

Report of the East Middlesex Mosquito Control Project – 2024

The East Middlesex Mosquito Control Project (EMMCP) conducts a program in Reading consisting of mosquito surveillance, larval/adult mosquito control, source reduction and public education.

The following weather and mosquito activity report was prepared by EMMCP's Entomologist, Doug Bidlack, PhD.

According to NOAA, 2024 was the third warmest year recorded for Middlesex County, Massachusetts since 1895. Last winter (2nd warmest), spring (4th warmest), summer (3rd warmest) and fall (6th warmest) were all very warm. Precipitation for last winter (5th wettest) and spring (6th wettest) were both very wet in 2024, but the summer was drier (0.88" less than normal) and fall was very dry (6th driest). The six-month period from June through November was the tenth driest ever recorded and the driest in Middlesex County since 1965.

As in 2023, the total mosquito population was well above normal (164% of the average from 2000 to 2023) for 2024. The wet year we had in 2023 extended through the winter and into May of this year. All of this precipitation led to above average spring Aedes populations (108% of normal) but they were not as high as we anticipated. Our populations of Ae. abserratus, Ae. provocans, Ae. excrucians and Ae. stimulans were all much lower than normal. This continues a long-term downward trend for each of these species in spite of the favorable precipitation over the last couple of years. The low numbers for these aforementioned spring Aedes mosquitoes were balanced by close to average populations of Ae. canadensis (92% of normal) and Ae. cinereus (83% of normal) as well as very high numbers of Ae. aurifer (412% of normal) and Ae. thibaulti (188% of normal). Our summer floodwater mosquitoes, Ae. vexans, Psorophora ferox, Ae. sticticus and Ae. trivittatus, were very low (5% of normal) due to the hot, dry summer. We expected a difficult EEE year in 2024 because of the reemergence of EEE in Massachusetts with high populations of Culiseta melanura and Coquillettidia perturbans in 2023. We were not disappointed. We collected record high numbers of Cs. melanura (326% of normal) and Cq. perturbans (252% of normal) and we had 13 pools of mosquitoes test positive for EEE which crushed our old record of three EEE mosquito positives in 2012. Eight of the EEE positives were from Cs. melanura pools, three were from Culex salinarius pools and there was one each from pools of Cq. perturbans and Ae. vexans. Luckily, we had no human cases of EEE from our district, but there was a human case from Acton which is adjacent to both Sudbury and Concord. Our Cx. pipiens/restuans numbers in gravid traps were a little lower than normal (76% of average) but the 29 WNV positive pools in our district were a little higher than normal (117% of average from 2004 to 2023). Two recent mosquito species in our district, Anopheles crucians and Ae. albopictus, continued to become more abundant and widespread. Anopheles crucians was collected from our district for the second consecutive year. In 2023 we found 88 An. crucians in 10 of our cities and towns while we found 378 this year in an additional three communities. At the end of 2023, Ae. albopictus had been found in five cities and towns within our district: Brookline, Cambridge, Everett, Medford and Stoneham. In 2024 we added Arlington, Belmont, Malden, Melrose, Wakefield and Watertown to our list of communities with this mosquito. A measure of the abundance of Ae. albopictus in our district over time can be seen by the increase in the number collected in gravid traps from 2022, when we collected our first specimen in a gravid trap, to 2024. Only one Ae. albopictus was collected in our gravid traps in 2022, four were

*collected in 2023 and 28 were collected in 2024. There is little doubt that the abundance and distribution of An. crucians and Ae. albopictus within our district and beyond will continue to increase. ~
Doug Bidlack*

The adult mosquito surveillance program monitored mosquitoes from 16 Reading trap collections. 25 samples were submitted to the Massachusetts Department of Public Health to be tested for EEE and WNV. All samples tested negative for EEE and one sample tested positive for WNV.

The larval mosquito control program relied on the larvicides *Bacillus thuringiensis var. israelensis* (Bti) and *bacillus sphaericus* (Bsph), which are classified by the EPA as relatively non-toxic. During the 2024 season, field crews made 14 site visits to do larval surveillance. In April, a helicopter was used to apply Bti granules to 308.5 wetland acres. Larvicide containing Bsph was applied to 2,700 catch basins to control *Culex* mosquito larvae. *Culex pipiens* mosquitoes are considered to be the primary WNV vector in this region. In response to surveillance traps showing elevated mosquito populations, crews applied Zenivex E4 on six separate nights to reduce the number of adult mosquitoes. The EPA classifies Zenivex E4 as a reduced risk pesticide.

The Project's public education program is designed to develop awareness within the public and the private sectors as to their roles in mosquito control. The Project serves as a resource to residents, municipal officials and the local media on mosquitoes and mosquito borne diseases. A web page located at <https://sudbury.ma.us/emmc/> provides residents with information on mosquitoes, control programs and related topics.

Kind regards,
Brian Farless, Superintendent