

Village of Roscoe

Mosquito Management Program

2025 Annual Report

Submitted by:
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December 2025



Making communities around the world more livable, safe and comfortable.

Table of Contents

1. A Message from Clarke	Page 3
2. Seasonal Overview and NWS Summaries	Page 4 - 6
3. 2025 West Nile Virus Update (US + IL)	Page 7 - 10
4. 2025 EEE Update	Page 11
5. 2025 Zika Update	Page 12
6. Climatology and Mosquito Overview	Page 13-14
7. Surveillance Network	Page 15
8. Light Trap Species Summary	Page 16
9. Operations and surveillance Reports	Page 17
10. Services Performed Year to Date	Page 18
11. 2025 Services Invoiced per Contract	Page 18

A Message from Clarke Mosquito Control

Dear Community members,

Clarke is a third-generation company dedicated to protecting public health through innovative, environmentally responsible vector control solutions. We specialize in managing disease-carrying and nuisance mosquitoes to help make communities safer, more comfortable, and more livable. Our customers benefit from decades of technical expertise and our unwavering commitment to sustainable innovation in mosquito control.

Mosquito populations and mosquito-borne disease are inextricably tied to weather conditions. Heavy rainfall triggers hatch-offs of nuisance floodwater mosquitoes, while dry, hot temperatures amplify West Nile virus spread. Weather variations lead to dramatic swings in activity year-over-year, and West Nile virus remains endemic to northern Illinois.

Using an Integrated Pest Management approach, we work closely with you to design and execute a mosquito control program specifically tailored to your community's environmental challenges, risks, and needs. We're pleased to provide this annual report outlining our control activity and the mosquito control challenges we faced this season.

Sincerely,
Jack Thennisch
Control Consultant

Seasonal Overview

After the fifth warmest winter on record, the Chicago area moved into a warm spring with normal precipitation. June precipitation levels were relatively normal compared to the previous year's wetter month, though some areas experienced localized increases that contributed to floodwater mosquito activity.

June precipitation levels were relatively normal compared to the previous year's wetter month, though some areas experienced localized increases that contributed to floodwater mosquito activity. The combination of moderate rainfall and above-average temperatures created conditions favorable for mosquito development.

In July, increased rainfall, paired with high temperatures across Northern Illinois, triggered surges in mosquito populations. July delivered higher precipitation and temperatures compared to the previous year, accelerating mosquito development cycles and driving increases in both nuisance populations and West Nile virus vectors.

August continued the pattern with temperatures near seasonal averages but above-normal precipitation. Chicago recorded 5.03 inches of precipitation (0.78 inches above normal), while temperatures ran slightly cooler than normal. These conditions sustained elevated mosquito activity throughout the month.

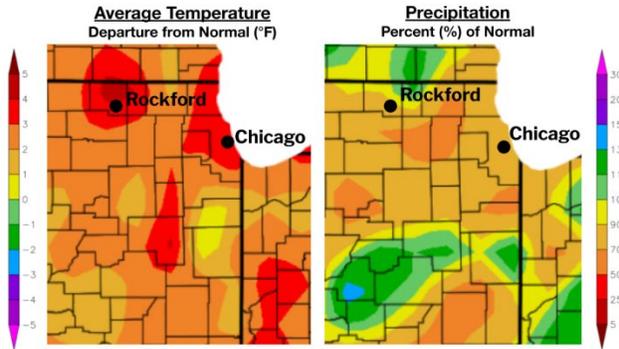
September marked a dramatic shift, becoming one of the warmest and driest months on record. Chicago recorded only 0.49 inches of precipitation (2.70 inches below normal, tied for 7th driest) with temperatures 3.0 degrees above normal. The warm, dry conditions led to expanding drought conditions, with 74% of Illinois entering drought status by month's end.

October continued the drought trend with below-normal precipitation and cooling temperatures. The persistent dry conditions naturally reduced mosquito breeding habitats, though West Nile virus activity remained elevated through early October before seasonal declines began as cooler autumn weather took hold.

Below are the monthly recaps from the National Oceanic and Atmospheric Administration and National Weather Service.

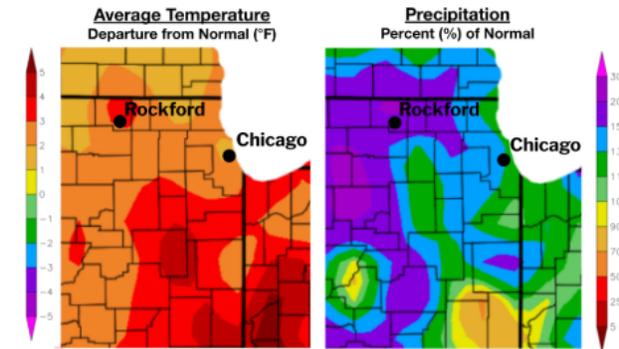
June 2025 Review July 1, 2025
4:36 PM
 Warmer and Drier than Average

Chicago (O'Hare)	Rockford
Avg. Temperature 74.2° 3.6° above normal Tied 6th Warmest	Avg. Temperature 73.2° 3.1° above normal
Precipitation 3.63" 0.47" below normal	Precipitation 3.38" 1.85" below normal



