NORTHWEST MOSQUITO ABATEMENT DISTRICT

Keeping the community safe

Weekly mosquito report for epidemiological week 23 (June 8 – June 14).

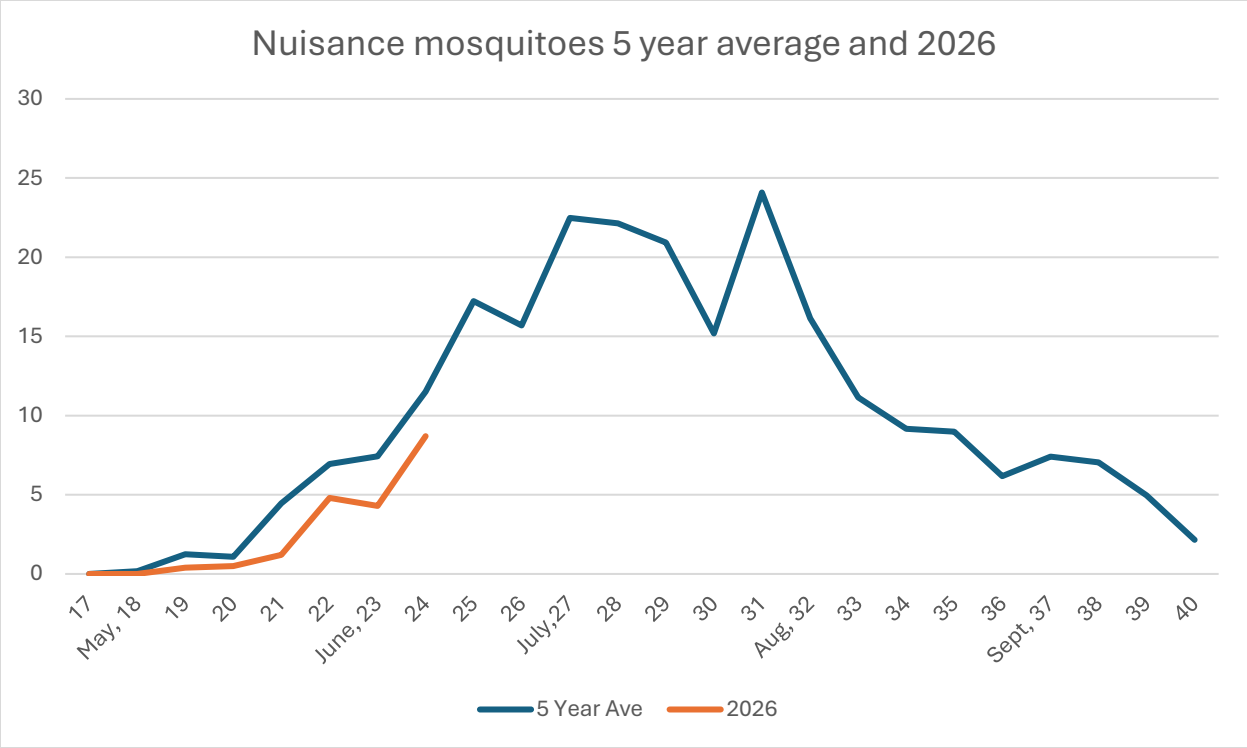
Mosquito Surveillance:

Northwest Mosquito Abatement District operates 36 mosquito traps throughout the 242 square miles we cover. These traps help us track mosquito populations and West Nile virus. Traps run continuously from May 1 until October, and mosquitoes are collected everyday Monday through Friday. All mosquitoes are identified to the species level. We test certain mosquito species for the presence of West Nile virus.

Floodwater/nuisance mosquitoes.

