



Skeeter Scanner

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www.mimosq.org

President's Message

I'd like to open with a big "thank you" to MMCA Board, Committee and sustaining members and sponsors for organizing and successfully delivering an excellent annual meeting this year under particularly difficult circumstances. As I stated in closing remarks to the remaining cold and snow adapted attendees, I promise that we will have better weather next year and I hope that the enthusiasm and dedication evident in Grand Rapids will carry over to Port Huron in February 2012. I'd also like to thank Mary McCarry for stewarding the organization over the past year and for setting an example of hard work and leadership that will be hard to duplicate. I'll never be able to fill her shoes (actually, I'd overfill her shoes with my big feet), but I'll do my best.



As I sit in front of the TV, enjoying the spectacle of March Madness (especially now that I don't have to agonize about MSU's team anymore), I'm reminded that we'll all be dealing with our own spring and summer "madness" as the mosquito season starts. A recent cold spell may delay things a bit, but it won't be long before the spring batches of mosquitoes start to test our tolerances and responses. The madness of new hires, equipment checks, supply purchases, etc., eventually will give way to the controlled chaos of summer, and I wish everyone a productive, successful, and safe season. For me, the transition has already started as I'll be moving from lab work and teaching responsibilities to trying to set up our first early season mosquito surveillance in EEE areas. We had a very active arbovirus season last year and we need to be prepared for another.

The other issue where the term "madness" might come to mind concerns the status of the NPDES permits. As of this writing, it appears that there may be a reprieve this year, but we're all anxious to hear about a resolution. I've expressed my opinion about this to many of you in individual conversations, but I'm optimistic that reason will prevail in this debate. The Clean Water Act is fundamentally a good statute: We've all benefited from cleaner lakes, streams, and drinking water sources because of its implementation. Yet, the new permit requirement seems to be an unnecessary stretch and duplicates existing safeguards. I know there are plenty of good and intelligent folks in the regulatory agencies, many of whom probably feel much the same as you about the new permit process. Regardless of the eventual decision, we all share a responsibility for the environment, and the MMCA can be proud of its record in this area through IPM practices, judicious use of existing pesticides, and the development of safer alternatives and application methods. I think we need to continue to emphasize our existing commitment to pesticide use with minimal impacts, and to continue to develop alternative approaches. It makes economic sense and environmental sense. The role of education and outreach in our organization will be key to making sure that our clientele and citizens are aware of this.

Here's hoping we all find as many opportunities as we do challenges in the season ahead. I look forward to serving you as president and hope to see most of you next February or earlier.

HR 872 Passes in the House 295-130

HR 872, which amends both FIFRA and the Clean Water Act (CWA) so as not to require NPDES permits for pesticide applications to, over, or near waters of the United States was passed March 31st, on a bi-partisan vote of 295 - 130. Thus, the first hurdle for a legislative fix to our CWA has been passed. All of you who most ably assisted in the tremendous effort put forth to secure passage are to be commended. A great deal of hard work communicating the issues to congressional legislators by a cadre of dedicated professionals demonstrated how legislative relief could be obtained.

We **MUST** remember that this is only the first step in a process by which both of the statutes can be amended. The Senate constitutes an even more daunting task. The Senate traditionally has served as the more deliberative body in the federal government, often applying the brakes to legislation initiated and passed in the House. Thus, we cannot afford to rest on our laurels, but must redouble our efforts to secure senatorial support for a companion bill now that the path has come open. To this end, the American Mosquito Control Association (AMCA) will immediately begin to draft a strategy that can be employed on the Senate side to capitalize on the leverage provided by the victory in the House. We will be identifying key Senators whose support we must obtain for spearheading a companion bill.

We have the momentum now and must not lose it. Many thanks to all those who put in the time to educate their legislators and enlist their support. Please follow up with a letter or phone call of thanks and keep them informed of developments. Thanks again for your work, for it certainly paid off!

Fungus to Treat Malaria

Scientists have come up with a new approach to controlling malaria. Instead of killing the mosquito that transmits the malaria parasite, the researchers have found a way to let the mosquito live, while killing the parasite inside it.

Scientists hope to use a fungus to keep malaria-carrying mosquitoes like the *Anopheles gambiae* species from growing resistant to insecticides.

The technique involves a fungus called *Metarhizium anisopliae*. It's a fungus that can penetrate directly into a mosquito.

"The insect literally fills up with fungus," says Raymond St. Leger of the University of Maryland. Ultimately, filling up with a fungus is a bad thing for the mosquito. With time, the fungus will kill the mosquito, but at first, it's just an annoyance to the insect.

