

Buzz Words



The Newsletter of the Florida Mosquito Control Association
Jan/Feb 2004

Volume 4, Issue Number 1

Upcoming Events

March 16 – 17, 2004
2004 FMCA Tallahassee Days
This event will replace the annual FMCA Spring Meeting for 2004
See inside this issue for details



April 20 – 21, 2004
Quarterly Meeting of the Subcommittee on Managed Marshes
Martin County, FL
See inside this issue for details



Deadline for submissions to be included in the Mar/Apr 2004 issue of Buzz Words is March 26, 2004. Please send articles and change of address information to Dr. Roxanne Rutledge, Editor, FMEL, 200 9th Street S.E., Vero Beach, FL 32962; or buzzwords@ifas.ufl.edu

FMCA News

Subcommittee on Managed Marshes

The next quarterly meeting of the Subcommittee on Managed Marshes will be held on April 20-21, 2004 in Martin County, FL. The 5th Workshop on Salt Marsh Management and Research will be held in conjunction with the 3rd Biennial Mosquito Lagoon Conference. This joint meeting will be held during the week of October 11, 2004 in Titusville, FL.

For information on either meeting, please contact Doug Carlson, Indian River Mosquito Control District, PH: 772-562-2393.

FMCA Web Page

If you haven't visited the FMCA web site (<http://www.floridamosquito.org>) recently, please take a moment to do so now. By the time this issue of *Buzz Words* reaches you, the web site will have a NEW look. All of the most-often accessed pages are still there – the Classifieds, Upcoming Events and Links to other sites. Of course, our popular *Buzz Words* and *Wing Beats* archives are there. *Wing Beats* and *Classifieds* continue to be the most viewed pages on the site.

On the left lower quadrant of the new home page is a scrolling text box where you will find timely information such as "hot" topics and web sites and "last minute" items. To the right of the text box in the main window are 4 pictures. These will be changed on a regular basis. I would like to have lots of both old and current pictures to place here. So please send your pictures and I will get them on the site. Brief titles would really help our viewers.

Tom Floore - Web master
Tomfloo@knology.net

New Director – City of Jacksonville

James R. Brown, Ph.D. (Univ. of Ark., 1987), assumed Mosquito Control Division Chief responsibilities for the City of Jacksonville, FL on January 2, 2004. Jim goes to the COJ with 16 years experience in the testing and evaluation of pest management equipment and insecticides for the US Navy pest management program. He is interested in aerosol cloud dynamics and deposition and with his collaborators has generated 35 papers for our technical journals

during the past 16 years. He has tremendous technical support in the COJ Mosquito Control program and looks forward to enjoying the future in operational mosquito control.

2004 FMCA TALLAHASSEE DAYS

TO: DIRECTORS, COMMISSIONERS & INTERESTED FMCA MEMBERS

Each year the Florida Legislature makes funding decisions that are vitally important in determining how mosquito control will be carried out in our State. These State-appropriated funds are crucial in funding the Mosquito Control Section of the Florida Dept. of Agriculture and Consumer Services (FDACS) Bureau of Entomology and Pest Control, mosquito control research and the FDACS Operational Support/Dogfly Program. This funding also helps support local mosquito control programs. For larger programs, the funding that each qualifying office receives from FDACS can be a relatively small percentage of their budget. However, it is frequently critical for smaller programs.

During February 2003, the Florida Mosquito Control Association (FMCA) sponsored the first Tallahassee Days event which was an opportunity for FMCA members to learn more about the legislative process and to meet with legislators, educate them about mosquito control issues and to encourage them to support mosquito control funding. This event proved to be beneficial to all involved and is being planned to occur again on March 16-17, 2004. This 2 day meeting will take the place of the FMCA's typical Spring Meeting.

The FMCA's law firm of Lewis, Longman & Walker, P.A. (through our attorney David Ramba) is helping to arrange this two day meeting. While the exact details and locations are not yet finalized, the following rough schedule is being considered. On the afternoon of Tuesday, March 16, 2004, a FMCA Board of Director's meeting will be held, possibly followed by a dinner meeting during which all FMCA participants will be prepared for their legislative visits the following day. On Wednesday, March 17, a breakfast meeting will be provided along with remaining information that participants will need to receive. Then FMCA members will travel to meet with their respective representatives. We are hopeful to arrange a meeting with Commissioner Bronson on Wednesday as well. Mr. Ramba's office will

make all the necessary legislative appointments and prepare us for the visits.