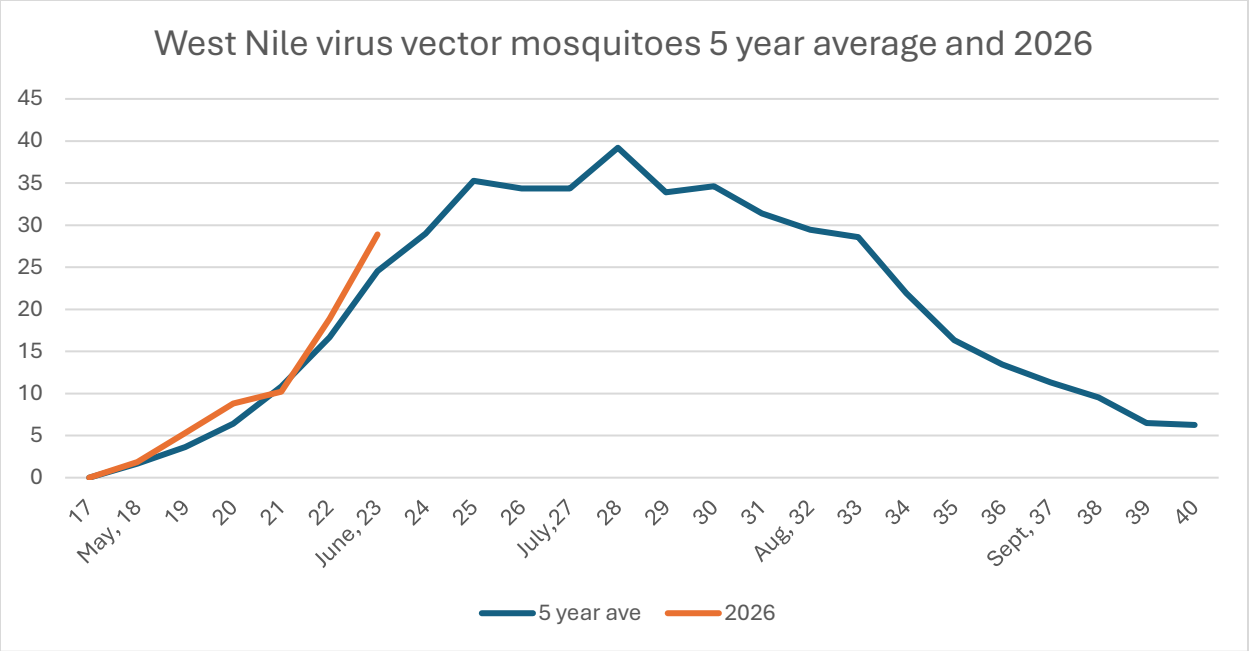
These are the species of mosquitoes which are more likely to take blood meals from humans. These species come out 5-10 days after rainfall. These species populations tend to be higher in the late spring and early summer – historically peaking around the beginning of July. These mosquitoes live for about 2 weeks and tend to prefer shady forest areas.

With the warmer weather and additional rain we are starting to see emergence of nuisance mosquitoes – especially in wooded areas with lots of shade.



West Nile virus vector mosquitoes.

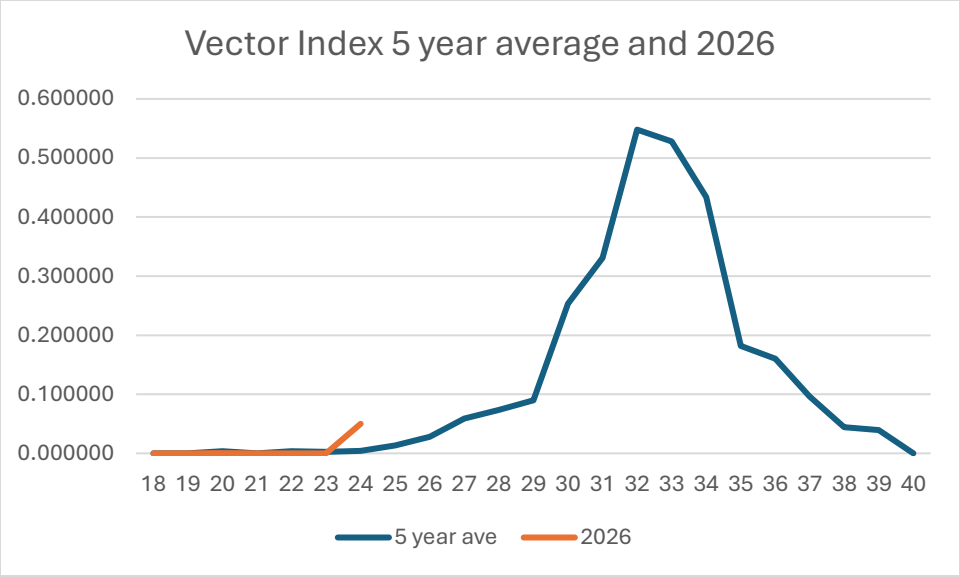
There are two main species of WNv vector mosquitoes, *Culex pipiens* and *Culex restuans*. These species prefer to feed on birds (which are the reservoir hosts for WNv) but will feed on humans opportunistically. In general, we tend to see the population of these mosquitoes increase during drought-like conditions. We are slightly above average for these species of mosquitoes for this time of year.



West Nile virus detection in mosquitoes.

In our lab we test most, if not all, WNv vector mosquitoes for West Nile virus daily. From this data we can calculate the risk of transmission (Vector Index), allow us to monitor the infection rate over time, and better inform our field operations on where to focus our abatement. We tested 47 batches of mosquitoes last week and had 3 WNv positive. The Vector Index for the district was 0.05

VI Range	Risk
0.0 - 0.2	Very low
0.21 - 0.99	Low
1.0 - 1.99	Moderate
> 2.0	High



Villages	Tests this week	Positive tests this week	Total tests	Number of Positives
DISTRICT	47	3	185	4
Arlington Heights	4	0	14	0
Buffalo Grove	2	0	7	0
Barrington	3	0	4	1
Bartlett	6	0	13	0
Des Plaines	0	0	3	0
Elk Grove	1	0	12	0
Elgin	1	0	6	0
Clenview	2	0	9	0
Hoffman Estates	5	0	13	0
Hanover Park	4	0	10	0
Mount Prospect	4	0	21	0
Palatine	1	1	12	1
Prospect Heights	2	0	9	0
Park Ridge	2	0	11	0
Schaumburg	5	0	20	0
Streamwood	2	0	8	0
Wheeling	3	2	13	2

Mosquito Abatement Activities

The District has about 80,000 storm water catch basins which are the primary habitat for the aquatic stages of West Nile virus vector mosquitoes. We also have approximately 10,000 above ground aquatic sources where other species of mosquitoes may be found.

