



# Skeeter Scanner

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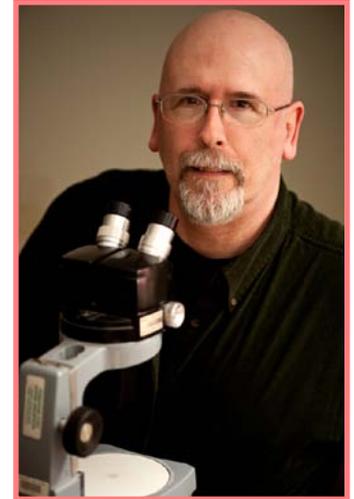
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[www.mimosq.org](http://www.mimosq.org)

## President's Message

Integrated mosquito management, just what does it mean, and how do we implement it? Sounds pretty fancy schmantzy to me, yet it is a core concept of how we operate, highfalutin or not. It isn't just taking phone calls, reading rain gauges or analyzing surveillance data. It is the challenge of using all of our data and information in a complementary manner. Can we prioritize in the context of our environment, our citizens and the resources we have? There is a real difference between efficient and effective; efficiency does not necessarily reflect effectiveness.



Ideas such as IMM are what our association develops, discusses, implements and in order to benefit the membership. The membership goes through a process - some of us are learning the concepts while some of us are refining the concepts. Hopefully we listen to each other and improve our understanding and use of these concepts.

I believe MMCA does a lot of good in mosquito control and public health as long as we fulfill our individual roles. No matter how long we have been involved we need to keep asking, "What can we do better today?" There is no one right answer to this question, there are many individual answers. The important thing is to develop your answer and put it into action. I believe that service to our fellow members and the citizens we serve is where we need to be focused. The better we can use our own individual skills and talents with that intention, the better MMCA will be.

Peace,

*Douglas Allen*

### 3 Scientists Win Nobel Prize in Medicine for Parasite-Fighting Therapies

Three scientists were awarded the Nobel Prize in Physiology or Medicine for discovering “therapies that have revolutionized the treatment of some of the most devastating parasitic diseases,” the Nobel committee announced on Monday.

William C. Campbell and Satoshi Omura won for developing a new drug, Ivermectin. A derivative of that drug, Ivermectin, has nearly eradicated river blindness and radically reduced the incidence of filariasis, which causes the disfiguring swelling of the lymph system in the legs and lower body known as elephantiasis. They shared the \$900,000 award with Youyou Tu, who discovered Artemisinin, a drug that has significantly reduced death rates from malaria.

“These two discoveries have provided humankind with powerful new means to combat these debilitating diseases that affect hundreds of millions of people annually,” the committee said in a statement. “The consequences in terms of improved human health and reduced suffering are immeasurable.”

[http://www.nobelprize.org/nobel\\_prizes/medicine/laureates/2015/press.pdf](http://www.nobelprize.org/nobel_prizes/medicine/laureates/2015/press.pdf)

### 96 million pounds of pure annoyance: Weighing Alaska's mosquitoes

How many mosquitoes are stirring in Alaska during the summer? That's a fun but hard-to-answer question that Derek Sikes recently pondered in response to writer and wilderness guide Michael Engelhard. I was a middleman in their e-conversation. I figure that entitles me to post Sikes' calculations based on Engelhard's question.

"Is the biomass of mosquitoes on the North Slope larger than that of all caribou?"

Here are some of his numbers, based on his own and others' studies. They are estimates from fuzzy totals of things quite difficult to count.

Sikes asked UAF professor Kris Hundertmark, who estimated Alaska's caribou population. He figured that all 950,000 Alaska caribou (which outnumber Alaskans) weigh about 231 million pounds.

Alaska is home to about 17,489,393,939,393 mosquitoes, minus the one you just slapped. Yes, that's 17 trillion. At 0.0000055 pounds each, the combined weight of Alaska mosquitoes is about 96 million pounds.

"This is a weight for all Alaska," Sikes said in his answer to Engelhard. "Thus it seems that there is not a greater weight of mosquitoes in Alaska than caribou."

### High Tech Hope for Repelling Mosquitoes

By: Jennifer Jolly, USA Today

In Alaska, where I grew up, mosquitoes outnumber people some [24 million to one](#). That makes it a great place to test the very latest in mosquito shields.

