

The Rabies Reporter

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Spring 2009



Rabies in Ontario *April to June 2009*

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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 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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There were 12 reported rabies cases during the second quarter of 2009. This brings the total for the first half of the year to 16. If you're thinking that number sounds low, you're correct. Prior to rabies control, Ontario used to have almost double that number of cases each and every week!

The fewest number of cases we have ever had at the end of the second quarter was 29 in 1998. The next lowest years were 2006 (31), 1999 (32), and 2008 (33).

Of the 12 cases in the past 3 months, there were 5 rabid bats which is up one from 2008. The rabid bats were located in Niagara, Elgin, Leeds-Grenville, Waterloo, and Wellington counties. These were the first rabid bats for the year.

There were also 4 rabid bovines bringing the total number of livestock cases for the year to 7 which is down 1 from 2008. All 4 bovines were from Waterloo Region. Three were from the same farm and were probably all infected from the same animal. The fourth bovine grabbed our attention for a little while. The bovine was reported as being from Oxford County. We do not have Arctic strain rabies in Oxford County so this would have meant a significant increase to our aerial baiting area. However, after investigation by the Canadian Food Inspection Agency (CFIA), it was determined that the animal had been raised in Waterloo Region and was moved to Oxford County shortly before its death. It is believed that the animal was infected while in Waterloo Region.

And finally there were 3 rabid skunks during the second quarter. There were no rabid skunks reported

during the first quarter so the total for 2009 (3) is down significantly from 2008 (17).

All 3 skunks were from Bruce County in southwestern Ontario. This may indicate a bit of a northward movement of rabies. In 2008, rabies cases were concentrated in Perth, Waterloo, and Wellington counties.

I'm sure you've all heard the expression 'You can never go back'. Well, I'd like to start a new one that says 'You can never really leave'.

On March 31st, I received a call from my spouse while I was at work. (Remember that I temporarily left RRDU for a job closer to home.) The voice-mail said that a skunk had wandered into the yard and had tried to get into each of the dog kennels to fight with the dogs. The skunk had been dispatched and was in a plastic bag by our basement door.

I returned the call, got more details, and promptly called CFIA. It turned out to be a day for voice-mails. I left a very detailed message with the local CFIA office which included directions to our house as I knew they would probably get the answering machine if they called back. The CFIA vet picked up the skunk that same day for testing.

The next day, we received a phone call that the skunk was rabid. And no, it wasn't an April Fool's prank. Fortunately, there had been no contact with our animals and both my spouse and I have been vaccinated against rabies.

Like I said, maybe you can never really get away from some things.

Beverly Stevenson
RRDU
Peterborough, ON

Assessment of ONRAB in Raccoons in an Urban Environment

On July 14, 2008, an OMNR Long Ranger helicopter with RRDU staff distributed 2,501 ONRAB oral rabies vaccine baits to determine bait acceptance and sero-conversion in raccoons in the ravine systems of Guelph and Cambridge, Ontario. Additionally, high urban density areas were baited by hand, distributing 1,150 baits in Guelph and 303 baits in Cambridge for a total of 3,954 baits. Each urban center consisted of four trapping cells with northern cells baited at 75 baits/km² and southern cells baited at 150 baits/km². Baiting densities in Cambridge were situated opposite of Guelph to alleviate any differences associated with a north south gradient (Figure 1)

During the weeks of August 18-29, 8 OMNR technicians live trapped raccoons (*Procyon lotor*) in the Guelph and Cambridge areas. Trapping effort included a total of 4,847 trap nights with 581 raccoon captures (341 captures plus 240 recaptures). Of the 341 different raccoon captures, 308 were used to determine bait acceptance. The other 33 animals either didn't yield a sample or the sample was insufficient for tetracycline analysis (Figure 2).

