

# Buzz Words



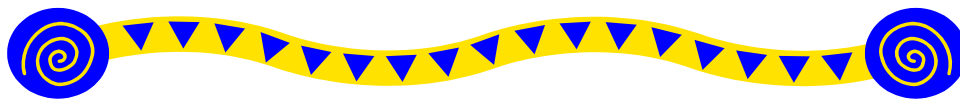
The Newsletter of the Florida Mosquito Control Association  
Mar/Apr 2004

Volume 4, Issue Number 2

## Upcoming Events

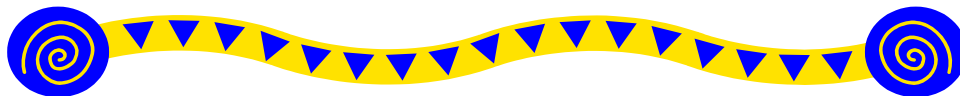
May 3 – 7, 2004

Aquatic Weed Control Short Course  
Ft. Lauderdale Marriott North, Ft. Lauderdale, FL  
For details and registration see:  
<http://conference.ifas.ufl.edu/aw/>



August 15 - 21, 2004

The XXII International Congress of Entomology will be held in Brisbane, Australia. Contact [ice2004@ccm.com.au](mailto:ice2004@ccm.com.au) for details.



Deadline for submissions to be included in the May/June 2004 issue of Buzz Words is May 25, 2004. Please send articles and change of address information to Dr. Roxanne Rutledge, Editor, FMEL  
200 9<sup>th</sup> Street S.E., Vero Beach, FL 32962 or [buzzwords@ifas.ufl.edu](mailto:buzzwords@ifas.ufl.edu)

## FMCA News

### *Kellie Etherson to assume FMCA executive director position*

Given Shelly Redovan's desire to step down as the Executive Director, at the FMCA Board's March meeting in Tallahassee, the Board voted to begin the transition of Kellie Etherson slowly assuming the Executive Director's duties. While the exact details have not yet been finalized, over the next 2 years or so, Kellie will be working with Shelly and Sandy Gross to learn and execute the Executive Director's many duties. The Board feels very fortunate that Kellie is willing to take on this role in our Association. Her dedication to the FMCA is unmatched, evidenced by last Fall, her receiving the FMCA's Meritorious Service Award. Kellie is currently serving as FMCA President and for many years, has chaired the Dodd Short Courses. Kellie is also Co-Chair of the Local Arrangements Committee for the 2007 AMCA meeting in Orlando. Given her excellent organizational skills and dedication, we look forward to Kellie becoming the FMCA's Executive Director.

Doug Carlson  
FMCA President-Elect

### *Robert Ward Retiring*

Robert Ward will be retiring from Polk County Mosquito Control on April 23, 2004. There will be a luncheon on Tuesday, April 20<sup>th</sup> from 11:30 – 1:00 at Polk County Natural Resources office. If you would like to attend, please contact Taryn Crepeau, Operations Specialist, at [taryncrepeau@polk-county.net](mailto:taryncrepeau@polk-county.net)

## 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](mailto:Marin@collier-mosquito.org)

## 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](mailto:loylest@doacs.state.fl.us)

Jennifer Simpson: [simpsoj@doacs.state.fl.us](mailto:simpsoj@doacs.state.fl.us)

Angela Weeks-Samanie:

[weeksa@doacs.state.fl.us](mailto:weeksa@doacs.state.fl.us)

## News from FMEL

### *New Faculty*

The FMEL is delighted that two new faculty will be joining the laboratory as Assistant Professors in July 2004. Dr. Christopher Mores, Ph.D., Harvard University, will conduct research focused on Florida arboviruses with emphasis on West Nile, St. Louis and eastern equine encephalitis viruses.

Dr. Chelsea Smartt, Ph.D., University of California – Irvine, will conduct research employing molecular biology to study mosquitoes, blood feeding and interactions with Florida arboviruses. The FMEL faculty are excited at the opportunity that the new hires will bring that add to FMEL's ability to provide essential information to Florida mosquito control and public health.

### *NIH Grant Funded*

FMEL investigators received notice of funding of a grant proposal submitted to the National Institutes of Health, titled "Modeling and empirical studies of arboviruses in Florida". Cynthia C. Lord, PI, and co-investigators Jonathan F. Day, George F. O'Meara, C. Roxanne Rutledge, and Walter J. Tabachnick, will receive ~ 2.5 million dollars for the 5 year project to begin in May 2004. The project is a study of Florida *Culex nigripalpus* and *Culex quinquefasciatus* populations and their roles as the primary Florida vectors of SLE and WN viruses. These vector-virus systems will be studied using an integrated approach with field, laboratory and theoretical models.



