

# *The Rabies Reporter*

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Summer 2007



## Rabies in Ontario - April to June 2007

So far 2007 is proving to be a typical year of late. There were 17 cases in this quarter bringing the total for the year so far to 34.

As expected with the onset of warmer weather, there was a significant increase in the incidence of rabid bats from the previous quarter. There were 12 new rabid bats from April to June bringing the total for the first two quarters to 14. This is up slightly from 2006 when there were 12 cases during the first six months.

The bats were scattered throughout Ontario with most of them occurring in southern and central Ontario (one each in Durham Region, Toronto, Simcoe, Wentworth, and Haldimand-Norfolk counties; and two each in Niagara and Peterborough counties). There were also two rabid bats in eastern Ontario (Frontenac and Lennox-Addington counties) and one in western Ontario (Wellington county).

There were five rabid skunks during the second quarter. This is down significantly from the first quarter when there were nine infected skunks. This is a slight increase from 2006 when there were 12 rabid skunks during the first six months. The rabid skunks were located in Peel (1), Dufferin (1), and Perth (2) counties in western Ontario and in Oxford county (1) in southern Ontario.

The cases in 2007 covered a much smaller geographic area than what they did at this time in 2006 which is good news. Since the boundaries of the baited area each fall depend on the location of the recent cases, as the cases become more focussed, the boundaries of the baited area could begin to shrink.

Of some concern to us was the rabid skunk in Oxford county. This animal was infected with arctic strain rabies which represents a southward movement of the

disease. Since this case is less than 50 km from the edge of the baited area in 2006, the boundaries of the baited area will be expanded in the fall of 2007.

Another significant feature of the second quarter is that there were no rabies cases in foxes, raccoons, dogs, cats, livestock, or any other species. The only other time that bats and skunks accounted for all of the rabies cases in a single quarter, since rabies became established in Ontario almost 50 years ago, was in the second quarter of 2005. As the incidence of rabies in the main vector species (foxes, raccoons, and skunks) decreases, rabies is also more likely to disappear from other species. It is vital though that pet owners continue to have their pets vaccinated against rabies as required by law.

The Rabies Research and Development Unit will again be distributing oral rabies vaccine baits containing ONRAB in selected areas of southwestern Ontario in August and September to help combat the remaining pockets of rabid skunks in western Ontario.

The bait drop in August will consist of test plots to examine the effects of different bait densities on bait acceptance and immunization rates in skunks.

The bait drop in September will be distributing ONRAB baits at our normal density for foxes (20 bats/km<sup>2</sup>) over a larger area of southwestern Ontario. Approximately one third of our traditional baited area will be covered with ultra-lite baits containing ONRAB vaccine (targeting skunks), one third will be baited with ultra-lite baits containing ERA vaccine (our traditional fox rabies vaccine), and the remaining third will be baited with Ontario slim baits (the traditional fox bait) containing ERA vaccine.

*Beverly Stevenson  
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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; 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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## Ohio Spring ORV

Since the mid-1970s, raccoon strain rabies has spread rapidly through the eastern United States. Northeastern Ohio was first threatened in 1997. To control the disease, the Ohio Department of Health (ODH) has been conducting a program to distribute an oral rabies vaccine (ORV) to immunize wild raccoons along the Pennsylvania and West Virginia borders. ORV has been conducted once or twice per year and have created a 25-mile-wide immune barrier from Lake Erie to Monroe County.

In 2004, there was a breach of the Ohio immune barrier. A raccoon with raccoon strain rabies was confirmed in Lake County, about seven miles west of the established barrier. All of Lake and Geauga counties, plus parts of Cuyahoga, Summit and Portage counties were subsequently added to the

ORV treatment zone.

Although ORV has successfully suppressed infection in raccoons in the treated area and has controlled the spread of raccoon strain rabies through the rest of the state, the virus continues to persist in Northeast Ohio.

