In This Issue

Spring Showers Bring Mosquitoes

Spring is in full swing, and with summer just around the corner, mosquito season is upon us! Most areas are no longer in a **drought**, and the spring rains have created ideal breeding conditions for mosquitoes, bringing these unwanted companions wherever we go. In this month's newsletter, we'll provide updates on our new office location, larval sampling and control efforts, and the summer outlook. We'll also share prevention tips to help keep your community safe and highlight ways you can reduce mosquito populations and disease transmission in your area.

Mosquito-borne disease testing will begin the week of June 16, with weekly surveillance reports published shortly after results are available. DPH's updated arbovirus risk maps can be found **here**.

A vernal pool located in Northampton teeming with mosquito larvae.

New Office Location

I'm very happy to share that Pioneer Valley MCD is now located at UMass Amherst, alongside the **New England Center of Excellence in Vector-borne Diseases** (NEWVEC). Dr. Stephen Rich, a UMass Amherst Professor and a leading expert in zoonotic diseases, generously offered the District office and lab space at Fernald Hall. This move came at a critical time, as our lease in South Deerfield was ending due to the building's planned renovation.

Fernald Hall
270 Stockbridge Road
UMass Amherst

Moving into the Rich/NEWVEC lab saves the District money on leasing fees, freeing up funds to support future growth. Just as importantly, it provides access to research that directly informs mosquito surveillance and control efforts, strengthening our ability to protect public health. Working closely with NEWVEC scientists will also help bolster the District's public education and outreach initiatives. This move isn't just about a new office - it's about expanding what we can accomplish to keep our communities safer.

Larval Surveillance and Bti Treatments

Larval sampling and treatments began in mid-April, aligning with the early activity of spring brood mosquito larvae. Larval counts were relatively higher in Hampden and Hampshire Counties, while Franklin County showed more variation due to elevation and temperature differences. As the valley opens up and flattens out, both artificial and natural mosquito habitat becomes more abundant.

The specific mosquito species being targeted in wetland treatments are EEE and WNV bridge vectors such as Aedes *vexans*, Culex *salinarius*, and Ochlerotatus *canadensis*. There area also numerous species that are capable of transmitting Dirofilaria *immitis* or heartworm disease in dogs.

Wetland treatments used **Bti** to target mosquito breeding areas near schools, high-density neighborhoods, and locations with a history of mosquito-borne disease in previous years. Altogether, more than 20 acres of wetlands were surveyed, with approximately 8 acres of mosquito habitat treated in Deerfield, Chicopee, East Longmeadow, and Northampton.

Tracking EEE Vectors

Culiseta *melanura* is the primary vector for EEEV and will amplify the virus in the bird population. Cs. *melanura* has two generations, with the first playing a key role in the virus becoming epizootic and reaching levels high enough to spill over into humans via bridge vector species. Because, Cs. *melanura* overwinters in the larval stage, sampling “crypts” in the spring can help predict their abundance before the mosquito season begins.

The drought that began last summer may have impacted overwintering Cs. *melanura* populations. Sampling data indicates a patchy distribution of Cs. *melanura*, with some areas showing very low numbers, while others align with expected seasonal levels. Based on the data, Cs. *melanura* populations may be sparse in areas more impacted by the drought. However, continued rainfall will bring favorable conditions for mosquitoes and influence seasonal abundance.

Catch Basin Treatments

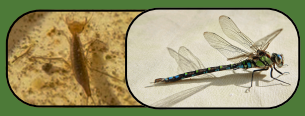
The first round of catch basin/storm drain treatmens will begin in mid-May. The objective of these treatments is to reduce Culex *pipiens* populations, which is the primary vector for WNV. Culex *pipiens* prefer catch basins because the water is very stagnent and lacks any predatory species.

Eggs on Pause

Spring brood mosquito species will lay their eggs the year or years prior along the moist edges of wetlands. The eggs enter diapause, a dormant state, to survive unfavorable weather conditions such as cold temperatures and droughts. Environmental cues such as temperature, and moisture will trigger the eggs to exit diapause and start to develop.

Image Source: CDC

Beetles and Dragonflies to the Rescue!

