



# Skeeter Scanner

April, 2017

Volume 30, Number 3

## THIS ISSUE:

- ➔ **Draft Pollinator Protection Plan**
- ➔ **CDC Awards \$184 Million towards Zika**
- ➔ **Wolbachia the most Successful Parasite**
- ➔ **On the Lighter Side**
- ➔ **MMCA 2017 Committee Chairmen**
- ➔ **MMCA 2017 Officers and Board**
- ➔ **Conference Pictures**
- ➔ **Natural Bugs vs. Unnatural Politics**
- ➔ **April Heartworm Awareness Month**
- ➔ **Lechel Scholarship Winner**
- ➔ **Around the Districts**

PUBLISHED BY THE  
MMCA PUBLIC  
INFORMATION  
AND EDUCATION  
COMMITTEE



[www.mimosq.org](http://www.mimosq.org)

## President's Message



I look forward to the opportunity to again serve the Michigan Mosquito Control Association membership. Our membership represents a variety of public health professionals focused on controlling mosquitoes and the diseases they vector. The MMCA Board and I look forward to continuing to best serve our membership with quality training opportunities and meetings that promote effective and accepted mosquito control. I value our active membership, meeting attendees, industry partners, and those represented on the Board and our various committees. The MMCA will remain active in representing our members regarding all that may impact mosquito control.

The year started out with another successful MMCA Annual Conference held in Port Huron. It was well attended and the talks and presenters were varied from company owners; academics; students; public health professionals; district staff; and private applicators. Thank you to Tami Seago and Chris Novak for putting this meeting together and all the volunteers and members that executed the program. We look forward to another successful conference in 2018 in Lansing; I know Charlie Dinsmore already has begun putting together another quality product.

Issues and developments we are pursuing:

- Zika vector surveillance with additional local health departments beginning surveillance for *Aedes albopictus* and *Aedes aegypti*.
- Michigan's Pollinator Policy as a "best management practices" document.
- Legislative relief from NPDES permitting; better qualify and quantify impact on community mosquito control
- Educate EPA on current application methods, control products, and application rates, as to better inform them about mosquito control uses prior to impactful changes to labels and product availability.
- AMCA Washington Day financial support for a member to attend this worthwhile event, where our concerns can be effectively communicated to those who represent us. I would like to thank Dr. Carl Doud for again representing us this May.
- Keep the dialogue open for the responsible treatment of State and Federal lands.
- Promotion of research and education of all that is mosquito related through gracious financial support from vendors and members for scholarships and research.

I look forward to serving you as MMCA President and the future opportunities that lie ahead.

## Draft Pollinator Protection Plan



<https://pollinators.msu.edu/protection-plan/the-protection-plan-for-managed-pollinators-in-michigan>

### CDC Awards Nearly \$184 Million to Continue the Fight against Zika

The Centers for Disease Control and Prevention (CDC) announced it is awarding nearly \$184 million in funding to states, territories, local jurisdictions, and universities to support efforts to protect Americans from Zika virus infection and associated adverse health outcomes, including microcephaly and other serious birth defects. These awards are part of the \$350 million in funding provided to CDC under the Zika Response and Preparedness Appropriations Act of 2016.

“Zika continues to be a threat to pregnant women,” said CDC Director Tom Frieden, M.D., M.P.H. “States, territories, and communities need this CDC funding to fight Zika and protect the next generation of Americans.”

With remaining supplemental funds, CDC will continue important work, including sending emergency response teams to states with Zika outbreaks to partner with state and local public

health officials; providing reference and surge laboratory capacity for the nation; providing a framework for tracking pregnancies and births affected by Zika; helping states deploy and target effective mosquito control; and supporting timely, accurate, and effective communication to the public and health care providers.

The \$184 million in CDC awards will fund the following Zika efforts:

#### **Public Health Emergency Preparedness and Response Zika Activities:**

CDC is awarding \$25 million to 21 jurisdictions at greatest risk of Zika infections in their communities. Jurisdictions will use the funds to rapidly identify and investigate a possible outbreak of Zika virus in their communities; coordinate a comprehensive response across all levels of government and nongovernmental partners (including the healthcare sector); and identify and connect families affected by Zika to community services. Funding can also be used to purchase preparedness resources like insect repellent, screens and supplies for [Zika Prevention Kits](#).

