Skeeter Scanner

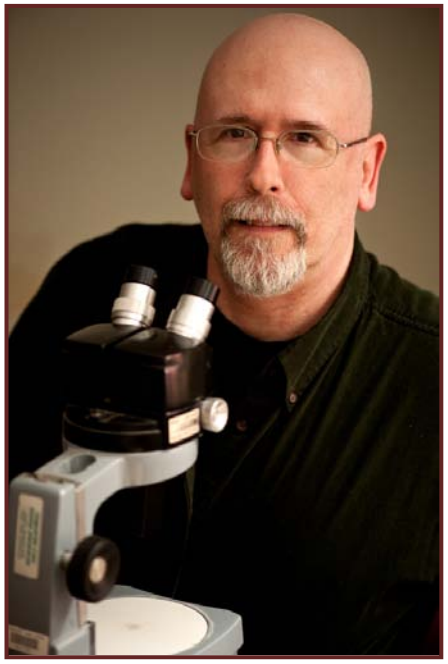
July, 2013 Volume 26, Number 4

THIS ISSUE:

PUBLISHED BY THE *MMCA* PUBLIC INFORMATION AND EDUCATION COMMITTEE

www.mimosq.org

President's Message



What is an association? What is it worth? What does it cost and what does it give? Why participate in MMCA?

According to Merriam-Webster.com the definition of association: (noun) an organization of persons having a common interest.

What is the value or our association? How do we serve our communities and our industry? I would suppose it is different for each individual, but here is what I see: People that belong to the same profession, actively working on getting better. A group of people that can help answer the public's questions and understand the daunting task of controlling mosquitoes. People that know, once the mosquitoes are flying it really is too late to go spray the pond.

I think MMCA offers us a chance to serve people that need our expertise. MMCA Presidents are hunted down to give interviews (a revelation to me), but it is more than that. We have opportunities to teach younger members (Yay! for school day), to give ideas and experiences of past seasons and to share our knowledge of materials and techniques that control mosquitoes. Having a network of people that can serve like this is worth well beyond the $15 a year membership fee.

So we have an association of scientists, applicators, map makers, vendors, researchers, inventors, developers, students, professors, men, and women. Some of the resources found in this association; ideas, opportunities, friends, techniques, training credits, new research, new materials, data, contacts, knowledge and history. This is also an opportunity to serve those that need our help. Answer a phone call or the e-mail of some person that is in desperate need of relief from blood thirsty mosquitoes and realize that our knowledge and contacts are important.

At this time we are having a typically non-typical year: large early rain events, lots of mosquitoes, lots of work. Some of us have seen large numbers of *Aedes sticticus*, now the *Ae. vexans* and *Cq. perturbans* appear. We are ever vigilant for outbreaks of West Nile Virus and other mosquito born diseases. It is good we have an organization of persons having a common interest.

Peace,

Doyle Allen

Boy Paralyzed After Contracting West Nile virus

Travis Thelen of Fowler, Michigan looks like a typical 10-year-old boy enjoying his summer. But this past year has been anything but typical for him. The first hint of trouble came last August. "He just started running a fever one day and complaining of a bad headache," said Travis' mother Marti Thelen.

Thelen said the fever faded, but he developed another problem. When Travis began falling down, they realized something was seriously wrong.

"They admitted us into Sparrow Hospital. That was on Friday. By Sunday he wasn't walking at all. It went from a fever to not walking," his mother said. The weakness spread to his left arm and hand. The diagnosis was West Nile virus.

"The nurse came into the room and she said, 'Wow! They are thinking he has the West Nile virus, that is rare in children,' And I said, 'I'm not worried about that,' and she said, 'You might want to be,'" said Thelen. "The day they sent us home in a wheelchair was the worst for him…for me, because you don't know."

Last summer, West Nile virus sickened 5,674 people across the United States — 286 people died. Michigan was especially hard-hit. "These viruses tend to pop up in cycles sometimes," said Dr. Michael Kaufman (MMCA member), a mosquito expert at Michigan State University.

