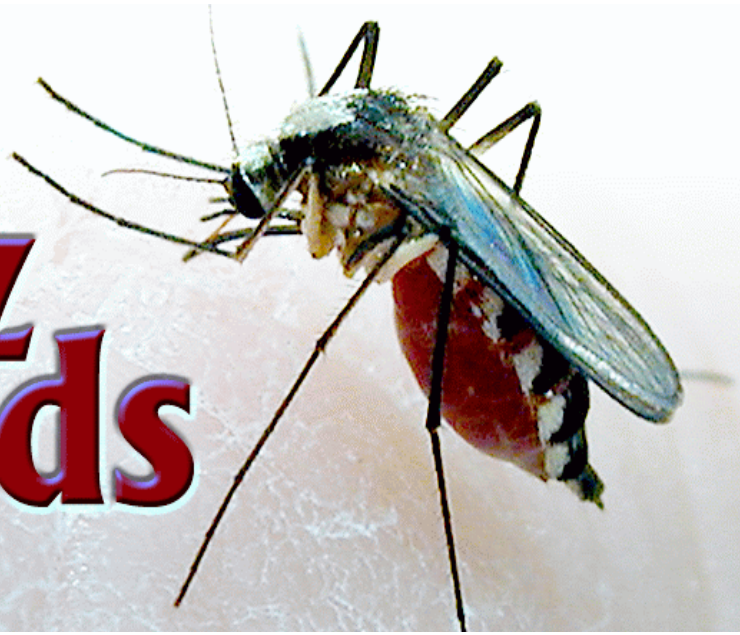


Buzz Words



The Newsletter of the Florida Mosquito Control Association
Mar/Apr 2003

Volume 3, Issue No.2

Upcoming Events

FMCA Spring Meeting

Vero Beach and Ft. Pierce, Florida

May 20-21, 2003

www.floridamosquito.org

Sentinel Chicken Workshop

Florida Medical Entomology Lab

Vero Beach, Florida

June 10, 2003

See details inside this issue of Buzz Words

47th Annual Livestock Insect Workers' Conference

Atlantic Beach, North Carolina, June 22 -25, 2003. Sheraton Atlantic Beach Oceanfront Hotel (1-800-624-8875). The conference is an informal gather of primarily Veterinary Entomologists focusing on pest management developments within commodity groups.

The program will begin on Sunday afternoon with a symposium of interest to medical and veterinary entomologists. For more information go to the LIWC website

<http://www.cals.ncsu.edu/entomology/stringham/LIWC2003/LIWC.htm>

News from PHEREC

Dr. Harry Zhong has been selected as a Volunteer Grand Awards judge for the 2003 Intel International Science and Engineering Fair in Cleveland, Ohio. Judging is a two day process, with time spent the first day, Tuesday, May 13, 2003, registering, meeting with category co-chairs and getting an overview of the finalist' projects. The second day, Wednesday, May 14, 2003, is for the actual judging interviews and the selection of the winners. Judging at an International Science and Engineering Fair is an excellent outreach activity and a truly rewarding experience. Dr. Zhong looks forward to his participation in this important event.

FMCA News

Collier Mosquito Control District Director of Administration retiring after 34 years...
by Frank Van Essen, Executive Director

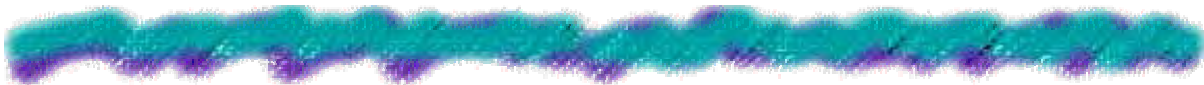
CMCD's Director of Administration, Ms. Joan Owens, affectionately known as "The Squirrel" by a couple of our long-time Commissioners for her often demonstrated ability to squirrel away money for a

rainy day, is retiring on June 30th after over 34 years of service to the District. To the employees, she'll be "mom" forever and always.

Joan has seen heavy mosquito seasons and light mosquito seasons and has had the unenviable task of budgeting for them all. She began her employment in 1969 when our District was only 98 square miles versus the soon to be 342 square miles with the addition of Immokalee.