The purpose of the spring oral rabies vaccine (ORV) baiting was to reinforce an immune barrier to prevent further spread

of raccoon strain rabies into Ohio. The vaccine effort targeted five northeastern Ohio counties (Cuyahoga, Geauga, Lake, Portage and Summit) where 91 animals with RRV have been confirmed since July 2004. Beginning April 24, 95,040 ground, 33,120 helicopter and 121,500 aerial baits, for a total of 249,660 baits were distributed over 2,904.3 square kilometers (1,121.4 square miles) of Ohio (Table 2). Fish meal polymer (FMP) baits were used in ground and helicopter operations, while coated sachet (CS) baits were distributed by fixed-wing aircraft.

One Ontario Ministry of Natural



Figure 1. Ohio oral rabies vaccination (ORV) area.

Resources Twin Otter aircraft was utilized. Ten staff from the Ohio Department of Health (ODH) and the United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services (USDA APHIS WS) assisted in the effort. The OMNR aircraft distributed 121,500 baits over 1,519 square kilometers (586 square miles) on April 24 during four flights, totaling 9.3 flight hours.

*Information supplied by:  
Ohio Department of Health  
Zoonotic Disease Program*

Table 1. Incidence of raccoon strain rabies cases in Ohio since the disease first appeared in the state..

| Year | Raccoons | Other Species | Total |
|------|----------|---------------|-------|
| 1997 | 59       | 3             | 62    |
| 1998 | 20       | 6             | 26    |
| 1999 | 5        | 1             | 6     |
| 2000 | 0        | 0             | 0     |
| 2001 | 1        | 0             | 1     |
| 2002 | 1        | 0             | 1     |
| 2003 | 2        | 0             | 2     |
| 2004 | 45       | 1             | 46    |
| 2005 | 34       | 4             | 38    |
| 2006 | 10       | 0             | 10    |
| 2007 | 11       | 9             | 20    |

## Raccoon Rabies in Quebec

### *All is Not Quiet on the Eastern Front*

#### 2006 in Perspective

Quebec experienced its' first confirmed case of raccoon strain rabies in 2006. A road-kill raccoon from Dunham in the Montérégie region of Quebec was found on May 31, 2006 and was submitted for testing. It was positive.

In response to this case, a Point Infection Control (PIC) program was initiated. This involved depopulating a 5 km radius surrounding the case and then conducting a Trap-Vaccinate-Release program in an additional 5 km radius around the depopulation zone. A total of 536 raccoons and 82 skunks were depopulated and 973 raccoons and 199 skunks were vaccinated during the PIC program.

A second positive raccoon was discovered on June 20th. It was located 4.7 km east of the initial case. A second PIC was implemented in response to this case. In addition, an aerial rabies vaccine bait drop was scheduled for the area.

During the second PIC operation, a total of 336 raccoons and 84 skunks were humanely euthanized in the depopulation zone. In addition, a sample of 51 raccoons and 3 skunks were euthanized in the TVR zone to determine whether raccoon strain rabies had already spread beyond the depopulation zone. There were also 1154 raccoons and 247 skunks vaccinated in the TVR portion.

On August 19th, 120,000 rabies vaccine baits were distributed from Ontario Ministry of Natural Resources twin otter aircraft. The baits were distributed at a density of 70 baits/km<sup>2</sup> in a 30 km radius surrounding the first two cases.

A third infected raccoon was captured on September 6th. It was captured at a landfill approximately 9 km north of the previous cases (approximately 5 km from Cowans-

