



Skeeter Scanner

October, 2017

Volume 31, Number 1

President's Message



Well another mosquito season is coming to an end and with that, lessons learned. It is time to look at all the data and notes that were collected over the season. It is this information that promotes our understanding allowing mosquito control professionals to perform our craft better next season, whether in backyards or communities. I would like to share just a brief summary of noteworthy developments from the 2017 season. And please keep in mind as surveillance and data is further scrutinized more will likely come to light over the "off-season".

- West Nile virus was found in Michigan's mosquitoes early this year in May (mid to late June is normal). This early activity seemed to fuel a very active summer for the virus and indicated in mosquito and dead corvid (crow and blue jay) surveillance; some counties have realized a ten-fold increase in the number of WNV positive mosquito samples from 2016 to 2017. Luckily, human infections have not seen this type of increase. WNV human cases total less than last year with 32 cases to date. However, the reporting of human cases is not over and the total is likely to climb as testing and confirmation continues. As for why the increase in WNV incidents in mosquitoes and birds is not seen in our citizens, look to arbovirus surveillance, community education, and control operations.
- *Aedes albopictus*, the Asian tiger mosquito, was confirmed in Wayne County by the Michigan Department of Health and Human Services (MDHHS). The find was in an industrial area in Livonia along the I-96 corridor. Thanks to ongoing surveillance in Wayne County the population was found at rather low numbers and control was executed. This reaction was a great example of State and local officials and private mosquito control working effectively.
- This mosquito is often moved around in tires as they are transported around the country. *Ae. albopictus* has also been found in Toledo, OH and in Windsor, Ontario; both of these finds are just across Michigan's border. While the Asian tiger is capable of transmitting Zika, they have not been found to be the primary vector for Zika, that is *Aedes aegypti*. There must also be Zika in the human population for the virus to be transmitted by either mosquito. In Michigan there are currently have only been 7 imported cases of Zika virus to date.
- Excessive, record-setting rainfalls in June caused widespread flooding in portions of central Michigan and the Saginaw Valley resulting in historic nuisance. Rainfall in excess of 8 inches of normal fell in a short period of time causing rivers to flood, resulting in damage to communities and roads. Federal disaster assistance was made available to affected individuals in Bay, Gladwin, Isabella, and Midland Counties. The vast floodwater mosquito habitat created by this event produced historic numbers of nuisance species including *Aedes vexans*, *Ae. trivittatus*, and *Ae. sticticus*.
- There was also legislation introduced outlining a procedure for the establishment of special assessments to finance mosquito control at the township level. Please see page 2 for more information.

There are likely unique events and lessons to be learned throughout the membership. And this is where I leave it to you to evaluate and learn from this season, furthering your professional success.

- Michigan House Approves Mosquito Abatement Bill
- Vector Management and Pollinator Protection
- Bay County's Flood Response
- Calling for MMCA Speakers
- MMCA 7F Training Seminar
- Open MMCA Board Positions
- Sterile Mosquitoes in California
- Mosquito Emoji
- Around the Districts

PUBLISHED BY THE
MMCA PUBLIC
INFORMATION
AND EDUCATION
COMMITTEE



www.mimosq.org

Michigan House Committee Approves Mosquito Abatement Bill

Communities hoping to fight back against the onslaught of mosquitoes got some help in the Michigan House of Representatives on Wednesday.

The House Committee on Local Government unanimously approved a bill that would allow local government entities to create special assessment districts for mosquito abatement. State Rep. Tim Sneller, a Democrat from Burton, is sponsoring the bill.

“When I was elected as a state representative, I vowed to go to Lansing and put forward legislation that would make a real difference in the everyday lives of Genesee County residents,” Sneller said in a press release. “This legislation fills a gap in the law that would allow townships, like Mundy Township, to afford important public services like mosquito abatement.”

The bill now moves to the full House of Representatives for consideration. If approved there, it would need approval from the Michigan Senate before Gov. Rick Snyder could sign it into law.

Where Vector Management Meets Pollinator Protection, Local Collaboration is Key

A cross-disciplinary task force of scientists, government agencies, and industry stakeholders convened by the North American Pollinator Protection Campaign has examined common vector-management and pollinator-protection practices and urges community-level connection among professionals in both fields. “Different localities generally have different vector and pathogen species and different pollinator species,” they note.

Managing mosquito and tick populations and protecting the health of pollinators are growing concerns on a global scale, but success in both requires teamwork on the local level.

