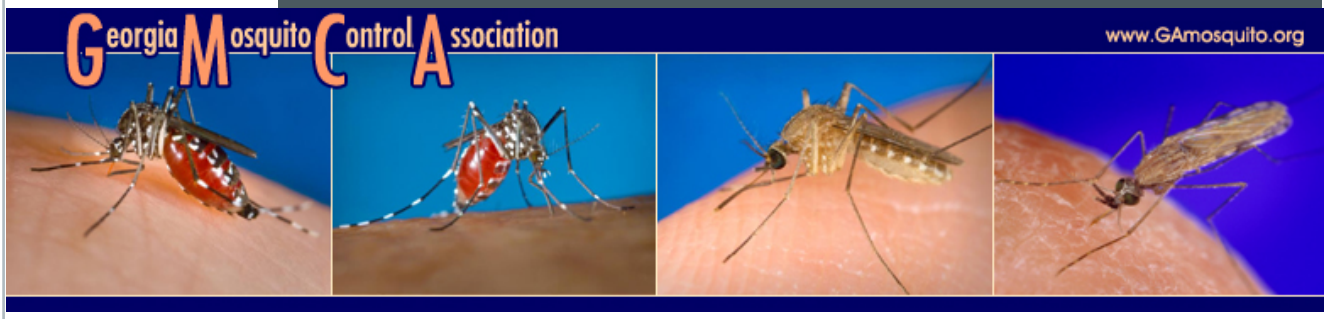
Georgia Mosquito Control Association May 15, 2015 Volume 6, Issue 1

# DIDEEBYCHA




The GMCA Newsletter - DIDEEBYCHA - is a means of spotlighting various programs throughout Georgia, as well as a way of providing the membership with information about topics of interest to mosquito control.

## Georgia's Arboviral Summary, 2014

In 2014, Georgia reported 13 human cases of WNV, with 1 death. Eleven (84.6%) of the 13 cases experienced WNV neurologic illness (altered mental status, paralysis, encephalitis, and/or meningitis) and 2 (15.3%) were diagnosed with WNV fever. No viremic blood donors were reported. The average age of cases was 53 years (range 9-86). The average age of those with WNV neurologic illness was 49 years (range 9-76). Nine (69.2%) of the 13 cases were male. The majority of cases were reported in July, August, and September.

No horses tested positive for WNV in 2014, but 7 horses tested positive for EEE. No birds were reported as being submitted for testing in 2014. A total of 5038 pools of mosquitoes (107967 individuals) were sent for testing with results reported to the GDPH. Mosquitoes found WNV+ (56 pools) were *Aedes albopictus* and *Culex quinquefasciatus*, as well as unidentified Culex spp; the mosquito species most commonly found positive (96.4%) was *Cx quinquefasciatus*. In

Continued on page 4…

### MAMCA Meeting

THE 40th ANNUAL CONFERENCE OF THE MID-ATLANTIC MOSQUITO CONTROL ASSOCIATION WAS HELD IN SAVANNAH GA ON JANUARY 13-15, 2015.

Page 2

### Age Grading Mosquitoes

When dealing with mosquitoes as vectors of disease-causing organisms, age matters.

Page 3

### Program Spotlight

Clarke Environmental Mosquito Management has provided contractual services for Fulton County Department of Health and Wellness Integrated Mosquito Management Program since 2001.

Page 6

# MAMCA Meeting

The Mid-Atlantic Mosquito Control Association is a non-profit, professional organization founded in 1975. The membership consists primarily of local, state, and federal government officials; industry, and research/academic members from the nine member states of Delaware, Georgia, Maryland, North Carolina, Pennsylvania, South Carolina, Tennessee, Virginia and West Virginia.

Every year, MAMCA holds a 3-day Annual Educational Conference in one of the member states above. This forum provides an opportunity for attendees to network, to provide updates on emerging technologies and methodologies, disease surveillance, policy development and changes, etc., and to gain new knowledge and information with all being related to mosquito biology, disease transmission, and control. The 40th annual conference was held January 13-15, 2015 at the Hilton Savannah DeSoto in Savannah Georgia.

