



# Skeeter Scanner

January, 2013

Volume 26, Number 2

## THIS ISSUE:

## President's Message

- ➔ Organic Pesticides
- ➔ Malaria Vaccine Trial Results
- ➔ Right to Know
- ➔ Itchiness
- ➔ Drug Resistant Malaria
- ➔ Photo Slaon
- ➔ Call for Nominations
- ➔ Silent Auction
- ➔ MMCA Conference Tentative Agenda
- ➔ Around the Districts

PUBLISHED BY THE  
MMCA PUBLIC  
INFORMATION  
AND EDUCATION  
COMMITTEE



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

As we begin a new year I'd like to thank all those members who serve on various committees and make our Association run smoothly every year; their dedication to the mosquito control profession is greatly admired.



The media always likes to begin the New Year with articles on people to watch, issues of concern, and events of importance for the coming year. I'd like to twist this theme a bit and share a list of future possible concerns our industry could be dealing with in the years to come. I would like to call this the "What If" list to get you thinking about how you would adapt your program if these actually happened.

- ▶ What if the mosquitoes in your area developed resistance to synthetic pyrethroids? What would be the options for replacement insecticides for your ULV adulticiding programs?
- ▶ If weather patterns continue and our active control seasons becomes longer how are you going to deal with this from a financial and employee standpoint when most districts in Michigan rely on using college students for seasonal employees?
- ▶ What challenges could Michigan face if we continue to get an influx of additional mosquito species whose past historic range was south of the state?
- ▶ What new problems may we face regarding the Endangered Species Act, Clean Water Act, and FIFRA? How will future legal challenges and judicial rulings change the intent and interpretation of these acts?
- ▶ How will new State or Federal regulations affect our programs?
- ▶ Are precipitation patterns really changing to more isolated and severe storms?

I'm sure you could all add a few "What If's" to this list but the point is we need to always be thinking towards the future and preparing for various scenarios. On the legislative front we need to be proactive, share our concerns, and most importantly don't expect someone else to deal with the issue. If we all work together we can continue our important tradition of protecting public health.

Finally, I'd like to thank you for giving me the opportunity to lead this Association for the past year. It is a great pleasure to work with colleagues, many of whom, I can also call friends!

*Randall G. Hopper*

## **Organic Pesticides: Ask Someone Who Knows**

Will Westerling, a licensed Pest Control Advisor in the State of California, wrote:

As a licensed Pest Control Advisor in the State of California who manages several thousand acres of both conventional and organic fruits and vegetables I can assure you that there is no shortage of organic pesticides being applied to organic crops.

I spray the organic fields just as often as the conventional ones. In fact, for very high value delicate specialty crops I may spray them two or even three times a week.

Many of the organic pesticides I use in organic production I also use in the conventional fields. Just because an organic pesticide comes from a naturally occurring source (bacteria, plant or mineral) does not mean it is not a pesticide.

## **Malaria Vaccine Trial Results**

The long-awaited results of a clinical trial of the world's first potential malaria vaccine among infants are [finally in](#), and somewhat disappointing. Known as RTS,S, the vaccine was tested on babies under 12 weeks old and found to reduce malaria incidence by about one-third in the children who received it, compared to controls. The new results are especially disheartening after last year's malaria vaccine trial — one of the largest, involving nearly 16,000 children in seven African countries — demonstrated that the vaccine lowered malaria incidence and severe malaria among children ages five to 17 months by 55 and 47 percent, respectively.

With malaria still killing an estimated 600,000 to 900,000 people a year, most of whom are young children in sub-Saharan Africa, these new results suggest that scientists still have their work cut out for them. In the study, published online in the *New England Journal of Medicine*, researchers revealed that over 12 months of follow-up, when administered along with standard childhood vaccines, the efficacy of RTS,S in infants aged 6 to

12 weeks (at first vaccination) against clinical and severe malaria was only 31 and 37 percent, respectively.

“Although we hoped for better numbers,” says ACSH’s Dr. Gilbert Ross, “I remain hopeful. When there are between 600,000 and 900,000 deaths from malaria a year, a 30-40 percent benefit will still save many thousands of infants. While this is a major improvement from the tragic toll of even five and 10 years ago, we in public health have a long way to go.” He concludes, “Rather than being disappointed and disheartened, these results should be considered a great achievement and provide motivation for further research towards developing a more effective vaccine.”