On a recent trip home, I tried the newest products on the market: kid-safe bands treated with plant oils, fans with the repellent built in, chemically treated clothing and good old bug spray. I also tried a high-tech patch that is not set to be released until next year.

What I found was this: All of the current products offered varying levels of protection, but nothing worked as well as traditional chemical repellent. Nothing, that is, until I tested the patch, which could very well remove humans from the mosquito food chain for good.

My first mosquito test used an array of colorful, kid-safe bands doused in natural plant oils such as citronella, geranium oil, rosemary, lemongrass and mint. I tried a slap-on bracelet called Buglet that comes in a rainbow of colors and with cute animal characters. I also tested a more understated plastic wearable called Bugband and a Velcro version called Parakito. They all smelled great and looked good, but they didn't keep the mosquitoes away for long. While they didn't land directly on the bands, they weren't shy about chowing down just a few inches from them.

My Alaska family swears by the Off Clip On — a cellphone-size fan that attaches to the top of your pants or to a pocket. Flip a switch, and it circulates an odorless repellent made with [metofluthrin](#). The device costs a little less than \$10, batteries included. According to the package, it contains enough repellent to last 12 hours.

It worked better than the natural repellents, but it's best suited when sitting relatively still, such as lounging in a backyard, watching a game or working in a small area of a garden. The device won't do much for hikers or golfers. A promotional video notes, "When you are stationary, you're in the protected zone."

Metofluthrin in vapor form has been deemed safe by the Environmental Protection Agency for use in the device, but it's not to be inhaled or applied to skin. As with all chemical repellents, users have to decide their comfort level with them.

Next, I wore clothing treated in [permethrin](#), a synthetic chemical that acts like the natural extracts from the chrysanthemum flower and kills insects when they puncture it. I wore hoodies and pants from Exofficio for my test. The clothing worked reasonably well and was definitely better than nothing. But while the mosquitoes didn't penetrate the clothing, they were perfectly at home swarming around me and occasionally landing on any patch of bare skin they could find.

The only thing that worked really well is the stuff that worked well 40 years ago, back when I was just a young, fresh mosquito target traipsing across the tundra: [bug spray with DEET](#). The more, the better. Sure, it can melt plastic, comes with a list of warnings to rival those in prescription drug commercials, and ate my nail polish off in a matter of minutes, but when it's me versus mosquitoes in a winner-take-all-my-blood feeding frenzy, I use what works. (Did I mention that mosquito swarms in Alaska can become so bad they've been [known to asphyxiate caribou?](#))

The good news is that another option — a patch that essentially creates a mosquito-repelling force field around your body — may be available as soon as next summer. To learn more, I visited Kite, a large warehouse like laboratory in Riverside, Calif.

Kite's facilities feel more like a South Florida swamp than the birthplace of humanity's ultimate weapon against mosquitoes and mosquito-borne illnesses. The rooms inside the lab are hot, humid, sticky and smelly, and filled with more than 100,000 mosquitoes in various stages of their life cycles.

"That's mosquito birth you're smelling," said Grey Frandsen, a mosquito mercenary of sorts who guided me through Kite.

A team of scientists and tech-savvy entrepreneurs are putting the finishing touches on a stickerlike patch, meant to be worn on clothing, that essentially makes humans invisible to mosquitoes. To find out if it works, I made the ultimate sacrifice, placing my untreated, unprotected arm inside a fish-tank-like test box filled with mosquitoes. What ensued was exactly what you might imagine. They came, they saw, they sucked — around 35 bites in less than a minute. Yes, it was awful.

Next, I tried protecting my arm with the array of products (bands, clothing and DEET spray) that I had sampled, in Alaska, with results similar to what I experienced in the field: mixed reviews and definitely not game changing.

Then came a test of the Kite compound. The patch, which isn't available yet, smelled an awful lot like cloves, and as I inserted my arm into the glass box again, no mosquitoes landed anywhere near it.

During my time at Kite's facility, I wasn't able to talk anyone into telling me exactly what the proprietary blend is made of, only that the version to be released in 2016 is made of fragrances and other compounds that don't require E.P.A. approval. A second version is awaiting regulatory approval for 2017.

The new compound works by confusing a mosquito's senses, hindering its ability to target us based on the carbon dioxide we exhale, and confounding its capacity to locate us up close. The Kite compound was effective in the lab, but the ultimate test will come once it can be worn in all corners of the mosquito-covered planet. If that happens, it means that in the age-old battle of humans versus mosquitoes, humans may finally have a shot at winning.

