**EEE Acronyms / Definitions & Terminology**

**Acronyms**

**AIF:** Abundance Infection Factor

**BEH:** Bureau of Environmental Health (housed within DPH)

**BIDLS:** Bureau of Infectious Disease and Laboratory Sciences (housed within DPH)

**BMPs:** Best Management Practices

**BOH:** Board of Health (a municipal entity)

**C. or CH.:** Chapter (in reference to Massachusetts General Law)

**CMR:** Code of Massachusetts Regulations

**DCR:** Massachusetts Department of Conservation and Recreation

**DEP:** Massachusetts Department of Environmental Protection

**DFG:** Massachusetts Department of Fish and Game

**DFW:** Massachusetts Division of Fisheries and Wildlife (housed within DFG)

**DMF:** Massachusetts Division of Marine Fisheries

**DPH (or MDPH):** Massachusetts Department of Public Health

**EEA or EOEEA:** Executive Office of Energy and Environmental Affairs

**EEEv (or EEE):** Eastern Equine Encephalitis virus

**EHHS:** Executive Office of Health and Human Services

**EPA:** Environmental Protection Agency

**FIFRA:** Federal Insecticide, Fungicide, and Rodenticide Act

**GEIR:** General Environmental Impact Report, a document outlining mosquito control options along with an assessment of their potential environmental impacts (see <https://www.mass.gov/generic-environmental-impact-report-geir>)

**GIS:** Geographic Information System, used to map and analyze spatial data

**IPM (sometimes IMM):** Integrated Pest Management, sometimes specifically “Integrated Mosquito Management”

**MAG:** Mosquito Advisory Group

**MCD:** Regional Mosquito Control District/Project

**MDAR:** Massachusetts Department of Agricultural Resources

**MGL (or M.G.L.):** Massachusetts General Law (see <https://malegislature.gov/laws/generallaws>)

**MIR:** Minimum Infection Rate

**NHESP:** Natural Heritage and Endangered Species Program (under DFG/DFW)

**NPDES:** National Pollutant Discharge Elimination System (EPA permit program that regulates the discharge of pollutants from single point sources)

**SOP:** Standard Operating Procedure

**SRB (or SRMCB):** State Reclamation and Mosquito Control Board

**ULV:** Ultra-low Volume (in reference to pesticide application)

**USDA:** United States Department of Agriculture

**WNV:** West Nile Virus

**Terms / Definitions**

**132B:** Chapter 132B of MGL, the Massachusetts Pesticide Control Act, which places the power of pesticide regulation with the Massachusetts Department of Agricultural Resources (<https://malegislature.gov/laws/generallaws/parti/titlexix/chapter132b>)

**333 CMR:** With reference to the Code of Massachusetts Regulations issued by all state agencies, the portion that contains Pesticide Regulations (<https://www.mass.gov/law-library/333-cmr>)

**Aerial spray**: Application of a pesticide from the air, typically by airplane or helicopter. This includes both aerial adulticiding (typically what we refer to during an emergency response to arbovirus) but may also refer to aerial larviciding (which typically happens much earlier in the season, usually with granular products vs. a liquid, and are typically restricted to bodies of water/wetlands)

**Adulticide:** A pesticide that applied to target adult mosquitoes

**Amplification Cycle:** Enzootic mosquito vectors take up and pass arbovirus to naïve birds. The viral loads build in the bird population allowing more mosquito vectors to acquire the virus. As abundance of infected birds increase so do does the likelihood that a bridge vector will acquire and transmit the virus.

**Applicator:** An individual that is applying pesticides. With reference to mosquito control, this would be an applicator licensed through MDAR

**Arbovirus:** Arthropod-borne virus, a virus transmitted by insects (like mosquitoes) or other arthropods (like ticks).

**Blood Meal:** Blood taken from a host by a female mosquito that enables that female to produce and lay viable eggs

**Bridge vector:** Species of mosquito that feed on infected birds and subsequently transmits the virus to humans or other dead end mammalian hosts., i.e. *Coquillettidia perturbans*, a species that bites both birds and mammals and can therefore carry EEEv from birds to horses, humans, and other animals

**Calibration:** The checking and setting of equipment to ensure it delivers pesticide in the correct amount, at the correct location, etc. Done for aircraft that apply pesticides as well as for standalone pesticide application equipment

**Characterization:** The process used to check/verify droplet size

***Coquillettidia perturbans:*** Thought to be the primary epizootic vector of EEE which breeds in cattail marshes

***Culiseta melanura:*** Primary enzootic vector of EEE which breeds in white cedar and red maple wetlands

**Droplets:** With reference to a pesticide application, the form in which a liquid pesticide is dispersed from a sprayer. Droplet size is key to a successful aerial mosquito spray, and is characterized to deliver the optimum dosage of pesticide to mosquitoes while minimizing the impact to larger insects

**Efficacy:** The determination of a mosquito control intervention. Specifically: did the intervention reduce mosquito populations and / or levels of arbovirus in mosquito populations

**Enzootic vector:** A mosquito species that feeds primarily on birds and acts to spread the arbovirus to the naïve birds allowing for amplification of the circulating arbovirus.

**Epidemic Curve:** AKA Epi curverefers to a statistical or numericalrepresentation of cases by onset date to visualize an outbreak.