## **Proposed Rule Will Enhance the Public’s Right to Know the Ingredients in Minimum Risk Pesticide Products**

The EPA is proposing to clarify the substances on the minimum risk pesticide ingredient list and the way ingredients are identified on product labels. Minimum risk pesticides are a special class of pesticides that are not subject to federal registration requirements because their ingredients, both active and inert, are demonstrably safe for the intended use. The agency is proposing to reorganize these lists and add specific chemical identifiers to make clearer to manufacturers, the public and federal, state and tribal inspectors the specific ingredients that are permitted in minimum risk pesticide products. The EPA is also proposing to require producer contact information and the use of specific common chemical names in lists of ingredients on minimum risk pesticide product labels.

EPA’s proposal, announced in a December 31, 2012, [Federal Register notice](#), does not alter the substance of the minimum risk pesticide ingredient lists, but more accurately describes which chemical substances can be used in pesticide products that are exempt from federal pesticide registration requirements. State enforcement agencies have expressed support for the proposed changes.

The agency is sensitive to the economic impact of regulations and acknowledges that the proposed changes could have a very small impact on current

manufacturers of minimum risk products. However, we believe the industry, manufacturers of these products and businesses considering entering the market for minimum risk pesticides, will ultimately benefit from clearer guidance. In addition, we believe that consumers of these products have a right to know in an easily understandable way which chemicals the products contain. This proposed regulation promotes clearer information for consumers while maintaining the availability of minimum risk pesticide products in the market.

Please see [the EPA's minimum risk pesticide Web pages](#) for more information on these products that are not subject to federal registration requirements.

## Itchiness is Contagious, Just Like Yawning

For some people, hearing about a bug bite or a rash is enough to cause them to furiously dig at their own unaffected skin. Even some doctors who treat people with shingles report feeling itchy after witnessing their patients scratching. And we'd bet many of you readers are feeling itchy right this very second.

It seems humans commonly catch itches from one another, but scientists hadn't proven it—until now. Researchers found that itching is contagious much like yawning and laughing. “With itching, there [was] only anecdotal evidence that watching [a person] itch induces itching,” explains Henning Holle, a lecturer in the psychology department at the University of Hull in England. “We wanted to know whether contagious itch would affect everyone.”

Holle asked 51 adults to take a personality test that ranks the Big Five personality traits of openness, conscientiousness, extroversion, agreeableness and neuroticism. Then using functional magnetic resonance imaging, or fMRI (a technique that



detects brain activity by monitoring blood flow in the brain), the subjects watched either a video where someone was scratching herself or tapping her arm or chest. The fMRI allowed the researchers to see the subjects' brain activity as they responded to the video images.

Two-thirds of the people who saw the scratching video scratched themselves. This finding mirrors what experts know about other socially contagious behaviors such as yawning and laughing: most of us "catch" yawns and laughter.

“Most people tend to experience contagious itch, some are more prone to it than others,” Holle explains. “I was really surprised by the amount of people who spontaneously scratched.”

Watching an itch sparks activity in the anterior insular, primary somatosensory area, and the prefrontal and premotor cortices. These regions, part of the itch matrix, also activate when a person actually feels an itch, meaning that watching someone scratch makes the brain think it is experiencing an itch.

After establishing that itching spreads socially, Holle wondered what caused it. He suspected itch might spread because of empathy. There is some evidence that people feel pain empathetically: When someone sees a family member receive an electric shock, the observer also feels pain (as this is in a lab setting the people aren't actually receiving the shock). It turns out that people who exhibit more empathy do not scratch more than those who are less compassionate. But people who are more neurotic, those who experience the biggest mood swings and exhibit anxiety, depression, jealousy, and guilt, are more susceptible to contagious itch than others. The neural activity in the prefrontal cortex reinforces the self-reported data indicating that people with neurotic tendencies are more likely to catch an itch.

“This introspective awareness might explain why people are more prone [to contagious itch],” he says.

The paper appears in the journal *Proceedings of the National Academy of Sciences*.

## Drug-resistant Malaria in Thailand Threatens Deadly Global ‘Nightmare’.

Day five, and he's still positive?" "That's not very good. It means he was very slow to clear the parasite"

This is further evidence of an alarming rise in resistance to artemisinin, currently the front-line drug in the treatment of malaria. Dr. Francois Nosten fears it could be the start of a global "nightmare" in which millions of people could lose their lives. He said that artemisinin should take about 24 hours to deal with the parasite, but it was now taking three or four days in some cases. "We are going to see patients that don't respond to the treatment anymore," he warned.

