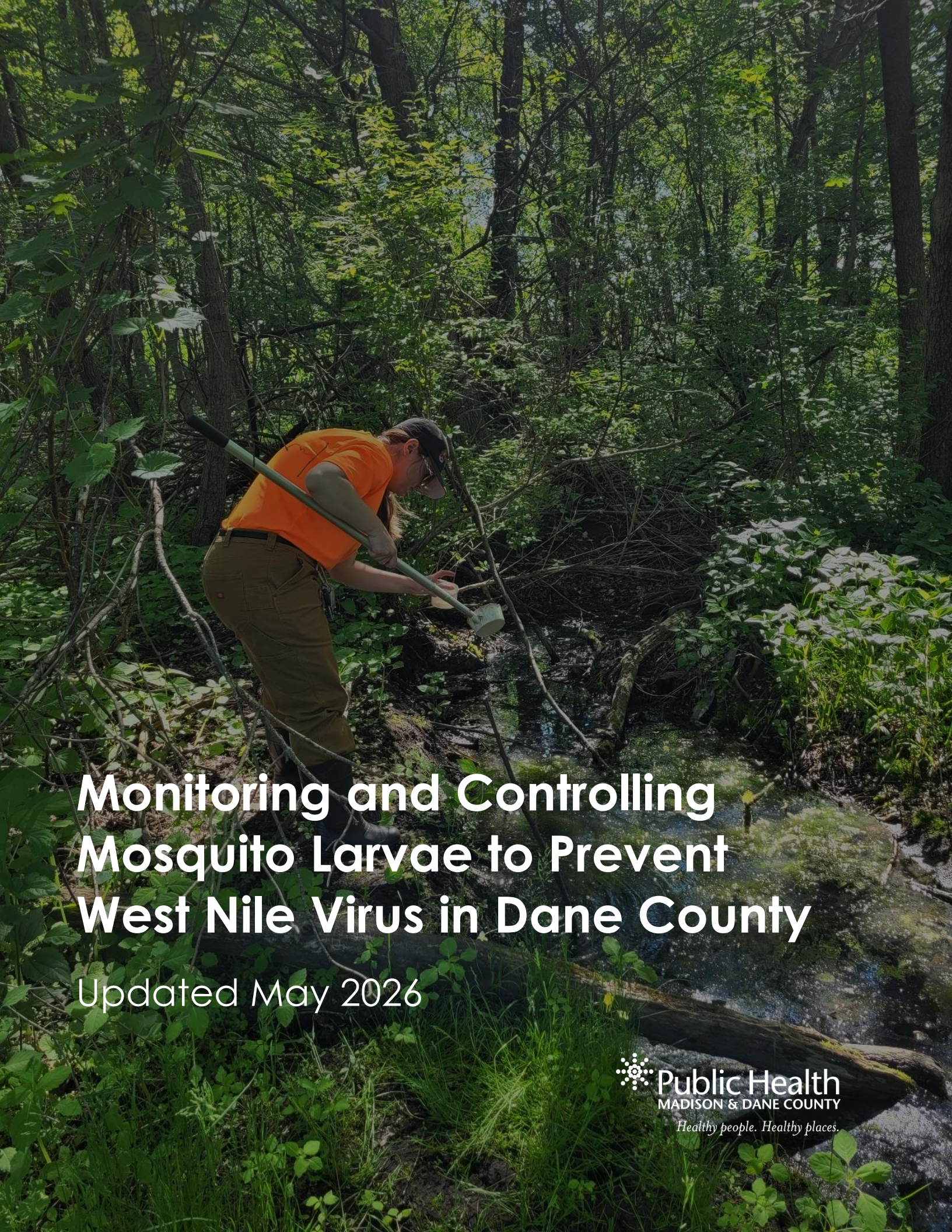


Monitoring and Controlling Mosquito Larvae to Prevent West Nile Virus in Dane County

Updated May 2026

Public Health
MADISON & DANE COUNTY
Healthy people. Healthy places.

