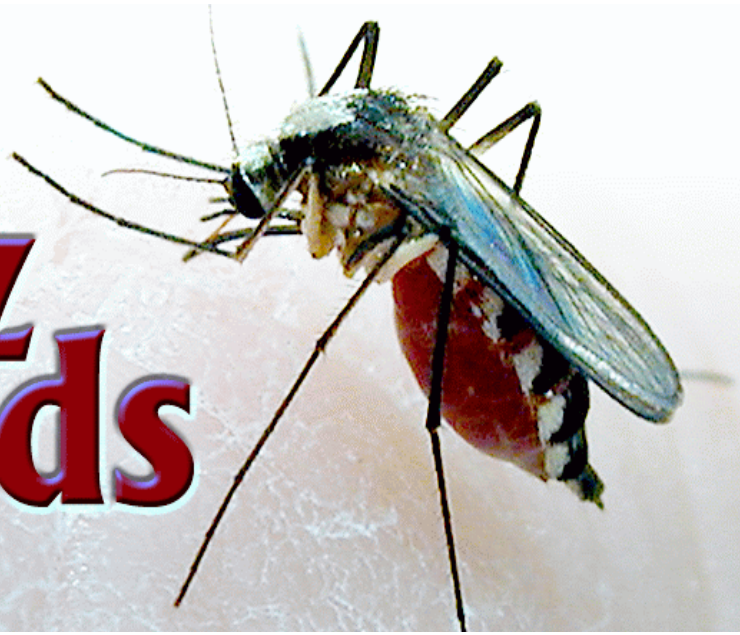


Buzz Words



The Newsletter of the Florida Mosquito Control Association
Mar-Apr 2002

Volume 2, Issue No.2

Upcoming Events



Florida Mosquito Control Association Spring Meeting
April 24 – 25, 2002. First call for papers and registration form
inside this issue of Buzz Words.

The **4th Annual AMCA Legislative Day (Washington Day)** will
be held April 30 - May 2, 2002, at the Crystal City Marriott Hotel
in Arlington, VA



The **SOVE Annual Meeting** will be held September 15 - 18, 2002 at the
Hyatt Regency, Albuquerque, NM. For more details contact Pam Reynolds at
505-476-8531 or Major Dhillon, 909-340-9792.

Inside this issue: FMCA Web Site News • FMCA News • News from PHEREC • Chemically Speaking • Equine EEE in Florida •
From the Editor • Letter to Mosquito Control Districts • First Call for Papers • FMCA Spring Meeting Registration •
West Nile virus Detection: The details are important • Florida's Mosquito Control Research Program:
Another Viewpoint on Taxonomic Considerations • Sentinel Chicken Report

FMCA Web Site News

Links regarding the use of fenthion, pro and con, have been added to the website as references for your convenience so that you do not have to search the net for information. I expect many of you get requests for information on this issue.

The AMCA response:

<http://www.mosquito.org/Fenthion/fenthionstatement.htm>.

The Florida Department of Agriculture and Consumer Services (FDACS) fenthion information page:

<http://www.floridatermitehelp.org/mosquito/mosq30.html>. **THIS IS AN IMPORTANT PAGE FOR YOU TO BOOKMARK.**

EPA position before suit is at

<http://www.epa.gov/pesticides/op/fenthion/fenthionsum.htm>.

Toxicity data for fenthion is at

<http://ace.orst.edu/cgi-bin/mfs/01/pips/fenthion.htm?8#mfs> and the notice of intent to sue EPA is at <http://www.banfenthion.org/fenthion60day.pdf>.

The Ban Fenthion Now site is at

<http://www.banfenthion.org/links.htm> and other opposing views are at http://www.enn.com/news/enn-stories/2000/12/12262000/fenthion_40946.asp?site=email

The National Pesticide Information Center (NPIC) has an updated WNV web site -

<http://ace.orst.edu/info/npic/wnv/>.

-- Tom Floore

Tomfloo@knology.net

FMCA Web Master

FMCA News

At the 68th Annual Meeting of the American Mosquito Control Association in Denver, Colorado, there were 3 awards given to members of the FMCA.

