

TUSCOLA COUNTY MOSQUITO ABATEMENT



2019 Annual Report
2020 Program Plan



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County Board of Commissioners

Thomas Bardwell, District 2

Kim Vaughan, District 3

Mark Jensen, District 4

Dan Grimshaw, District 5

County Administration

Clayette Zechmeister, County Controller/Administrator

2019 Mid-Michigan Mosquito Control Technical Advisory Committee

Steven Carlson, Michigan Department of Agriculture and Rural Development

Norman Adams, Saginaw Valley Bee Keepers Association

Dr. Kim Signs, Michigan Department of Health and Human Services

Stephanie McCracken, Department of Health and Human Services

Rachel Potter, Department of Health and Human Services

Doug Enos, Midland County Drain Commission

Kent Singer, Tuscola County Health Department

Kim Vaughan, Tuscola County Commissioner

Joseph Rivet, Bay County Drain Commissioner

Fred Yanoski, Midland County Health Department

Cynthia Chilcote, Midland County

Jerry Somalski, Bay Landscaping

John Hebert, Bay County

Tom Putt, Bay County

Consultants

Richard Merritt, Ph.D Michigan State University

Edward Walker, Ph.D Michigan State University

Michael Kaufman, Ph.D Michigan State University

Kevin Kern, Michigan Department of Agriculture and Rural Development

Darrin McCullough, Michigan Department of Environment, Great Lakes and Energy

TCMA STAFF

Kimberly Green, Director
Shyann Clark, Biologist
Lisa Ozbat, Administrative Assistant
Larry Zapfe, Equipment Repair Technician

2019 SEASONAL EMPLOYEES

Renee Raney, Office Clerk
Robert Burcham, Utility/Office Clerk

2019 FOREMAN / ASSISTANT FOREMAN

Tom Perkins, Foreman
Mike Sherman, Assistant Foreman
Patrick Dennis, Foreman
Patrick Webster, Assistant Foreman

2019 SEASONAL TECHNICIANS

John Adamczyk
Joe Benjamin
Mike Emry
Lee Garnsey
Rodney Hood
Rich Myers
Mike Putnam
Mark Seelye
Tim Singer
Kirk Bauer
Jack Clark
Kevin Gainforth
Dennis Haley
Connor Langenburg
Amos Perkins
Mike Ryan
Aaron Singer
Warren Swackhamer



ORGANIZATION

The Tuscola County Mosquito Abatement (TCMA) district was originally formed in 1997, after a millage proposal was passed by the citizens of Tuscola County. In August 2014, a six year renewal was passed with 85% being in favor. Funding for the 2019 mosquito control season was collected during the winter of 2018 taxes, at a rate of 0.65 mils.

Tuscola County residents will be voting on renewal of Mosquito Abatement millage in August of 2020.

Tuscola County is one of four counties in Michigan with a formal, comprehensive mosquito control program. TCMA is a county governmental agency, which serves to control nuisance and disease vectoring mosquitoes.

A Technical Advisory Committee (TAC), which is composed of some of Michigan's leading biologists, entomologists, conservationists and scientists, review TCMA's program every March.

Mosquito Abatement is based on Integrated Pest Management (IPM) practices. IPM is generally broken down into five categories or steps. These steps include:

- Identification of the pest
- Understanding the biology of the pest
- Monitoring the pest
- Developing sound goals to manage the pest
- Implementation of an IPM program

Biological surveillance, disease surveillance, product evaluations, field operations, and public education are included in this program.



STAFFING

Tuscola County Mosquito Abatement employs 31 seasonal positions and four full time staff.

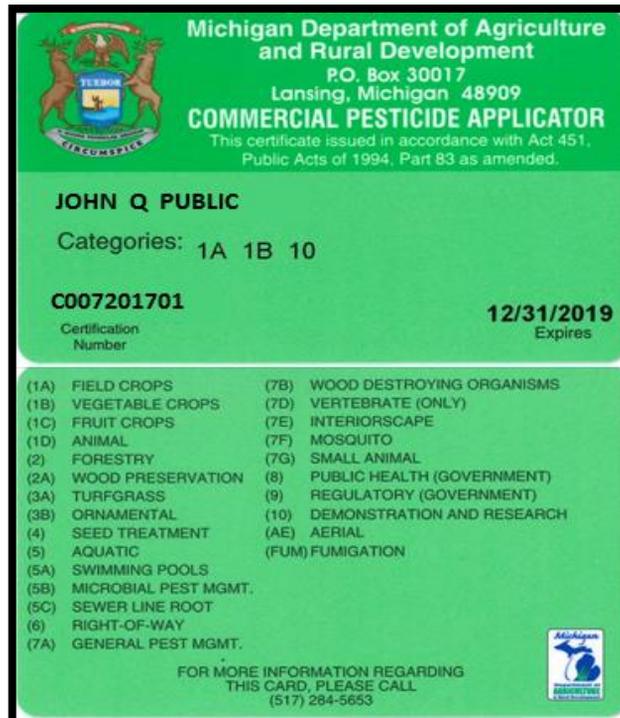
All TCMA technicians are required to have a MDA Certified Pesticide Applicators License (with a mosquito specific – 7F endorsement).

Newly hired staff, and those in need of re-certifying, are given study materials to review prior to testing. This year, we will be sending our newly hired technicians to the MSU Frankenmuth Testing Center.

Once newly hired staff have passed all testing requirements, several days of training are provided to help technicians become familiar with equipment and operations.

Beginning with our annual spring treatment of flooded woodlots, all technicians are working the day shift, 8:00am to 4:00 pm. When night time fogging begins, a night shift will be added from 5:00pm to 1:00am.

Our technicians returned on April 1st to begin our annual treatment of flooded woodlots.



Weather Data

Weather plays a very important role in determining our mosquito population.