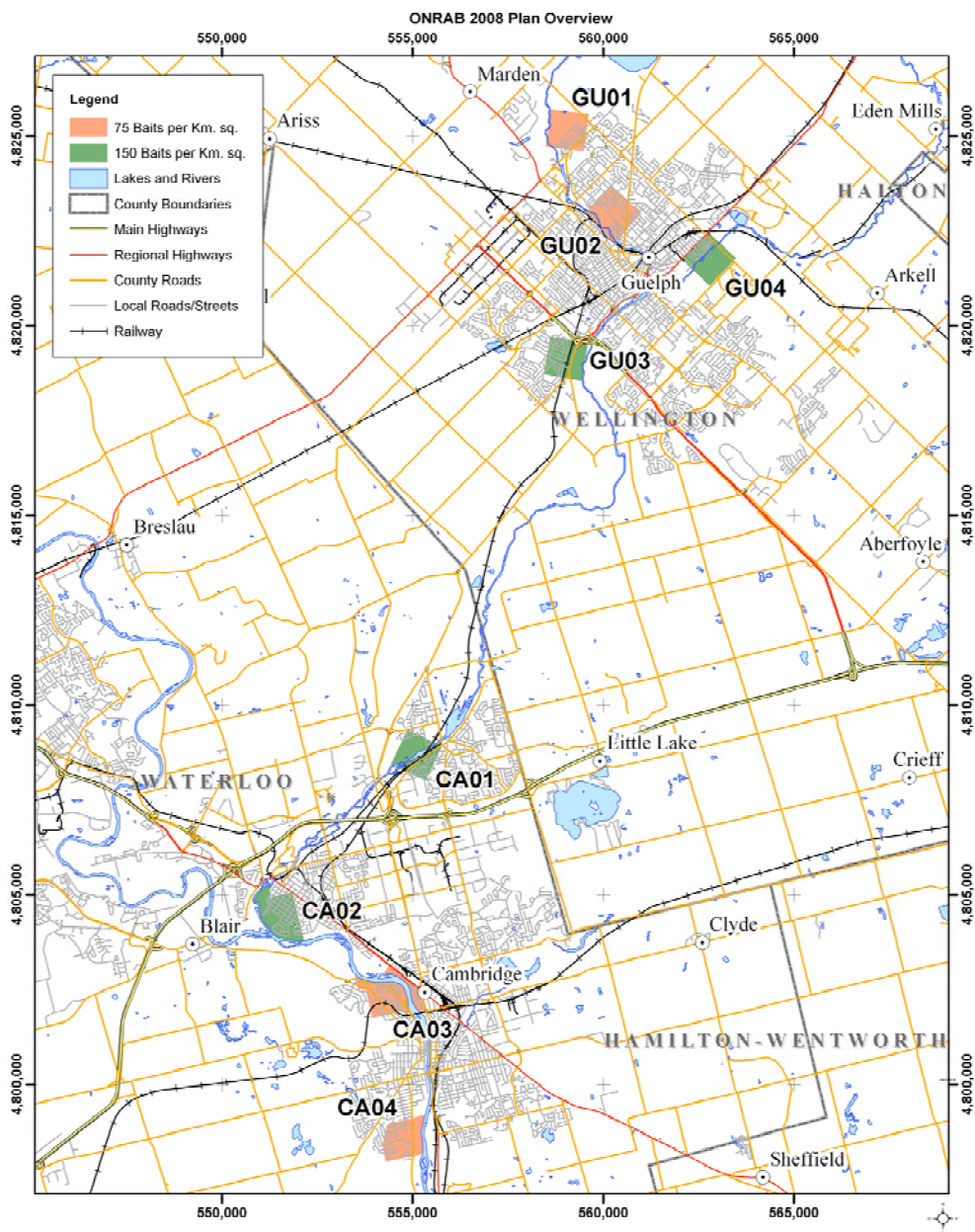


Figure 1. Guelph and Cambridge study sites depicting trapping cell locations and baiting densities.

Bait Acceptance and Serology Results

Bait acceptance was determined by extracting 2nd premolar teeth from raccoons. Teeth were subsequently hand ground and polished to size ranging between 80 and 100 microns, then mounted on

slides and viewed under a compound microscope exhibiting UV light to determine presence or absence of tetracycline. Sections exhibiting tetracycline fluorescence are considered to be positive for bait

acceptance.

Bait acceptance was tested at each site (Guelph and Cambridge) for differences within sites and between baiting densities of 75 and 150 baits/km². There were no dif-

Rabies Management Plans Updates

Canadian Plan

The Canadian Rabies Management Plan, as prepared in 2008, was included as part of the North American Rabies Management Plan which was signed at the RITA XIX meeting in Atlanta, GA.