Curing Mosquitoes of Malaria

St. Leger realized that he could use the fungus to do things inside the mosquito. "The trick we did was to engineer the fungus so that it produces a protein which is anti-malarial, anti the parasite itself," he says.

You don't get malaria by being bitten by any old mosquito, or even one of the 30 to 40 species within the *Anopheles* genus that can transmit malaria. You have to be bitten by a mosquito that is actually carrying the malaria parasite.

The fungus acts like a little hypodermic syringe, and when it's in the blood of the insect, the fungus then produces the anti-malarial protein, and within a couple of days it basically cures the mosquito of malaria.

What St. Leger's genetically engineered fungus does is rid the mosquito of the parasite. "So the fungus acts like a little hypodermic syringe, and when it's in the blood of the insect, the fungus then produces the anti-malarial protein, and within a couple of days it basically cures the mosquito of malaria," he says.

If the mosquito isn't carrying the malaria parasite, it can't spread the disease. These findings appear in the latest issue of the journal *Science*.

St. Leger says it's also possible to genetically engineer the fungus to kill the mosquito quickly. And he and his colleagues have done that.

Staying an Evolutionary Step Ahead

But finding ways to reliably and permanently defend people from mosquitoes is tricky. Insecticides have been used, natural plant toxins have been used, even fungi have been used.

"One by one, these defenses have fallen, as the mosquitoes have managed to outflank every attempt we've made to control them by some evolutionary trick or other," says St. Leger.

But because the fungus takes its own sweet time to kill the mosquito, the pressure to use one of those evolutionary tricks to evade the fungus is not as great as it would be with a more lethal insecticide.

"Of course, it does open up the prospect that the malaria could become resistant to whatever you put in the fungus," says Andrew Read, a senior scholar at the Center for Infectious Disease Dynamics at Penn State University.

Clearly, the malaria parasite can develop resistance to drugs used to treat it. But Read says it should be possible to modify the anti-malarial proteins in the fungus to keep one step ahead of the parasite.

Although this new approach has only been tried in the lab, Read says it should be ready for field testing before too long.

"It's already approved for agricultural use for locust control," says Read, although that's for a version of the fungus that hasn't been engineered to produce anti-malarial proteins.

Getting approval to release a genetically modified fungus into the environment will probably take longer. But Read thinks it will be worth the effort. "One of the great things about this paper is it does raise the scientific interest a lot in the fungi as injection systems into the mosquito," he says.

It's an approach that might be useful for other diseases carried by mosquitoes, as well.

Rule 97 Certifications

The DNRE has regulatory jurisdiction over mosquito control strategies involving application of pesticides to surface waters of the state (Rule

97 of the Water Quality Standards, promulgated under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended [NREPA]), facilities covered by National Pollutant Discharge Elimination System (NPDES) permits, and the draining and filling of floodplains and waters of the state, including wetlands.

In compliance with the provisions R323.1097 of Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), the Department of Natural Resources and Environment (DNRE) has regulatory jurisdiction over mosquito control projects involving the application of pesticides to surface waters of the state.

An entity is authorized to apply pesticides to surface waters of the state, wastewater treatment systems and catch basins by following the provisions under the appropriate approval and certification process. The processes are as follows:

1. For applications of pesticides to catch basins and waters in a wastewater treatment system that are **covered by a National Pollutant Discharge Elimination System (NPDES) permit**, an approval under the Water Treatment Additive approval process is necessary. **This includes municipalities, industries and storm water sewer systems under the Phase I and Phase II storm water regulations.** Upon receipt of the request and written approval from the DNRE, the applicant is authorized to commence pesticide treatment.

2. For applications of pesticides directly to surface waters of the state (including the Great Lakes and their connecting waters, all inland lakes, rivers, streams, impoundments, open drains, wetlands, and other surface bodies of water within the confines of the state), authorization under the General Rule 97 Certification of Approval Authorizing Mosquito Control in Surface Waters is necessary. (Certification R97-10/001). This process is initiated by submittal of a Notification of Intent by the applicant. The certification authorizes treatment of surface waters using pesticides specified in Certification R97-10/001.

Upon acknowledgement from the DNRE that a Notification of Intent has been received, the applicant is authorized to commence pesticide treatment of surface waters in compliance with the certification.

Acknowledgement of receipt of the Notification of Intent by the DNRE can be determined at www.michigan.gov/dnre utilizing the DNRE Site Map or by contacting Diana Butler at 517-335-3044 or by e-mail at butlerd@michigan.gov.

