

Buzz Words



The Newsletter of the Florida Mosquito Control Association
Jan-Feb 2002

Volume 2, Issue No.

Upcoming Events

American Mosquito Control Association Annual Meeting

Denver, CO. February 17 – 21, 2002.

FMEL/FDACS Advanced Mosquito Identification Course

Vero Beach, FL. March 4 – 15, 2002. *****THE COURSE IS FULL AT THIS TIME!*****
Contact Roxanne Rutledge at FMEL if you are interested in taking the course in Spring 2003.

PHEREC Field Day

March 13, 2002, PHEREC will sponsor a Field Day to showcase the research, education and outreach programs of the Center. The all-day event will feature demonstrations, exhibits, tours and presentations. A BBQ luncheon will be served. Invitations and more information about the Field Day will be distributed to Florida Mosquito Control Programs shortly!

FMEL/West Nile Workshop Florida Mosquito Control Response to West Nile Virus

April 3 – 4, 2002. Registration form inside this issue of *Buzz Words*.

Inside this issue: FMCA News News from PHEREC News from FDACS Job Announcement Equine EEE in Florida Sentinel Chicken Surveillance FDACS Funded Mosquito Research FMEL West Nile Workshop Florida's Mosquito Control Research Program: Scant resources and missed opportunities From the Editor

FMCA News

New AMCA South Atlantic Regional Director

Doug Carlson, Indian River Mosquito Control District, was elected to the American Mosquito Control Association's Board of Director's as the South Atlantic Regional Director. The region includes South Carolina, Georgia, Alabama and Florida. To better represent the region, Doug welcomes any comments, questions or suggestions concerning the AMCA. Doug can be contacted by phone 561-562-2393, by fax 561-562-9619, email dcarlson1@hotmail.com, or by mail at P. O. Box 670, Vero Beach, FL, 32961.

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

2002 Southeast Conference Cancelled.

The Southeast Regional Public Health Pest & Vector Management Conference, that was scheduled for February 5-7, 2002, has been cancelled. For more information about the Conference and plans for 2003, please check the PHEREC Web site, <http://pherec.org>

PHEREC receives recognition from Commissioner Bronson

At the Fall Meeting of the Florida Mosquito Control Association, Mr. Charles H. Bronson, Commissioner of Agriculture, Florida Department of Agriculture and Consumer Services, presented Dr. John P. Smith with a certificate of appreciation "in recognition of PHEREC's significant efforts and contributions as part of the 2001 Mosquito Control Incident Response Team and its successful efforts to protect the State of Florida through the detection and suppression of disease

carrying mosquitoes." For more information, including digital images, go to:

<http://pherec.org/PHERECNews/Vol2No4/page3.html>

Research Advisory Committee Meeting

March 14, 2002 has been set for the annual meeting of the PHEREC Research Advisory Committee to take place in Panama City. The committee reviews the Center's programs and serves as a conduit for channeling mosquito control research needs and priorities. Members of the committee include: John Beidler (Chair), Randy Dominy, Wayne Gale, Alex Cordero, Sunil Pancholy, Bobby Phills, Jonathan Hornby, Jim Robinson, Gene Lemier, Jonas Stewart, Eric Cotsenmoyer and Ed Hunter. Mosquito control committee representatives should be contacting neighboring programs to solicit input soon. Feel free to call the member closest to you if you do not hear from them within the next month.

Faculty Position Announcement

The application deadline has been extended to April 17, 2002 for a fulltime faculty position available at PHEREC for a medical entomologist with expertise in mosquito adulticides. Please go to the PHEREC Web site <http://pherec.org> for application procedures.

