Emergence of Eastern Equine Encephalitis Virus in Northeastern Massachusetts:
Improving surveillance of infected mosquitoes.

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Overall Introduction

Up to 2000, the District's mandate focused primarily on control of aggressive mosquitoes that have impacted negatively on tourism, local economy, and overall quality of life. Control practices included traditional ground-based methods and use of Mosquito Adulticiding Equipment (MAE). However, differences in seasonal activity patterns and reduction of habitats through vegetation management resulted in an increased focus on urban communities during the late 1990's. The District's East End Unit of Massachusetts was formed in 2000 to better focus on that environment. The District's mandate was amended to also include efforts to reduce EEEV transmission. In 2001, the Massachusetts board of health authorized the District to include monitoring for EEEV and to perform adulticiding against infected mosquitoes.

Enhanced Surveillance using "Fiber-Pot" Resting Boxes

The primary objective was to detect the presence of EEEV, then recommend the appropriate actions. Prior to 2006, Cs. melanura comprised less than 1% of all mosquitoes collected in our surveillance traps; traps employed at each Essex County community bordering southeastern New Hampshire were members of the District, so effective sampling for Cs. melanura and for reasons of economy and ease, boxes consisting of recycle pulp fiber was the preferred type of resting box (Komar et al, 1995). The boxes, first used in 2005, were modified in 2006 (inside painted black, drainage holes sealed with insulation foam, and circular holes drilled then plugged with rubber stoppers). It was decided to concentrate all Resting Boxes in Essex County communities bordering southeastern New Hampshire to maximize testing for the species. The District also employed resting boxes at several Essex County communities that did not border New Hampshire, although no infections were detected. In 2006, however, a significant increase in EEEV-infected Cs. melanura was seen in Essex County compared to previous years. In addition, more infections were recovered in these resting boxes as compared to CO2-baited traps.

Table 1. EEEV Isolations in Massachusetts & New Hampshire: 2001 to 2006.

<table>
<thead>
<tr>
<th>Year</th>
<th>Essex County</th>
<th>Southeastern MA</th>
<th>Southeastern NH</th>
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<tbody>
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</tr>
<tr>
<td>2006</td>
<td>1</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

* - one other horse infection in Hampden Co.
*** - 2 from towns west of Essex Co. (Billerica & Wilmington)
**** - one other horse infection in Middlesex Co.

Acknowledgments

The authors wish to thank the following for their contributions: Dr. Richard Pollack, Eric Swanson, Dennis Gallant, Jeff Stull, J.W., Anthony Corricelli, and the many volunteers and collaborators who made this surveillance possible.

References


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References