3. For application of certain pesticides to surface water storm water catch basins not covered by a National Pollutant Discharge Elimination System (NPDES) permit, authorization under the General Certification of Approval Authorizing Mosquito Control in Surface Water Storm Water Catch Basins is necessary. (Certification R97-10/002)

4. For any application of the pesticide temephos to control mosquito larvae, or any other pesticide application to waters of the state that is not authorized by Certifications R97-10/001 or R97-10/002, an Individual Rule 97 Certification of Approval is necessary. Upon receipt of approval by the DNRE, the applicant is authorized to commence pesticide treatment under the Individual Rule 97 approval.

Contact: Diana Butler 517-335-3044

Agency: Natural Resources

Pesticide Industries Increase Lobbying Against New EPA Regulations

American Council on Science and Health (ACSH)

Environmentalists are agitated by chemical industry trade group CropLife America's increased spending to thwart EPA efforts to create stricter regulations on pesticide use. According to *The New York Times*, CropLife America spent \$751,000 on lobbying in the last three months of 2010 — a 58 percent increase from the previous year's expenditures — in response to signs that the EPA aims to increase regulations. Among the more burdensome regulatory efforts being challenged are a contemplated initiative to regulate pesticides under the Endangered Species Act, which would require industry to prove their products do not harm wildlife, and the

establishment of a permit program under the Clean Water Act for pesticides sprayed over water sources. The lobbyists argue that such measures, "if left unattended will have serious negative impacts on our economy and on food and fiber production in the United States." They also argue that these added regulations lack scientific foundation.

"Environmentalists are worried because they believe that the EPA needs to do more to protect them from the health effects of pesticides, but the overwhelming majority of the scientific literature does not support a link between pesticide use and adverse human health effects," says Dr. Whelan. "These hugely expensive regulations will have little, if any, public health benefit."

Commenting on a soon to be released ACSH publication on pesticides, "Pesticides and Human Health," Dr. Ross adds, "You will readily appreciate that modern pesticides, herbicides, etc. are extraordinarily safe — and of utmost importance to preserving our crucial food supplies. The Center for Biological Diversity recently sued the EPA to try to get the courts to force them to evaluate every pesticide for harmful effects based on the Endangered Species Act, which, if successful, would wreak havoc on the pesticide industry and by extension our entire agricultural output."



MMCA Conference Drawing for a Free Registration in 2012

Congratulations go to Michael Locke, of the Macomb County Health Department for winning our drawing for a free registration to next year's MMCA Conference, in Port Huron, Michigan.

Mike filled out his Conference Evaluation and was entered in this drawing. Way to go Mike!

Michigan Mosquito Control Association 25th Anniversary Conference Grand Rapids, Michigan



H. Don Newson
Distinguished Service Award
Al and Mike Schiffer



George B. Craig, Jr. Mosquito
Control Advocacy Award
Lee Mitchell



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MMCA Sponsors Annual Mosquito ID Class.

The Michigan Mosquito control association will sponsor a Mosquito ID Class on Wednesday, May 19th from 9:00 am till 3:00 pm at the Saginaw County Mosquito Abatement Commission.

Participants must bring their own microscopes.



Call **Randy at 989-755-5751** to make your free reservations for this seminar.

sapphirina



Culex restuans



Orthopodomyia



Aedes triseriatus



japonicus



Stay of its NPDES Mandate

On Friday, the 25th of March, the 6th Circuit Court of Appeals granted EPA a stay of its NPDES mandate until October 31st, 2011. That means that pesticide applicators will not be required to have NPDES permits to apply pesticides on, near, or above waters of the United States until that date unless a legislative fix is obtained. In the 6CCA words, "If the mandate issues on April 9 or July 31, the hundreds of mosquito abatement districts throughout the country will not be in a position to stop immediately their long-standing use of pesticides to control mosquitoes and effectively implement the use of non-toxic alternatives." Be advised that this does not preclude states such as California and Florida from instituting their own permitting systems despite the stay, if they so choose. It would be prudent for all concerned to proceed with preparations to meet permit requirements to be levied on that date. The EPA is planning to release its final permit via federal Register on 31 July, 2011. Sometime prior to that date, EPA will post a draft on its website that should be a reasonable facsimile to the final permit except for the finalized Endangered Species Act provisions. AMCA will monitor the Agency's website and notify the membership when it is available.

