



# Skeeter Scanner

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INFORMATION  
AND EDUCATION  
COMMITTEE**



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

Here is the latest news from the MMCA as we find ourselves in the midst of a busy mosquito season. Heavy rains have been creating a breeding ground for mosquitoes state-wide and mosquito numbers are on the rise. Mosquito districts in the state have been proactive in their larviciding work, but there are still high adult mosquito populations. We have all found ourselves responding to high trap counts and phone calls from residents requesting relief. It's shaping up to be a demanding year, no doubt.



I think you will see that several of our officers and leaders have been quite active with allied organizations. Dr. Tom Wilmot who chairs the MMCA's NPDES (National Pollution Discharge Elimination System) Committee was joined by Randy Knepper to represent the MMCA at the State of Michigan NPDES June 11 stakeholder meeting. According to Dr. Wilmot, the meeting was devoted primarily to a review of the EPA's proposed draft policy that will serve as a template from which to develop the Michigan permit. A few main points that need further clarification include: "What does "near water" mean?" and "Who needs to apply for the permit – land owner or applicator?" The MDNRE is considering making four separate permits, one for each type of pesticide application, so each permit can be more detailed. The plan, according to Dr. Wilmot, is to develop the mosquito control permit first. More meetings are planned for July, August, and September.

Some of you may have tuned in to the EPA's webinar broadcast on June 24 discussing the NPDES permit process, but for those who did not get a chance, a copy of the webinar as well as other NPDES info is available at the EPA website: [www.epa.gov/npdes/pesticides](http://www.epa.gov/npdes/pesticides). Please remember that the NPDES Draft General Permit has a 45-day public comment time frame that will remain open through July 19, so take the time to read through the permit (also available on the EPA's website) and submit your comments directly. This is our time to speak up to help shape the future of mosquito control in Michigan.

In the past year and a half, the Board has attempted to forge new relationships with associations such as the Michigan Townships Association (MTA) and Michigan Association of Counties (MAC) as a means for educational outreach. The Board was recently contacted by MAC to attend their 2010 Annual Conference in August at the Amway Grand in Grand Rapids. On August 16<sup>th</sup> there will be a series of educational workshops and mosquito control professionals from among our membership will host a panel discussion on mosquito control. The Board felt that this would be a wonderful opportunity to discuss "Why control mosquitoes?", "How to control mosquitoes.", "Funding", and other pertinent topics with audience members who have the power to act.

The next 6 months will surely bring some changes to the way we do mosquito control in Michigan and I hope the next newsletter will bear good news as we work toward an NPDES permit that is workable for us all.

*Mary J. McCarry*

## Tracking Disease Through Mosquito Slobber

You're drooling. Researchers hope to create a quick, efficient technique for monitoring mosquito-borne disease movement by analyzing the saliva mosquitoes leave on honey-coated paper.

This is nothing to spit at: Scientists say they may be able to track deadly mosquito-borne diseases by studying the saliva the insects leave behind when they feed on sugary bait.

Mosquito-borne diseases are a major health hazard worldwide. Some, like malaria, chronically afflict certain regions. But others, such as dengue fever, West Nile virus, and chikungunya, can rapidly emerge in new locations or reappear in areas where they've gone dormant. That means public health officials must keep a constant eye on the diseases' movement.

The usual methods for detecting mosquito-borne viruses all have a weakness: Relying on clinical diagnoses means a disease has already arrived in the population; keeping "sentinel" animals is costly, and the animals themselves provide a food source for mosquitoes; and capturing thousands of mosquitoes and analyzing their RNA is expensive and labor-intensive.

Now, Andrew van den Hurk, a virologist with Queensland Health Forensic and Scientific Services in Coopers Plains, Australia, and colleagues have found a way to monitor mosquito-borne diseases that may be simpler than current methods and suitable for use over large geographic areas. For their new study, the researchers took advantage of the fact that mosquitoes are sloppy eaters: When they feed on a sugar source, the insects leave behind a slobbery mess. Andy van den Hurk and colleagues have found that they can detect viruses in that residue of mosquito spit, as they reported in the *Proceedings of the National Academy of Sciences*.

