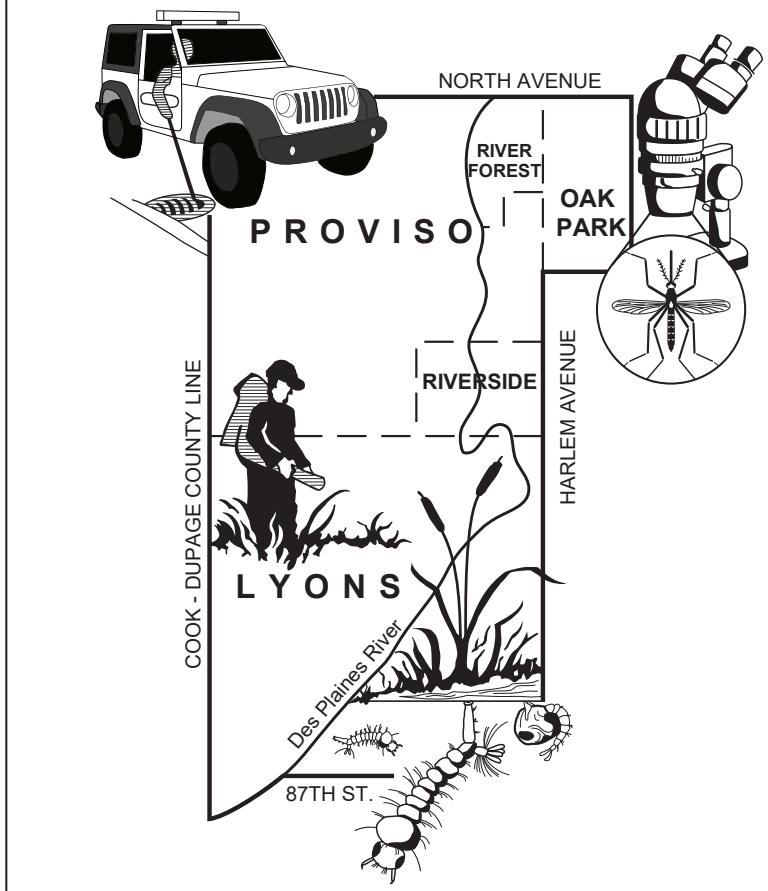
Desplaines Valley
Mosquito Abatement District

2025 OPERATIONS REPORT



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OPERATIONS REPORT ON MOSQUITO CONTROL
2025
DESPLAINES VALLEY MOSQUITO ABATEMENT DISTRICT

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2025 OPERATIONS REPORT ON MOSQUITO CONTROL
DESPLAINES VALLEY MOSQUITO ABATEMENT DISTRICT

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December 5, 2025

Dr. Sameer Vohra, MD,JD,MA, Director
ILLINOIS DEPARTMENT OF PUBLIC HEALTH
535 W. Jefferson Street
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Dr. Vohra:

Presented herewith is the 98th report summarizing mosquito control operations of the Desplaines Valley Mosquito Abatement District during 2025 to fulfill requirements specified by Illinois Statute.

The District continued to monitor West Nile Virus (WNV) activity within the adult *Culex pipiens/resutans* mosquito population with the PCR test platform. A total of 2,596 pools were tested this year, of which 1,344 pools were positive. The District experienced one of the highest WNV infection rates within the adult mosquito population since the initial WNV epidemic. Additional catch basin treatment rounds were utilized in combination with contingency adult mosquito control measures to address the high WNV infection rate and minimize human cases.

The *Aedes albopictus* mosquito has firmly established its presence throughout our District over the past few years. 32 pools of adult mosquitoes of this species were tested for WNV with PCR, of which 20 pools were positive. This mosquito continues to be a confirmed WNV vector mosquito in our area!

The Desplaines Valley Mosquito Abatement District routinely maintains an *aggressive* larval control program against both *nuisance* and *vector* mosquitoes. Control operations started in April and continued into early October with a variety of measures as described in detail within this report.

Respectfully submitted,

Reatha S. Henry
President, Board of Trustees

OPERATIONS REPORT FOR 2025

Introduction

The concept of mosquito abatement is often misunderstood by the general public. More often than not, the public's perception of mosquito abatement is a truck driving up and down streets dispersing aerosol insecticide. All other functions are wrongfully deemed as secondary or of minimal significance in the public's eye. The goal of this report is to rectify these misconceptions by providing background information on the District, mosquitoes in our area, and control activities. Control activities are defined by priority, and include a summary of methods, products, and quantities utilized.

Area and Organization

The Desplaines Valley Mosquito Abatement District encompasses a 77 square mile area of the Des Plaines River and Salt Creek valley in the western suburbs of Chicago, Illinois. This area is bound by the Cook-DuPage County line on the west, North Avenue on the north, 87th Street/Des Plaines River on the south, and Harlem Avenue on the east except in Oak Park where Austin Boulevard is the eastern boundary. The District is comprised of Lyons, Oak Park, Proviso, Riverside, and River Forest townships and includes thirty-one villages. The District expanded to its current size in late 1999 with the annexation of territory in southern Lyons Township.

The District is intersected from north to south by the Des Plaines River and in the southern quarter by the Sanitary Drainage and Ship Canal. Other waterways include three major creeks flowing into the Des Plaines River and 4.5 miles of ponded water of the defunct Illinois and Michigan Canal. Property composition is estimated as 73 percent residential, 18 percent industrial, 8 percent Forest Preserves, and 1 percent rural or undeveloped.

The Desplaines Valley Mosquito Abatement District is an independent municipality, established in 1927 by the “Mosquito Abatement Districts Act” which provided for the organization of tax supported mosquito abatement districts within Illinois. It is one of the two original mosquito abatement districts formed under this Act. The District was initially established to control nuisance mosquitoes, primarily *Aedes vexans* (Meigen) which were produced annually from predominant lowland plains and marshes. However, as more knowledge was attained about specific species and their direct link to disease transmission established, this new dimension of disease vector control was added to the purpose of mosquito abatement. Currently, both nuisance and vector control operations are carried out by the District. Since its inception, the District's control measures have undoubtedly been influential in the residential and industrial growth of the area.

The District is administered by a five-member Board of Trustees who are appointed by the Cook County Board for four year terms as provided by Illinois statute. The trustees serve without compensation. Five full-time employees comprise the permanent staff. During the summer months, up to sixteen seasonal employees are employed.

Operations are financed totally from a tax on real estate within the five townships of the District. The District operates on an annual appropriation for the fiscal year from May 1 through April 30, and according to law is authorized to levy taxes up to and including 0.025 per hundred dollars of assessed valuation for its general corporate fund. For the past ten years, the total tax rate has averaged 0.014, well below this maximum, with a rate of 0.010 experienced for funds collected during 2025. Financial information is summarized in a separate report prepared by an independent auditor at the close of each fiscal year.

Mosquito-Borne Diseases

Several species of mosquito are capable of transmitting diseases to humans. Mosquito-borne diseases have been a serious, destructive force around the world throughout history. In northern Illinois, two primary diseases are of concern to the District. These are West Nile Virus (WNV) and St. Louis Encephalitis (SLE). WNV and SLE are closely related with details in following sections.

Three other encephalitis viruses carried by mosquitoes are also found in Illinois. These are LaCrosse Encephalitis (LAC), Western Equine Encephalitis (WEE), and Eastern Equine Encephalitis (EEE). At this time, these viruses are not considered a serious problem in northern Illinois. Parasitic malaria, once a serious cause of disease in Illinois, is also not considered as a potential problem. Finally, canine heartworm is transmitted by mosquitoes and is a current problem in the state.

West Nile Virus (WNV)
WNV was first discovered in the United States in New York City during 1999. It has since spread south and west with confirmation in northern Illinois during 2001. In 2002, an epidemic of WNV in Illinois resulted in 884 human cases of the disease with 66 deaths. WNV is caused by a virus that cycles between mosquitoes and birds, with occasional spill-over into humans and other mammals. The virus can have a high mortality in certain bird species while having little effect on other bird species. Crows and Blue Jays are extremely susceptible to the virus, as are eagles, hawks, and other raptors. Humans are considered a dead-end host for the virus, which cannot be transmitted from person to person. WNV affects the central nervous system causing an inflammation of the brain. Most human infections are mild and subclinical (not diagnosed). Symptoms associated with mild cases of WNV are low fever, headache, body aches, and swollen lymph glands. Less than 1% of people infected with WNV will develop severe illness. In more severe cases, symptoms can be high fever, neck stiffness, muscle weakness, stupor, coma, tremors, paralysis, and in 3-15% of severe human infections, death. People over 50 are most susceptible to WNV, but all ages are at risk.

