



# DIDEEBYCHA

Georgia Mosquito Control Association

www.GAmosquito.org



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.

## Chikungunya, 2014

Chikungunya fever is an emerging, mosquito-borne disease caused by the Chikungunya virus. It is transmitted predominantly by *Aedes aegypti* and *Ae albopictus*. Two other species, *Ochlerotatus japonicus* (Schaffner et al 2011) and *Oc triseriatus* (Mangiafico 1971), have also been found to be competent vectors in lab studies. In late 2013, Chikungunya was found for the first time on islands in the Caribbean, where it has persisted and continued to spread.

of 28 people per year in the United States with positive tests for recent Chikungunya virus infection (Range 5–65 per year). All were travelers visiting or returning to the United States from affected areas, mostly in Asia.

Beginning in 2014, cases have been identified in travelers returning from the Caribbean. As of November 7, 2014, local transmission had been

From 2006–2013, studies identified an average

**Continued on page 4...**

### GMCA Meeting

The 37<sup>th</sup> annual meeting of the Georgia Mosquito Control Association was held on Oct 15-17, 2014.

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### Mosquito Control & Public Health

Health departments and mosquito control are both components of public health and need to work together to deal with vector-borne diseases.

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### Program Spotlight

Jerry DeRamus tribute

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## GMCA Meeting

The 37<sup>th</sup> annual meeting of the Georgia Mosquito Control Association was held on Oct 15-17, 2014 in Athens, GA. Talks ranged in topic from educational resources for mosquito control, to research on a variety of mosquito control methods, updates on chikungunya, the eradication of the screw worm, forensic entomology, and flies.

Dr. Richard W. Merritt, currently Professor and past Chair of Entomology, Michigan State University, East Lansing, Michigan, gave the talk on forensic entomology. Most anyone with a background in entomology has used his textbook "*An Introduction to the Aquatic Insects of North America*" at some time in their career. Dr Merritt is involved in the field of Forensic Entomology and assists police departments with crime scene investigations involving insects. He has over 20 years of experience in this field and has been Chairman of the American Board of Forensic Entomology and currently a Fellow in the American Academy of Forensic Sciences.

The list of speakers and their talks can be found at <http://www.gamosquito.org/Presentations2014.htm>

During the banquet Henry Lewandowski, soon to be retired director of Chatham County Mosquito Control, was honored for his years of service to mosquito control.



Henry, a former T Oscar Fultz Fellows award winner, was also given the task of introducing the T Oscar Fultz award. This award is the highest award given by the GMCA next to that of the immediate past president of the association. The criteria for this award are exceptional life-time contributions to the association and to the control and study of

mosquitoes, the prevention of the mosquito-borne diseases, the preservation of the environment, and the education of our citizens.

This award does not have to be given every year and must be held in its highest distinction, not to be given lightly.

This year the award was given to Fred Koehle, the director of the Richmond County Mosquito Control program. His letter stated in part:

"Fred has just completed his tenure as president of the GMCA and currently serves as the director of the Richmond County Mosquito Control Program. In some ways Fred is relatively new to the mosquito control profession, having retired from a previous career in the food services industry and joining the Richmond County staff in 2003. However, it is the extensive experience and diligence that Fred has brought to bear on the operation of the Richmond County mosquito control program and to his role of leadership with the GMCA that has made such a significant impact in such a short time. Fred is essentially our first in-house trainee, having learned the concepts of mosquito control with us, right here at the GMCA. By joining our association as essentially a clean slate, Fred brought an open mind, with multitudes of real world experiences. Consequently, any, and all options were open to mosquito control at Richmond County. New partnerships were formed and different avenues pursued. As a result, new emphasis was placed on barrier sprays, catch-basin treatments, regulatory enforcement and interagency collaboration. The results of these efforts are a highly efficient and effective program."



