The Newsletter of the Florida Mosquito Control Association Volume 5, Issue Number 3
May/June 2005

FMCA Fall Meeting
Nov 13 – 16, 2005
Hawks Cay Resort, Duck Key, FL

First Call for Papers inside this Issue of *Buzz Words*

SOVE 4th International Congress
Oct. 2-7, 2005, Reno, Nevada
http://www.sove.org/4th%20Congress/CONGRESS.html

*******2006 FMCA Dodd Short Courses*******
January 23 – 27, 2006
Important Notice about the 2006 Courses inside this Issue of *Buzz Words*

FMCA New Mailing Address, Phone, and Fax

Kellie Etherson, Florida Mosquito Control Association
Post Office Box 358630
Gainesville, FL 32635-8630
Phone: 352-281-3020; Fax: 352-334-2286
email: ethersonk@cityofgainesville.org

FMCA News

Aircraft for Sale

Broward County Mosquito Control is selling one 1951 Beechcraft C45H N850BC. The aircraft is equipped and ready for spraying. If you are interested in placing a bid, you can view and download the bid documents via the Purchasing website at www.broward.org/purchasing/bids Further information can be obtained from Joseph Marhefka at 954-765-4062 ext 222 or Ray Schuetz at 954-765-4062 ext 228.

Awards

The FMCA Awards Committee is pleased to announce the ***James W Robinson Memorial Award*** has been established in honor of Jim. See a description of all of the FMCA Awards elsewhere in this issue of *Buzz Words.*

Dodd Short Courses – 2006

The 2006 Dodd Short Courses will be held at the Ocala Hilton, January 23 – 27, 2006. This is a different location from the last few years; it is also a little bit earlier than usual. Make your reservations early! **The Ocala Hilton room rate for attendees of the Dodd Short Courses is $89.00 per night; however, they will honor this rate only through November 30, 2005. Room rates for reservations made after this date will be $109.00 per night.** The week of the short courses is the beginning of foal season, a time when the hotel fills to maximum occupancy, so make your reservations as soon as possible.

Attention Dodd Short Course instructors, your course descriptions for the registration booklet should be sent to Kellie Etherson by August 1, 2005.

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 being conducted at mosquito control programs, universities, and military installations throughout the world 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

Attention Mosquito Control Directors

Roxanne Rutledge-Connelly maintains an email list of all directors and managers of mosquito control operations in Florida. The list is used to send reminders of Buzz Words deadlines, fact sheet updates, FMEL seminars, etc. If you have not been receiving updates and would like to be added to the list, please send your email address to: crr@ifas.ufl.edu

Errata Sheet for Darsie and Ward, 2005, Mosquitoes of North America.

The errata sheet for "Identification and Geographical Distribution of the Mosquitoes of North America, north of Mexico" by R. F. Darsie, Jr., and R. A. Ward (2005) is posted on the FMEL website under "DOWNLOADS" on the opening FMEL page at http://fmel.ifas.ufl.edu/errata.htm

News from PHEREC

Dr. Hyun-Woo Park joins our faculty as the new leader of the Biological and Alternative Control Section. Hyun-Woo earned his doctorate under the mentorship of Brian Federici at UC Riverside. After completing his Ph. D. in 1999, Hyun-Woo continued working in Dr. Federici's lab.

Dr. Park's research interests focus on understanding the basic microbiology and molecular biology of bacterial pathogens that attack insects and the use of this knowledge to develop bacterial pathogens or their products to control insect pests. At UC Riverside Dr. Park's research emphasis was on the mosquitocidal bacteria *Bacillus thuringiensis* subsp. *israelensis* (Bti) and *B. sphaericus* (Bs). Hyun-Woo studied the molecular genetics of mosquitocidal protein synthesis in these bacteria. The knowledge obtained from these studies will be used to develop a variety of bacterial insecticides with different protein combinations for mosquito vector control. The fundamental concept is that these new types of control agents will be more environmentally friendly than synthetic chemical insecticides. Additional information about Dr. Park is featured in "PHEREC News" available on the Web at http://pherec.org/PHERECNews/Vol6No1/page1.html

We welcome Dr. Park to PHEREC!