Speakers included:

- Joe Andrews; AllPro Vector Group
- Danielle Bodner; Grad Student, University of Maryland, College Park
- Kim Brinson; DE Division of Fish and Wildlife
- Brian Byrd, MSPH, Ph.D.; Western Carolina University
- Willie O Chance; UGA Center for Urban Agriculture
- Joseph Conlon; American Mosquito Control Association
- Stanton E. Cope, Ph.D.; Terminix International
- Shawn Rhodes; Code Enforcement, Augusta, GA
- Jeannine Dorothy; Maryland Department of Agriculture
- Jamie Durden; City of Suffolk Mosquito Control
- Elmer Gray; University of Georgia, Athens
- Mary Herring; City of Suffolk Mosquito Control
- Kristen Hopperstad; North Carolina State University
- William Jany; Clarke Mosquito Control
- James Joachimowski; DE Division of Fish and Wildlife
- Fred Koehle; Richmond County Environmental Health
- Thuy-Vi "Tiffany" Nguyen; University of Georgia, Athens
- Chris Rustin, DrPH, MS, REHS; Georgia Department of Public Health
- Dennis Salmen, REHS; American Mosquito Control Association Mid-Atlantic Regional Director
- Julie Shaffner; CDC PHPS Fellow; Tennessee Department of Health
- Dreda Symonds; Public Works/Biology Lab, Virginia Beach, VA
- Mickey Taylor; University of Georgia, Athens
- Erica Wyatt; Clarke Mosquito Control

There was also a poster presented by Carrie De Jesus; North Carolina State University.

Talks can be found at http://www.mamca.org/conference_2015.htm

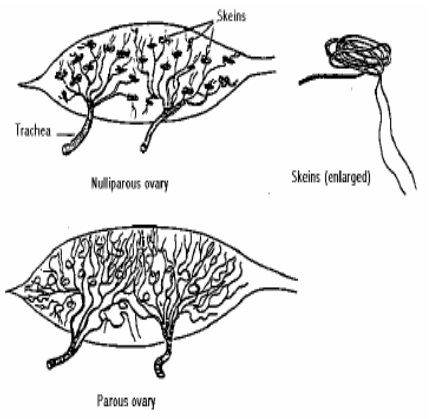
The 2016 MAMCA meeting will be held in Nashville, TN on March 30-April 1.

# Age Grading Mosquitoes

When dealing with mosquitoes as vectors of disease-causing organisms, age matters. In general, the older the mosquito (vector), the higher her risk of being infected. In other words, where parous means having produced offspring, nulliparous equals less risk and parous equals increased risk. This is because biting mosquitoes that have not previously taken a blood meal are a nuisance, while mosquitoes become vectors ready to transmit pathogens after taking a blood meal and laying eggs. So, to estimate whether a mosquito population is more likely to be transmit pathogens, we need to know if a significant proportion has taken a blood meal and potentially acquired a pathogen. This will not work where transovarial transmission is an important part of the virus life cycle, as the female mosquito would be infected before taking a blood meal if her mother was infected.

The procedure to determine parity is not difficult. The ovaries are dissected from mosquitoes and dried at room temperature on a labeled slide. The parity of each set of dried ovaries can be determined using the tracheal skeins method described by Detinova (1962). The presence of coiled tracheole skeins indicates a nulliparous mosquito and uncoiled skeins indicate a parous mosquito.

This measure of increased risk is especially useful when dealing with container-breeding mosquitoes. These mosquitoes do not all emerge at once as many floodwater and permanent water species do. Instead, adults emerge continually throughout the season, making it difficult to determine if mosquito control is actually having an effect on population reduction and reduction of disease risk. By looking at the age structure of the target mosquito population it should be possible to see if your control efforts are keeping the population young and reducing the chance of disease transmission.




References


- Detinova, T.S., Age-grouping methods in Diptera of medical importance with special reference to some vectors of malaria. Monogr Ser World Health Organ, 1962. 47: p. 13-191.
- Ovary Dissections for Parity Determination of Field-Collected *Coquillettidia* perturbans Mosquitoes in Central Massachusett. JOHANNA RAVENHURST, Research Intern, Central Mass. Mosquito Control Project http://www.cmmcp.org/2013_parity_study.pdf


With special thanks to Dr Brian Byrd, Western Carolina University, for providing information about this topic.

# Georgia's Arboviral Summary, 2014 (cont)

addition to WNV, 2 pools were found to be EEE+ (Lowndes & Chatham counties).

In the United States, a total of 2,122 cases of West Nile virus disease in people, including 85 deaths, were reported to CDC as of 1/13/15. There were also 337 presumptive viremic blood donors reported. Of the cases, 1,283 (60.5%) were classified as neuroinvasive disease (such as meningitis or encephalitis) and 839 (39.5%) were classified as non-neuroinvasive disease.