## Mosquitoes Play Genetic Favorites

A twin study suggests that the blood-sucking insects are more attracted to people with certain genes.

People who claim that mosquitoes just love them may be onto something. According to a new study of a few dozen pairs of twins, genetics may play a role in whose blood a mosquito chooses to dine on.

“Twins that were identical were very similar in their level of attractiveness to mosquitoes, and twins that were [not identical] were very different in their level of attractiveness,” study coauthor James Logan, a medical entomologist at the London School of Hygiene & Tropical Medicine, told NPR’s [Shots](#). “So it suggests that the trait for being attractive or unattractive to mosquitoes is genetically controlled.” Logan and his colleagues published their results in April in [PLOS ONE](#).

The fact that mosquitoes—specifically, female mosquitoes, which feed on blood to nourish their eggs—are more attracted to some people than others has been long established. And genetics are not the only factor involved. For some reason, mosquitoes find pregnant women particularly attractive, and people infected with the malaria parasite appear to attract the most insects during the period of the parasite’s life cycle that it is most transmissible. There are also some people that just seem to “smell differently to mosquitoes,” Logan told NPR. The new study suggests a genetic basis for this different scent.

Logan and his colleagues compared mosquitoes’ attraction to 18 pairs of identical twins and 19 pairs of fraternal twins by having the siblings stick their hands in either side of a Y-shaped tube. *Aedes aegypti* were then released from the long arm of the Y. While the mosquitoes showed no preferences among genetically identical twins, they often preferred one fraternal twin over the other. Logan now plans to investigate which genes may be behind the difference.

“Once we identify the genes involved, we may be able to screen populations to better predict the likely level of risk of being bitten, which is directly correlated to transmission of diseases like malaria and dengue,”

## The Bees Are Safe—Now Lift This Pesticide Ban

Opinion by Owen Paterson

*Mr. Paterson is member of parliament for North Shropshire in the U.K. He was secretary of state for environment, food and rural affairs from 2012 to 2014.*

In 2013, to stem what was thought at the time to be a declining honeybee population, the European Union imposed a two-year ban on the use of neonicotinoid insecticides, known as neonics. Unfortunately, the decision was based on faulty science and pressure exerted by environmental lobbyists, and has since caused a widespread deterioration in crops across the U.K. and Europe. Now that the ban is set to expire in November, the EU has a chance to correct its mistake before any more damage is done.

The first and most compelling argument against the ban is, quite simply, that the honeybee population has in fact not been in decline. The EU’s own official statistics show the number of honeybee hives rising by 900,000 during the two decades that neonics were on the market. Meanwhile, other wild bee species—those that pollinate crops and thus would come into most extensive contact with neonics—are thriving.

When the EU first imposed the ban, it cited the work of the French scientist Mickaël Henry. Mr. Henry now confesses that he may have overdosed the bees with neonics in his experiments, as many of us suspected at the time, and admits he has “no real clues” how much insecticide bees encounter in the field.

As a result, the European Commission now concedes that the neonics ban “was at no time based on a direct link on bee mortality.” Which raises the question: Why were neonics banned at all?



## U.S. Court Places Hold on Clean Water Rule Nationwide

A U.S. court on October 9<sup>th</sup>, issued an order, temporarily blocking the implementation of a federal water rule across the country.

The U.S. Court of Appeals for the 6th Circuit granted a nationwide stay against the so-called Waters of the United States (WOTUS) rule, which is intended to clarify which bodies of water are covered by the Clean Water Act. The rule was finalized by the Environmental Protection Agency and the U.S. Army Corps of Engineers in May but still faces political and legal opposition.

The appellate court said that the 18 states challenging the new standards were unlikely to face immediate irreparable harm from the rule, but there was also no evidence that the nation's waters would suffer "imminent injury" if the regulation was put on hold.

"A stay allows for a more deliberate determination whether this exercise of executive power ... is proper under the dictates of federal law," the court said in its majority opinion. The EPA said it respected the court's decision to allow more consideration of the issues raised by the case.

A preliminary injunction had already been issued against the federal rule by the U.S. District Court in North Dakota in August. That order applied only to the 13 states involved in the lawsuit.

The WOTUS rule has faced intense opposition from Republicans in Congress, farmers and energy companies. Critics contend the rule vastly expands the federal government's authority and could apply to ditches and small isolated bodies of water.