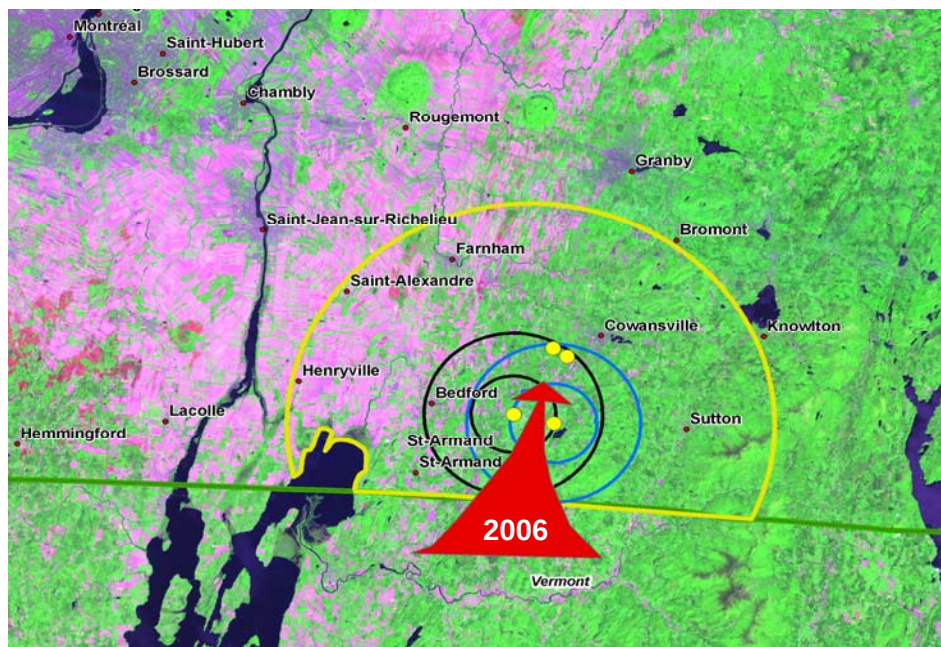


Figure 2. Raccoon rabies spread from Vermont into Quebec in the spring of 2006.

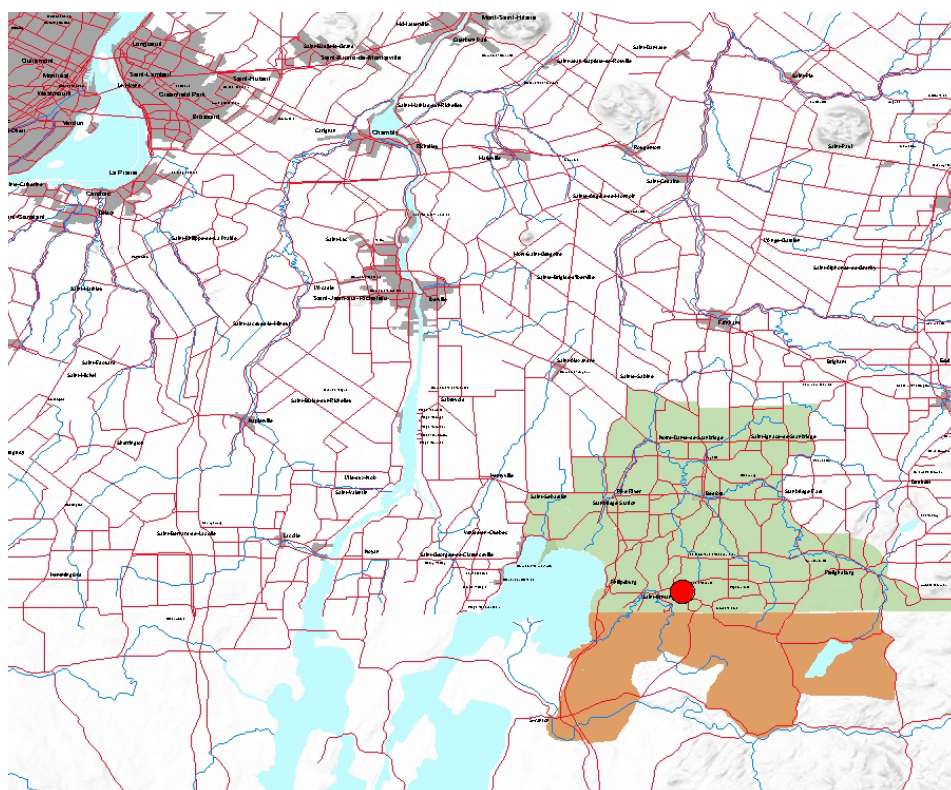


Figure 3. First case of raccoon strain rabies for 2007 discovered near Vermont border in May.

ville).