Don't forget to visit the Encephalitis Information System website for updates on the current arbovirus situation in Florida. Site maintained by FMEL at <http://eis.ifas.ufl.edu>

## News from PHEREC

### *New Intranet Web Site*

Mosquito Control Online, developed and maintained by Dr. Harry Zhong at Public Health Entomology Research and Education Center (PHEREC), Florida A&M University, is now online at <http://mosquito.intranets.com>.

Currently, the site offers the following free services for the mosquito control community and the general public: 1). **Pesticide Non-target Database:** A searchable publication database with 1140 records; 2). **Discussion Forum:** Currently, there are 5 sections available to post messages: 1. Adult Mosquito Control, 2. Arbovirus, 3. Control of Mosquito Larvae, 4. Mosquito Rearing, Biology, Physiology and Ecology, and 5. Pesticide Non-target Impact. More sections will be made available after a specific request; 3). **Online Registration for Conferences and Meetings:** To use the service, special arrangements need to be made with a meeting organizer. Please see examples under 'meeting registration'; 4). **Opinion Poll:** For those who wish to conduct an online survey, please contact Dr. Zhong for details; and 5). **View of Online Documents:** See examples under 'documents'. Recommendations of useful articles will be greatly appreciated. Individuals can login as a **guest** to access the site; guest user is absolutely free. To make this site useful for the mosquito control community, any suggestions and comments about the site will be greatly appreciated.

He (Harry) Zhong, Ph.D.  
Assistant Professor

PHEREC News for March 15, 2004 has been posted to the Center's Web site. The URL is <http://pherec.org/PHERECNews/Vol5No1/> All previous editions have been archived at <http://www.pherec.org/PHERECNews/>

*Recent publication of results of high-pressure spray system testing:*

Dukes, J. et. al. 2004. A Comparison of Two Spray Nozzle Systems Used to Aerially Apply the Ultra-Low-Volume Adulticide Fenthion. J. Amer. Mosq. Control Assoc. 20(1): 27-35.

Dukes, J. et. al. 2004. A Comparison of Two Spray Nozzle Systems by Using a Multiple Swath Scenario for the Aerial Application of Fenthion Against Adult Mosquitoes. 20(1):36-44.

## **POSITIONS AVAILABLE**

The Board of Commissioners of the Anastasia Mosquito Control District of St. Johns County is seeking applications for the positions of Biological Technician and Director. Applications will be taken until positions are filled. Mail, email, or fax cover letter and resume to Anastasia Mosquito Control District of St. Johns

County. [amcdsjc@bellsouth.net](mailto:amcdsjc@bellsouth.net)

P. O. Box 1409, St. Augustine, FL 32085-1409

Phone: (904) 471-3107; Fax (904) 471-3189

*Biological Technician.* Must have minimum of a BS/BA degree in entomology, zoology, biology, or a closely related field; have or obtain a current valid Florida driver's license.

Salary commensurate with applicant's experience and ability.

*Director.* Must have minimum of Bachelor's degree in entomology, basic sciences, engineering, or a closely related field with a minimum of 7 years field operations experience and 3 years in a management position.

Position requires application to have, or be able to obtain, Public Health Pest Control Certification, Director's Certification, and a current valid Florida driver's license.

Salary commensurate with applicant's experience and ability.