Multiple lawsuits have been filed in both federal district and appellate courts since the final rule was issued, raising questions about the proper venue for these cases.

### CALL FOR NOMINATIONS

#### **H. Don Newson**

##### **Distinguished Service Award**

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

###### Requirements for Nomination

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

#### **George B. Craig, Jr.**

##### **Mosquito Control Advocacy Award**

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

###### Requirements for Nomination

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

**DEADLINE: JANUARY 9, 2016**

**For more information and award applications visit the MMCA website: [www.mimosq.org](http://www.mimosq.org)**

# Scholarship Opportunities

**William J. Lechel, II  
Memorial Scholarship**

**Kenley Farrel  
Memorial  
Scholarship**

*Complete scholarship information and applications  
are available on the MMCA website:*

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

## William J. Lechel, II Memorial Scholarship

The Lechel Scholarship is a student presentation competition held in conjunction with the MMCA Annual Conference. College students entering this competition will present findings from their own scientific research or a synopsis of existing research at the 2016 conference in Ann Arbor.

Presentations on mosquitoes in particular are preferred, but related research may include information in health or pest-related fields including insects, weather, disease surveillance and science education. A total of 15 minutes will be allowed for each presentation.

**\$1,000 Award**

Sponsored by APM Mosquito Control & Clarke

**Application Deadline: November 15, 2015**

## Kenley Farrel Memorial Scholarship

**“Avian Mortality as an Indicator of Human Risk for West Nile Virus”**

MMCA annually presents an essay scholarship to encourage interest in mosquito control and to assist a student financially towards a higher education in Natural Science or a related field.

**1st Place: \$1,000  
2nd Place: \$250**

Sponsored by Hatfield Spraying Service & MMCA

**Application Deadline: November 1, 2015**

## **There are mosquito bites, then ...**

there is what happened to Indiana native Jordan Lingle.

Lingle told [BuzzFeed Life](#) he was playing capture the flag in the woods with friends when he spotted what he thought was the perfect hiding place. He crouched down at the edge of the woods in a hidden area near the river's edge and waited, soon realizing his mistake

“All of a sudden I felt like I was being attacked by mosquitoes everywhere on my body, especially on my back,” Lingle told BuzzFeed Life. “But I didn’t want to move from my spot because I was hidden super well. So I tried fending them off, then I realized there was a complete swarm of mosquitoes around me and it got unbearable, so I drove home.”

The number of bites was so great it appeared the individual bug bites converged into large, raised welts, many larger than a quarter.

**SO, if you don’t want your back looking like this, maybe pack some bug spray when you’re playing outside (maybe not mosquitoes but..)**



## New Malaria Vaccine Tentatively Approved, Although More Work to be Done

Scientists at the world's second-biggest pharmaceutical company, the UK-based GlaxoSmithKline (GSK), have been laboring to develop an effective vaccine against malaria — one of the world's top killers — for decades now. A recent trial in sub-Saharan African infants and toddlers found that the latest iteration of the vaccine, then called RTS,S, proved effective in babies aged 6-17 weeks at about a 27 percent reduction in potentially lethal falciparum malaria, and 46 percent protective in older children (5-17 months). (We discussed [this study](#) earlier this year). Now, The European Medicines Agency's (EMA) Committee for Medicinal Products for Human Use (CHMP) adopted a positive opinion regarding GlaxoSmithKline's *Mosquirix*, the first candidate vaccine for the prevention of malaria to reach this regulatory stage, the company announced Friday.

According to the WHO, malaria sickens around 200,000,000 worldwide, and kills someone each minute: over 500,000 dead from malaria in 2013, mostly African children and babies under 5. This toll is a remarkable achievement in and of itself, since only 10 years ago the dead were estimated to be close to one million. The improved mortality figure comes from more accessible treatments, more accurate and rapid diagnostic tests, preventive efforts focused on draining malarial mosquito breeding swamps and insecticide-treated bednets, and resurgence in many African nations of indoor residual spraying of DDT (IRS), despite the needless, ideologically-driven red-tape that has to be overcome to gain approval for such use.

