Introduction

The Northeast Massachusetts Mosquito Control and Wetlands Management District is the state governmental agency responsible for monitoring mosquito activity, and the pathogens they transmit, in Essex County. With the emergence of Eastern Equine Encephalitis Virus (EEEV) in northeastern MA, and southeast New Hampshire (primarily Rockingham County) in 2004, the District has actively increased mosquito surveillance and has developed response strategies to contain spread of EEEV and protect human population from infection. To date, EEEV has been isolated from various mosquito species and sylvatic birds in Essex County, MA from 2003 to 2007 (Card, et al., 2007). The virus has been confirmed by state and federal laboratories and ongoing surveillance continues to monitor the spread of EEEV in Essex County.

Response and Control of EEEV-infected Mosquitoes

If, on the other hand, numerous isolations were obtained in both enzootic and bridge vectors, according to our VMP, regional aerial response strategies to control spread of EEEV and protect human population from infection. The ERAAP (Emergency Response Aerial Adulticiding Plan) was developed in the spring of 2006. The District's VMP was adopted as a municipality-wide program with the goal of reducing EEEV infections in the community. The District's VMP was adopted as a program to control the spread of EEEV in the community.

The 2006 VMP included both increased surveillance along the borders with New Hampshire and the development of a comprehensive ‘Emergency Response Aerial Adulticiding Plan’ (ERAAP). This poster presents how the plan for the aerial adulticiding spray was developed.

"Pre-emptive Control" of Potential Mosquito Vectors

It was decided that adulticiding was the principal method to control Culicine larvae. Due to the lack of accessible Cx. restuans larval habitats, pre-emptive larviciding was not seen as an effective pre-emptive control strategy. Furthermore, several of the communities targeted for EEEV attention did not formally enter the District until the late spring 2006, hampering attempts to treat larval habitats. Initially, most of the accessible larval habitats were treated in the early spring, due to the persistent cold. Therefore, the limited larviciding operations were attempted with "Teknar G" (Deltamethrin) granules applied by hand.

The 2006 VMP called for regional scale aerial adulticiding in response to unexpected population increases in potential vector species to disrupt possible EEEV transmission. "Pre-emptive adulticiding strikes" against increasing enzootic vectors (C. melanura and C. ornitophilus) and selected bridge species (e.g., Aedes vexans, Culex pipiens, Culiseta melanura and Cx. quinquefasciatus) were recommended to treat with previous EEEV isolations. What populations were of concern, relevant municipal Boards of Health were consulted with recommendations to adulticide; all towns affected by EEEV isolations were required to adopt the District's VMP. The VMP was adopted as a municipality-wide program with the goal of reducing EEEV infections in the community. The District's VMP was adopted as a program to control the spread of EEEV in the community.

The ERAAP developed in the winter of 2005-2006 insured that all logistical and operational components necessary to conduct aerial adulticiding spray were in place well in advance of any potential need for such an application. Northeast Massachusetts Mosquito Control Project (District) in Massachusetts designed such a plan to the county level using U.S. Department of Agriculture (USDA) aerial application teams. The key component of the ERAAP was a mapping database. The database was identified by the servitude to be excluded from aerial adulticide applications ("sensitive areas") included all schools, bodies of water, "endangered species" protected habitats, and organic farms. The database could then be easily downloaded as a county's non-optimal spray system. The District consulted "True North Mapping" (of Plymouth MA) to collect and digitize these data files from the numerous state and federal agencies and improve graphics to develop a draft spray map (Figure 1). The database could then be easily downloaded as a county's non-optimal spray system. The District consulted "True North Mapping" (of Plymouth MA) to collect and digitize these data files from the numerous state and federal agencies and improve graphics to develop a draft spray map (Figure 1).

A comprehensive "Emergency Response Aerial Adulticiding Plan" (ERAAP) was developed. If, on the other hand, numerous and area-wide isolations were obtained in both enzootic and bridge vectors, according to our VMP, regional aerial response strategies to contain spread of EEEV and protect human population from infection. "Pre-emptive adulticiding strikes" against increasing enzootic vectors (C. melanura and Cx. ornitophilus) and selected bridge species (e.g., Aedes vexans, Culex pipiens, Culiseta melanura and Cx. quinquefasciatus) were recommended to treat with previous EEEV isolations. What populations were of concern, relevant municipal Boards of Health were consulted with recommendations to adulticide; all towns affected by EEEV isolations were required to adopt the District's VMP. The VMP was adopted as a municipality-wide program with the goal of reducing EEEV infections in the community. The District's VMP was adopted as a program to control the spread of EEEV in the community.

The ERAAP implemented a minimum aerial application of two to four towns. With the ERAAP in place, all spray required for its activation was approved by the relevant municipal Boards of Health and final authorisation from the County Department of Health. The ERAAP was developed in the winter of 2005-2006 insured that all logistical and operational components necessary to conduct aerial adulticiding spray were in place well in advance of any potential need for such an application. Northeast Massachusetts Mosquito Control Project (District) in Massachusetts designed such a plan to the county level using U.S. Department of Agriculture (USDA) aerial application teams. The key component of the ERAAP was a mapping database. The database was identified by the servitude to be excluded from aerial adulticide applications ("sensitive areas") included all schools, bodies of water, "endangered species" protected habitats, and organic farms. The database could then be easily downloaded as a county's non-optimal spray system. The District consulted "True North Mapping" (of Plymouth MA) to collect and digitize these data files from the numerous state and federal agencies and improve graphics to develop a draft spray map (Figure 1).

For adulticiding in school properties and athletic fields, "barrier spraying" was recommended. Due to the provisions of the Massachusetts "Children’s and Families’ Protection Act of 2000" (Massachusetts Dept. Agricultural Resources, 2006), which created a cumbersome process for adulticide applications to be done on school properties, barrier spraying was deemed to be cost-effective. According to the Act, 72-hour written notification had to be sent to parents of each student in the area to be sprayed. Written notice was required to be clearly posted around school properties prior to any adulticide operation. Therefore, application of an adulticide was made inside of a 100-foot spray zone. The decision was reached by the School Board to use a 10% dilution of Permethrin ("FILT 10 EC"; Methoxyfl, Gallup, 2008) for such activities. The application was done with Sumithrin, marketed as "Teknar G". 45% adulticide applied was a 10% dilution of Permethrin ("FILT 10 EC"; Methoxyfl, Gallup, 2008) for such activities. The application was done with Sumithrin, marketed as "Teknar G". 45% adulticide applied was a 10% dilution of Permethrin ("FILT 10 EC"; Methoxyfl, Gallup, 2008) for such activities. The application was done with Sumithrin, marketed as "Teknar G". 45% adulticide applied was a 10% dilution of Permethrin ("FILT 10 EC"; Methoxyfl, Gallup, 2008) for such activities.