Florida Mosquito Control Handbook Owners

The 3rd Edition of the Florida Mosquito Control Handbook was released in December 2004. For those who own previous editions of the Handbook, the updated chapters will be provided to you. The FMCA Board of Directors made the decision to discontinue providing updates of chapters once we have completed the current task. In the future, to receive new and updated chapters, it will require the purchase of a complete new edition.

The updates for the 3rd Edition will be ready for distribution at the Fall Meeting, 2005. You must complete the attached form to receive the updates at the Fall Meeting. Those who are not coming to the meeting may request theirs by mail, so please provide your correct mailing address.

The updates may be requested by one person representing an agency, or by individuals. Please discuss this decision with all Handbook owners to prevent duplicate requests. Fill out the form here and fax to:

C. R. Rutledge, Managing Editor
Florida Mosquito Control Handbook
772-778-7205

Name_____

Are you representing several Handbook owners in your agency, or is this an individual request?_____

Agency_____

How many sets of Handbook Updates do you need?_____

What edition do you own? **1st** **2nd**

Do you prefer paper copies or a CD?_____

Will you be picking up your updates at the Fall FMCA meeting?_____

If not, what is the mailing address for shipping the updates?

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Job Openings

The Collier Mosquito Control District has an immediate opening for a Research Assistant/Biologist.

JOB SUMMARY: Under the supervision of the Director of Research, the Research Assistant/Biologist routinely prepares the necessary equipment, sets up and manages research programs in the field and in the laboratory, identifies samples collected, inputs data into computer databases and assists with the analysis of the data. Under the supervision of the Director of Research this person is responsible for:

- Collection of research data in the field and in the laboratory.
- Setup and operation of research projects in the laboratory and in the field.
- Field collection of adult and larval mosquitoes for research purposes.
- Processing of research field collections, including identification of specimens, and computer data entry.
- Ordering equipment and assisting in the design and construction of research equipment.
- Maintenance of the laboratory and work rooms.
- Maintenance of any insect colonies and laboratory animals used for research.

ESSENTIAL QUALIFICATIONS: Must have a B.A. or B.S. degree from an accredited college or university in entomology, biology or a related science. Must become certified in Public Health Pest Control within 12 months of employment. Must have a valid Florida drivers license. Must be able to work flexible hours, to include nights and weekends. A knowledge of basic mosquito biology and control and of laboratory techniques is preferred. Salary commensurate with qualifications and experience.

For more information contact: Jeffrey C. Stivers, Ph.D., Director of Research, Collier Mosquito Control District, 600 North Road, Naples, FL 34104, Tel. 239-436-1000, Fax. 239-436-1005

****The following announcement is a re-advertisement; anyone who previously applied who is still interested will need to re-apply****

Mosquito and Aquatic Weed Control Manager
AA/EOE/Drug Free Workplace, www.hillsboroughcounty.org