#### **Zika Epidemiology and Laboratory Capacity Activities:**

CDC is awarding nearly \$97 million to 58 state, territorial, city, and local public health departments through the Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) Cooperative Agreement. This includes \$22 million in emergency funds ELC awarded to Florida and Texas earlier this fiscal year

#### **Zika Birth Defects Surveillance Activities:**

CDC is awarding more than \$8 million to 38 state, territorial, and local jurisdictions to establish, enhance, and maintain information-gathering systems to rapidly detect microcephaly and other adverse outcomes potentially related to Zika virus infection during pregnancy. These funds will also help states and territories ensure that infants and their families are referred to appropriate health and social services. Finally, the awards will enable states and territories to monitor the health and developmental outcomes of children affected by Zika.

**Vector-Borne Disease Regional Centers of Excellence:** CDC is awarding nearly \$40 million to four universities to establish centers that can help effectively address emerging and exotic vector-borne diseases in the United States, like Zika. There are significant regional differences in vector ecology, disease transmission dynamics and resources across the United States. These centers will help generate the necessary research, knowledge and capacity to enable appropriate and timely local public health action for vector-borne diseases throughout the country.

**Vector Control Unit in Puerto Rico:** CDC is awarding \$14 million to the Puerto Rico Science, Technology and Research Trust (ST&R Trust) to oversee the first vector control unit (VCU) in Puerto Rico, which CDC helped establish. The funding will support ST&R Trust as they continue to implement [comprehensive mosquito control activities](#) to help prevent and manage diseases spread by mosquitos, like Zika, dengue and chikungunya.

## Pest Control Companies using Drones against Mosquitoes



This summer, pest control companies in California plan to use a new technique to fight mosquitoes—drones.

Placer County's Mosquito and Vector Control will target mosquitoes by flying drones over 400 feet into the air and spraying the area below. This technique will allow them to reach areas that they could not in the past.

According to the Mosquito and Vector Control in Placer County, some drones can do more than just fly into the sky. Many of them can measure weather conditions, and some can even land in water, allowing the company to pick up and put down traps as well as measure water conditions.

The drones will allow for the company to construct maps that will give them a way to monitor mosquitoes in the area.

## ***Wolbachia* the Most Successful Parasite the World has ever known.**

You've never heard of it because it only infects bugs: millions upon millions of species of insects, spiders, centipedes and other arthropods all around the globe.

The secret to the over-achieving bacterium's success is its ability to hijack its hosts' reproduction. "We've known for decades that one of the secrets to *Wolbachia*'s success is that it interferes with host reproduction in order to spread itself through females. But how the bacterium did it was a major mystery for the field," said Associate Professor of Biological Sciences Seth Bordenstein, who headed the Vanderbilt contingent. "Now we know the genes that give it this capability."

*Wolbachia* commonly manipulates its hosts' reproduction by a process called "cytoplasmic incompatibility" or CI. This makes the sperm of infected males lethal to the eggs of uninfected females. The researchers have identified a single pair of *Wolbachia* genes that produce this effect only when working together.

When an infected male mates with an uninfected female, few if any of the eggs hatch. However, when an infected male mates with an infected female or when an uninfected male mates with an infected female, they produce the same number of offspring as when uninfected males and females mate. This maximizes the number of infected females produced in each generation, which benefits *Wolbachia* because it is only passed down through the maternal line.

*Wolbachia* is not normally found in *Aedes aegypti*, the mosquito that spreads dengue, Zika and chikungunya viruses. Ten years ago, however, a team of Australian scientists discovered that when *Wolbachia* is introduced into *Aedes*, it prevents these disease viruses from growing.

"There are two basic approaches for using *Wolbachia* to eliminate or curb the spread of a viruses like dengue and Zika," said Bordenstein.

The stable approach, called population replacement, is to introduce both males and females infected with *Wolbachia* so they spread the bacteria on their own until they eventually replace the resident population. As they spread, the risk of dengue and Zika transmission drops because *Wolbachia* prevents these disease viruses from replicating.

The second approach, called population suppression, is to introduce copious numbers of infected males. Because the uninfected females that mate with infected males fail to reproduce, this reduces the size of the target population of either disease-carrying insects or agricultural pests.