Please make plans now to attend this important meeting. Your participation is critical to the success of our continued State funding. More information will be forthcoming concerning specific meeting arrangements. Please let Gene Baker (PH: 850-487-3174), Doug Carlson (PH: 772-562-2393) or Shelly Redovan (PH: 239-694-2174) know if you are planning to attend, so that Mr. Ramba can contact your legislator for an appointment. Check the FMCA website for updated information.

Gene Baker & Doug Carlson, Co-Chairs
FMCA Legislative Committee

IMPORTANT LEGISLATORS:

LEE CO. - CHAIRMAN KYLE

POLK CO. - SENATORS DOCKERY & BOWEN

ST. LUCIE - SENATOR PRUITT



From the Editors of *Wing Beats*

Wing Beats is looking for interesting field-related or technical articles about mosquitoes, mosquito control, and related topics. The articles are usually 1 – 4 pages in length (including graphics and figures). A considerable amount of applied research, equipment modifications, and application technique changes are being conducted at mosquito control programs, universities, and military installations throughout the world that would be of interest to the Wing Beats audience. We encourage you to consider publishing in Wing Beats. Please send articles to: Marin Brouillard, Editor-in-Chief, Collier Mosquito Control District, 600 North Road, Naples, FL 34104 or Marin@collier-mosquito.org



News from FMEL

The Advanced Mosquito Identification Course, March 8 – 19, 2004, is currently at full capacity and registration has been closed.

From Florida DACS

The following courses are being offered at no charge at the Bureau of Entomology and Pest Control in Tallahassee. Material covered in each course is flexible and can be tailored to meet the specific needs of each participant. Our current course line-up includes:

-Mosquito Identification: A 2-day course covering larval and adult ID to the genus level, and ID of some of the more common Florida species. There will also be some field collecting (weather permitting!). 16 CEU's for full participation.

-Mosquito Collecting Methods: A 2-day course covering collection methods, identification of various mosquitoes, and recognizing various breeding habitats. This course is designed to show how to use various traps and the importance of trap placement. 16 CEU's for full participation.

-Preservation and Mounting Techniques: A 1-day course showing proper methods for collection, storage, preservation and mounting of insect specimens. Emphasis will be placed on mosquitoes but include techniques for other insects as well. 8 CEU's for full participation.

-VCMS (Vector Control Management Software) Training: Due to limited computer access there will be a maximum of 6 students / class. Instruction is tailored to the level of experience of those taking the course. 8 CEU's for full participation.

-Exam Review Session and Certification Exams: This is for people who are preparing to take the Core, Public Health, or Aerial exams. After the review session, students may take the exam. No CEU's are available for exam reviews.

-All courses (except VCMS) need 6-10 participants. Please contact the Bureau of Entomology and Pest Control if you need any additional information and to schedule your group for your course of choice.

Bureau of Entomology and Pest Control, Mosquito Control Section, (850) 922-7011, SUNCOM 291-7011

Tom Loyless: loylest@doacs.state.fl.us

Jennifer Simpson: simpsoj@doacs.state.fl.us

Angela Weeks-Samanie:

weeksa@doacs.state.fl.us

News from PHEREC

FDACS Research Proposals

The Florida Department of Agriculture and Consumer Services (FDACS) funded 2 research proposals submitted from PHEREC. The Principal Investigator of the project "A standard operating procedure of decontamination to protect workers from insecticide exposure" is Dr. Harry Zhong; the Principal Investigator of the project "Characterization of the optimum field droplet size for aerial applications" is Dr. Jane Barber.

Recent Publications from PHEREC:

Zhong, H., Z. Yan, F. Jones, and C. Brock. 2003. Ecological Analysis of Mosquito Light Trap Collections from West Central Florida. *Environ. Entomol.* 32(4): 807-815.