Kaufman's lab tests thousands of pools of mosquitoes each summer, looking for the West Nile virus and other illnesses.

"They are not the type that you find swarming on you during the day," he said. These mosquitoes are sneakier and nicknamed "house mosquitoes" because they often sneak in through holes in screens. They typically feed between dusk and dawn and actually prefer to bite birds.

These mosquitoes breed in stagnant water, such as storm drains and flower pots. They favor the very hot, dry conditions of last summer.

"If you get into a more typical summer pattern of rainfall, that can actually flush them out of their habitat," Kaufman said.

Kaufman says this summer's early and frequent rains should help reduce the risk of West Nile, but the threat is still there.

At the Michigan Department of Community Health, Dr. Kimberly Signs warns they expect to see human cases in Michigan this summer.

"People need to be aware that when they are outdoors and recreating, they should use mosquito repellent," said Signs. "These mosquitoes live around our home, they breed around our homes in small collections of water, so you need to check around your house, empty any buckets or pails, make sure your screens and windows are in good repair."

Travis spent countless hours in therapy learning to walk again. His spirits were lifted by visits from the Fowler High School football team and the Michigan State basketball team.

Now, 9 months later, the Thelens call Travis their "walking miracle." He is still regaining his strength but is looking forward to playing 5th grade basketball in the fall.

Marti Thelen said she use to avoid putting repellents with DEET on her kids because she was worried about the chemicals. She has changed her mind about that and now makes sure everyone is protected against mosquitoes before heading outdoors.

"The attitude has changed. We are much more knowledgeable about mosquitoes than we were," said Thelen. "I don't want people to be afraid. West Nile virus really isn't a big deal for most people. It is rare, severe cases that end up like Travis. I don't think people should shut themselves up in their houses, but don't be afraid to use the mosquito spray and just be aware."

View video at:
http://www.ksn.com/2013/06/26/boy-paralyzed-after-contacting-west-nile-virus

ACSH sets Ocean Beach straight: Mosquito Spraying is the Right Thing to do.

Every so often you can make a difference.

When American Council on Science and Health's (ACSH) Dr. Josh Bloom, a long time resident of Ocean Beach on Fire Island, learned that his close friend Jim Capuano— a six year survivor of stage-4 colon cancer— nearly died last year from West Nile encephalitis, he knew he had to at least try to do something.

The problem was a counterproductive policy that was instituted by the village decades ago—opting out of the annual mosquito control program conducted by the Suffolk County Department of Health. Suffolk County has been routinely spraying virtually all of Fire Island for years, but Ocean Beach routinely refused to participate.

Why? Chemophobia—an irrational fear of all chemicals. Which in this case was not only unfounded, but almost tragically so. The chemical in the spray is harmless, but West Nile is certainly not.

Watch the video at: http://acsh.org/acsh-sets-ocean-beach-straight-mosquito-spraying-is-the-right-thing-to-do/

Malaria Infected Mosquitoes Express Enhanced Attraction to Human Odor

Mosquitoes carrying the malaria parasite are more attracted to human body odor than uninfected insects, a study suggests. Researchers found that infected insects were three times more likely to be lured towards a human scent. They believe that the deadly parasites are seizing control of their biting hosts and boosting their sense of smell.

Dr. James Logan, from the London School of Hygiene and Tropical Medicine (LSHTM), said: "One thing that always surprises me about parasites is how clever they are. They are these ever-evolving organisms that seem to be one step ahead of us the whole time."

To carry out the study, the researchers infected malaria mosquitoes (*Anopheles gambiae*) with the most deadly form of parasite, *Plasmodium falciparum.*

They placed about 100 of the infected insects into a container, along with some nylon stockings that had been previously worn by volunteers for 20 hours. "This is a very effective way of collecting body odor... the odor can remain attractive for months," explained Dr Logan. The scientists repeated the experiment with uninfected insects. They found that mosquitoes carrying the deadly parasite were three times more likely to be attracted to the smelly stockings. The scientists believe this is because the tiny parasitic organisms are manipulating their hosts' sense of smell.

