland near Brockville to prevent the reincursion of raccoon rabies which persists near the border in New York state.

Niagara

On August 22nd, MNR staff headed to the Niagara area to begin the hand and aerial distribution of baits. For the first time, a helicopter would be used instead of the usual Twin Otter. Due to the abundance of unbaitable habitat (e.g. houses, vineyards and orchards) throughout the Niagara Region, a helicopter would provide much better manoeuvrability to target the baits to baitable habitat.

While the hand baiting crews began distributing baits in Niagara Falls on the 22nd, MNR pilot Doug Holtby and wildlife technician Bev Stevenson spent the afternoon programming the waypoints (co-ordinates) for the aerial baiting into the helicopter's GPS. During normal helicopter baiting, we fly in less populated areas and the waypoints are entered into a portable aircraft GPS which can be uploaded directly from a laptop. In a built up area, like the Niagara region, where there are numerous hazards and a lot of air traffic, it is important to have the waypoints loaded into the helicopter GPS so that the route and the nearby hazards are displayed on the same screen. Unfortunately, the waypoints cannot be electronically uploaded into the helicopter GPS.



Figure 2. The much reduced ORV staff for 2011. With only one aircraft, only a handful of the regular baiting staff were required for the ORV project.

While hand baiting crews continued distributing baits on the 23rd, the helicopter began the first baiting flight. Over the next three days (with a great deal of inclement weather), almost 54,000 baits were distributed in four flights. This is almost three times the number of baits that we had distributed in the past by Twin Otter and is due almost entirely to the ability of the helicopter to alter course quickly. We were able to follow fencerows and irrigation ditches in the numerous vineyards and orchards. In the past, these areas had to be handbaited because the Twin Otter has to fly, more or less, parallel lines. Several small towns with large greenspaces were also aerially baited which saved a great deal of time for the handbaiting crews. While helicopter baiting was completed on August 25th, hand baiting crews continued to distribute baits in urban areas until September 2nd distributing almost 31,000 baits. These baits were distributed to prevent raccoon rabies from re-entering Ontario; raccoon rabies persists in the Niagara Falls area of New York state.

Southwestern Ontario

Due to the success of previous oral rabies vaccination (ORV) campaigns and the resultant low incidence of fox strain rabies cases, Ontario's rabies control area was significantly reduced this year. It was only 14,343 km² – over a 40% reduction from 24,223 km² in the previous year. This reduction had two significant impacts. First, there was now only a need for one aircraft to complete the ORV. This was the first time since 1989 that one aircraft was able to complete the ORV in a timely manner. Second, our regular ORV base of Stratford Municipal Airport was now outside of the ORV zone. As a result, we decided to use Saugeen Municipal Airport near Hanover as our base of operations. The Saugeen Municipal Airport was one of only four airports within the ORV zone which carried jet fuel. It was also ideally situated near the centre of the ORV zone. And as a bonus, it had an on-site restaurant. The other three airports were situated near the lakeshore at the edge of the ORV zone and would likely be more affected by fog in the early mornings; they also did not have on-site restaurants.

From September 11th-15th, Twin Otter OGA completed 16 flights in southwestern Ontario distributing approximately 227,000 baits to control fox strain rabies.

The only downside to the Saugeen Airport was that it had an on-site restaurant. (I know I said previously that it was a perk but...) The restaurant owners, Brad and Darlene, were under the mistaken impression that the work we were doing was extremely labour intensive and required vast amounts of refuelling to keep the staff going. By the end of the week, the ORV coordinator realized that we might have to start bringing a scale with us if we worked out of this airport in the future. We definitely didn't want the plane to be overloaded because we put on so much weight

eating this amazing food!

The jet fuel and restaurant also attracted the interest of other individuals working in the area. When approximately 40 OPP officers descended on the airport, we were worried that they were there to arrest our senior pilot Red Seguin. It turned out though that they were the ground support for the helicopter that was doing the aerial search for marijuana. This provided an added safety benefit. Since aerial baiting and scouting for marijuana are both low-level flying and very few other aircraft fly that low, there is a safety risk that they could collide. Working at the same airport gave the opportunity for the two crews to exchange information on where they would be flying that day and avoid working in the same area whenever possible.