## **Winners of the Aquatic Plant ID and Adult Mosquito ID contest held during the 2004 Dodd Short Courses**

### Aquatic Plant ID

1st Place - Ginny Day Hall, Charlotte County MC

2nd Place - Ray Leary, Charlotte County MC

3rd Place - David Farr, East Volusia MCD

4th Place - David Lottington, Pinellas County MCD

5th Place - Jason Stuck, Pinellas County MCD

### Adult Mosquito ID

1st Place - Jonas Stewart, East Volusia MCD

2nd Place - Karen St. Pierre, Gainesville MC

3rd Place - Randy Dyson, Gainesville MC

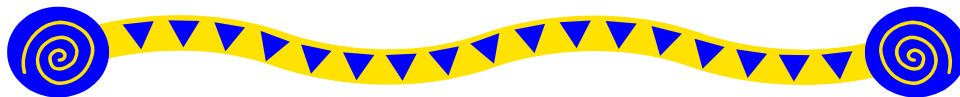
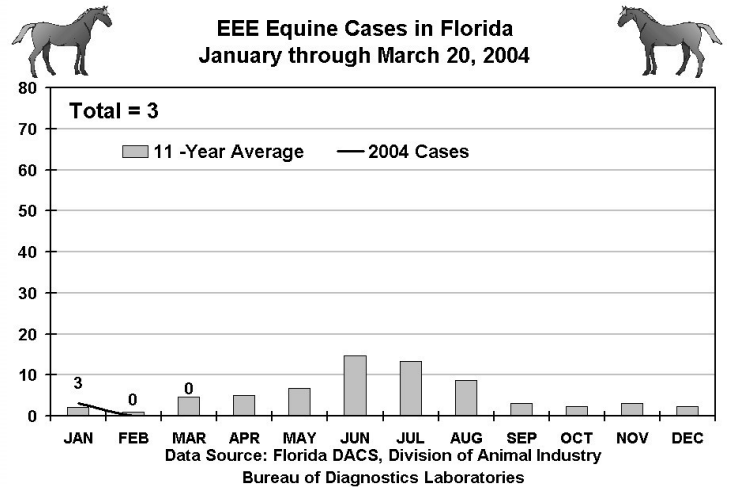
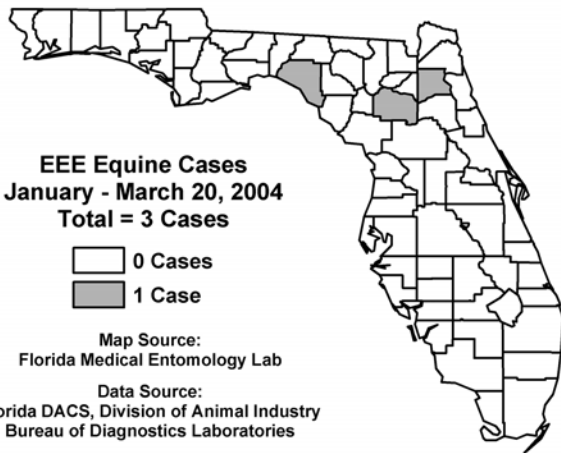
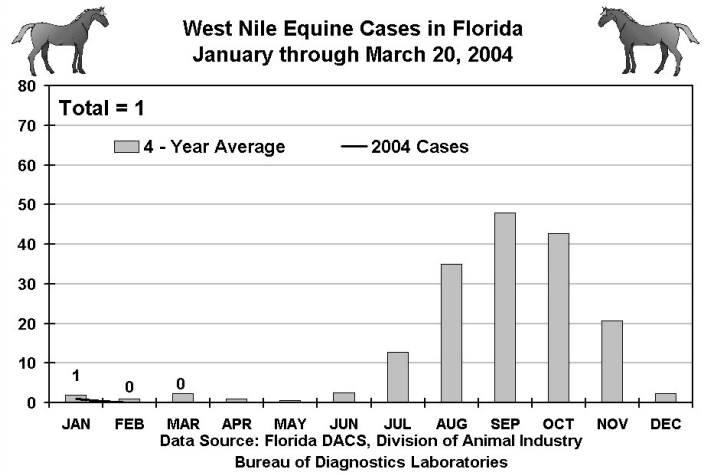
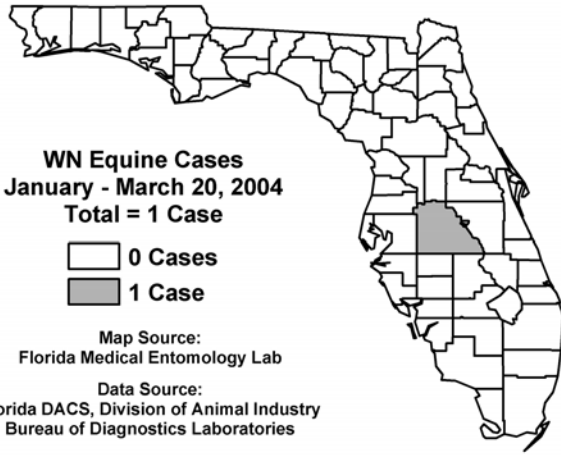
4th Place - Marcia Gaines, Anastasia MCD

5th Place - David Remelius, Reedy Creek Improvement District

## **Research Highlights**

**Fonseca, D. M., N. Keyghobadi, C. A. Malcom, C. Mehmet, F. Schaffner, M. Mogi, R. C. Fleischer, and R. C. Wilkerson. Emerging vectors in the *Culex pipiens* Complex. *Science*. 303:1535-1538.**

The authors state that in the Old World, some mosquitoes in the *Culex pipiens* complex are excellent enzootic vectors of West Nile virus, circulating the virus among birds, whereas others bite mainly humans and other mammals. They show that in northern Europe, mosquitoes in the *Culex pipiens* complex differing in behavior and physiology have unique micro-satellite fingerprints with no evidence of gene flow between them, as would be expected from distinct species. The authors conclude that such hybrids between human-biters and bird-biters may be the bridge vectors contributing to the unprecedented severity and range of West Nile virus epidemic in North America.