Equine surveillance will continue throughout 2015 in cooperation with the Georgia Department of Agriculture and the University of Georgia Veterinary Diagnostic Laboratories. Equine arbovirus surveillance has traditionally been an important indicator of EEE activity in Georgia and has been used as an indicator of human risk. Equine surveillance plays an important role in determining the risk of WNV activity, but because reported cases of WNV in horses continue to decrease, strengthening relationships with local veterinarians will provide better information on horse cases locally. Because clustering of human cases around positive horse sites indicates that these are sites of high human risk, education of horse owners plays an important role in reducing the risk of mosquito-borne diseases.

Some limited mosquito surveillance will also occur. This is an important component of an arbovirus surveillance and control program. Information obtained from these surveillance efforts should lead to responsible and informed decisions about mosquito control as well as public education about elimination of mosquito breeding habitats and prevention of mosquito bites. To-date WNV activity has been a yearly occurrence and is considered endemic throughout the state. Surveillance is useful as a trigger for public education messages reminding people to wear repellent and to dump out standing water.

Continued surveillance also makes it much more likely that the next new virus introduced into the area will be identified before human cases occur. Where mosquito control is available, data should be shared between public health and the mosquito control program. Mosquito control targeting vector species will reduce the risk of disease transmission. Currently, there is a risk that Chikungunya, a human arboviral disease carried by *Aedes aegypti* and *Ae albopictus*, could be introduced into Georgia. We saw an increase in travel-associated cases in 2014 and both vectors are found in Georgia. Dengue, another human arboviral diseases carried by the same two species of mosquitoes, has recently been re-introduced into south Florida. Because these are diseases of humans and not zoonotic diseases, mosquitoes can transmit the disease between people. This makes it imperative for local health departments to work closely with mosquito control when travel-associated cases are reported. Because of the long lag-time in confirming these cases, information about where possible cases live needs to be shared with mosquito control as soon as possible to minimize the risk of local transmission.

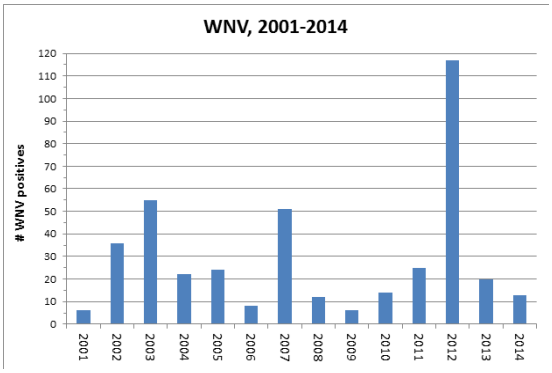



**Figure 1: WNV+ Human Cases, 2001-2014**


**Figure 2: 2014 West Nile Virus Activities in the United States**

## MAMCA Officers and Board of Directors 2014-2015

| | |
|---|---|
| Rosmarie Kelly, President<br>Georgia Department of Public Health<br>Phone (404) 408-1207<br>rosmarie.kelly@dph.ga.gov | |
| Abelardo C. Moncayo, Vice-President<br>Tennessee Department of Health<br>Phone (615) 262-6356<br>abelardo.moncayo@tn.gov | Timothy DuBois, Vice-President Elect<br>City of Hampton<br>Phone (757) 727-2808<br>tdubois@hampton.gov |
| Anthony DeWitt, Past President<br>MD Dept. of Agriculture, Mosquito Control Section<br>Phone (410) 841-5870<br>anthony.dewitt@maryland.gov | Andy Kyle, Secretary-Treasurer<br>Phone (717) 346-8241<br>akyle@pa.gov |
| Sue C. Ferguson, Historian<br>Phone (803) 732-1141<br>fergussc@bellsouth.net | Jeffrey O'Neill (Industry)<br>Central Life Sciences<br>Phone (302) 312-3950<br>joneill@central.com |
| Kimberly Brinson (Delaware)<br>DNREC, Mosquito Control Section<br>Phone 302-836-2555<br>kimberly.brinson@state.de.us | Fred Koehle (Georgia)<br>Richmond County Environmental Health<br>Office Phone (706) 667-4241<br>augmosq@dph.ga.gov |
| Kyle Brinson (Maryland)<br>Maryland Dept. of Agriculture<br>Mosquito Control Section<br>Phone (410) 543-6626 or (410) 651-3807<br>kyle.brinson@maryland.gov | Dennis Salmen (North Carolina)<br>Phone (704) 575-2837<br>dennis_salmen@yahoo.com |
| Tom Smith (Pennsylvania)<br>West Nile Program Administrator<br>Penn State Extension - York County<br>Phone (717) 840-2375<br>tls35@psu.edu | Travis L. Shealy (South Carolina)<br>Bureau of Environmental Health Services<br>SCDHEC<br>Phone (803) 896-0655<br>shealytl@dhec.sc.gov |
| Ture Carlson (Tennessee)<br>Shelby Co. Health Department, Vector Control<br>Phone (901) 222-9727<br>ture.carlson@shelbycounty.gov | Ann Herring (Virginia)<br>City Of Suffolk<br>Dept. of Public Works, Mosquito Control<br>Phone (757) 514-7608<br>mherring@suffolkva.us |
| Eric Dotseth (West Virginia)<br>WV Dept. of Health and Human Resources<br>Office of Laboratory Services<br>Phone (304) 356-4020<br>eric.j.dotseth@wv.gov | Dennis Salmen (Newsletter Editor)<br>Phone (704) 575-2837<br>dennis_salmen@yahoo.com |