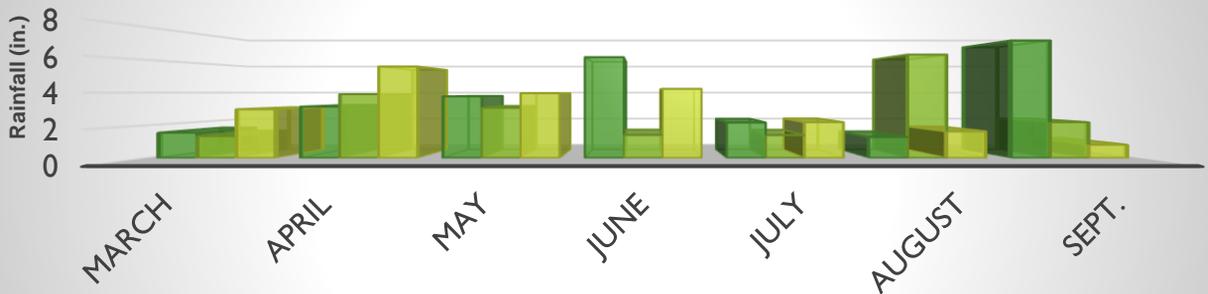
Rain events that cause flooding or standing water, create breeding areas that will result in a hatch of mosquitoes.

The 2019 season began with severe flooding on May 24th, with many areas receiving damage to roads and farm fields throughout the county. On June 1st another significant rainfall added to already saturated areas. The week of June 10th we began to see the results of the flooding as mosquitoes began to emerge. Our office received over 1047 calls from citizens reporting bad mosquitoes the following week.

The months of July and August were relatively dry and brought much needed drying out to Tuscola County. Overall, the county received 25.25 inches of rainfall with a significant amount of flooding toward the end of the season.

Monitoring the weather is a daily event due to the fact that all treatment techniques are weather dependent.

YEARLY PRECIPITATION COMPARISON



	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT.
2019	1.55	3.14	3.77	6.16	2.17	1.28	7.18
2018	1.34	3.9	3.07	1.41	1.4	6.32	2.19
2017	2.98	5.59	3.96	4.23	2.19	1.63	0.82

Tuscola County 2019 Spring Flood



BIOLOGY

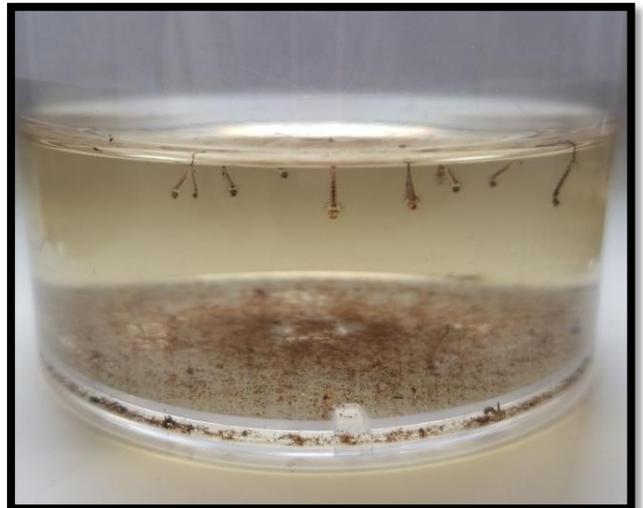
In order to develop a mosquito suppression strategy, a critical component in an Integrated Pest Management approach (IPM), the biology department conducts routine trapping. This trapping helps to monitor for mosquito population levels and disease. This information, along with information provided by our residents, can be helpful in determining where we need to focus our efforts.

Our biology staff also monitors the effectiveness of our control materials. During our spring treatment of flooded woodlots, the technicians will dip the water routinely to determine where mosquito larvae can be found. Once the crew has treated said areas, our biology staff will return to those sites to confirm the application was effective.

When monitoring the effectiveness of the adulticiding operations, traps are placed the night before an application, and then after. This will determine if the application was effective in suppressing mosquito populations.



Mosquito Larva shedding its skin



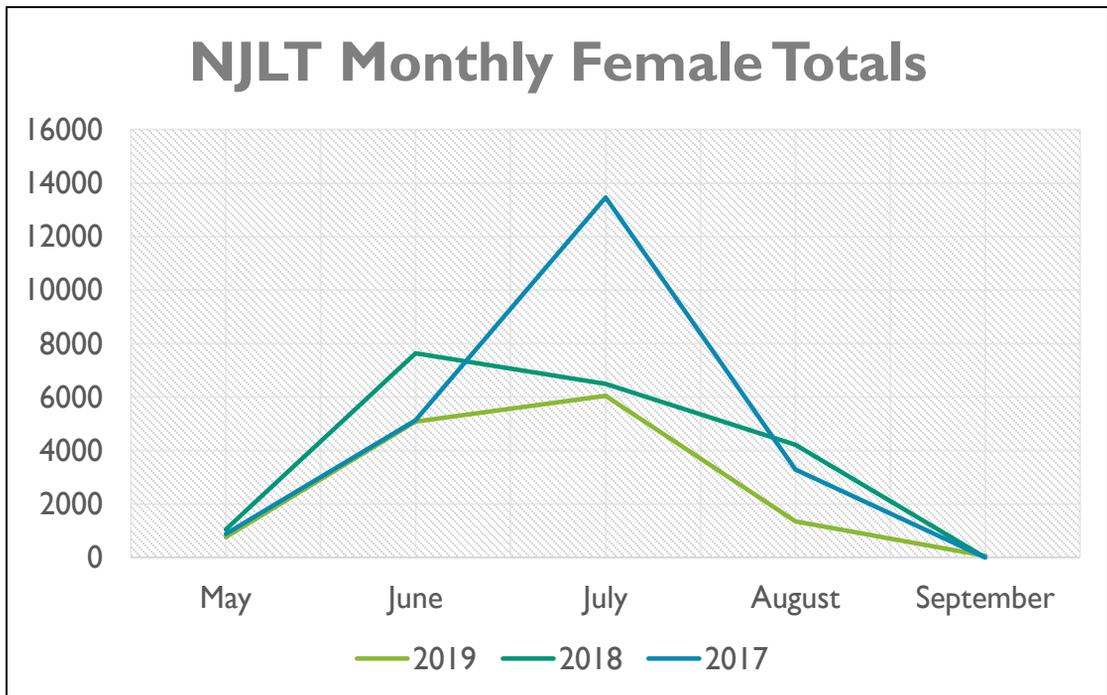
Mosquito larvae captured from flooded woodlot