A TVR program was initiated in response to the third case. The TVR was conducted from October 19th-29th over a 20km<sup>2</sup> area in the urban part of Cowansville. A total of 111 raccoons and 63 skunks were vaccinated.

The fourth and final case of 2006 was an infected raccoon found on November 10th as part of the active surveillance. It was located in an area that had been part of a TVR program.

### 2007

By the beginning of June, Vermont had already experienced 64 cases of rabies. With no physical barrier between Vermont and Quebec, this was not good news.

The first case of raccoon strain rabies for 2007 was discovered in May just north of the Vermont border.

A PIC operation was implemented from June 11th to 23rd to try to control the spread of the disease. During this operation, 3320 raccoons and 431 skunks were captured. Of these, 2261 raccoons and 266 skunks were euthanized.

As part of the TVR program, 6 raccoons from each of the TVR cells were euthanized to determine if rabies had already spread beyond the depopulation zone.

Due to the volume of submissions, there was a backlog of samples at the lab waiting for testing. Of the 1082

raccoons and 70 skunks sampled for testing and for which results were received for, 32 raccoons and 1 skunk were rabid. In other words, approximately 3% (or 1 out of every 35 animals) of the animals tested had rabies.

During the PIC operation, the area is divided into cells for each trapper. Once the lab had identified a rabid animal within a cell, the remainder of the samples from that cell were set aside and animals from other cells were tested instead. This was done to give a better idea of the extent of the spread of raccoon rabies so far. During the backlog, it is more important to know how far rabies has spread than the actual number of cases.

From July to September 2007, three more PIC operations were established to restrain the spread and iden-

tify the extent of this outbreak. During these PICs, eleven more positive raccoons were found. This made a total of 43 rabid raccoons and 1 skunk during all of the 2007 PIC operations.

An additional 17 rabid raccoons and 4 skunks was also identified during the active surveillance program in 2007.

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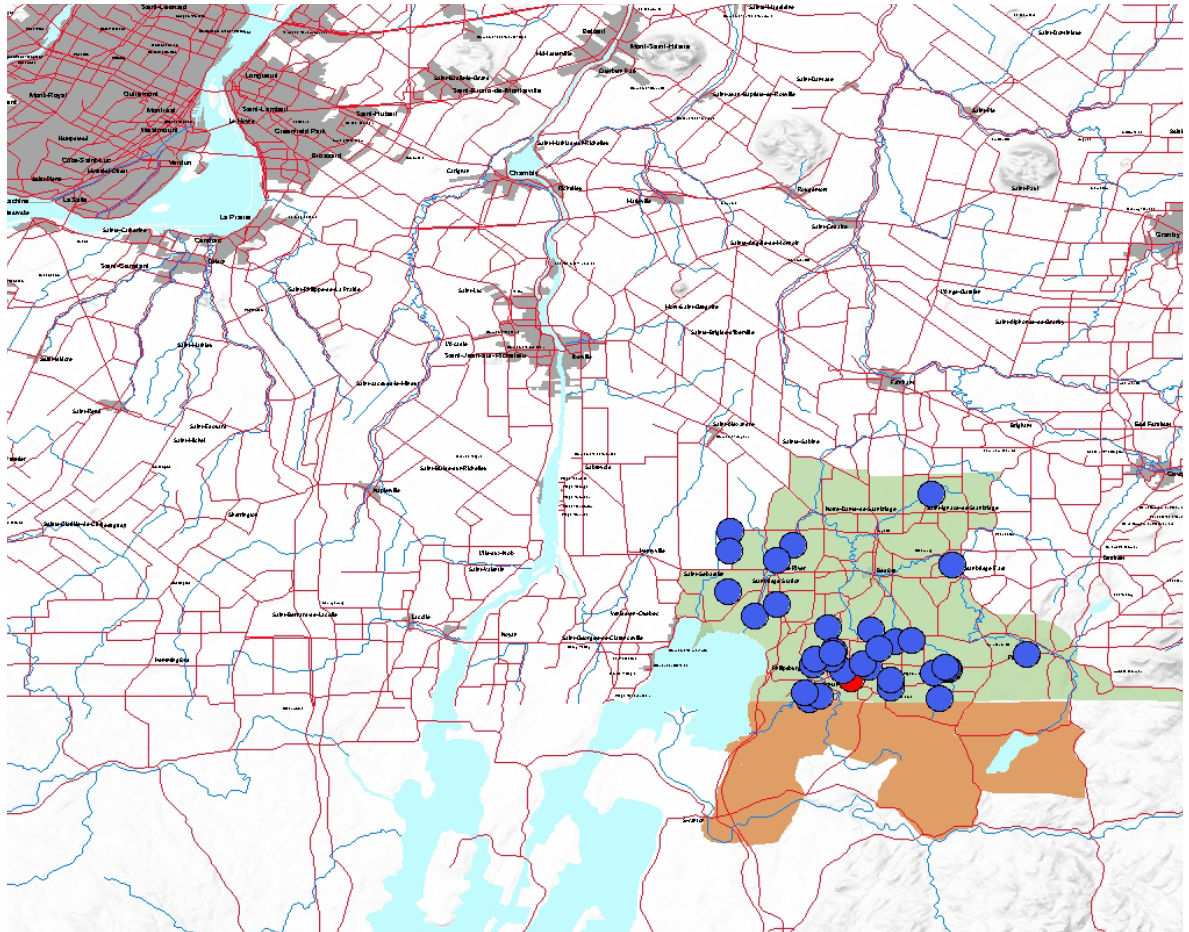