To prove it, the scientists created box traps that lure mosquitoes with carbon dioxide gas—mosquitoes are attracted to the stuff because it indicates the presence of a breathing animal and therefore a meal—and then suck them inside with a fan. Once

inside the trap, the mosquitoes feed on filter paper soaked with honey—dyed blue so that the color rubs off on the mosquitoes that take the bait. The researchers set out traps in Bunbury in Western Australia and near Cairns, in Northeastern Australia—two historical hot beds of the mosquito-borne Ross River and Barmah Forest viruses. Over 11 weeks, scientists returned to the traps weekly to collect the filter paper and trapped mosquitoes and send them to the lab for analysis.

Whenever the filter paper returned positive results for viral RNA, the labs also found the viruses present in the mosquitoes they'd captured, meaning the filter paper accurately reflected the presence of virus-carrying mosquitoes. The scientists suggest the technique might be able to be modified to detect other diseases like malaria and bluetongue virus.

Honey is antibacterial, so it's an excellent medium for protecting viral RNA from bacteria until researchers return to collect it. The traps can be left out for more than a week, allowing them to set out traps over a relatively large geographical range and check the traps intermittently, the researchers say. Another benefit is speed. Labs can analyze the filter paper using an RNA-identifying technique known as reverse transcription polymerase chain reaction, which reveals whether the diseases are present almost instantaneously. By contrast, sorting, preserving, and transporting trapped mosquitoes for RNA analysis is a much lengthier and more laborious process. The current method also requires keeping the mosquito samples cold—something that's not always feasible in hot, tropical environments.

Jonathan Day, an entomologist at the University of Florida's medical entomology lab in Vero Beach, says that, compared with analyzing trapped mosquitoes or finding infection in sentinel animals, the new technique could essentially cut in half the time it takes to detect and respond to an outbreak in a new area. But he says it remains to be seen whether the technique will be cost-efficient enough to warrant researchers switching to it. "It certainly is clever," Day says, "but cost is the critical factor." Day also points out that the technique lets you know only whether the disease is present and cannot tell researchers how widespread the infection is among an area's mosquito population.

Rory McAbee, a biologist with the Fresno Mosquito and Vector Control District in California, agrees that the method could be a timesaver for researchers, but cautions that the traps will only work for mosquitoes that are attracted to carbon dioxide. "Not all species are going to go into the trap," she says. "This would have to be evaluated for each species and virus."

### **DDT and Population Control: Malaria Still Kills one Million Every Year. Wall Street Journal Editorial**

Environmental activists this year marked the 40th anniversary of Earth Day, which happened to fall three days before World Malaria Day. Insofar as Earth Day politics have contributed to today's malaria epidemic, the two events are related.

Earth Day founder Gaylord Nelson, a U.S. Senator from Wisconsin, was a leading opponent of the insecticide DDT, which remains the cheapest and most effective way to combat malarial mosquitoes. Rachel Carson's 1962 book, "Silent Spring," misleadingly linked pesticides to cancer and is generally credited with popularizing environmental awareness. But other leading greens of the period, including Nelson, biologist Paul Ehrlich and ecologist Garrett Hardin, were also animated by a belief that growth in human populations was harming the environment.

"The same powerful forces which create the crisis of air pollution also are threatening our freshwater resources, our woods, our wildlife," said Nelson. "These forces are the rapid increase in population, industrialization, urbanization and scientific technology." In his book "The Population Bomb," Mr. Ehrlich criticized DDT for being too effective in reducing death rates and thus contributing to "overpopulation." Hardin opposed spraying pesticides in the Third World because "every life saved this year in a poor country diminishes the quality of life for subsequent generations." For these activists, malaria was nature's way of controlling population growth, and DDT got in the way.

Today, malaria still claims about one million lives every year—mostly women and children in sub-

Saharan Africa. There's no evidence that spraying the chemical inside homes in the amounts needed to combat the disease harms humans, animals or the environment. Yet DDT remains severely underutilized in the fight against malaria because the intellectual descendants of Senator Nelson continue to hold sway at the World Health Organization and other United Nations agencies.

The good news is that the Obama Administration has continued the Bush policy of supporting DDT spraying in Zambia, Mozambique and other countries where the locals want it used. "Groups like the Pesticide Action Network have lobbied the U.S. Agency for International Development to stop spraying DDT, and Obama is ignoring them so far," says Richard Tren of Africa Fighting Malaria, an advocacy group. "They're prioritizing what makes sense from a science and public health point of view."