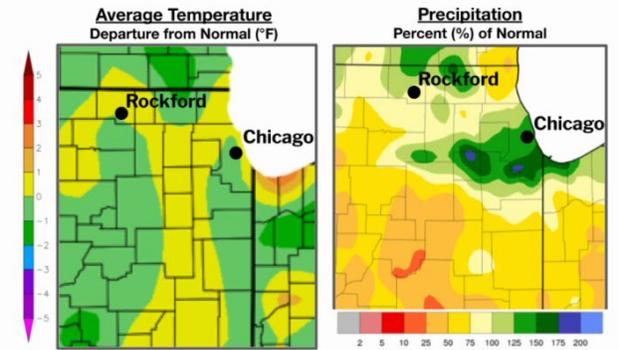
July 2025 Review August 1, 2025
1:00 PM
 Warm, humid, and wet for most of the region

Chicago (O'Hare)	Rockford
Avg. Temperature 77.5° 2.1° above normal	Avg. Temperature 76.2° 2.4° above normal
Precipitation 4.29" 0.58" above normal	Precipitation 6.49" 2.68" above normal



August 2025 Review September 2, 2025
7:00 AM
 Generally near to slightly below normal temperatures and a mixed bag for rainfall

Chicago (O'Hare)	Rockford
Avg. Temperature 73.3° 0.5° below normal	Avg. Temperature 70.6° 1.3° below normal
Precipitation 5.03" 0.78" above normal	Precipitation 3.30" 0.89" below normal



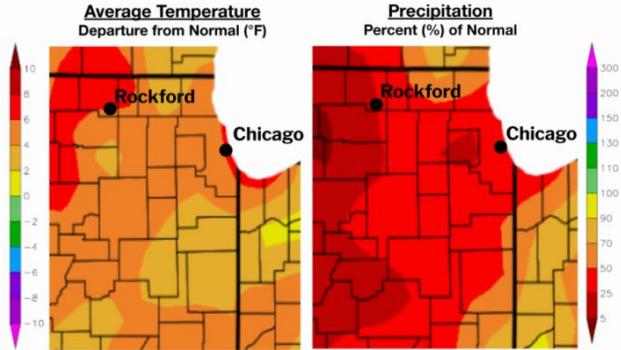


September 2025 Review

October 1, 2025
2:40 PM

Mainly warm and dry conditions prevailed across the region.

Chicago (O'Hare)	Rockford
Avg. Temperature 69.3° 3.0° above normal	Avg. Temperature 66.5° 2.1° above normal
Precipitation 0.49" 2.70" below normal Tied 7th Driest	Precipitation 1.05" 2.57" below normal

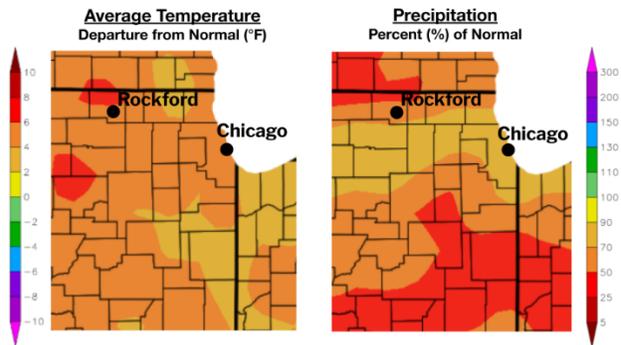


October 2025 Review

November 2, 2025
10:33 AM

Warmer and drier than our typical October

Chicago (O'Hare)	Rockford
Avg. Temperature 58.1° 4.1° above normal	Avg. Temperature 56.2° 4.2° above normal
Precipitation 2.67" 0.76" below normal	Precipitation 1.40" 1.23" below normal



Maps courtesy of the High Plains Regional Climate Center



National Weather Service
Chicago, IL

2025 West Nile Update

West Nile virus is primarily a mosquito-borne disease, which can cause West Nile encephalitis (swelling of the brain) and West Nile fever in humans. Though most humans infected will not show symptoms, those who develop West Nile virus risk debilitating effects and possibly death. While the most severe cases and the highest risk of West Nile occur traditionally in people over 50 years of age or with compromised immune systems, all people who spend time outside are at risk of contracting the virus. The disease also affects birds, horses and other animals, with higher mortality rates.

West Nile Virus has spread rapidly across North America since it was discovered in the Western hemisphere in 1999. Since its emergence, the virus has led to 58,682 human cases—including over 2,700 tragic fatalities—over the past 25 years. Given its prevalence in bird and mosquito populations, WNV has established itself as a significant annual threat during mosquito season.

US Cases of West Nile Virus: 2025

Nationwide, 2025 has seen approximately 1,564 total human disease cases of West Nile virus reported across 43 states, with 1,043 classified as neuroinvasive disease cases—the more severe form of the illness. This represents a 40% increase above normal levels for West Nile virus activity.