To date we have treated 50,475 catch basins.

Tick Surveillance

Regional Tick Surveillance Update

Vector-Borne Pathogen Surveillance Update

The Northwest Mosquito Abatement District (NWMAD) recently submitted **94 pools of deer ticks (*Ixodes scapularis*)**, comprising a total of **703 individual ticks**, to the University of Minnesota for advanced viral pathogen screening.

Key Laboratory Findings

- **Pathogen Detection:** Screening confirmed that **one (1) pool** has tested positive for **Powassan virus**.
- **Pool Positivity Rate:** Based on the diagnostic configuration, **1.06%** of the submitted pools returned a positive result.
- **Estimated Infection Frequency:** Because ticks are tested in aggregated pools rather than individually, the exact individual infection rate cannot be determined directly. However, based on standard epidemiological models:
    - Assuming a single infected tick inside the positive pool, the **Minimum Infection Rate (MIR)** is **0.14%**.
    - The true individual prevalence within the sampled population safely falls between **0.14% and 1.06%**.

Public Health Context & Recommendations

Powassan virus is a rare but serious tick-borne flavivirus that impacts the central nervous system. Unlike Lyme disease, which typically requires hours of attachment for transmission, Powassan virus can be transmitted within 15 to 30 minutes of a bite.

Current Surveillance Findings

- **Adult Deer Ticks (*Ixodes scapularis*):** Over **600 host-seeking adults** have been collected across **our drag sampling routes** along Forest Preserve District trails.
- **Nymphal Deer Ticks: nymphal deer ticks** have become more numerous over the past 2 weeks. Due to their minute size, nymphs are significantly harder to detect during routine post-walk tick checks.
- **American Dog Ticks (*Dermacentor variabilis*):** A notable surge in dog tick activity has been documented over the past two weeks, extending beyond deep woods into residential parks that abut forested areas or tall-grass borders.

Epidemiological Risk Context

Historically, local vector infection rates present a clear risk for Lyme disease transmission:

- **Adult Deer Ticks:** Historically, **44%** of tested adult pools have returned positive for *Borrelia burgdorferi* (Lyme disease).
- **Nymphal Deer Ticks:** Historically, approximately **20%** of nymphs are infected. Because of their small size and quiet feeding habits, nymphs represent a highly efficient transmission vector during early summer.

Public Guidance & Precautions

Given the increased risk across both forest preserve trails and residential buffer zones, residents are strongly encouraged to take immediate precautions:

- **Apply Repellents:** Use EPA-registered insect repellents containing DEET, picaridin, or IR3535. Treat outdoor apparel and gear with permethrin.
- **Wear Protective Clothing:** Stick to the center of cleared paths. Wear light-colored clothing to easily spot crawling ticks, and tuck pants into socks.
- **Conduct Direct Inspections:** Perform thorough tick checks immediately upon returning from wooded or tall-grass environments, paying close attention to hidden areas (behind knees, around the waistband, and the scalp).

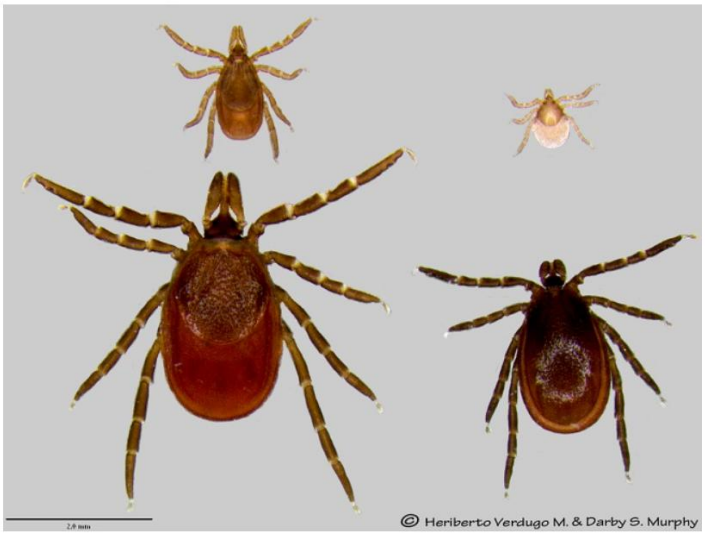


Figure 1. Top row: nymph (left) and larva (right). Bottom row: adult female (left) and adult male (right) of the blacklegged or deer tick (Ixodes scapularis).