Nosten runs the Shoklo Malaria Research Unit, which is part of the Faculty of Tropical Medicine at Thailand's Mahidol University. The unit has a string of clinics on both sides of the Moi River, which marks the porous border between Thailand and Myanmar. Nosten set up the first one in 1986, since then there has been a steady fall in the total number of cases of malaria, but most recently a worrying emergence of drug resistance.

He first sounded the alarm in research published earlier this year, following the emergence of similar drug resistance along the Thai-Cambodia border. Nosten's not sure whether the resistance he's found has spread from the Cambodia border or is home-grown. Either way, he's worried. "It means that all the progress of the last 10 to 15 years will be lost," he warned. "Now the resistance is here, we worry that we are running out of time."

If the world loses its front-line drug, the impact could be devastating. "The nightmare scenario is that

chloroquine ... millions of deaths," he warned. "We must prevent artemisinin resistance reaching Africa, but we also need to control it for the people in Asia - for their future."

Resistance to just about every major anti-malarial drug has started in the border regions that have been home to Nosten for more than 25 years. Nobody knows exactly why, but poverty, conflict and large migrant and refugee populations constantly on the move all likely play a part. As do fake drugs or a failure to properly complete a course of treatment.

In the case of chloroquine, once the anti-malarial drug of choice, it took less than 20 years for resistance to spread from the borders of Thailand to Africa. Nosten is worried that artemisinin resistance is growing much faster than he'd anticipated, with the drug failing initially to fully clear the parasite in more than half the cases he now sees. "It initially goes after a few days, then it comes back. We see that more and more now," he said. "In 2009, we still had 90 percent of patients cured. In 2010, it dropped to 60 to 70 percent. Now it's about 50 percent," he added.

Artemisinin comes from a Chinese plant and is quick, potent and with no side effects. Little wonder it has been hailed as a wonder drug, the golden bullet in the global fight against malaria.

What makes the resistance so worrying is that there is no new drug ready to replace it. Nosten said that although several drugs are in development, they could be five to 10 years away from deployment "if they make it ... and we haven't got five to 10 years."

### MMCA AWARDS COMMITTEE REQUEST FOR NOMINATIONS

The Awards Committee of the Michigan Mosquito Control Association is pleased to request nominations for the following prestigious awards:

*H. Don Newson Distinguished Service Award*  
*George B. Craig, Jr. Mosquito Control Advocacy Award*

Both awards recognize the recipients for contributions to the field of mosquito control. To submit a nomination to the Awards Committee, please send [2013 MMCA Newson & Craig Awards Request for Nominations](#) to Charles Dinsmore, Midland County Mosquito Control, 2180 N Meridian Rd, Sanford, MI 48657, (989) 832-8677.

# Michigan Mosquito Control Association 27<sup>th</sup> Annual Conference Tentative Agenda

DoubleTree by Hilton Hotel Bay City-Riverfront

February 6-7, 2013

Wednesday, February 6, 2013, Morning	
8:00 am	Registration
9:00 am	Welcome -Randy Knepper, 2012 MMCA President
9:05 am	RIDL; What Is It? How Does It Work? Does It Work? And What's In the Future...? - Derric Nimmo, PhD, Oxitec Ltd.
10:05 am	AMCA Update -Joe Conlon, Technical Advisor
10:25 am	Mid-morning Break
William J. Lechel, II Memorial Scholarship Student Presentation	
10:45 am	Biodiversity of Odonates in Urban Green Spaces
11:00 am	The Effect of Repetitive Vacuum Sampling on Spittlebug (Hemiptera: Cercopidae) Populations and Diversity in Grassland Habitat of Lenawee County, Michigan
11:15 am	Genetic and Phenotypic Variation in Host-Seeking Behavior of Nymphal <i>Ixodes scapularis</i> Ticks: Implications for Lyme Disease Risk in the Eastern United States
11:30 am	The Role of Nitrogen in Mosquito Growth and Competition between <i>Aedes japonicus</i> and <i>Aedes triseriatus</i>
11:45 am	Predicting <i>Anopheles gambiae</i> larval habitat locations in Lowland, Western Kenya
12:00 pm	Mortality and Development of <i>Aedes</i> Larvae Exposed to Natural Fungal Pathogens <i>Aspergillus niger</i> and <i>Fusarium oxysporum</i>
Wednesday, February 6, 2013, Afternoon	
12:15 pm	Lunch and MMCA Business Meeting
1:45 pm	The Historical Decline and Disappearance of Malaria in the U.S. Edward Walker, PhD
2:05 pm	Epizootic Hemorrhagic Disease in Wild White-Tailed Deer in Michigan -Tom Cooley
2:25 pm	West Nile Virus Outbreak, Michigan 2012 -Kimberly Signs, DVM
2:40 pm	Vendor Presentations
2:50 pm	Break
3:10 pm	Pest Management Industry Updates -Gene White,
3:40 pm	A Review of the Invasion Biology of <i>Aedes japonicus</i> in North America -Michael Kaufman, PhD
4:00 pm	Parasites: What a Way to Make a Livin' - Joseph Conlon

