

## MOSQUITO BREEDING SITE (LARVAL) SURVEILLANCE

### Introduction

The life cycle of a mosquito includes four stages: egg, larva, pupa and adult. Three of these stages often take place in water. Many mosquito species lay their eggs in or near water, where the eggs then hatch into larvae.<sup>7</sup>

A random selection of road-side catch basins was surveyed for the presence of mosquito larvae in 2001. Mosquito larvae were found in 77% (20 of 26) of the catch basins examined.<sup>16</sup>

In order to ascertain the anticipated volume of adult mosquitoes in an area, as well as to identify their stage of development, samples of standing water were obtained from various areas throughout the Region of Peel in 2002.

### Methods

Areas of high risk, those near populations deemed at the time to be of higher risk of serious symptoms related to WNV disease, such as the elderly or ill, were identified using mapping software. These locations were surveyed for standing or slow-moving water. If larvae were found, samples or “dips” were taken from the site using a dipper. Mosquito larvae were collected, counted and an attempt was made to identify the stage of development of the larvae, known as the instar stage.

As positive birds and/or human cases were identified, further potential breeding sites were surveyed around these locations for the presence of mosquito larvae.

Information about the location of potential mosquito breeding sites, including address or latitude/longitude co-ordinates and type of physical feature, was recorded along with the date of collection. Once results were obtained, this information was entered into an Excel spreadsheet for analysis and charting.

### Results

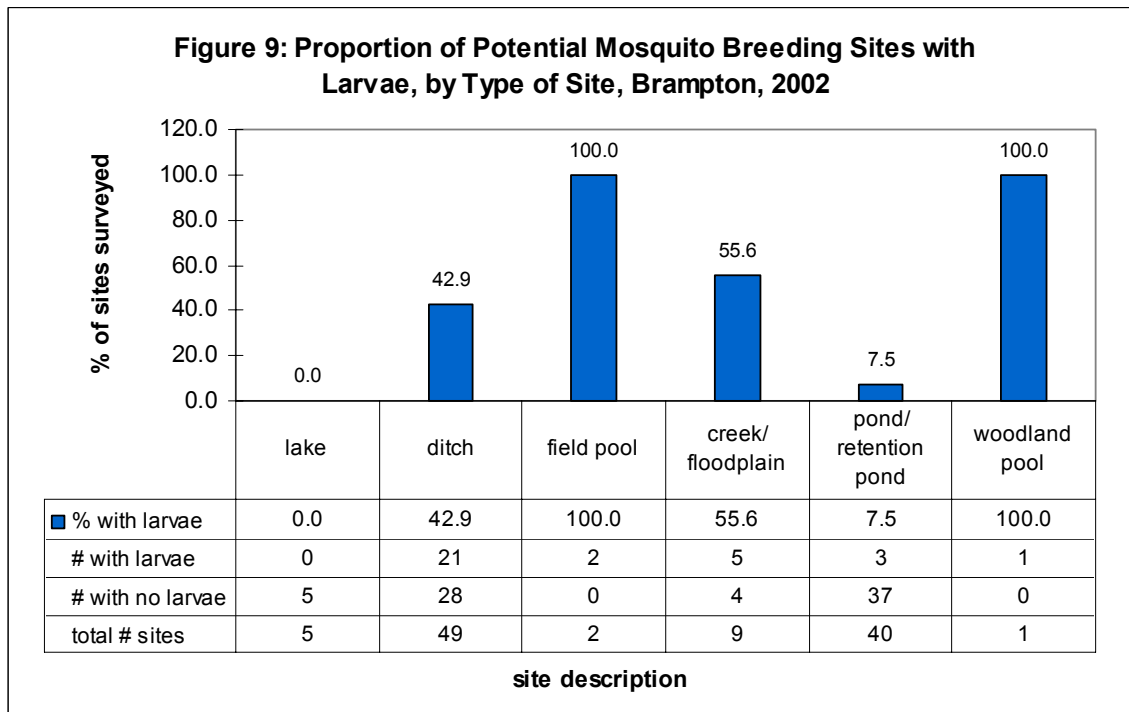
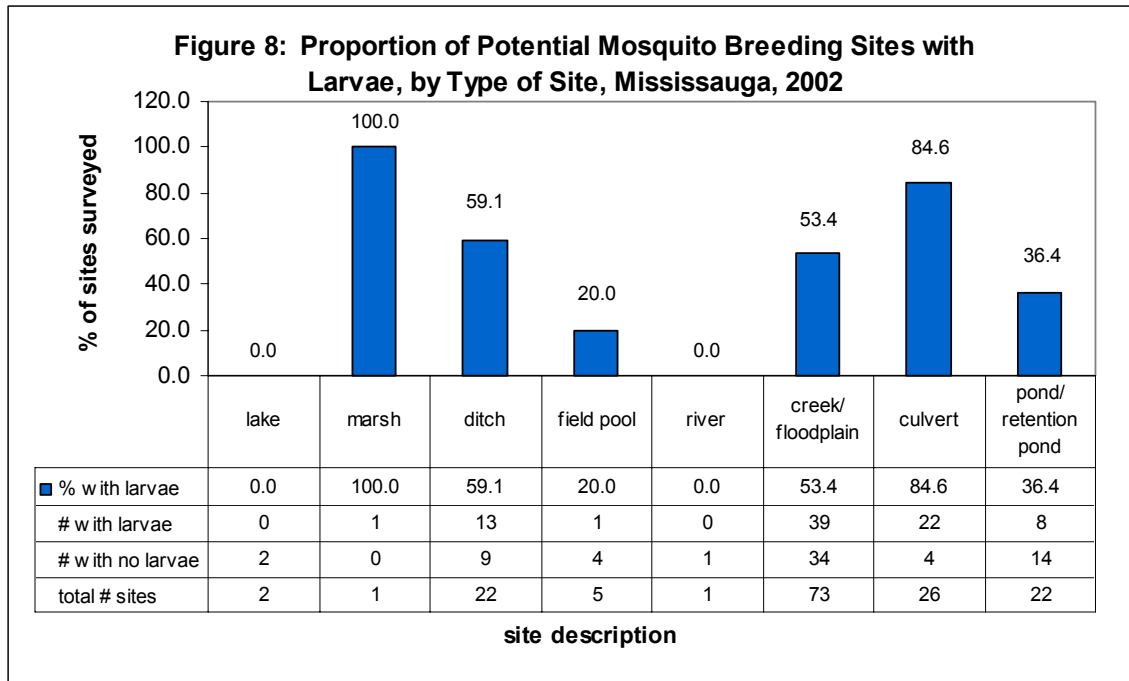
A total of 278 sites were surveyed in Peel: 152 were in Mississauga, 106 in Brampton and 20 in Caledon. The presence of mosquito larvae was identified in 42% (118 of 278) of the potential mosquito breeding sites from which samples were taken in 2002. Results by municipality and type of site are shown in Figures 8 – 10.