A Summary of How We Monitor Mosquitoes to Prevent West Nile Virus

Mosquitoes Can Spread Serious Disease

- We test ditches, detention and retention ponds, and other public water sources for mosquito larvae to prevent mosquito-related illnesses, most notably West Nile virus.
- West Nile virus is carried by mosquitoes and is the most common mosquito-borne illness in the U.S. About 80% of people infected with West Nile never develop symptoms, while about 20% of people infected may experience mild symptoms. Less than 1% of people infected develop a serious and sometimes fatal illness.
- West Nile virus has been reported among people who live in Dane County since 2002. Before 2020, we tested dead birds to monitor West Nile because birds can also get the virus. You can report sightings of dead birds to the Wisconsin Department of Natural Resources.

How We Track Mosquitoes

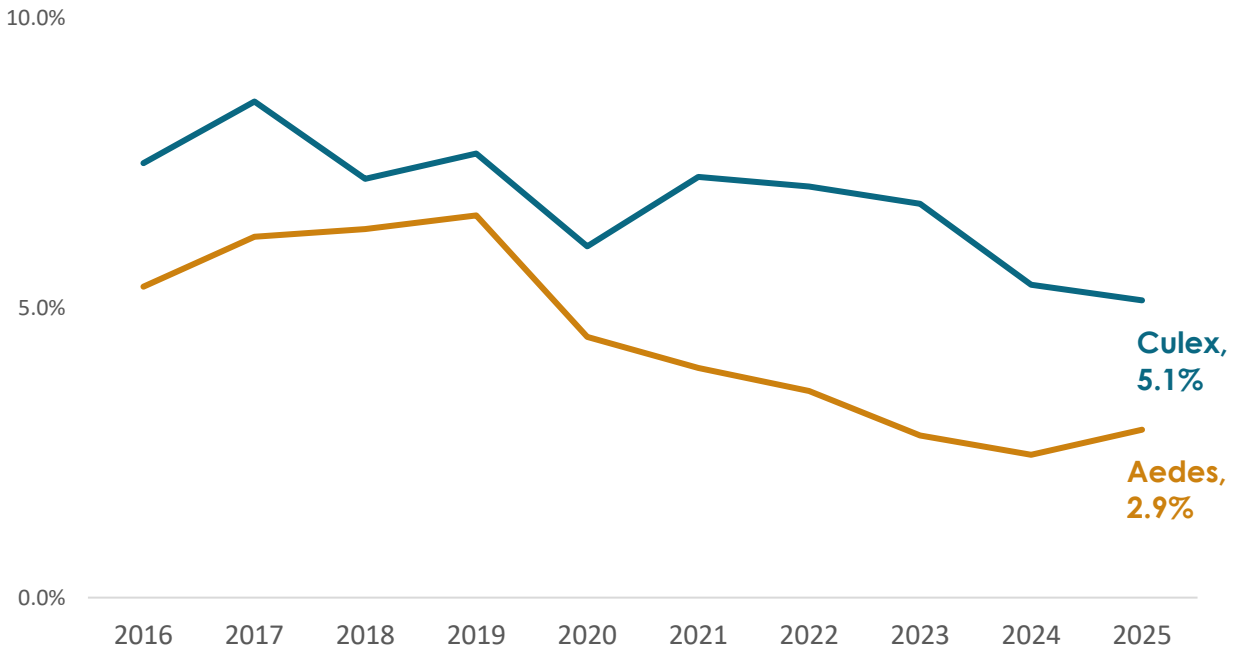
- In 2025, we sampled 702 locations for mosquito larvae in Madison, Middleton, Monona, Sun Prairie, and on the UW-Madison campus. We made 2,391 total inspections to those sites.
- Sites are on public property, such as in parks. Approximately 44% of sites are ditches and 43% are detention or retention ponds. Other sites include rain gardens, marshes, creeks, flooded areas, and golf course ponds.

- We sample for mosquito larvae along the water's edge by quickly dipping under the surface of the water with a dipper (plastic cup on a pole). Samples at each location are a mix of one to ten dips.
- We then take the sample back to the lab and identify the species of the collected larvae. Since WNV is considered endemic in Dane County the larvae are not tested for the virus. We look for two species of mosquito larvae that spread the most disease—*Culex* (most common carrier of West Nile virus) and *Aedes* (can carry West Nile virus, but less common. They are also vectors for some other mosquito-borne illness, such as La Crosse encephalitis). *Culex* mosquito activity is defined as the presence of the species *Culex Pipiens* and/or *Culex Restuans*; these mosquito types can transmit WNV in Dane County.
- When three or more *Culex* larvae are found per dip, the site is treated with larvicide, a chemical that specifically kills/targets only mosquito larvae.