It is critical for the membership to fully understand that this extension of stay is a temporary reprieve only and that a legislative fix via statutory amendment is needed now more than ever. As you can imagine, environmental activist groups are not happy with the extension and are surely poised to act once the permit finally goes into effect. Thus, we'd better have either our own permit requirements fully met or, preferably, have FIFRA and CWA amended prior to that date. This presupposes that we apply as much pressure as feasible to members of the Senate (for a companion bill) to bring about a final and comprehensive solution to the problem. Despite the short fuse on this, it's imperative that we generate overwhelming support for the House bill so that momentum can be carried over for a companion bill in the Senate.

We don't want any "maybe ifs..." in this battle, so by all means utilize your franchise as an American

citizen to effectuate the change we need so that we may continue to protect the health of our neighbors and the environment.

Chemistry of Mosquito Sex May Hold Key to Disease Control - PLoS

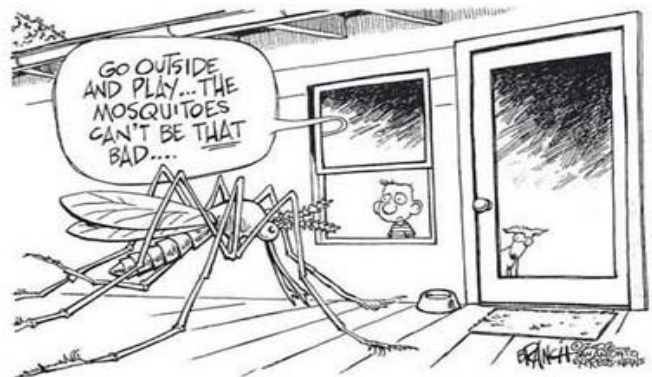
Scientists who've uncovered the chemistry of mosquito sex say their research may reveal ways to control mosquito-borne diseases such as West Nile virus and dengue fever.

The Cornell University team found that more than 100 proteins in the male sperm of *Aedes aegypti* mosquitoes -- known to transmit yellow fever and dengue fever -- permanently alter female mosquitoes' tendencies to feed, produce eggs and mate.

The study is the first to identify male proteins that are transferred to females during mating. By isolating these proteins, it may be possible to develop a method of birth control for female mosquitoes, and potentially help control the spread of diseases such as dengue fever, yellow fever and West Nile virus, said the researchers.

Currently, there is no effective treatment for dengue fever, a sometimes deadly infection suffered by millions of people worldwide each year.

"This is an exciting new avenue for identifying ultimate targets to reduce mosquito vector populations. Ultimately, we plan to select the most promising candidate proteins as chemical targets or as a focus for the development of other methods for vector control," study co-author Laura Harrington, an associate professor of entomology, said in a Cornell news release.





News From Around The Districts

Here in mid-Michigan, March typically brings the infamous last snowfall of winter, but this year it happened April 3rd with rainy, sleety, slushy precipitation totaling 1.5 inches! At least we are all hoping that's the last of the white stuff! As it stands, water levels are a little higher than average, but much closer to what we like to see in woodlots, which makes planning for the spring aerial campaign and finding larvae a much easier task.

BAY

Since announcing that applications were being accepted for seasonal employment, we have been diligently interviewing to fill seasonal technician jobs for the 2011 season. While we have received over 100 applications, about two-thirds of employees from last season are returning. This has been the trend for the past several years. The current economy keeps experienced staff returning to us!

The 2011 Program Plan was compiled in February, followed by hosting the Mid-Michigan Technical Advisory Committee meeting on March 2. The comprehensive community outreach program plan was submitted to MDA, while papers typically filed with MDNRE for approval authorizing mosquito control in surface waters are still pending. Depending on what MDNRE requires, filing papers for Rule 97 compliance will most likely take place in April.

Control material bids were opened in January with prices seeing slight changes compared to 2010 with permethrin actually seeing a significant cost reduction. A switch to Biomist 4 + 4 ULV will take place this summer. Our fixed wing aerial contract has been renewed for an additional two years.

Staff continues to update training materials, attend customer service presentations, watch AMCA webinars, revamp presentations that will soon be broadcast on our local Bay 3-TV, order supplies, continue with maintenance projects, and send announcements to media and government offices in preparation for the upcoming season. Office staff is busy sending and receiving no spray, medical, and long-driveway notices and just finished shoring up scrap tire drive plans for the summer.

We'll continue to watch with interest NPDES and contact our U.S. Senators to ask for their support of legislation spelling out that mosquito control does not need Clean Water Act permits! Hopefully, we will all be successful in that endeavor. In the meantime, we look forward to a successful 2011 season!