The plan is currently being vetted through the identified key organizations (PHAC, CFIA, Wildlife directors, etc.) for their acceptance.

Steps are underway to realize the goal of having the Canadian Rabies Management Plan signed at RITA XX in Quebec City in October, 2009.

A change in both the provincial and federal co-chairs of the Canadian Rabies Committee has caused some disruption in the continuity of this project, but newly revised efforts should keep things on track.

North American Plan

This plan includes an annual review to assess continuing needs and addresses any changes needed to the plan. A meeting of the respective signatory representatives was held in March, 2009 in Phoenix, AZ to discuss surveillance plans for the 2009 season, and retrospective summaries from 2008 surveillance activities. A meeting to discuss the development of vaccines, baits, PIC plans, etc. will take place in Atlanta, GA in August, 2009. A follow-up meeting will take place at RITA XX in Quebec City in October, 2009.

Kim Knight-Picketts
CFIA
Nepean, ON

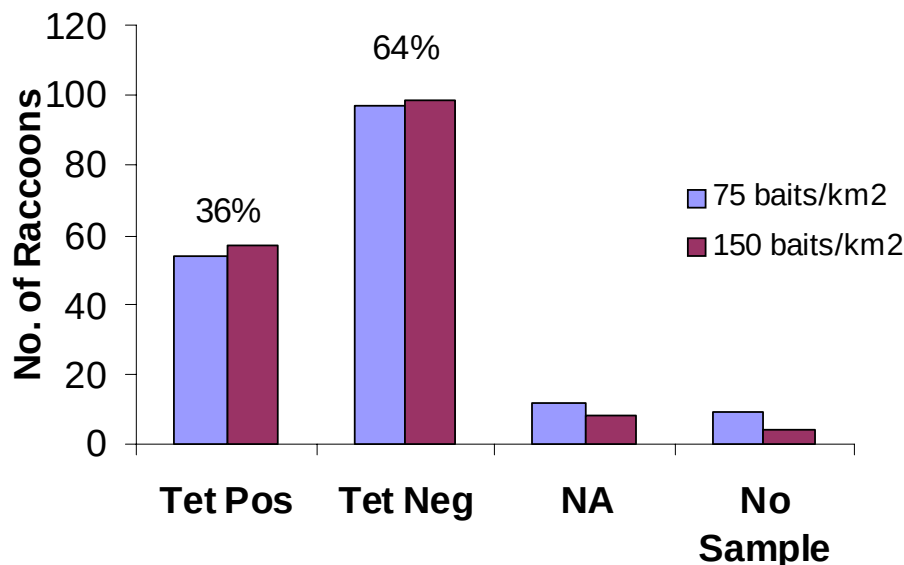


Figure 2. Bait acceptance by raccoons at two different baiting densities.

ferences detected within sites and between baiting densities for either area and acceptance was 36% and 37% respectively.

A total of 332 raccoon blood sera samples were analysed for rabies antibody levels using the competitive ELISA test (cElisa) performed by CFIA laboratories in Nepean. Serology results were compared between cElisa ranges (Figure 3). Blood sera samples be-

tween 0-15 indicate few raccoons will survive challenge, 16-25 will have some deaths during challenge and any elisa values >25 have 100% chance of survival. No differences were detected in serology between baiting densities in raccoons.

Mike Allan
RRDU
Peterborough, ON

Bait Density (bts/km2)					
range	75		150		totals
0-15	91	54%	96	58%	187
16-25	53	32%	39	24%	92
>25	23	14%	30	18%	53
>16	76	46%	69	42%	145
N	167		165		332

Figure 3. Serology Results in Raccoons at 75 and 150 baits/km²

Summary New Brunswick 2008 Oral Rabies Vaccination (ORV) Program

New Brunswick Department of Health, in collaboration with the Ontario Ministry of Natural Resources and the Canadian Food Inspection Agency, conducted field research in 2008 to evaluate efficacy of adenovirus-rabies glycoprotein recombinant oral rabies vaccine (ONRAB®) in ultra-lite baits in wild raccoons and striped skunks. With implementation of oral rabies vaccination (ORV) for wildlife rabies control, trap-vaccinate-release activities (2001-2007) were discontinued.