NEW JERSEY LIGHT TRAP

This trap (see image on page 13) is placed in fixed locations throughout the county year after year supplying historical data on mosquito populations. They require a supply of electricity, which provides a light source to attract mosquitoes. Once mosquitoes have been attracted a fan pulls them downward into a collection container, in this case we use a mason jar. Inside said jar is a pesticide strip that then kills any bugs that have entered the trap. These traps are then collected two to three times per week, depending on the amount of mosquito activity. Often times, we will base our suppression strategy off the information provided by these traps.

During the course of the 2019 season, we were given circumstances that forced us to change the location of a few of our traps. However, these changes in location provided us with a better suited trapping area and giving us an overall better quality of trapping data. Even so, this season had a decrease in mosquito counts compared to years prior.

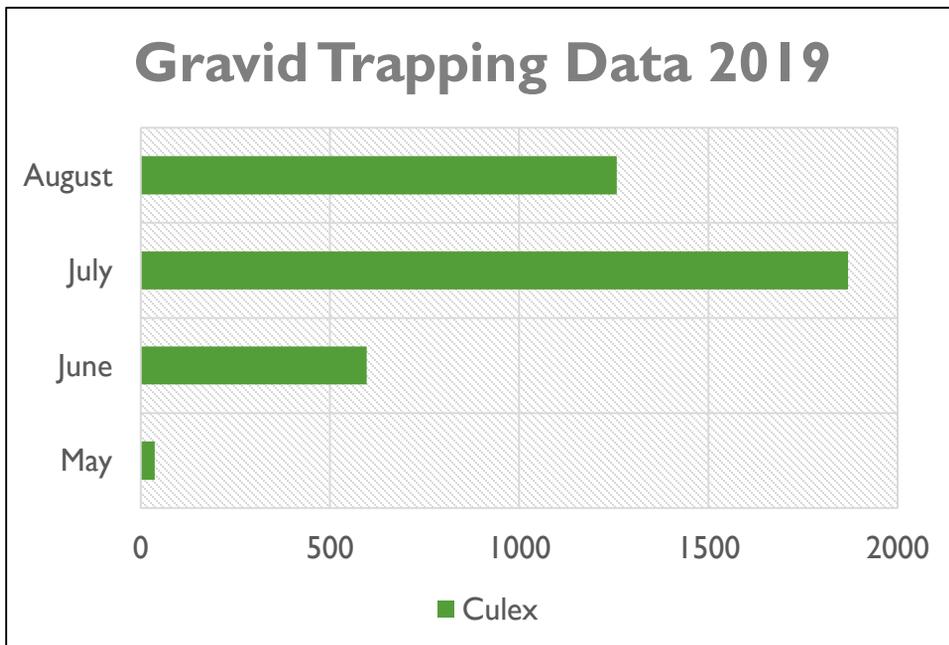
Overall, our NJLT counts were fairly mild compared to past years leaving us with little data to rely on for our suppression strategy. The graph below shows the comparison between this season and past seasons trap totals.



GRAVID TRAPS

Gravid Traps (see image on page 13) use highly organic water to lure in mosquitoes. These mosquitoes are typically females that have had a blood meal and are looking for a potential place to lay eggs. The mosquitoes collected from these types of traps are generally *Culex pipiens* and *Culex restuans* that can transmit West Nile Virus. Relative to last year, the amount of mosquitoes caught by our traps was significantly lower. We also saw a decline in the amount of pools that tested positive for WNV.

The graph below indicates the number of these mosquitoes trapped during the 2019 season. As for this years gravid data, we have had a much lower mosquito count than years prior. Weather played a huge factor in these low number counts, along with the lack of mosquito larvae counts in the areas we typically would place these traps.



HISTORICAL TRAPPING DATA

As mentioned before, our trap counts for this season were fairly low compared to past years. Because of weather conditions, we saw a decrease in mosquito counts throughout our county. Our biology departments trapping was limited due to these same unfortunate weather conditions.

Our CDC Trap (Image 1) collections were compromised by the storms, making them uncountable and leaving us with little to no data to record and report. As for our GAT trap (Image 2) data, as in past years, showed no activity throughout the 2019 season.

These low trap counts effected our strategy for conducting an effective IPM approach. Although our count numbers were well within nuisance level, without adequate population levels we were forced to base most of our suppression strategy off of the information provided by our residents.

In the two graphs shown on page 14 you can see TCMA's historical Gravid trap (Image 3) and NJLT (image 4) data compared to data collected this year.