What We Found

- 5.4% of all inspected sites had high levels of *Culex* mosquito larvae present.
- 4.7% of all inspected sites had high levels of *Aedes* mosquito larvae present.
- Three cases of West Nile virus in humans were reported in 2025. Between 2002 and 2025, there have been 59 total cases and 2 deaths related to West Nile virus disease in Dane County. These cases are an undercount and represent the most severe cases of West Nile virus disease, as people with mild West Nile virus are unlikely to be tested. Data from 2025 is preliminary.

Figure 1. Percentage of sites with high levels of *Culex* and *Aedes* mosquitoes, 3-year rolling averages, 2016-2025



Introduction

Public Health Madison & Dane County partners with the City of Middleton, City of Monona, City of Sun Prairie, Town of Madison, and University of Wisconsin to monitor and control the breeding activity of mosquitoes capable of carrying West Nile virus on public property. The main concern is the Culex mosquito, which is the primary carrier of West Nile virus in humans. In addition, other mosquito species that can also carry West Nile virus, such as Aedes mosquitoes, are monitored.

From late May through August, public health staff sampled sites to identify areas hosting large numbers of mosquito larvae. In 2025, the end of the mosquito season extended into September due to a late first frost. Sites where high levels of *Culex* larvae were found, larvicide was applied to eliminate them.

When a person tests positive for West Nile virus, the test is reported to the health department. Public health staff follow up to ensure the person has access to medical care and gather information about where they may have been exposed. Tracking these illnesses helps identify trends and better understand the virus's presence in our community.

This report summarizes mosquito monitoring and treatment efforts in the metropolitan area, along with trends in people in Dane County who tested positive for West Nile virus. The results are also displayed on our Dane County Mosquito Dashboard.

Monitoring for West Nile Virus

Monitoring Birds for West Nile Virus

Prior to 2020, Public Health Madison & Dane County participated in statewide efforts to collect and test dead crows and blue jays for West Nile virus. These types of birds are most likely to get WNV. Once WNV was consistently found—that is, endemic—in Dane County and throughout the state, bird monitoring was discontinued.

Monitoring People for West Nile Virus

Most people (about 80%) infected with WNV disease will have no symptoms, but approximately 20% will experience a fever plus other symptoms like headache, body ache, joint pain, vomiting, diarrhea, or rash. Less than 1% of people infected will develop serious illness affecting the central nervous system such as brain or spinal swelling (encephalitis); people over 60 years of age are at the greatest risk.

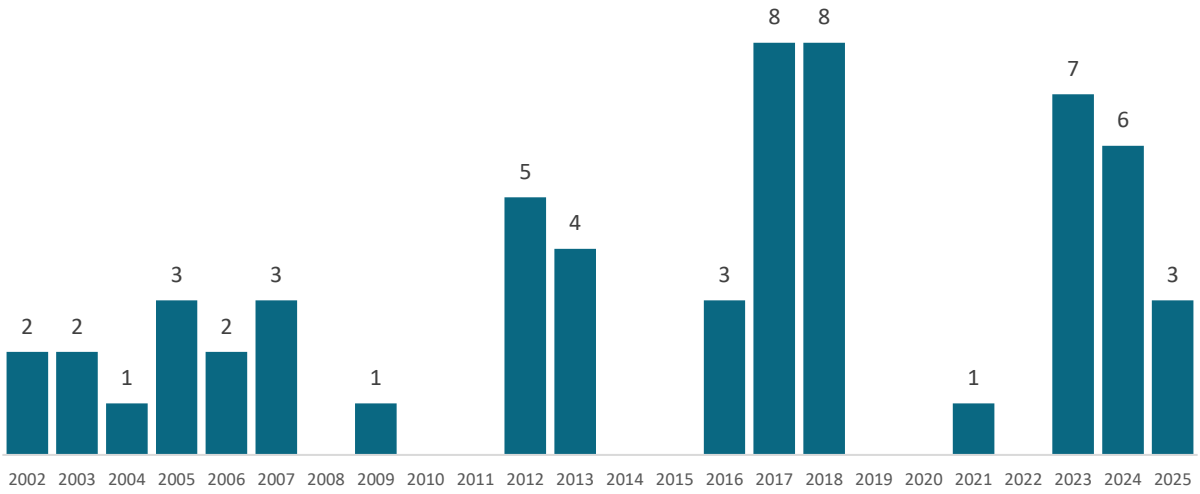
Three people were reported with WNV infection in Dane County in 2025, with no deaths. Interview data suggests that most of these cases were acquired locally. Compared to national and statewide data, Dane County saw a higher rate of WNV infection than Wisconsin but a lower rate than the United States in 2025; however, this rate fluctuates widely from year to year.