**Thursday, February 7, 2013, Morning**

8:00 am	<b>Truck-Mounted ULV Application of a Water-Based Adulticide: A Seasonal Retrospective</b> -Bill Stanuszek
8:15 am	<b>Automated Vehicle Location: Lessons Learned</b> -Randy Knepper
8:40 am	<b>Weather and Climate in Michigan</b> -Eric Jylha, WNEM-TV5
9:10 am	<b>Framework for Excellence: Mission, Vision, Values</b> -Scott Grant
9:25 am	<b>Minnesota Mosquito Fauna: Intriguing Changes in Half a Century of Sampling</b> -Diann Crane, MS
9:40 am	<b>Implementation of a Mosquito Abatement Program</b> -Joseph Flood
10:00 am	<b>Break</b>
10:20 am	<b>An Update on Advances in the Control of Public Health Pests</b> -Erik Foster
10:35 am	<b>Is It More Than Just a Bite? Documentation of Antibiotic-Resistant Bacteria Found on Mosquitoes</b> -Lee Mitchell, MS
10:50 am	<b>Update on the New Mosquito Larvicide, MOSQUIRON</b> -Barry Tyler, PhD
11:10 am	<b>West Nile...Texas Style</b> -George Balis

**Thursday, February 7, 2013, Afternoon**

**Back-to-Basics Presentations**

11:25 am	<b>Gravid Traps</b> -Douglas Allen
11:40 am	<b>Culex Management in the Urban Environment</b> -Mary McCarry
11:55 am	<b>Concluding Remarks</b> -Douglas Allen, 2013 MMCA President
1:00 pm-3:00 pm	<b>MMCA Field Day Demonstration at Bay County Mosquito Control</b> Hands-on demonstration equipment and techniques used in mosquito control operations in Michigan ( <a href="#">Additional recertification credits for the Field Day</a> )



**MMCA Field Day Demonstration**

**Thursday, February 7, 1 pm-3 pm**

**SIGN-UP!**

**NO ADDITIONAL CHARGE**

MMCA WOULD LIKE TO INVITE ALL CONFERENCE ATTENDEES TO ATTEND A  
FIELD DAY DEMONSTRATION

FOLLOWING THE THURSDAY MORNING SESSION OF OUR 27TH ANNUAL CONFERENCE.

Attendees are invited to attend nearby Bay County Mosquito Control (2 miles from DoubleTree) to receive a hands-on demonstration of equipment and methods used in mosquito control operations in Michigan.

Rotations would include three stations:

Larviciding Session - All-terrain vehicles used for larviciding, ditch treatment vehicles, assorted handheld equipment, calibration, and mapping visuals

Adulticiding Session - Various truck-mounted ULV units, GPS technology, multiple handheld adulticiding units, equipment calibration and barrier treatment equipment

Surveillance/Biology Session - Various adult mosquito traps and disease surveillance equipment

**Recertification Credits Available for the Conference**

**MDARD Category 7F and Core (8 credits Wednesday, 4 credits Thursday)  
Michigan Environmental Health Association**

**MDARD 7F manuals will be available to purchase at the conference**

***\*A minimum of 15 attendees are required for the Field Day session to be held. PLEASE check the box on the conference registration form if you are interested in attending.***

# 2013 Photo Salon



## Photo Categories:

- ▣ Mosquitoes
- ▣ Operations
- ▣ Surveillance
- ▣ Mosquito Habitat
- ▣ Nature (Without Animals)
- ▣ Wildlife