In her capacity as Clerk to the Board of Commissioners, Joan has attended every Board meeting and various special meetings since January of 1969. This amounts to over 500 consecutive meetings which, for those of you who have attended Board meetings, is **A LOT OF MEETINGS**. She has seen aircraft come and go, from the Twin Beech to the DC-3 to the Short Brothers Skyvan. Joan even drove fog trucks for several years when Naples and Marco Island were relatively uninhabited and can swap stories with the best of them.

On behalf of the staff and Commissioners of the Collier Mosquito Control District, we give our heartfelt thanks to a job well done. We'll miss you, Joan!



Mosquito Identification Training Course

DACS-Bureau of Entomology & Pest Control

Tallahassee, FL

June 25-26, 2003 8:30am-4:30pm



➤ This is a 2-day course covering larval and adult identification of Florida mosquitoes.

➤ Public Health review sessions and exams are also available to interested persons. Please let us know if you want to participate in a review or exam.

➤ Please contact Jennifer Simpson at (850) 922-7011 or simpsoj@doacs.state.fl.us to reserve your space or for more information

➤ All materials provided!

➤ No fee!

➤ Earn 16 Public Health CEUs!

➤ Class size is limited, so reserve your space now!

FMCA Works for You!

FMCA Committee Assignments for 2002-2003

This list is provided to let FMCA members know the names of the committees and the individuals who are contributing to committee assignments.

If you see your name on the list and did not know you were on the committee, or if you wish to be removed, please contact George O'Meara, FMCA president at 772-778-7200 or gfo@mail.ifas.ufl.edu

AWARDS: Stephen Sickerman, Chair; Mark Latham, Roxanne Rutledge

BYLAWS: Bob Betts, Chair; Richard Levy, Robert Frommer

EXHIBITS: Jim Burgess, Chair; Frank Clarke, Bill Reynolds

FINANCE: Doug Carlson, Chair; Bob Betts, Mark Latham, George O'Meara, Dennis Moore, Eric Schreiber, Richard Smith, Ed Hunter

LEGISLATIVE: Gene Baker, Co-Chair; John Beidler, Co-Chair; Ed Fussell, Helen Glenn, Ed Hunter, Walter Tabachnick, William Opp, Jim Robinson, John Smith, George Wichterman, Jonas Stewart

LOCAL ARRANGEMENTS: Kellie Etherson, Chair; Doug Carlson Co-Chair; George O'Meara, Shelly Redovan

MEMBERSHIP: Kellie Etherson, Chair; Bill Reynolds, Tom Loyless, Iona Moody

NOMINATING: Mark Latham, Chair; Jonas Stewart, William Opp, Ed Hunter

PROGRAM: Kellie Etherson, Chair; Beth Bowen

PROJECTIONS/AUDIO VISUAL: Kim Feagley, Chair; Tom Floore, George Heinlin

RESEARCH ADVISORY: Ed Fussell, Chair; Walter Tabachnick, John Smith, Wayne Gale, Donald Barnard, Richard Levy, Mark Latham, Eric Schreiber, Jonathan Hornby, Tom Breaud, Alex Cordero

RESOLUTIONS: Jonas Stewart, Chair; Jim Brown, Robert Ward

EDUCATION COORDINATION: Eric Schreiber, Chair; Jim Cilek, Kellie Etherson, Jonas Stewart, Dennis Moore

ECC SUBCOMMITTEES:

Aerial Training: Mark Latham, Chair, Bill Opp, Jim Robinson, Allen Wooldridge

Technical Bulletins of FMCA: Jim Cilek, Editor-in-Chief; John Beidler, Jon Day

Dodd Short Course: Kellie Etherson, Co-Chair; Eric Schreiber, Co-Chair; David Dame, Janice Broda, Jim Cilek, Kim Feagley, Gerry Hutney, Mark Latham, Tom Loyless, Dennis Moore, George O'Meara, Jim Robinson, Roxanne Rutledge, Jack Petersen, Ed Hunter, Stephen Sickerman, Doug Wassmer, Tom Floore