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

News from FDACS

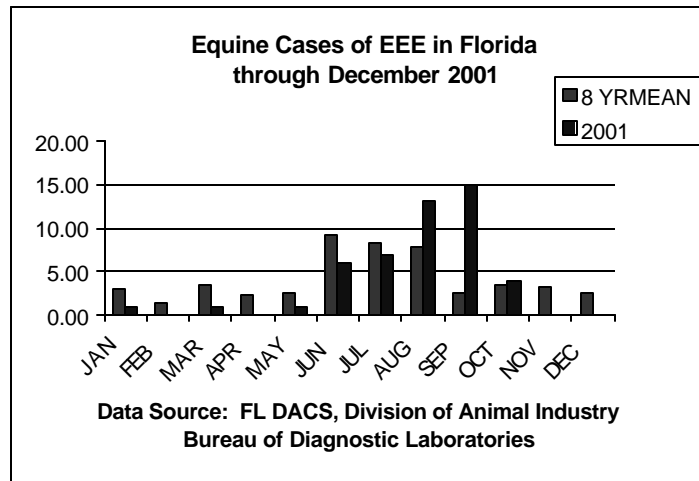
New Personnel

The Bureau of Entomology and Pest Control is happy to announce the hiring of Jennifer Simpson as an Environmental Specialist in the Mosquito Control Section. Jennifer is replacing Joe Claborn who left several months back to continue his career in the United States Air Force. Jennifer comes to the Bureau fresh from the University of Florida with a Master's degree in Medical and Veterinary Entomology. She will be helping Tom Loyless with the training and certification program and working with Angela Weeks on VCMS. Jennifer plans to participate in as many of the upcoming meetings and training events as possible in order to become rapidly integrated into the Florida mosquito control network. Jennifer can be reached at 850-410-0730.

----**T. Wayne Gale, Chief**
Bureau of Entomology and Pest Control

Job Announcement

Natural Resource Specialist I. Broward County, Florida. Streets & Highways Division, Mosquito Control. Salary range: \$33,171 – \$51,484 per year (depending on qualifications). Requires graduation from an accredited four year college or university with major course work in civil or environmental engineering, environmental science, biology, hydrology, or related field, and six months experience in biological monitoring and laboratory supervision. A valid Florida Driver's license is required at the time of appointment. Qualified applicants should submit a resume, including social security number, to arrive no later than 5:00 p.m. on February 22, 2002. Please indicate job title and recruitment number on envelope, letter and resume and submit to Broward County HRD Staffing Center, 115 S. Andrews Avenue, Annex B, Recruitment No. 809-RE, Ft. Lauderdale, FL 33301, Phone 954-357-6444, Fax 954-357-5537. BROWARD COUNTY IS AN EQUAL OPPORTUNITY EMPLOYER AND PROVIDER OF SERVICES.



December 2001. The numbers of sera submitted and counties participating in surveillance activities during December were slightly reduced from the level of activity for November. There were 7 seroconversions to Eastern Equine Encephalitis virus (EEE) and 12 seroconversions to a Flavivirus (St Louis Encephalitis virus (SLE) antigen used in the HAI assay) during December. All 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 significantly below median and mean levels for SLE during November. EEE monthly activity is similar to the median historical levels for December. There is no historical data available for WN. Since our report on West Nile virus detection in tissues from a dead bird Florida in early July, the numbers of samples submitted for HAI serology and for virus isolation have been high. During December, tissues from 315 birds and 2 mammals were received for virus detection/isolation: WN was detected in 1 mammal and 258 birds. 288 mosquito pools were received: West Nile Virus was detected in 2 pools, both from Monroe County (*Oc. taeniorhynchus*, *D. cancer*). We are preparing the annual summary data at this time and a report will be forwarded when it is ready.

Lillian M. Stark, Ph.D., M.P.H., M.S.
Florida Department of Health, Bureau of
Laboratories, Tampa Branch Laboratory

Historical HAI results:

December 2001						
Year	Number of counties	# of birds	# of sera	# + EEE	# + SLE	# + WN
1988	15	218	684	2	2	0
1989	13	0	674	10	25	0
1990	18	626	1187	4	28	0
1991	14	755	755	2	2	0
1992	13	494	830	0	0	0
1993	11	403	811	2	18	0
1994	20	597	921	2	2	0
1995	19	625	1131	1	1	0
1996	14	479	1172	13	4	0
1997	17	560	1256	0	22	0
1998	19	665	1287	16	10	0
1999	17	595	1052	6	6	0
2000	12	380	588	1	3	0
2001	25	802	2112	7	0	12
Average (1988-2001)				4.7	8.8	
Median (1988-2001)				2.0	3.5	

Florida Department of Agriculture and Consumer Services Mosquito Research Funded for 2002

The following proposals were submitted to FL DACS for mosquito research to be conducted by the mosquito research laboratories during 2002. Those with a (*) preceding the title are the proposals that were funded.