The 2008 ORV study area (Figure 4) occurred in the south west region of the province along the State of Maine border. The ORV area consisted of a North Plot from Woodstock to Forest City (approximate area 750 km²). Wildlife rabies control activities had not occurred in the upper portion of the North Plot before. In the lower portion of the North Plot, trap-vaccinate-release activities occurred in 2007. The South ORV Plot extended from McAdam to St. Stephen (approximate area 675 km²). Wildlife rabies control activities (population reduction and trap-vaccinate-release) had occurred in this area since 2001. The last case of raccoon variant rabies in New Brunswick was 2002.

ONRAB® ultra-lite baits were distributed by aircraft (Ontario Ministry of Natural Resources) at the following bait densities and replicates: 75

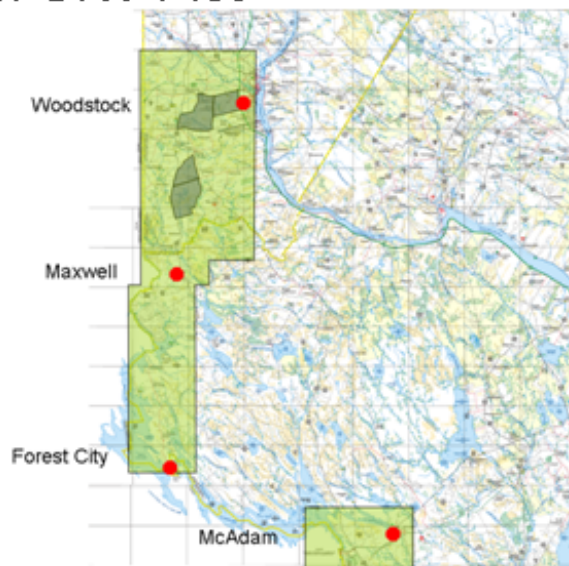
baits/km² and 1.0 km flight-line spacing. A total of four flights were flown (average flight time 2.2 hours) between August 25 and August 26. Approximately 90,070 ONRAB® baits were applied in aerial ORV distribution.

In addition on August 28, ONRAB® baits were also applied by hand (ground distribution) at bait density of 150 baits/km² in the villages of McAdam, and the towns of St. Stephen and Woodstock. In the North Plot, additional hand baiting occurred along two major high-

ways (Route 2 from Woodstock to Lower Woodstock, October 6; and Route 540 from Richmond Corner to Kirkland, October 8 and 9). A total of 10,553 baits were applied in ground ORV distribution.

Post ORV sample collection began (Oct 6) approximately six weeks after first bait drop. Within each ORV plot there

North ORV Plot



South ORV Plot

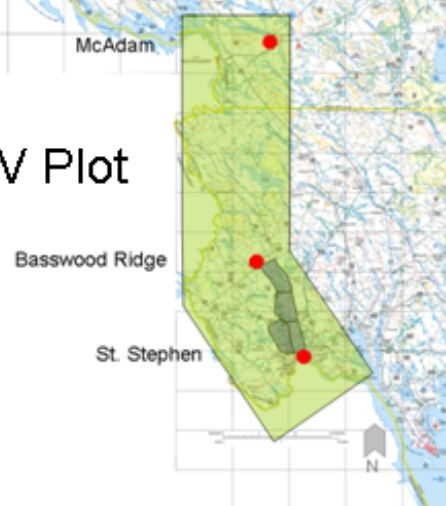


Figure 4. New Brunswick's ORV plots in 2008.

were 4 individual trapping cells, each approximately 10 km² (figure 4). One hundred live traps (Tomahawk 50x106 and 50x108) were placed in each cell. Four experienced trappers trapped over 4 nights in the North plot (Oct 6-9) and three nights in the South plot (Oct 14-16).

Information collected by trappers included species, trap

habitat, trap location (GPS), and ear tag number(s). In the North ORV Plot, 60 individual raccoons and 24 individual skunks were captured. One male raccoon had been tagged during previous wildlife rabies control program. North Plot incidental captures included 45 domestic cats, 3 snowshoe hare, 2 mink, 2 squirrels, 1 marten and 1 porcupine. In the South Plot, 16 raccoons and 14 skunks were captured. Four of the female skunks had been tagged during previous wildlife rabies control programs. South Plot incidental captures included 1 domestic cat.