## Mosquito Control and Public Health

On July 15, 2014 the State public health entomologist received a call from the Public Works Superintendent of Streets & Parks in a small Georgia town. An employee at the Public Works office downtown had been hospitalized with an unknown illness. Doctors suspected an arboviral disease. The employee had a high fever (105<sup>o</sup>), joint pain, nausea and vomiting, a low WBC count, abnormal liver enzymes and platelet counts. The onset of illness has been July 4<sup>th</sup>. There was no travel history.

This same small town had recently reported two travel-associated CHIK cases in residents who lived in the same general area, one within ¼ mile. *Aedes albopictus*, a competent vector, is common in the town. The case symptoms were compatible with CHIK. The timing worked.

So why, aside from the fact that chikungunya is poised to be imported to new areas by infected travelers, is this story of interest? First, there is a lag in notification about potential CHIK cases both to and from the state health department. The health department is often not notified about cases until well after the infected person could have been fed upon and infected local mosquitoes. Added to that, there is a HUGE lag time in testing for CHIK, so even when a case is suspected, it can take months for the case to be confirmed. Of more import, local mosquito control was never notified of the travel-associated cases, because, as is far too often the case, mosquito control and the local health department do not have a working relationship.

There appears to be a lack of understanding that CHIK cases produce sufficient viremia to infect mosquitoes during the first week or so of illness. Delays in testing and reporting increase the probability of local mosquitoes becoming infected.

Florida is the only state in the US to have reported locally acquired cases of chikungunya. The numbers, though small, have increased more than 100% since July, according to the latest federal data.

Durland Fish, a professor of entomology at Yale University's School of Public Health, worries that mosquito control and public health are not doing enough to coordinate efforts to stop chikungunya from spreading once travel-associated cases are reported.

It turned out that this case of unknown fever was not chikungunya. However, aside for pointing out some very large gaps in Georgia's response to CHIK, it did prove to be a useful exercise for mosquito control. The local mosquito control program, a small complaint-driven program located within the town's public works agency, reached out to and built working relationships with other local mosquito control programs. After contacting the State public health entomologist, they did a walk-through of the site to evaluate the potential for the presence of the vector, *Aedes albopictus*. They contacted their mosquito control products vendor and borrowed a second ULV sprayer. They worked with a larger program to do surveillance at and around the site, and based their control on the data they collected. They discussed the possibility of testing mosquitoes for CHIK if the employee turned out to have chikungunya. They looked into the possibility of buying or borrowing a thermal fogger. They also discussed the possibility of doing aerial surveillance if chikungunya was being transmitted locally.

Mosquito control controlled the release of information. They did inform key officials – the city manager and the local hospital administrator – who spread the information to the local healthcare community. Overall, the response of the town to a possible locally-acquired CHIK case was appropriate and timely based on notification of mosquito control.

It is important that we remember that the health department and mosquito control are both components of public health and need to work together to deal with vector-borne diseases. Fortunately there are a few health departments that do work closely with mosquito control. However, too many health departments are not even aware of mosquito control programs in their counties.

## Chikungunya 2014 (cont)

identified in 39 countries or territories in the Caribbean, Central America, South America, or North America. A total of 874,103 suspected and 16,669 laboratory-confirmed chikungunya cases had been reported from these areas.

As of November 18, a total of 777 chikungunya virus disease cases have been reported to ArboNET from U.S. territories. Seven hundred and thirty-nine locally-transmitted cases have been reported from Puerto Rico and the US Virgin Islands. The remaining 38 cases occurred in travelers returning from other affected areas in the Americas.