Mosquitoes from the genus *Culex*, in particular the species *Culex pipiens*, are the vector of WNV from birds to birds and birds to humans. These mosquitoes deposit their eggs in raft clusters of 50-400 eggs directly on the water's surface. They are most abundant in periods lacking rainfall, when areas of stagnant water prevail. They are well adapted to many habitats including curbside storm water catch basins, off-road storm water catch basins, discarded tires, buckets & other artificial containers, rain gutters, bird baths, unused swimming pools, ditches, ponds, etc. Anywhere that water can stand for more than a week can become a potential breeding source for *Culex* mosquitoes. The adult mosquito is a non-aggressive biter with feeding primarily confined to evening or night hours. The adult mosquito does not travel far from its source with a typical flight range from a few blocks to under 2 miles. The *Culex* mosquitoes can have many over-lapping generations each season, and over-winter as adults.

St. Louis Encephalitis (SLE)
As with WNV, SLE is caused by a virus that cycles between mosquitoes and birds, with occasional spill-over into humans and other mammals. Humans are considered a dead-end host for the virus, which cannot be transmitted from person to person. Unlike WNV, the virus has little effect on birds that are infected. SLE affects the central nervous system causing an inflammation of the brain. Most human infections are subclinical (mild and not diagnosed) exhibiting flu-like symptoms. More severe cases can exhibit high fever, nausea, headache, personality changes, paralysis, and in 2-20% of the severe cases, death. The elderly are most susceptible to SLE. An epidemic of SLE within Illinois occurred in 1975, with a few cases reported in the 1980's and 1990's.

The mosquitoes that transmit (vector) SLE are the same as WNV, with description under that category.

Other Encephalitis Viruses
LaCrosse Encephalitis (LAC) is caused by a virus that cycles between mosquitoes and small mammals as chipmunks and ground squirrels. Humans are considered a dead-end host. LAC is endemic in Illinois with 5-15 cases per year, primarily occurring in local foci in central and northwestern regions of the state. The majority of LAC cases are mild and subclinical. Less than 1% fatality occurs in cases severe enough to be diagnosed. Children under the age of 16 are most susceptible to this virus. As with other mosquito-borne encephalitis, LAC cannot be transmitted from person to person. The eastern tree hole mosquito, *Ochlerotatus triseriatus* (formerly *Aedes*

triseriatus) is the vector of this disease. This mosquito normally develops in water filled rot cavities in trees (tree holes), but has adapted well to many man-made habitats as discarded tires, buckets, and other artificial containers. The *Ochlerotatus triseriatus* adult mosquito lays its eggs singly on the inside wall of the tree hole or artificial container just above the waterline. The adult mosquito is an aggressive biter with feeding all day long, and generally stays within the vicinity of its source. The *Ochlerotatus triseriatus* has one generation each season, and over-winters in the egg stage.

Western Equine Encephalitis (WEE) is similar to SLE, cycling between birds and mosquitoes with rare spill-over to the human population. WEE primarily affects horses, and is typically found west of the Mississippi River, but has also been found in Illinois. Human cases severe enough to be diagnosed can have a 2-5% fatality. The primary vector of WEE is *Culex tarsalis*, and possibly *Culex pipiens*. The *Culex tarsalis*, like other *Culex*, lay eggs in rafts directly on the water's surface. The mosquito can be found in sunlit sources with high organic content as ditches and artificial containers. The mosquito seldom travels more than 1 mile from its source, however has been known to travel up to 10 miles. This species has continuous generations each season, and over-winters as adults.

Eastern Equine Encephalitis (EEE) is another virus that cycles between birds and mosquitoes with horses and humans as dead-end hosts. Human infections of EEE can range from mild to severe, with 50-75% of diagnosed severe cases resulting in death. Fortunately, human cases of EEE are rare with only 150 cases throughout the United States from 1964-1998. No human cases of EEE have been reported in Illinois, although the virus has been found regularly in bird populations. The primary vector of EEE is *Coquillettidia perturbans*, a mosquito found in wetlands. They lay their eggs in rafts directly on the water's surface. The mosquito is an aggressive biter, strong flier, and feeds during the evening or night. This species usually has one generation each season, and over-winters as larvae attached to the stems of cattails or similar aquatic plants.

Other Mosquito-Borne Diseases

Malaria is a disease caused by a protozoan parasite transmitted from person to person via the mosquito. At one time, malaria was prevalent in Illinois, with concentration in the southern part of the state. Mosquito control efforts in the 1920's have eliminated the risk of malaria in Illinois, although the mosquito which carries the disease, *Anopheles quadrimaculatus*, is still found in the area.

Dengue and Yellow Fever are both diseases caused by viruses that are transmitted by mosquitoes. They are common in the Caribbean, South America, Asia, and Africa, but are unlikely to occur in Illinois.

Canine (Dog) Heartworm is a disease affecting dogs that is transmitted by mosquitoes. It is caused by a roundworm, *Dirofilaria imitus*. The *Culex pipiens* and possibly *Aedes vexans* are the vectors in our area. The disease is ongoing and best controlled by prevention. Veterinarians typically prescribe drugs to prevent the roundworm larvae development in dogs.

Chikungunya virus (CHIK-V) virus is typically not fatal, however causes high fever with severe joint pain lasting from several weeks to months. The virus is spread by *Aedes aegypti* and *Aedes albopictus* which are prevalent in the southeast regions of the United States. This area is currently under watch for the virus.

Zika virus. *Aedes aegypti* is the primary carrier, but *Aedes albopictus* is a secondary carrier. Both species are typically found in warm climates. Only 1 in 5 people who are infected with the virus will show symptoms and most will recover within a week. No locally transmitted cases have occurred in Illinois. While the effect of the Zika virus in adults is mild, the real concern is its potential effect on the development of babies in infected pregnant women.

HIV and Coronavirus in Mosquitoes

Mosquito-borne viruses must be able to multiply and infect the salivary glands of the mosquito. This does *not* occur with some viruses such as HIV and coronavirus. Mosquitoes are *not* a factor in HIV and coronavirus transmission.

Surveillance

Weather Surveillance

The weather is the most dominating factor affecting mosquito production. All mosquitoes spend their larval and pupal stages of development in water, consequently rainfall is critical to their existence. In addition, temperature governs their rate of development and is a secondary variable in their life cycle. Over forty species of mosquito are found within Illinois, and each has environmental conditions best suited to its development. The *Aedes vexans* and *Culex pipiens* with related species are the primary mosquitoes found within the District. In general, heavy rains followed by warm temperatures create the potential for a major population of the floodwater annoyance mosquito, *Aedes vexans.* In contrast, dry conditions creating areas of "stagnant" water are ideal for prolific production of many vector-related mosquitoes as *Culex pipiens* and related species.

The District monitors all relevant weather parameters with equipment at its headquarters in Lyons, IL. Weather data is also obtained from the National Weather Service based at O'Hare Airport directly north of the District. All weather data is correlated to District mosquito control operations.

Temperature
The following table summarizes temperature data for 2025 from the National Weather Service and DVMAD:

	Normal Temperature - O'Hare (Deg F)	O'Hare Temperature (Deg F)	Deviation from Normal (Deg F)	Dvmad Temperature (Deg F)
April	48.9	50.8	+1.9	51.1
May	59.1	58.0	-1.1	57.8
June	68.9	75.6	+6.7	73.9
July	74.0	77.5	+3.5	77.6
August	72.4	73.3	+0.9	73.3
September	64.6	69.4	+4.8	68.3

Rainfall
The following table summarizes rainfall data for 2025 from the National Weather Service:

	Normal Rainfall (Inches)	O'Hare Rainfall (Inches)	Deviation from Normal(Inches)
April	3.38	2.66	-0.72
May	3.68	1.35	-2.33
June	3.45	3.09	-0.36
July	3.70	4.29	+0.59
August	4.90	5.03	+0.13
September	3.21	0.49	-2.72

In addition, recording rain gauges were operated at various locations within the District to reflect localized rainfall conditions. Respective rainfall data is summarized in the following table:

Localized Rainfall Totals (Inches)							
	Berkeley	LaGrange Park	Lyons	River Forest	Justice	Willow Springs	O'Hare
April	----	----	2.29	----	----	----	2.66
May	1.64	1.58	1.23	2.43	1.32	1.52	1.35
June	3.26	4.66	3.54	5.42	2.87	3.88	3.09
July	2.68	5.31	5.41	6.79	7.92	6.19	4.29
August	5.27	7.39	5.69	5.14	4.24	4.74	5.03
September	0.91	0.88	0.71	0.79	0.64	0.65	0.49

Mosquito Surveillance and Identification

Larval and adult mosquito surveys are the base of our control program and are conducted on a regular basis to determine the extent, type, and concentration of mosquito populations within the District. The surveys are essential to the coordination and success of all control measures.