Processing stations were set up in garages located in Department of Natural Resources field offices (Canterbury and St. George). Trappers brought target animals (raccoons and striped skunks) to the station for processing by licensed veterinarians (NB Department of Health, Canadian Food Inspec-

tion Agency, and the Canadian Cooperative Wildlife Health Centre, Atlantic Veterinary College) and wildlife technicians (NB Department of Health and Canadian Cooperative Wildlife Health Centre).

At the field station animals were weighed, sexed, subjectively aged (adult/juvenile) and under injectable anaesthesia had a premolar removed and venous blood drawn. A unique 2008 ear tag (raccoon ear tag numbers NB08 5001 - NB08 5250 and striped skunk ear tag numbers NB08 5001 - NB08 5250) was attached to a single ear. Once the animal was recovered from anaesthesia, it was returned to the individual site where it was trapped. All incidental (non target animal) captures were released at site of capture. Of the 114 animals brought to field stations, 113 were processed. One raccoon was refractory to the anaesthetic mixture and was returned to its capture site un-

processed. Of the animals processed, there were 75 raccoons and 38 skunks.

Tooth and blood samples were extracted from live-trapped raccoons and striped skunks to assess the effectiveness of ONRAB® ultra-lite bait. Tooth samples were sent to Matson's Laboratory LLC, Montana, for teeth cementum age analysis and tetracycline biomarker. Duplicate serum samples, if serum volume was feasible, were sent to Canadian Food Inspection Agency Laboratory Ontario and to the Wadsworth Center, New York for diagnostic testing of rabies antibodies. Results of tooth and serum analysis are expected May/June 2009.

*Jacqueline Badcock
Government of New Brunswick
Fredericton, NB*

RRDU Staff Updates Two New Additions

Congratulations to Mark Gibson and Val von Zuben. Mark and Val were the successful candidates in a recent job competition for two permanent resource technician positions with the RRDU.

Many of you will already be familiar with both Mark and Val.

Mark has worked on a contract basis with RRDU for approximately 20 years. Mark has worked on a variety of projects including aerial baiting, rabies surveillance, chronic wasting disease surveillance, ONRAB field trials, and radio-collaring moose. He has also assisted with

several other wildlife research projects during his career with MNR.

Prior to joining RRDU, Mark worked for several years fighting forest fires in several locations throughout northern Ontario.

Val von Zuben joined the RRDU in 2004 on a contract basis. Val has been involved with ONRAB field trials, chronic wasting disease surveillance, organizing aerial baiting operations, and cormorant surveys, in addition to participating in numerous other wildlife projects.

Prior to working for RRDU, Val spent two summers working for On-

tario Parks and also worked with the Water Resources Section in Peterborough for a year and a half. Most recently, she has worked on a contractual basis for the Species at Risk Section helping to implement the new *Endangered Species Act*.

Welcome to both Mark and Val!

*Beverly Stevenson
RRDU
Peterborough, ON*

Raccoon Rabies Update Province of Québec, 2009

Only two cases of raccoon rabies have been documented so far in the Province of Québec in 2009, both of which were rabid striped skunks found in the municipality of St-Georges-de-Clarenceville near the Vermont border (Figure 5). These two animals were collected after post-exposure investigations conducted by the Canadian Food Inspection Agency (one animal was collected on 26 February and the other on 7 April).

Interestingly, no specimen has been tested positive so far through our enhanced surveillance (e.g., citizen reports of suspicious or dead animals, road kills) conducted in the southern region of Quebec in 2009 (Figure 5). Given that we are in mid-summer, this is encouraging news, as 15 rabid animals were already documented at a similar date through our enhanced surveillance in 2008. Thus, it appears that the number of positive raccoon rabies cases is decreasing when compared to 2008 (32 cases for the whole year) and 2007 (66 cases). However, as the year 2009 is not over yet, we will keep testing suspicious animals and animals found dead through our enhanced surveillance to make sure that the apparent decrease is real.