Image 1 - CDC Trap



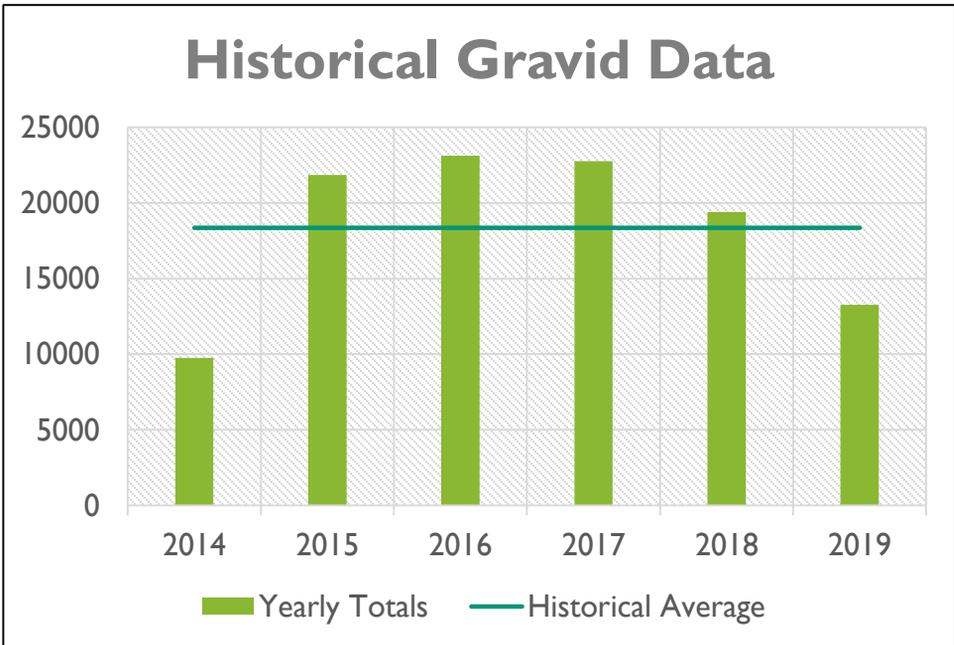
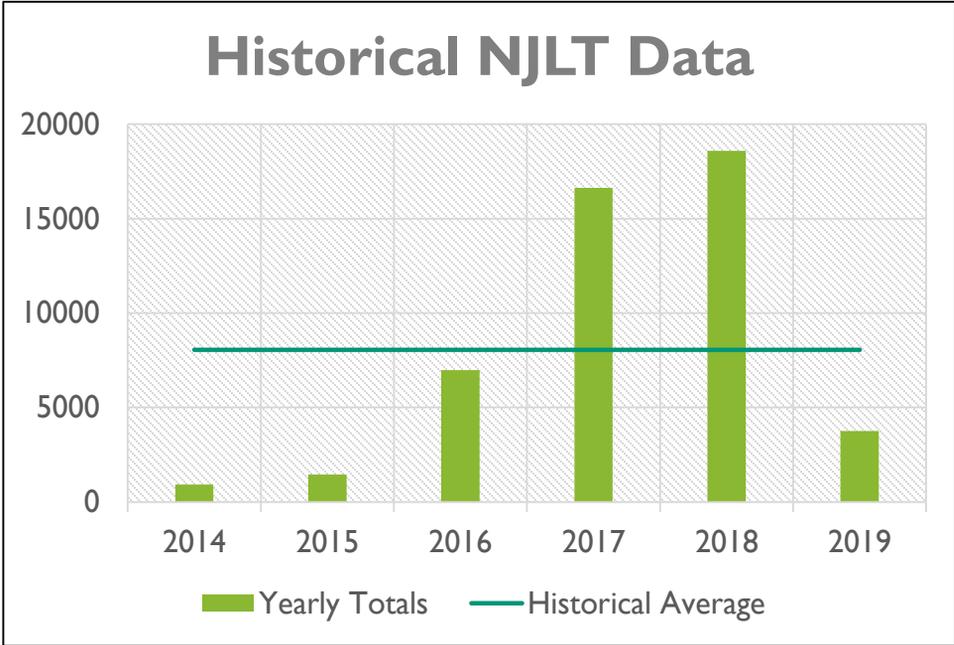
Image 2 - GAT Trap



Image 3 - Gravid Trap



Image 4 - New Jersey Light Trap



DISEASE SURVEILLANCE

The mosquitoes captured in all forms of traps, are sorted and identified. Those species, which are more likely to be involved in disease transmission, are selected for testing. These tests are used to check for the presence of West Nile Virus (WNV), St. Louis Encephalitis (SLE) and Eastern Equine Encephalitis (EEE).

During this season we found that activity in our sewage lagoons were noticeably low. Because our Biology department uses the mosquitoes trapped in these lagoons for testing, the low mosquito counts affected our disease surveillance greatly. However, we were able to send a total of one hundred mosquito pools to MSU to be tested for disease and of those pools only one came back positive for WNV.

The lab also conducts in house testing on dead birds that have been turned in by our county residents using the VECOR Test Kit. In the chart below you will see that this year a total of two birds were tested for WNV, EEE and SLE. Results for only one of the two came back positive for WNV alone. Page 17 shows the Michigan 2019 summary of arbovirus activity, including EEE and WNV.

WNV, EEE, SLE

In House Vector Testing Results 2019

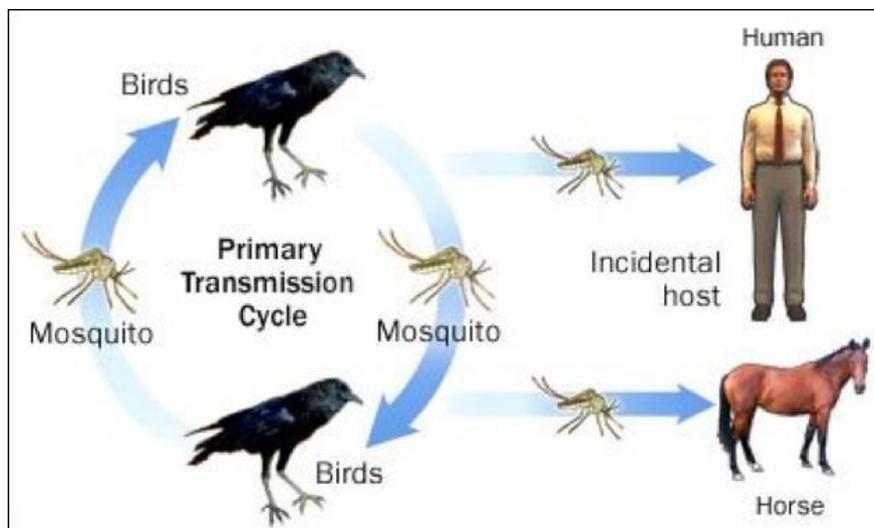
DATE	ITEM	NOTES
06/07/2019	Black Bird	Found in Caro under house window. Possibly hit window by accident. Results were NEGATIVE.
10/02/2019	Crow	Found in Vassar at residents house in front yard. Results were POSITIVE for WNV.