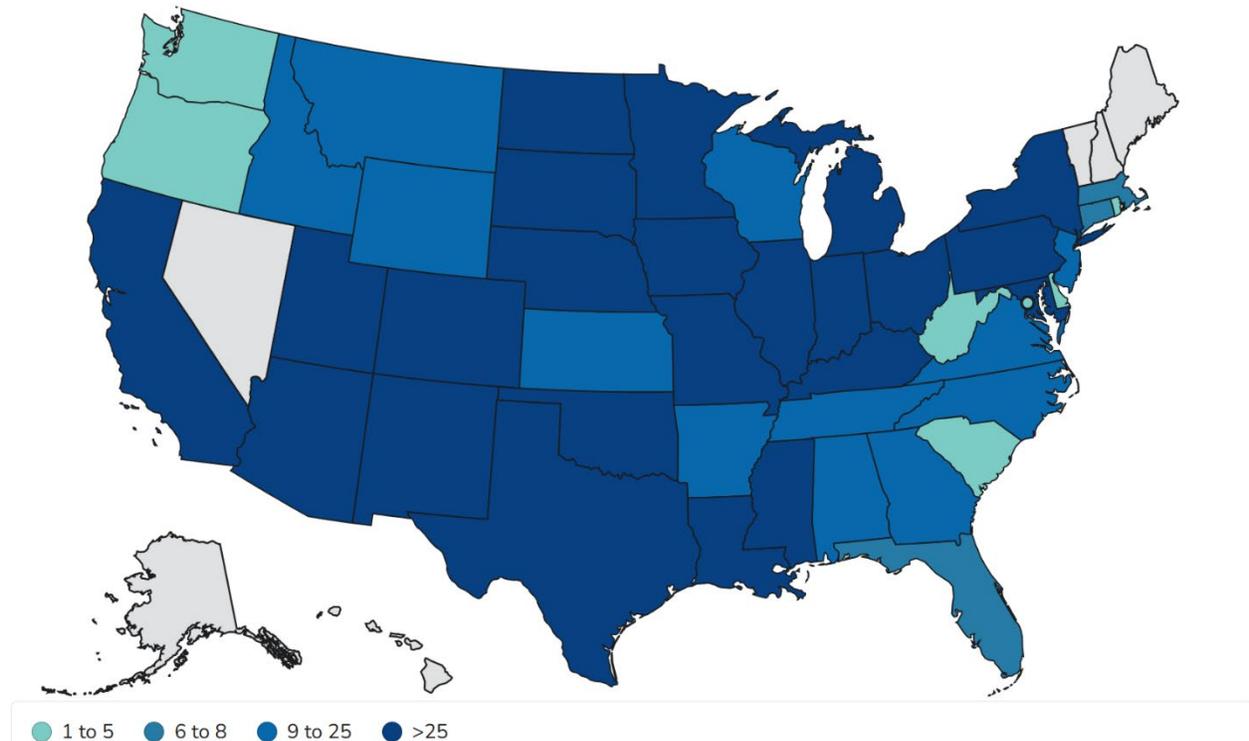


Figure 1: West Nile virus human disease cases reported by state of residence, 2025. Pulled 11/6/2025 via [ArboNET](#).

Illinois Cases of West Nile Virus

In Illinois, 2025 proved to be a particularly severe year for West Nile virus. As of October 3, 2025, the state reported 142 confirmed human cases, including 7 deaths, across 72 counties.

Mosquito surveillance detected 3,992 positive mosquito batches - a 23.3% positivity rate significantly higher than 2024's 18.4% - and 26 positive horses and other animals, though no positive birds were reported through the state monitoring system. This represents a substantial increase from 2024's total of 69 cases for the entire year.