A coalition of entomologists and other scientists specializing in both disease-vector management and pollinator protection suggest professionals in these disciplines must work closely together in

their local communities to ensure that efforts to reduce mosquito and tick populations don’t harm bees, butterflies, and other pollinating insects. Findings from the group’s research are [published in the *Journal of Medical Entomology*](#).

“These collaborations work best during the planning stage of vector-control programs. Different localities generally have different vector and pathogen species and different pollinator species,” says Howard S. Ginsberg, Ph.D., research ecologist and field station leader at the U.S. Geological Survey’s Patuxent Wildlife Research Center. “Vector-control personnel know where the vectors are, when pathogen amplification occurs, and when during the year and day to intervene to interrupt the transmission cycle. Pollinator experts know where the floral resources and pollinator nesting habitats are, and when during the year and day the pollinators are active. Working together, these experts can devise targeted vector-management strategies that effectively minimize both pathogen transmission and harm to pollinators.”

Vector-control practices based on the principles of integrated pest management (IPM) already aim to minimize impact on non-target organisms, but the complexities of conditions in any given area necessitate close coordination with local pollinator experts to develop effective strategies. As just one example, application of granular (rather than sprayed) pesticide for tick management minimizes impact on pollinating insects on flowers, but it can potentially harm soil-nesting insects such as some bees and wasps. Pollinator experts with knowledge of local nesting sites can inform such vector-control decisions.

In 2014, the North American Pollinator Protection Campaign created a Vector-Borne Disease and Pollinator Protection Task Force to convene and study how to better align efforts in both realms. In their report in the *Journal of Medical Entomology*, Ginsberg (who served as chair of the task force) and colleagues offer several suggestions:

- Collaboration on local levels between stakeholders in vector management and pollinator protection, as well as enhanced knowledge sharing between such groups on broader scales.

- Research on decision-making processes in vector management to improve integration with pollinator protection.
- Further development of finely targeted approaches to vector management, such as trapping, careful application of genetic technologies, and deployment of microbes that affect vectors.
- Continued research on specific impacts of vector-management methods on pollinators.

Despite divergent areas of expertise, Ginsberg says people who work to control vector-borne diseases and those working to protect pollinators have much to gain from each other. “Nobody wants people to get sick unnecessarily, and nobody wants to damage populations of organisms that are important to the functioning of healthy environments,” he says. “These common goals are best accomplished by collaborative groups that utilize efficiently integrated, well-targeted approaches to vector management that minimize negative effects on pollinators.”

FDA Issues Final Guidance Clarifying FDA and EPA Jurisdiction over Mosquito-Related Products

Today, the U.S. Food and Drug Administration (FDA) finalized guidance to provide information on FDA and U.S. Environmental Protection Agency (EPA) jurisdiction over the regulation of mosquito-related products, including those produced through the use of biotechnology.

The final Guidance for Industry #236 – *Clarification of FDA and EPA Jurisdiction over Mosquito-Related Products* – clarifies that mosquito-related products intended to function as pesticides by preventing, destroying, repelling, or mitigating mosquitoes for population control purposes, and that are not intended to cure, mitigate, treat, or prevent a disease are not “drugs” under the Federal Food, Drug, & Cosmetic Act, and will be regulated by the EPA under the Federal Insecticide, Fungicide, and Rodenticide Act. The FDA will continue to have jurisdiction over mosquito-related products that are intended to prevent, treat, mitigate, or cure a disease (including by an intent to reduce the level, replication, or transmissibility of a pathogen in mosquitoes).

Given the public health implications of mosquito control, the FDA developed this guidance in coordination with the EPA and published a draft, “Regulation of Mosquito-Related Products,” for public comment in January 2017. Those comments were considered in issuing this final guidance.

As part of the [Update to the Coordinated Framework for the Regulation of Biotechnology](#), the FDA, along with the EPA and the U.S. Department of Agriculture (USDA), committed to clarifying how the U.S. federal government intends to regulate genetically altered insects. This final guidance fulfills part of that overarching commitment.

Key Processes in Bay County’s 2017 Flood Response

In late June, much of Bay County received 7-12” of rain in two rain events during a five-day period, marking one of the most significant flooding events in 30 years. In the nearly five weeks it took for Bay County Mosquito Control to fully respond to the situation, key communication and collaboration processes kept what could have been an unbearable event to a manageable response.