Dr. Logan said: "We think it is giving them a heightened sense of smell. We are hypothesizing there is an alteration somewhere in their olfactory system that allows them to find us quicker."

By making humans a more attractive target, the parasite is more likely to be passed into the blood stream - ensuring its survival and continuing the spread of the deadly disease.

The researchers will now begin a three-year project, funded by the Biotechnology and Biological Sciences Research Council (BBSRC), to learn more about how the parasites are doing this.

Dr. Logan said that understanding how the malaria-infected mosquitoes respond to human odor could help them to fight the disease.

He said: "If we know how the parasite is able to manipulate the olfactory system... perhaps we can identify new attractants for infected mosquitoes and we will be able to increase our efficiency with trapping techniques."

The research **is published in the journal Plos One**. http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0063602

Joe Conlon Speaks at MMCA Conference

One of the presenters at the 2013 conference in Bay City was Joe Conlon, technical adviser for the American Mosquito Control Association.

Joe's presentations were given in a folksy easy to listen to manner; very entertaining and informative. Not often can one hear of stories about limos and Jessica Alba seamlessly worked into a mosquito control conference.

Members of MMCA should be honored to have people of national prominence come to Michigan with such amazing ability to educate us and inform us from a national perspective. MMCA is fortunate to have speakers like Mr. Conlon presenting and attending our conference. Such speakers give us an opportunity to visit and ask questions of experts with experience and perspective that most of the time we just don't have access.

EPA Announces New Guidance and Policies for an Integrated Approach to Pesticide Testing and Assessment

The EPA is announcing the release of five new policies and guidance documents to advance the Pesticide Program's (OPP) "Strategic Direction for New Pesticide Testing and Assessment Approaches." This document creates a framework for hypothesis-based, systematic integration of exposure and hazard information to assess pesticide risk. OPP's strategic direction is consistent with the 2007 and 2009 National Research Council reports, "Toxicity Testing in the 21st Century: A Vision and a Strategy" and "Science and Decisions: Advancing Risk Assessment." These actions are significant milestones toward the agency's longer term vision for a paradigm shift to 21st Century science.

OPP's new guidance for employees complements and strengthens existing guidance for ecological and human health risk assessment. Together, they are designed to optimize the use of existing knowledge, to provide consistency in our data collection process, and to help our scientists focus on the data needed to reliably support registration decisions that protect public health and the environment while avoiding the generation and evaluation of data that does not materially influence the scientific certainty of a regulatory decision. These guidance documents include:

- "Guiding Principles for Data Requirements" will help guide the identification of data needs for the registration of new pesticides and uses and re-evaluation of existing pesticide uses.
- The "Part 158 Toxicology Data Requirements: Guidance for Neurotoxicity Battery, Subchronic Inhalation, Subchronic Dermal and Immunotoxicity Studies" provides guidance for conducting a weight-of-the-evidence-based evaluation of data needs and requests for waiver. It also addresses how to incorporate the determination into the risk assessment.
- OPP's Guidance for Selecting, Identifying and Evaluating Open Literature Studies in ecological and human health risk assessments provide guidance for staff in their evaluation of open literature studies of pesticides.

The Pesticide Program is also announcing two new policies that will reduce animal testing through the use of state-of-the-science methods for a more effective and efficient testing and assessment paradigm for chemical risk management:

- The EPA will now accept an alternate testing framework for classification of eye irritation potential for labeling EPA-registered antimicrobial pesticide products with cleaning claims in lieu of the currently used animal test. This new policy, Use of an Alternate Testing Framework for Classification of Eye Irritation Potential of EPA Pesticide Products follows a successful pilot program launched in 2009.

Our new policy on Combining Genotoxicity Testing with Standard Repeated Dose Toxicology Testing. encourages the incorporation of genotoxicity endpoints into routine toxicology studies where scientifically feasible.