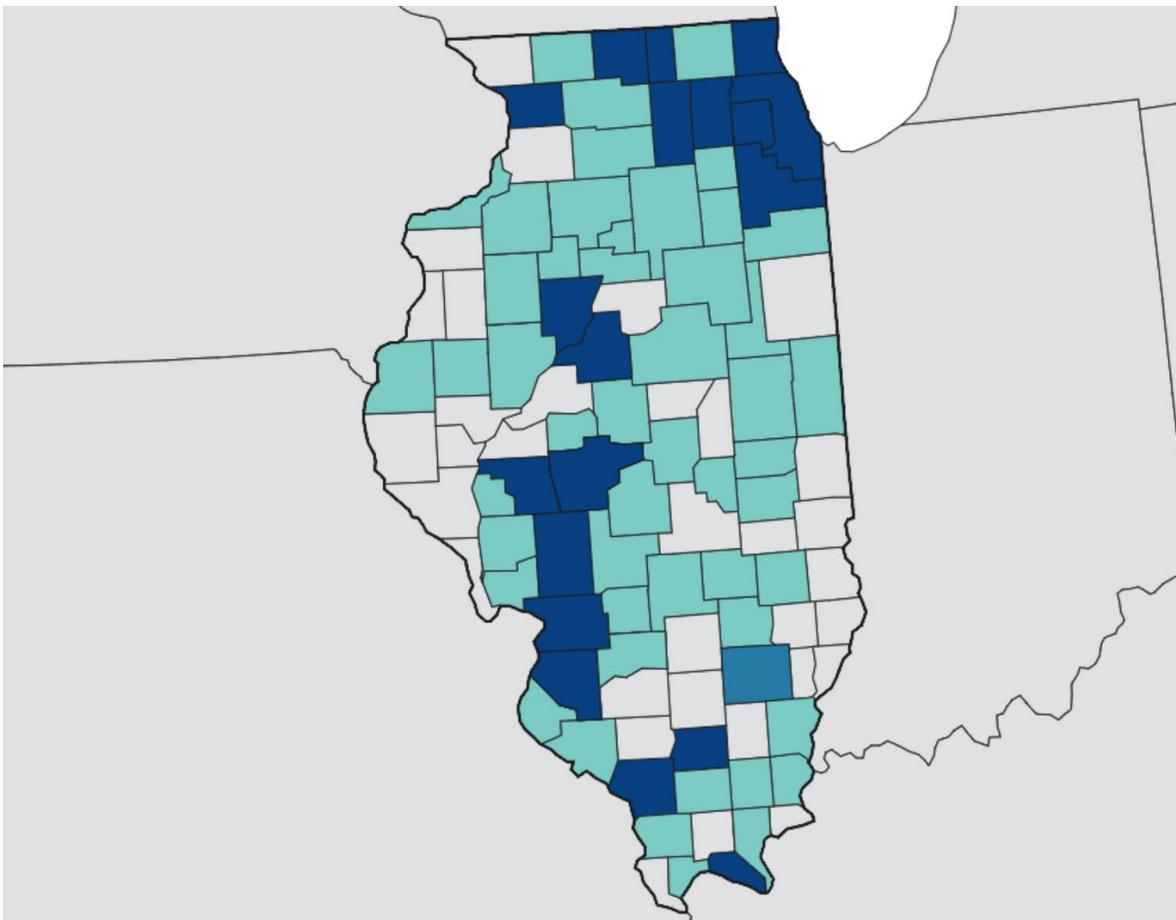


Figure 2: West Nile virus human and non-human activity by county, 2025. Pulled 11/6/2025 via [ArboNET](#).

County	American Crow	Blue Jay	Other Birds	Mosquito Batches	Horse	Other Mammals
BOND	0	0	0	3	0	0
BOONE	0	0	0	18	0	0
BUREAU	0	0	0	5	0	0
CARROLL	0	0	0	5	0	0
CHAMPAIGN	0	0	0	22	0	0
CHRISTIAN	0	0	0	3	0	0
CLAY	0	0	0	2	0	0
CLINTON	0	0	0	5	0	0
COLES	0	0	0	0	2	0
COOK	0	0	0	2958	0	0
DEKALB	0	0	0	17	0	0
DOUGLAS	0	0	0	0	12	0
DUPAGE	0	0	0	219	0	0
EFFINGHAM	0	0	0	0	1	0
FAYETTE	0	0	0	1	0	0
FORD	0	0	0	23	0	0
FRANKLIN	0	0	0	2	0	0
FULTON	0	0	0	1	0	0
GALLATIN	0	0	0	3	0	0
GREENE	0	0	0	9	0	0
GRUNDY	0	0	0	22	0	0
HANCOCK	0	0	0	6	0	0
HENRY	0	0	0	7	0	0
JACKSON	0	0	0	1	0	0
JASPER	0	0	0	3	0	0
JERSEY	0	0	0	2	0	0
KANE	0	0	0	21	0	0
KANKAKEE	0	0	0	53	0	0
KENDALL	0	0	0	16	0	0
KNOX	0	0	0	1	0	0
LAKE	0	0	0	177	0	0
LASALLE	0	0	0	8	0	0
LEE	0	0	0	5	0	0
LIVINGSTON	0	0	0	3	0	0
LOGAN	0	0	0	1	0	0
MACON	0	0	0	25	0	0
MACOUPIN	0	0	0	4	1	0
MADISON	0	0	0	26	0	0
MARSHALL	0	0	0	6	0	0
MASSAC	0	0	0	1	0	0
MCDONOUGH	0	0	0	12	1	0
MCHENRY	0	0	0	50	0	0
MCLEAN	0	0	0	14	0	0
MENARD	0	0	0	6	0	0
MONROE	0	0	0	1	0	0
MONTGOMERY	0	0	0	38	0	0
MORGAN	0	0	0	5	0	0
MOULTRIE	0	0	0	0	9	0

OGLE	0	0	0	2	0	0
PEORIA	0	0	0	31	0	0
POPE	0	0	0	1	0	0
PULASKI	0	0	0	1	0	0
PUTNAM	0	0	0	1	0	0
RANDOLPH	0	0	0	10	0	0
ROCK ISLAND	0	0	0	9	0	0
SAINT CLAIR	0	0	0	25	0	0
SALINE	0	0	0	4	0	0
SANGAMON	0	0	0	4	0	0
SCOTT	0	0	0	3	0	0
STARK	0	0	0	2	0	0
STEPHENSON	0	0	0	3	0	0
TAZEWELL	0	0	0	6	0	0
UNION	0	0	0	2	0	0
VERMILION	0	0	0	9	0	0
WHITE	0	0	0	2	0	0
WHITESIDE	0	0	0	1	0	0
WILL	0	0	0	53	0	0
WILLIAMSON	0	0	0	1	0	0
WINNEBAGO	0	0	0	12	0	0
TOTAL	0	0	0	3992	26	0