Public Information: Brian Murphy, Chair; Kellie Etherson, Jonas Stewart, Neil Wilkenson

BUZZ WORDS NEWSLETTER: Roxanne Rutledge, Editor-in-Chief

WING BEATS MAGAZINE: Marin Brouillard, Editor-in-Chief; Dennis Moore, Tom Floore, Alan Curtis, Dave Dame, Tom Wilmot, Stan Cope, Ed Meehan, Doug Wassmer

HISTORICAL: William Opp, Chair; John Beidler, Jim Cilek, Jim Dukes, Kim Feagley, Gene Gerberg, Carl Rathburn, Dan Gorman, Jim Robinson, Jack Rogers, Jack Salmela

PERSONNEL EXCHANGE: Jim Robinson, Chair; Kellie Etherson

FLORIDA MOSQUITO CONTROL HANDBOOK: Roxanne Rutledge, Managing Editor; William Opp, Eric Schreiber, Tom Loyless, Jack Petersen

AD HOC COMMITTEES

Arbovirus Surveillance: Jim Burgess, Chair; Joe Cash, Jon Day, Don Shroyer

Commissioners Section: Beth Bowen, Chair; Pat Mann, Marge Crawford, Paul Sanborn

Beekeeping: Mark Latham, Chair; Alan Curtis, Dennis Moore, Harry Zhong

Site Selection: Robert Ward, Chair; Kellie Etherson, Ed Hunter, Jim Burgess, Bob Betts

**Recognize the individuals who have made outstanding
contributions to mosquito control:
Nominate them for the *2003 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 August 8, 2003.

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 also 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.

Please submit all inquiries and nomination documents to: Stephen L Sickerman
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

Positions Available

Faculty Positions Available in the Department of Tropical Medicine, Tulane University, New Orleans, LA.

--Vector-Borne Diseases Specialist/Entomologist

--Hemorrhagic Fever Specialist

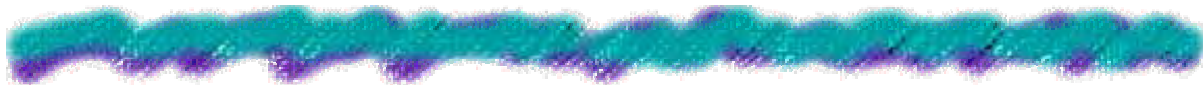
For more information, <http://www.tropmed.tulane.edu/news/position.shtml> or contact Dr. Paul Brindley (paul.brindley@tulane.edu)

Louisiana State Medical Entomologist, Dept. Health and Hospitals/Office of Public Health
Work Location: Baton Rouge, LA. Minimum Qualifications: M.S. in Entomology with a minimum of four years experience in a vector-borne disease surveillance and control program plus two years of professional experience in business operations, economics, public health, public relations or in providing social services or health services. One year of this experience must have been at the advanced journeyman level or above.

Salary Range: \$41,038-\$67,933, negotiable based on experience and qualifications.

Contact: James P. Antoon 225-763-5556. Jantoon@dhh.state.la.us

Applicants must complete the SF-10 form which can be found at www.dscs.state.la.us



Maximizing the use of sentinel chicken surveillance results.

A Workshop Sponsored by:

Florida Medical Entomology Lab, Florida Department of Health, Indian River County Mosquito Control District, and Volusia County Mosquito Control District

June 10, 2003

9:00 a.m. – 4:00 a.m.

Vero Beach, FL

Respond by May 20, 2003

***Contact Mrs. Yvonne Reese to register for the workshop. 772-778-7200 x. 120
Make your reservation with Mrs. Reese by May 20, 2003***

Workshop Outline – obtain information on starting, maintaining and operating a sentinel surveillance program, learn about using information to make decisions, discuss the dos and don'ts of surveillance.