"Beagles are notoriously difficult to control when let off the leash...Perhaps Beagle 2 will surface when he is hungry." --*Colin Pillinger*, the scientist in charge of the Beagle 2 project, the lost British Mars probe, who said at a conference at the Royal Society in London that he had received letters from dog owners telling him the choice of the name was unfortunate. From *Science* (Vol. 303, 19 March 2004)

"We lost our Martian rocket ship, the high paid spokesman said, looks like that silly rocket ship has lost it's cone-shaped head. We spent ninety jillion dollars tryin' to get a look at Mars, I hear universal laughter ringing out among the stars." --*Jimmy Buffett, Fruitcakes, 1994*

"Mars is essentially in the same orbit. Mars is somewhat the same distance from the sun, which is very important. We have seen pictures where there are canals, we believe, and water. If there is water, that means there is oxygen. If oxygen, that means we can breathe." --*Dan Quayle*

If you're not failing every now and again, it's a sign you're not doing anything very innovative. --*Woody Allen*

## 2004 TALLAHASSEE DAYS

On March 16-17, 2004, 24 FMCA members met at the Courtyard by Marriott-Capitol to learn more about our State legislative process and to meet with legislators or their aides. This meeting was organized by the FMCA's Legislative Committee with arrangements having been made by the FMCA's lobbyist David Ramba and his assistant Jennifer Guy. FMCA members representing the following counties participated: Bay, Brevard, Charlotte, Collier, City of Gainesville, Indian River, Lee, Leon, Manatee, Orange, Pasco, Pinellas, Polk, St. Johns, St. Lucie and Volusia. On the afternoon of March 16, the interim meeting of the FMCA Board of Directors was held. Shortly thereafter a dinner occurred at which Mr. Ramba provided an overview of the legislative issues of importance to our group. The primary items included supporting continued mosquito control funding (\$2.5 million) to be administered by FDACS. The topic of spending the approx. \$1.4 million remaining from FY 2003-04 was also an important item of discussion.

A breakfast meeting on March 17 provided the opportunity for a final review of the issues with participants before they headed to the Capitol. During the late morning, the entire group met with Assistant Commissioner of Agriculture Terry Rhodes to thank their office for their ongoing support and encourage them to actively continue it for the future. During the remainder of the day, the seven teams met with a total of approx. 20 legislative offices including Speaker of the House Johnnie Byrd and Senate President Jim King.

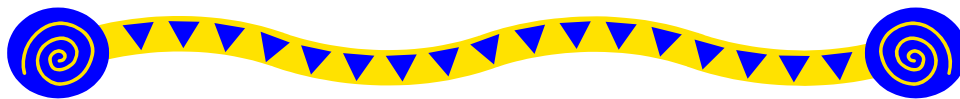
This is the second year that the FMCA has sponsored a Tallahassee Days event. It is proving to be an important function helping to make certain that our legislators are kept abreast of mosquito control issues affecting Florida and encouraging them to maintain a funding commitment to help meet these needs. The FMCA plans to hold this event again in 2005 and hopes that the number of FMCA members participating will grow each year.

Gene Baker, Co-Chair  
Doug Carlson, Co-Chair  
FMCA Legislative Committee



Front Row (L-R): Tom Braud (Orange County), Walter Tabachnick (FMEL), Kellie Etherson (FMCA President), Doug Carlson (Indian River County)  
Back Row (L-R): Dennis Moore (Pasco County), Robert Ward (Polk County), David Mook (St. Lucie County), George O'Meara (FMEL)

*(Editors note: The 20<sup>th</sup> Anniversary of the Dodd Short Courses was celebrated in January 2004. A banquet was held in honor of Glen Dodd, namesake and inspiration for the continuing education for mosquito control personnel. The following is the speech that Glen's mother, Mrs. Ella Dodd, presented during the banquet.)*



## ***Wouldn't Glen have loved this?***

I am sure as he sees what is going on this week, he regrets that he isn't here to take the pictures.

Chantal and I are so delighted with this validation of Glen's work as it comes from colleagues and friends whom he admired, respected, and liked tremendously. Naturally, he has been with his sister and me every day since he left us, but it has filled our hearts to overflowing to know that you have thought of him too.

I don't want to turn this celebration into a wake as it would be the last thing that Glen would want. He loved a party if the guest list were right and tonight the guest list is made up of the finest.

Since there will be other speakers who will touch on Glen's work as slayer of mosquitoes I will just tell you a little about Glen as son, brother, and grandson.

