

2014 Arbovirus Surveillance in Vermont

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Abstract

Mosquito surveillance expanded in 2014 to include trapping in 12 of the 14 counties in Vermont, with a total of 77 trap locations. Surveillance began on June 2 and ended on October 9, focusing on hardwood swamps throughout the state. Our objective was to look for sites that contained significant populations of *Culiseta melanura*. We set up 56 resting box trap sites, each containing a line of 10 boxes. These sites also had a CDC light trap to assess mosquito species present. An additional 11 CDC trap sites were selected to look for suitable sites for *Culiseta melanura*. We established 10 gravid trap sites, placing 2 trays within 3 meters of each other. Eight of these sites were at sewage treatment facilities in urban areas and 2 were located at rural sites, based on Eastern Equine Encephalitis virus (EEE) risk maps.

This year we tested 3,245 mosquito pool samples, representing 41,700 mosquitoes and 13 species. This was a significant increase in the number of samples and mosquitoes tested in 2013 (1,338 pools and 16,729 mosquitoes). The Vermont Department of Health used Real-Time PCR to test for EEE virus and West Nile virus (WNV). Vermont reported 8 EEE virus isolations and 8 WNV isolations from the mosquito pool samples tested this year. No veterinary or human cases of either arbovirus were reported.

EEE-positive mosquito pool samples were found from June 17 to October 8. The wetland focus in Whiting continued to have EEE activity this year (3 positives) and a single isolation from a wetland 3.3 miles away. Four towns had single EEE isolations: Grand Isle, Colchester, Swanton, and Cornwall. Although *Culiseta melanura* continued to be a primary vector species (5 samples), virus was found in 2 *Culiseta morsitans* samples. The early detection of EEE in Grand Isle (June 17) from a single mosquito pool sample containing 11 *Ochlerotatus canadensis* was an unusual finding.

WNV isolations this season came from a mix of *Culex restuans/pipiens* (5 samples), *Coquillettidia perturbans*, *Ochlerotatus japonicus*, and *Culex salinarius*, starting July 29 and ending September 2. Five of the positive mosquito pools came from gravid traps located at sewage treatment facilities in the towns of Rockingham (3 positives on August 21), St. Albans, Brattleboro, Putney, and Springfield. A CDC light trap in Newbury contained 20 *Cq perturbans* testing positive for WNV.

A sero-survey of moose and deer in Vermont (2010-2012) has shown that 6% to 10% of the animals harvested during hunting season test positive for EEE antibodies. To date, the results from the 700 animals in the 2013 survey are not complete. We collected blood from deer and moose this fall, the fifth and final year of our study.