Figure 4. Incidence of raccoon strain rabies cases as of June 2007.

## State of Resources Report Available for Rabies

As part of *Our Sustainable Future*, the Ontario Ministry of Natural Resources is committed to a program called State of Resources Reporting (SORR). These reports will provide information on the health of Ontario's natural resources, improve government transparency and accountability, and support stewardship, partnerships, and community involvement in natural resources management.

### What is State of Resources Reporting?

SORR are plain language reports that serve to inform the public about the health and management of Ontario's natural resources while promoting citizen engagement.

Reports provide a balanced and objective assessment of natural resources management, taking into consideration environmental, cultural, social, and economic factors. Reports are based on the best available information sources including scientific reports, social and economic assessments, and the knowledge of experts.

### Reporting Framework

The framework for SORR is founded on the ministry's commitment to achieving ecological sustainability, conserving biodiversity, and ensuring the sustainable use of natural resources.

Reports will cover mandated activities related to the natural resources that the ministry manages including forests, fish, wildlife, parks and protected areas, lands, waters, renewable energy, and non-renewable resources.

The ministry has adopted a comprehensive reporting model that includes three types of reports to serve a range of public interest:

- **Resource reports:** focus on the resource itself and generally include an assessment of the state or condition of the resource, the factors influencing the resource, and the current management actions undertaken. Resource reports may cover a single resource or a broader grouping of resources.
- **Special interest reports:** provide important context for understanding complex resource management topics and often include a socio-economic perspective.
- **Performance reports:** describe the ministry's progress towards stated resource management goals.

SORR span from local to provincial scales based on ecology (such as species distribution) and/or how resources are managed.

### Schedule of Reporting

The ministry is developing an annual schedule of reporting through its regular planning process that will consider public interest, available knowledge and reporting capacity.

### Report Availability

On February 20th, the first four SORRs became available online. These reports covered American Eel, Canada Yew, Rabies, and Wolves.

To view the SORR on rabies and rabies control programs in Ontario, visit <http://www.mnr.gov.on.ca/mnr/sorr/rabies.html>.

