

Introduction

West Nile Virus (WNV) was first detected in Peel in birds and mosquitoes in 2001. Locally acquired human illness occurred for the first time in 2002 when 112 residents had laboratory evidence of WNV infection (55 suspect cases, 20 probable cases and 37 confirmed cases, including two deaths). The vast majority of confirmed WNV cases were in Mississauga (34); the remaining three confirmed cases were Brampton residents. Most of these cases occurred in August and September. By the end of the year Peel Public Health documented over 1,400 dead crows in our region. Other indicators of extensive WNV activity in Peel during 2002 included positive tests for WNV in 20 crows – nine in Mississauga, six in Caledon and five in Brampton. A total of 128 WNV positive mosquito batches were also identified in Peel that year – 106 in Mississauga and 22 in Brampton.

In 2003, there were only 10 human cases and no deaths reported in Peel. Mississauga continued to be the area in Peel with the highest WNV risk, as all the human cases of WNV were Mississauga residents. A total of 12 crows tested positive for WNV in 2003. Brampton and Mississauga each had five positive crows reported and there were two positive crows found in Caledon. The number of WNV positive mosquito batches dropped dramatically to 24 in 2003. Sixteen WNV positive batches were collected from traps in Mississauga and the remaining eight positive batches were located in Brampton.

In 2004, no human cases were reported in Peel. A reduction of positive mosquito batches was also experienced in 2004. A total of four mosquito batches tested positive, two each in Mississauga and Brampton. As in previous years no positive mosquitoes were found in Caledon. All three municipalities reported positive birds in 2004. In 2004, in addition to crows, blue jays were also submitted for testing. Blue jays were included in the provincial dead bird surveillance program in part due to low crow populations in some parts of Ontario. The agency conducting the viral testing, the Canadian Cooperative Wildlife Health Centre, also requested the submission of hawk carcasses for study purposes. Five positive crows were found in Caledon, four in Brampton and four in Mississauga. Two positive blue jays were found in Mississauga and one in Caledon. In addition, a positive hawk was found in Mississauga. The increase in positive birds from 12 in 2003 to 17 in 2004 can be attributed to Peel continuing to submit carcasses throughout the entire WNV season. In previous years, the Canadian Cooperative Wildlife Health Centre laboratory would suspend testing from a health unit when four positive birds were identified in a jurisdiction and resume receiving samples later in the fall.

A combination of increased public awareness, cooler weather, fewer WNV susceptible birds and the larviciding of catch basins and surface waters likely contributed to Peel having lower levels of WNV activity in 2003 and 2004.

In 2005, there were three residents of Peel who had laboratory evidence of WNV infection. There were no deaths in Peel due WNV in 2005. Two of the human cases resided in Mississauga and one in Brampton. A total of 24 mosquito batches tested positive (16 in Mississauga, six in Brampton and two in Caledon). This year was the first time positive mosquitoes were found in Caledon. A total of 33 positive birds were reported in 2005; this was the greatest number of positive birds in the five year history of Peel Public Health's bird surveillance program. Eighteen positive birds were found in Mississauga, 10 in Brampton and five in Caledon. The percentage of birds testing positive was also higher than previous years. The increase in WNV activity may be attributed to the hotter than normal summer temperatures in 2005. The hotter the temperature, the higher the viral load per infected mosquito, and thus the greater the probability that the vector will transmit the agent when taking its next blood meal.

Surveillance of human cases, mosquitoes and birds in 2006 indicated a decrease in WNV activity in Peel when compared to 2005. In 2006, there were two confirmed human cases in Peel (both cases resided in Brampton). Fourteen batches of mosquitoes tested positive (10 in Mississauga and four in Brampton). A total of 11 positive birds were reported in Peel. Three positive birds were found in Caledon and four positive birds reported in both Mississauga and Brampton. The notable decrease in positive birds from 33 in 2005 to 11 in 2006 can be attributed to the Canadian Cooperative Wildlife Centre suspending testing of Peel birds in mid August. Bird testing was suspended when the test results indicated that the virus was established in the wild bird population in all three local municipalities in Peel. Approximately 41% of birds submitted from Peel were positive in 2006, a slight decrease from 2005 when 44% of the bird carcasses tested positive.

At this point it is reasonable to assume that the virus has established itself in North America and will return to Peel at some level in 2007. Peel will continue the surveillance, public education and larval mosquito reduction activities as these are essential WNV program components in a jurisdiction where WNV has been detected in a previous season.

Peel Public Health extends its gratitude to the following collaborators with whom it has worked closely to develop a plan that meets the specific needs of the Region of Peel: Health Canada (HC); the Ontario Ministry of Health and Long-Term Care (MOHLTC); and members of the Region of Peel Mosquito Control Task Force, representing the following agencies:

- Credit Valley Conservation - Biology, Field Operations, Communications
- Toronto Region Conservation Authority - Environmental Services
- Town of Caledon - Property Standards Section, Infrastructure Department, Animal Control Service

- Region of Peel - Public Works
- City of Brampton - Public Relations and Communications, Planning, Design and Development, Works and Transportation, Community Services, Animal Services
- City of Mississauga - Enforcement Division, Community Services, Transportation and Works, Recreation and Parks, Animal Services, Communications