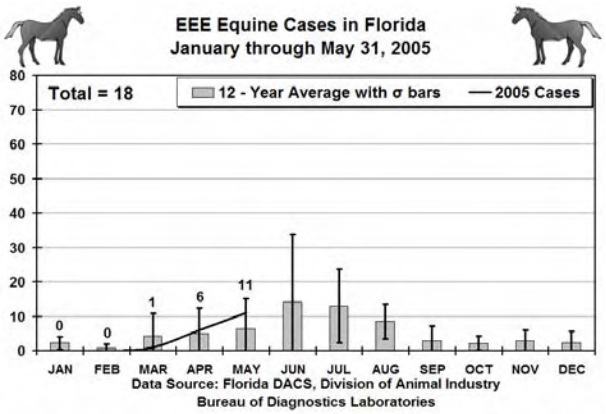
Hillsborough County Florida

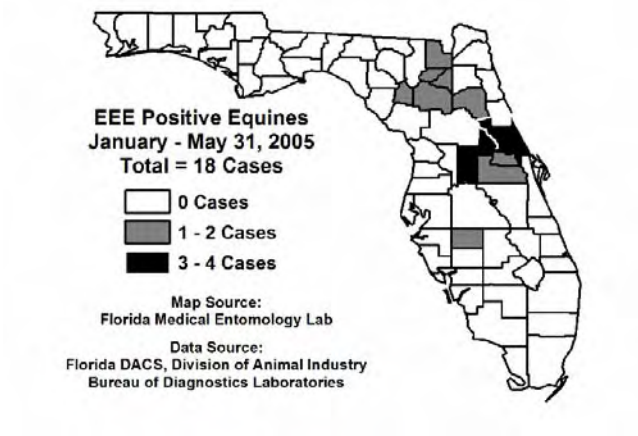
Public Works is seeking a qualified professional to serve as Mosquito and Aquatic Weed Control Manager. Position has responsibility for administrative and supervisory work directing the personnel and operations of the mosquito and aquatic weed control program within Hillsborough County; technical and professional entomological work overseeing a mosquito control surveillance system program, including larvae, adult mosquitoes, and vector-borne viruses. Directs mosquito & aquatic weed control staff in performing biological and source reduction mosquito and aquatic weed control work and integrated pest control programs. Position oversees the preparation and submission of state applications for financial assistance of mosquito and aquatic weed control projects; preparation of the operational and grant program budgets; also develops, implements and maintains a computer database management system for program activities. Position serves as Hillsborough County's State certified Mosquito Control director under Florida Chapter 388 5E-13.032 Program Directors, Employment and Classification.

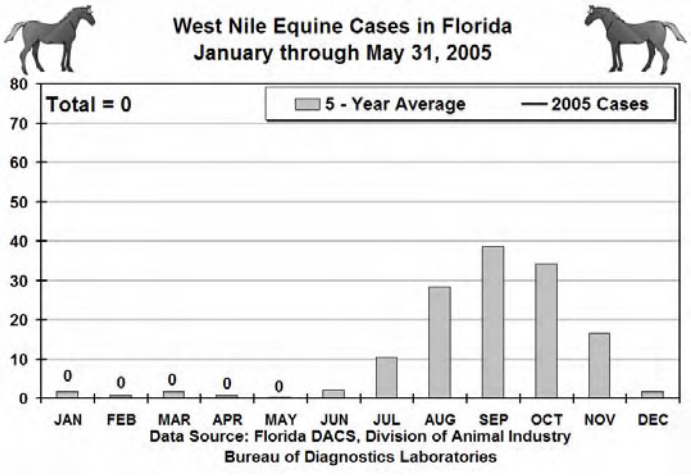
Minimum Requirements:
Graduate of an accredited four (4) year college or university with a degree in basic sciences or engineering with course work in entomology, limnology, biology, chemistry or related courses and have a minimum of five (5) years of supervisory/administrative management experience which includes two (2) years of mosquito control experience. Must possess a current Florida Department of Agriculture and Consumer Services (FDACS) Restricted Pesticide License in the Public Health Pest Control category. Must have a valid Florida's driver's license.

Special Requirements:
Must possess or be able to obtain a current Florida Department of Agriculture and Consumer Services (FDACS) Mosquito Control Director III certification within six (6) months of employment in accordance with Chapter 5E-13.032 (5) Florida Administrative Code.

Apply: Qualified applicants send resume, *including copies of applicable licenses to*: Human Resources, Executive Recruitment, PO Box 1110, Tampa 33601, or email dahmad@hillsboroughcounty.org or fax (813) 276-2197. *Resumes accepted through Close of Business July 6th, 2005. Applicant selected must be available to begin employment on August 1, 2005.*







FMCA 2005 Spring Meeting: Hurricane Preparedness Workshop

The FMCA 2005 Spring Meeting consisted of a Hurricane Preparedness workshop organized by Bill Reynolds of ADAPCO and Dr. Walter J. Tabachnick, UF IFAS, Florida Medical Entomology Laboratory. There was spirited discussion concerning many of the challenges and obstacles faced by Florida mosquito control districts as a result of the 2004 Florida hurricane season.