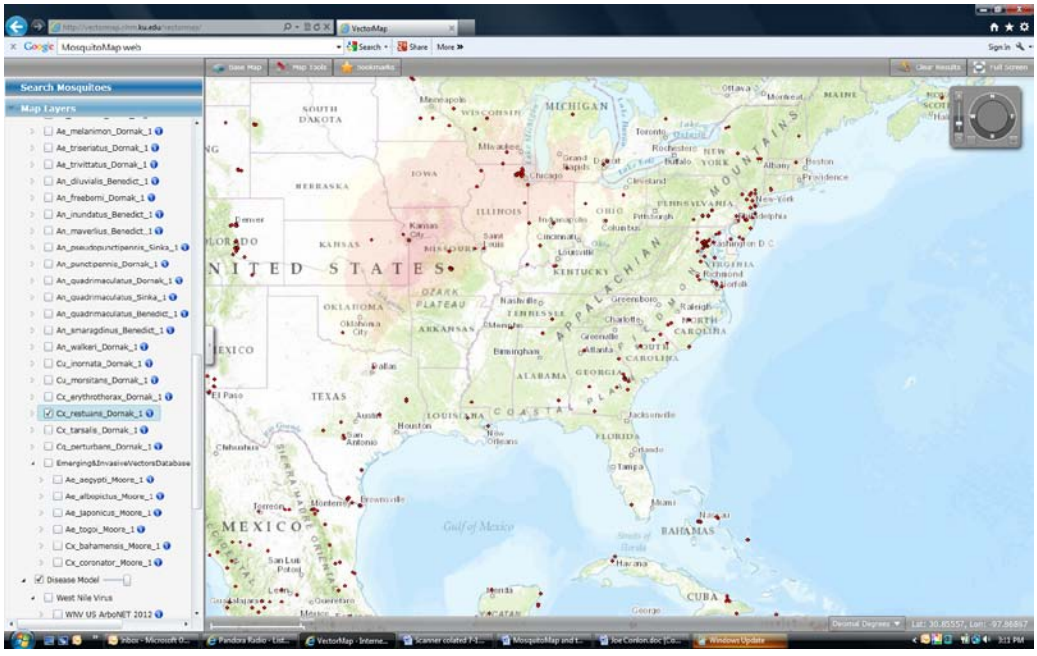
MosquitoMap and the Mal-area Calculator: Web Tools to Relate Mosquito Species Distribution with Vector Borne Disease

Mosquitoes are important vectors of diseases but, in spite of various mosquito faunistic surveys globally, there is a need for a spatial online database of mosquito collection data and distribution summaries. Such a resource could provide entomologists with the results of previous mosquito surveys, and vector disease control workers, preventative medicine practitioners, and health planners with information relating mosquito distribution to vector-borne disease risk.

A web application called MosquitoMap was constructed comprising mosquito collection point data stored in an ArcGIS 9.3 Server/SQL geodatabase that includes administrative area and vector species x country lookup tables. In addition to the layer containing mosquito collection points, other map layers were made available including environmental, and vector and pathogen/disease distribution layers. An application within MosquitoMap called the Mal-area calculator (MAC) was constructed to quantify the area of overlap, for any area of interest, of vector, human, and disease distribution models. Data standards for mosquito records were developed for MosquitoMap.

MosquitoMap is a public domain web resource that maps and compares georeferenced mosquito collection points to other spatial information, in a geographical information system setting. The MAC quantifies the Mal-area, i.e. the area where it is theoretically possible for vector-borne disease transmission to occur, thus providing a useful decision tool where other disease information is limited. The Mal-area approach emphasizes the independent but cumulative contribution to disease risk of the vector species predicted present. MosquitoMap adds value to, and makes accessible, the results of past collecting efforts, as well as providing a template for other arthropod spatial databases.

Know the vector, know the threat!



MosquitoMap is a product of the Walter Reed Biosystematics Unit based in the Smithsonian Institution. MosquitoMap http://www.mosquitomap.org is a geospatially referenced clearinghouse for mosquito disease vector species collection records and distribution models within VectorMap. Users can pan and zoom to anywhere in the world to view the locations of past mosquito collections and the results of modeling that predicts the geographic extent of individual species. Collection records are searchable and downloadable, users can map and contribute their own georeferenced collection data or distribution models, and all contributions have full attribution. Currently, MosquitoMap has **314,443 collection records**, for over **140 countries**.