Larval Surveillance

Larval samples are the most basic, whereby potential mosquito breeding sources are inspected regularly within a 14 day period. Larval samples are taken from sites found breeding, and are identified by the laboratory staff to species. All potential sources are marked on permanent maps and numbered for reference. Individual source histories are maintained on computerized records.

Adult Surveillance

Adult mosquito populations within the District are monitored by the use of light traps, gravid traps, gravid aedes traps, and a CO2 baited BG-Sentinel Trap. During 2025, eight New Jersey light traps with the capability to make unattended, individual collections over weekends were utilized. The light traps were operated from dusk to dawn nightly during the period of May 9th through October 13th. Collections were made each morning, Monday through Friday, with all samples classified by the laboratory staff as to genera, species, and sex.

A comparison of the 2022-2025 species classification of adult female mosquitoes is summarized in the table on pg. 6. In addition, daily mean counts for *Aedes vexans* and *Culex* species from eight light traps are graphically shown on pg. 7 Figure 1 and Figure 2. The District uses the William's mean number of female adults per trap to summarize *Aedes vexans* and *Culex* species light trap data. The William's mean is calculated by taking the mean of the trap count's logarithms, and then taking the antilog of that mean. This method reduces the influence of any single trap with extreme data, and hence more accurately represents the true majority of light trap data.

Comparison of Light Trap Data - Adult Female Mosquitoes				
	2022	2023	2024	2025
Aedes/Ochlerotatus				
Oc. atropalpus	0	0	1	0
Oc. canadensis	0	1	1	0
Oc. excrucians	0	0	0	1
Oc. hendersoni	0	1	0	0
Oc. japonicus	41	51	65	11
Oc. sollicitans	3	2	0	0
Oc. sticticus	19	9	56	2
Oc. stimulans	0	0	0	1
Oc. triseriatus	36	65	56	13
Oc. trivittatus	123	314	148	12
Ae. albopictus	3	10	18	5
Ae. cinereus	0	20	1	0
Ae. vexans	21,854	4,963	20,039	6523
Anopheles				
punctipennis	212	162	307	49
quadrimaculatus	47	63	90	17
Coquillettidia				
perturbans	74	40	25	18
Culex				
erraticus	17	2	53	5
pipiens/restuans	5,605	7,013	3,914	1,466
salinarius	1	0	4	0
tarsalis	8	0	14	3
territans	240	115	189	36
Culiseta				
inornata	5	49	70	7
minnesotae	0	1	1	1
Orthopodomyia				
signifera	7	7	0	1
Psorophora				
ciliata	5	6	2	1
columbiae	2	4	0	0
ferox	5	27	23	0
howardii	0	0	0	1
Uranotaenia				
sapphirina	366	111	174	62
TOTALS:	28,673	13,036	25,251	7,966
Number of Nights:	150	145	154	158

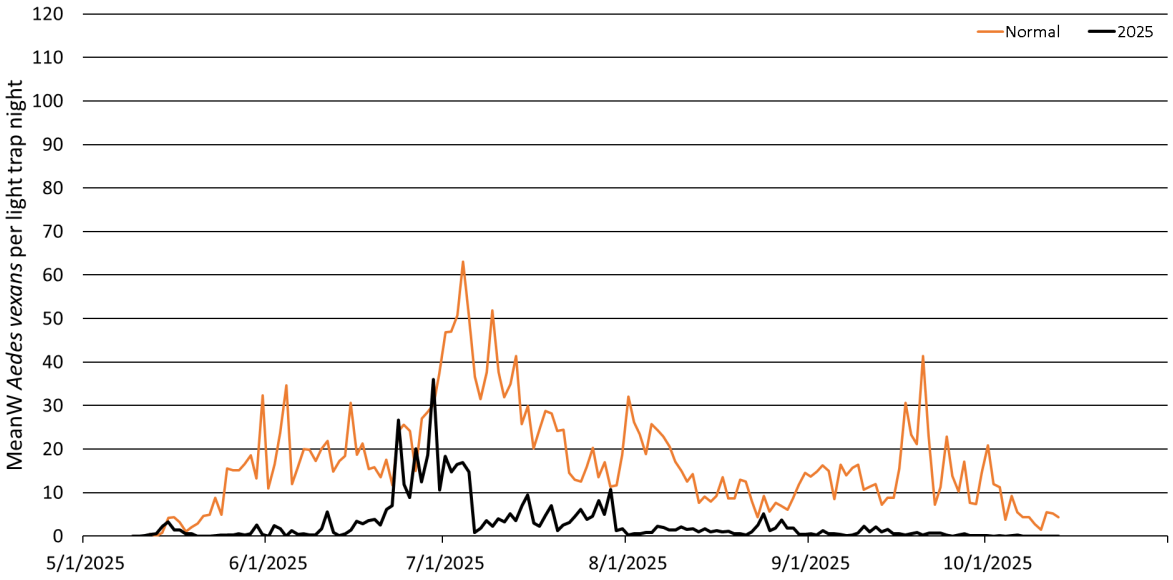


Figure 1. Female *Aedes vexans* William's mean number mosquitoes per light trap night.

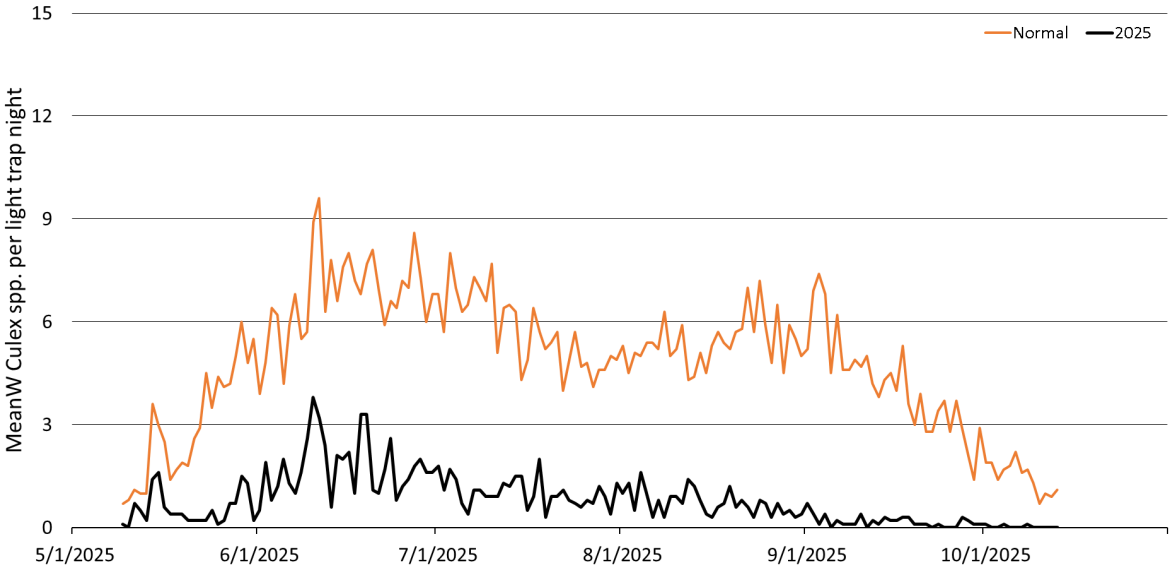


Figure 2. Female *Culex spp.* William's mean number mosquitoes per light trap night.