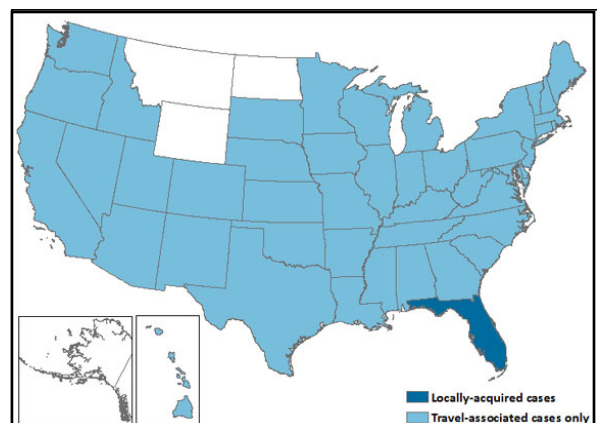
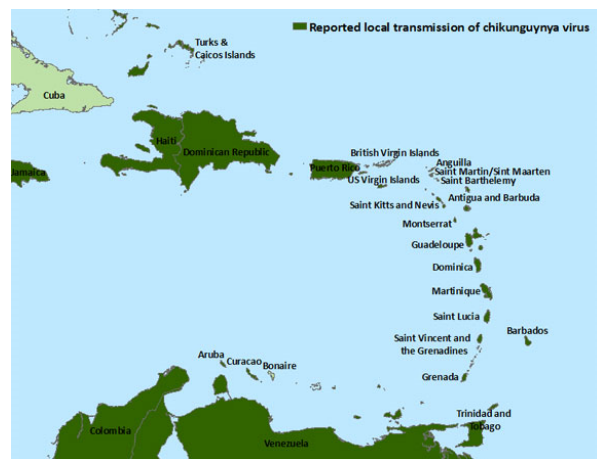
A total of 1,850 chikungunya virus disease cases have been reported to ArboNET from US states. Eleven locally-transmitted cases have been reported from Florida. All other cases occurred in travelers returning from affected areas in the Americas (N=1,819), Asia (N=11), or the Pacific Islands (N=9).

Georgia has reported 26 cases of travel-associated CHIK and no locally-acquired cases.

Information about Chikungunya in Georgia can be found at <http://dph.georgia.gov/exotic-vector-borne-diseases>.

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**GMCA Board of Directors 2014-2015**

The President, Vice-President, Secretary/Treasurer, and Commercial Board Member serve a one-year term of office beginning in October. The Directors serve a three-year term, while the term for representatives is indefinite. Nominations are accepted during the annual October meeting.

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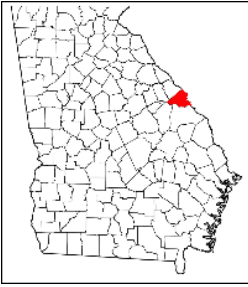
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## PROGRAM SPOTLIGHT

### Richmond County Mosquito Control Program

Augusta–Richmond County is a consolidated city-county in Georgia, located at the fall line of the Savannah River, at the head of its navigable portion. It has an area of 306.5 sq miles (793.8 km<sup>2</sup>) and had a population of 194,343 in 2009.

Mosquito Control is a part of the Richmond County Public Health, Environmental Health Department.



Jerry DeRamus started as a mosquito technician with Mosquito Control in 2010 doing larviciding throughout the county and barrier spray in downtown Augusta. But Jerry said his job was not only about pest control, it was also about disease control. "I'm trying to hold down mosquitoes. If I can do that, I can hold down diseases and possibly deaths!"

Jerry came to mosquito control as a retiree from law enforcement. He learned the job quickly and soon became an important member of the small mosquito control program. He learned his control duties and also provided an educational message to members of the public that he met while out doing his job. He had several ideas for minimizing mosquitoes at people's homes that he was happy to share with members of the public he met on the job. These included cleaning up yard waste and trimming back bushes, tossing out old tires, cleaning out house gutters so wet leaves did not pile up, and avoiding any standing water, especially



near abandoned pools.

Jerry learned the job so well that Fred Koehle, the Richmond County Mosquito Control Program Director, began training him to take over as director.

In April 2013 Jerry began taking over the duties of Director so Fred could focus all his energy on special projects such as the swimming pool remediation program.

In early Jan 2014 Jerry had a stroke. He had been home and improving from his stroke when he took ill and was rushed to hospital. Unfortunately, he was unable to recover from this latest illness and passed away on May 8, 2014.