EASTERN EQUINE ENCEPHALITIS

Eastern equine encephalitis (EEE) is a virus known to be transmitted between birds and mosquitoes. In some cases even horses and humans can be susceptible to this disease.

EEE is maintained in a cycle between *Culiseta melanura* mosquitoes and avian hosts. This particular kind of mosquito is found in freshwater hardwood swamps and is not considered to be bothersome to humans due to the fact that it almost exclusively feeds on birds. However, if a “bridge” mosquito, such as some *Aedes*, *Coquillettidia*, and *Culex* species, were to contract the virus through an infected bird, then it is likely that a horse or human can therefore obtain the disease if bitten by said infected mosquito.

However, once a human or horse has contracted EEE neither one nor the other can infect another mammal. Both human and horse are considered “dead-end” hosts, meaning that the concentration of the virus in their bloodstreams is usually insufficient to infect mosquitoes. Therefore, the cycle is broken and a dead-end has been created. (See Image below.)



Due to our habitat, it is uncommon for EEE outbreaks to occur in our area. However, during the 2019 season, several counties around the state reported an outbreak of the EEE virus. Because of this outbreak, our 2019 season continued into late October. Our technicians concentrated treatment on public use areas and our county borders until temperatures forced us to discontinue.

Only one case of EEE was reported in Tuscola County this fall. The disease was found in an unvaccinated 8-year-old Belgian gelding. The horse developed a sudden onset of illness and was euthanized. Under the 2019 Arbovirus Grant, the horse was sent in for testing and came back positive for EEEV.

Arbovirus* Activity, Including EEE and West Nile Virus: Weekly Summary, Michigan 2019

*Arboviruses are viruses transmitted by mosquitoes or other insects

Updated: December 11, 2019

19 

Michigan counties with reported EEE activity

49 

Animals testing positive for EEE infection

24 

Human cases of EEE and other arboviruses reported

2019 Michigan Arbovirus Surveillance

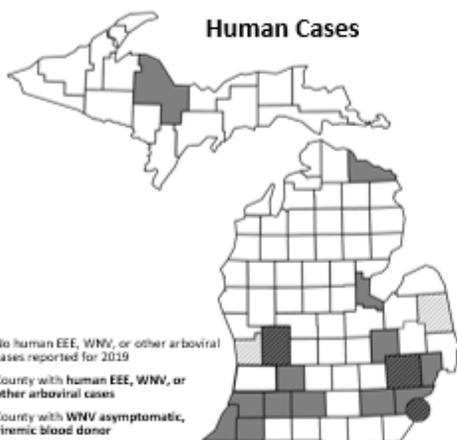
(click links below to see cases by county)

Human Eastern Equine Encephalitis cases reported	10
Animal Eastern Equine Encephalitis cases reported	49
West Nile virus Positive Mosquito Pools	57
Total Number of Mosquito Pools Tested	1,540
Total Number of Mosquitoes Tested	31,995
Human WNV cases	12
Human California Group virus cases	2
WNV asymptomatic, viremic blood donor	5
Equine/Other Animal WNV cases reported	1
Avian WNV cases reported	19

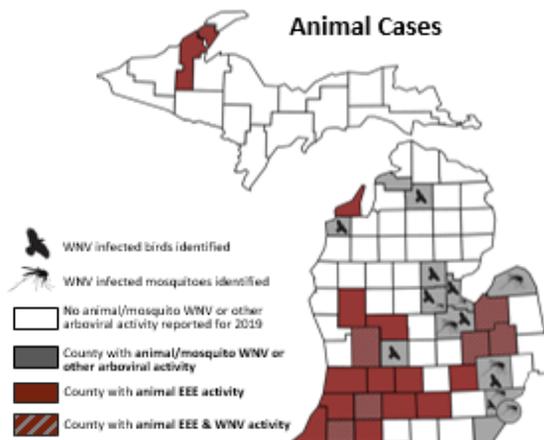
Highlights

- This year, Eastern Equine encephalitis virus (EEE) infected 10 Michigan residents (1 Barry, 2 Berrien, 1 Calhoun, 2 Cass, 3 Kalamazoo, and 1 Van Buren) with 6 fatalities.
- EEE has also infected 49 animals (2 Allegan, 5 Barry, 1 Berrien, 3 Calhoun, 4 Cass, 1 Genesee, 1 Eaton, 1 Houghton, 5 Jackson, 9 Kalamazoo, 2 Kent, 1 Lapeer, 1 Leelanau, 1 Livingston, 1 Montcalm, 1 Newaygo, 7 St. Joseph, 1 Tuscola, and 2 Van Buren).
- West Nile virus (WNV) has sickened 12 Michigan residents (1 Bay, 2 City of Detroit, 1 Genesee, 1 Kent, 2 Macomb, 1 Marquette, 1 Oakland, 1 Presque Isle and 2 Wayne) and routine testing of the blood supply identified WNV in 5 Michigan blood donors.
- Additionally, 2 Michigan residents (1 Genesee and 1 Washtenaw) were infected with a California group virus.