Concerning our control operations for 2009, these will cover a large area in southern Quebec (Figure 5). Our strategy consists mainly in using Oral Rabies Vaccination (ORV) programs through both aerial and terrestrial hand baiting with ONRAB®. An area covering most of the raccoon rabies cases documented in 2008 (Figure 5) was hand baited in April 2009 at

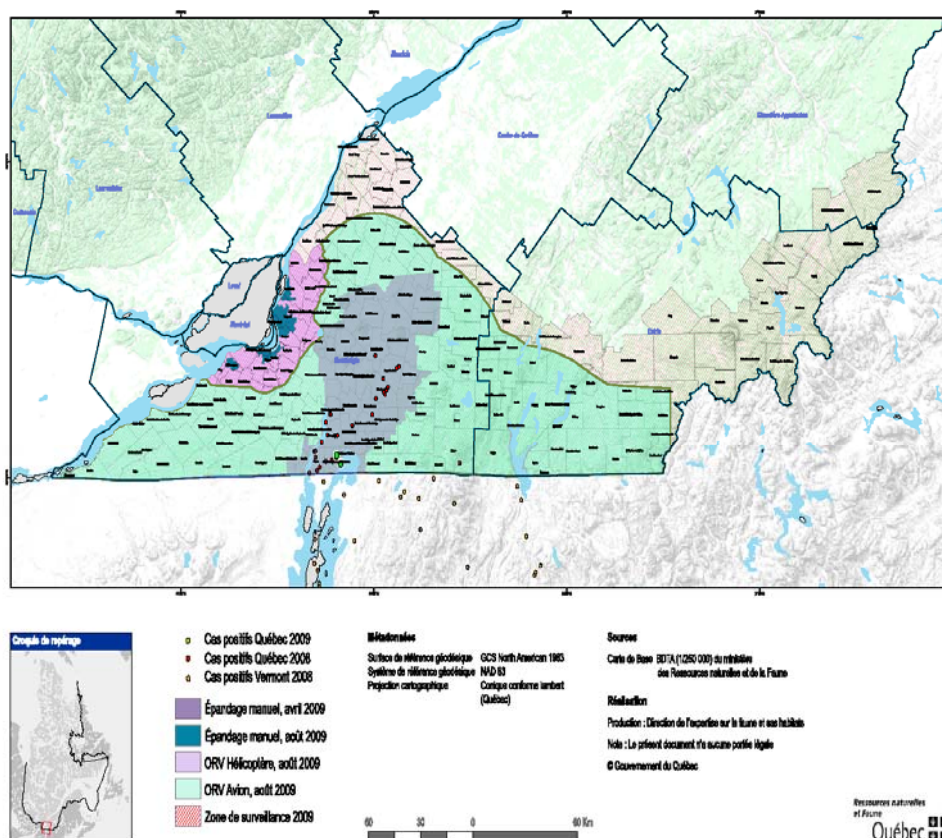


Figure 5. Location of rabies positives, specimen samples, and control projects in Québec (2009).

100 ONRAB®/km² in suitable habitats for raccoons and skunks. This area is part of a larger area (shown in pale blue on Figure 5) which will be aerially baited at 150 ONRAB®/km² from 17 to 21 August. Finally, a third area appearing in purple on Figure 5 will also be covered using both aerial and terrestrial hand baiting from 24 to 31 August. A Point Infection Control (PIC) program, similar to the one developed by the Ontario Ministry of Natural Resources, could also be used if a raccoon rabies case is discovered away from previously known affected sites. However, we did not have to use a PIC program in 2008, and hope this will be the case again

in 2009.

Overall, it seems that the number of raccoon rabies cases in Quebec is decreasing in 2009 when compared to previous years, but only in December 2009 we will be able to draw a good picture of the situation. Nevertheless, this suggests that our past surveillance and control operations have yielded positive results, and this is encouraging.

*Julien Mainguy
Ministère des Ressources naturelles et de la Faune du Québec
Québec, Québec*



WORLD RABIES DAY

September 28, 2009

Working Together to Make Rabies History!

World Rabies Day is an initiative of the Alliance for Rabies Control, the foremost non-profit in the world dedicated to raising global awareness towards human rabies prevention, canine rabies elimination and wildlife rabies control. More information about the Alliance can be found at www.rabiescontrol.net

A message from The World Rabies Day team...

World Rabies Day 2009 is just around the corner and we'd like to take this opportunity to inform you about some new resources and utilities available via our web site (www.worldrabiesday.org). We also invite you to submit information about any events you are planning for this year's campaign! We will be updating our website throughout the coming months and we encourage you to check back regularly for new and helpful planning materials.