- **Communicate strategy quickly with full-time staff-** It was important to be ready with a plan after the initial rain on Sunday. Until the water could be further assessed, by Monday 8am, we had already compiled a plan for the first day of treatment. Administration, biology, and field departments all communicated as to what steps would take place until more information was collected. A shared understanding of what was going to happen kept everyone on the same page. With so much area to cover, focusing on our own specific job duties reduced the feeling of being overwhelmed with everything that needed to be done. Meetings at the end of each day allowed for discussion and re-focusing.
- **Communicate strategy with seasonal staff & educate** – Keeping seasonal employees informed kept them feeling a part of the team and invested in our mission. As the front line responders to our residents, keeping them knowledgeable of the planned response, providing key talking points for

resident interaction, and reviewing the products they would be using, helped improve outreach. Their positive interactions with the public were crucial.

- **Guided by surveillance-** Surveillance guided every step of our response. Biology staff was pivotal in determining rain totals, larval stages, and locations to begin larviciding. Surveillance also played a big role in deciding when it was time to progress to adulticiding and when it was time to revert back to normal operations. Knowing when to move forward helped preserve staffing and material resources.
- **Have an emergency larviciding plan** – In the event of a major rain, how quickly and efficiently can you respond?
 - BCMC’s immediate response after any significant rain is to focus on “priority sites”. Approximately 15-20 sites in each township are aerially mapped and marked as a priority. When time is of the essence, supervisors can quickly dispatch technicians to likely breeding sites and efficiently cover large areas of the County. Factors for determining priority sites are based on knowledge of areas that hold water for at least 7 days, areas historically known to breed *Aedes vexans* after rain, public-use areas such as parks and campgrounds, and high population areas.
 - Checking priority sites the day after this rain event allowed for a number of things: every township to receive immediate larviciding attention in the most crucial areas, time for full-time staff to determine a well-thought-out game plan for the week, Biology staff to check rain gauges to determine accurate rain coverage, Biology staff to check roadside ditches to determine stages, density, and areas needing treatment, and time for roadside ditches to stop flowing if ditch treatment was necessary.
- **Communicate with the public-** Three summer festivals were scheduled in Bay City within two weeks of the first rain, with 385,000 attendees expected overall. A press release was sent out to inform residents we were aware of the gravity of the situation, of the scope of work we were doing, when to expect the influx of mosquitoes, and how to protect themselves.
- **Use personnel to the fullest but safest extent possible-** Working 12-hour days and weekends were necessary in order to larvicide in a timely manner. High water levels, unpassable roads and washouts however, put them at risk. Use common sense; it’s never worth risking safety in order to cover an extra

acre of ground. Crews were called off one morning to allow waters to recede, maps were utilized to note unsafe or unpassable roads and certain treatment areas were completely off limits until water levels receded.

- **Get a jump ahead-** Fortunately with adulticiding you have a week’s notice to prepare your response! As pupae became scarce, adulticiding strategies had already been decided before adult mosquito counts drastically elevated.
- **Cross train employees** – All larviciders at BCMC are cross-trained to adulticide. They are scheduled to a weekly stand-by list to adulticide when extra drivers are needed. This worked significantly this summer as we were able to increase our normal 10-vehicle ULV fleet to a capacity 15 trained adulticiders each night without begging for volunteers.
- **Learn from the past-** The past two summers have seen 6” rain events hit late in the season. From those experiences we had seen benefits from adulticiding an extra hour each night, increasing the ULV application rate temporarily when counts spiked, and putting a temporary hold on special-area sprays like golf courses and backyards in order to cover more homes each night. Based on what we’ve learned, we were able to immediately utilize those methods.
- **Think about whom you are serving** – As a millage-based program, we work for the residents of Bay County. With flooding and a disease-presence, this was the time residents needed us the most and there was no greater time for us to respond to the fullest. Any hesitations about the costs of overtime, extra product purchases, or working weekends were set aside. Remember this is why we are here and when we are needed most!

Employee appreciation -Recognizing the work of our employees is essential. Without our field crew a response is not possible, so we try to find ways to show our appreciation. When our program resumed back to normal, we had a meeting with each shift with a few words to thank them, acknowledge what they accomplished, and most importantly celebrate with donuts and pizza! Undoubtedly, the most important tool BCMC had in response to the flooding was great staff. Everyone sprang into action combining years of institutional knowledge with new ideas, fresh attitudes, and a motivated seasonal staff, to create an impressive response.