DDT helped to eradicate malaria in the U.S. and Europe after World War II, and the U.S. is right to take the lead in reforming public health insecticide policy and putting the lives of the world's poor above green ideology.

### **West Nile Virus - USA: Equine Vaccine Recall**

A major pharmaceutical company has announced an "urgent recall" of all serial numbers of its West Nile virus vaccine for horses, the American Veterinary Medical Association (AVMA) announced on its website on Tuesday, May 4<sup>th</sup>.

The recall, which was voluntary, was instigated by the drug company, Intervet Schering-Plough, "due to an increased number of adverse event reports associated with the use of these vaccines," the AVMA said.

The pharmaceutical giant has recalled all 1-dose and 5-dose vials of the PreveNile West Nile virus vaccine for horses. "Schering Plough reported an increased number of adverse reactions to the vaccine," said Dr Kimberly May, assistant director of professional and public affairs at the AVMA, "but unfortunately there were no statements as to severity, or what the number of horses affected was."

"The word 'urgent' was in the actual letter Schering Plough had sent," Dr May said, adding, "'Urgent' in the recall world means, 'Check your stock right now.'"

Intervet Schering-Plough "has contacted all the veterinarians affected by this, as well as the distributors." Intervet informed the USDA and the American Association of Equine Practitioners on Monday, May 3<sup>rd</sup>, of its recall decision.

## Mosquito Research Shows: "your worst enemy could be your best friend"



Your worst enemy can sometimes also be your best friend, according to entomologists from the University of Florida and Illinois State University. Their research has shown how one mosquito species is being saved by the very predator that usually eats it — and how that helps protect humans from diseases like dengue fever.

In the 1980s the U.S. began importing a large number of used tires from Asia. Water that had collected in these tires carried the larvae and eggs of the Asian tiger mosquito, a pest with a voracious appetite known to carry disease.

This invasive mosquito is more aggressive in its search for food than the more docile native mosquitoes, and theoretically, should have driven the native species to near extinction as it spread, said Phil Lounibos, an entomologist with UF's Institute of Food and Agricultural Sciences.

However, as the researchers explain in the March issue of the journal *Oecologia*, the invasive mosquitoes seem to be the preferred meal of the predatory midge, *Corethrella appendiculata*. The paper is titled, "Your worst enemy could be your best friend: predator contributions to invasion resistance and persistence of natives."

As observed during an experiment at UF's Florida Medical Entomology Laboratory at Vero Beach, the larvae of the midge usually consume the larvae of the invasive mosquito instead of their natural prey, the larvae of the native treehole mosquito. "This keeps the invasive mosquito in check and gives the native species a fighting chance," Lounibos said.

He said it's not entirely clear why the midge seems to find to prefer the Asian cuisine, although it may have to do with the fact that the larvae of the invasive mosquito are smaller and easier to handle. Whatever the reason, the researchers say the study illustrates the importance of biodiversity. If it weren't for its own predator, the native mosquito might have been starved out of the food chain.

And if it weren't for one pest and its natural enemy, we humans would face a much more dire threat from another.

In large numbers, the Asian tiger mosquito could have hurt Florida's tourism industry and created a more significant public health concern from diseases such as dengue fever. Dengue sickens as many as 100 million people each year in the tropics, and produced an outbreak in Key West in 2009 for the first time in more than 50 years.

"I'm not saying that spraying for the native mosquitoes or other pest control efforts aren't necessary," said Steven Juliano, an entomologist with Illinois State University. "But it's important to understand that there is a balance, and that you can't tweak one aspect of nature without affecting many others. We owe it to ourselves to try to understand that balance."



## **Recession Takes Bite out of Mosquito Programs**

Curtis Batson can easily sum up the status of the mosquito control program in San Luis Obispo County, Calif. "We don't have one. It's completely gone," Batson, the county's director of environmental health, said of changes that he feels could increase the risk of diseases spread by mosquitoes.

Recession-weary voters rejected a ballot measure last year by a 2-1 ratio that would have funded the program, Batson said. Beginning in January, all efforts to control a population of insects that can carry potentially serious diseases such as West Nile virus — as well as ruin many a barbecue — came to a standstill, he said.

