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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 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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Spring cases springing up

Beverly Stevenson, Ministry of Natural Resources

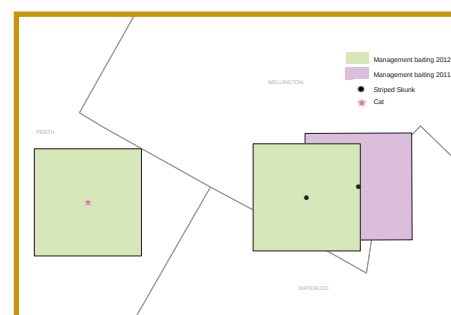
The warm weather which heralded an early spring also resulted in an early upsurge in rabies cases.

There were ten confirmed cases from April to June this year bringing the total to 12 cases in 2012. This is up from six cases during the same period last year. There were 7 bats, 1 dog, 1 skunk, and 1 cat. The bats were dispersed throughout southern, central, and western Ontario in Brant County (2), Middlesex County (1), Waterloo Region (1), and Toronto (3). Although it is early in the year to see this many rabid bats, it is likely a direct result of the early arrival of spring-like weather. There were only five rabid bats (Big Brown) at this point in 2011.

The dog from Frontenac County, in eastern Ontario, was infected with bat strain rabies. Although raccoon rabies was eliminated from Ontario in 2005, it persists very close to the border in New York State (near the St. Lawrence River in eastern Ontario and Niagara River in western Ontario). There was a rabid raccoon less than 10 kms from the Ontario border in June. We will continue to keep a close watch on the situation in New York and will again be distributing baits in a small area along the St. Lawrence River and Niagara River as a proactive prevention measure during August.

The skunk in Wellington County was infected with fox strain rabies. It was located very close to the rabid skunk from last November (see Figure 1). The cat in Perth County was also infected with fox strain rabies and was also located a short distance from the previous skunk cases. Management baiting was conducted in an 8km by 8km plot surrounding each case to help prevent the further spread of rabies. On May 9th, we distributed approximately 19,000 baits in response to the rabid skunk and on June 4th, we distributed approximately 19,500 baits in response to the rabid, feral cat. Both of those areas will be baited again at low density (20 baits/km²) during our routine fall baiting operations.

Figure 1. Management baiting in response to rabies cases.



ONRAB[®] field trials in West Virginia during 2011

Richard Chipman, Rabies Management Coordinator, National Rabies Management Program, USDA

In developed countries, oral rabies vaccination (ORV) has emerged as an effective adjunct for control of rabies at its source in specific wildlife reservoirs such as foxes, raccoon dogs, and raccoons. In the U.S., Wildlife Services coordinates a National Rabies Management Program (NRMP), in which ORV is central to strategies to enhance the protection of human and animal health and reduce the significant cost of living with this zoonotic disease. Raboral V-RG[®] (a live recombinant Vaccinia-rabies glycoprotein vaccine) is the only oral vaccine licensed for use in the U.S. While the NRMP and federal and state cooperators have had successes with V-RG[®], we continue to pursue oral vaccine-baits that would allow us to more aggressively achieve national rabies management goals of preventing the spread of rabies and eliminating this disease in terrestrial carnivores. Consequently, APHIS leadership identified the candidate vaccine ONRAB[®] (Artemis Technologies, Guelph, Ontario, Canada) for field testing in 2011. This live recombinant vaccine uses a human adenovirus type 5 (HAd5) vector for expression of the rabies glycoprotein. Early indications from collaborative border studies with Canadian colleagues provided supporting evidence to further evaluate safety and immunogenicity of ONRAB[®] in raccoons and skunks. ONRAB[®] is used extensively in Canada, with more than 6 million doses safely distributed since 2007. The bait consists of a blister pack containing the rabies vaccine, which is coated with a sweet attractant.

On September 16, 2011, the NRMP initiated the ONRAB[®] field trial within a 559 mi² (1448 km²) area in southeastern West Virginia. This field trial was made possible through strong collaboration among the WS, NRMP and National Wildlife Research Center; APHIS Center for Veterinary Biologics; CDC;

Artemis Technologies; WV Departments of Agriculture and Health and Human Resources, and WV Division of Natural Resources. A total of 79,027 baits were distributed at 75 baits/km² mostly by fixed-wing aircraft along transect lines spaced at 750 m intervals. West Virginia was chosen because of its location near the center of the Appalachian Ridge ORV zone, low human population, presence of raccoons, skunks and raccoon variant of the rabies virus; local state and county support; WS infrastructure; and the proximity of the existing V-RG[®] zone for future comparison.