1. 0900 to 0930. Developing goals for surveillance—options for surveillance tools (Rutledge, FMEL).
 - A. Detection vs. surveillance.
 - B. Risk assessment.
2. 0930 to 1000. Discussion.
3. 1000 to 1100. Sentinel flock placement; weekly and annual flock maintenance strategies including blood collection, blood shipment, and reporting strategies; record keeping; and sentinel cage construction (Shroyer, IRMCD).
4. 1100 to 1115. Break.
5. 1115 to noon. Discussion of Shroyer's presentation (Shroyer, IRMCD).
6. Noon to 1300. Onsite lunch.
7. 1300 to 1330. Interpretation of weekly, monthly, and annual sentinel surveillance results—what do the test results mean? (Day, FMEL).
8. 1330 to 1400. Discussion.
9. 1400 to 1430. Variations on sentinel flock configurations: FMEL Arboviral Rapid Deployment System (Tabachnick, FMEL).
10. 1430 to 1500. Discussion/Break.
11. 1500 to 1530. Sentinel flock modification for enhanced arboviral surveillance (Stewart/Emminger, EVMCD).
12. 1530 to 1600. Discussion and exit.

Mosquito Pooling: Getting a return on your investment

As Florida mosquito control programs approach the busiest time of the year, it is more important now than ever to review arbovirus surveillance programs and protocols. In the last issue of Buzz Words, Dr. Walter Tabachnick discussed the potential for a major outbreak of West Nile in Florida - the "calm before the storm" (Buzz Words, Volume 3, Issue 1; Jan/Feb 2003). Working smart is the key to efficient and effective arbovirus surveillance and disease prevention. And working smart means review, discussion and planning for surveillance programs now, rather than in the middle of an epidemic.

The collection and combining of mosquitoes for virus testing, commonly referred to as "mosquito pooling", is a part of many arbovirus surveillance programs throughout the U. S. Mosquitoes are trapped, identified to species, and tested, or frozen for later testing, in pools of 1 – 100 mosquitoes. The mosquito pools are ground into one mass and tested by RT-PCR or cell culture assay. The lab conducting the testing provides the client with a list of positive and negative pools. What is a mosquito control district to do with this list? How will it be used to plan control operations?

There are several questions to be asked prior to incorporating mosquito pooling into a surveillance program, as well as after it has been initiated. 1) Where will mosquitoes be collected? 2) What species will be targeted in the collections? 3) When will mosquitoes be collected? 4) When will the pools be submitted for testing? 5) How will the mosquitoes be tested (what test will be used)? 6) What does a "positive" pool mean? 7) What is the threshold for positive pools to activate or modify control measures? 8) What species will be important if positive? 9) What is the turn around time for processing the mosquito pools and getting results? 10) What is the overall goal of the mosquito pool testing?

There has been a lot of discussion to address these questions in the past 2 years by Florida medical entomologists. I urge you to read Dr. Don Shroyer's article in Wing Beats, "The collection and processing of mosquitoes for arbovirus assay: some fundamental considerations" (Wing Beats, Summer 2001). Dr. Shroyer discusses the meaning of a "positive pool." The four possibilities for mosquitoes included in any positive pool are: 1) Uninfected mosquitoes that harbor residual virus from a previous blood meal; 2) Mosquitoes with dead-end infections – meaning they can not transmit the virus; 3) Mosquitoes with young infections – the mosquito can possibly transmit the virus, but has not completed the extrinsic incubation period; and 4) A fully competent vector able to transmit the virus. Mosquito pool results do not distinguish these four possibilities. The results that you receive cannot indicate more than "positive" or "negative". And at most, a positive pool means that one mosquito in the pool was "positive".

Dr. Walter Tabachnick pointed out in "West Nile virus detection: The details are important" (Buzz Words, Vol. 2, Issue 2, Mar-Apr 2002) that PCR can detect viral remnants in a mosquito that fed on a viremic host long after the blood meal has been digested. PCR cannot answer the question of infected vs. infectious mosquitoes. Additionally, some mosquitoes contain live virus but they are not able to TRANSMIT. The important question is *can the mosquito transmit the virus?* Dr. Tabachnick's myth #3 in "West Nile in North America: Sorting through four years of myths" (Buzz Words, Vol. 2, Issue 5, Sep/Oct 2002) is another reminder that a majority of the WN positive identified species play little or no epidemiological role in sustaining virus amplification and pose little risk to humans. In a previous article, "Mosquito Vector Competence Tests for West Nile Virus: What do they mean for Florida?" (Buzz Words, Vol. 1, Issue 4, July-Aug 2001), he discussed the value of vector competence and reminded us that we have to look beyond the "positive" mosquito to evaluate the importance of potential arbovirus vectors in Florida. For example, other important traits would be host preference, longevity, extrinsic incubation time, environmental effects on the virus, and species abundance.

