

# Pioneer Valley Mosquito Control District



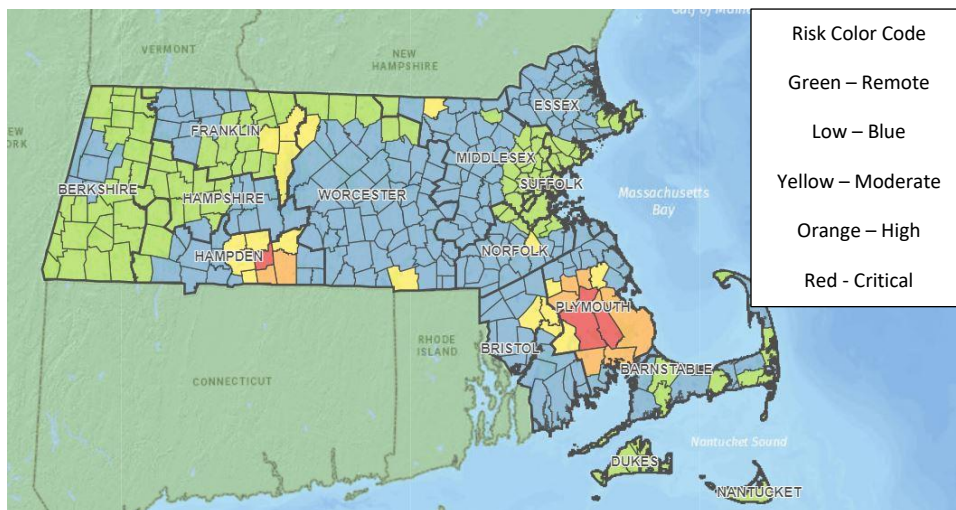
## 2020 Mosquito Surveillance Season Report