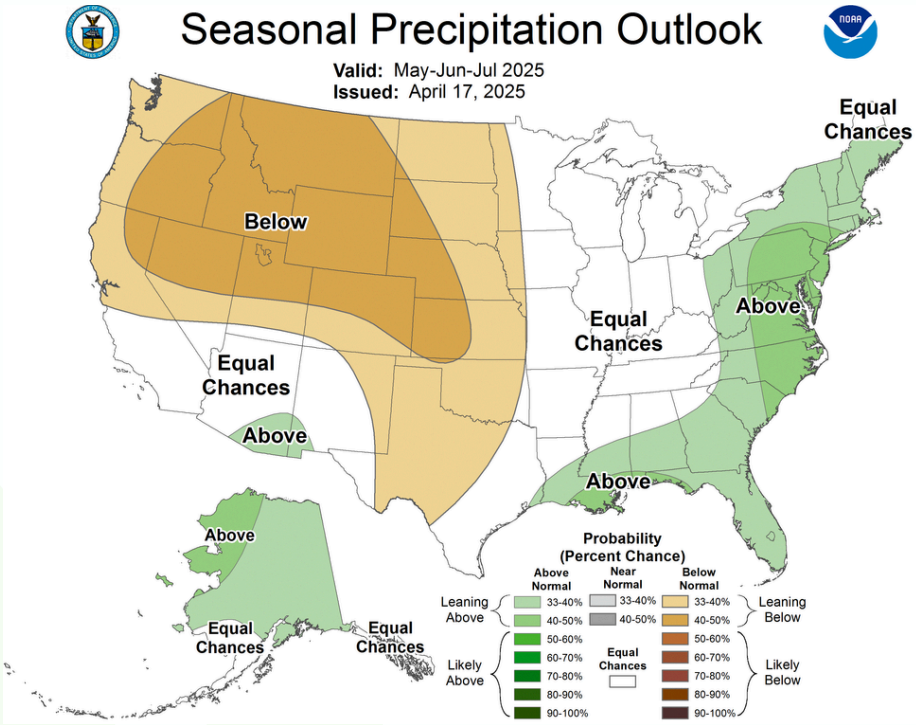


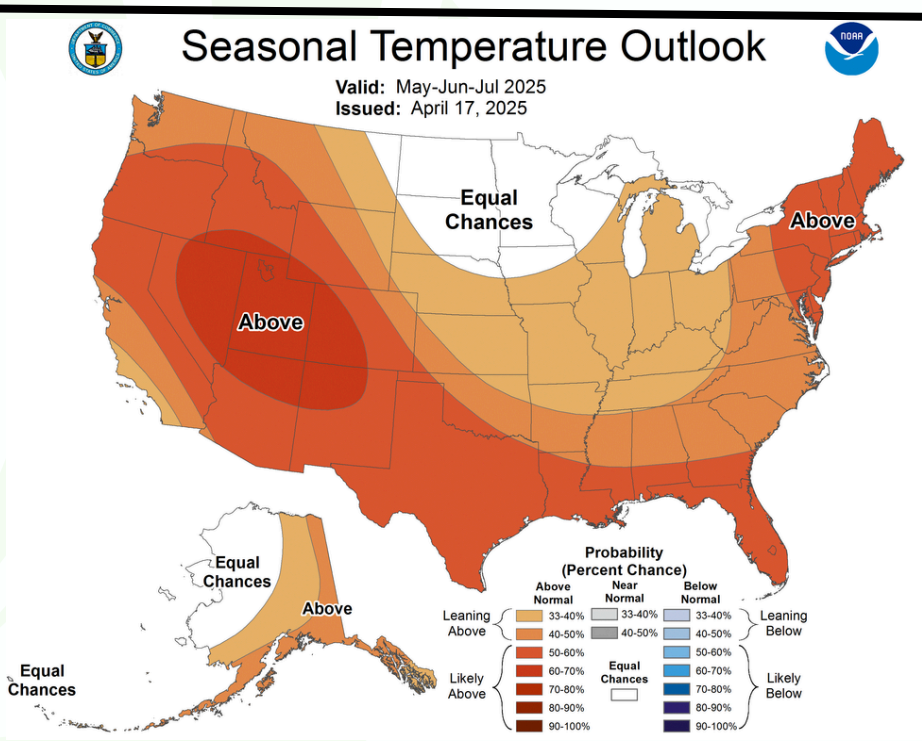
The diving beetle, both as a larva and an adult, is a fierce predator of mosquito larvae. In its larval stage, often called a "water tiger," it uses sharp mandibles to seize mosquito larvae, injecting digestive enzymes to break down the prey before consuming it. As an adult, the beetle continues its predatory habits, actively hunting mosquito larvae in ponds and wetlands. These beetles play a crucial role in natural mosquito control, helping to keep populations in check and reducing the spread of mosquito-borne diseases.