The complete electronic version of this article can be found online at: http://www.ij-healthgeographics.com/content/9/1/11

West Nile virus and other arboviral activity – United States, 2013
Provisional data reported to ArboNET – Tuesday, July 9, 2013

This update from the CDC Arboviral Diseases Branch includes provisional data reported to ArboNET for January 1 – July 9, 2013 for nationally notifiable arboviruses other than dengue.

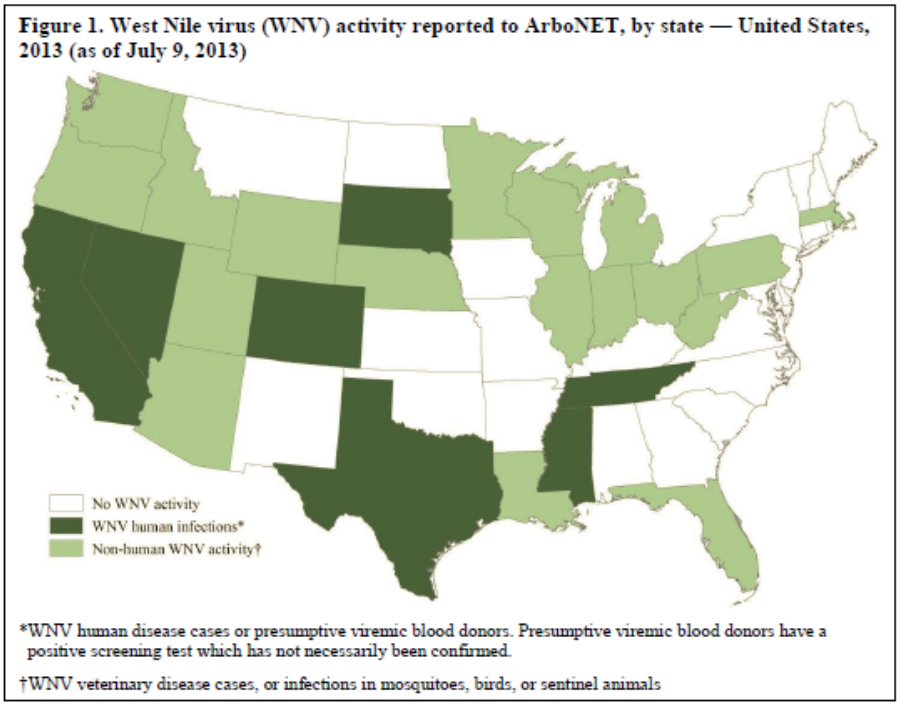


Figure 1. West Nile virus (WNV) activity reported to ArboNET, by state — United States, 2013 (as of July 9, 2013)

*WNV human disease cases or presumptive viremic blood donors. Presumptive viremic blood donors have a positive screening test which has not necessarily been confirmed.

†WNV veterinary disease cases, or infections in mosquitoes, birds, or sentinel animals