Glen was the first grandson in the family giving him a special position in the eyes of his grandfathers and uncles. Can you believe that until he was nine or ten he was nicknamed Butch? By this time his severe allergies had stopped him from doing much with sports other than swimming, and he had shown that his genius IQ would turn his interests to other than the macho things the males in our family expected. Thus, Butch turned into Glen.

He was constantly startling with us with questions that made us realize that we probably did not have an average child. When he was three we took him to France for three years. Because we had commissary, we had to buy milk on the French market and boil it since in the land of Pasteur, the milk was not pasteurized. After having this explained to him, he mulled it over and asked, "If you gave a cow an electric shock would the milk come out pasteurized?"

Another memory from this time is his running into the kitchen after having listened to "The Nutcracker Suite" several times in a row and reporting in a very excited voice "I heard it! I heard it! I finally heard the nut crack!" He attended French public school for two year(s) and at the age of five was fluent in French, wrote in cursive writing and did mathematics that at that time were not taught in the States until third grade. Of course, this presented difficulties when we returned to the States as he has to translate what was said to him in English into French and then respond in English. Luckily this delayed reaction response only went on for a short time.

His first attempt at playing a musical instrument was the accordion mainly because it was his grandfather's instrument. This is one of those decisions that we did not think out clearly as he was of such a slight build that he suffered a backache every time he has to practice. He never told us this was the case so we blissfully went on until he balked and that ended that. In later years he taught himself to play the piano quite proficiently. I was sorry that we hadn't done more with that as he has a real gift for music and the piano was obviously the instrument that we should have chosen.

He excelled in school, but once he decided he could make straight A's he lost interest in that goal. He kissed his first girl in front of several hundred people when he had the lead in his high school play "Arsenic and Old Lace". He ran for class office using the slogan "Glen Dodd, the thinking man's clod" but lost to the most popular girl in the class. Later the parents of this lovely young lady wanted Glen to take her to the prom and he refused. What's a mother to do? Glen came to work part time at our tire and retread business and much to our surprise worked hard at mounting tires, and working with retreading equipment and other very disagreeable chores. Once Glen made a commitment he tried his very best to do what was expected of him.

His love for music never waned, and he and John Beidler spent many hours shopping for stereos, listening to stereos and repairing stereos. Later they also shared his other passion, photography.

The age gap made no difference to these two as their interests and high regard for each other were greater than the small matter of age. Glen was lucky to have John as mentor and friend.

Glen first went to work at the Indian River Mosquito Control District as a summer employee where his first assignment was helping to set up a darkroom. In his senior year we were all thrilled when after a national search, the Rockefeller Foundation chose him to be part of a six year PhD program at Cornell. He was one of only 40 students in the country to receive this honor. These young people were given the VIP treatment, assigned to the best professors, and had their courses of study tailor made to their interests. Glen started on a path that would have prepared him to be a college professor as his major was Renaissance Literature and Drama. Toward the end of this work he rethought this decision and decided that this might not be where he wanted to spend his life. He came home for Chantal's wedding, took a temporary summer job at Mosquito Control, and much to our surprise, never went back.

I know the one big draw was the people he worked with there and at the Entomological Laboratory: John, Alan Curtis, Doug Carlson, Don Shroyer, Betty Dezutti, Dick Baker, George O'Meara and all the other on the staffs of these wonderful organizations. I seem to remember his giving blood for this work as he had the unenviable job of standing out in the fields and counting the landing rate of mosquitoes as they fed on him. He became proficient at the computer and started to bring the district into the joys and woes of computerization. Eventually, he did outside computer consulting but realized that he was not meant for things like keeping books and sending out bills and he gave up this endeavor. It was when he started working on developing the school that is now known as the Dodd Short Courses that he found a project that made him really enthusiastic. The great group that he worked with became friends. To Kellie Etherson who has been kind enough to keep me posted as to the progress of the school, Jim Robinson, Bill Opp and the many others who joined the work throughout the years I give my thanks for being such important parts of his life.

I would like to tell you a little of Glen's relationship with his father, John, his sister, Chantal, and his grandparents. His father and Glen had in common the Miami Dolphins, playing bridge, their great intelligence, their senses of humor, and their interest in design of furniture and projects that added to the beauty or organizational components in our homes. Glen never ran out of ideas for his father to carry out at this house. Eventually, John joined Glen at Mosquito Control when he was asked to help organize the automotive fleet. There was almost five years age difference between Glen and Chantal, but their mutual-admiration-society never wavered. They could talk about everything including aspects of their personal lives that could only be shared by people who completely trusted each other. To the delight of his grandparents, he never balked at going to Miami to visit them although, as they grew older, these visits became difficult. Glen's loving heart was a good part of the glue that kept this family together.