Baseline (pre-ONRAB[®] distribution) and post ONRAB[®] distribution sampling included: enhanced rabies surveillance; sera for rabies and human adenovirus serology; teeth for age and biomarker analysis; major organ tissues from target and non-target species for histopathological analysis; and oral cavity swab samples for HAd5 vaccine virus detection (post bait only). Monitoring for abnormalities among animals and enhanced surveillance for human bait contact (post bait only) were also integral to the safety evaluation.

There were no human or pet bait contacts reported from the field trial. The results from up to 23 tissue types from diverse target and non-target wildlife species samples pre (N=290) and post-ORV (N=300) with ONRAB[®] are being analyzed but to date no untoward events have been noted. The proportion of raccoons categorized as positive for rabies virus neutralizing antibodies (RVNA) was significantly higher in the post-ORV ONRAB[®] baiting period (49.4%, N=296) in comparison to the pre-ORV (9.6%, N=395) period (the area was naïve to ORV either with ONRAB[®] or V-RG[®] but where raccoon rabies is enzootic). This was the highest population RVNA level WS has observed after a first time baiting event in a naïve area at 75 baits/km². In addition, tetracycline biomarker presence was significantly higher among sero-positive raccoons post-ORV, an indication of vaccine-induced RVNA following bait consumption.

Based on the favorable outcome of the 2011 field trial, the NRMP and local, state and federal collaborators are planning to: expand trials in 2012 to strategic areas in Ohio, New York, Vermont and New Hampshire; and to replicate the field trial in West Virginia to further evaluate ONRAB[®] for potential broader geographic use in the future.



Saying farewell and welcome!

Natalie Gorman, Ministry of Natural Resources

This spring, the rabies control community said goodbye to two influential colleagues - Dr. Dennis Slate and Dr. Julien Mainguy.

Dennis Slate has been the coordinator for the USDA Wildlife Services National Rabies Management program since the program's inception in 1997. He has been successful in providing critical leadership for more than 15 years for this collaborative "One-Health" program now involving more than 20 states and Puerto Rico as well as Canada, Mexico, and the Navajo Nation. After 29 years of federal service, Dennis' career will wrap up on a positive note having finished the planning and organizing of the 2012 ONRAB® field trials in five states. For those of us who have had the opportunity to know and work alongside Dennis over the years – his day-to-day presence and wise counsel will be very much missed.

Richard Chipman is the new National Rabies Management Coordinator for the program. Rich is a Certified Wildlife Biologist who has worked for USDA Wildlife Services since 1991 including 7 years as a Wildlife Biologist in Vermont, 10 years as the New York State Director and 5 years as the Assistant National Rabies Management Coordinator. Prior to that, he worked for state wildlife agencies and universities on nongame and rare wildlife in Vermont, Maine, Kansas and Costa Rica. Since starting with WS, Rich has worked on a wide-variety of wildlife damage management projects including: rodent damage to maple sap collection systems; urban crow roosts; double-crested cormorants impacts to natural resources and fisheries; wildlife hazard management at airports; resident Canada goose



Dennis Donovan, MNR, presents Dennis Slate with a token of thanks during the USDA National Rabies meeting in April.

management; startling impacts to dairy operations, CWD and white-tailed deer; gull conflicts at landfills; emergency response to protect evidence associated with the 9-11 terrorist attack; and wildlife rabies management beginning in 1991.

We also said farewell to Dr. Julien Mainguy, wildlife biologist with the *Ministère des Ressources naturelles et de la Faune* (MRNF). With his collaborators, Julien has worked for the last four years on the ecology of raccoons and striped skunks to better target the control activities against the raccoon variant of rabies, especially the distribution of vaccine-baits, in the province of Québec. Most of his work has focused on studying habitat use by the two species, assessing the link between habitat heterogeneity and animal densities, and how this relationship could influence the density of vaccine-baits distributed in the landscape to optimize the resources devoted to rabies control. His new position at the MRNF will focus on migratory and woodland caribou research and management for the province of Quebec.

The new coordinator for raccoon rabies in the province of Québec is Dr. Ariane Massé, who has worked in the past, among other things, on habitat use by large herbivores, fish ecology and analysis of capture-recapture data. Ariane will now be in charge of raccoon rabies research for Québec in addition of continuing the collaboration with province and state representatives for control and surveillance purposes.