*Heath*

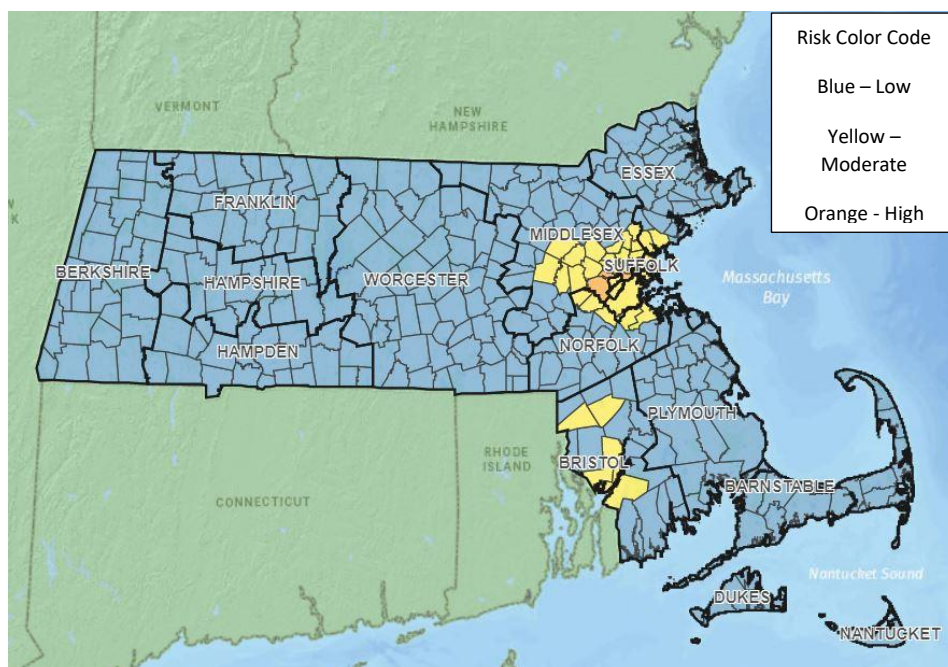
- **Summary**

- The 2020 mosquito surveillance began the first week of June and concluded the first week of October due to persistent low overnight temperatures.
- West Nile Virus was mainly confined to areas around the Boston Metropolitan Area.
- The season was reflective of a mild EEE outbreak – a continuation of the 2019 season but fortunately less widespread. EEE positive mosquitoes were mainly detected in the southeastern portion of the state, pointing to EEE being mainly confined to the many wetlands of the region.
- EEE was detected in early July in Franklin County in Orange and Wendell, leading to an increased EEE transmission risk. Risk remained moderate in eastern Franklin County for the remainder of the season as no other cases were reported or mosquitoes captured.
- A human case of EEE did occur in Hampden County in mid-August leading to an increase in EEE transmission risk with Wilbraham peaking at critical risk and neighboring communities increasing to high and moderate.
- No EEE or WNV positive mosquitoes were detected in Heath in 2020. The risk designation peaked at low for WNV and low for EEE.

**2020 EEE  
Risk Map**



**2020 WNV  
Risk Map**



- **Statewide Results**

- WNV Positive Mosquitoes – 97 samples
- EEE Positive Mosquitoes – 66 samples
- 8 Human cases of West Nile Virus
- 5 Human cases of EEE (**1 in Hampden County**)

- **2021 Season Outlook**

- With EEE outbreaks tending to occur in 3-year cycles, the 2021 mosquito season does have strong potential for a continued EEE outbreak. Since 2019 was the beginning of a possible 3-year EEE span, it leaves 2021 as the third year in this observed pattern.
- A likely contributing factor for keeping EEE relatively under control in the 2020 season was the drought-like conditions that persisted throughout the state. The most competent carriers of EEE tend to favor wet conditions. Personal observations throughout the Pioneer Valley found wetlands to be extensively dry. Increased precipitation (if it does occur) through winter and spring 2021 could contribute to more favorable conditions for EEE carrying mosquitoes next summer.

- **Heath Weekly Results**

(Legend on last page)

<u>Date</u>	<u>Location</u>	<u>Trap Type</u>	<u>Results (Species - Pool Size)</u>	<u>Submitted for Testing</u>	<u>Results</u>
6/11 - 6/12	Swamp Road	Gravid	Ochlerotatus japonicus - 2	No	NA
			Coquillettidia perturbans - 1	No	NA
			Anopheles walkeri - 1	No	NA
6/18 - 6/19	Branch Hill Road	Gravid	Coquillettidia perturbans - 1	No	NA
6/25 - 6/26	Branch Hill Road	CDC	<b>Coquillettidia perturbans - 50</b>	Submitted for EEE Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 50</b>	Submitted for WNV Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 50</b>	Submitted for EEE Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 50</b>	Submitted for WNV Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 50</b>	Submitted for EEE Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 50</b>	Submitted for WNV Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 16</b>	Submitted for EEE Testing	<b>Negative</b>

			<b>Coquillettidia perturbans - 16</b>	Submitted for WNV Testing	<b>Negative</b>
7/1 - 7/2	Branch Hill Road	Gravid	Coquillettidia perturbans - 3	No	NA
			Ochlerotatus japonicus - 2	No	NA
7/9 - 7/10	Branch Hill Road	CDC	<b>Coquillettidia perturbans - 50</b>	Submitted for EEE Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 50</b>	Submitted for WNV Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 50</b>	Submitted for EEE Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 50</b>	Submitted for WNV Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 50</b>	Submitted for EEE Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 50</b>	Submitted for WNV Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 50</b>	Submitted for EEE Testing	<b>Negative</b>
7/16 - 7/17	Swamp Road	Gravid	No Target Species Captured	NA	NA
7/23 - 7/24	Swamp Road	Gravid	<b>Coquillettidia perturbans - 7</b>	Submitted for EEE Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 7</b>	Submitted for WNV Testing	<b>Negative</b>
7/30 - 7/31	Swamp Road	CDC	<b>Coquillettidia perturbans - 48</b>	Submitted for EEE Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 48</b>	Submitted for WNV Testing	<b>Negative</b>
8/6 - 8/7	Swamp Road	Gravid	No Target Species Captured	NA	NA
8/12 - 8/13	Branch Hill Road	Gravid	No Target Species Captured	NA	NA
8/20 - 8/21	Branch Hill Road	CDC	<b>Coquillettidia perturbans - 10</b>	Submitted for EEE Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 10</b>	Submitted for WNV Testing	<b>Negative</b>
9/17 - 9/18	Swamp Road	Gravid	<b>Coquillettidia perturbans - 5</b>	Submitted for EEE Testing	<b>Negative</b>
			<b>Coquillettidia perturbans - 5</b>	Submitted for WNV Testing	<b>Negative</b>