MMCA 7F Training Session
Monday, October 23, 2017
8:00am to 5:00pm



Register Early
LIMITED SEATING

- Mosquito Biology
- Common MI Mosquitoes
- Mosquito-borne Disease
- Surveillance
- Regulatory Concerns
- Evaluating Insecticide Use
- Larviciding Techniques/Equip.
- Adulticiding Techniques/Equip.
- Commercial Barrier Treatment

Credits

Receive 8 recertification credits in Core or 7F

Cost

\$75 per attendee

Includes lunch, snacks, and MMCA membership

Registration & Further Details

Online at www.mimosq.org

Contact

Chuck Pearce, Treasurer

989.755-5751; cpearce@scmac.org



CALL FOR:

MMCA BOARD NOMINATIONS

**2018-2020
BOARD**

MMCA encourages anyone with an interest in promoting mosquito control to please consider a position on the Board. We welcome new faces and new ideas!

Open positions:

VICE-PRESIDENT

TREASURER

TRUSTEE (1)

Elections will be held during the Annual Business Meeting

To propose a candidate contact:

Melinda Moreno

989-894-4555

morenom@baycounty.net

CALL FOR NOMINATIONS

MMCA Awards

H. Don Newson

Distinguished Service Award

To give recognition and appreciation to the recipient for his/her meritorious contributions made in the practice of mosquito control, and in support of the MMCA in its endeavor to improve quality of life.

Requirements for Nomination

- The nominee shall be/have been active in the MMCA and shall be a current member in good standing.
- The nominee must have made a highly significant contribution(s) to the field of mosquito control and/or the MMCA with special consideration given to:
 - Contributions and outstanding service to the practice of mosquito control.
 - Activities and services, which bring meritorious recognition to the profession of mosquito control.
 - Highly beneficial contributions and commitment on behalf of the MMCA.
 - Professional involvement and contributions to community health and welfare.

George B. Craig, Jr.

Mosquito Control Advocacy Award

To give recognition and appreciation to the recipient for his/her outstanding contributions of promoting mosquito control and/or MMCA.

Requirements for Nomination

- The nominee may be outside the mainstream of mosquito control practice, a business or industry, a group of people, or one particular individual.
- Membership in the MMCA is not required
- The nominee is to have made an outstanding contribution(s) to mosquito control and/or the MMCA.

DEADLINE: JANUARY 5, 2018

For more information and award applications visit the MMCA website: www.mimosq.org

Scientists Introduce 20 Million Sterile Mosquitoes into California

Whatever their role in the ecosystem may be, the *Aedes aegypti* mosquito is downright dangerous to humans, its bite being the vector for dengue, Zika, chikungunya, and yellow fever. Loathe as we may be to mess with nature, these bugs are unquestionably — if unintentionally — messing with us. Now [Verily](#), Alphabet’s life sciences division, [MosquitoMate](#), and the [Consolidated Mosquito Abatement](#) program of Fresno, CA, are partnering in the [Debug Fresno](#) pilot program to reduce the city’s population of *Aedes aegypti*.



The Debug project began in July of 2017 with the release of a million male *Aedes aegypti* carrying a bacteria, *Wolbachia*, that causes sterility in female

Aedes aegypti. The releases will continue for 20 weeks, until 20 million males have joined the Fresno mosquito population. (As of this writing they’re almost halfway through.) Locals will see a short-term increase in the mosquito population, but male mosquitoes don’t bite. And, while upsetting an existing ecosystem is always a concern, the Debug team notes that *Aedes aegypti* are an invasive species in the area, and thus, reducing their numbers is not expected to cause any problems for local bats, bees, or birds.

The project is using MosquitoMate’s “sterile insect technique,” a method of insect population control that doesn’t involve the use of insecticides. Instead, male mosquitoes that have *Wolbachia* are introduced into a population where they eagerly mate with wild females — what happens, though, is that the resulting eggs never hatch due to a cytoplasmic incompatibility with *Wolbachia*. This quickly reduces the size of the next mosquito generation, and thus their population overall. The males haven’t been genetically modified in any way, nor have their *Wolbachia* bacteria.

Wolbachia is an extremely common bacteria in the insect world, estimated to occur in around half of all species. (It can’t be transmitted to warm-blooded animals like us.) Male mosquitoes make an exceptionally good tool for population control,

of course, because first of all, they don’t bite, so they can be introduced into an area without bothering people or other animals. And second, nothing is better at finding female mosquitoes than male mosquitoes.

MosquitoMate has held successful trials of their sterile insect technique in Kentucky and New York, and elsewhere in California, achieving an over 80% reduction in mosquito populations.