In Rutledge et al., "West Nile virus infection rates in *Culex nigripalpus* (Diptera: Culicidae) do not reflect transmission rates in Florida" (J. Med. Ent., In press) we reported infection rates in mosquitoes of 1.0 – 7.5 per 1000 mosquitoes and transmission rates of 0.8 – 1.0 per 1000 over a four night period during epidemic transmission in Jefferson County, Florida during 2001. During the study, we collected 12,000 mosquitoes, primarily of 3-4 targeted *Culex* species, over a four night period. This effort was very labor intensive, but we had an objective that made use of the surveillance data we had at the time. Compare this effort to a few thousand mosquitoes collected over an entire mosquito season during a non-epidemic period: what are the chances of obtaining information that is useful in control operations? Often, mosquito pooling can address research questions, but is it useful for operations?

An increase in sentinel chicken programs in Florida, and an increase in numbers of flocks in existing programs, combined with an increase in sampling frequency and programs that now run all year long, is going to place a huge burden on the labs that test for arboviruses. The labs that process these samples test the sentinel animal serum first as it has proven to be the most valuable information for control efforts. If mosquito pooling is in your plan, reconsider your sampling effort. It is not efficient or effective to ship a box of mosquitoes to be tested if you have no real objective in mind prior to making the collections. What is the potential for real-time, or close enough to real-time, data that will have meaning for your control program with mosquito pooling?

For those programs that continue to use mosquito testing as part of your surveillance program, be smart about it. Consider the questions asked above and determine what the real goal of the testing is – don't just sample every mosquito out there without consideration of why you are doing it. For the benefit of the testing labs and for a greater return on your investment of time and dollars, remember the following – some very important rules for smart collection and testing of mosquito pools:

DO	DON'T
Identify mosquitoes to species	Include more than one species in a pool
Remove blood-fed females from the pool	Include more than 100 mosquitoes in a pool
Separate males from females	Include male and female mosquitoes in the same pool
Maintain a cold chain	Forget to identify the mosquito species
Target and prioritize your collections	Include mosquito pooling in surveillance without meaningful objectives

**C. R. Rutledge, Assistant Professor
Florida Medical Entomology Laboratory
UF/IFAS**

The relationship of WN dead birds and human cases

The significance of dead wild birds to detect the presence of WN virus and in predicting the risk for human cases has been discussed in previous Buzzwords columns (i.e., Oct. 2000, Jan. 2001, Nov. 2001). A recent article "Guptill et al. 2003. Early-Season Avian Deaths from West Nile Virus as Warnings of Human Infection, *Emerg. Infect. Dis.* 9: 483-484" can be found at <http://www.cdc.gov/ncidod/eid/vol9no4/02-0421.htm>, deserves discussion.

The authors report that 1719 U.S. counties reported WN-positive dead birds during 2002. Of these, 632 counties reported at least one WN infected bird before August 4. The use of August 4 is explained in the article. 45% of these later reported a human WN case. In comparison, only 19% of the 1,162 counties not reporting a WN-positive bird by August 4 had a WN human case. The two groups add up to 1794, an error in the paper. However, counties with a WN dead bird before August 4 were more likely to report a human WN case. They write that work is needed to assess sampling differences due to effort, i.e., the effort is greater in more populous areas and so is the chance of a human case. However, they do not address this critical point in their paper. The authors hypothesize that where an avian epizootic occurs early in the transmission season, subsequent WN in humans is more likely because the early epizootic may indicate viral activity that has sufficient time to escalate to high levels before the end of the transmission season.