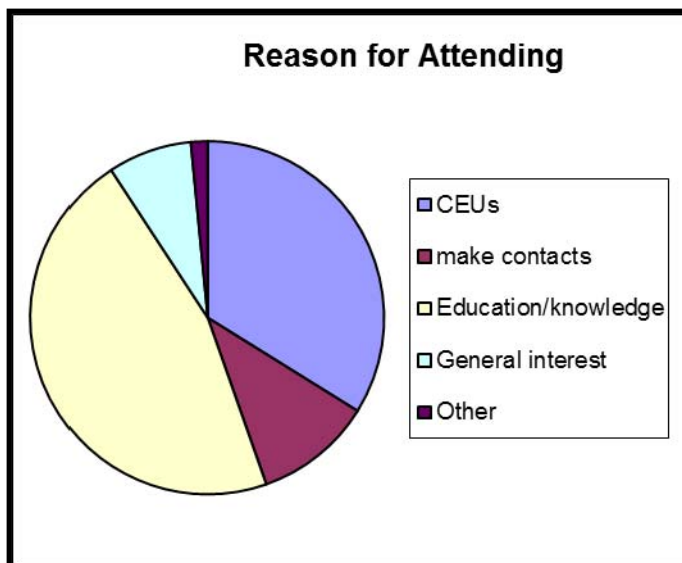


## Annual Meeting Survey Results, 2014

The meeting survey was reintroduced at the 2014 GMCA annual meeting and the results indicated that the GMCA Board are doing many things right but that there is (as always) room for improvement.

Given the decreasing participation at the annual meeting in recent years, it is important that we understand how to make this meeting of value to the mosquito control professionals in Georgia. Given this, the question of primary importance is why would someone attend the annual meeting (see graph).

Overall attendees felt that the talks were informative and interesting, and that the topics were relevant. However, attendees did feel that some of the presentations needed to be scaled back to the level of the audience. They also requested more on mosquito surveillance techniques that are species specific and more detailed information on some of the chemicals used in mosquito control.

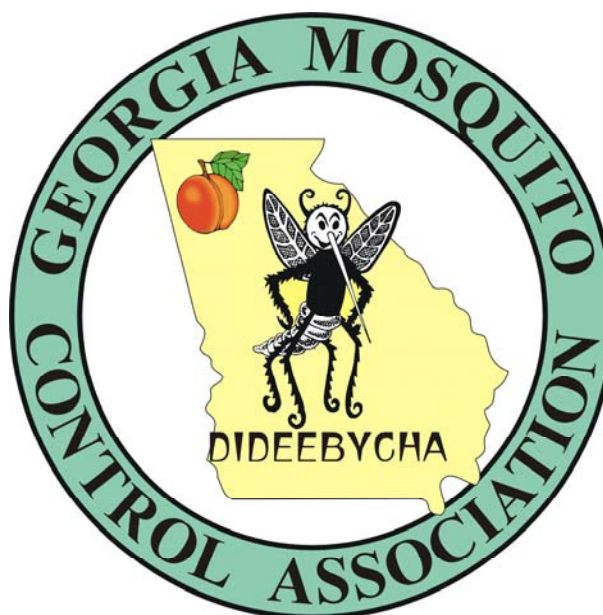


The GMCA Board takes these suggestions seriously and will be looking into making the suggested changes in the future.

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## GMCA Newsletter Supplement

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### *Mansonia titillans* in Georgia

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The mosquito, *Mansonia titillans*, (Figure 1) is a moderate-sized, dark mosquito found in scattered locations in the southeastern United States (Darsie and Ward, 2005; Burkett-Cadena, 2013). The larvae obtain oxygen by way of specialized siphons modified for piercing stems, roots, and floating leaves of aquatic plants, such as water hyacinth (*Eichornia crassipes*). In Georgia,



Figure 1. *Mansonia titillans* adult.

specimens have previously been reported from five southern counties, i.e., Ben Hill, Calhoun, Charlton, Tift, and Worth (Smith and Floore, 2001). These specimens were captured in CDC light traps during June and July of 1997. An as yet unreported record was collected in Muscogee County, GA on August 28, 2007. A record for a related species, *Mansonia dyari*, also exists from “Camp Stewart, Hinesville, GA” (Miles and Rings, 1948), and more recently from a site in Beaufort County, South Carolina (Darsie and Hager, 1993), approximately 50 miles north of Savannah, GA. See Figure 2 for the currently known distributions of these two species in Georgia.