Figure 3: Positive Birds, Mosquitoes, Horses, and Other Animals by County, Retrieved 11/6/25
https://idph.illinois.gov/wnvpublic/wnvsurveillance_data.aspx?year=2025

2025 Eastern Equine Encephalitis (EEE) Update

EEE is a mosquito-borne disease primarily vectored by *Culiseta melanura*, found in freshwater swamps along the Atlantic coast and around the Great Lakes. About one in three patients diagnosed will die from EEE, and many survivors experience ongoing neurological problems.

As of November 2025, human cases have been confirmed in several northeastern states. Animal cases have been reported in Michigan, Wisconsin, and South Carolina. Given elevated disease activity and the influence of climate change on mosquito habitats, communities should maintain robust surveillance and be prepared to implement targeted control measures.

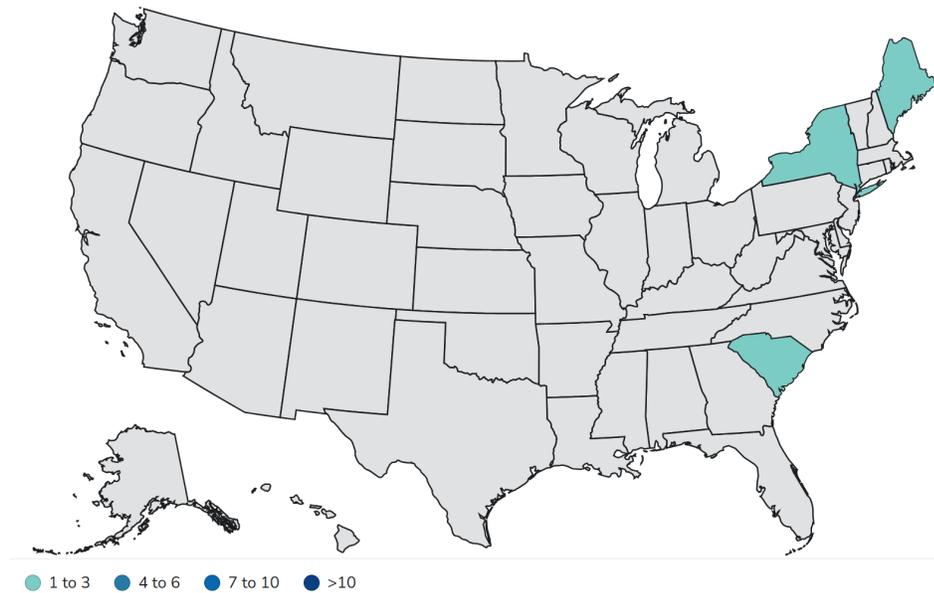


Figure 4: EEE virus human disease cases reported by state of residence, 2025. Via [ArboNet](#). Retrieved 11/6/2025.

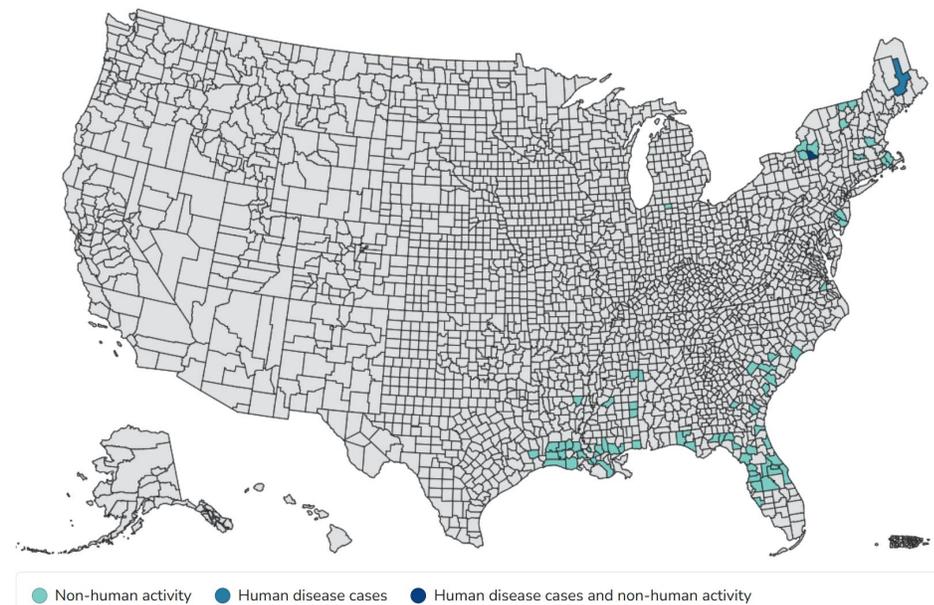


Figure 5: EEE virus human and non-human activity by county of residence, 2025. Via [ArboNet](#). Retrieved 11/6/2025.