Disease Vector Surveillance

Gravid Traps

Gravid traps are specialized traps that collect live gravid adult female mosquitoes, primarily *Culex* species. Gravid mosquitoes are female mosquitoes that have taken a blood meal and are ready to lay eggs. Because they have taken at least one blood meal, it is more likely that they have been exposed to WNV or SLE. The District uses gravid traps to sample the adult female *Culex* mosquito population to test for the presence of disease viruses. In 2004, the state legislature passed Senate Bill SB2879 that requires Mosquito Abatement Districts to test mosquitoes for the presence of mosquito borne diseases and to report positive results to the local health department within 24 hours. The District has been in compliance since the 2002 mosquito season. The District currently uses 18 gravid traps evenly distributed throughout the District. The samples from these traps were tested in-house with the RT-PCR test as described in the next section.

Real Time PCR Test for WNV & SLE

In-house testing of the adult mosquito population for the presence of WNV and SLE began in 2002. Testing allows determination of the infection rate within the vector mosquito population for these diseases. The infection rate combined with vector population levels determine the potential for occurrence, amplification, and spill-over into the human population of these viruses.

In 2020, the District switched from the RAMP (Rapid Analyte Measurement Platform) to RT- PCR (Real Time Polymerase Chain Reaction) system to perform West Nile Virus testing of mosquito samples.
RT-PCR can detect virus at much lower levels, allowing for earlier detection and more accurate infection rates. This is done by amplifying any virus that may be present in samples to detectable and quantifiable levels. In addition, RT-PCR allows for more flexibility in testing for other viruses, a variety of options for testing materials, and a lower cost per test. Following is a table that summarizes the RT-PCR results:

A summary of 2025 RT-PCR results for WNV
For 18 Gravid Traps
(Pools contain up to 50 female *Culex spp.* mosquitoes)

Week Of	Total Pools	RT-PCR # Positive	RT-PCR % Positive
5/09 – 5/18	35	1	2.9%
5/19 – 5/26	24	0	0.0%
5/27 – 6/01	48	1	2.1%
6/02 – 6/08	67	0	0.0%
6/09 – 6/15	100	3	3.0%
6/16 – 6/22	124	1	0.8%
6/23 – 6/29	118	12	10.2%
6/30 – 7/06	144	25	17.4%
7/07 – 7/13	172	66	38.4%
7/14 – 7/20	155	103	66.5%
7/21 – 7/27	202	181	89.6%
7/28 – 8/03	201	193	96.0%
8/04 – 8/10	176	169	96.0%
8/11 – 8/17	232	219	94.4%
8/18 – 8/24	151	139	92.1%
8/25 – 9/01	124	87	70.2%
9/02 – 9/07	76	37	48.7%
9/08 – 9/14	126	44	34.9%
9/15 – 9/21	116	31	26.7%
9/22 – 9/28	87	20	23.0%
9/29 – 10/05	106	11	10.4%
10/06 – 10/13	39	1	2.6%

Eighteen gravid traps were used to monitor *Culex* population levels. Figure 3 summarizes the William's mean number of gravid females per gravid trap for 2025. The William's mean is calculated as previously described. Figure 4 represents the weekly average of gravid females collected per gravid trap night.

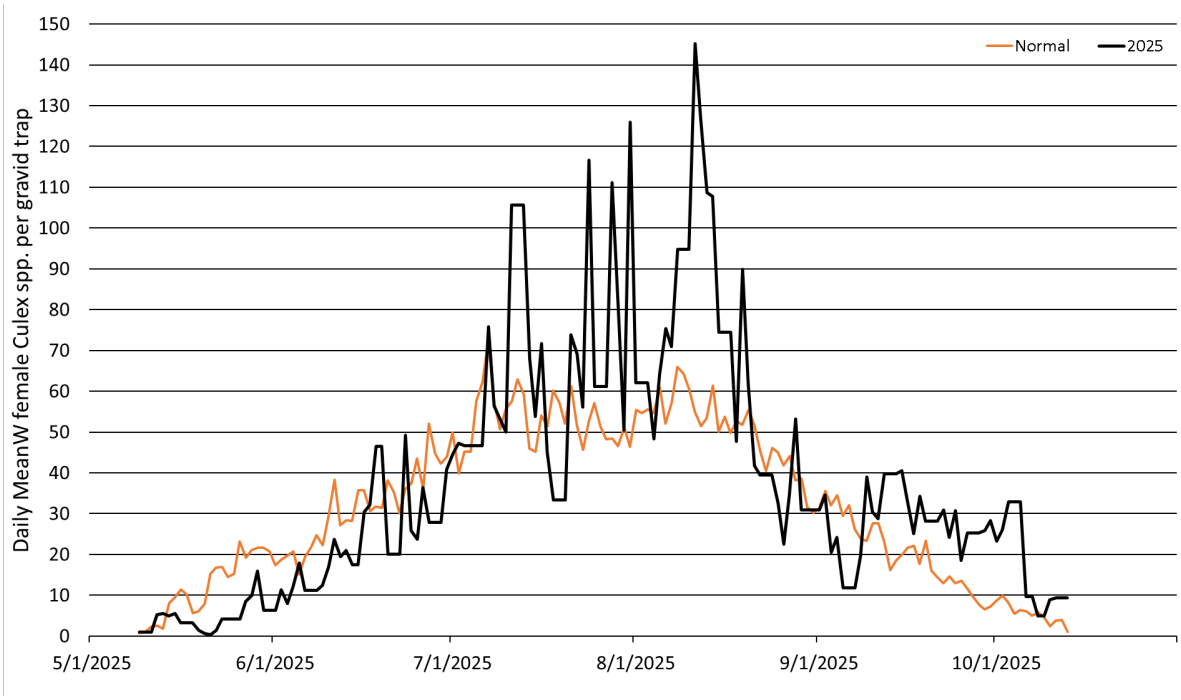


Figure 3. Female *Culex spp.* William's mean number mosquitoes per gravid trap night.

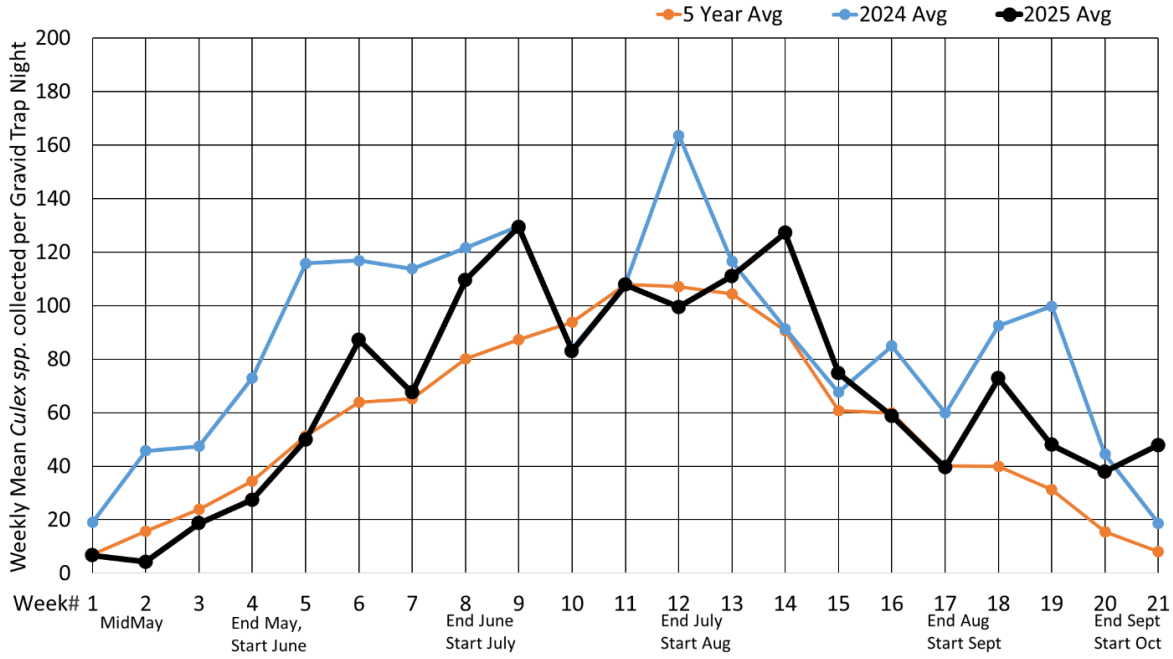


Figure 4. Weekly average number of female *Culex spp.* mosquitoes collected per gravid trap night. Week 1 began 5/09/25 and week 21 ended 10/13/25.