Late in the 2014 mosquito season, specimens of *Mansonia titillans* began showing up in

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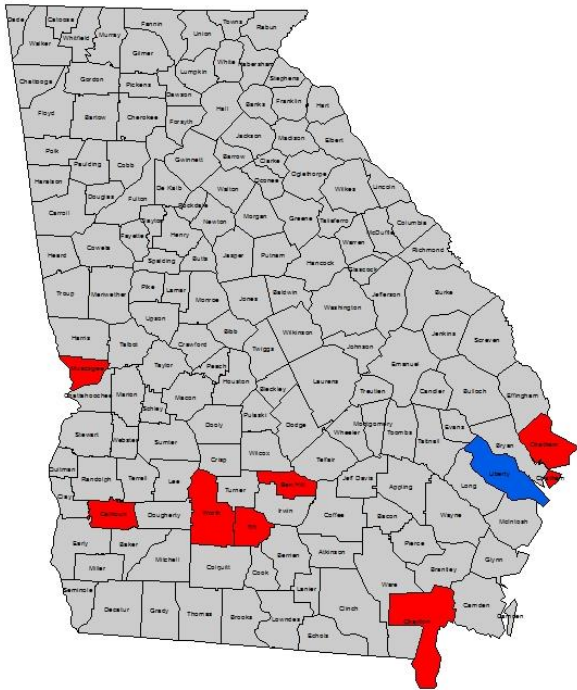


Figure 2. *Mansonia titillans* (red) and *Mansonia dyari* (blue) known distribution in Georgia.

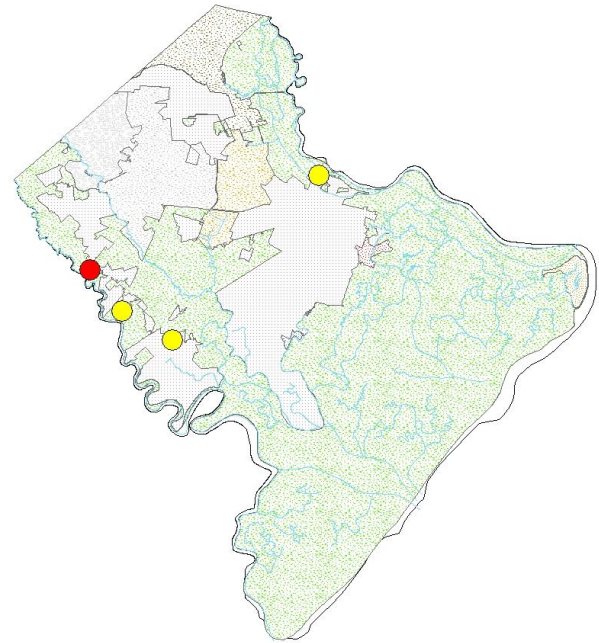
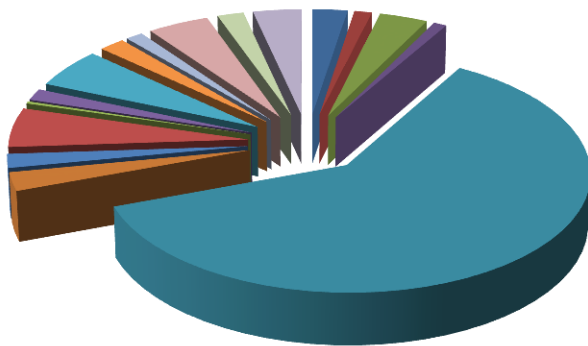