*If a sufficient number of photos are received, cash and prizes will be awarded in the above categories. A prize will also be offered for Best of Show and for the most amusing title or intriguing story to accompany a slide.*

Shutterbugs - Please send your digital photographs to Photo Salon organizer, Rebecca Brandt.

email to: [brandtr@baycounty.net](mailto:brandtr@baycounty.net)

or

send a disk to: 810 Livingston Avenue  
Bay City, MI, 48708

*Please, do not submit photos that have been shown at previous MMCA salons.*

Submission Deadline is January 21, 2013

## MMCA 2013 Silent Auction

The MMCA Annual Meeting will feature a Silent Auction. Proceeds will benefit the MMCA Scholarship funds. MMCA needs your donations to help make the 2013 Silent Auction a success and donating to the Silent Auction is a great way to support the mosquito control profession and have fun at the same time! Donations of auction items are being sought in a variety of categories, including (but certainly not limited to):

- Art, photography, or books
- Sports equipment and clothing
- Gift certificates or themed gift baskets
- Electronics
- Mosquito-related items
- Handmade craft items (painting, needlepoint, quilts, etc.)
- 

Donations to the MMCA Silent Auction provide ongoing exposure throughout the conference in the exhibit/vendor room. Donors will be acknowledged on the auction bid sheets.

Please remember that we can't pull off this fun event without the generous support of our members. If you are interested in donating a gift to the Silent Auction or have questions, please email or call Melinda Moreno at [morenom@baycounty.net](mailto:morenom@baycounty.net) or (989) 894-4555 (810 Livingston Avenue, Bay City, MI 48708). Items can be brought to the MMCA registration desk when you arrive at the meeting.

Thank you very much.

## \*CALL FOR NOMINATIONS\*

Positions open for the nomination of candidates will be Vice-President, Secretary, and two Trustees. To propose a candidate, please contact Margaret Breasbois, [mbreasbois@scmac.org](mailto:mbreasbois@scmac.org) or (989) 755-5751



# News From Around The Districts

---

It's once again time to both look back at our fourth quarter accomplishments and think about the upcoming year. The season wrapped up on October 1, when we finished the last of our clean-up and hosted the second scrap tire drive of the 2012 season. In total for the year, 3,546 scrap tires were collected during two tire drives. Since then we've been busy with invoices, correspondence, cleaning, inventories, orders, equipment and vehicle repairs, and preparations for the 2013 season. The 2012 Annual Report has also been completed and will be presented to the Board of Commissioners as well as to the Mid-Michigan Technical Advisory Committee in March, 2013. It's available for viewing at our website [www.baycounty-mi.gov/MosquitoControl](http://www.baycounty-mi.gov/MosquitoControl).

**BAY**

We happily took part in the MMCA's 7F Training Session in October, giving several presentations to the attendees. At this, our fourth annual training session, there seems to be continued interest in having recertification seminars in the future. Not only are we providing a service to others, but our own staff benefits by attending and qualifying for recertification credits.

The 2013 chemical order was compiled and bid specifications were sent out to vendors in early December in conjunction with Midland County Mosquito Control and Tuscola County Mosquito Abatement. Chemical bids will be opened in Midland in mid-January and vendors will be notified. We've also begun the process of bid specs for aerial applicators. The spring aerial mosquito control program is a huge undertaking, so we'll be anxious to see how the aerial bids look for 2013.

We continue our community-outreach efforts, which include presentations at local elementary schools and developing new information for Bay3TV. Database and map updates continue to take place. We were recently interviewed by Adapco for an article that will appear in their newsletter regarding mosquito control winterizing in cold climates.

We look forward to meeting with colleagues and listening to presentations at the upcoming MMCA Conference in February (held locally in Bay City at the DoubleTree). In the next few months we'll be working on MMCA annual meeting plans, the 2013 program plan, hiring of new seasonal staff – always a challenge, working with the Bay City State Recreation Area on 2013 permits, and continuing our mission of the promotion of mosquito education. Before we all know it April and the spring treat campaign will be upon us!

---

We are, of course, engaged in those customary off-season activities. Material inventories have been performed; and now, we await the pricing bids.

We purchased four new trucks, completing the transformation from our original fleet. Forms are updated, records recorded and stored, and the Annual Reports prepared. Soon the process of assembling a 2013 seasonal staff will commence.

This writing may find Rich Colopy already in retirement. He will be greatly missed. He would like to take this opportunity to thank all of the very special people, it was his pleasure to associate with, these past twelve years.