Table 1. West Nile Virus Rates in Dane County, Wisconsin, and U.S. – 2025

Location	West Nile Virus infections per 100,000 population	Deaths due to West Nile Virus per 100,000 population
Dane County	0.51	0
Wisconsin	0.44	0
U.S.	0.61	Not currently available*

**Data for deaths attributed to West Nile Virus in the United States in 2025 not available from the CDC as of time of writing.*

Figure 2. People with West Nile Virus in Dane County



Since there is no vaccine currently available to prevent WNV disease, public health focuses on monitoring and controlling the mosquito populations that can carry the virus to reduce the risk to the community.

Monitoring Mosquito Populations

During the summer of 2025, public health staff completed 2,391 inspections of 702 sites to evaluate *Culex* and *Aedes* populations in the metro area.

At each surface water source, public health staff sampled for mosquito larvae along the water's edge by quickly dipping under the surface of the water with a dipper (plastic cup on a pole). Samples at each location consisted of a composite of one to ten dips. The number of dips depended on the size of the water source and the number of larvae present. Larvae activity for each sample was measured as the number of larvae per dip. When three or more *Culex* larvae are found per dip, the site is treated with larvicide. Most mosquito monitoring is performed at surface water sources. The table below lists the number of sites by community with high concentrations of *Culex* or *Aedes* larvae; all other sites tested reported either low concentrations of larvae or no larvae noted.

Mosquito Monitoring Findings

As displayed on the Dane County Mosquito Dashboard, a total of 38 (5.4%) of inspected sites produced high numbers of *Culex* larvae and 33 (4.7%) sites produced high numbers of *Aedes* larvae, at least once during 2025 (Table 2). Seven inspection sites reported high levels of both *Culex* and *Aedes* larvae in separate inspections of the site.

Table 2. Areas with High Levels of *Culex* and *Aedes* Mosquitoes, 2025

Location of Sample	High *Culex* (% of inspected sites)	High *Aedes* (% of inspected sites)	Total number of sites inspected
City of Madison	25 (5.5%)	22 (4.8%)	454
City of Sun Prairie	5 (4.1%)	6 (5.0%)	121
City of Middleton	7 (9.0%)	3 (3.8%	78
UW Madison (includes campus and arboretum)	0 (0%)	1 (3.7%)	27
City of Monona	1 (6.3%)	1 (6.3%)	16
Town of Burke	0 (*)	0 (*)	3
City of Fitchburg	0 (*)	0 (*)	3
Total	**38 (5.4%)**	**33 (4.7%)**	**702[#]**

**Percentages not calculated for sites with fewer than five samples*

 # Seven inspection sites reported high levels of both Culex and Aedes larvae in separate inspections. The site is counted only once in the Total Metro Area site total of 691 but each counted in both Culex and Aedes totals.