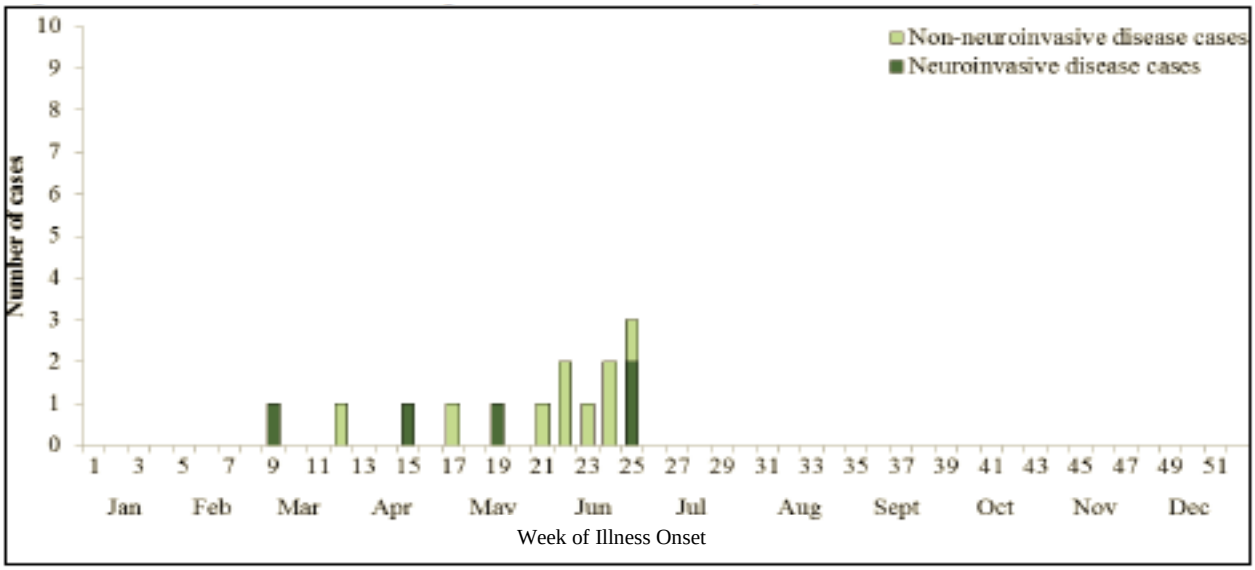
West Nile virus (WNV) activity in 2013

As of July 9th, 93 counties in 25 states and the District of Columbia have reported WNV activity to ArboNET for 2013, including seven states with reported WNV human infections and 18 additional states with reported WNV activity in non-human species only.

Reported WNV disease cases

To date, 14 WNV disease cases (five neuroinvasive and nine non-neuroinvasive) have been reported from seven states.

Figure 2. WNV disease cases reported to ArboNET, by week of onset – United States, 2013nset



Other reported mosquito disease cases

West Virginia reported on case of LaCrosse encephalitis in a non-human species. Florida reported two cases of St. Louis encephalitis in non-human species. Florida has reported 2 cases of human Eastern equine encephalitis (EEEV). Florida and Georgia have reported EEEV activity in non-human species.

Eat More Insects; Good for you, Good for the World

The latest weapon in the U.N.'s fight against hunger, global warming and pollution might be flying by you right now.

Edible insects are being promoted as a low-fat, high-protein food for people, pets and livestock. According to the U.N., they come with appetizing side benefits: Reducing greenhouse gas emissions and livestock pollution, creating jobs in developing countries and feeding the millions of hungry people in the world.

Two billion people do, largely in Asia, Africa and Latin America, the Rome-based U.N. Food and Agriculture Organization said Monday as it issued a report exploring edible insect potential.

Some insects may already be in your food (and this is no fly-in-my-soup joke). Demand for natural food coloring as opposed to artificial dyes is increasing, the agency's experts say. A red coloring produced from the cochineal, a scaled insect often exported from Peru, already puts the hue in a trendy Italian aperitif and an internationally popular brand of strawberry yogurt. Many pharmaceutical companies also use colorings from insects in their pills.

Scientists who have studied the nutritional value of edible insects have found that red ants, small grasshoppers and some water beetles pack (gram-per-gram or ounce-per-ounce) enough protein to rank with lean ground beef while having less fat per gram.

Bored with bran as a source of fiber in your diet? Edible insects can oblige, and they also contain useful minerals such as iron, magnesium, phosphorous, selenium and zinc.

Beetles and caterpillars are the most common meals among the more than 1,900 edible insect species that people eat. Other popular insect foods are bees, wasps, ants, grasshoppers, locusts and crickets. Less popular are termites and flies, according to U.N. data.

Insects on average can convert 2 kilograms (4.4 pounds) of feed into 1 kilogram (2.2 pounds) of edible meat. In comparison, cattle require 8 kilograms (17.6 pounds) of feed to produce a kilogram of meat. Most insects raised for food are likely to produce fewer environmentally harmful greenhouse gases than livestock, the U.N. agency says.