Human Cases



Animal Cases



For more information

www.michigan.gov/eee



TREATMENT SITES

MATERIAL	TREATMENT SITE
MLO (Mosquito Larvicide Oil) (highly refined petroleum distillate)	Swamps, Flooded Woodlots, Flooded Fields
Kontrol 4-4 (permethrin)	Roadside fogging, Public Use Areas, Private Property
Four Star Briquets 90 Day (Bacillus sphaericus 6% Bacillus thuringiensis 1%)	Retention Pools
Mavrik (Tau-fluvalinate)	Public Use Area, Private Property
Mosquito Dunks (Bacillus thuringiensis)	Small water hole, artificial containers
Altosid P35 Pellets (Methoprene)	Catch Basins
Suspend Polyzone (Deltamethrin)	Public use areas, Private Property
VectoBac G (Bacillus thuringiensis)	Flooded Woodlots, Artificial Containers, Tires, Ponds
VectoBac 12AS (Bacillus thuringiensis)	Roadside Ditches, Retention Ponds
VectoLex WDG (Bacillus sphaericus)	Lagoons

OPERATIONS

Mosquito Abatement strives to keep residents safe from mosquito-borne disease, by reducing the mosquito population in our county.

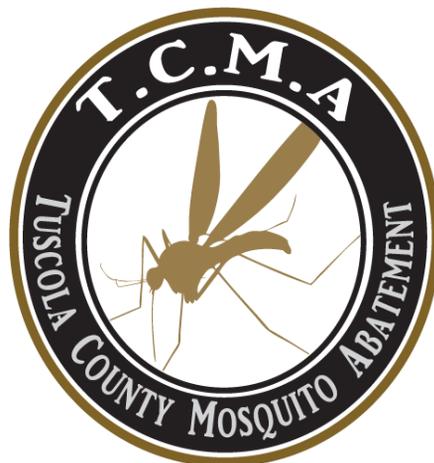
This is done through various forms of treatment, typically beginning in late March, when we begin surveillance and treatment of the flooded woodlots with ground crews.

Once adult mosquitoes are present, usually in mid May, we introduce our second shift of technicians. They will begin to conduct routine roadside fogging and yard treatments for homeowners, when requested.

Early summer larviciding will include routine surveillance and treatment of ditches, catch basins and sewage lagoons. Later in the season we will conduct surveillance and treat cross country ditches.

We maintain public use areas such as parks, campgrounds, trails, conservation clubs, golf courses and schools on a weekly schedule during the season. This is to keep our citizens safe from disease carrying mosquitoes.

Residents may request yard treatments for special events such as weddings, parties, etc. We also provide treatment for the many festivals that occur throughout the county.



SPRING / SUMMER LARVICIDING

We begin in the early spring with the treatment of flooded woodlots.

This is done with technicians using a hand held spreader to deliver granular BTI or a backpack sprayer to deliver mosquito larvicide oil to the flooded areas.

We utilize a citizen tracking database, which allows us to keep a historical record of homeowners and locations throughout the county, with woodlots that may require treatment in the spring.

Biology staff and larviciding crews conducted routine surveillance and quality control on 2,325 flooded woodlot sites during the 2019 season.

Tuscola County is home to nine sewage lagoons. Many of these areas have been known to be breeding sites. Each of these sites were checked routinely and treated throughout the 2019 season, using liquid BTI (VectoBac® 12 AS) , BTI (VectoBac® G) , VectoLex® WDG® and MLO® Mosquito Larvicide Oil. Catch Basins are treated 2-3 times throughout the season, depending on need, using Altosid P35® pellets.

In addition, larviciding is also performed in the cross country ditches, flooded fields and artificial containers as needed using BTI (VectoBac® G).



ADULTICIDING

Tuscola County is made up of 23 townships. Each township is assigned a technician that will perform roadside fogging.

Tuscola County currently has 748 “NO Spray” areas. These no sprays are organic farms or beekeepers, as well as residents who wish not to be treated. We utilize the FieldWatch site to help us stay current with new fields or beehives.

Assigning a technician to a specific township, allows them to become familiar with these special conditions. No Spray signage is checked at the beginning of every season to replace or post signs where needed.

Treatment route maps are updated routinely during the season, utilizing updates received from FieldWatch and our county citizens.

Kontrol 4-4 (Permethrin) is applied at 4.5oz. per minute, with truck mounted ULV units. Treatment is also conducted on a routine basis in all public use areas (parks, golf courses, schools, campgrounds, rail trails, gun clubs and archery clubs) using our Kawasaki Mule, equipped with a ULV unit. For treatment to be effective temperatures must be above 55 degrees and winds below 10 miles per hour.

In 2018 we equipped two trucks with an electric Ultra Low Volume (ULV) sprayer. These sprayers are very quiet and ideal for treating campgrounds and public use areas.

Citizens requesting treatment of their property are treated using a hand held thermal fogger or ULV backpack sprayer.