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## New Chair Appointed for Rabies Advisory Committee

Jim Broadfoot was appointed chairman of the Ontario Rabies Advisory Committee in December 2006. Jim replaces outgoing chair Jacqueline Carlson and interim acting chair Elliot Salsberg.

Jim is a wildlife biologist with 30 years experience in the resource management field. Jim's career began with the Ontario Ministry of Natural Resources' Rabies Research Unit studying the spatial behaviour of Ontario's primary rabies vectors of the day (i.e. red fox and striped skunk).

This early work also involved the distribution of some of the first aerial baits distributed in the province as the first steps leading to the development of the aerial bait delivery system in use today.

Throughout his career, Jim has had periodic involvement with the Rabies Research Unit having most recently assisted Dr. Roly Tinline and the skilled GIS team at Queen's University in the development of the Ontario Rabies Model. Other work has involved field studies on a variety of Ontario's large mammals including white-tailed deer, moose, coyotes, black bears and polar bears. Jim has authored a number of scientific and technical papers based on the outcomes of these studies.

Today Jim works as a biologist in the private sector conducting biophysical inventories, designing habitat restoration projects and completing environmental impact assessments for a variety of development scenarios.

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## Kathryn MacDonald Says Farewell to the MNR

After starting her MNR career working contracts with Midhurst district in 1986, she also dabbled doing work with other ministries including the Solicitor General and the OPP.

Over the years, with there being a Kathryn MacDonald and a Kathy MacDonald, the unit came to refer to Kathryn as KMac. She started with the Rabies Unit back in 1994 when we were still baiting in eastern Ontario out of the Irvine Lake airstrip north of Bon Echo Park.

As with most of our fliers, Kathryn wasn't fond of the air sickness associated with the back of the plane and was quickly promoted to navigator in the front of the Twin Otter where the view is better, the ride is smoother, and the odours from the baits are less noticeable. Kathryn always cherished being able to see so much of Ontario and other parts of North America from the

air. Sometimes pictures or words just can't describe what you're seeing especially during the early morning flights. To this day, she says it still brings a smile to her face to think of some of the things she was lucky enough to see from the air.

Kathryn quickly fit into the unit and had a real knack for finding and scrounging whatever was needed to keep things running smoothly to the point where she became responsible for most of the aerial baiting logistics. She was also responsible for going through the resumes and gleaning off those that she thought would make good fliers for our short baiting contracts. She became a "Den Mother" to most of those hired and helped them with their hiring paperwork, time sheets and expenses. Later, she took great joy in giving them work references and seeing them advance in their careers.

I know Kathryn regretted leaving as she had developed a close bond with her co-workers as well as some of our partners in the health and wildlife agencies and with the fur harvesters that we worked closely with. She still keeps in close contact with the fur harvesters and is active with her local trapper's council where she is vice-president.

Kathryn has left the unit to begin work as a Firearms Officer with the Orillia OPP detachment which puts her closer to her home. Kathryn can now enjoy her own bed at the end of each day, and puttering around her house working on odd jobs that older houses tend to have. She will also get to enjoy the harvest from her garden now instead of being away flying somewhere when everything is ripe

and ready to harvest. She now also has two young English Springer Spaniels to keep her busy and out of trouble.

Kathryn said to keep an eye travelling the highways for her blue pickup and if you see the licence plate "RBD FOX" give her a toot.

Fall flying hasn't been the same since you've left but we wish you all the best with the Chief Firearms Office and from time to time we'll stop in to say hello.

*Mark Gibson  
RRDU  
Peterborough, ON*

## Articles Submissions Welcome

Do you have an article that you would like to submit to the Rabies Reporter? Or do you have an idea for an article that you would like to see but don't know who would write it?

If you answered yes to either of these questions, please e-mail the editor at [beverly.stevenson@ontario.ca](mailto:beverly.stevenson@ontario.ca). All suggestions for articles are appreciated.

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Figure 5. Kathryn MacDonald labeling baits for an experiment.