The first approach is slow but steady and should eventually lead to the reduction or virtual elimination of disease transmission. The second approach is faster but the insect population can rebound so it must be administered repeatedly.

The Vanderbilt researchers found that using genetic engineering to insert the *Wolbachia* CI genes into infected insects can strengthen the incompatibility effect and so significantly decrease the hatch rate of uninfected females who mate with infected males. As a result, it may increase the rate at which the bacterium spreads.

This result raises two possibilities, which are the subject of the patent application: One is to directly transform strains of *Wolbachia* by inserting more copies of the CI genes. When used for population replacement, insects infected with this "super-*Wolbachia*" should spread more rapidly and could be more effective when used for population replacement or suppression. The other is to insert the CI genes into the insect's genome so they can cause CI directly. This would make it possible to use this technique to suppress insect species that are resistant to *Wolbachia* infection.

Bordenstein and his colleagues have been hunting for the CI genes for nearly two decades and tracked them down by sequencing and comparing *Wolbachia* genomes from strains that cause and do not cause CI. They then used the process of elimination to track down the responsible genes. They discovered two genes that appeared promising. However, when the researchers inserted each of these genes into the genome of fruit flies, it was a complete bust. Neither of them

affected the flies' reproduction: Their eggs hatched normally.

"When we tried them together, however, it blew the roof off," said Bordenstein. "We were able to genetically reproduce and enhance the CI effect in *Drosophila*."

According to the biologists, the origin of the CI genes remains a complete mystery. They are located in a portion of the *Wolbachia* genome called the eukaryotic association module, which contains genes that the bacterium appears to use to interact with its host.

Other than that, the researchers have no idea where they come from. The researchers' next step is to search for the genes in infected females that counteract CI, which rescue their eggs and allow them to hatch normally.

## On the Lighter Side

### Backyard Chicken Coops may Ward off Disease-Carrying Mosquitoes

(NaturalNews) A major species of malaria-carrying mosquito avoids the smell of chickens, according to a new study conducted by researchers from the Swedish University of Agricultural Sciences and Addis Ababa University in Ethiopia, published in *Malaria Journal*.

The study suggests that living in close proximity to chickens may help protect against malaria and other mosquito-borne illnesses.



# MMCA Board Members and Committee Chairmen

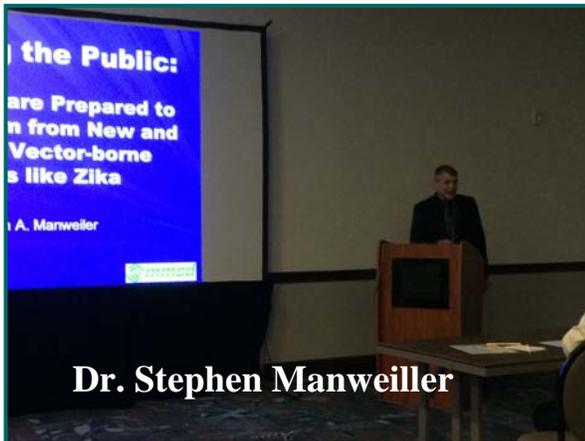
## MMCA 2017 Officers and Board Members

<b>President: William Stanuszek, Saginaw County Mosquito Abatement Commission</b>	<a href="mailto:stanuszek@scmac.org">stanuszek@scmac.org</a>
<b>Vice President: Rebecca Brandt Bay County Mosquito Control</b>	<a href="mailto:brandtr@baycounty.net">brandtr@baycounty.net</a>
<b>Treasurer: Chuck Pearce Saginaw County Mosquito Abatement Commission</b>	<a href="mailto:cpearce@scmac.org">cpearce@scmac.org</a>
<b>Secretary: Melinda Moreno Bay County Mosquito Control</b>	<a href="mailto:morenom@baycounty.net">morenom@baycounty.net</a>
<b>Trustee: Brett Ireland Midland County Mosquito Control</b>	<a href="mailto:bireland@co.midland.mi.us">bireland@co.midland.mi.us</a>
<b>Trustee: Tami Seago APM Mosquito Control</b>	<a href="mailto:apmts@earthlink.net">apmts@earthlink.net</a>
<b>Trustee: Brandon Selby Adapco</b>	<a href="mailto:bselby@myadapco.com">bselby@myadapco.com</a>