ROADSIDE DITCH TREATMENT

TOWNSHIP	MILES DRIVEN	GALLONS USED
AKRON	544.3	14.3
ALMER	167.7	1.8
ARBELA	337.7	4.1
COLUMBIA	343	4.9
DAYTON	176.2	3
DENMARK	158.9	3.1
ELKLAND	170	1.9
ELLINGTON	152.1	3.14
ELMWOOD	167	2.4
FAIRGROVE	176.6	4.1
FREMONT	159.9	1.8
GILFORD	139.4	4.6
INDIANFIELDS	128.1	2.32
JUNIATA	148.4	1.3
KINGSTON	157	1.45
KOYLTON	144	1.75
MILLINGTON	509	8.36
NOVESTA	173	2.54
TUSCOLA	164.1	3.64
VASSAR	368.9	12.84
WATERTOWN	218.8	2.25
WELLS	183.2	3.66
WISNER	411.8	12.5

ROADSIDE TRUCK FOGGING

TOWNSHIP	MILES DRIVEN	GALLONS USED
AKRON	1885.3	246.53
ALMER	635.5	152.8
ARBELA	1860.7	406.3
COLUMBIA	237.3	31.46
DAYTON	1903.1	257.02
DENMARK	950	208.39
ELKLAND	886.6	164.26
ELLINGTON	852.2	123.7
ELMWOOD	759.8	172.29
FAIRGROVE	1058.7	147.37
FREMONT	1128.9	266.38
GILFORD	695.5	97.68
INDIANFIELDS	2303.1	351.43
JUNIATA	853.1	193.32
KINGSTON	1183.6	170.92
KOYLTON	1288.2	237.54
MILLINGTON	2002.8	449.69
NOVESTA	1928.6	309.06
TUSCOLA	881.73	171.42
VASSAR	2953.2	591.38
WATERTOWN	954	218.72
WELLS	1327	203.03
WISNER	1051.4	138.86

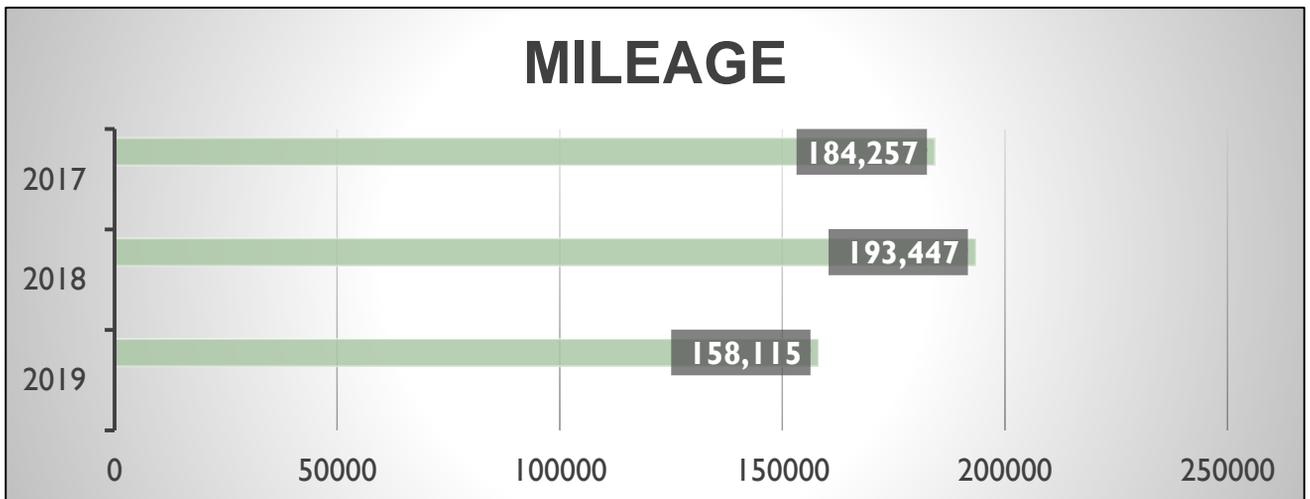
GARAGE NEWS

During the 2019 mosquito season, Tuscola County Mosquito Abatement's twenty-one truck fleet, added 158,115 miles.

Our trucks, ULV's, hand held equipment and mule (ATV), receive routine maintenance and repairs when needed.

In addition, truck mounted ULV equipment is calibrated at the beginning of the season and again in July.

All truck mounted ULV's are set to deliver 4.5 ounces of adulticide per minute. The droplet sizes produced by each ULV are measured and calibrated utilizing the Army Insecticide Measuring System (AIMS), following the label recommendations. The droplets are set to be delivered in a range that helps ensure safety and efficiency.



LONG DRIVEWAY PROGRAM

We realize that many homes in Tuscola County are set back from the county road and therefore, are subsequently shielded from the effect of the road-side adulticiding operations. If requested by the owner, their property will be reviewed to see if it meets the criteria. If the property does meet the established requirements, it will be placed on our Long Drive Program. The drive, at that time, will be marked with our long drive stake, that has a reflective band at the top. These stakes are placed by our technicians. (We do ask the homeowners to remove them during the winter months to avoid possible damage from snow plows etc.). By placing these stakes at the end of the drives, our technicians are able to see the reflective band and treat the drive as required.

The criteria for a home to be placed on the Long Drive Program are:

- There must be a primary residence on the property and the front of the home must be 300 ft. or greater from the roadway.
- There must be an adequate turnaround for our trucks that does not require driving across any lawn areas.
- The drive must be passable with two-wheel drive vehicles.
- The drive must have significant vegetation that provides areas for mosquito harborage.

In 2019, we held our open enrollment for the long driveway program from March through April. Tuscola County currently has 500 residents enrolled in this program.



TIRE RECYCLING

In collaboration with the Tuscola County Recycling Center, we held several scrap tire collections throughout the County.

With many of our townships participating in these collections, it allowed residents to take their scrap tires to a nearby location for drop off. We were able to recycle over 2000 tires in 2019.