Shown below are Minimum Infection Rate (MIR) and Vector Index graphs. The MIR is the minimum number of infected mosquitoes per 1000 mosquitoes tested. MIR is calculated by dividing the number of positive pools by the total number of mosquitoes tested in those pools. This number assumes that the minimum number of 1 mosquito per pool is positive. The weekly MIR is represented in Figure 5. Vector Index is the relation between the average mosquitoes collected per trap night and MIR to determine the minimum positive mosquitoes collected per trap night. The Vector Index is shown in Figure 6. In both graphs week 1 began 5/09/25 and week 21 ended 10/13/25.

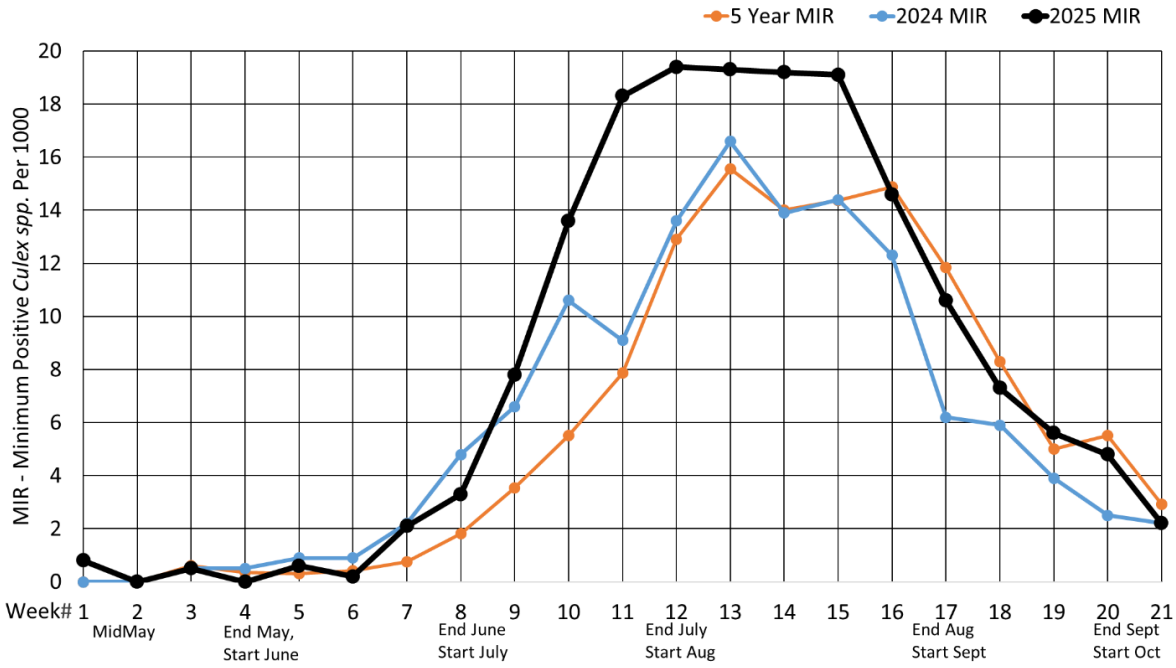


Figure 5. Minimum number of WNV infected mosquitoes per 1000 mosquitoes tested.

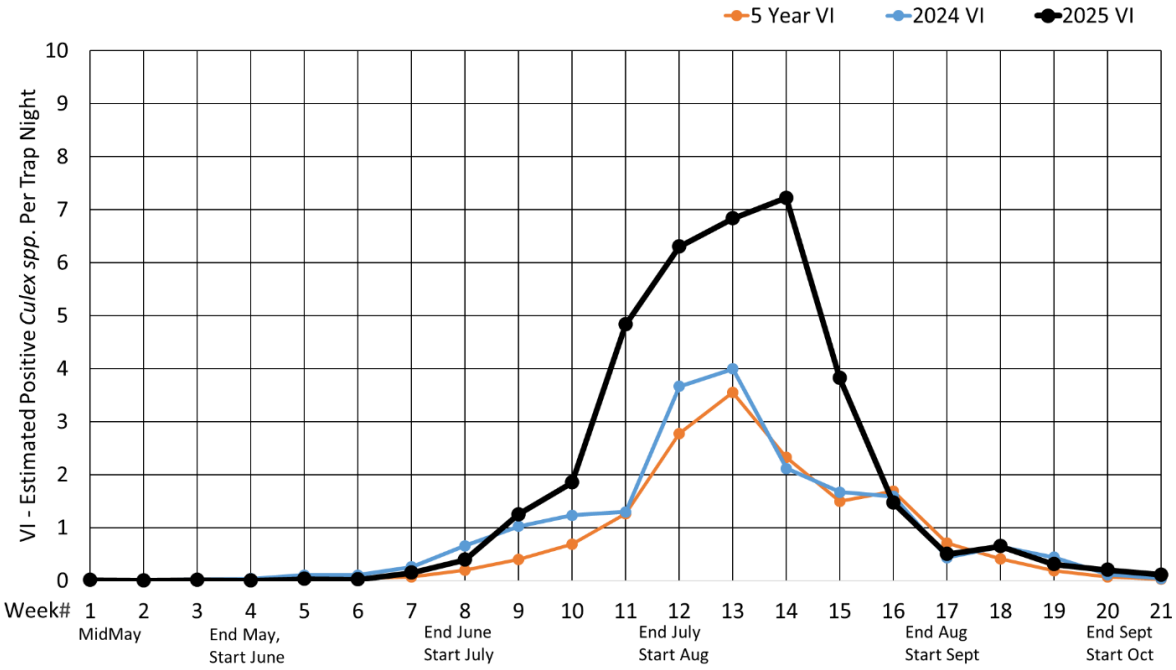
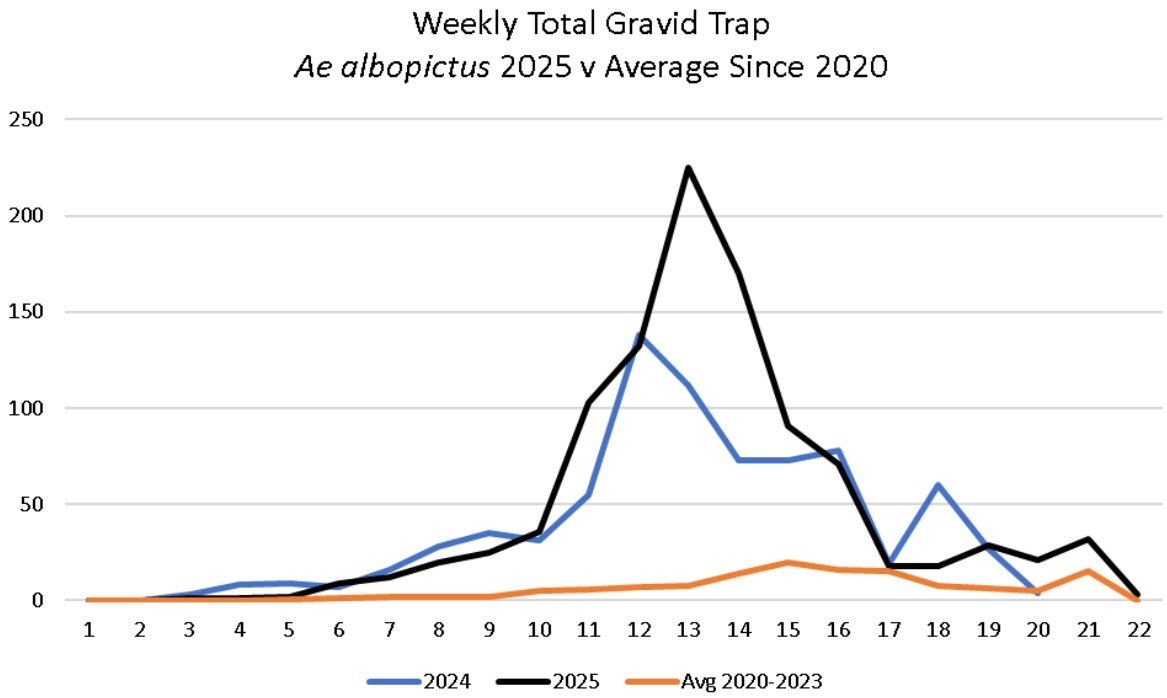


Figure 6. Vector Index is the estimated number of WNV positive mosquitoes collected per trap night.