The John N. Belkin Memorial Award was presented to Dr. Richard F. Darsie "For Continued Excellence in Systematics and Training for Identification of Mosquitoes of Public Health Significance."

Tom Floore, Florida A & M, was honored with the Meritorious Service Award given to individuals for outstanding service to the Association. Tom was recognized for his hard work maintaining the association's Web page <http://www.mosquito.org>.

Dennis Moore, Lee County Mosquito Control District, was presented with the Presidential Citation for his long-term dedication and efforts on publishing "Wing Beats".

From the "Wing Beats" Editors

Wing Beats is looking for interesting field-related or technical articles about mosquitoes, mosquito control and/or related topics. The articles do not have to be scientific in nature. Articles usually are one to four pages (including graphics or figures) in length. A considerable amount of applied research, equipment modifications, application technique changes or alterations 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*. Contact Dennis Moore, Editor-in-Chief, moore@iline.com or Tom Floore, Tomfloo@knology.net or 850-872-4184 ext 30.

News from PHEREC

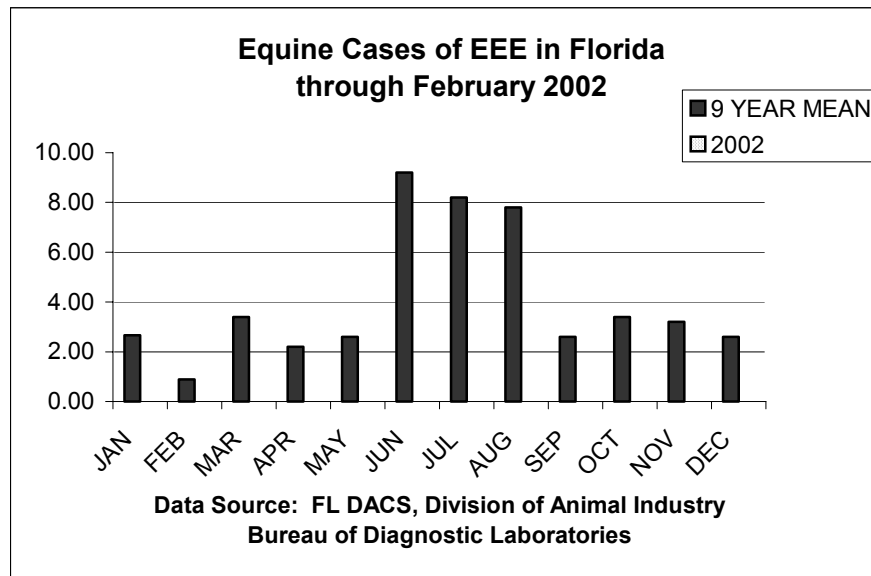
Dr. Jim Cilek was nominated for the FAMU/CESTA Faculty Award for Superior Teaching. Tom Floore was nominated for the FAMU/CESTA Superior Accomplishment Award for his efforts as webmaster of the FMCA and AMCA Web sites.

The Grand Prize winners in the team category at this year's Three Rivers Science Fair were two Bay District Schools' seniors who were mentored by Dr. Harry Zhong. The Junior Division prize went to a middle school student mentored by Tom Floore. These students were also honored with a certificate of achievement from PHEREC and a fifty dollar U. S. savings bond. Congratulations to the winners!

----Dr. Jack Petersen
Extension Medical Entomologist
Florida A&M University

From Chemically Speaking

Pesticide industry sources are carefully monitoring the movement of a draft "Maryland Pesticide Safety" bill penned by a non-governmental organization in its effort to identify activist-led anti-industry regulations developed under the guise of strengthening safeguards against terrorism. In short, the proposal's requirements include burdensome practices for applicators/distributors and their facilities/equipment. Criminal background checks for all employees having anything to do with pesticides, 24/7 physical or close circuit camera monitoring of all sites, and dismantling aircraft and trucks used for deliveries or application of product between trips are part of the bill. Additionally, banning aerial applications near urban areas (thereby restricting important segments of mosquito control in parts of MD), pesticide formulation disclosure, and a fund for user fees and enforcement fines are included in the proposal. (CropLife America email, 1/24/02)