Verily’s role in the project involves leveraging the cutting-edge tech at their disposal as a branch of Alphabet, formerly Google. The Debug website explains, “Our team is developing new technologies that combine sensors, algorithms and novel engineering to raise millions of these sterile mosquitoes and quickly and accurately sort them for release in the wild.” In addition, Verily is also “building software and monitoring tools to guide mosquito releases and new sensors, traps and software to better determine which areas need to be treated and re-treated.”

Fresno became interested in the project after *Aedes aegypti* arrived in nearby Clovis in 2013. The effect was immediate, with a noticeable increase in bites from this invasive, aggressive strain. The *Aedes aegypti* currently in California aren’t carrying any of the diseases they’re capable of carrying, but the community decided to try and get ahead of the problem.

MMCA Presenters Wanted

Charles Dinsmore, Planning Committee Chairperson for the Michigan Mosquito Control Association’s 32nd Conference invites you to offer to give a presentation at the next MMCA conference. The conference will be held on January 31st –February 1, 2018 at the Radisson Lansing at the Capitol. PowerPoint presentations on research or innovative control procedures should be 15 to 20 minutes in length.

Please let me know at (989) 832-8677 if you or someone you know is interested in giving a presentation at the conference.





News From Around The Districts

BAY

The 2017 treatment season will go down in the books as one of Bay County's most significant, as a summer's worth of rain was tallied in a matter of days. Portions of Bay County received record flooding at the end of June, requiring 4 weeks of extended larviciding and adulticiding in response through July. CDC trap counts numbered in the thousands over a few weeks with species ranging from typical floodwater species of *Aedes vexans* to *Psorophora ferox* to even some *Aedes canadensis*. Citizen requests were near constant for almost 3 weeks and peaked at around 150 calls a day in mid-July. Our greatest asset in responding to the flood was our outstanding staff who worked together diligently during an extremely demanding 4 week period.

With the assistance of Bay County Emergency Services, Bay County Mosquito Control is eligible to receive a portion of flood response dollars back through the Section 19 Flood Response Grant. It is estimated that BCMC spent in excess of \$35,000 beyond normal treatment costs in response to the flooding.

West Nile virus activity in Bay County was more elevated this year than in recent past with 22 birds, 16 of 472 mosquito pools, and a blood donor testing positive for the virus as reported through the Health Department.

An August tire drive in Fraser Township collected 995 tires and we have been promptly reimbursed through the MDEQ Scrap Tire Grant.

We were fortunate to have a dry August and September that kept nuisance species at bay and allowed our exhausted staff to recoup, however warm temperatures and increased West Nile virus disease activity kept our treatment season on-going until September 29.

A number of public outreach opportunities took place this summer with presentations to local township officials and the YMCA, displays at the Farmers Market and Consumers Energy Family Day, and an open house during the Bay County Fair. Active involvement with local work groups included the Bay City Public Schools STEM program, Bay City/Bay County GIS work group, MiCAMP, Saginaw Bay Watershed Initiative Network State of the Bay conference, and the Saginaw Bay CISMA phragmites boat tour.

TUSCOLA

This season will be remembered for a long time for the many challenges.

June storms brought major flooding which impacted the upper portion of Tuscola County, while the low lying areas were not greatly impacted.

June 1st Biologist, Gavin Greer presented an educational program to the second graders at Caro Elementary.

Gavin was also kept very busy this season with an unusually high number of WNV positive mosquito pools, 540 pools were sent to MSU for testing with 84 of those being positive, all were from our sewage lagoons. However the lab has been re-testing these pools with some coming back negative. We tested eight crows in house this season with one testing positive for WNV.

After some investigating it was found that the water levels in the lagoons were kept down due to a state inspection that was due this year, allowing weeds to grow around the perimeters of the ponds making an ideal breeding location.

Tuscola County held eight tire drives throughout the county collecting over 4000 tires.

We also have been testing a Monitor 4S model variable flow monitor in one of our trucks this season with great results.

We look forward to attending the upcoming 7F Training day in October.

As predicted in July, the excessive rainfall in June, which caused flooding along the Tittabawassee and Saginaw Rivers, produced a very large nuisance mosquito population. This near historical nuisance challenged control operations for nearly a month in portions of the County. As nuisance populations subsided in late July, West Nile virus (WNV) activity continued to increase. Currently our routine mosquito borne disease surveillance has found 30 corvids (crows and blue jays) and 14 mosquito samples positive for WNV. This is a marked increase in WNV activity when compared to the past couple years where we recorded only 9 and 8 positive corvids. All crews and equipment were very busy addressing both nuisance and virus activity.