## MMCA 2017 Committee Chairmen

<b>Awards and Recognition: Kristy Brandt</b>	<a href="mailto:brandtk@baycounty.net">brandtk@baycounty.net</a>
<b>Finance Committee: Chuck Pearce</b>	<a href="mailto:cpearce@scmac.org">cpearce@scmac.org</a>
<b>Legislative Liaison Committee: Carl Doud</b>	<a href="mailto:cdoud@co.midland.mi.us">cdoud@co.midland.mi.us</a>
<b>Member and Nominating Committee: Melinda Moreno</b>	<a href="mailto:morenom@baycounty.net">morenom@baycounty.net</a>
<b>2018 Planning Committee: Charles Dinsmore</b>	<a href="mailto:cdinsmore@co.midland.mi.us">cdinsmore@co.midland.mi.us</a>
<b>Public Education and Information Committee: Margaret Breasbois</b>	<a href="mailto:mbreasbois@scmac.org">mbreasbois@scmac.org</a>
<b>Scientific Committee: Gavin Greer</b>	<a href="mailto:ggreer@tuscolacounty.org">ggreer@tuscolacounty.org</a>
<b>7F Training Seminar Committee: Doug Allen</b>	<a href="mailto:dwallen@co.midland.mi.us">dwallen@co.midland.mi.us</a>

# Views from MMCA Conference 2017



Dr. Stephen Manweiler



Entertainment



Lechel Award Participants



Marysville High School Students

## MMCA Conference Photo Salon Winners 2017



Funniest Title - Courtney Eggebrecht  
Judges, we have a wiener!



Best of Show - Doug Allen  
Milky Way over Lake Huron

## Natural Bugs vs. Unnatural Politics

A celebrity fights against vaccinating children, tweeting her vitriol on the way to a clinic where her lips are injected with a neurotoxin.

Her doctor assures her that Botox, when used properly, is safe and will accomplish the cosmetic desires of her heart. She believes him without a twitter.

Why then, wonder farmers, can't the same celebrity – and the people she influences - believe that chlorpyrifos, properly mixed and applied, is a safe and effective way to protect vegetables and fruit trees from insect holes, frass and eggs?

Chlorpyrifos, to be clear, is not natural. Insect damage is. And in a society where painted and injected faces lead the cry for an end to “unnatural” farming practices, it's as safe or as dangerous as the person using it.

What brought this hypocrisy to the front page was a much-discussed decision by new EPA Director Scott Pruitt, who rejected an impending ban on chlorpyrifos, most commonly known as the active ingredient in Lorsban.

The petition to ban the product was filed in 2007 by the Pesticide Action Network North America and the Natural Resources Defense Council (NRDC). It was widely accepted, at least before the last election, that under a court order, the EPA would ban chlorpyrifos this year. The election changed all that.

Pruitt's decision caused some relief for fruit farmers, who, under threat of penalties and a deep concern for the people they feed, know how to properly mix and apply Lorsban. Like the celebrity's doctor, they know that in the right hands, it's a safe product.

“It is a chemical after all, and anything can be dangerous if not used properly,” said Kevin Robson, horticulture specialist with Michigan Farm Bureau. “The industry has been very good at providing the right precautions and the right training for using chlorpyrifos. Like any chemical, if it is misused or mishandled, it can be harmful. But to ban it because of that is like banning bleach. It's not a good argument.”

“Chlorpyrifos has gone through a rigorous data process, and then the EPA adds safety factors of 10 and another 10 after that,” he said. “The EPA process is designed to err on the side of caution.” No amount of scientific credibility will change alarmist opinions, it seems. And unlike claims that agricultural scientists are in the back pockets of the chemical industry, Wise said he believes in the EPA's process.

If this is the first step to regulating agricultural chemicals based on science instead of politics, emotion and celebrity, Robson said, we're embarking on an era that gives farmers the confidence and stability they need to protect crops for the betterment of a hungry society.

“Celebrities have to bite into apples too,” he said. “But they may have to wait until the swelling in their lips goes away.”