From the Editor

Deadline for submissions to be included in the next issue of Buzz Words is May 10, 2002. Please send changes of address and news items for Buzz Words to Dr. Roxanne Rutledge, FMEL, 200 9th Street S.E., Vero Beach, FL 32962; or email crr@mail.ifas.ufl.edu

March 2002

To: The Mosquito Control Community

It's one of the mysteries of human-kind that folks responsible for mosquito control often are not applauded, congratulated and thanked. Well, my friends, I speak for a group of 400 people who would like to do exactly that. Our name is Encephalitis Global.

As you know, encephalitis is nothing new to America. St. Louis encephalitis, La Cross encephalitis, Eastern Equine Encephalitis, and Western Equine Encephalitis are all carried by the mosquito. West Nile virus is the newest arrival, having come to North America in the summer of 1999.

There are many threats to happiness and health on this planet. But, when we have tools to combat the threat, we would be idiots to not use those tools.

Members at Encephalitis Global shake their heads in wonder and disbelief when they hear folks moan and cry about 'annoying mosquito spraying!' We are so often told that, 'encephalitis is only a threat to the very young, the very old, and those with lower immune systems.' NO! Encephalitis is an equal opportunity disease, striking any and all parts of the community! Another media quote assures us "All those killed in New York by the disease were older than 50 and in poor health." Ah... at the age of fifty, we should no longer care?

On a weekend in July 2001, my good spouse drove me 1,000 miles, so I could speak on stage, in the community centre, to a large gathering of friends and family of a gentleman who is hospitalized with encephalitis after a mosquito bite. Apparently, he was not the only one in his area who had been diagnosed with encephalitis. And let me tell you, his family was not just 'over-reacting.'

Over and over again, the public is told of how few fatalities there are after the touch of encephalitis. Unfortunately, the media takes little or no interest in the survivors of encephalitis - people who are struggling to face life itself after surviving this horrible disease. Memory loss, where a fiancée is heartbroken when her intended really does not remember her... or the promise they shared. A man's anger with himself, when his spouse is now the solo bread winner for himself and the children. Young people, who now face their education with frustration, as their peers move ahead and leave them behind. Frankly, I have met a number of examples in each of these statements.

We hope that over the coming months, you will visit our website as a reference point. As an additional strength in your battle, you are very, very welcome to use Encephalitis Global, to point out the impact that encephalitis has on humans.

We salute you. We thank you.

Wendy Station
Vancouver Canada
1637 Pierard Road
North Vancouver, BC
CANADA V7J 1Y2
604 980 2236
Encephalitis Global
<http://communities.msn.com/EncephalitisGlobal>

Editor's Note: Wendy Station, of Encephalitis Global, sent an email to me with the information included above. I invited her to submit this to Buzz Words as a letter to those working in the field of mosquito control and research who are most deserving of these comments. The Encephalitis Global website describes in more detail the purpose of the group and posts letters from caregivers and survivors of encephalitis.

**Florida Mosquito Control Association, Inc.
FIRST CALL FOR PAPERS 2002 SPRING CONFERENCE**

Cocoa Beach Hilton
1550 North Atlantic Avenue
Cocoa Beach, FL 32931-3230
321.799.0003

April 24 – 25, 2002

You are invited to submit a title for a paper to be presented at the 2002 Spring Conference of the Florida Mosquito Control Association, Inc. to be held at the Cocoa Beach Hilton, April 24 – 25, 2002. Type the title, author(s), organization(s), and address(es) exactly the way they are to appear on the program. If more than one author is listed, place an asterisk after the name of the author who is to present the paper. **Send this form to Kellie Etherson, Gainesville Mosquito Control, 405 NW 39th Avenue, Gainesville, FL 32609. E-mail: ethersonk@ci.gainesville.fl.us. Telephone: 352-334-2287; Cell: 352-281-3020; Fax: 352-334-3110.** Please submit as soon as possible so there is time to plan and organize the program.