Management Baiting

In response to a rabid skunk diagnosed on November 1st in the Wallenstein area, approximately 19,000 baits were distributed in an 8km by 8km plot by EC130 helicopter on November 5th. Yet another new airport, Region of Waterloo Airport, was used for this baiting operation. Unlike the previous fox strain rabies cases in 2010 and 2011, which had all been in Grey County, this case was located near the boundary of Waterloo Region and Wellington County – approximately 100 km away from the last case.

With the completion of the management baiting in 2011, Ontario has distributed 3.9 million baits containing ONRAB® since 2006. Since 1989, Ontario has distributed 3.8 million baits containing VR-G and 16 million baits containing ERA® vaccine for a total of 23.8 million baits. In all of North America, 162.8 million baits have been distributed since the onset of oral rabies vaccination.

Stay tuned...

New to 2011 was a trial baiting project with our United States Department of Agriculture (USDA) partners in West Virginia. Approximately 80,000 ONRAB® baits were distributed in experimental plots in southeastern West Virginia in September.

Read more about this trial baiting project in the next issue of the Rabies Reporter.

Grey Bruce Interagency Rabies Group: Working towards “One Health”

Nancy D. Brown DVM, District Veterinarian, Canadian Food Inspection Agency

History of the Grey Bruce Interagency Rabies Group

Back in the early 1980s, the Grey Bruce area was known as the rabies capital of Ontario. Our ample bush cover and multiple large swamps provide perfect natural habitat for rabies vector species like the fox and skunk. Cases in Grey and Bruce peaked at 354-368 per year for the years of 1980-81. Free rabies clinics for pets were offered by the federal government (Agriculture Canada) during this time. When it became no longer feasible to offer free clinics, the local Grey Bruce Health Unit and the local veterinary association took up the need to offer a very successful series of low cost rabies clinics at easily accessible municipal sites and vet clinics. Thus, a once a year meeting in the spring began with the Health Unit represented by the Medical Officer of Health and the Rabies Program Manager as well as the Rabies Committee and President of the Grey Bruce Veterinary Association. These groups would share information on the situation of rabies control in the two counties and plan for the low cost rabies clinics held each fall.

Because of the initiation of the rabies bait drop program by the Ontario Ministry of Natural Resources in the early 80s and Agriculture Canada's role in sampling suspicious cases and ensuring appropriate quarantines in positive cases, the input from these groups was often sought during these years as well.

In 2005, with the decreasing numbers of terrestrial rabies cases across Ontario and the discontinuation of the low cost rabies clinics in Grey Bruce, it became even more important that these groups continue to come together to discuss ongoing efforts to satisfy each of the organization's mandate to protect the public from exposure to rabies.

From these early “Rabies Clinic Meetings” arose the “Interagency Rabies Meetings” that we hold currently.

The Interagency Group today

The four groups represented in this group are the Canadian Food Inspection Agency, Grey Bruce Health Unit, Grey Bruce Veterinary Association and the Ontario Ministry of Natural Resources. We meet annually in April of each year.

Each year, there will be a round table presentation of any changes to the group's mandates with respect to their rabies programs, as well as statistics, events, research and laboratory findings, etc. Invariably we reach out into other areas of our joint concerns for other zoonotic diseases such as Lyme disease, Sarcoptic Mange, West Nile Virus and Eastern Equine Encephalitis.

Over the years we have worked toward establishing our roles clearly such that each aspect of rabies control in our counties is covered and understood. For each of our groups this includes education of the public to their responsibilities for protecting themselves and their animals from rabies.

Some of the tools we have worked on together is a pamphlet tailored to Grey Bruce defining our roles, as well as working with vaccine companies to provide posters and handouts to the public. We have attended radio shows, school events and recently a local TV program to continue to support the work towards rabies control. A very valuable handout for all practising veterinarians in Grey Bruce was circulated to clearly define the responsibilities in the area of biting animals and reporting suspected rabies cases. At our interagency meetings we have discussed such issues as biting and dangerous dogs, stray animals, trapping research, the highly successful bait drop program, veterinary biologics and vaccination programs.

At our April 2011 meeting we were informed of the “One Health” initiative. One Health refers to the collaborative efforts of multiple disciplines locally, nationally, and globally, to obtain optimal health for people, animals, plants, and our environment. So we are an excellent example of One Health in action. We have witnessed remarkable collaborations between

these organizations in the past and intend to take our continued meetings into the next challenges in the complete eradication of terrestrial rabies and control of other zoonotic diseases as they arise.