Drs. Jonathan F. Day, George F. O'Meara, C. Roxanne Rutledge Connelly and Walter J. Tabachnick collated the work resulting from the workshop in outline form. This may be found by anyone interested in reviewing the output of the workshop by viewing the outline on the FMEL Web site at http://fmel.ifas.ufl.edu/

Your comments and suggestions for improving the workshop document are welcome. Comments can be sent to crr@ifas.ufl.edu

Deadline for submissions to be included in the July/August 2005 issue of *Buzz Words* is July 25, 2005. 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

Florida Mosquito Control Association, Inc.

FIRST CALL FOR PAPERS FOR 2005 ANNUAL FALL MEETING

Hawk's Cay Resort
61 Hawk's Cay Boulevard, Duck Key, FL 33050
305.743.7000
November 13 – 16, 2005

You are invited to submit a title for a paper to be presented at the 2005 Annual Fall Meeting of the Florida Mosquito Control Association, Inc. to be held at Hawk's Cay Resort on Duck Key in the Florida Keys, November 13 – 16, 2005. 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 Ed Fussell, Florida Keys Mosquito Control District, 5224 College Road, Key West, FL, 33040, E-mail: efussell@keysmosquito.org, Telephone: 305.292.7190; FAX: 305.292.7199.** 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. _____

MAILING 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)

Recognize the individuals who have made outstanding contributions to Mosquito Control: Nominate them for the 2005 FMCA Awards!

Any Florida Mosquito Control Association member in good standing may nominate a candidate for any award by submitting supporting information to the Awards Committee, to include a short biographical sketch of the nominee, emphasizing those accomplishments deemed worthy of the award. There is no official nomination form. Endorsements and written support from other colleagues are encouraged. All submissions will be acknowledged.

Nominations must be received by July 29, 2005

The ***Maurice W Provost Memorial Award,*** established as a memorial to the first director of the Florida Medical Entomology Laboratory, honors persons who have made outstanding contributions to mosquito control and/or biting fly biology in Florida. Recipients have been instrumental in developing sound management and operational methods to reduce pesticide levels and to minimize habitat alteration while reducing mosquito populations; in increasing our knowledge of mosquitoes and other biting insects and their habitats; and in educating students and the general public about the importance of various environmental issues facing the citizens in protecting the fauna and flora in Florida.

The ***Joseph Y Porter Distinguished Achievement Award*** recognizes the first president of the Florida Anti-Mosquito Association and first State health officer of Florida, and recognizes scientists who have made significant contributions to entomology, with special emphasis on the abatement of arthropods of public health importance. The recipient must have meritoriously contributed to the advancement of entomology research in the field of mosquito and other biting arthropod control in the State of Florida.

The ***Fred Stutz Memorial Award*** honors the former director of Dade County Mosquito Control, and was intended to recognize an outstanding contribution to mosquito control by development of procedures that increase effectiveness in mosquito and other arthropod control, or the design and manufacture of equipment that helped revolutionize the control of mosquitoes and other arthropods of public health importance. Supporting information should also include an evaluation and appraisal of the nominee's accomplishments.

The ***Sherrie Yarberry Award*** was named for a dedicated employee of Jacksonville Mosquito Control, and was intended to recognize continued outstanding contributions to operational program activities by veteran, non-administrative personnel of Florida mosquito control related agencies. The recipient must demonstrate exemplary performance resulting in enhanced unit efficiency or public recognition of excellence of the parent organization. Supporting information from senior mosquito control administrators and supervisors should include an evaluation and appraisal of the nominee's accomplishments.

The ***FMCA Merit Award*** is intended to recognize the outstanding individual contribution to promoting control of disease-transmitting and pestiferous mosquitoes or other arthropods of public health importance, for scientific advancement of the discipline, or for developing or extending the public interest in the control of such mosquitoes or other arthropods. The recipient should represent those characteristics generally associated with responsible leadership, good citizenship and personal integrity. The recipient need not be a member of the Association.