## Animal Rabies Report: April to June 2007

[illegible]

## Animal Rabies Report: April to June 2007

| Animal Type       | Fox |            |    | Raccoon |            |    | Skunk |            |    | Other Wildlife |            |    | Bat |            |    | Dog |            |    | Cat |            |    | Livestock |            |    | Totals |            |  |
|-------------------|-----|------------|----|---------|------------|----|-------|------------|----|----------------|------------|----|-----|------------|----|-----|------------|----|-----|------------|----|-----------|------------|----|--------|------------|--|
| County or Region  | #   | Cumulative |    | #       | Cumulative |    | #     | Cumulative |    | #              | Cumulative |    | #   | Cumulative |    | #   | Cumulative |    | #   | Cumulative |    | #         | Cumulative |    | #      | Cumulative |  |
|                   |     | 07         | 06 |         | 07         | 06 |       | 07         | 06 |                | 07         | 06 |     | 07         | 06 |     | 07         | 06 |     | 07         | 06 |           | 07         | 06 |        |            |  |
| Southern          |     |            |    |         |            |    |       |            |    |                |            |    |     |            |    |     |            |    |     |            |    |           |            |    |        |            |  |
| Wentworth         |     |            |    |         |            |    |       |            |    |                |            | 1  | 1   |            |    |     |            |    |     |            |    |           |            | 1  | 1      | 0          |  |
| Haldimand-Norfolk |     |            |    |         |            |    |       |            |    |                |            | 1  | 1   |            |    |     |            |    |     |            |    |           |            | 1  | 1      | 0          |  |
| Brant             |     |            |    |         |            |    |       |            |    |                |            |    |     |            |    |     |            |    |     |            |    |           |            | 0  | 0      | 0          |  |
| Niagara           |     |            |    |         |            |    |       |            |    |                |            | 2  | 2   | 3          |    |     |            |    |     |            |    |           |            | 2  | 2      | 3          |  |
| Elgin             |     |            |    |         |            |    |       |            |    |                |            |    |     | 1          |    |     |            |    |     |            |    |           |            | 0  | 0      | 1          |  |
| Oxford            |     |            |    |         |            |    | 1     | 1          |    |                |            |    |     |            |    |     |            |    |     |            |    |           |            | 1  | 1      | 0          |  |
| Middlesex         |     |            |    |         |            |    |       |            |    |                |            |    |     | 2          |    |     |            |    |     |            |    |           |            | 0  | 0      | 2          |  |
| Lambton           |     |            |    |         |            |    |       |            |    |                |            |    | 1   | 1          |    |     |            |    |     |            |    |           |            | 0  | 1      | 1          |  |
| 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  | 2   | 2          | 0  | 0   | 0          | 0  | 0   | 0          | 0  | 0         | 0          | 2  | 2      | 0          |  |
| Central           | 0   | 0          | 0  | 0       | 0          | 0  | 0     | 0          | 1  | 0              | 0          | 0  | 5   | 6          | 3  | 0   | 0          | 0  | 0   | 0          | 0  | 1         | 0          | 5  | 7      | 4          |  |
| Western           | 0   | 0          | 0  | 0       | 0          | 1  | 4     | 13         | 12 | 0              | 0          | 0  | 1   | 1          | 2  | 0   | 1          | 0  | 0   | 0          | 0  | 4         | 5          | 5  | 19     | 20         |  |
| Southern          | 0   | 0          | 0  | 0       | 0          | 0  | 1     | 1          | 0  | 0              | 0          | 0  | 4   | 5          | 7  | 0   | 0          | 0  | 0   | 0          | 0  | 0         | 0          | 5  | 6      | 7          |  |
| 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          | 1  | 5     | 14         | 13 | 0              | 0          | 0  | 12  | 14         | 12 | 0   | 1          | 0  | 0   | 0          | 0  | 5         | 5          | 17 | 34     | 31         |  |

Notes for this quarter:

All but two bats were big brown bats. One bat in Simcoe County and one in Peterborough County were little brown bats.