Analysis of Population Dynamics and Community Structure of Mosquitoes in Florida; H. Zhong.	
Cloning and Expression of TMOF in Chlorella as a New Biorational Larvicide; D. Borovsky.	
Detection of West Nile Virus in Mosquitoes Using Dot-PCR; D. Borovsky.	
Development and Effectiveness of <i>Mesocyclops longisetus</i> Aerial Application for the Control of Larval Mosquitoes in Roadside Ditches; J. Cilek.	
(*)Development of Improved Molecular Diagnostics to Detect West Nile Virus in Large Mosquito Pools; W. Tabachnick.	
Distribution of Urban Mosquito Vectors in Relation to Habitat Structure Using GIS; J. Smith, K. Milla.	
Effectiveness of Mosquito Larvicides in Stormwater Catchbasins and Underground Systems; T. Floore, J. Petersen.	
Efficacy and Impact of Downwind Movement of Mosquito Adulticides Following ULV Ground Application of Permethrin and Malathion; H. Zhong.	
(*)Evaluation of a Rapid Mosquito Test for West Nile Virus; J. Smith.	
Evaluation of Area Mosquito Repellents; J. Smith.	
Evaluation of Air Current Manipulation as a Method to Reduce Biting Annoyance Against Adult Biting Midges; J. Cilek.	
Geographic Genetic Variability in Wild Populations of <i>Culex p. quinquefasciatus</i> from Florida; J. Nayar.	
Genetic variation in North Florida populations of <i>Oc. taeniorhynchus</i> and <i>Cx. nigripalpus</i> ; R. Rutledge.	
Impact of Intermittent Exposure of Methoprene to Invertebrate Community in Brackish Water Habitat; H Zhong.	
(*)Implementing a Method to Improve Arboviral Surveillance in Florida; J. Day, C. Lord, R. Rutledge, W. Tabachnick, L. Stark.	
(*)Insect Resistance Test Kit; J. Petersen.	
Is there a <i>Culex nigripalpus</i> Species Complex in Florida?; J. Day, R. Darsie, R. Rutledge.	
Laboratory Bioassay to Determine Methoprene Resistance in Natural <i>Oc. taeniorhynchus</i> Populations in Pinellas County, FL; T. Floore, J. Petersen, K. Shaffer.	
Larvicide Effectiveness Based on Dispersal Distance from Application Site; T. Floore, J. Petersen, K. Shaffer.	
(*)Minimizing Dermal Exposure of Mosquito Control Workers to Adulticides; H. Zhong.	
(*)Prediction of Arbovirus Habitats in South Florida; P. Lounibos, J. Rey, M. Braks.	
Quantitative Assessment of West Nile Virus Transmission and Surveillance; C. Lord.	
Residual Efficacy of Botanical Insecticides as Household Screen Treatments Against Adult Midges; J. Cilek.	
Strategies for Controlling Mosquitoes in Constructed Treatment Wetlands; G. O'Meara, J. Rey.	
West Nile Virus Ecology and Control; J. Smith.	

Florida Mosquito Control Response to West Nile Virus Workshop
A Workshop Sponsored by:
Florida Medical Entomology Laboratory, University of Florida, IFAS
April 3-4, 2002

A West Nile workshop for mosquito control professionals and other interested agencies will be conducted to develop recommendations/guidelines for mosquito control response to West Nile virus in Florida. This event will not be a lecture series, but a working conference where individuals will attend working groups, each of which will address a different aspect of mosquito control. The workshop will include a brief update on West Nile virus in Florida. The workshop will provide an interactive discussion and result in a document outlining Florida mosquito control plans to reduce the impact of West Nile virus. After the workshop, the recommendations developed by the participants will be published as a Technical Bulletin of the Florida Mosquito Control Association and provided to all participants as well as all members of the FMCA.

The FMEL WN workshop is specifically intended for mosquito control professionals. This will be a chance for mosquito control professionals to share information and past experiences. We particularly encourage anyone new to mosquito control to attend the workshop. We strongly believe that this will be a unique training opportunity for anyone in mosquito control and will be essential for anyone beginning a new program.