2025 Zika Virus Update

Zika virus is a mosquito-borne disease that is transmitted primarily by the *Aedes aegypti* mosquito and through sexual transmission. While Zika symptoms are generally mild in adults (fever, rash, joint pain, conjunctivitis), pregnant women who contract Zika virus can pass the virus to their unborn children, increasing the risks of serious birth defects like microencephaly.

When Zika debuted in the US, more than 5,100 travel-related cases of Zika were confirmed nationwide, including 139 locally transmitted cases of transmission in areas of south Florida in 2016. Since that time, cases have steadily decreased. The last cases of local Zika transmission by mosquitoes in the continental United States were in Florida and Texas in 2016-17.

Illinois does not have a significant population of *Aedes aegypti* mosquitoes, so local transmission risk is small.

Year	US States Locally Acquired	US States Travel Associated	US Territories Locally Acquired	US Territories Travel Associated
2025	0	4	1	0

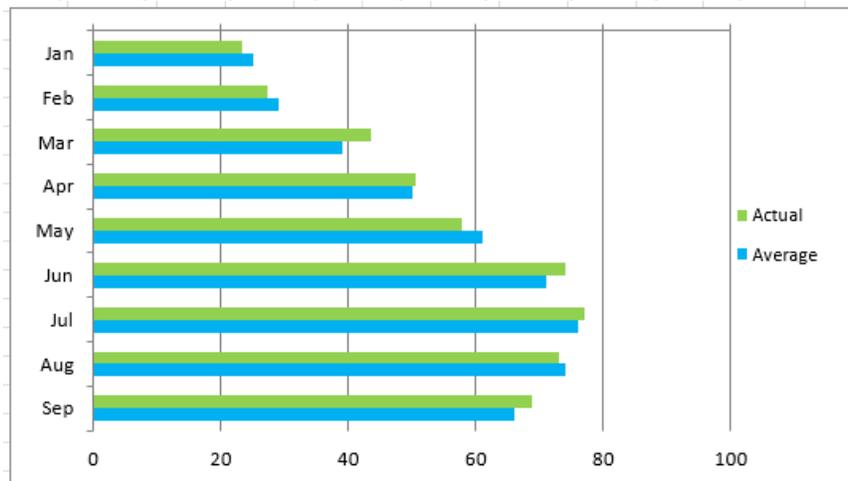
Figure 6:2025 U.S. Zika cases reported to ArboNET. Retrieved 11/6/2025

Climatology

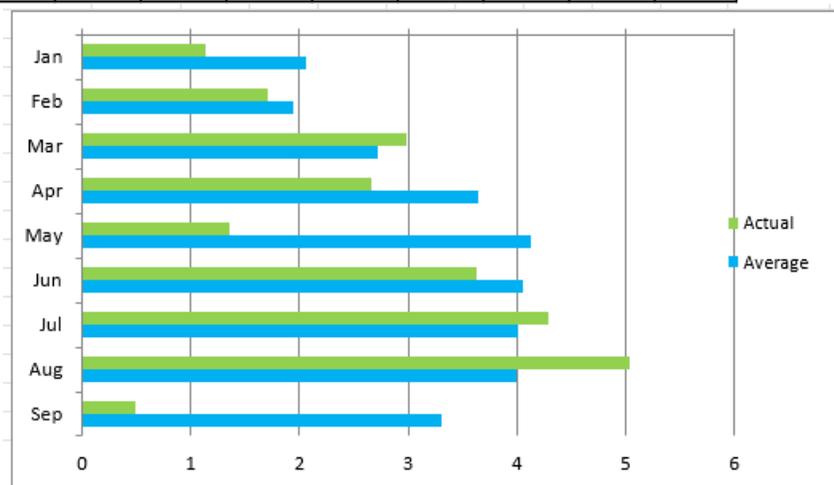
Weather dramatically impacts mosquito breeding and population dynamics. Rainfall determines whether floodwater mosquito eggs will hatch, while fierce storms can wash away egg rafts of container-breeding species. Temperature variations affect both mosquito activity levels and larval development rates. During hot, dry periods, dwindling water sources concentrate both mosquitoes and hosts, amplifying virus transmission and increasing the percentage of infected vectors in the population.