TUSCOLA

The interviews have been conducted, training sessions completed, and exams taken. We have a full crew of seasonal technicians itching to take to the woods. As a bonus, it appears that our larviciding efforts will be "business as usual".

All that we ask is that winter finally goes away. Well, and that it isn't a horrible year for mosquitoes. And, well, that we enjoy peace in our time.

Congratulations to Dr. Tom Wilmot!

Interviews for seasonal employment were completed in late February and our annual training session was held on March 11th -12th. Due to the continuing decline in tax revenue we have had to reduce our seasonal work force by 8 positions for the upcoming year.

Spring *Aedes* larvae were first found on March 21st this year which is normal. However, the end of March was very cold and snowy resulting in low densities and minimal larval growth so it appears our yearly aerial larviciding program may be later than normal unless we experience prolonged warm weather in early April.

School presentations by our education department continue to be very popular. This school year our Education Coordinator has already scheduled over 216 classroom presentations at 48 schools. Margaret Breasbois and Bill Stanuszek judged science fair projects at the annual Saginaw County Science and Engineering Fair and selected two students to receive awards sponsored by our agency. Titles for the winning Senior Division project was “An Alternative Pathway for Waste Streams”, presented by Andrea Pugh, and the Junior Division project “Is Amoxicillin Your Best Bet for Group A Strep” was entered by Varun Shanker.

After a 5 month battle our Agency in Saginaw was successful in securing a permit from Fish & Wildlife Service for our annual aerial larviciding of the Shiawassee National Wildlife Refuge. Letters of support from CDC, Michigan Dept. of Community Health, Saginaw County Dept. of Public Health, Saginaw County Board of Commissioners, our consultants from MSU Entomology, townships adjacent to refuge, and all of our State legislators, created extreme pressure on FWS for a resolution. This local support along with help from US Representative Kildee’s offices finally pushed the decision into our favor. The whole issue boils down to one important concept: is the mission of the refuge more important than the public health of the citizens living adjacent to the refuge? For those in mosquito control the answer is obvious but it appears the Fish and Wildlife Service has different priorities. This was a time consuming struggle and provides further evidence of a need for a reasonable National Policy for Mosquito Control on Federal Lands.

We have been working on numerous mapping projects this winter which include: new catch basin maps; route maps for all Buffalo Turbine sites; and new and expanded *Aedes vexans* habitat maps. As always, it is hoped that these new maps will make our seasonal workforce more efficient and effective.

Mosquito control operations are frequently affected by the weather so I guess it is not too much of a surprise that our conference can be affected also. Thanks and congratulations to those hearty folks that braved the “storm of 2011” to attend our 25th Anniversary Celebration in Grand Rapids. The keynote address by Dr. Richards from the Carter Center was entertaining and informative and the post-banquet concert had us dancing in the aisles. As always, special thanks go to the vendors that provide the materials and information we need to do our jobs. We could not hold our conference without their generous support. For those of you that were unable to meet with us this year, please plan now to attend the 2012 conference in Port Huron, a new venue for our Association.

Here in Midland County we have completed recruitment and training of seasonal employees and are now ready for the mosquito control season. We are not overly anxious but starting to wonder just when the snow is going to melt and the spring *Aedes* larvae are going to appear. This year we will be testing the new adulticide, Zenevex and closely monitoring various materials used for control of mosquito larvae in catch basin habitat. We will be conducting surveillance for West Nile Virus and watching for the possible appearance of EEE again this year.

Mosquito control operations in Michigan and throughout the nation will most likely be seriously affected by legislative and regulatory activities ongoing in Washington, Lansing and elsewhere. Thankfully, the 6th Circuit Court of Appeals granted EPA a stay of its NPDES mandate until October 31st, 2011 so we have time yet for states to develop their permits or (dare we dream) the legislature to confirm that such permits are not necessary. Unfortunately, though, even after NPDES the list goes on and on; Endangered Species Act, “inert” ingredients and endocrine disruption are likely to become as much a part of our lexicon as *vexans*, *japonicus* and Bti. Please join your colleagues in the MMCA in our efforts to become informed and involved and to do the best we can to provide the most safe and sound integrated mosquito management.

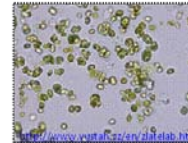
William J. Lechel, II – Memorial Scholarship
Student Paper Competition 2010 Winner



Amanda Laurenz
Michigan State University



Should You Eat Your Vegetables?



**Algae May Be an Important Resource for
Larval *Aedes japonicus***

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Spring