The workshop will be held in the new teaching facility at the University of Florida's Indian River Research and Education Center in Fort Pierce, only 15 miles from the FMEL. We will selectively accept registrations to ensure a diverse organizational and geographical representation. **Non-registrants will not be admitted due to limited space.** There is no registration fee. Lunch will be provided on April 3, 2002.

April 3, 2002

8:00 – 8:10 Introduction
8:10 – 8:30 West Nile Virus in North America (J Day)
8:30 – 8:45 Discussion
8:45 – 9:05 Florida's Plans for Controlling WN virus (W Tabachnick)
9:05 – 9:30 Discussion
9:30 - 10:00 BREAK
10:00 - 10:15 General Goals of Workshop
10:15 - 10:30 Breakout Sessions (W Tabachnick)
10:15 – 11:15 Goals and Structure of Individual Breakout Sessions
1. Surveillance Issues (J Day)
2. Control Issue – Identify Target Species (G O'Meara)
3. Control Strategies – Larval (R Rutledge)
4. Control Strategies – Adult (C Lord)
5. Control Strategies - Media Issues & Personal Protection (J Rey)
11:15-11:30 General discussion to identify key issues for each breakout session* (Tabachnick)
11:30 – 1:00 LUNCH BREAK (Lunch will be provided)
1:00 – 5:00 Breakout Sessions
6:30 – 7:30 NETWORKING SOCIAL HOUR

April 4, 2002

8:00 – 9:45 Reports from the breakout sessions (10 minute reports, 10 minute discussions) (Reporters)
1. Surveillance Issues
2. Control Issue – Identify Target Species
3. Control Strategies – Larval
4. Control Strategies – Adult
5. Control Strategies - Media Issues/Personal Protection
9:45 – 10:00 BREAK
10:00 – 10:45 Group Discussion (W Tabachnick) – appraisal of breakout reports
10:45 – 11:30 Discussion of the WN virus in Mosquito County Scenario
11:30 – 12:00 Wrap-up/Discussion (J Day) – recommendations, future actions, document development plans
12:00 DEPARTURE

Registration
form
on
Page 6!

*Items to be addressed during breakout sessions

1. What are the three highest priority objectives of this session that will reduce the impact of WN virus?
2. Define strategies to meet each objective.
3. What are the most likely impediments for mosquito control in achieving each objective?
4. What can mosquito control organizations do to reduce the impact of these impediments?
5. Consider the following species as possible vectors of WN virus:

Culex nigripalpus, Culex restuans, Culex quinquefasciatus, Aedes albopictus, Culex salinarius, Aedes vexans

Consider the following possible amplification hosts for WN virus:

Crows, Mourning Doves, House Sparrows, Grackles, Birds of prey

****Deadline to register has been extended to March 1, 2002****

Fax this application form to: Dr. Roxanne Rutledge 561-778-7204

**or mail to: Dr. Roxanne Rutledge, FMEL, WN Workshop
200 9th Street S. E.
Vero Beach, FL 32962**

Name _____
Organization _____
Mailing Address _____
Email Address _____
Phone Number _____ Fax _____

Your group assignment and workshop materials will be mailed to you prior to the workshop. Rank your preference below (1-5) for the session you wish to attend. (1 = session you would most like to attend). We will try to put each person into the requested session, but we will make sure that each group has an equal number of people.

_____ Surveillance Issues
_____ Control Issues: Identify target species
_____ Control Strategies: Larval Control
_____ Control Strategies: Adult Control
_____ Control Strategies: Media Issues/Personal Protection

Florida's Mosquito Control Research Program: Scant resources and missed opportunities

The State of Florida mosquito research program is an important component of Florida mosquito control. This program annually establishes research priorities and awards State funds on a competitive basis. It is a difficult job for those on the Florida review panel. The panel works hard to recognize proposals based on impact, need, and chance of success. This is all done in a climate of scant and precious research dollars. The members of the review panel deserve our thanks.

During the most recent review of proposals, some reviewers believed that a project to investigate a possible species complex of *Culex nigripalpus* in Florida was not of high priority because it was more of academic interest. An honest assessment perhaps, certainly arguable and deserving discussion. The fact that I disagree might be expected. In an era of scarce research funds there will be important projects that cannot be supported. However, the failure to support the *C. nigripalpus* project also illustrates that the current inadequate funding for the mosquito research program results in too many missed opportunities, opportunities that are critically important if we are to move Florida Mosquito Control programs into the 21st century. Elsewhere, (Buzz Words Apr/May 2000) I advocated that we must continually discuss Florida's mosquito research needs to ensure that essential projects are supported.