I once was asked what Glen's main hobby was. I thought of music, photography, reading, playing bridge, and watching sports, but finally realized what it really was. Glen's main hobby was learning. He had an eclectic, passionate interest in expanding his knowledge on an unbelievable wide range of subjects. He read voraciously and sought out people from whom he could learn and with whom he could share. He completely shocked us when in his desire to be with interesting people he accepted an invitation from Juanita and Dick Baker and their girls to go on a canoeing and fishing trip out in the wilds. Neither fishing, touching fish, cleaning fish, smelling fish, nor eating fish were Glen's favorites, but the opportunity of being with the Bakers, whom he greatly admired, overcame his aversions. He, by the way, gave the whole experience two thumbs up.

Glen was a loving, kind, and thoughtful son, brother, uncle, and grandson. His sparkling wit, his keen mind, and his sensitivity meant that there was always laughter, interesting conversation and warm times when he was in the house. Of course, that sparkling wit also included some of the most groan-producing puns I've ever heard, but we tried to be forgiving parents. God blessed me with this very unusual son for 42 years. Wasn't I the lucky one? Thank you for inviting us to join you tonight and for letting me share just a little of the great pride that I will always feel for Glen.





## T. Wainwright Miller, Jr. FMCA Scholarship Application

The Florida Mosquito Control Association Foundation is now accepting applications for the T. Wainwright Miller, Jr. Florida Mosquito Control Association Scholarship.

The purpose of the Scholarship is to encourage and assist students having a major in Biological, Ecological and/or Entomological studies who are seeking degrees relevant to arthropod control, with particular emphasis on Public Health fields. First place recipients will receive a one-time scholarship award of \$2000.00, while second place recipients will receive \$500.00.

The following criteria have been established to choose qualified applicants for the award:

1. The student shall be an undergraduate, have completed two years of academic study with a minimum of 30 credit hours.
2. The student shall be a United States citizen residing in the State of Florida.
3. The student shall have maintained an overall grade point average of 3.0 (out of 4.0) during the last 2 years of academic study.
4. The student shall be enrolled in an accredited College or University in the State of Florida.
5. The student shall be majoring in a field of study having relevance to arthropod control and/or public health.
6. The student shall be required to submit three letters of recommendation, two of which are from professors affiliated with an accredited College or University in which the student is enrolled.
7. The student shall be required to have a grade point average of 3.0, or better, in the major field of study.
8. The student shall be encouraged to seek summer employment with a local mosquito control district for at least one summer during the award period.
9. The scholarship recipient will be provided a gratis membership in FMCA during the period of the award. The recipient is expected to attend at least one of the two annual Florida Mosquito Control Association meetings.

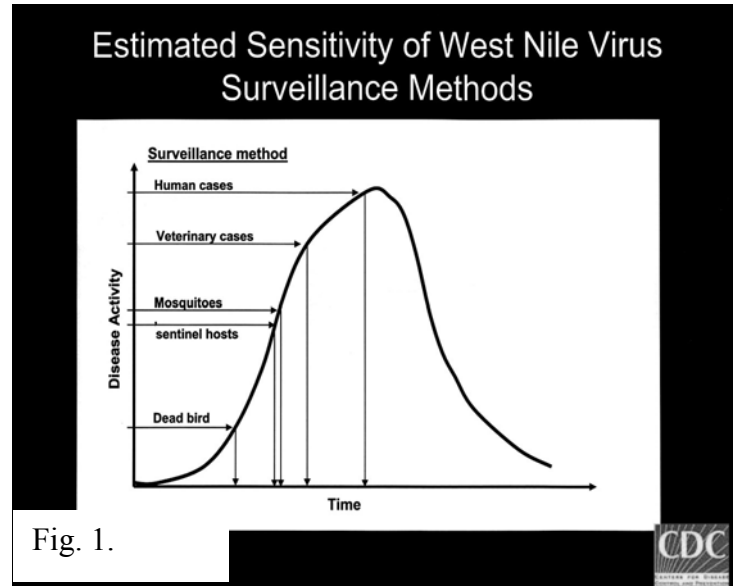
A completed application must contain the following:

1. Name, address, telephone number of applicant, University or College where enrolled, major, overall grade point average, grade point average in major, and number of credit hours completed.
2. Statement from the student concerning interest in public health entomology, career goals, and other factors pertinent to scholastic ability which illustrate qualifications for the scholarship (limited to two typewritten pages [single or double-spaced] on one side only).
3. Three typewritten statements from three persons (two are which from professors from the person's academic institution) who are knowledgeable individuals attesting to entomological interests, character and aptitude.
4. An original copy of current official transcripts of college grades (this may be sent separately). Send only one set of original transcripts per application package.
5. One photograph (black and white, passport size) per application package.