Dr. Jack Petersen - PHEREC

Job Opening for Helicopter Pilot

Anastasia Mosquito Control District of St. Johns County. Pay rate: commensurate with experience up to \$26.90/hour. Open until filled. Minimum qualifications: High school Diploma/GED. Possession of FAA Commercial Pilot License with helicopter rating, A&P Mech. License, Class II/FAA Med Certif. Must have 1,500 hours helicopter flight time, 500 hours turbine helicopter time, minimum 200 hours in Bell Jet Ranger 206BIII or similar airframe. Minimum 200 hours agriculture time, 500 preferred. Possession of FAA Rotary Wing Instrument Rating; Valid FL Drivers License; possess current FL Certificate in Aerial Public Health Application of Pesticides or be examined & certified within 3 months. Apply: AMCD, P. O. Box 1409, St. Augustine, FL, 32085; call (904) 471-3107 for details and complete job description. Veteran's preference pursuant to State Law. EOE/DFWP.



Research Highlights

Braks, M. A. H., N. A. Honório, R. Lourenço-de-Oliveira, S. A. Juliano, and L. P. Lounibos. 2003. Convergent habitat segregation of *Aedes aegypti* and *Aedes albopictus* (Diptera: Culicidae) in southeastern Brazil and Florida. *J. Med. Entomol.* 40(6): 785-794.

The incidence of *Aedes aegypti* and *Aedes albopictus* was examined in different habitats in Rio de Janeiro, Brazil, and Palm Beach and Boca Raton, Florida, during the rainy season of 2001, from urban, suburban, and rural areas. The authors hypothesis that the abundances and frequencies of occurrence of the two species are affected in opposite ways by increasing urbanization was only partially supported. The two species were most abundant in Rio de Janeiro state and the lowest in Boca Raton. In general, *Aedes aegypti* was most prevalent in highly urbanized areas and *Aedes albopictus* in rural, suburban, and vegetated urban areas in Rio de Janeiro state and Florida. The authors observed an unexpected high level of co-occurrence of both species in the same oviposition trap. The habitats used by *Aedes albopictus* are remarkably similar in the two countries.

Nasci, R. S., K. L. Gottfried, K. L. Burkhalter, J. R. Ryan, E. Emmerich and K. Davé. 2003. Sensitivity of the VecTest™ antigen assay for eastern equine encephalitis and western equine encephalitis viruses. *J. Am. Mosq. Control Assoc.* 19(4):440-444.

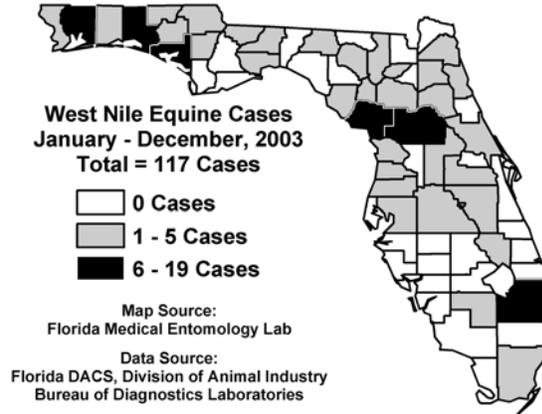
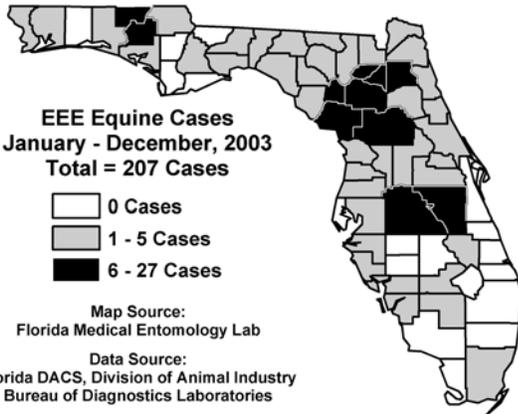
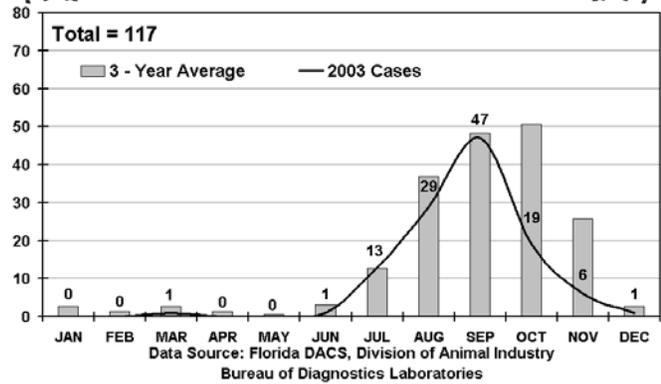
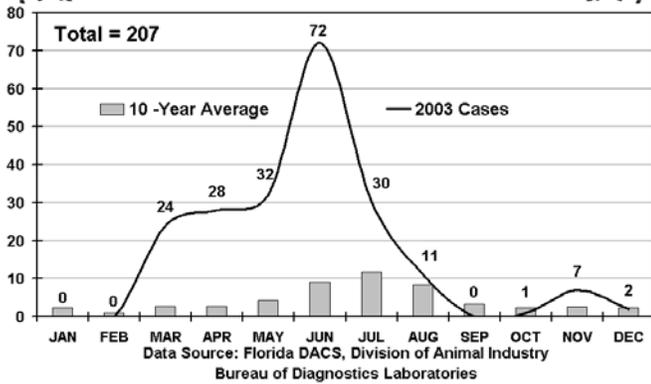
VecTest™ assays were evaluated to determine their sensitivity and specificity by using various dilutions of EEE, WEE, SLE and WN viruses and individual and pooled mosquitoes containing EEE or WEE. Both assays detected the respective viral antigens in single virus-positive mosquitoes and in pools containing a single positive mosquito and 49 specimens. No evidence was found of cross reaction or false positives in any of the tests. The assays were less sensitive than the EEE- and WEE-specific TaqMan reverse transcriptase polymerase chain reaction and Vero cell plaque assay, but appear to be useful for detecting arboviruses in mosquito-based arbovirus surveillance programs.