Edible insects are a money-maker. In Africa, four big water bottles filled with grasshoppers can fetch a gatherer 15 euros ($20). Some caterpillars in southern Africa and weaver ant eggs in Southeast Asia are considered delicacies and command high prices.

Insect-farms tend to be small, serving niche markets like fish bait businesses. But since insects thrive across a wide range of locations - from deserts to mountains - and are highly adaptable, experts see big potential for the insect farming industry, especially those farming insects for animal feed. Most edible insects are now gathered in forests.

A 3 million euro ($4 million) European Union-funded research project is studying the common housefly to see if a lot of flies can help recycle animal waste by essentially eating it while helping to produce feed for animals such as chickens. Right now farmers can only use so much manure as fertilizer and many often pay handsome sums for someone to cart away animal waste and burn it.

A South African fly factory that rears the insects en masse to transform blood, guts, manure and discarded food into animal feed has won a $100,000 U.N.-backed innovation prize.

Details about the U.N. Food and Agriculture Organization's work on edible insects at: www.fao.org/forestry/edibleinsects

News From Around The Districts

SAGINAW

Due to the heavy rains we received in April our season started out with high densities of floodplain mosquitoes. This was followed by our annual hatch of spring *Aedes* mosquitoes in late May followed by two significant hatches of floodwater mosquitoes in June. Additional rain received in late June left more standing water that should produce a third brood of floodwater mosquitoes that will be hatching in the second week of July. At times mosquito trap counts have been very high resulting in the need to suspend personalized yard spraying so we can focus on community-wide mosquito control applications. Not only have the climatic conditions stretched our resources with numerous broods of mosquitoes but our seasonal staff is about 50% new employees thus significant training has been required making the first few months of our control season very challenging.

On June 20th we received our first detection for West Nile Virus (WNV) from a dead crow collected in the City of Saginaw; followed by a second detection in a crow a few days later in the vicinity of the first detection. Due to the cold spring these detections were earlier than expected. Our disease surveillance monitoring programs will be conducted through the end of September and we will respond with aggressive larviciding and adulticiding control efforts in areas of WNV detections throughout the summer.

Summer activities for our Education Department will include participation at Camp Kazoo (Arrowwood School): Girl Scout Camp (Camp Kiwanis); Step by Step (Arrowwood School); Play Date Water (County Parks); Birds, Bugs Butterflies (Children's Zoo); Consumers' Family Fun Day; Leaps and Bounds Learning Center (Birch Run); Play Date Bugs (County Parks); Family Fun Day (County Parks); and St. Stephens Day Care.

Our third and final tire drive of the season will be held the week of July 22-26th. The hours for this drive will be 2:30pm – 7:00pm to provide the convenience of evening tire drop off. This year we will be accepting tires at our facility through August 30th.

Our agency will also be hosting its annual blood drive on July 24th from 1:00pm – 6:00pm and walk-ins are encouraged.

MIDLAND

NPDES: I guess that hope springs eternal in the mind of a fool because I am still waiting for the possibility of legislative relief from the regulatory burden of Clean Water Act NPDES permits for mosquito control pesticide applications. Language to provide this relief is included in the House version of the 2013 farm bill but they have not been able to bring this bill to a vote. I continue to exercise and try to eat healthy foods in the hope that I might live long enough to see this through. Stay tuned.

Mosquitoes: What a difference a year makes. Last year we saw a warm spring and something disrupted the emergence of spring mosquitoes to the point that we had a relatively peaceful start to the summer. 2013, however, has been characterized by plentiful, ill-timed rains and more mosquitoes than our residents are used to experiencing.

WNV: As you may have heard, West Nile virus has already been reported from birds in Gratiot and Saginaw Counties. No human cases have been reported from Michigan to-date but human illness has been seen in six states from Mississippi to South Dakota and California. If you have not already done so, now is the time to be on the lookout and to prepare for the possibility of increased activity here in Michigan. From personal protection to public education to community mosquito control, every little bit helps.