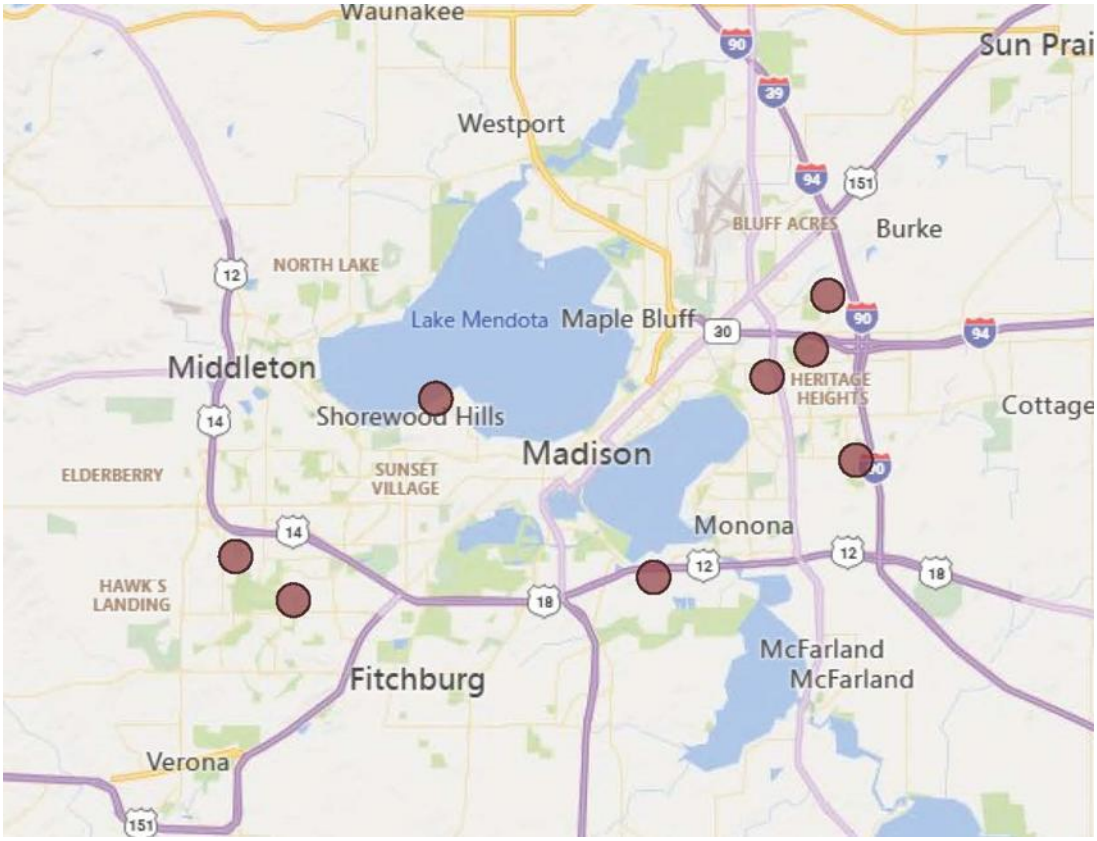
Over the past decade (2016 – 2025), the percentage of sampled sites with high levels of *Culex* mosquitoes has ranged from 4.8% to 10.9%; *Aedes* larvae activity ranged from 0.4% to 9% (Table 3). Seasonal variation in temperature and rainfall can impact findings.

Table 3. Percentage of Sites with High Levels of *Culex* and *Aedes* Mosquitoes by Year, 2016-2025

Year	*Culex*	*Aedes*
2016	5.4%	3.9%
2017	10.9%	9.0%
2018	5.4%	6.2%
2019	6.7%	4.6%
2020	6.1%	2.7%
2021	9.0%	4.6%
2022	6.4%	3.5%
2023	5.2%	0.4%
2024	4.8%	3.6%
2025	5.4%	4.7%
Average	**6.5%**	**4.3%**

Between 2016 and 2025, a total of 180 unique sites were found to have high numbers of *Culex* larvae during at least one season. Of these, 33 sites (18.3%) had elevated *Culex* larvae in multiple seasons, occurring in four or more different years. Notably, eight of these sites had high *Culex* larvae counts every year throughout the entire ten-year period (Figure 3).