According to the federal Centers for Disease Control and Prevention, cases of West Nile virus in humans declined significantly, from 1,356 cases and 124 fatalities in 2008 to 720 cases and 32 fatalities in 2009. About 80% of people who are infected will not show any symptoms, the CDC says.

The cuts in San Luis Obispo are part of a national trend brought on by budget cuts and the fact that the threat posed by West Nile virus has largely "fallen off the radar screen," said Joseph Conlon of the American Mosquito Control Association.

"You're going to have a measure of protection from mosquito-borne diseases taken away," Conlon said of the cutbacks. "We're putting ourselves at significant risk."

South Carolina had as many as 105 mosquito control districts five years ago, Conlon said, but now has 80.

In Palm Beach County, Fla., mosquito control director Ed Bradford said last year's budget was cut by about \$150,000, and cuts of \$200,000 or more are possible this year.

## **Clarke Receives Presidential Award**

Clarke was honored on June 21<sup>st</sup>, at the 2010 U.S. EPA Presidential Green Chemistry Challenge Awards for their new Natular™ larvicide, which

uses the active ingredient spinosad to control mosquito larvae in aquatic habitats. Clarke was recognized for developing novel, plaster matrix that releases optimal levels of product during times when mosquitoes breed. The award recognizes chemical technologies developed by leading researchers and industrial innovators who are making significant contributions to pollution prevention in the United States.

## **Fight the Bite Poster Contest, 2010**

Michigan has two winners in the CDC/DEET Education Program, poster contest.

The 5<sup>th</sup> grade winner was Alex Harton, from Onsted, and the 6<sup>th</sup> grade winner was Zach Laury from Saginaw. Congratulations to Alex and Zach.

## **New Adapco Rep. for Michigan**

Brian Strebler has been hired as the new Adapco representative for Michigan. He will take Jason Trumbetta's position, as Jason will be working for Adapco in Florida. Brian previously worked for Summit County Health Department, mosquito control program in Ohio.



**The mosquitoes are coming!  
The mosquitoes are coming!**



# News From Around The Districts

SAGINAW

As a result of a warmer spring we have experienced hatches of various mosquito species 2-3 weeks earlier than normal. Spring mosquitoes started emerging as adults in late April but cool nights and windy conditions help to keep biting activity to a minimum for a couple weeks. Spraying for adult spring mosquitoes on a daily basis began on May 17th. We also start collecting significant numbers of *Cq. Perturbans* in early June. In mid-May we received some significant rainfall which we knew would produce a brood of floodwater mosquitoes; but were very surprised at how large the populations of mosquitoes were that emerged. Regretfully this hatch occurred during Memorial weekend and the following three weeks were busy with an expanded night spray shift, an early morning spray shift and weekend spray shifts. Finally by the end of June mosquito densities were somewhat normal.

Summer activities for our Education Department will include participation in the following events: Girl Scout Day Camp; Birds, Bugs (that's us), Butterflies and Blooms at the Children's Zoo; Children' Fun Day, Truck and Bike Day at Haithco Park; and new this year we will be sharing a booth at the Saginaw County Fair with Saginaw County Parks.

Our agency hosted its yearly blood drive on June 9<sup>th</sup> with approximately 30 employees signing up to donate.

We will be working closely with the Michigan Dept. of Natural Resources & Environment to have input in the development of National Pollutant Discharge Elimination Systems permits that will be required by April 2011. It is extremely important that this permit does not limit our ability to effectively larvicide.

This past winter we made adaptations to a few of our trucks which would allow them to spray at 15 mph in rural areas compared to 10 mph which has been the past practice. Evaluations for spraying at 15 mph are still being summarized but look very promising!

This summer we have plans to work with Michigan State University to look at the habitat and ecology of *Ae. triseriatus* mosquitoes in Saginaw County and their relationship to potential human cases of LaCrosse encephalitis.

Our third and final tire drive of the season will be held the week of July 26<sup>th</sup>-30<sup>th</sup>. The hours for this drive will be 2:30pm – 7:30pm to provide the convenience of evening tire drop off.

TUSCOLA

On March 24<sup>th</sup> and 25<sup>th</sup> we hosted a training session for our new seasonal employees as well as returning employees in need of recertifying. MDA representatives were available in house on the afternoon of the 25<sup>th</sup> to administer certification tests. Several members of the community also attended this testing session.