James W Robinson Memorial Award - This award was established in 2005 as a memorial to Jim Robinson, director of Pasco County Mosquito Control District, renown for his innovative development of new equipment and adoption of new technologies. This award is intended to recognize innovation and ingenuity in optimizing the safe and efficient operations of Florida public health pest control programs. The recipient must have contributed an outstanding improvement to equipment or techniques used by a non-commercial mosquito control related agency. This advancement may not be proprietary in nature, and must be freely shared with the Association. Supporting information should include an evaluation and appraisal of the nominee's accomplishments. The recipient of the James W Robinson Memorial Award will receive $500 cash, a commemorative certificate, in addition to expenses to attend the Annual Fall Meeting.

Please submit all inquiries and nomination documents to:

Stephen L Sickerman
DACS Bureau of Entomology & Pest Control,
3920 Frankford Avenue, Panama City, FL 32405-1953
phone 850-872-4250 • fax 850-872-4271 • e-mail sickers@doacs.state.fl.us

Commentary on Research Findings
Nonviremic transmission of West Nile virus:
Implications for understanding West Nile epidemiology

Reference: Higgs et al. 2005. Nonviremic transmission of West Nile virus. PNAS 102(25): 71-74

This interesting article demonstrates that uninfected *Culex pipiens quinquefasciatus* mosquitoes can be infected with West Nile virus (WNV) at low levels by co-feeding on the same host within proximity of biting infected *C. p. quinquefasciatus*. The authors allowed uninfected *C. p. quinquefasciatus* to feed on mice concurrently with WNV infected *C. p. quinquefasciatus*. As many as ca. 5% of the uninfected mosquitoes were shown to become infected with WNV.

This type of transmission is called non-viremic or non-systemic transmission. It is different from the more general transmission mechanism that occurs when an arthropod feeds on a viremic host where the virus is present systemically throughout the blood system. Non-systemic transmission has been demonstrated to occur in ticks for several pathogens, and also in blackflies and sand flies for vesicular stomatitis virus (VSV). The epidemiological implications of non-systemic transmission were described by Lord and Tabachnick (2002. The influence of non-systemic transmission on the epidemiology of insect borne arboviruses: a case study of vesicular stomatitis epidemiology in the western U. S. J. Med. Entomol., 39: 417-426). A key aspect of non-systemic transmission is the distribution of vectors in space and time on an individual host. We currently do not have a good understanding of this distribution for mosquitoes, but it will be critical in determining the significance of non-systemic transmission of arboviruses.

What are the lessons for mosquito control for understanding and controlling West Nile? Some mosquitoes may become infected with WNV by feeding on hosts that are not viremic. This could be any host; human, horse, chicken, reptile, any animal that attracts more than one mosquito. The oft used term “dead end host” should be invoked carefully. Non-systemic transmission increases the potential for WN to spread without the lag period required for hosts to develop viremias. This could increase the speed with which the virus spreads after introduction to a new area. On the other hand, the major feature in WNV amplification and the potential for epidemics is still the role of viremic birds. The potential numbers of infected mosquitoes produced by viremic birds dwarfs the potential for non-viremic infections on other animal hosts. The numbers of mosquitoes that will become infected by the low probability of feeding in proximity to a transmitting mosquito will always be very small in comparison. Our experience with WNV in Florida confirms this.

Elsewhere in previous *Buzz Words* columns the reasons for Florida having escaped a West Nile “big event” were attributed to the timing of the bird breeding season, and wetting events. The timing of these events is critical to producing needed WNV amplification in naïve bird populations. Though it is likely that some proportion of mosquitoes have been infected in Florida by co-feeding, without bird amplification we have yet to see substantial transmission. The role of co-feeding in the transmission of WNV in Florida has not been apparent, although it may have played a role in the rapid appearance of the virus throughout the state in 2001. Further interpretation of the role of co-feeding will require more data and analysis. For example, it would be naïve to assume that Florida’s sentinel chickens have been important to West Nile epidemiology. The evidence for the past four years fails to support this. Florida has yet to experience the West Nile big event, despite maintaining the largest sentinel chicken surveillance program in the U. S.