GlaxoSmithKline CEO Andrew Witty said the EMA/CHMP's decision "represents a further important step towards making available for young children the world's first malaria vaccine." The company noted that it has committed to a not-for-profit price for *Mosquirix* so that, if approved, the price would cover the cost of manufacturing the vaccine together with a return of around 5 percent that will be reinvested in R&D for second-generation malaria vaccines, or vaccines against

other neglected tropical diseases. The GAVI vaccine initiative underwritten largely by the Bill and Melinda Gates Foundation is also a participant, as is the PATH malaria vaccine initiative.

WHO spokesman Gregory Hartl said a decision on whether to back use of *Mosquirix* will be based on factors the EMA doesn't take into account, such as cost-effectiveness and how it compares to other preventative measures.

*Mosquirix* was assessed for quality, safety and efficacy under a special procedure that allows the EMA to evaluate a product even if it will not be marketed in the European Union. Beyond the WHO's November recommendation, the vaccine would still have to be reviewed by national regulatory authorities in any country wishing to use it.

The WHO's Hartl said this meant it is unlikely to be rolled out anywhere until at least 2017. He added that a decision from the organization is due in November. "Any financing for this vaccine must not draw resources away from scaling up bed nets, effective drugs and rapid diagnostic tests for malaria," Hartl noted.

Note that the WHO's Hartl failed to even mention insecticides in his discussion on the vaccine's possible contribution to other anti-malarial measures. That's because such chemicals, epitomized by the chemical which has saved more lives than any other, ever — DDT — remains an anathema to the UN and its agency WHO, thanks to the mythology generated by Rachel Carson's "Silent Spring." They consider it a "persistent organic pollutant" and refuse to permit its routine use in IRS where its lifesaving properties would be an immense help. With this new vaccine and its subsequent improvements, it is to be hoped that the toll of malaria will continue on its downward trend.

To me, there is nothing more soothing than the song of a mosquito that can't get through the screen to bite you.



# News From Around The Districts

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SAGINAW

What an end of the Season! Saginaw experienced substantial nuisance mosquitoes the last two weeks of September, the result of two to four inches of rainfall mid-month and the 3<sup>rd</sup> warmest September on record. Responding to this late season nuisance is very challenging with a large portion of the seasonal workforce returned to college; a smaller ULV treatment window due to lower nightly temperatures; and daytime temperatures and humidity's like those of June. Aside from the odd September nuisance this season was fairly normal with bouts due to summer rains. Spring went very well as we had a successful aerial treatment of woodland spring mosquitoes; floodwater nuisance was present within the County through much of July, followed by minimal biting activity until mid-September. Fall finally arrived with the close of the month bringing cooler weather and ending our season on September 30<sup>th</sup>.

Our arbovirus surveillance data is nearly complete for 2015. Our arbovirus results reflect an average year for West Nile virus (WNV) within the County; results include a total of 9 corvids (7 crows and 2 blue jays) and 4 mosquito pools positive for WNV. La Crosse encephalitis was not found in the County this year. A WNV positive Crow was found approximately one mile from Shiawassee National Wildlife Refuge property. As in past years these positive detections on or near refuge property should allow for an uneventful process in securing permits for aerial larviciding in the spring of 2016. We again would like to thank Michigan State University and Dr. Mike Kaufman for their arbovirus testing services.

Our Education Department is back working in local schools and already has 156 classroom presentations scheduled. Molly, our inflatable mosquito, has had a face lift and made her debut at the Home Depot Health and Safety Fair on October 3<sup>rd</sup>.

It also seems tires had another successful year. We offered two week long tire drives and also accepted tires at our facility from May 1 – August 31. We collected a total of 7,443 tires this summer.

We are looking forward to the off-season where we look to re-organize, re-prioritize and re-energize.

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TUSCOLA

Tuscola County Mosquito Abatement concluded the season on September 30<sup>th</sup> this year. To give a little recap of our season, we began roadside fogging this year on May 12<sup>th</sup>. It was a very normal season for us compared to the previous two years. We had no large outbreak of mosquitoes and we were able to avoid the rain, for the most part, that plagued the other counties. Along with our adulticiding program, we began treating ditches and lagoons during June. We also started treating catch basins on July 15<sup>th</sup>.

We were forced to fog later into the summer this year after we received just over 7.5" of rain in August. Accompanied by high temperatures, all that rain was bound to catch up with us and it did. We had a hatch of vexans during the last week of our season. It was busier in the final week than it had been all summer.