9/24 - 9/25	Branch Hill Road	CDC	No Target Species Captured	NA	NA
10/1 - 10/2	Swamp Road	Gravid	No Target Species Captured	NA	NA

*Note: Mosquito numbers dropped dramatically through the month of September due to persistent low overnight temperatures, leading to a relatively early end of season in the first week of October. DPH conducted their final day of testing on 10/7/2020.*

## Target Species and FAQs

Species Name	Description
<b>Coquillettidia perturbans</b>	While one of the most common species of mosquito in Massachusetts, it poses a threat for its noted ability to carry and spread the EEE virus to mammals. This species is often inclined to bite humans because since it prefers mammals which can lead to serious infections of EEE.
<b>Culex pipiens/restuans complex</b>	These two species of mosquito are also an extremely common mosquito, notable for its tendency to carry and spread West Nile Virus to humans. Culex mosquitoes are very versatile and can lay eggs in both natural habitats and artificial containers containing stagnant waters in more urban areas. Any mosquito with "Culex" in the name is a main suspect for WNV.
<b>Ochlerotatus canadensis</b>	Another common mosquito in Massachusetts, the Ochlerotatus canadensis mosquito is capable of spreading both EEE and West Nile Virus to humans, and resultingly, they are species of interest in our collections and DPH testing.
<b>Culiseta melanura</b>	This mosquito is an important factor in the EEE cycle during an outbreak. Although melanura is a bird biting species, it spreads the EEE virus between birds where they act as a reservoir for other mosquitoes to bite and potentially spread the virus to humans. Therefore, DPH usually opts to test melanura as they can be a good indicator of EEE in our environment.
<i>Other Species</i>	All other species captured are considered species of minimal concern usually because they do not tend to carry virus, they do not bite humans, etc.
<b>Frequently Asked Questions</b>	
Why don't all samples get submitted for testing?	Samples are usually only submitted if the pools (batches) of mosquitoes are made up of the species listed above, since they are our target species. Additionally, pools must be in sufficient numbers to be accepted for testing - usually 5+ mosquitoes.
What are the exact locations of the trap sites?	The exact locations of the trap sites are typically not disclosed and the locations provided are a close approximation.
What causes a trap malfunction?	In the case of a trap malfunction, a mosquito trap has failed overnight due to a wiring issue, part malfunction, etc and does not catch. Since they are exposed to the elements on a weekly basis, frequent maintenance is required but sometimes malfunctions occur.
What is a "no collection recorded"?	A "no collection recorded" means no mosquitoes were collected from a trap deployment. Usually this is caused by other insects outcompeting mosquitoes for the bait as well as unfavorable weather conditions. It tends to be more common in the early and late portions of the surveillance season.
What is a Gravid trap?	A gravid trap is one of the two main traps used by the PVMCD. It is used to catch mosquitoes that are attempting to lay eggs in its container base. This trap proves to be popular with container breeders and species capable of carrying West Nile Virus, making it useful in urban environments where container breeding mosquitoes are often found. Gravids are also effective in wetlands where natural habitat breeding mosquitos search for stagnant water to lay eggs.
What is a CDC trap?	A CDC trap is the second main trap used by the PVMCD. It is used to capture mosquitoes looking to bite and feed on an animal's blood. This trap is very effective at capturing mosquitoes across all types of species, because the trap is baited with carbon dioxide to simulate the exhalation of an animal or a human. Mosquitoes are very attracted to this carbon dioxide as they mistake it for a potential meal. These traps are often deployed in woodland environments adjacent to human occupied areas to catch mosquitoes that are searching for a blood meal that may be carrying EEE or WNV.