Introduced Species
Ochlerotatus japonicus was first discovered in the District in 2008 and now is commonly found in the area. This mosquito can develop in a variety of habitats, natural and artificial, including woodland pools and discarded tires. *Ochlerotatus japonicus* is capable of transmitting St. Louis encephalitis, Eastern Equine Encephalitis, West Nile Virus, Chikungunya, and Dengue.

Aedes albopictus was first discovered in the District in 2016 and has been found in increasing numbers over the past few mosquito seasons. This mosquito develops in natural and artificial containers, such as cavities in trees and discarded tires, and usually does not fly more than one half mile from its development site. In addition, *Aedes albopictus* is a very aggressive day biter and is capable of transmitting Chikungunya, Dengue, Zika, and West Nile Virus. This mosquito has become well established throughout the District. In 2025, *Aedes albopictus* mosquitoes were collected utilizing the following traps: New Jersey Light, Gravid, Gravid Aedes and BG-Sentinel. Following is a graph for the 2025 weekly total of gravid *Aedes albopictus* collected v. weekly averages. In 2025, 1,019 *Aedes albopictus* female mosquitoes were collected in gravid traps versus 776 in 2024.



Tick Surveillance
During the 2025 season the District continued working on protocols for tick surveillance. The surveillance program is in an early stage and will continue to develop in the future.

Larval Mosquito Control

The mosquito, an insect, has four distinct stages in its life cycle: egg, larva, pupa, and adult. During the larval/pupal stages, mosquitoes are confined to water and as such are localized and concentrated in numbers. Once mosquitoes reach the adult stage, they become dispersed and difficult to effectively control. Hence, the primary mosquito control efforts utilized by the Desplaines Valley Mosquito Abatement District focus on larval/pupal control and/or source elimination. This approach allows mosquitoes to be controlled in the most efficient, environmentally safest, and with the most economical methods available. All control methods are accepted and recommended in guidelines established by the Illinois Department of Public Health, and are continuously evaluated by the District to ensure desired goals. The respective aspects of this approach encompass

the following:

a) Source Inspection & Larval/Pupal Control with Insecticides - Chemical and Biological
- General larval division
- Street catch basin division
- Off-road catch basin division

b) Physical Source Reduction & Maintenance
- Tire collection/disposal
- Drainage
- Public Education

Source Inspection & Larval/Pupal Control with Insecticides - Biological & Other

The District's source inspection and larval/pupal control program is the most comprehensive measure utilized. Potential mosquito breeding sources within the District range from roadside ditches, catch basins, retention ponds, swamps, marshes, and creeks, to extensive flood plains. However, any place where water may remain for 10-14 days becomes a potential mosquito source. Hence, known sources are inspected within this interval to ensure desired control goals before mosquitoes reach the adult stage.

Source inspection and larval/pupal control measures are categorized into three distinct operations: general larval, street catch basin, and off-road catch basin. General larval operations include all potential sources with the exception of catch basins, which due to their number and density within the District warrant separate consideration. These operations are summarized respectively in the remainder of this category.

General Larval Operations
The District has over 2,300 non-catch basin sources including ditches, retention ponds, tires & artificial containers, swamps, creeks, and extensive flood plains. The District is divided into sections with numerous sub-sections. The District typically utilizes one and two-member crews with motorized and hand equipment for larval/pupal control for general larval operations. The crews are responsible for inspecting potential breeding sites within their area and applying appropriate insecticide only to those sources where mosquito breeding is found. Crews collect data on source condition, breeding density, larval samples, any treatment required, etc. All data collected is entered into the District's computer system to compile a source history. Data collected is also used by teams conducting post-treatment inspections to verify insecticide and operational effectiveness.

With the arrival of WNV in Illinois and its potential impact on bird populations, area zoos have been confronted with the need to protect their exotic bird collections. The Chicago Zoological Society's Brookfield Zoo is located within the District. The Brookfield Zoo and the District continue the cooperative effort to control vector mosquitoes on their property. The District routinely addresses catch basins and out-of-exhibit sources on Zoo property. The District also inspects and treats sources within exhibits that are accessible without the need to remove animals from the area. Zoo personnel address sources that require removal of animals.

During 2025, the District utilized two forms of biological insecticide, four forms of an insect growth regulator, and one degradable oil insecticide in various aspects of its general larval/pupal control program. The biological insecticide is derived from the bacterium, *Bacillus thuringiensis israelensis,* commonly known as BTI. The active ingredient in BTI derived insecticides is an extract (crystal toxin) of fermented cultures, which is ingested by mosquito larvae. BTI is selective against mosquito and blackfly larvae only, and is deemed as one of the environmentally safest insecticides available for mosquito larval control. BTI is not effective against mosquito pupae since they do not feed during this stage of their life cycle. Hence a light surface oil, commonly known as larvicide oil, was used on all sources where pupae were present in large numbers.

The District applied insect growth regulators (IGRs), which consist of the active ingredient methoprene. Methoprene does not control larvae by direct toxic action, but interferes with the physiological processes associated with the mosquito's metamorphosis. Thus, the larvae are prevented from changing into and emerging as an adult mosquito. The District used a pellet form and two briquet forms of methoprene. Pyriproxyfen, another insect growth regulator utilized by the District, acts similarly to methoprene by preventing immature mosquitoes from emerging as adults. The District used a granular form of pyriproxyfen contained in a water soluble pouch.

All products were applied as recommended and are approved for mosquito control use by the United States Environmental Protection Agency. The District's policy of insecticide application remained the same as in previous years, requiring treatment of only those waters found to contain mosquito larvae/pupae, except for IGR application.

A summary of 2025 general larval operational data

	Mar/April	May	June	July	Aug	Sep/Oct
Granular BTI (1)	----	430	1,780	2,199	3,034	1,465
Liquid BTI (2)	----	1.6	3.5	2.0	3.9	0.5
Larvicide Oil (3)	----	2.7	5.3	17.2	13.2	0.4
Altosid Pellets (4)	----	1,675	1,215	1,212	982	925
Altosid 30-day Briq.(5)	----	54	108	38	0	429
Altosid XR Briq. (6)	----	38	1	46	0	0
Sumilarv (7)	----	14	63	88	----	4

(1) Vectobac G BTI (lbs.) produced by Valent Biosciences with an application rate of 10-20 lbs./acre.
(2) Vectobac 12AS (gal.) produced by Valent Biosciences wit an application rate of 1-2 pints/acre.
(3) BVA-2 Larvicide Oil (gal.) produced by BVA Oils with an application rate of 1-2 gal/acre
(4) Altosid pellets IGR (lbs.) produced by Wellmark International with an application rate of 5 lbs./acre.
(5) Altosid 30-day Briquets IGR (pcs) produced by Wellmark International with an application rate of 1 per 100 square feet.
(6) Altosid XR Briquets IGR (pcs) produced by Wellmark International with an application rate of 1 per 100 square feet.
(7) Sumilarv 0.5g Sachets IGR (pcs) produced by MGK with an application rate of 1 sachet per 500 gallons of water.

Street Catch Basin & Off-Road Basin(ORB) Operations

The storm water catch basin is the primary source of breeding for the *Culex pipiens/restuans* species of mosquitoes. The District contains over 42,000 catch basins situated in streets, alleys, and parking lots as well as over 7,200 catch basins in off-road areas. These basins allow water to drain from required areas during periods of rainfall. Most catch basins by design have a "sump" to prevent debris from entering the drainage pipe. This "sump" also retains water, making the catch basin ideal for mosquito production. Their regular inspection and treatment as necessary are a routine part of our larval/pupal control program.