For the complete article go to:

<https://www.michfb.com/MI/Farm-News/Natural-bugs-vs-unnatural-politics>

## April is Heartworm Awareness Month

HEARTWORM IN CATS & DOGS		
Heartworm disease is a serious and potentially fatal disease in pets in the United States and many other parts of the world. It is caused by foot-long worms (heartworms) that live in the heart, lungs and associated blood vessels of affected pets, causing severe lung disease, heart failure and damage to other organs in the body.		
	<b>DOG</b>	
Infected mosquito bites them, transfers heartworm larvae.	<b>TRANSMISSION</b>	Infected mosquito bites them, transfers heartworm larvae.
Around 100% of dogs who are exposed become infected.	<b>EXPOSURE</b>	Around 75% of cats who are exposed become infected.
Grow to about 12 inches & can live 5-7 years.	<b>HEARTWORMS</b>	Grow to about 8-9 inches & can live 2-4 years.
Often subtle, coughing, lethargy, fatigue, weight loss and lack of appetite. Symptoms become more noticeable as the disease spreads and if left untreated can cause death.	<b>SYMPTOMS/ DIAGNOSIS</b>	Often subtle, coughing, lethargy, fatigue, vomiting, weight loss and lack of appetite. Symptoms become more noticeable as the disease spreads and if left untreated can cause death.
FDA approved medication to kill adult heartworms.	<b>TREATMENT</b>	There is no approved drug therapy for heartworm infection in cats
Annual testing is necessary, even when dogs are on heartworm prevention year-round, to ensure that the prevention program is working.	<b>PREVENTION</b>	Screening cats includes the use of both an antigen and an antibody test. Because there is no approved treatment for heartworm infection in cats, prevention is critical.

FOR MORE INFORMATION VISIT: [WWW.HEARTWORMSOCIETY.ORG](http://WWW.HEARTWORMSOCIETY.ORG) ESPREE.COM



# News From Around The Districts

---

MIDLAND

We have now welcomed our seasonal staff and all successfully passed state pesticide applicator exams. The rain of the past few days has created quite a lot of spring *Aedes* habitat and the pools are beginning to teem with larvae.

I (Carl Doud) attended the Ontario Vector Control Association's conference in late March at Niagra-on-the-Lake Ontario. I had the pleasure of seeing Tom Wilmot yet again as he provided an overview of his Zika virus work with the CDC. As was shared during the MMCA meeting in February, both *Aedes albopictus* and *Aedes aegypti* were sampled in Windsor Ontario. Based on the abundance and number of sites that *Ae. albopictus* were captured, the public health officials believe it is established in that area.

We will all keep a close eye on any movement of these species and hope that they do not become established here in the Saginaw Valley. It is good to see the extensive efforts carried out by Erik Foster and several counties in southern Michigan to monitor for them.

Another item worth passing on is some research that was done at one of the universities in Ontario. Several *Aedes vexans* were infected with Zika virus to test if it is capable of replicating in the mosquito. Fortunately, the mosquitoes were incapable of transmitting the virus. This was good news and an interesting study as *Aedes vexans* is in the same subgenus as capable Zika vectors in the Pacific.

Wishing a safe and productive spring to all!

---

SAGINAW

Interviews for seasonal employment were completed in February and early March with our annual training session held on March 31<sup>st</sup> and April 1<sup>st</sup>. We have again increased our hourly pay rate as minimum wage continues its "stepped" increase. We have a competent group ready for the season. Our first substantial influx of seasonal employees is scheduled to report to work on Monday, May 2<sup>nd</sup>.

Another unique beginning to the season, as of writing this we are experiencing the hatch of this year's spring woodlot mosquitoes. It has been a prolonged hatching as we had a warm end to February which likely hatched some spring mosquitoes in the beginning of March. Then cold, dryer weather set in and halted further hatch and development. The end of March was wetter and we are now in full swing of spring larval surveillance. We were able to begin our aerial treatment of woodlots on Monday, April 17<sup>th</sup>, right after the Easter Weekend.

Our Education Coordinator has scheduled 180 classroom presentations. This year our annual Mosquito Abatement Challenge is a poster contest with the theme being "After each rain, dump and drain.". All Saginaw County 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> grade students are eligible to participate. Winners will receive their awards and recognition at the May Saginaw County Board of Commissioner's meeting.