2025 O'Hare International Airport (Chicago) Weather Survey Temp and Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Actual	23.32	27.39	43.64	50.63	57.73	73.95	77.16	73.09	68.85
Average	25	29	39	50	61	71	76	74	66

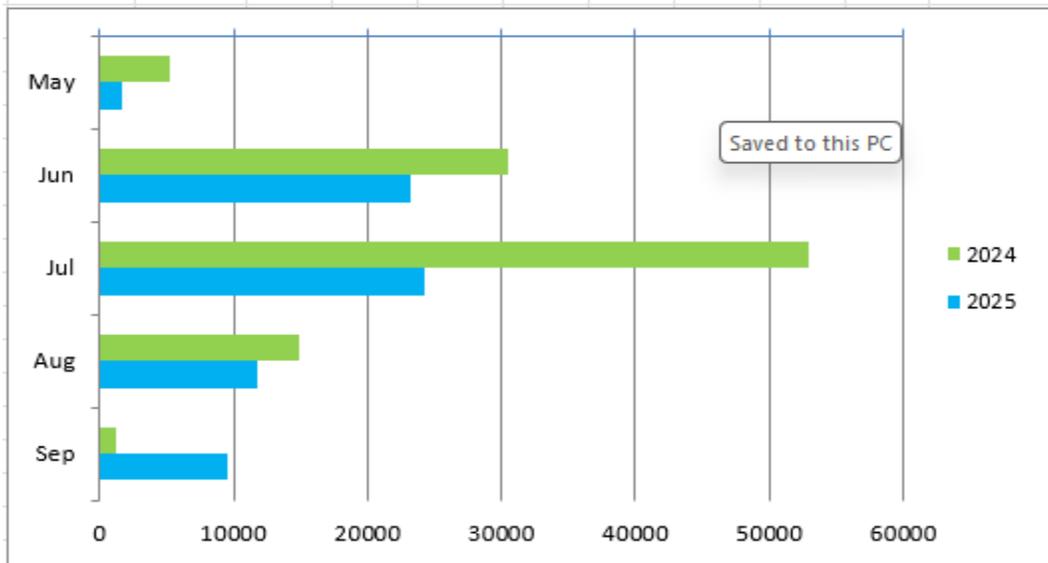


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Actual	1.14	1.7	2.99	2.66	1.35	3.63	4.29	5.03	0.49
Average	2.06	1.94	2.72	3.64	4.13	4.06	4.01	3.99	3.31

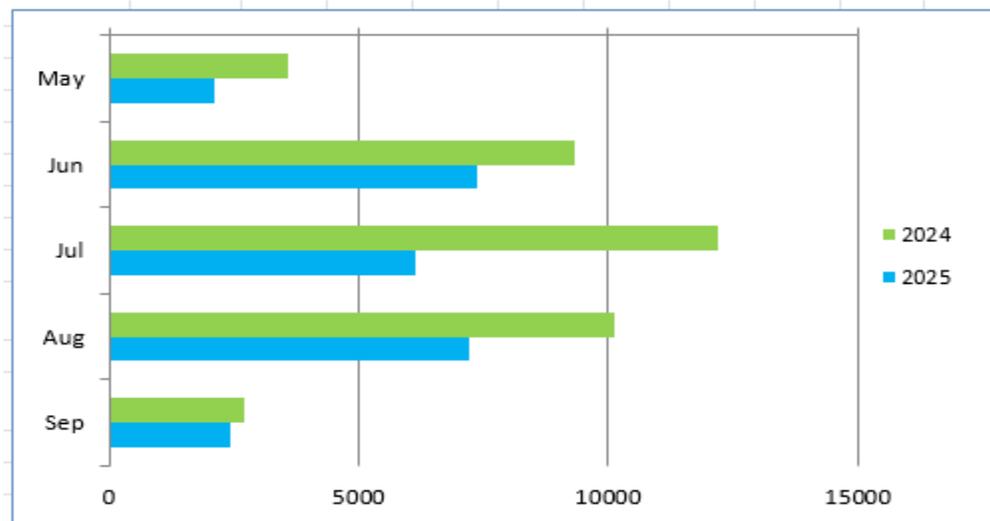


Aedes Vexans vs. Culex pipiens

<i>vexans</i>					
	May	Jun	Jul	Aug	Sep
2025	1622	23284	24267	11824	9565
2024	5304	30493	52870	14948	1227



<i>culex</i>					
	May	Jun	Jul	Aug	Sep
2025	2096	7388	6137	7193	2432
2024	3600	9324	12184	10126	2727



Surveillance

Surveillance is the foundation of any effective integrated mosquito management (IMM) program. It provides real-time data that allows us to make informed decisions about when, where, and how to deploy control measures. Rather than applying treatments on a fixed schedule, surveillance data helps us target interventions precisely when and where they're needed most. This approach maximizes effectiveness while minimizing unnecessary pesticide use, protecting both public health and the environment. Surveillance also provides early warning of disease threats, giving communities time to respond before human cases occur. Mosquito traps are essential surveillance tools that capture specimens for species identification, population monitoring, and arbovirus testing.



New Jersey Light Trap Network

Developed in the 1930s, New Jersey Light Traps help determine species diversity and monitor mosquito populations. A 25-watt bulb attracts mosquitoes into the trap via an electric fan, confirming predicted migrations and measuring control effectiveness.

West Nile Virus Surveillance Trap

Gravid traps primarily collect gravid *Culex* mosquitoes - the principal vectors of West Nile virus. We capture mosquitoes live, allowing us to test them for arboviruses and providing early indication that the virus is present in the area.



Centers for Disease Control and Prevention (CDC) Trap

CDC traps use carbon dioxide bait (typically dry ice) and light to attract female mosquitoes. A fan draws mosquitoes into a net for arbovirus testing. CDC traps show high species diversity, indicating the presence of mosquito-borne viruses and providing indices of adult mosquito species.