Dragonflies are also predators of mosquitoes in both the larval and adult phase. Promoting dragonfly habitat on your property can help reduce pesky mosquito populations. Learn how here.

Long Range Weather Forecasts

Because both precipitation and temperature play a major role in influencing overall mosquito populations, and in turn disease transmission, long range forecasts by **NOAA** are very useful in making the best guesstimates about mosquito activity for the coming season. From May through July, NOAA forecasts above-average rainfall, with temperatures also expected to exceed normal seasonal averages. If the current predictions are accurate, communities should expect it to be an active mosquito season.





Source of Images: https://www.weather.gov/hun/climateforecast

Tick Update

A **new strain of bacteria** was discovered last month in the rare rabbit tick by the Rich Lab at UMass Amherst. While the rabbit tick does not feed on humans, UMass scientists are closely monitoring the potential for spillover into other tick species that could pick up the new strain of bacteria and spread Rocky Mountain Spotted Fever.

While the rabbit tick itself isn't a direct risk to humans, understanding how pathogens move between species is key to predicting and preventing outbreaks. If the new strain of bacteria were to jump to a tick that commonly bites humans, it could lead to increased transmission of Rocky Mountain Spotted Fever. Early detection allows health officials to assess the risks, refine surveillance strategies, and develop proactive measures to protect communities. Without this level of scientific investigation, emerging threats could go unnoticed until they start causing real harm.

Ticks in Massachusetts

Black-legged Ticks

Also known as "Deer Ticks" and can spread: Lyme disease, babesiosis, anaplasmosis, Borrelia miyamotoi, and Powassan virus. Black-legged ticks are very common in Massachusetts.

Dog Ticks

Dog ticks are capapble of transmitting Rocky Mountain spotted fever and tularemia. This tick species is also very widespread throughout Massachusetts.

Lone Star Ticks

Although not as common as other tick species, the Lone Star tick can cause Alpha-gal syndrome (allergy to red meat), along with tularemia ehrlichiosis, and Southern Tick-Associated Rash Illness (STARI).

Image Source: MA DPH.

Tick Resources:

DPH

UMass Laboratory of Medical Zoology

NEWVEC

Tick Testing Resources

UMass Extension

Bite Prevention

Both mosquitoes and ticks can spread dangerous diseases and self protection goes a long way in preventing both of these common disease vectors from biting you.

Personal Protection Tips

- **Use insect repellent:** Use EPA approved insect repellent with one of the following ingredients: DEET, picaridin, or oil of lemon eucalyptus to keep bugs off.
- **Be mindful of timing and environment:** Mosquitoes are busiest at dawn and dusk, while ticks hide in brushy areas all day. During the colder months, ticks will overwinter in mostly leaf litter and will seek out a blood meal on a warm winter day.
- **Wear proper clothing:** Long sleeves, pants, and shoes help prevent mosquito bites. Although it's not much of a fashion statement, tucking your pants into your socks prevents ticks from migrating up your leg and biting you.
- **Treat your clothes:** Spray gear and clothing with permethrin for extra protection against ticks. Note, permethrin is a pesticide and should be used with caution. Read all product labels before use.
- **Tick check:** Look over your skin, clothes, and pets carefully after spending time outside.
- **Dry your clothes on high heat:** Ticks can survive a wash cycle, but 10 minutes in a hot dryer will kill them.
- **If possible, take a shower within two hours:** It helps wash off unattached ticks before they can latch on. This is also a good opportunity to look over your skin again.

Around the Home

- **Prevent artificial habitat:** Mosquitoes will seek out water-filled containers to lay their eggs in, so empty buckets, birdbaths, kiddy pools, tarps, etc. Keep gutters cleared of debris and properly dispose of old tires.
- **Fix doors and screens:** Keep mosquitoes out by inspecting and repairing window screens.
- **Make a tick-safe yard:** Maintain short grass, remove leaf litter, and place a barrier of gravel between wooded areas and the edges of your lawn.

PE and Outreach Materials

Fight the Bite Poster
Reduce Mosquito Breeding Sites Where you Live
EEE & WNV Horse Vaccination
Arbovirus Transmission Cycle
Promoting Dragonfly Habitat