Best of luck to Dennis and Julien in your future endeavours. Your expertise and contribution to rabies research and management is appreciated and valued.



Dennis Slate and Julien Mainguy at the USDA National Rabies meeting in April.

World Rabies Day: Awareness is the best defense against rabies

Article courtesy of www.worldrabiesday.org

The world is again joining together on September 28th to raise awareness and understanding about the importance of rabies prevention. Rabies is the oldest and deadliest disease known to mankind and the Ministry of Natural Resources is supporting this initiative.

Led by the Alliance for Rabies Control and supported by numerous human and animal health organizations worldwide, World Rabies Day is a unique campaign that brings together hundreds of thousands of people across the world to reinforce the message that rabies is a preventable disease, yet kills 55,000 people needlessly each year, half of which are children under the age of 15¹.

“Rabies is primarily a disease of children, who are particularly at risk from this terrible disease, due to their close contact with dogs, the major global source”, said Dr. Debbie Briggs, Executive Director of the Alliance for Rabies Control. “Children are more likely to suffer multiple bites and scratches to the face and head, both of which carry a higher risk of contracting rabies. Children are often unaware of the danger that dogs transmit rabies and may not tell their parents when a bite, lick, or scratch has occurred from an infected animal”, says Briggs.

Rabies is a viral disease that can be transmitted to animals and humans. The disease is transmitted mainly by bite, but exposure may also occur through contamination of broken skin or mucous membranes with saliva from an infected animal. Once neurological symptoms of the disease develop, rabies is fatal to both animals and humans. The good news is that rabies is easily preventable. “Vaccination prior to possible exposure is a crucial part of health management of domestic animals, and is the single most important factor in rabies prevention”, said Peter Costa, Global Communications Coordinator for the Alliance for Rabies Control.

Rabies prevention starts with the animal owner. Protect yourself, your pet and your community by taking animals to be vaccinated. Avoid stray animals and wildlife. If you are bitten, wash bite wounds with soap and water and seek medical attention immediately. If your pet is bitten, consult your veterinarian immediately. Prompt and appropriate treatment after being bitten and before the disease develops can stop rabies infection and/or prevent the disease in humans and animals.

The World Rabies Day initiative also raises money towards local rabies prevention and control programs, with eight projects funded since 2008. “Through the World Rabies Day campaign we continue to engage all the major stakeholders associated with rabies to take action”, says Costa. “We invite everyone to join the team that is Making Rabies History!”



More information on World Rabies Day can be found at the official web site, www.worldrabiesday.org.

References:

¹WHO. Human and Animal Rabies, Rabies: A neglected zoonotic disease. Available at: <http://www.who.int/rabies/en/>. Accessed on July 23, 2008.

World Rabies Day Online Webinar September 20-21, 2012

Join in on September 20-21, 2012 for the
3rd Annual World Rabies Day Webinar.

The two day event will focus on canine rabies elimination; human rabies surveillance, prevention and intervention; wildlife rabies control; information and education campaigns and building sustainable programs.

Day 1 (Sept 20) of the webinar will concentrate on presentations from Asia, the Middle East, Europe and Africa. Day 2 (Sept 21) will spotlight talks from North America, Latin America and the Caribbean regions.

More than 200 people from 45 countries have already signed-up! There is no cost to attend but you must register in advance.