Our control response to July's nuisance comprised of additional spray shifts; working weekends and overtime; and limiting the number of special yard treatments. The latter is necessary as it allows our operations to move throughout the community in a judicious and effective manner. Spraying from the roadways allows for a greater community impact as a truck can treat 30 miles of road compared to just 18 yard treatments in a normal spray shift. Additional control efforts have been utilized to address the habitats responsible for producing the WNV carrying Culex mosquitoes; including multiple treatments of catch basins, neglected swimming pools, tires, and sewage lagoons. Our staff has done an exceptional job in addressing and responding to citizen concerns, whether it was from the office or the field.

As of writing this report, dry weather has halted most nuisance activity. However, the intentional flooding of State land for waterfowl has resulted in substantial nuisance for communities along its border. The MDNR's September flooding normally is not a problem as normal fall temperatures prohibit sustained nuisance. However, this year's very warm fall has increased the length of our season allowing for October nuisance. We are looking forward to the return of seasonal temperatures and the absence of nuisance and arbovirus.

Our source reduction efforts resulted in over 7,000 scrap tires being removed from Saginaw County's environment this season. Tires were collected at our facility and two, week long tire drives.

Our Education Department is currently back in local schools with multiple presentations scheduled. This summer the department engaged citizens at multiple community events addressing questions and concerns in regards to mosquitoes, mosquito-borne disease, and their control; events included the Saginaw County Fair, Friday Night Live, Children's Zoo, and Saginaw County Park events.

We are now catching our breath after a truly extraordinary season. The flood in June has got to be the most significant mosquito event in MCMC's history. Sure, we have suffered floods before, but never one of this size that occurred at the opportune time of late June. As a result, it was the "perfect storm" – literally - that triggered a mass hatch of both spring and summer *Aedes* species. This was of course also during the time of maximum *Coquillettidia perturbans* emergence, which come from cattail marsh habitats. This made it unbearable for many in the county, several of whom let us know about it. I am very grateful to the crew, who stepped up to the challenge, many working several hours of overtime and coming in at night to fog after working a full day shift as well. Joyce and Cody in the office answered thousands of trouble calls and returned every call that went to voicemail during the height of the phone traffic. The Biology crew kept up with the WNV surveillance and counted more mosquitoes from traps than ever.

As if the mosquitoes were not enough, a significant level of West Nile virus was observed this season as well. Twenty nine birds tested positive for WNV. Compare this to our average of four positive birds per season, and until 2017 the most we had seen in a single season was 16. Furthermore, the first WNV positive horse in the county was observed. As of 4 October, there have been no reported human cases. We keep our fingers crossed.

As a result of the high level of WNV activity and warm weather into September, our crews continued nighttime fogging an additional 2 ½ weeks.

As a result of the staff's response to the challenges of 2017, the Midland County Board of Commissioners recognized the entire mosquito control department during an employee appreciation ceremony. Well deserved.

With the lessons learned from this season fresh on our minds, we consider ways we can better prepare and respond to future floods and disease threats with the goal of always improving.

Things now are winding down after a whirlwind of a year. There will be plenty to discuss and present on at the coming MMCA meeting. Hope all have a great fall!

Mosquitoes Spread Deadly Diseases, and Public Health Experts Hope to Fight Back with this New Emoji

Mosquitoes are more than a spoiler of backyard barbecues. They threaten more than half the world's population with their disease-spreading bites. In fact, mosquitoes are deadlier — by far — than sharks and snakes.

They are the incubator and chief disseminator of malaria, dengue and yellow fevers, as well as newer scourges like the West Nile and Zika viruses. Their numbers explode with floods, hurricanes and climate change, allowing them to outnumber every animal on Earth during their peak breeding season. Public-health officials fret about them 24/7.

So how is it that this fearsome creature has no emoji?

Check your phone: You've got a honey bee, a caterpillar, a spider, an ant and a ladybug, not to mention all manner of mammals, birds and sea creatures.

But no mosquito!

That oversight cries out for a fix, according to a pair of public-health specialists. That's why they have [petitioned](#) a group called the Unicode Consortium to include a female mosquito — the only kind that bite humans and spread disease — in the next batch of emojis that will be available on smart phones next year.



The mosquito is one of 67 finalists. It's up against a llama, a tooth and a lab coat, among other contenders. If chosen, the emoji mosquito could begin spreading over our digital networks just as real mosquitoes set out from their watery habitats across the tropics and northern hemisphere in search of human blood to nourish their eggs — next summer.



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

Fall