**EEE Equine Cases in Florida
January through December, 2003**



**West Nile Equine Cases in Florida
January through December, 2003**



Note from the Editor:

Thanks to Dr. Carina Blackmore for submitting an article from the Florida Department of Health this month. It's nice to see some new contributors (no offense to you Dr. Tabachnick – keep those articles coming!).

Buzz Words publishes articles of interest to FMCA members in every issue. If you have comments, opposing views, supporting views, etc., please send them in. It's good to get feedback and other points-of-view to generate lively discussion. Who will be next to step up to the plate?

Contributors can contact me at buzzwords@ifas.ufl.edu; or 200 9th Street S.E., Vero Beach, FL 32962. Thank you, Roxanne Rutledge

Mosquito-borne disease highlights from 2003

As predicted, 2003 was a very busy year for everyone involved in mosquito-borne disease surveillance and control. Mosquito control districts, county health departments, veterinarians and physicians submitted thousands of sera and bird and mosquito tissues for testing.

Eastern equine encephalomyelitis (EEE) virus activity started increasing early in the year. Gilchrist County was placed on Medical Alert after 5 horse cases were confirmed in a small geographic area over a two-week period in late March-early April. The EEE horse outbreak grew widespread and large; more than 6 times the average number of horse cases reported between 1998-2002 (n=32) were confirmed in 2003 (n=207 from 50 counties). Nevertheless, only two human cases were confirmed; a 7-mo-old male from Bay County and a 3-yr-old female from Orange County. Between 0-5 human cases are reported each year in the state.

West Nile (WN) virus sentinel surveillance activity started increasing in July and peaked during the month of September. Virus activity was detected statewide with 117 confirmed horse cases and 92 human cases (median age=49; 61m: 32f) The majority of the human cases (59%) were reported from the panhandle. Twenty-nine counties were put under Medical Alert for arboviral disease in 2003. Evidence of virus transmission to horses and humans was detected in the majority of these counties (Figure 1). For a complete summary of the arbovirus surveillance results see the DOH website: <http://www.doh.state.fl.us/Environment/hsee/arbo/index.htm>

The 2003 arbovirus season officially ended on January 5, 2004, when the Medical Alerts and advisories were lifted statewide.