PROGRAM SPOTLIGHT

## Fulton County Mosquito Control Program

Clarke Environmental Mosquito Management has provided contractual services for Fulton County Department of Health and Wellness Integrated Mosquito Management Program since 2001. The program has evolved over the years and not only provides larval control but also adulticiding and surveillance throughout the county. Using extensive historical data and environmentally friendly products, this comprehensive program protects the health of over 900,000 residents.

Operations normally begin in early June by inspecting and larviciding catch basins in designated "Hot Spots". These areas have a history of West Nile Virus activity and also a large at risk population. There are 12,000 catch basins that are treated throughout the season using Natular™ XRT tablets for 150-day residual control larval mosquitoes. Clarke has developed maps that provide the exact location of catch basins and technicians use either hybrid vehicles or bicycles for conducting treatment. Hand-held GPS units are used to geo-code each catch basin treatment. This provides Fulton County with an accurate record of when a catch basin was treated. This is also compliant with the Clean Water Act/NPDES regulations.

Tire dumping has been a very big issue in Fulton County. Locating, treating and removing tires is a priority and backpack application of Natular G30 is used for treatment. Maps that show ravines, marshes, tire piles and junk yards are continuously updated and treated by backpack application when applicable.

Clarke also provides Fulton County with their EarthRight™ program. EarthRight™ is comprised of products and processes that reinforce Fulton County's bronze level "Green Community" certification, as recognized by the Atlanta Regional Commission. Products Fulton County currently use that fall under the EarthRight™ program are Natular, Natular G30, and Merus (adulticide). Over 9,000 catch basins have been treated by bicycle since this program began and when not feasible, a Toyota Prius is used as the primary vehicle to treat basins.

In 2012 adulticiding began in Fulton. Areas treated include WNV-positive mosquito sites, county parks and citizen complaints that meet specific criteria. Backpack barrier treatments are performed with Flit 10EC (5% permethrin) on vegetation and mosquito resting habitat.

Mosquito surveillance begins in late June with testing starting the first week in July. There are currently a total of 26 trap locations that are spread out throughout the county. A total of 228 gravid traps and 40 ABC traps are set during the season. Mosquitoes are tested at the regional laboratory in Manassas, VA and PCR confirmation is conducted by Fairfax County, VA.

# AMCA, 2016

The American Mosquito Control Association's annual meeting is the premier education and networking event for researchers, educators, vector control professionals, industry representatives, and students in mosquito control. Every year since 1935, hundreds gather to hear the latest research, share ideas, and form collaborations. Our educational sessions and exhibit hall help to put attendees on the cutting-edge of this ever-expanding field!

**SAVE THE DATE!!**
February 7 - 11, 2016
Savannah International Trade & Convention Center
Savannah, Georgia

Additional information about the 2016 meeting can be found at http://www.mosquito.org/amca-annual-meeting-questions.

The AMCA is a nonprofit organization that is dedicated to providing leadership, information and education leading to the enhancement of public health and quality of life through the suppression of mosquitoes.

The GMCA is a sustaining member of the AMCA.

## The Georgia Mosquito Control Association

**GMCA**
**c/o David Touwsma**
433 Bishop Street
Atlanta, GA 30318

www.GAmosquito.org