Light Trap Species Summary

The following table summarizes the species composition from the light trap network operating in Northern Illinois.

Light Trap Species Summary				
Species	Female	%Female	Male	%Male
<i>Aedes albopictus</i>	19	0.02%	2	0.01%
<i>Aedes cinereus</i>	221	0.21%	74	0.27%
<i>Aedes Misc spp</i>	549	0.51%	234	0.84%
<i>Aedes vexans</i>	65507	61.42%	14689	52.63%
<i>Anopheles barberi</i>	1	0.00%	1	0.00%
<i>Anopheles misc spp</i>	100	0.09%	53	0.19%
<i>Anopheles punctipennis</i>	1955	1.83%	225	0.81%
<i>Anopheles quadrimaculatus</i>	6910	6.48%	310	1.11%
<i>Anopheles walkeri</i>	10	0.01%	0	0.00%
<i>Coquillettidia perturbans</i>	1201	1.13%	149	0.53%
<i>Culex erraticus</i>	2192	2.06%	239	0.86%
<i>Culex misc spp</i>	11061	10.37%	6503	23.30%
<i>Culex pipiens</i>	8160	7.65%	3330	11.93%
<i>Culex restuans</i>	5889	5.52%	1054	3.78%
<i>Culex salinarius</i>	53	0.05%	3	0.01%
<i>Culex tarsalis</i>	11	0.01%	0	0.00%
<i>Culex territans</i>	342	0.32%	108	0.39%
<i>Culiseta inornata</i>	89	0.08%	34	0.12%
<i>Culiseta melanura</i>	13	0.01%	35	0.13%
<i>Culiseta misc spp</i>	3	0.00%	12	0.04%
Misc genus / spp	231	0.22%	104	0.37%
No catch	0	0.00%	0	0.00%
<i>Ochlerotatus canadensis</i>	12	0.01%	5	0.02%
<i>Ochlerotatus fitchii</i>	117	0.11%	108	0.39%
<i>Ochlerotatus grossbecki</i>	84	0.08%	38	0.14%
<i>Ochlerotatus hendersoni</i>	5	0.00%	3	0.01%
<i>Ochlerotatus japonicus</i>	437	0.41%	202	0.72%
<i>Ochlerotatus stimulans</i>	0	0.00%	1	0.00%
<i>Ochlerotatus triseriatus</i>	135	0.13%	114	0.41%
<i>Ochlerotatus trivittatus</i>	434	0.41%	52	0.19%
<i>Orthopodomyia signifera</i>	45	0.04%	2	0.01%
<i>Psorophora ciliata</i>	6	0.01%	1	0.00%
<i>Psorophora cyanescens</i>	1	0.00%	0	0.00%
<i>Psorophora ferox</i>	9	0.01%	7	0.03%
<i>Psorophora howardii</i>	92	0.09%	23	0.08%
<i>Psorophora misc spp</i>	1	0.00%	1	0.00%
<i>Uranotaenia sapphirinia</i>	766	0.72%	193	0.69%
Total	106661	100.00%	27909	100.00%

Total Number of Mosquitoes: 134,570

Operations and Surveillance Reports

Attached is a report outlining all services performed year-to-date. These services may include the following:

- **N J Light Trap Service** Seasonal New Jersey Light Trap service for adult mosquito population monitoring
- **WNV Gravid Trap Service:** Seasonal West Nile Virus monitoring trap service.
- **Complete Site Larval Inspection Service:** Inspection service of all potential mosquito larvae development sites.
- **Targeted Site Larval Inspection:** Inspection of all targeted larval development sites.
- **Culex Site Inspection Service:** Inspection of culex mosquito larval development sites for the prevention of West Nile Virus and other mosquito-borne diseases.
- **Larval Site Service Call:** Special inspection of standing water for mosquito breeding per hot line request
- **Hand Larvicide:** Hand equipment application for control of mosquito larvae
- **Backpack Larvicide Treatment.:** Backpack application for control of mosquito larvae
- **Vectolex FG Heli Larviciding:** Helicopter larvicide application for biological control of mosquito larvae.
- **NatularG30 Helicopter Prehatch:** Helicopter prehatch application for larval control.
- **Catch Basin Treatment:** Catch basin treatment with a sustained-release biological insecticide for larval control
- **Natular XRT BYCB Bike:** Backyard catch basin treatment for larval control.
- **Natular XRT CB Bike:** Catch Basin treatment for larval control.
- **Vectolex WSP CB Bike – 30 day:** Treatment of catch basins with Vectolex WSP for larval control.

Services Performed in 2025:

Service Item	Service Date
Biomist 3+15 Truck ULV	Monday, June 23, 2025
Natular XRT CB Bike	Monday, June 30, 2025
Biomist 3+15 Truck ULV	Wednesday, July 23, 2025
Biomist 3+15 Truck ULV	Thursday, August 21, 2025

2025 Services Invoiced Per Contract:

Services Invoiced Year-to-Date: \$24,424.00