This summer we will be incorporating some new formulations and application equipment. Additional methoprene formulations are to be utilized in both *Culex* habitat as well as certain floodwater habitat as to offer extended efficacy. DeltaGard will again be part of our adulticiding operations in the Saginaw Metro Area. The targeted use of this deltamethrin product is part of our Resistance Management Program. We will also be investigating the use of controlled release formulations of Spinosad, *Bti* and *Bs.*. The Biology department looks to further incorporate the BG-Sentinel traps into our existing surveillance program both to look for *Aedes albopictus* as well as utilize it for monitoring native *Aedes* species.

---

Spring 2017 has arrived and we are ready for what is looking to be a busy, yet productive season. We have purchased a 2017 GMC truck to replace one of our fleet trucks, as well two ULV truck mounted sprayers and two backpack sprayers have been ordered. We currently have eight scrap tire collections scheduled for this season with more to come.

We started off March 13<sup>th</sup> and 14<sup>th</sup> with a review and a test day for our returning technicians that required recertification and 8 new hires. Two representatives from The Michigan Department of Agriculture were on-site to deliver the test.

On March 27<sup>th</sup>, our Foremen returned and began updating new long drives that will be added this year, along with new No Spray properties, that have been updated through the Field Watch Site, these will be placed on our route maps for the technicians to utilize during the 2017 season.

The TCMA crew is scheduled to return on Monday, April 3. After a morning of going over our policies with employees and assigning their equipment, we will then begin the process of training our newly hired technicians. Tuscola County is home to many public use areas, some being larger than others, we will use larger crews to complete these areas: golf courses, parks, campgrounds etc.

Our Biologist, Gavin Greer has been busy preparing for this year's mosquito season. At this time he is testing larviciding materials in the flooded woodlots. He will soon begin calibration of our equipment using the AIMS (Army Insecticide Measurement System).

---

The start of 2017 has brought exciting changes to BCMC and provided a positive outlook on the upcoming season. Rebecca Brandt was named our new Director, Kristy Brandt was promoted to Supervisor and our Seasonal Supervisor position is currently in the process of being filled.

We are thankful that the approved millage increase in November afforded us the purchase of 7 new trucks and 2 new electric foggers to replace a portion of our aging equipment. A DC-IV droplet measurement machine was also purchased to enable us to do our own ULV calibration for the upcoming season.

One of our main priorities over the next year is to enhance outreach and education to our community. In partnership with the Bay City Public Schools, we are establishing an educational program for 1<sup>st</sup> graders on the mosquito life cycle to meet STEM benchmarks, with classroom presentations to begin in 2018. Over the next year we will be converting all of our outreach presentations from PowerPoint to live video footage to be aired on our Bay County public access TV station. In March, Facebook was used for the first time to announce the start of spring surveillance with the intent to continue posting items of educational interest to residents throughout the summer.

Improvements with GIS mapping are also at the forefront with help from our county GIS department. Joint idea-sharing sessions with neighboring mosquito control programs have been held to discuss the potential of GIS technology in future mosquito control operations.

Mosquito larvae were first noted on March 9, in flooded woodlots in Bay County. Monitoring will continue weekly to observe larval development, in what has been noted as drier than average woodlots with cooler temperatures. At this point, it looks as though aerial treatment will tentatively occur in mid-April. Arrangements have been confirmed to conduct aerial treatment locally out of James Clements Airport in Bay City for the first time. Operations had been conducted from Midland Barstow Airport for the past 25 years.

Hiring of seasonal technicians has taken place with nearly 70% of last year's staff re-applying for 2017. This is a higher than normal return rate, and we will certainly benefit from having knowledgeable, trained employees available as soon as our season starts.

Control materials have been purchased, all required treatment permits have been applied for, and training programs, maps, and equipment are all being readied in preparation for a great 2017 season!

---

# William J. Lechel, II Memorial Scholarship Winner

**Katherine Demeuse**  
Michigan State University

**“Understanding *Aedes japonicus japonicus*  
distribution in container habitats”**



## Larval Habitat

- Primarily found in:
  - rock pools
  - artificial containers (concrete, plastic, stone, metal, tire)
- Also have been found in:
  - storm water drainage systems
  - rain pools
  - tree holes
- Prefers wooded areas
- Inhabit colder and larger containers



**Michigan Mosquito  
Control Association  
P.O. Box 366  
Bay City, MI 48707**

**Spring**