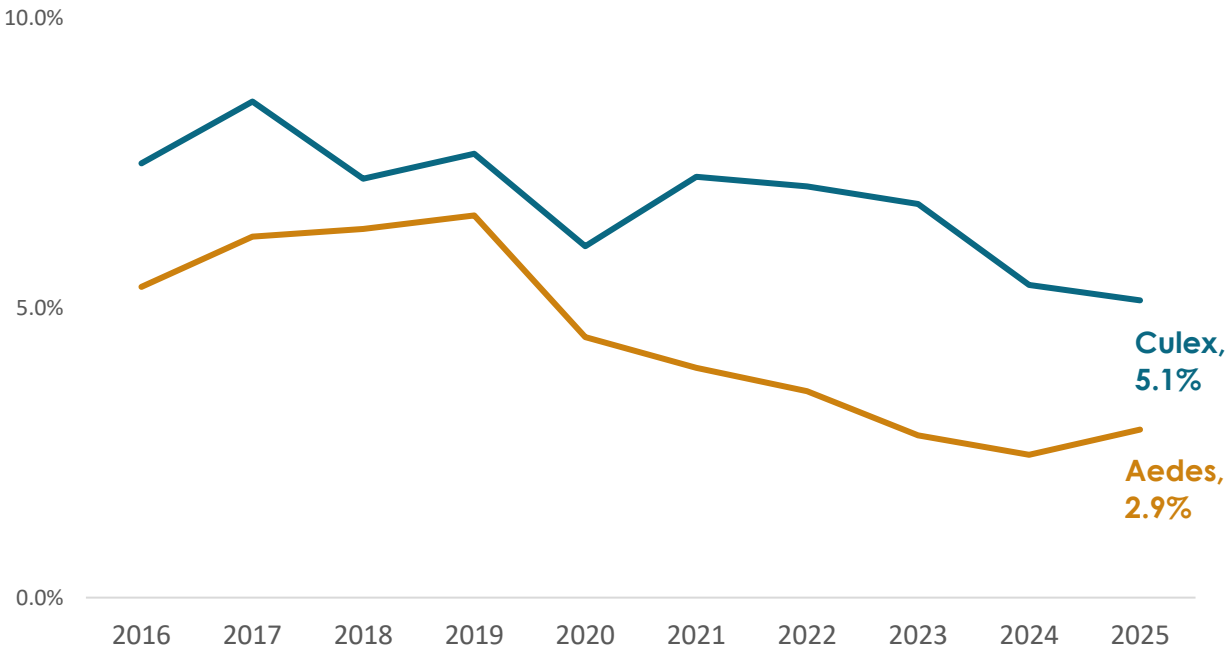
Figure 3. Inspection Sites in Dane County Reporting High Numbers of *Culex* Larvae Each Year of the Past Decade, 2016 – 2025



All sites identified in the map above are in Madison. The sites include: East Badger Mill Creek Greenway, Eastmoorland Park, North Penito Creek Greenway, Ridgewood Ponds, Highpoint Estates Detention Pond, Nob Hill Ponds, Milwaukee St Greenway, and UW-Madison Campus.

We find *Culex* more often than we find *Aedes* (figure below), and the rate at which we find *Culex* or *Aedes* larvae has been decreasing over the past decade.

Figure 4. Percentage of Sites with High Levels of *Culex* and *Aedes* Mosquitoes, 3-year Rolling Averages, 2016-2025