TITLE: _____

AUTHOR: (INCLUDE E-MAIL, TELEPHONE AND FAX NUMBERS OF PRESENTER)

1. _____

2. _____
3. _____

ORGANIZATION:

1. _____
2. _____
3. _____

MAIL ADDRESS:

1. _____
2. _____
3. _____

REQUESTED DURATION OF PRESENTATION: ____ 10 min ____ 15 min ____ Symposium ____ Other

AUDIO/VISUAL EQUIPMENT REQUIRED: ____ Slide ____ LCD ____ Overhead

Other (please specify) _____

PAPER CATEGORY: ____ Research ____ Operations ____ Regulatory ____ Other (please specify)

Florida Mosquito Control Association (Federal ID# 59-1819301)
2002 Spring Conference
Hilton, Cocoa Beach Oceanfront – April 24-25, 2002

The 2002 Spring Conference will start at noon on Wednesday, April 24 and conclude at noon on Thursday, April 25. The conference will be held at the Hilton Cocoa Beach Oceanfront located at 1550 North Atlantic Avenue (A1A), Cocoa Beach, Florida 32931-3268. Room rates are \$85/night plus 10% tax for single or double. Reservations must be made by March 25 to get this rate. After March 25 rooms will be \$105, if available. Be sure to mention the reservation is for the Mosquito Control Meeting. To make room reservations call **1-321-799-0003**. The hotel is located 25 miles from the Melbourne Airport and 45 miles from the Orlando International Airport. Each room features a hairdryer and coffeepot. Suites have refrigerators and microwaves. Most rooms have an ocean view.

Registration must be faxed or mailed by April 12 for advanced registration fees. There will be no refunds given after April 17. If you have any questions, please call Shelly or Sandy at 941- 690-2768.

Name: _____
Phone: _____
Agency _____
Address: _____

Fax: _____ E-mail: _____

Advance Registration

Member \$65 _____
Non-Member \$90 _____
Student \$45 _____
Companion \$35 _____

On-Site Registration

\$70 _____
\$95 _____

Companion's Name _____

*Please fax this form to 941-433-5684 or mail to:
Florida Mosquito Control Association
Post Office Box 60837, Ft. Myers, Florida 33906*

West Nile virus Detection: The details are important

The arrival of WN virus in North America has been followed by reports of WN virus detection in many different mosquito species. The list is extensive. Unfortunately, many of these reports have added to the confusion regarding the identity of the primary North American WN virus vectors. After all, with so many mosquito species identified as infected with WN virus, how can anyone know with assurance without adequate confirmation which species should be targeted for control?

It is vital that those in public health and mosquito control understand precisely the significance of different detection methods for WN virus. Elsewhere we have discussed the importance of differentiating the impact of various detection methods. (Buzzwords Oct/Nov 2002). In particular, it is absolutely essential to understand that polymerase chain reaction (PCR) methods detect nucleic acid. PCR is eminently sensitive and it is essential to understand that it is capable of detecting nucleic acid from degraded material, including dead virions.

The sensitivity of PCR is not a new concept and has been demonstrated many times (see Tabachnick et al. 1996. Susceptibility of *Culicoides v. sonorensis* to infection by PCR detectable BLU virus in cattle blood. J. Amer. Trop. Med. Hyg. 54: 481-485, or Kramer et al. 2001. Detection of SLE and WEE RNA in mosquitoes without maintenance of a cold chain. J. Amer. Mosq. Control Assoc. 17:213-215).

At the recent American Mosquito Control Association National Meeting in Denver, Colorado, Dr. Mike Turell presented research showing that WN virus nucleic acid can be detected in a mosquito in which there was no detectable live WN virus. We have known all along that even though a mosquito is infected with WN virus, the PCR test does not confirm that there is live virus in the salivary glands, or that the mosquito is capable of transmitting that virus. Indeed C. R. Rutledge et al. at the FMEL showed that several PCR-WN-virus positive mosquitoes collected in the field did not transmit WN virus to a sentinel chicken. These mosquitoes were not infectious at the time of collection. They were not capable of transmitting WN virus at the time they were captured.