BAY

The annual spring woodland-pool treatment program marked the beginning of BCMC's mosquito control season, but began uncharacteristically late on April 26. Control efforts included aerial larviciding (about 40,000 acres) using 2-3 fixed-wing aircraft (Earl's Spraying Service, Inc.), with the focus on areas near cities, towns and large developments. The big change this year was that no helicopter was utilized as an application technique during the spring program. Spring mosquito species emerged as adults by May 15, but were not much of a problem except for untreated areas in the northernmost portions of the county.

An average of four inches of rain (but upwards of five inches in some areas) fell in the last 10 days of May causing adult floodwater mosquitoes (both *Aedes vexans* and *Aedes trivittatus*) to emerge around June 10th. Three weeks later, they're still plaguing Bay County residents, but we're beginning to see trap counts on the decline. June was pretty dry up until the period of June 27-29, when an average 1" was recorded (range 0.6-2.0") in the rain gauge network. We've already seen the arrival of *Coquillettidia perturbans*, the cattail marsh mosquito, especially along the Saginaw Bay.

Throughout the warm weather months, BCMC will continue to treat larval or adult mosquitoes originating from woodlots, floodplains, freshwater wetlands, grassy fields, wet meadows, roadside ditches, ponds, catch basins, as well as containers. We've treated ditches in townships that have received enough rain to trigger a mosquito hatch and been back in woodlots and floodplains treating larvae. The number of complaint calls has been high county-wide for the last two-thirds of June with calls diminishing in July (at least until the next big hatch)!

Two training sessions were held for both new and returning seasonal staff members to prepare them to test with the MDA as certified technicians. Most started working by mid May and will be with us until the end of August.

Public education efforts continued with information distributed regarding artificial containers and basic homeowner control techniques. Presentations were given at Auburn Elementary School and Hampton Elementary School.

We continue to monitor for West Nile virus this season by testing American Crows and Blue Jays using the VecTest kit and by submitting mosquitoes to MSU. Through June 30, we have tested no birds, but have submitted 59 mosquito pools containing 1,189 adult females to MSU; nothing positive has been detected.

A few other items of interest: a scrap tire drive was held May 18 with 2,600 tires collected; this tire drive was held concurrently at the Bay County Fairgrounds and Fraser Township Park and the cost of holding the drive will be off-set by a MDEQ $3000 Scrap Tire Grant. We will be looking at a couple permethrin-based adulticides as the summer goes on.

TUSCOLA

As we patiently awaited the arrival of spring this year we began our treatment of spring flooded woodlots in mid April. Mother Nature then provided us with over nine inches of rain over the next few weeks along with the most impressive hatch of mosquitoes we have on record. Early May began with technicians being trained and learning their routes. Adulticiding efforts began on May 15th and almost immediately crews began working overtime and weekends to obtain some control.

We received an overwhelming number of calls into our office requesting yard treatment. Crews were able to accommodate these requests by working seven days a week for the first time in our history. July has brought us much more reasonable trap counts and more normal conditions. Roadside ditch treatment is underway as well as the treatment of catch basins throughout the County. Sewage lagoons are being monitored and treated on a regular basis.

We have hosted seven tire collections around the County to date with several more planned, Mosquito Abatement will be hosting a trailer on July 13th.

In May MMCA members Tom Wilmot, Randy Knepper, and Mike Hanley attended AMCA's 15th annual Washington Conference. Besides the interesting presentations from various federal agencies the highlight of this conference is the day spent on the Hill talking with our legislatures discussing mosquito related issues. This year's position papers focused on the four items listed below:

1. Clean Water Act NPDES Permit Impacts on Mosquito Control Programs
2. Endangered Species Act Considerations and Mosquito Control
3. Epidemiology and Laboratory Capacity Grants for Mosquito-borne Disease Surveillance
4. Mosquito Control on National Wildlife Refuges and Federal Lands

L-R: Randy Knepper, Dr. Tom Wilmot, Representative Dan Kildee, and Mike Hanley

Please remember you don't have to go to Washington to participate in the political process. All legislators have local offices, can be emailed, or an old fashioned letter will still get their attention!

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

Summer