The province of Québec now considered raccoon rabies free

Julien Mainguy, wildlife biologist, Ph.D., Ministère des Ressources Naturelles et de la Faune du Québec

With the increasing use of ONRAB® vaccine-baits through the years, which have been distributed both aerially and by hand, the province of Québec has been apparently able to eliminate the raccoon variant of rabies (RVR). Indeed, despite the continuation of an adequate provincial enhanced surveillance and the passive one conducted by the Canadian Food Inspection Agency (CFIA), no positive case of RVR was documented for a second year in a row. In fact, the last RVR case documented in Québec was found close to the State of Vermont in the spring of 2009, with the discovery of a rabid striped skunk (n = 2 cases in 2009, both were skunks).

Over the years, the government of Québec, together with their partners such as the Université Laval, the Université de Sherbrooke and the Faculté de médecine vétérinaire de l'Université de Montréal, has continued conducting research on the ecology of raccoons and skunks to better target its control operations, namely the oral rabies vaccination (ORV) program. The use of GPS collars fitted on raccoons and skunks, the field experiments conducted with ONRAB®, and the retrospective analyses of capture success of raccoon

according to habitat composition and structure, together with the use of spatial and statistical software to evaluate in detail the serology results obtained through post-ORV surveillance have allowed us optimizing in a great manner the distribution of vaccine baits in terms of densities and of “where” and “when” to distribute them. This has allowed in turn increasing the efficiency of the control operations while reducing their costs (e.g., by \$1 million from 2010 to 2011, while covering the same-size area). All these improvements and the novel knowledge gained have been made available to the international community through the publication of scientific articles in peer-reviewed journals (some of which are still under revision); similarly as the tremendous amount of work on raccoon rabies that was published by the MNR that has helped the Québec government develop its own control actions.

Collaboration with the USDA/APHIS/Wildlife Services, the Wadsworth Center (New York) and the CFIA has also lead to an interesting project in 2011, with the comparison of the field performance of ONRAB® (Québec) and V-RG

(Vermont). This has shown, as for the previous New Brunswick/Maine vaccine-bait comparison, that ONRAB® may serve as a better tool for the control of rabies in raccoons. This has later helped the USDA to implement field experiments with ONRAB® on US territory and this is a great step forward, at least to us, to reach the goal of eliminating RVR from North America. Continued collaboration with the neighbouring provinces and U.S. states under the North American Rabies Management Plan will be the key to reach such a goal. Especially since a rabid skunk infected with RVR was again discovered in 2011 in Vermont close to the border with Québec.



Figure 3. Crews get ready for a day of aerial baiting in Quebec.

[illegible]

Animal Rabies Report: October to December 2011

Animal Type	Fox			Raccoon			Skunk			Other Wildlife			Bat			Dog			Cat			Livestock			Totals		
County or Region	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		11	10		11	10		11	10		11	10		11	10		11	10		11	10		11	10			
Southern																											
Wentworth													4	1										0	4	1	
Haldimand-Norfolk														2										0	0	2	
Brant																								0	0	0	
Niagara													2	1										0	2	1	
Elgin													1											0	1	0	
Oxford													1											0	1	0	
Middlesex													1	3										0	1	3	
Lambton													1	4										0	1	4	
Kent														1										0	0	1	
Essex																								0	0	0	
Northern																											
Muskoka																								0	0	0	
Parry Sound																								0	0	0	
Nipissing																								0	0	0	
Sudbury													3											0	3	0	
Cochrane																								0	0	0	
Timiskaming																								0	0	0	
Algoma																								0	0	0	
Thunder Bay														2										0	0	2	
Rainy River																								0	0	0	
Kenora																								0	0	0	
Regional Totals																											
Eastern	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1	0	0	0	0	0	0	0	0	1	3	1	
Central	0	0	0	0	0	0	0	0	0	0	0	0	0	5	10	0	0	0	0	0	0	0	0	0	5	10	
Western	0	0	0	0	0	0	1	1	10	0	0	0	0	3	4	0	0	0	0	0	0	1	0	1	5	14	
Southern	0	0	0	0	0	0	0	0	0	0	0	0	0	10	12	0	0	0	0	0	0	0	0	0	10	12	
Northern	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	3	2	
Totals	0	0	0	0	0	0	1	1	10	0	0	0	1	24	29	0	0	0	0	0	0	1	0	2	26	39	