With it being so damp for most of the summer, the *Culex* activity was down compared to recent years. The DNR office did identify West Nile virus in a Wild Turkey located near Mayville during the summer but that was the only disease activity we encountered. Here in our lab, we tested 4 corvids, all tested negative. We had zero positive pools detected in Tuscola County this summer which is always a good thing!

We are pleased to announce the addition of Gavin Greer to our staff, Gavin has been an intern in the lab for the past two seasons, in September he took over the lab operations as Rich Colopy has officially retired.

Our building project moves forward, we have hopes of being in the building before it snows!

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Midland County, like the neighboring districts, has experienced quite an active season right up to the end. In fact, we ended up extending some of our seasonal crew a full 2 ½ weeks beyond the normal end date, fogging until 28 September. This combined with the busy June and July period made for a steep learning curve for the new Director. He could feel chuckles coming from a distant area of south Florida where a certain former MCMC Director resides.

Here's the latest on the campaign to treat state forest in Midland County. The Forest Stewardship Council (FSC), with which the state maintains a forestry management certification, updated their list of "highly hazardous" pesticides in 2015 to include every active ingredient available on the market for adult mosquito control. As a result, MCMC in coordination with the Michigan Department of Natural Resources is working on an application (derogation) to the FSC so that we may use permethrin, despite it being on the "highly hazardous" list. In the derogation application materials, great care was made to discuss not just pesticide hazard, but more importantly, risk as it relates to the context of what we strive to do in the county. We are hopeful that the FSC will sufficiently value public health and grant us the ability to continue protecting Midland County residents as we have in the past - fingers crossed.

On 6 October Joyce McLaughlin was honored during an employee appreciation ceremony by the Midland County Board of Commissioners. Those who know Joyce realize that this recognition was well deserved. Congratulations Joyce!

It is with sadness that we relay the passing of Kenny Reis, a pilot who helped during our spring treat for several years. A memorial service was attended by MCMC staff on 11 October. Kenny was an outstanding pilot known for his conscientious work. He will be missed.

Now we shift into preparation for the 7F training, conference attendance and compiling the year-end report. One noteworthy change this fall and winter will be the benefit of having Doug Allen around as his full-time year-round status takes effect. Look for great things from MCMC Biology Department!

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The third quarter of 2015, which encompasses the bulk of the mosquito treatment season, started out dry, but ended wet with 3-5 inches of rain falling in three rain events that occurred from September 2-10. The Auburn and Pinconning areas were hardest hit, but no area was spared. Needless to say, we ended the season with a bumper crop of *Aedes vexans*, *Aedes trivittatus*, and *Psorophora ferox*. Adult mosquito populations peaked on September 22 due to unseasonably warm temperatures. Finally, by September 30<sup>th</sup>, more seasonable weather prevailed and we were able to wrap up field work on October 2<sup>nd</sup>. Clean-up and winterizing took place the next week.

Our second annual scrap tire drive was held August 15 where we recycled 557 tires as breeding habitats from the community.

Disease surveillance efforts continued through September. Four hundred thirty pools (or groups of mosquitoes) were assembled with two testing positive for West Nile Virus (WNV). These were mosquitoes that were collected in CDC traps, New Jersey light traps, or gravid traps. Seven of the fourteen Crows or Blue Jays tested this season were WNV-positive.

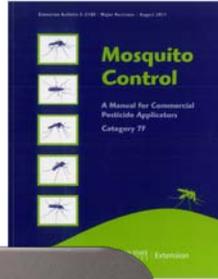
A son, Cooper, was born on July 16 to Bay County's Master Mechanic Justin and his wife Tracy. Cooper weighed 7 lb. 3 oz. and was 19 ½ inches long. Congratulations Justin and Tracy!

**MMCA is hosting a 7F Training Session Monday, October 19, 2015 at Bay County Mosquito Control. This course will provide attendees with eight 7F or Commercial Core credits. Complete information can be found on our website <http://www.mimosq.org>. Below are several links found on the website.**

### **MMCA 7F Training Session**

**When: October 19, 2015**

**Where:** Bay County Mosquito Control  
810 Livingston Ave  
Bay City, MI 48708  
(989) 894-4555



### **Information on the Website:**

Register for the training session using PayPal  
[Go to PayPal](#)

Register for the training session by mail  
[MMCA Training Session Agenda.pdf](#)  
[MMCA Training Session Registration Form.pdf](#)

**Limited Seating**



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

**Fall**