We want to hear about your events! Please send your **event information** to: peter.costa@worldrabiesday.org

Attention **Shelters and Human Associations**, we've recently initiated a web page just for you! Here you will find educational materials that are freely downloadable. The web page is available at: <http://www.worldrabiesday.org/EN/GetInvolved/Shelters.html>. For more information, please contact Mylissia Stukey (Shelter Outreach Coordinator) at mylissia.stukey@worldrabiesday.org.

Follow World Rabies Day on **Twitter** (<http://twitter.com/worldrabiesday>) and post event stories/pictures on **Facebook** (<http://www.facebook.com/group.php?gid=35575735236>)!

[gid=35575735236](http://www.facebook.com/group.php?gid=35575735236))!

View/download/submit video at our **YouTube** site (<http://www.youtube.com/user/worldrabiesday>) and join the WRD **Flickr** Group (<http://www.flickr.com/groups/wrd/>)!

Educational materials from around the world are available from the World Rabies Day Education Bank at: <http://www.worldrabiesday.org/EN/Education-Bank/english.html>.

Freely downloadable **T-Shirt designs** for Runs and Races can be found on our Event Planning page at: <http://www.worldrabiesday.org/EN/GetInvolved/EventPlanning.html>

Logos in over 25 languages can be found at: <http://worldrabiesday.org/EN/LogoDownloads.html>. Please contact us for specific languages or to help create new logos.

See what our **global health advocates** are saying about World Rabies Day! <http://www.worldrabiesday.org/EN/MediaCenter/Perspectives.html>

2009 **apparel and merchandise** now available in various languages (<http://www.cafepress.com/rabies>)! Every purchase is a step towards making rabies history!

Fundraise! Funds donated to this initiative are used to support community level rabies control and education programs throughout the world with a specific focus on regions with high human rabies cases and uncontrolled rabies in dogs. Read about some of the projects currently underway: <http://www.rabiescontrol.net/EN/Programs/Projects-Overview.html>

Partner with us! World Rabies

Day is supported by partnering organizations throughout the world! If you are interested in becoming a partner, please contact peter.costa@worldrabiesday.org. A list of our current partners can be found at: <http://www.worldrabiesday.org/EN/OurPartners/OurPartners.html>

Questions? Contact:

Peter Costa, Global Communications Coordinator
World Rabies Day Campaign
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CANADIAN EVENTS

St-Hyacinthe, Quebec, Canada (Regional event)

Rabies vaccination day and conferences

Duration: 09/26/2009, 10am-2pm

Rabies vaccination day at the Faculty of veterinary medicine, Kiosk, conferences and clinic demonstration.

Price: FREE

Event is open to public

To get more information: contact: giv@medvet.umontreal.ca

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Animal Rabies Report: April to June 2009

Animal Type	Fox			Raccoon			Skunk			Other Wildlife			Bat			Dog			Cat			Livestock			Totals		
County or Region	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		09	08		09	08		09	08		09	08		09	08		09	08		09	08		09	08			
Southern																											
Wentworth														2											0	0	2
Haldimand-Norfolk																									0	0	0
Brant																									0	0	0
Niagara												1	1												1	1	0
Elgin												1	1												1	1	0
Oxford																									0	0	0
Middlesex																									0	0	0
Lambton																									0	0	0
Kent																									0	0	0
Essex																									0	0	0
Northern																											
Muskoka																									0	0	0
Parry Sound																									0	0	0
Nipissing																									0	0	0
Sudbury																									0	0	0
Cochrane																									0	0	0
Timiskaming																									0	0	0
Algoma																									0	0	0
Thunder Bay																									0	0	0
Rainy River																									0	0	0
Kenora			1																						0	0	1
Regional Totals																											
Eastern	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Central	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2
Western	0	1	0	0	0	0	3	3	17	0	0	0	2	2	1	0	0	1	0	0	1	4	7	8	9	13	28
Southern	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0	2	2	2
Northern	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Totals	0	1	1	0	0	0	3	3	17	0	0	0	5	5	4	0	0	2	0	0	1	4	7	8	12	16	33

Notes for this quarter:

All livestock cases were bovine.