These Tire Clean Ups are made possible by the generous funding from Tuscola County Mosquito Abatement



2019 FREE TIRE COLLECTIONS

These collections are limited to Tuscola County residents only (no out of county residents, no business, and no commercial tires). **Residents are limited to bringing only seven (7) tires per vehicle. Tires must be no taller than 48" in height and up to 12" in width.** Please make sure tires are clean, and they are not attached to an axle. Please bring help to unload your tires. Please contact Tuscola County Recycling for additional information at 989-672-1673 or email recycle@tuscolacounty.org

***Columbia Township** on May 4th, 2019, behind the Village Hall, 6456 Merry Street
Unionville, MI 48767 Collection held from 9:00AM– until 3:00PM

***Wells Township** on May 18th, 2019, at the Wells Township Hall, 2190 Frankford Road
Caro, MI 48723 Collection held from 8:00AM– until 12:00PM

***Dayton Township** on May 24th, 2019 at the Dayton Township Hall, 4879 Hurds Corner Road
Mayville, MI 48744 Collection held from 9:00AM– 5:00 PM

***Indianfields Township** on June 8th, 2019, at the Indianfields Township Park, 2229 West Caro Road
Caro, MI 48723 Collection held from 8:00AM– 3:00PM

***Village of Gageton** on August 3rd, 2019, at the DPW Garage parking lot, 4771 Gifford Street
Gageton, MI 48735 Collection held from 8:00AM– 3:00 PM

***Denmark Township** on August 3rd, 2019, at the Denmark Township Hall, 9386 West Saginaw Road (M-15)
Richville, MI 48758 Collection held from 8:00AM– 12:00PM

Tuscola County has received a \$20,000 grant from EGLE to assist in the recycling of scrap tires during our 2020 season.

PUBLIC EDUCATION

The goal of TCMA's Public Education Program is to make residents aware of mosquito habitat and their life cycle. This will help citizens to be aware of how to prevent and eliminate breeding sites for disease carrying mosquitoes. Informed residents can be integral in creating a safe and disease-free environment.

When mosquito populations are high, we hope the residents can identify the source or the reason for the increased activity. They will also be aware of the steps they can take to reduce mosquito related problems and prevent breeding sites on their property.

This task is completed in many different ways. Some of the most important ways TCMA distributes this information are through:

- Face to face contact
- TCMA website
- TCMA Facebook page
- Brochures and door hangers

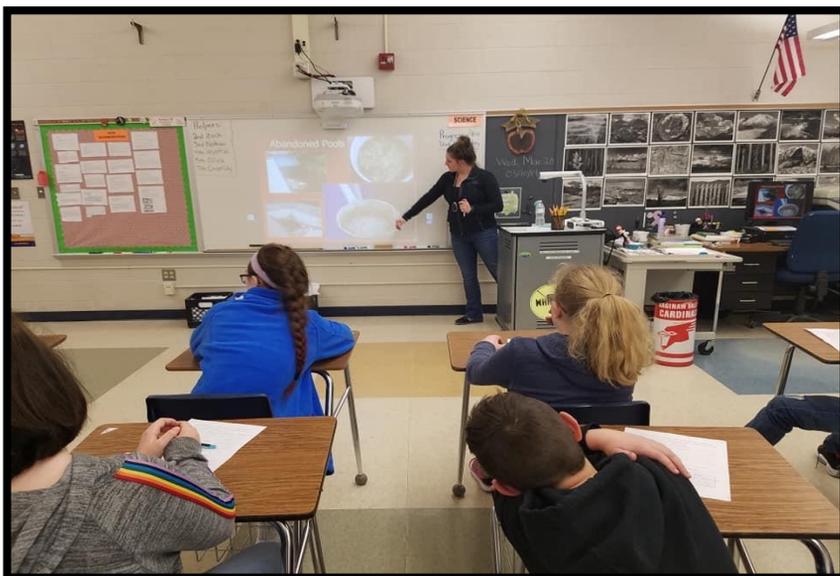
These brochures are also made available to township halls and at the county administration buildings.

Presentations are given to various groups and county officials throughout the season.

On Thursday September 26, Director Kim Green and Biologist Shyann Clark, attended a district meeting at Tuscola County ISD to inform the Superintendents of the threat of EEE.

School Presentations:

Biologist, Shyann Clark attended Career Day at the Caro Middle School with a presentation for students.



MEMBERSHIPS

TCMA staff are required to obtain and maintain licensing through the Michigan Department of Agriculture (MDA) as certified pesticide applicators, in both the Core Category and 7F (Mosquito Control). To assist our technicians and ensure proper training, a review day was held on March 12th for those testing or re-certifying.

In order to stay informed of current developments, the permanent staff of TCMA are also encouraged to attend conferences, classes and seminars relating to mosquito biology and control. TCMA's Technical Advisory Committee (TAC) also provides new insight and important data in the areas of Biological Environmental Sciences.

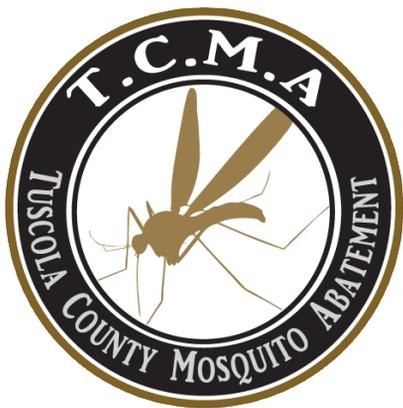
The permanent staff of TCMA also maintains memberships and are active in the Michigan Mosquito Control Association (MMCA) and The American Mosquito Control Association (AMCA).





2020 Program Plans

- August 2020 Mosquito Abatement Millage
- Purchasing of a hoist
- Resurfacing parking areas
- Addition of a new truck
- Purchase two ULV's
- Purchase two Pioneer backpack sprayers
- New copy machine for front office
- New trapping locations to be added for NJLT & GRAVIDS
- Attending 2020 MMCA Conference in Lansing and 7F Training Seminar in Bay County
- Testing and Training of returning and new employees
- Education programs for schools
- Update lighting to LED on outside buildings and parking areas
- Trial of Demand CS
- Trial of 4 star 90 day
- Trial of VectoMax FG
- Trial of VectoPrime FG on flooded woodlots



**1500 PRESS DRIVE
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