Figure 3. *Mansonia titillans* records from Chatham County, Georgia (aspirated collection in red, CDC trap collections in yellow).

collections from Chatham County, GA. Two specimens were captured in a hand-held aspirator on September 30 from a local nature center situated within a mixed forest river swamp area along the Ogeechee River. Single specimens were secured from a CDC light trap at another site approximately 5 miles downstream from the initial record on October 21 and 28. This site was also within a mixed woods habitat along a man-made canal that regulated the flooding of historic rice fields and waterfowl habitat. Five more specimens were caught in a CDC light trap set within a dense mixed forest swamp of the same river system on October 28 and November 25. An additional specimen was obtained from a CDC light trap on an intercoastal island situated between forks of the Savannah River on November 13. These records show that, although limited in its distribution, *Mansonia titillans* is not necessarily restricted to an isolated region of the county (see Figure 3).

The Muscogee County specimen was captured along with *Aedes albopictus*, *Culex erraticus*, and *Culex nigripalpus*. In all, a total of 15 species was caught in traps that collected *Mansonia titillans* in Chatham County. These were: *Aedes albopictus*, *Aedes vexans*, *Anopheles crucians* complex, *Culex erraticus*, *Culex nigripalpus*, *Culex salinarius*, *Culiseta melanura*, *Ochlerotatus atlanticus*, *Ochlerotatus canadensis*, *Ochlerotatus dupreei*, *Ochlerotatus infirmatus*, *Ochlerotatus taeniorhynchus*, *Ochlerotatus triseriatus*, *Psorophora ferox*, and *Uranotaenia sapphirina* (Figure 4). Unfortunately, Chatham County Mosquito Control (CCMC) personnel have not found larval forms of this species to date. This may be because the aquatic plants, such as water hyacinth and water lettuce (*Pistia stratiotes*) generally associated with immature *Mansonia*, are not common in our area, and some other plant

Figure 4. Species of mosquitoes collected with *Mansonia titillans* from CDC Light traps



- |                         |                            |
|-------------------------|----------------------------|
| ■ <i>Ma titillans</i>   | ■ <i>Ae albopictus</i>     |
| ■ <i>Ae vexans</i>      | ■ <i>Cx erraticus</i>      |
| ■ <i>Cx nigripalpus</i> | ■ <i>Cx salinarius</i>     |
| ■ <i>Cs melanura</i>    | ■ <i>Oc atlanticus</i>     |
| ■ <i>Oc canadensis</i>  | ■ <i>Oc dupreei</i>        |
| ■ <i>Oc infirmatis</i>  | ■ <i>Oc taeniorhynchus</i> |
| ■ <i>Oc triseriatus</i> | ■ <i>Ps ferox</i>          |
| ■ <i>Ur sapphirina</i>  | ■ <i>An crucians</i>       |

species may be involved in the local biology of this species. Collectors that rely on speckled dark and pale scales on the wings and a banded proboscis for identifying *Coquillettidia perturbans*, *Ochlerotatus sollicitans*, and *Psorophora columbiae* should be alert because the two *Mansonia* species have these characters, but, like *Coquillettidia perturbans* they have very blunt tips on the abdomen. Both *Mansonia* species are speckled dark brown, while *Coquillettidia perturbans* is speckled gray and tan. Also, the two *Mansonia* species lack the median pale band on hindtarsomere 1 that occurs on *Coquillettidia perturbans*, *Ochlerotatus sollicitans*, and *Psorophora columbiae*. It is not known the extent *Mansonia* could play in any local arbovirus cycle. However, a pool of *Mansonia titillans*

collected in October (17) from Louisiana (Unlu et al., 2010), and another collected in August (24) from Florida

(<http://www.floridahealth.gov/diseases-and-conditions/mosquito-borne-diseases/documents/2005annual-report.pdf>)

tested positive for West Nile virus. None of the *Mansonia* collected by CCMC were submitted for viral testing during 2014, and considering its scarcity, this species is unlikely to be tested in the future.

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