Due to the varied location of catch basins within the District, control operations are categorized into on-road basins (accessible by vehicle) and off-road basins (inaccessible by vehicle). As in general larval/pupal control operations, the District is divided into sections with numerous sub-sections. Catch basins are treated throughout the season with a combination of VectoLex WSP a residual control biological larvicide with an application of one water soluble pouch (WSP) per basin and Sumilarv 0.5g WSP a slow-release insect growth regulator with an application rate of three sachets per basin. During the 2025 season, on-road catch basins were treated with VectoLex WSP for the first two rounds, followed with Sumilarv 0.5g WSP for the final round. Follow-up post treatment inspection of on-road catch basins has shown that actual residual control of the products utilized was less than stated label intervals under normal field conditions where basins are flushed by rainfall events. The two applications of VectoLex WSP followed by a round of Sumilarv 0.5g WSP ensured acceptable season-long control in on-road catch basins. Smaller quantities of the insect growth regulator Altosid, in the 30-Day, XR, and WSP formulations, were applied to select catch basins throughout the District in 2025. Off-road catch basins were treated with VectoMax WSP a residual control biological larvicide for the first treatment and Sumilarv 0.5g WSP for the final treatment. This treatment combination obtained the desired long-term control and accommodated the physical difficulty in reaching many of these basins. Treatment required a person to walk from basin to basin with manual application of briquets.

In recent years, new development and the re-development of existing areas have resulted in dramatic increases in numbers of both on-road and off-road catch basins. Off-road basins, cataloged and treated since 1987, have

increased at the greatest rate. Operations have expanded annually to accommodate treatment requirements of the additional catch basins.

A summary of 2025 catch basin data

Month	# of Street Basins Treated	# of VectoLex WSP (1)	# of Sumilarv sachets (2)	# of Altosid WSP (3)	# of Altosid 30 Day Briq. (4)	# of Altosid XR Briq. (5)	# of Off-road Basins Treated	# of VectoMax WSP (6)	# of Sumilarv sachets (2)
April	----	----	----	----	----	----	----	----	----
May	22,318	18,358	3,155	0	2,908	0	5,468	5,468	0
June	49,313	44,363	3,189	0	3,887	0	3,378	1,590	5,364
July	39,366	2,730	109,907	0	0	0	3,408	4	10,214
August	12,940	5,075	13,620	378	2,391	556	2,323	43	6,842
Sep/Oct	----	----	----	----	----	----	----	----	----

(1) VectoLex WSP (water soluble pouch) produced by Valent Biosciences with an application rate of 1 pouch/basin.
(2) Sumilarv 0.5g Sachets WSP (water soluble pouch) produced by MGK with an application rate of 3 sachets/basin.
(3) Altosid WSP (water soluble pouch) produced by Wellmark International with an application rate of 1 pouch/basin
(4) Altosid 30-day Briquets IGR (pcs) produced by Wellmark International with an application rate of 1pc./basin.
(5) Altosid XR Briquets IGR (pcs) produced by Wellmark International with an application rate of 1pc./basin.
(6) VectoMax WSP (water soluble pouch) produced by Valent Biosciences with an application rate of 1 pouch/basin.

Physical Source Reduction & Maintenance

Tire Collection & Disposal

Abandoned vehicle tires have become a major source of mosquito production in recent years. With the introduction of used tire recycling fees by dealers, people often choose to dispose of old tires themselves. With the discovery that used tires will not be collected with regular refuse, an increased number of "fly-dumped" tires have appeared in the District.

Many of the species of mosquito that develop in tires are known to be potential vectors of disease. Tires are difficult to treat because they tend to be scattered in small numbers, often in hard-to-reach areas. In addition, the treatment of discarded tires with larvicide is not only labor intensive, but has limited effectiveness when tires are in random piles. Areas that have abandoned tires are not only unsightly, but tend to attract further dumping of old tires.

The collection and proper disposal of discarded tires is by far the best way to control mosquito production in this type of source. It is a permanent solution that costs less in the long run over other alternatives. Other benefits to this solution include reduced use of pesticides, removing unsightly debris, and discouraging further accumulation of discarded tires.

In March, 1996, the District obtained a Waste Tire Transporter license from the Illinois Environmental Protection Agency (IEPA) to allow for the transport of discarded tires collected within the District. During 2025, the District collected 562 fly-dumped tires. Tires are stored inside, out of the elements, until enough are collected to send off to be recycled. The District will continue to collect discarded tires within its service area in the future.

Drainage & Ditch Cleaning

Source reduction, or the physical removal of mosquito breeding areas, is the only permanent method of mosquito control. However, it is usually the most difficult and expensive, and is often controversial in an urbanized area because the resulting land improvement may profit an individual along with the public. Source reduction is also controversial because drainage of an area may affect non-target organisms and wildlife. The District therefore limits physical source reduction to areas where it will do the most public good and continues its basic policy of not draining permanent ponds and of limiting ditches to the slow drainage of temporary waters within a 5-7 day period.

Urbanization often alters source reduction progress as a prolific breeding site may be filled or paved eliminating one problem while producing another. Construction may block a natural or existing drainage ditch, which would require re-routing of the drainage system, or might even create an entirely new breeding area where none had previously existed. The District is constantly on the alert for this type of situation, and attempts to correct the situation before it becomes a problem. The District requests all individuals, industries, and municipalities to cooperate with the District to correct mosquito breeding areas that have been inadvertently created by their actions.

Adult Mosquito Control

The District does not conduct routine adult control operations. Adult control is the least effective approach to mosquito control with only localized, temporary benefits. However, adult control is the *only tool* available to use against an adult mosquito population which is involved in a disease transmission cycle. Hence, the District will only implement residential adult control operations as a contingency measure for vector related mosquitoes.

The ultra-low volume insecticide aerosol application process as initiated in 1971 is utilized in any adult control operations. All truck mounted equipment utilized by the District is equipped with automatic flow control which directly regulates insecticide application to vehicle speed, thus ensuring accurate application rates. Adult control operations are conducted only when environmental constraints of ambient air temperature between 65-85°F and average wind speeds in the 2-8 mph range are satisfied to optimize effectiveness.

Residential Adult Mosquito Control
The District considers guidelines established by the Illinois Department of Public Health (IDPH) in their publication entitled "IDPH Surveillance and Response Procedures for Mosquito-borne Arbovirus Emergencies" and the Center for Disease Control in consideration of residential adult mosquito control operations. Operations will be focused against specific vector populations of *Culex pipiens* and related species to minimize or break a viral transmission cycle.

During 2025, criteria in the referenced guidelines were met for West Nile Virus (WNV) to initiate residential adult mosquito control operations. Specific criteria considered are the following:

Primary Triggers

a) *Positive Mosquito Pools* - Confirmation of viral activity within the adult mosquito population. Our District operates a network of gravid traps to collect adult mosquito samples for subsequent testing of WNV & SLE. These traps are highly selective in collecting *Culex species* mosquitoes having had a blood meal and potential exposure to WNV or SLE. In-house testing using the RAMP and RT-PCR systems, gives immediate results.

b) *Surrounding Area Data* - Viral activity in areas surrounding the district, including data from other Mosquito Abatement Districts, Cook County Department of Public Health, and DuPage County Health Department.

c) *Dead Birds* - Numbers of dead birds and the time of year they are found. Subsequent confirmation by the IDPH of WNV within the dead birds.

d) *Time of Season* - The point in any given mosquito season when *initial* positive bird and mosquito pool samples are confirmed. Positive samples early in the season set the stage for a developed viral amplification /transmission cycle, whereas initial positive samples late in the season would minimize this cycle.

e) *Equine Cases* - Confirmed equine cases are an indicator that a spillover from the bird population has occurred. Viral activity has amplified and escalated to a level where this occurs.

f) *Human Cases* - Confirmed human cases or fatalities are the ultimate indicator that a spillover from the bird population has occurred, and is likely to continue.

Secondary Triggers

a) *Vector Population Level* - A larger than normal vector population level poses a greater risk for spillover disease transmission to humans. But a low vector population does not imply that disease transmission will be minimal or disappear. Under the circumstances of a high infection rate, spillover transmission *will* occur even with a

low vector population.

b) *Weather: Rain & Temperature* - Rainfall can directly affect vector population levels. Water is required for all mosquito development, with rainfall influencing the number of potential breeding sources. Temperature on the other hand can affect *both* vector population levels and the viral amplification/transmission cycle. Above normal temperatures also can increase the viral transmission rate.

WNV activity was elevated throughout the District in 2025. Above normal temperatures throughout the summer allowed for the amplification of WNV to reach the levels experienced this year. During 2025, all villages in the District were sprayed one time. This resulted in a total of 706 linear miles of residential streets being sprayed.