**PROCEDURE FOR SUBMITTING APPLICATION:** Four copies of application materials should be mailed to the Executive Director, Shelly Redovan, Florida Mosquito Control Association, P.O. Box 60837, Fort Myers, FL 33906 and postmarked on or before June 30, 2004.

## Sentinel Surveillance and Human Risk for West Nile virus

At the recent 2004 American Mosquito Control Association meeting in Savannah Georgia various methods to assess human risk of WN virus infection were discussed. Figure 1 is a CDC slide presented at the meeting suggesting that dead birds precede WN virus in sentinels, mosquitoes, veterinary cases and humans. Some might also misinterpret this figure to suggest that dead birds are the best surveillance tool for WN infection. However, note that the figure is not an actual graph of WN virus data. Is the figure a composite of information from many regions? What of the many areas where there were dead birds and other indicators of the presence of WN and no human cases? What are the numbers on the axes? Is this the temporal sequence found everywhere? Is the appearance of each indicator in this figure always correlated with the conceptual level of "disease activity?" On what basis was the figure compiled? Where are the data used to compose such a figure? At best this figure suggests that dead birds may be an early "detector" of the presence of the virus in a region but is the figure useful to assess the risk of human virus infection?



Why should we conduct arboviral surveillance? Why should we seek actual indicators that provide a real assessment of infection risk to humans? Figure 2 shows the 1999 New York City WN epidemic sequence.

It is clear that mosquito control had little impact on WN transmission since the numbers of human cases were already declining by the time vector control intervention was implemented. Are we any better now? Consider Fort Collins Colorado in 2003. Figure 3 is from a presentation by Dr. Roger Nasci. You can see Dr. Nasci's presentation in full at the web address [http://www.cdc.gov/ncidod/dvbid/westnile/conf/February\\_2004.htm](http://www.cdc.gov/ncidod/dvbid/westnile/conf/February_2004.htm). Note that the mosquito adulticiding began in week 34 when mosquito populations were already in decline. Nasci presents data suggesting control did impact mosquito populations. Did mosquito control reduce human cases in week 35? The cases are reported as week of onset. This means that these cases were infected several days prior and that the time of infection is at least a week earlier to the left. Adulticiding was applied late in the epidemic. Hopefully Florida Mosquito Control will do better. Our goal should be to conduct control in week 26-28

when vector abundance was increasing, and we hope to also have evidence of increasing transmission to sentinels. We must avoid implementing control and intervention strategies too late, e.g., week 34 in Ft. Collins, after most human cases are already infected. This is why WN virus surveillance is essential in Florida.

Various surveillance methods provide valuable data that must be assessed in the context of specific location, times and environmental conditions. Many Florida counties maintain sentinel chicken flocks that provide information to gauge human risk of WN infection. We need to evaluate this information carefully and improve the way sentinels are configured to improve the reliability of the information.

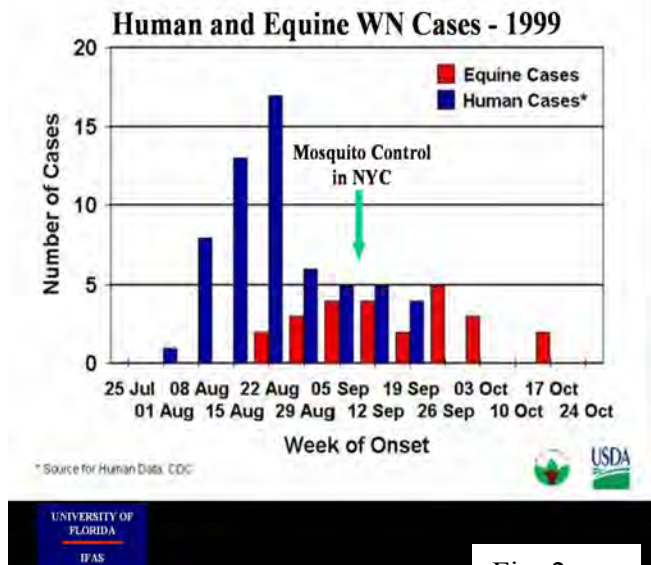


Fig. 2

Sentinel chicken surveillance information can be used to estimate the mosquito transmission frequency at a specific time and location. If there are 48 birds tested and 5 seroconversions, then one needs an estimate of the numbers of mosquitoes biting birds during the infection period. If we estimate 1000 mosquitoes per bird, then the mosquito transmission frequency is ca. 1 in 10,000 (5 per 50,000 bites). Obviously estimates of the number of biting mosquitoes are important. However, this information can estimate human risk in different counties with different numbers of people. The purpose is to provide a rough prediction of the magnitude of the expected problem.