**Epizootic vector:** A mosquito species that feeds on both birds and mammals. These mosquitoes take up the virus from birds, become viremic and transmit the virus to humans and other incidental dead end hosts.

**Exclusion (“no-spray area”):** An area of land/water excluded from pesticide application

**Fixed-wing Aircraft:** In aerial mosquito operations, a plane used in aerial adultidicing of larger areas, vs. a helicopter or other rotary-winged aircraft used for smaller operations and/or larviciding

**Gravid trap:** A mosquito trap that uses stagnant water to attract adult female mosquitoes ready to lay their eggs. This trap is most often used for WNV surveillance.

**Hard Frost (Killing Frost):** At least two consecutive hours of temperatures below 28°F, or at least three or more hours at 32°F

**Host:** Human, mammal, bird, or other animal that a mosquito feeds on (bites and takes blood from). Different mosquito species use different host animals, and some species use more than one type of host

**Incidental Host:** A host that becomes infected with an arbovirus, but does not build viral load sufficient to transmit the virus back to a mosquito vector (for EEEv, humans or horses)

**Incubation:** The period where the arbovirus replicates in the host prior to symptom onset.

**Integrated Pest Management:** Managing pests in a way that takes into account their biology, habits, and their environment (practiced by all MCDs)

**Isolates:** Term used when a sample test positive for presence of an arbovirus; “virus isolation”

**Larvicide:** A pesticide that is applied to mosquitoes in their larval (pre-adult) stage, typically applied to aquatic habitats. Larvicides may also target pupae (mosquito life stage where they transform between larva and adult), since they too are typically aquatic

**Light trap:** A mosquito trap that uses a light source and a chemical attractant. The attractant is typically carbon dioxide (CO2) which attracts hosts seeking adult mosquitoes by mimicking an animal exhaling CO2.

**Minimum Infection Rate (MIR)**: May also be referred to as Minimum Field Infection Rate which is an estimate of the number of mosquitoes in the environment that are infected with a virus. Expressed as the number of infected mosquitoes per 1000 mosquitoes. MIR varies over the course of a season and from year to year. An MIR value of less than 2 is considered low but may still result in limited human disease. Peak MIR in the 2019 EEEv outbreak ranged from 10 to as high as 15.

**Mosquito sample/Mosquito pool:** A collection of mosquitoes from a trap, submitted together as a sample to test for arbovirus, typically a single species, with an upper limit of 50 mosquitoes per sample. If more than 50 mosquitoes of a single species are collected from a trap, they may be submitted as several samples of 50 each. A “positive” mosquito sample is one where laboratory tests have indicated the presence of an arbovirus in the sample (typically EEEv or WNV)

**Naïve birds:** Birds lacking immunity to the circulating arbovirus. Mosquito vectors spread the the virus where it amplifies allowing for more mosquitos to uptake the virus.

**Nuisance mosquitoes:** Mosquitoes that bite humans, typically associated with high local abundance. Some nuisance species may also act as vectors for native arboviral diseases.

**Personal Protective Measures (Personal Protection):** With respect to mosquito activity, routine precautions that everyone should take to prevent mosquito bites: 1) avoid outdoor activities in areas with significant mosquito activity, particularly at dusk and dawn 2) use mosquito repellents containing an EPA-registered active ingredient 3) wearing of clothing that reduces mosquito access to skin

**Polygon:** An area depicting spatial data in GIS, used during an aerial spray to depict areas on a map that are targeted or excluded from the spray

**Priority Habitat:** Habitat used by state-listed rare species (both plants and animals)

**Reservoir Host:** With reference to mosquito-borne illnesses, a host organism that carries and sustains an arbovirus even when it is not currently being spread to humans. For EEEv, birds act as the reservoir hosts

**Resting Box:** A mosquito trap consisting of a wooden or plastic box with one side open, used by mosquitoes seeking shelter from daytime sun and heat

**Repellent:** EPA approved chemicals that deter mosquitoes and ticks from taking blood meals.

**Shapefile:** A digital file used to store geospatial (mapping) data

**Source Reduction:** Reducing the availability of mosquito larval habitat by eliminating stagnant water sources, through tire recycling, emptying of containers, ditch management, culvert cleaning, etc.

**Staging Area:** Temporary location of emergency response operations (typically an airport), sometimes referred to as the base of operations

**Standard Written Notification:** With reference to the state overseeing an emergency application of pesticide to combat mosquito-borne illness, a document containing details about the time and type of treatment, that is provided by the state to schools, day care centers, and school-age child care programs. It is then the responsibility of these entities to complete the document and distribute it to employees, pupils, parents, etc.

**Surveillance:** Setting and monitoring of traps for adult mosquitoes, assessing presence of mosquito larvae and assessment of environmental conditions that increase vector abundance.

**Take:** With specific reference to state-listed endangered, threatened, or special concern species, the removal, death, harm, or disruption of breeding or other activities

**Trap site:** Locations where an MCD, DPH, or other entity places a mosquito trap.

**Vector:** An organism (insect, tick, rodent, etc.) that harbors or transmits viruses or other agents that cause human disease

**Wheels up:** Time at which a plane takes off (leaves the ground)

**Wide-area:** In specific reference to pesticide application for a Public Nuisance Pest such as a mosquito, an aerial or ground application of pesticide that crosses property lines or exceeds one acre