Best of everything to each and every one of you.

I would like to extend a welcome to Tony Thomas, our new Biologist.

---

**TUSCOLA**



As is normal for this time of year staff are busy on winter projects which include: repair and maintenance of application equipment and vehicles; install additional LED strobes on the back of spray units; updating sections of employee manual; bodywork on damaged vehicles; updating various maps and data bases; updating our yearly program plan; updating our web page; sending our letters to citizens on our No Spray and Medical Certification lists; and the purchase and outfitting of two new half ton vehicles for our fleet.

Our 2012 annual report is complete and can be reviewed and printed from our website for those interested. If you would like a hard copy please call Gloria Katch at 989-755-5751 or email her at [gkatch@scmac.org](mailto:gkatch@scmac.org) and let her know how many annual report/calendars you would like to receive.

School presentations by our education department continue to be in high demand. This school year our Education Coordinator has scheduled 150 classroom presentations at 39 schools and 7 Community Events.

We have submitted permit applications to conduct our aerial larviciding program for spring mosquitoes for the Shiawassee River State Game Area, Gratiot-Saginaw State Game Area, and the Shiawassee National Wildlife Refuge. Since we had significant mosquito-borne disease detections last year in our county we do not anticipate problems securing permits for 2013.

Our agency is now in the hiring process for seasonal workers. We will be accepting summer job applications through Friday, January 25, 2013. Interviews will be in late February and early March with our yearly training session scheduled for March 22-23, 2013. Michigan laws have recently changed, so our agency is now eligible to apply for *Designation as Seasonal Employer* through the Michigan Department of Licensing and Regulatory Affairs. This is great news as it will significantly limit our future unemployment liabilities.

So far this winter has had very minimal precipitation; does this indicate that our spring will be exceptionally wet? In a few months we will find out.

---

---

The recently departed 2012 left us with some pleasant memories (a successful conference in Troy, relatively mosquito-free spring season, approval of our millage request) and some disappointments (WNV outbreak, no Farm Bill, challenges to mosquito control on State land) as we move on to face the new year. The resurgence of West Nile virus this summer reminded us of the importance of what we do. The effort expended to address the epidemic in the Dallas area demonstrated how much mosquito control professionals can do when we work together (and why we have mosquito control associations). You will hear more of the Dallas story from George Balis at our conference in Bay City next month. This is one you won't want to miss.

Back here in Midland County; work continues on development of plans for 2013. The next big project will be to open bids for insecticides and fit as much material as possible into a dwindling budget. We recently purchased three new vehicles so we look forward to getting them ready and equipped for the next mosquito control season. We added a new snow plow blade to our Gator ATV and have successfully cleaned our drive of the first snowfall. We hope that we don't have to make too much use of the new blade but realize that some snow is necessary to keep the Great Lakes great. Operations Supervisor Dinsmore and Office Manager McLaughlin continue to refine and improve our GIS and record-keeping software. Charles updated the water layer on Midland County's GIS system to the benefit of all County departments. We are always looking for ways to save the environment (or, at least, save us some money) so we have started the process of converting our fluorescent lights to the new energy-efficient system.

Best of luck in 2013!



## Kenley Farrel Memorial Scholarship

**"Pesticide Resistance: Is There a Potential Public Health Disaster?"**

Sponsored by: Hatfield's Spraying Services & MMCA.



Abby Jo Tongue, First place

Abby, is a home-schooled senior. In her spare time, she enjoys baking (especially cookies), skiing, hiking, writing, reading, playing with their many pets, knitting, eating chocolate, and figure skating. Abby plans on pursuing a degree in education, she plans to be a Teacher Consultant for the Visually Impaired and an Orientation and Mobility specialist. This year Abby has been able to job-shadow two teachers for the visually impaired. She plans on attending Hope College in the fall. Abby would like to thank MMCA for supporting her in this journey!

Lindsey Schenten, Runner up

Lindsey attends Clarkston HS, where she is a Senior in the International Baccalaureate Programme. Lindsey will be attending Michigan Technological University in the fall of 2013, and plans on obtaining at least a Master's degree in Biology with a special interest in genetic research. Lindsey plays fast pitch softball, and soccer, and was the lead singer and played rhythm guitar for the group *Nowhere Fast*. Lindsey teaches Sunday School and has been on two 10 day mission trips in High School, she has taken 5 years of Spanish.



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

# Winter