The importance of correctly naming mosquito species was discussed in Buzz Words (Dec 2000) using the generic change of *Aedes* to *Ochlerotatus* as an example. A species name should reflect relationships and hence provides a framework to assess the biology of close relatives. Species are defined as being reproductively isolated from other species. Hence when a reproductive barrier exists between two groups, they do not produce fertile offspring and are deemed different species. Why is this of such fundamental importance? Why should a mosquito control professional care? Why is it of more than academic interest if there is more than one species in what we now refer to as *C. nigripalpus*? I submit that it is essential to understand *C. nigripalpus* biology in order to apply efficient, effective and environmentally proper mosquito control.

Once a species is established by reproductive isolation, it essentially becomes a separate evolutionary unit. The exchange of genes through reproduction prevents populations within the same species from diverging. Any gene exchange reduces population divergence in the species characteristics. There may still be geographic variation within a species, however the extent of genetic differentiation is substantially less compared to differentiation that accumulates between species. The inability to share genes creates genetic discontinuity and results in differences between species. For example, pesticide resistance could not spread to another species by gene exchange.

So why should Florida mosquito control care if there is a *C. nigripalpus* species complex? Such a finding would have a profound impact. More than one *C. nigripalpus* species would mean there is greater differentiation in suites of characters as compared to population divergence in a single species. The ranges of all the species would have to be characterized. Where are the species? Do they overlap? What are their relationships? Where they do overlap? Are there hybrids? What is the impact of hybrids? The impact on our understanding of different *C. nigripalpus* traits could be enormous. Do the species share traits? What are their behaviors? Are the species equal pests? Have they all been targeted by mosquito control? Should each species be targeted? Do they emerge at the same time of the year? What is their vector capacity for SLE, EEE and WN viruses? Which species is the more efficient vector? What hosts do they prefer? What are their roles in virus amplification? How do they respond to mosquito control operations? What about insecticide resistance differences? On and on, based on the finding of different species.

"In the climate of increasing funding for vector-borne disease control in Florida, the potential impact of SLE, EEE and WN, is it not appropriate to increase the Florida mosquito research program as well?"

The finding by Falleroni beginning in 1926 that *Anopheles maculipennis* is a species complex led to finding that only certain species in the complex are malaria vectors. "Anopheles without malaria" is one of the great achievements in medical entomology. The same is true for the *Anopheles gambiae* complex. Then

there is the *Culex pipiens* complex. The identification and characterization of species complexes is essential for effective mosquito and disease control. Is the proposal, based on Dr. Richard Darsie's preliminary data, that there is a Florida *C. nigripalpus* species complex, only of academic interest? Hardly.

Why is Florida missing opportunities to obtain essential information? Look at the projects that did not receive support listed in this issue of Buzz Words. This work will not be accomplished. This information will not be available as part of our control armament in the next 1-3 years. Our colleagues on the review panel are forced to make decisions on research priorities using inadequate funds. Important proposals are not supported. It is not the research proposals; it is not the review committee. The fault lies in an inadequate funding level. The State budget to support the mosquito research program is currently \$250,000 per year. A large sum of money. Florida mosquito control is thankful to have it. However, 13 years ago the program was supported by \$500,000 per year. The current annual level has remained at \$250,000 for the past decade. Adjusted for 3% inflation per year, the program would require ca. \$380,000 annually to be at the same level of support as 1991; 4% inflation would require \$433,000. At 3% annual inflation the original \$500,000 would require ca. \$700,000 in 2001 to equal 1989 dollars. In the climate of increasing funding for vector-borne disease control in Florida, the potential impact of SLE, EEE and WN, is it not appropriate to increase the Florida mosquito research program as well?

Important research issues are left undone despite the best efforts of the review committee. We are not moving forward against *C. nigripalpus*. We will not have information from the other listed projects. Missed opportunities. We must address mosquito research funding in Florida. We can and must do better. As always I welcome your comments.

----Walter J. Tabachnick, Ph.D.
Director, Florida Medical Entomology Laboratory

Deadline for submissions to be included in the next issue of Buzz Words is March 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