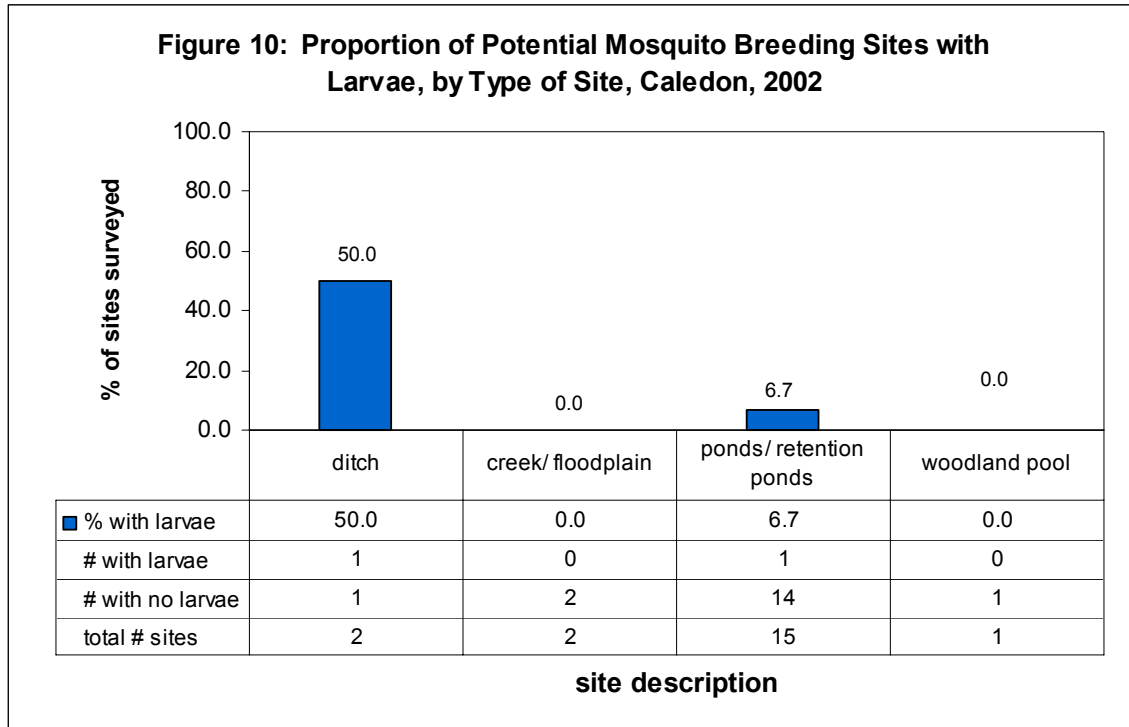
In Mississauga, 55% of sites sampled contained mosquito larvae (84 of 152), whereas proportions were much lower in the other two area municipalities. Just under one-third



## West Nile Virus in the Region of Peel 2002

of Brampton sites (30% or 32 of 106) were found to have larvae, while in Caledon, only 10% of sites (2 of 20) contained larvae.





Overall, man-made structures such as ditches and culverts tended to have higher proportions of larvae present than naturally-occurring sites that were surveyed. Nearly 85% of culverts and 47% of ditches surveyed contained larvae, compared to 32% of lakes, marshes, rivers and woodland pools.

Flood plains of creeks were also more likely to contain larvae than the creeks themselves. Mosquito larvae were often found in puddles adjacent to the main body of the pond or other water source. Over half of all creeks and floodplains surveyed (52%) contained mosquito larvae.

### Summary

Larval surveillance provides crucial information for mosquito control interventions. In 2002, a total of 278 sites were surveyed for standing water in Peel: 152 were in Mississauga, 106 in Brampton and 20 in Caledon. The presence of mosquito larvae was identified in 42% of the potential breeding sites from which samples were taken. Ditches and culverts were some of the more numerous breeding sites and often contained mosquito larvae.