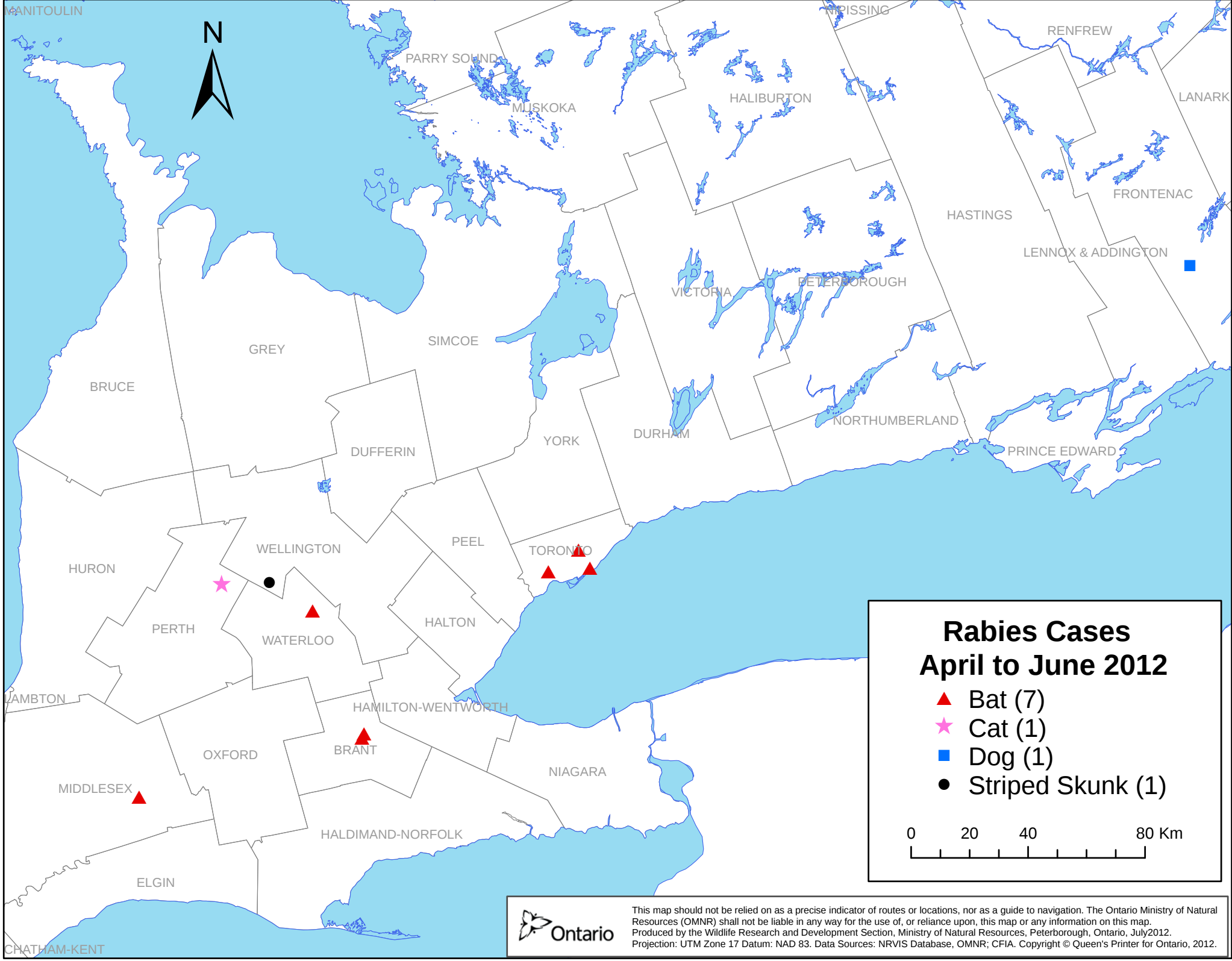
Visit www.worldrabiesday.org for more information.

Animal Rabies Report: April to June 2012

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Animal Rabies Report: April to June 2012

Animal Type	Fox			Raccoon			Skunk			Other Wildlife			Bat			Dog			Cat			Livestock			Totals		
County or Region	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		12	11		12	11		12	11		12	11		12	11		12	11		12	11		12	11			
Southern																											
Wentworth														1										0	0	1	
Haldimand-Norfolk																								0	0	0	
Brant												2	2											2	2	0	
Niagara														1										0	0	1	
Elgin													1											0	1	0	
Oxford																								0	0	0	
Middlesex												1	1											1	1	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																								0	0	0	
Regional Totals																											
Eastern	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	0	
Central	0	0	0	0	0	0	0	0	0	0	0	3	4	1	0	0	0	0	0	0	0	0	0	3	4	1	
Western	0	0	0	0	0	0	1	1	0	0	0	1	1	2	0	0	0	1	1	0	0	0	1	3	3	3	
Southern	0	0	0	0	0	0	0	0	0	0	0	3	4	2	0	0	0	0	0	0	0	0	0	3	4	2	
Northern	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	0	0	0	0	0	0	1	1	0	0	0	7	9	5	1	1	0	1	1	0	0	0	1	10	12	6	



Rabies Cases April to June 2012

- ▲ Bat (7)
- ★ Cat (1)
- Dog (1)
- Striped Skunk (1)

0 20 40 80 Km



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