We recognize that a WN positive wild bird may provide early evidence for the presence of WN virus. However, will this event predict human cases? How accurate is the prediction? Let's evaluate Guptill's data for 2002.

First, consider the imprecision of the risks. 55% of counties with an early indicator bird had no human cases. 20% of counties with no early indicator had a human case. Second, a dead WN-positive bird does not distinguish a random human case from epidemic transmission. Likewise, it does not increase our ability to target epidemic intervention or vector control in a specific region. We need better predictors to achieve efficient, effective, and proper vector control during medical emergencies.

Does the predictive value of a WN-positive bird found before August 4 make sense? Although plausible, remember the old song, "It Ain't Necessarily So." Do the two groups really represent different levels of transmission before August 4? Perhaps, but how can this date be of value for the myriad of ecologies and habitats throughout North America? An equally likely hypothesis is there are differences in sampling effort, and ease of observation, e.g. a dead bird in an urban shopping center stands out better than a dead bird in a coastal marsh. The mean human population in counties with a WN bird before August 4 is 30% higher than those with no reports, counties with WN animals before August 4 have ca. 2X's the human population of those with no WN animals. All of the counties with WN human cases were in the top 60% of counties ranked by population size. One cannot discount human population size, effort, ease, and chance.

Look at Florida's data in 2002 at the FL Dept. of Health site at:

http://www9.myflorida.com/disease_ctrl/epi/htopics/arbo/data/2002/12-16-02.pdf

Florida had 10 counties reporting WN-positive wild birds prior to July 26, 2002 with 4 later having a human case – a 40% risk. But wait – of the 23 counties with later WN positive wild birds there were 5 with human cases – a 22% risk. Surprisingly similar to the previous percentages, but in Florida there is no difference ($X^2=1.05$, $P>0.05$). The prediction is not improved with other indicators, i. e., dead birds, chickens and/or horses. Of 24 counties with a WN indicator prior to July 26, 9 later had human cases – a 38% risk. Of 30 Florida counties with a WN positive animal after July 26, 5 had human cases - a 20% risk. Again no difference ($X^2=0.47$, $P>0.05$) in Florida. Do your best and play with the numbers and the cutoff dates. We

can all play the numbers game and develop some nifty stories. The risk of a human case in a county with a WN positive animal reported by or before a date is April 5 – 29%, May 5 – 22%, June 14 – 18%, July 19 – 33%, Aug. 9 – 33%, Aug. 30 – 30%, Sept 30 – 29%. The WN-positive animal detects the presence of virus prior to the detection of human cases, but it is not predictive of the case. The fallacy is trying to make connections to predict sporadic human cases, which is very difficult. So far Florida has escaped a major WN virus epidemic. This will likely change, and our forecasting abilities will be tested.

Can the predictive precision be improved by taking sampling effort and ease into account? I predict that this will only weaken the predictability of the 2002 human cases. It will be very difficult because sampling effort and ease will differ in dynamic ways over time and space. What information does a dead WN-positive wild bird found prior to August 4 really provide and is it a basis for initiating vector control actions? For now it is clear that such a finding before August 4 is not a good thing. A sentinel chicken seroconversion in April is not a good thing. A WN-positive horse in April is not a good thing. The presence of WN virus is not a good thing – and there will be sporadic isolated human cases. How much action is necessary and is it cost effective? My friend Alan Curtis quipped “and if the WN dead bird falls in the forest and no one sees it, is it really a WN transmission event?” Florida has low-level transmission now, sporadically in a few counties. Expanded sentinel chicken surveillance will provide more precise information for public health and mosquito control. We need to effectively monitor virus transmission to sentinels, viral amplification in wild birds, and mosquito infection rates. We need to be able to quickly evaluate changes in mosquito transmission frequencies in time and space. We can obtain the data to provide accurate risk assessment for the “big event.” We can do better risk assessment from the combination of surveillance tools based upon a sentinel surveillance program that is capable of adapting and changing to meet local conditions and needs. This will not be easy. Dead bird reporting has limited use but is relatively inexpensive to obtain. Perhaps this is the reason for the continued efforts to refine and promote this tool. It ain’t necessarily so.

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