It is critically important to pay attention to the details of any detection report. Many of the North American mosquito species reported with WN virus were tested using PCR techniques. Their role in actual viral transmission is entirely questionable on that fact alone. In addition, it is likely that the exquisite sensitivity of PCR will enable detection of a viral "remnant" in a mosquito that blood fed on a viremic host long after the blood meal is no longer detectable. This again calls attention to the difficulties in distinguishing between *infected* and *infectious* mosquitoes. Even if a mosquito does contain live virus, it may not be able to transmit the virus. **Transmission** is the only factor that is important in determining which mosquitoes are true vectors. Does the mosquito blood feed on infected amplification hosts? Can it be infected? Does it live long enough to acquire a salivary gland infection? Finally, does it bite a susceptible host and "transmit" the virus? In short, is the mosquito species in question capable of transmitting the virus? The entire suite of factors associated with vector capacity must be considered.

Pay careful attention to the detection information for mosquitoes, birds, horses and humans. Is it PCR? Is it virus isolation showing that the virus is alive? Is it serology showing a past infection? Is it the new antigen dipstick test that detects only antigen that may not be from a living virus? Don't let the detection reports take your eye off the ball. We know that members of the *Culex pipiens* complex have been involved in WN virus transmission in northeastern North America and that *Cx. quinquefasciatus* is a player in Florida. WN virus is a near neighbor of SLE, and researchers at the FMEL have shown that *Culex nigripalpus* did "transmit" WN virus to a sentinel chicken in Florida in 2001. *Cx. nigripalpus* is a player in north Florida and will undoubtedly be a player in south Florida. Other information from the Northeast indicates that *Culex restuans* and *Culex salinarius* may play a role in WN virus transmission, but their role at this time appears to be minor. Very few of the suspect mosquito species have been shown to be vectors of WN virus. Florida Mosquito Control Personnel know what to look for. Track the species that have been shown to transmit the virus in the field to animal hosts, and do not allow yourself to be diverted to what are likely minor players. We have enough of a challenge without confusing the primary targets.

----Walter Tabachnick, Ph.D., FMEL Director

Florida's Mosquito Control Research Program: Another Viewpoint on Taxonomic Considerations

I feel I should preface my remarks by stating that I agree in principle with the major points cited by Dr. Tabachnick in his January/February 2002 article. In Florida's current belt-tightening political climate, it is still important to consider serious issues in the realm of systematics, if only because the decisions in other fields are so dependent upon it. The fact that some reviewers are not cognizant of the significance of a greater understanding of mosquito interrelationships is singularly unfortunate.

However, in support of his views, Dr. Tabachnick discusses some rather controversial topics that are worth further consideration. The primary difficulty I have with his discussion of species and speciation is his advocacy of the Biological Species Concept (BSC): "Species are defined as being reproductively isolated from other species." It has long been recognized in the systematic community that various forms of reproductive compatibility are primitive traits, and therefore, not useful for diagnosing taxa. By utilizing reproductive compatibility or isolation as the determining criterion for the number of species present in a complex, we run the risk of underestimating the true biodiversity by lumping true species together as a group of putative subspecies or confounding the relationships among recognized species. Taxonomically speaking, this reduces considerably the predictive value of a classification based on the BSC. In 1998, Peterson and Navarro-Sigüenza found nearly triple the number of endemic species of birds in Mexico using the Phylogenetic Species Concept than under the Biological Species Concept. Moreover, in 1988, Hillis discovered in the frog genus *Rana* that there were several sister species that were reproductively incompatible with each other but compatible with species that analysis showed *not* to be their closest relatives. In 1995, Zink and McKittrick highlighted a similar problem in fox sparrows, flickers, and orioles.

The predominance of reproductive isolation and isolating mechanisms as criteria for delimiting species is a consequence of historical factors. The Biological Species Concept was first conceived by Mayr in 1942. This made it the first modern species concept in systematics; other concepts, notably the Evolutionary and Phylogenetic Species Concepts, are much newer and have met with considerable resistance and skepticism. The Evolutionary Species Concept (ESC) describes the most cohesive unit of organisms with its own "evolutionary tendencies and historical fate," in the words of Wiley. In the Phylogenetic Species Concept (PSC) of Cracraft and others, a species is a group of organisms that shares a common evolutionary history and can be distinguished from other such groups by one or more fixed characters. It is important to note that in neither the ESC or the PSC are species diagnosed on the grounds of reproductive compatibility.