As Dr. Walter Tabachnick mentioned in the November/December 2003 issue of *Buzz Words* the Interagency Arbovirus Taskforce has already started planning for the 2004 arbovirus season. With three years of WN virus surveillance data and statewide WN virus activity we are in the process of reviewing our recommended criteria for issuing Medical Alerts. We are also developing recommendations for lifting Medical Alerts as well as recommendations for increased mosquito control activities during Medical Alerts. The final draft document with the revised medical alert criteria should be available for review after the Taskforce annual meeting in Tallahassee during February. It will also be published in the next issue of *Buzz Words*. We are very interested in input from local mosquito-borne disease surveillance and prevention teams on these issues. Please contact either myself at (850)-245-4732, Dr. Walter Tabachnick at (772) 778-7200, or Jim Burgess at (239) 694-2174 (ext 162) with any comments and suggestions you might have.

Carina Blackmore, DVM. PhD.
Acting State Public Health Veterinarian, Florida Department of Health

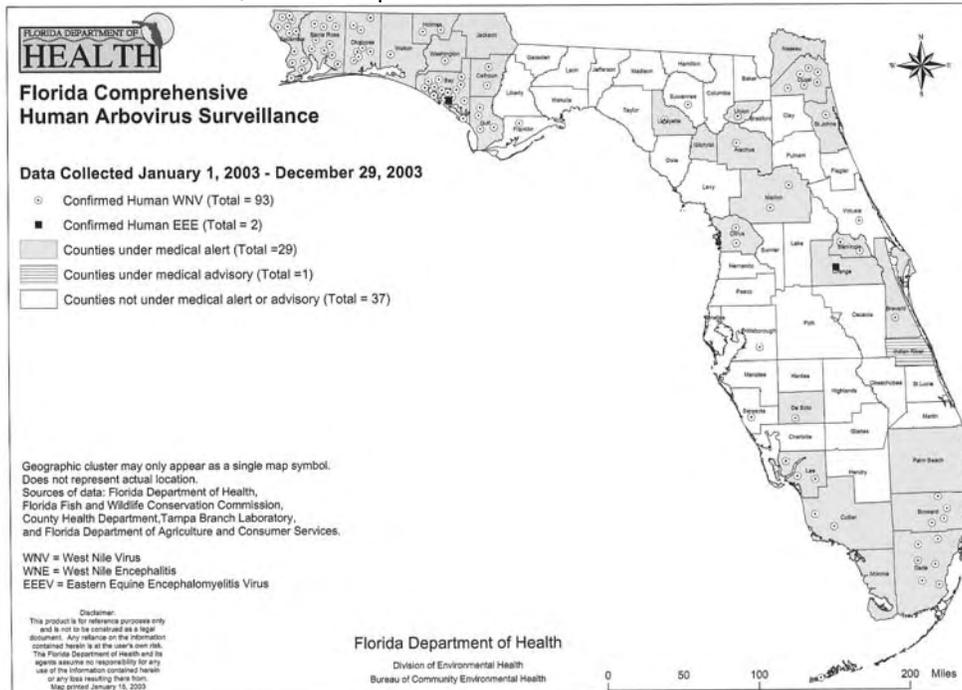


Figure 1

Florida's Sentinel Chicken Surveillance Program: Smart Chickens

In January 2004 I had the great fortune of giving an invited paper on West Nile Entomological and Surveillance issues at the Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale" or IZS in Teramo Italy. Aside from the great cuisine, I also benefited from the discussions with IZS scientists on their views of West Nile and surveillance.

Italy had an outbreak of West Nile in horses in the Tuscany region in 1998 with 14 infected horses. A serosurvey after the outbreak found ca. 40% of the horses infected in this region. The Italian veterinary and public health agencies are worried that Italy could experience more problems from West Nile. IZS is interested in a sentinel chicken surveillance program to detect the presence of West Nile virus. So far the strains of WN found in Italy are the typical WN virus strains in that these do not kill birds, making WN dead bird surveillance useless for detection. IZS is considering using chicken sentinels, placing flocks in 15 high risk zones where migratory birds are common. Each zone of ca. 400 Km² will contain 2 flocks of 10 birds each and each will be surrounded by 8 similar 400 Km² blocks containing 2 similar flocks in each. This represents a total of 2700 birds, each bled and tested every 15 days. The program is under reconsideration after our discussions on the differences between detection and surveillance. Indeed the objective of the Italian program from a veterinary institute like IZS is to detect West Nile quickly and provide surveillance for the risk to horses. This is a difficult and likely an impossible challenge. Could any chicken surveillance program do better than horses? It does raise many of the issues that we in Florida have been discussing since 1999.

