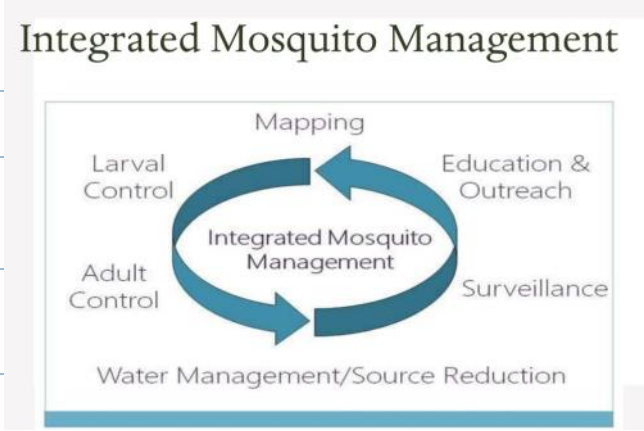
Uxbridge – Integrated Vector-borne Disease Control Program

MVP REGION	Central
GRANT AWARD	$256,926
MATCH AMOUNT	$97,245
PROJECT TYPE	Planning, Assessments, Capacity Building and Regulatory Updates
CORE VALUES EXEMPLIFIED	Employing Nature-Based Solutions / Achieving broad and multiple community benefits / Innovative, transferrable approaches
OUTCOMES	Increased public awareness of ecological mosquito management processes in relation to a changing climate
ADDITIONAL RESOURCES	⇒ **Uxbridge Core Team Page:** https://www.uxbridge-ma.gov/board-health/pages/mvp-grant-2 ⇒ **Recording of Regional Conference:** http://archive.uxbridgetv.org/Video/5895 ⇒ **Regional Conference Slide Packet:** • Introduction — https://www.uxbridge-ma.gov/sites/g/files/vyhlif3971/f/pages/mosquito_control_conference_intro_presentation_0.pdf • Ecological perspective — https://www.uxbridge-ma.gov/sites/g/files/vyhlif3971/f/pages/mass_audubon_conference_presentation.pdf



Mosquito Management and the role municipalities play in shaping policy

The Town of Uxbridge, with a population of 14,000, is located within the Blackstone River watershed midway between Worcester and Providence, RI. Uxbridge is known for being one of the Blackstone River Valley's early industrial centers as well as an early model for public education, women's suffrage and public health. Uxbridge's Board of Public Health was an early adopter of public and community health efforts to limit the spread of mosquito-borne illnesses – items like placing screens in windows and managing stagnant water have been highlighted in town since the 19th Century. In a continuation of this pattern of innovation, the Town of Uxbridge received funding from the MVP Program in 2020 to examine nature-based strategies to addressing vector-borne illnesses.

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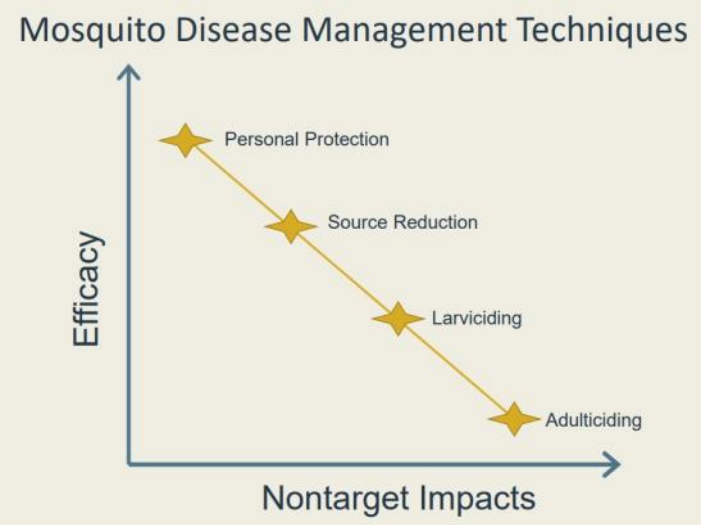
Warmer winter weather resulting from climate change could contribute to an increase in incidence of vector-borne diseases. In late August 2019 the risk level to Uxbridge residents from Eastern Equine Encephalitis (EEE) was raised to critical after local transmission resulted in the loss of horses in Uxbridge and Mendon. This resulted in a period of aerial spraying and other EEE mitigation efforts. In light of this event, the town's MVP core team elevated an integrated vector-borne disease management plan to highest priority for their MVP process and applied to the program to fund a biological-based and regional approach to mosquito control in Uxbridge and surrounding communities.



Slides from Uxbridge's Regional Mosquito Control Conference— July 22, 2020

Managing Mosquitos at an Ecosystem Scale

Rather than focus exclusively on using chemical treatment methods, the Town underwent a process of educating stakeholders through the community in the life cycle of mosquitoes. Throughout sharing information on the role insects —such as damselflies, water striders and craneflies—have on reducing larvae, the Town was able to highlight the need to reduce spraying and maintain healthy insect populations in wetlands and vernal pools that preserve habitat for mosquito predators. This, coupled with education on when to selectively target mosquito populations in a way that reduces broad-scale use of pesticides created conditions for a shift in understanding mosquito management practices.

Integrated mosquito management is knowledge-based, surveillance-driven and resource-limited. Understanding locations of habitats and species probability of viral (or pathogen) transmission are necessary.

Impacts of Climate Change

Recognizing that mosquito populations are likely to increase in years that experience higher than normal winter temperatures, wetter springs and hotter summers—all conditions that are likely to increase in frequency in a changing climate— the Town of Uxbridge project team decided that behavioral and infrastructural changes would be necessary to position the town well for managing mosquito risks in a way that reduces reliance upon broad application of chemical interventions.

Structural Changes

The presence of stream crossings that did not conform to Massachusetts' stream crossing standards also created conditions that could lead to increased populations of breeding mosquitoes in years with climate conditions that are favorable to species that are likely to act as disease vectors to people. In order to reduce structural conditions that would allow standing water to persist during mosquito season, the town also received funding to design and permit the replacement of two high-risk culverts. The town is committed to designing them in such a way as to take future climate projections from the MA Climate Change Clearinghouse into consideration when selecting a design threshold.

Team Coordination and Iterative Decision Making Process

Deliberate actions taken to address mosquito populations from a nature-based perspective were the direct result of the Town's decision to remain engaged as an MVP community. Collectively, the Town has assembled its core team as a standing entity within municipal government. The Town's MVP projects are administered by a core team that meets at least once a month to discuss the progress of the MVP projects, and many of them lend their expertise to project tasks. This core team consists of representatives from the Board of Health, the Fire Department, the Department of Economic Development and Community Planning, the Department of Public Works, the Conservation Commission, and the Police Department. This commitment to maintaining a standing meeting of municipal staff is a particularly note-worthy best practice that is worth replicating, where possible, in municipalities that are active in the MVP program. This arrangement creates a nimble, flexible team of local climate adaptation experts that is capable of reacting to events and conditions in a manner that is beneficial to the residents of the town.

Taft Pond in Uxbridge, Ma