CMC Sites: Density and 228 cases in Ft. Collins

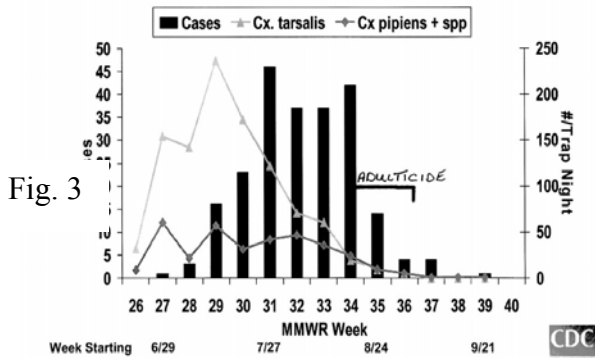


Fig. 3

For example, we will use a mosquito transmission frequency of 1 infective bite per 1000 biting mosquitoes, and estimate that on average each person will receive ca. 10 mosquito bites during the period. This is a very broad based estimate on a population level. Certainly one could try to refine this with estimates of subpopulation numbers that differ in exposure, i.e., a group of 10,000 with 100 bites etc. However in the simplest case, Figure 4 shows estimates of the number of human WN cases expected in three counties assuming 20 in every 100 infected people develops a clinical WN infection. This sentinel information can gauge the risk, and we can evaluate expected differences in the numbers of cases under the same levels of risk. There will be more cases in population centers

despite the fact that individual risk is no different. 250 cases in Indian River vs. 4500 in Miami Dade. Florida must address this issue of incidence of disease rather than the absolute number of cases. What level of incidence of risk will require a vector control response? What number of cases requires a particular response? If we consider WN disease (20% of human infections), Miami-Dade County will have 230 WN disease cases when the incidence is 1 in 10,000; Indian River County 13. Ft. Collins had a weekly incidence of ca. 4 in 10,000. Should these jurisdictions be under medical alert? What level should trigger a medical emergency? Suppose there is surveillance information that Miami-Dade and Indian River are at risk for 1 WN disease case per 1000 population. This means 2300 cases in Miami Dade, 130 in Indian River. Is this an emergency situation in both counties? Should outdoor activities be canceled?

Why surveillance? Why alert the public? In the above illustrations a 90% reduction in mosquito populations reduces the number of biting females 10 fold. Now include personal protection, messages to reduce human exposure, reducing nighttime and morning outdoor activities, further reducing biting activity on the public 10 fold. A case incidence of 1-10 per 1000 would give 2300-23,000 WN cases in Miami-Dade that could be reduced 100 fold to 23-230 cases. Should night time activities be canceled, should public parks be closed in advance of any human cases with such available surveillance information?

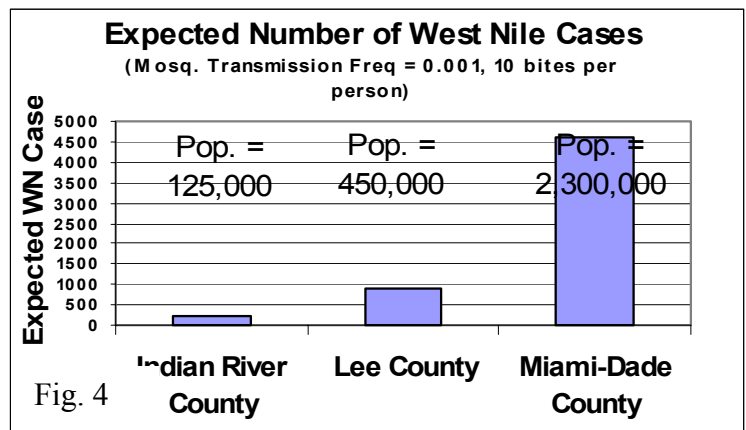


Fig. 4

We can impact the big event, but we have to make that impact early in the epidemic! We can use reliable information in the context of the Florida WN Response Plan with different tiers of action commensurate with the estimated danger. Our goal is to reduce the big event in areas that are at risk in advance of human cases. Recall week 26 in Fort Collins. Eventually, as more people become immune to WN virus we will need information on the population immune status to assess overall population risk. The more information we have on mosquito transmission frequencies the better our chances to use our

resources quickly, wisely, improve quality of life, avoid unnecessary negative effects on the economy and at the same time protect the public from WN virus.

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