This year spring came early to Tuscola County. Woodlot larviciding started on April 5<sup>th</sup> with crews enjoying the nice weather. Trap counts throughout the end of April and through most of May were fairly light with the first large hatch occurring over the Memorial Day weekend. Since that weekend trap counts have continued to rise in many areas and have shown a variety of both spring and summer species.

As with the weather it seems that everything is early this year with our first catch of *Coquillettidia perturbans* coming in a New Jersey light trap on May 24<sup>th</sup>, with their numbers unusually high in many areas since.

Sewage lagoons and catch basins have both been showing signs of activity. Treatment in these areas began this week. Due to cool nights we did not start adulticiding until May 17<sup>th</sup>. This year our adulticiding crews are utilizing new spray route maps. As well as new maps we have also implemented a Long Drive program. It appears that this is going to be a very well received program with many of the citizens.

Mosquito season is here and Bay County Mosquito Control is doing its best to get mosquitoes under control. The annual spring woodland-pool treatment program marked the beginning of BCMC's mosquito control season. Control efforts included aerial spraying (over 40,000 acres) using one helicopter (Clarke) and two fixed-wing aircraft (Earl's Spraying Service, Inc.), with the focus on areas near cities, towns and large developments. We're seeing few spring *Aedes* adults these days, but have shifted to the bothersome *Aedes vexans* and *Coquillettidia perturbans* adults collected in traps, both of which can be troublesome to residents.

Throughout the warm weather months, BCMC will be busy treating 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 have been back in woodlots and floodplains treating larvae. The number of complaint calls has increased as expected in areas near floodplains.

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 Kolb Elementary School, Auburn Elementary School, Handy Middle School and two summer daycares – Fremont Center and Center Plaza Daycare.

We continue to monitor for West Nile virus this season by testing American Crows, Blue Jays using the VecTest kit and by submitting mosquitoes to Dr. Walker's lab at MSU. Through June 25, we have tested two Blue Jays that were both negative for WNV. Furthermore, we have submitted 10 *Culex* species mosquito pools containing 122 adult females (WNV testing) and 26 *Coquillettidia perturbans* pools containing 426 adult females (EEE testing) to MSU; results are pending.

A few other items of interest: the first of two tire drives was held May 15 with 2,361 tires collected; this first tire drive was held concurrently at the Bay County Fairgrounds and Pinconning County Park; Jake Britton of Clarke visited on May 20 to check the MMD's of ULV machines for our entire fleet (thanks again, Jake); and we're trying Adapco's vehicle tracking equipment in one vehicle this summer.

NPDES. It's been making it's way to us for 10 years and continues getting closer by the day. You will read more about this elsewhere in this newsletter and as the year goes along. If you would like to get more details at this time on the EPA process check out their website:

[http://cfpub.epa.gov/npdes/home.cfm?program\\_id=410](http://cfpub.epa.gov/npdes/home.cfm?program_id=410)

Unfortunately, the Clean Water Act is not the only legal challenge we face today. The National Marine Fisheries Service (NMFS) on June 16, 2010 issued draft Biological Opinion (BiOp) to address the potential effects from 12 pesticides to Pacific salmon and steelhead listed as endangered or threatened under the Endangered Species Act. If you would like to review the BiOp (quite easy reading at only 945 pages of EPA legalese) check out the docket (EPA-HQ-OPP-2008-0654).

Back to the real world in Midland County; as you may have noticed, we did get some rain this spring. The woods were dry early in the spring and we almost started to hope that we might have a quiet year. We know better than to get our hopes up, though. With three waves of floodwater mosquitoes hatching out we have more than enough to keep ourselves busy. We are planning an extra weekend fogging before the 4<sup>th</sup> of July.

In addition to our regular treatment this year we will be evaluating Natular larvicide in catch basins and Envion water-dilutable adulticide. We will keep you informed. Have a good summer!

# MMCA goes to Earth Day

MMCA again attended the MDA/DNRE Earth Day celebration in Lansing. Kim Green from Tuscola Mosquito Abatement and Margaret Breasbois from Saginaw County Mosquito Abatement Commission talked to the students and parents about ways to help prevent mosquitoes. MMCA provided 100 Earth Day stress balls as prizes for those in attendance.



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**Summer**