What makes a good sentinel for surveillance? First the sentinel has to be an animal that is bitten by large numbers of vector mosquitoes. This also means placing the host in the right location. There should be many sentinels, and the best sentinel is a host that one does not have to bleed. This is the reason horses are a wonderful sentinel. Clinical signs of infection will be reported, and positive horses can be seen and bled to confirm infection. Non-clinical horses are ignored. The equivalent would be very smart chickens that wave a flag and say "look here I am I'm infected." So think about a sentinel chicken program in Italy that could possibly compete with a detection program using thousands of Italy's horses. The IZS scientists are rethinking their plans.

This discussion provides an important view on why the Florida program works, why it is a gauge of human risk, and what makes a smart chicken. I ran into one smart chicken, in the unlikely place of the Reptile Gardens (a tourist stop) in Rapid City, South Dakota. This chicken was kept behind a glass window, and for 25 cents you could play the chicken in a game of tick tack toe. When you dropped the money into the slot you made the first move, the chicken then walked over and pressed a square for an O. I kid you not – one smart chicken. When my sister-in-law lost her game to the "Chicken Brain", my nephews said "let's get Walter to play the chicken, Walter's pretty smart." This chicken got a treat to eat each time it made a move – I did not get anything except that my reputation was on the line. One smart chicken. I'll tell you the outcome later.



Florida's sentinel chickens are pretty smart as well. As far as West Nile virus is concerned I would say that when correctly placed, our chickens can be on the order of 1000 times better at getting West Nile than a human. That is the power of a properly focused sentinel surveillance program, and I would advise that all Districts use similar analyses in gauging human risk. Let's consider that on average each bird receives 1000 bites a week during a particular period. Indian River MCD runs 8 flocks of 6 birds each, or 48 birds weekly so the birds on average receive 48,000 bites a week. If mosquito transmission frequency for West Nile is 1 in 10000, this means ca. 5 birds will seroconvert. What does this mean for ca. 100,000 people living in Indian River? Will we see a human case? Is this the big event? Hardly. What would happen if everyone in Indian River received 10 bites during this same period? Recall that only 1 in 100 human infections result in a case. The sentinels tell us we might have 100 human infections, we might have a human case, but

significant human cases would require a higher transmission frequency or more bites averaged per resident. Do the math. If transmission were 1 per 1000 then likely almost all the birds should seroconvert during the week. What would this mean for Indian River County if on average everyone receives 10 bites during this period? There could be 1000 humans infected with ca. 10 cases. What would happen if the sentinels received more bites, the transmission frequency was higher, a certain number of people behave like horses and receive 100's or 1000's of bites, and/or on

average all humans in the county received more bites? Then

the risk goes up, and we could be approaching the big event. This is why the sentinel data is an important critical gauge for human risk.

The estimation of the risk to humans is dependent on the size of the human population, the numbers of bites they receive, the number of sentinel birds and their placement. Consider New York City's experience in 2000 when a single sentinel chicken flock was placed on Staten Island for West Nile surveillance. We still hear how sentinel chickens failed to detect West Nile virus in parts of the U. S. Were these just dumb chickens? With only one flock among ca. 400,000 Staten Islanders, humans were the sentinels for the chickens in 2000! Although the Indian River sentinel chicken program would have been more useful for Staten Island, realize that one would need a larger sentinel chicken surveillance program to gauge human risk in Staten Island and certainly for the 10 million people or so in the New York metropolitan area. Do the math.

Florida has a smart sentinel chicken program. Pay attention to the information.

Yes I did beat the chicken. I was worried though. The figure shows Bird Brain's last move and you can see that my strategy worked. Bird Brain did block me on top row leaving me to finish it off on the diagonal. Whew! I know that two knowledgeable players can only play to a draw in tick tack toe. This point was made in the movie War Games when Matthew Broderick teaches a computer that you just cannot win some games. I quit playing while I was ahead and my reputation with my in laws intact. Bring on the Florida chickens.

Walter J. Tabachnick, Director
Florida Medical Entomology Laboratory
University of Florida - IFAS