It is fair to ask the same questions that Dr. Tabachnick poses at this point: Why is this of such fundamental importance? Why should a mosquito control professional care? After all, the delineation of species limits does seem to be a rather academic concern. Turning to the example of the *C. nigripalpus* complex, if we recognize sister taxa on the basis of reproductive compatibility, we may fail to recognize shared characteristics among true sister taxa that enable them to be effective SLE vectors. For that matter, we may not correctly identify a group of species that may be poor disease vectors or that may share a resmethrin resistance gene. I submit to you that having a suitable species concept to clearly define your study taxa is a crucial prerequisite to any investigation into the comparative biology of arthropods.

I must emphasize in closing that not only do I not dispute the need for greater funding for mosquito research, I view it as a vital component of Florida's efforts to protect the public from the indomitable mosquito. I had the privilege to work in the mosquito research laboratory of the late Dr. Lamar Meek of LSU for several years as a student worker, and it was there that I gained my appreciation for the wonderful diversity and the devastating vector potential of the mosquito. The recent outbreaks of WN in north Florida have only served to remind us of that potential, and now more than ever it is critical that we support mosquito research in the state. However, I feel very strongly that the research proposals should be scrutinized with an eye toward the taxonomic philosophy underpinning their methods. Otherwise, we may utilize the limited funds allocated to mosquito research programs asking the wrong questions and getting the right answers.

---- Brian R. Warren
Gadsden County Health Department

Dr. Tabachnick replies: *Brian Warren raises important issues that are at the center of current systematics. He very appropriately points out that the way we perceive species is not simply an "academic" exercise. His discussion of how we approach mosquito species is clearly of direct importance to our mosquito control objectives. How can we hope to deliver on our promise of efficient, effective and proper mosquito control without the understanding of mosquito species that Brian Warren discusses? For those interested in looking into similar systematic issues, check out <http://www.ohiou.edu/phylocode/>*

Sentinel Chicken Report

[January 2002](#). The numbers of sera submitted and counties participating in surveillance activities during January, were slightly reduced from the level of activity for December.

There were 12 seroconversions to Eastern Equine Encephalitis virus (EEE) and 2 seroconversions to a Flavivirus (St Louis Encephalitis virus (SLE) antigen used in the HAI assay) during January, 2002. Both Flavivirus antibody positive sentinels were confirmed as due to West Nile (WN) virus. No SLE activity was detected in the state this past month; this is similar to the mean and median levels for SLE during January. EEE monthly activity is significantly higher than the median historical levels for January. There is no historical data available for WN.

Dead birds continue to be submitted for WN virus detection in tissues. During January, 2002, tissues from 123 birds and 6 mammals were received for virus detection/isolation: WN virus was detected in 2 birds (turkey collected 1/10/20, Calhoun; hawk, collected 1/29/02, Alachua). 141 mosquito pools were received from Monroe County: WN virus was detected in 1 pool (An. atropos) collected on 12/10/01.

Historical HAI results:						
January 2002						
Year	Number of counties	# of birds	# of sera	# EEE+	# SLE+	#WN+
1988	9	205	568	0	0	0
1989	5	0	141	0	0	0
1990	7	114	282	0	4	0
1991	11	366	948	0	11	0
1992	7	280	496	1	0	0
1993	6	250	515	1	0	0
1994	6	211	468	0	0	0
1995	8	302	596	2	0	0
1996	15	470	671	0	0	0
1997	9	330	789	1	0	0
1998	7	228	684	0	2	0
1999	7	271	501	10	3	0
2000	6	192	340	1	1	0
2001	5	177	303	0	0	0
2002	13	635	1336	12	0	2
Average* (1988-2002)				1.9	1.4	1.0
Median* (1988-2002)				0.0	0.0	1.0

* EEE & SLE - average/median: 1988-2002; * WNV - average/median: 2001-2002