We still have a lot to learn about the role of non-systemic transmission of WNV and other arboviruses. See Lord and Tabachnick for further discussion and Randolph et al. (1996. Co-feeding ticks: epidemiological significance for tick-borne pathogen transmission. Parasitology Today 118:177-186.).

Walter J. Tabachnick, Director
Cynthia C. Lord, Associate Professor
C. Roxanne Rutledge-Connelly, Assistant Professor
Florida Medical Entomology Laboratory
University of Florida - IFAS

The Name Game: Thoughts on the Proposed Reclassification of Aedini

In a previous *Buzz Words* column (Dec. 2000), I supported the proposed reclassification by Reinert (J. Am. Mosq. Control Assoc. 16: 175-188. 2000) elevating the subgenus *Ochlerotatus* to genus level. I supported this on the basis that, at the time, I accepted that the resulting new taxonomy better reflected the natural relationships in the group. In Reinart et al. (Zool. J. Linnean Soc. 142: 289-368. 2004) the authors propose elevating dozens of Aedini subgenera to genus rank. As a result, some of the most well known mosquito species, i.e., *Aedes aegypti* and *Aedes albopictus*, will have different names, *Stegomyia aegypti*, *Stegomyia albopicta* respectively.

There has been much debate on the appropriateness of the new proposal. Readers can review some of this debate at http://wrbu.si.edu/forums under "Public Comments".

A few words about nomenclature are in order. A primary goal of the Linnaean binomial system of genus and species is to ensure that the name of each species is distinct within each unique genus according to the rules of priority. The International Code of Zoological Nomenclature recognizes that classifications above the species rank may depend on subjective interpretations of taxonomic evidence. As a result, agreement on these rankings is arrived through consensus of the experts in systematics. Any classification is ultimately adopted by the rest of the scientific community.

The proposed reclassification of Aedine mosquitoes has sweeping implications with impacts that include a likely increase in confusion in the literature and throughout the discipline of biology. In the context of the most recent proposal, perhaps the quick acceptance of *Ochlerotatus* as a genus was premature. However, *Ochlerotatus* is now being widely used.

There is considerable disagreement among systematics experts on the appropriateness and necessity of the proposed changes in the classification of Aedine mosquitoes. I suspect that most of the *Buzz Words* readers who have reviewed Reinart et al. (Zool. J. Linnean Soc. 142: 289-368. 2004) will agree with me that the paper is tough reading. A non-expert reading this paper will find little help in being able to independently interpret its validity and rationale because the classification system is based on hundreds of obscure morphological characters (at least obscure to me) analyzed using computer programs that most of us will not be able to understand.

So where do we stand? I advise that readers adopt the view of the Journal of Medical Entomology (JME) Editor-in-Chief, Dr. John D. Edman, a view supported by the Journal's Subject Editors, and supported by the Journal Editorial Board. This view is shared by other medical entomology journals including:

American Journal of Tropical Medicine & Hygiene
Annals of Tropical Medicine & Parasitology
Emerging Infectious Diseases
Journal of the American Mosquito Control Association
Journal of Vector Ecology
Medical and Veterinary Entomology
Transactions of the Royal Society of Tropical Medicine &Hygiene
Vector-Borne & Zoonotic Diseases
PROMED

Edman advises that more research and interpretation are needed to develop a consensus on the Reinart et al. reclassifications of Aedines. It is premature to unilaterally accept the proposals at this time. Until clear analysis and interpretation is forthcoming to develop consensus agreement, Edman encourages authors to maintain the traditional nomenclature. The JME will permit authors to use the Reinart et al. classifications of Aedini if they are convinced of the elevation of any particular genus. When using the Reinart et al. (2004) classification authors are asked to include the traditional name in parentheses immediately after the species is first mentioned, for example *Stegomyia albopicta* (=*Aedes albopictus*, see Reinert et al. 2004), and *Ochlerotatus triseriatus* (=*Aedes triseriatus,* see Reinert 2000).

Stay tuned as the name game continues.

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