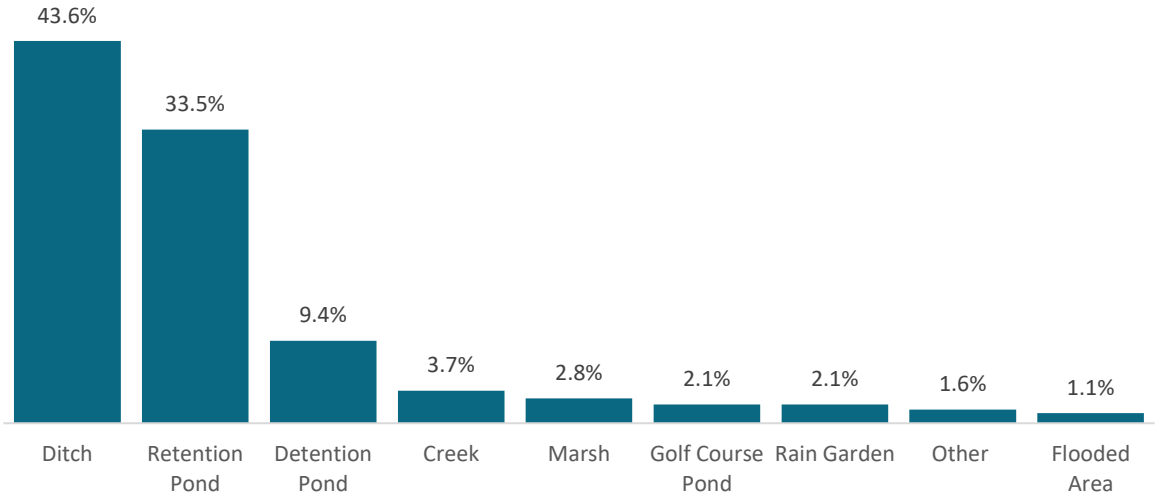


The types of sites with high numbers of larvae have remained generally consistent from year to year. Ditches, detention ponds, and retention ponds are the most common locations where mosquito larvae are found.

- Ditches are narrow open channels designed for drainage purposes to collect and carry excess water from fields, roadways, and low-laying areas.
- Detention ponds temporarily store stormwater runoff and then release it gradually until it is drained.
- Retention ponds are designed to permanently hold water. Retention ponds are less likely than ditches and detention ponds to host mosquitoes because these water bodies have much more stable edges and shallow pools are not prone to develop at these sites. In addition, the presence of natural predators including fish, tadpoles, and other insects at retention ponds make these sites a less suitable habitat for mosquito larvae in comparison to ditches and detention ponds.

In addition to these common sample sites, we also sample creeks, flooded areas, golf course ponds, inlets, marshes, rain gardens, riverbanks, and springs. Sites labeled as “other” represent sites with less than 1% of total inspection conducted at each site (Figure 5).

Figure 5. Site types sampled for mosquito larvae in Dane County, percentage of total inspections, 2025



Larvicide Applications

During the 2025 mosquito season, a total of 61 treatments were performed at 31 sites that reported high levels of *Culex* mosquito larvae. All treatments were effective in reducing larvae numbers below the treatment threshold of three larvae per dip when reassessed the week after a treatment. Larvicide applications are typically effective for one month. However, a site may need additional treatment if elevated mosquito activity returns to the site. In the 2025 monitoring season, nine sites were considered problematic and required treatment on 3 or more separate occasions during the season. Occasionally, some sites with high *Culex* activity were not treated due to weather and/or site conditions during reinspection that reduced mosquito activity and eliminated the need for larvicide application.

How to Prevent Mosquito-Related Illnesses

Mosquito-related illnesses, like West Nile, are preventable:

- Mosquitoes like to lay eggs in standing water. They don't need a lot, so be sure to keep things dry. Drain any standing water in your outdoor living areas. You might see water accumulating in clogged gutters, air conditioners, tarps, wheelbarrows, plant debris, flowerpots, pet dishes, or birdbaths.
- Use insect repellents on skin and clothing before heading outdoors during mosquito season (May through October).
- Wear long-sleeved shirts, pants, socks, and shoes outside during peak mosquito activity hours.; usually dusk and dawn for most mosquito species in Wisconsin.

Learn more on the Department of Health Services website.

Appendix: Data Tables

Table 4. Percentage of sites with high levels of *Culex* and *Aedes* mosquitoes, 3-year rolling averages, 2016-2025

Year	*Culex*	*Aedes*
2016	7.5%	5.4%
2017	8.6%	6.2%
2018	7.2%	6.4%
2019	7.7%	6.6%
2020	6.1%	4.5%
2021	7.3%	4.0%
2022	7.1%	3.6%
2023	6.8%	2.8%
2024	5.4%	2.5%
2025	5.1%	2.9%

Table 5. Site types sampled for mosquito larvae in Dane County, percentage of total inspections, 2025

Site Category	Number Inspected	Percent of Total
Ditch	306	43.6%
Retention Pond	235	33.5%
Detention Pond	66	9.4%
Creek	26	3.7%
Marsh	20	2.8%
Golf Course Pond	15	2.1%
Rain Garden	15	2.1%
Other*	11	1.6%
Flooded Area	8	1.1%
Total	**702**	**100.0%**

** Any category < 1%*

Table 6. Number of People with West Nile Virus in Dane County, 2002-2025

Year	Number of People with West Nile Virus
2002	2
2003	2
2004	1
2005	3
2006	2
2007	3
2008	0
2009	1
2010	0
2011	0
2012	5
2013	4
2014	0
2015	0
2016	3
2017	8
2018	8
2019	0
2020	0
2021	1
2022	0
2023	7
2024	6
2025	3
Total	**59**

The tables below summarize sites where elevated levels of *Culex* and *Aedes* mosquito larvae were found in Dane County. Sites with elevated levels of *Culex* larvae were treated with larvicide.