Respective data for all adult mosquito control measures is summarized as follows:

	April	May	June	July	Aug	Sept	Oct
Duet ULV (1)	---	---	---	---	186.0	---	---
ReMoa Tri ULV (2)	---	---	---	---	16.75	---	---

(1) Duet Dual-Action sumithrin/prallethrin (in gal) manufactured by Clarke Mosquito Control Products with appl. rate 0.0066 ai lbs./acre.
(2) ReMoa Tri Triple-Action Insecticide fenpropathrin/abamectin/C-8910 (in gal) manufactured By Valent BioSciences LLC with appl. rate 0.0026 ai lbs./acre.

Other District Activities

Public Education & Community Events

The combined efforts of any mosquito abatement program cannot succeed without the assistance of the public. Consequently, keeping the public informed of the mosquito's life cycle and the simple steps they can take to eliminate potential breeding sources around the home is an essential part of our program.

The District website was established in 2006 to provide thorough and up-to-date information for the residents of the District. It includes general information on mosquitoes and their control as well as steps the public can take to protect themselves from mosquito annoyance and potential disease transmission. The web site, along with social media, provides the date and locations of any planned contingency residential adult mosquito control operations. A news section gives residents timely updates on current conditions and reminders of the ways they can help protect themselves and those around them. The site is found at dvmad.org.

During the 2025 mosquito season, news reports appeared on village web sites, and in village newsletters outlining the steps homeowners can take to control mosquito development on their property as well as information about the operations of the District. Informational pamphlets about the District and mosquito-borne diseases were distributed through village hall offices, libraries, public requests, and by field crews. The sale of rain barrels by villages to residents in an effort to reduce the amount of water entering the storm water system has been increasing in recent years. Our handout for the proper maintenance of rain barrels to prevent mosquito development in them, continues to be distributed with newly purchased rain barrels in cooperation with villages within the District.

The District annually receives numerous inquiries and requests from the public. Each inquiry is handled on an individual basis. This form of informational assistance has proven to be one of the most effective methods in public education.

The District attended many community events in 2025, including National Night Out hosted by the Village of Indian Head Park, the Village of Lyons car show, and the Village of Lyons Fourth of July parade. During these events residents have the opportunity to ask questions and see examples of the many different control methods the District utilizes. These events are a great venue to engage the public in a proactive and positive manner.

Database and District Maps
Through the course of a year, the District's laboratory generates large amounts of data. In 1985, the District began using a computer database to store and retrieve that data in meaningful ways.

Data collected by the District, since 1980, is stored in a computer database. This data consists of weather and other environmental data, mosquito population surveillance data, and actual larval/adult control information. From this data inspection and treatment reports can be generated, providing field personnel with information about what control measures should be initiated. It can also evaluate the success of those efforts.

Because of the District's ability to access large amounts of information very quickly, the data can be evaluated in a timely way. This has enhanced the District's ability to execute mosquito control efforts as safely, efficiently, and economically as possible.

A variety of computer-generated maps are utilized to best manage and treat the different types of mosquito sources located throughout the District. These maps help guide crews to different areas throughout the District in an efficient and safe manner. District maps are updated frequently throughout the mosquito, and non-mosquito season.

In 2018, Geographic Information System (GIS), using open-source software, was introduced into the District's program. GIS is designed to store, retrieve, manage, display and analyze all types of geographic and spatial data. Since the 2018 mosquito season, the locations of over 7,200 off-road catch basins, and a small percentage of street catch basins throughout the District were plotted with tablet computers using this system. GIS will allow for more efficient and thorough treatments of these basins going forward.

During the 2022 season the District began using handheld GPS devices in the general larval division to plot mosquito breeding sources. The highest priority sources have been plotted and the plotting of lower priority sources continued in 2025. Using the handheld GPS device to locate sources will greatly increase efficiency, especially for newly hired seasonal employees.

Winter Activities
The District owns and maintains all of its vehicles and equipment. During the winter months when weather conditions prohibit outside work, all equipment is cleaned, checked, and repaired as needed. Vehicles and equipment that are no longer economically feasible to operate are replaced. All new replacement vehicles/equipment must be adapted to meet the District's requirements. Consequently, the winter months provide an ideal opportunity for such an undertaking. Major shop and building maintenance programs are also carried out in the winter months by District personnel, who have the capability to maintain all of our equipment, building, and grounds.

The winter season is also the time for updating maps of mosquito breeding sources, inspecting problem drainage areas, planning for next season's drainage projects, finalizing the records of the previous season, and the annual training of all permanent personnel.

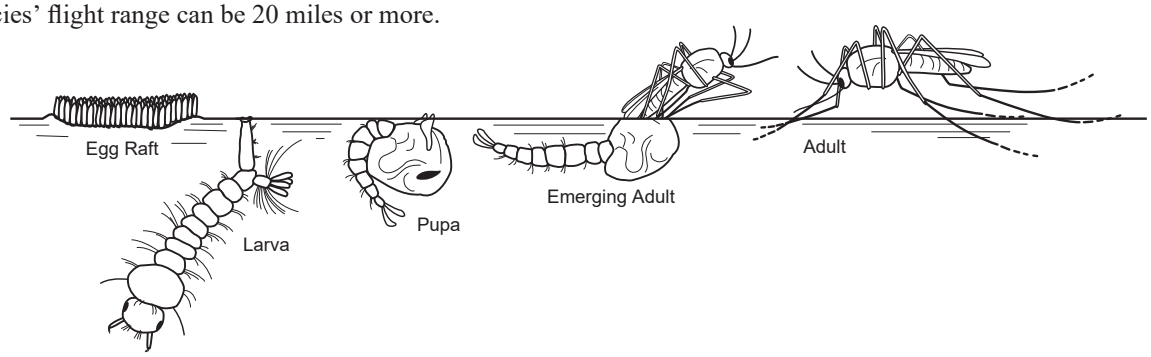
The District continues to comply with the regulatory requirements set forth by the Unites States and Illinois Environmental Protection Agencies (USEPA and IEPA). The USEPA and IEPA require the District have a National Pollutant Discharge Elimination System (NPDES) permit to conduct mosquito control operations. The District's permit is current, and a report of pesticide usage is submitted annually to the IEPA. In addition, the winter season is used to evaluate our control methods in order to remain compliant with these requirements.

Help Fight Mosquitoes

It's a fact… mosquitoes develop in water.

Over 40 different species of mosquito occur within Illinois. Each species has its own developmental habitat, however all mosquitoes need water in which to pass their early life stages. Some mosquitoes lay their eggs directly on the surface of water. Other mosquitoes lay their eggs in areas that will eventually fill with water. Once eggs come in contact with water, they hatch into larvae within 3–5 days. Mosquito larvae undergo four stages of growth and development called instars. Larvae feed on organic material and microorganisms in the water and return to the surface of the water to breathe. Larval development may be as rapid as 5–7 days in warm weather. After the larval stages are complete, the larvae shed their skins and emerge as comma-shaped pupae. Pupae are very active and dive vigorously if disturbed. Pupae do not feed while they undergo metamorphosis to the adult stage. The adult mosquito emerges from the pupal skin and rests on the water's surface until it dries.

Both male and female adult mosquitoes feed on plant nectar, but only the female bites to get the blood needed for the development of eggs. While some kinds of mosquitoes can live several months, the main nuisance mosquitoes we have in this area usually survive four weeks or less. Not all mosquitoes can carry disease, nor are all mosquitoes vicious biters. Some kinds of mosquito never bite humans. Mosquitoes also vary in the distances they travel from the water they developed in. While some species will not stray more than a block or two from their source, other species' flight range can be 20 miles or more.



Here's what you can do…

It doesn't take much water for mosquitoes to develop. Many potential breeding sites can be found around the home. You can take the following simple steps to eliminate potential sources:

- Throw away or recycle all trash that can hold water (cans, jars, tires, etc).
- Clean rain gutters and downspouts to prevent water from standing in gutters or on flat roofs.
- Change water in bird baths, wading pools, etc. at least once a week. Maintain swimming pools properly.
- Keep ditches and streams on or around your property free of grass clippings, garbage, and other debris to insure proper flow of water.
- Screen rain barrels with 16-mesh screen to prevent adult mosquitoes from depositing eggs on the water's surface.
- Stock ornamental ponds with goldfish or other surface-feeding fish to control mosquito production.
- Clean out and fill tree holes.
- Stack pails, barrels, tubs and similar containers upside down.

Eliminate any place where water can stand and…

you eliminate mosquitoes!