Table 7. City of Madison Sites with High Numbers of *Culex* and/or *Aedes* Larvae in 2025

Site Group Name	Number of Sites	Number of Inspections	Number of Sites with High *Culex*	Number of Sites with High *Aedes*
Airport	16	39	1	1
Alliant Energy Center	8	24	0	1
Biltmore Ditch	1	4	1	0
Carpenter Ridgeway Pond	1	3	0	1
Culvert drainage – Ocean Rd.	1	16	1	0
Department of Revenue	1	3	0	1
East Badger Mill Creek Greenway	15	107	2	0
Eastmoorland Park	3	20	1	0
Elver Park Greenway	12	52	1	0
Flagstone Ponds	2	6	0	1
Franklin Field	5	15	0	1
Greenside Circle Hawks Landing	1	3	0	1
Highpoint Estates Detention Pond	1	15	1	0
Holy Cross Way	1	2	0	1
International Lane	1	5	1	1
McLean Dr Pond	1	12	1	0
Milwaukee St Greenway	6	38	2	0
Nine Springs E-way	6	15	0	2
Nob Hill Ponds	4	24	1	0
North Penito Creek Greenway	6	36	2	2
Prairie View Ditch	1	3	0	1
Reindahl park ditch	1	5	1	0
Rennebohm Park	1	3	0	1
Rennebohm Park Detention Pond	1	6	1	0
Ridgewood Ponds	2	15	1	0
Siggel Grove Road ponds	1	3	0	1
Starkweather - Olbrich Greenway	10	25	0	1
Starkweather Creek	8	23	0	1
Sycamore Ave Detention Pond	1	15	1	0
UW CAMPUS	2	18	1	0
Vilas Park	2	8	1	1
Warner Park	8	22	0	1
Warner Park Lagoon	6	31	2	0
Westchester Gardens Park	3	19	1	0
Whitetail Ridge Detention Pond	1	14	1	0
Yahara Hills Golf Course	6	16	0	2

Table 8. City of Middleton Sites with High Numbers of *Culex* and/or *Aedes* Larvae in 2025

Site Group Name	Number of Sites	Number of Inspections	Number of Sites with High *Culex*	Number of Sites with High *Aedes*
Orchard Heights Park	12	31	3	0
Pleasant View GC	2	6	0	1
Stricker's park	1	14	1	1
Whittlesey Pond	1	4	1	1
Middleton Beach Rd City Park	1	3	1	0
Bike Path drainage - Deming Way	1	5	1	0

Table 9. City of Monona Site with High Numbers of *Culex* and/or *Aedes* Larvae in 2025

Site Group Name	Number of Sites	Number of Inspections	Number of Sites with High *Culex*	Number of Sites with High *Aedes*
Winnequah Park	4	25	1	1

Table 10. City of Sun Prairie Sites with High Numbers of *Culex* and/or *Aedes* Larvae in 2025

Site Group Name	Number of Sites	Number of Inspections	Number of Sites with High *Culex*	Number of Sites with High *Aedes*
Ditch – Site no. 8203	1	2	0	1
Ditch – Site no. 9037	1	3	0	1
Ditch – Site no. 9552	1	3	0	1
O'Keefe Ave. Wetland Retention Pond #1	1	3	0	1
O'Keefe Ave. Wetland Retention Pond #2	1	3	0	1
Ridgecrest Neighborhood	3	10	1	0
Sheehan Park	1	14	1	0
Shonas Highlands	8	21	1	0
Westwynde	6	18	0	1
Weybridge	2	7	1	0
White Tail Drive Ditch	1	3	1	0

Table 11. UW Campus Site with High Numbers of Culex and/or Aedes Larvae in 2025

Site Group Name	Number of Sites	Number of Inspections	Number of Sites with High *Culex*	Number of Sites with High *Aedes*
Triangle Marsh	1	3	0	1