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**42nd ANNUAL CONFERENCE
SOCIETY FOR VECTOR ECOLOGY
SEPTEMBER 26-30, 2010
RALEIGH, NORTH CAROLINA**

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Passing of Dr. James Webb



Each of us can point to a few individuals who profoundly influenced our lives. For many of us involved in public health in California that short list contains the name of Dr. James P. Webb. It is with great sadness that we reflect on the passing of this great influence on so many of us.

On September 5, 2010, following a long illness, James P. Webb, Ph.D. died at his home in

Anaheim, California. Dr. Webb is survived by his wife of twenty-six years, Roberta Webb, four children, Patrick, Jason, Robert James, and Elisa, and four grandchildren.

Jim was a visionary -- he saw vector control as more than simply controlling pests-- and Jim's vision involved the purest form of public health protection. Jim realized the importance of understanding the nature of the vector-borne disease, the transmission pathway, the relationship between pathogen, vector, host and reservoir, as well as the biology of the vector, before attempting any type of control effort.

Dr. Webb and the program he established were respected throughout the United States as well as abroad. He established relationships with both institutions and individuals throughout the world and put those contacts to good use when it came time to develop surveillance and control programs in Orange County.

Dr. Webb's emphasis on developing effective surveillance programs for any potential threat has kept the Orange County Vector Control District prepared for any emerging vector hazard. The practices Jim instituted will live on, but he will be sorely missed.

2010 SOVE Annual Conference

Raleigh, NC
September 26 – 30
Program Chair: Ken Linthicum, USDA-ARS CMAVE,
Gainesville FL
Kenneth.Linthicum@ars.usda.gov

Conference Theme: “Impact of Climate Change on the Ecology of Arthropod Disease Vectors.”

Sunday afternoon and evening – September 26, 2010

- Registration (2:00 – 6:00)
- Board meeting (4:00 – 5:30)
- Reception (6:30 – 8:00)

Monday – September 27, 2010

8:00 – 8:10 Welcome and Announcements – **Pres. Nolan Newton**

8:10 – 8:20 Distinguished Achievement Award and Outstanding Service Award Presentations

8:20 – 8:50 Presidential Address – **Pres. Nolan Newton**

8:50 – 9:30 Keynote Speaker – Global Climate Change and its Impact on Ecological Systems.
Compton Tucker – Goddard Space Flight Center, NASA, Greenbelt, MD

Break (9:30 - 10:00)

- **Symposium 1** (10:00 – 12:00) Global Change and Vector-Borne Diseases. **Jerry Freier** jerome.e.freier@aphis.usda.gov USDA-APHIS Ft. Collins CO and **Chester G. Moore** culex.tarsalis@comcast.net Colorado State University, Ft. Collins CO

10:00-10:10 Introduction to symposium, **Jerome E. Freier** jerome.e.freier@aphis.usda.gov USDA/APHIS/CEAH, Fort Collins, CO

10:10-10:30 Globalization and the law of unintended consequences: Rapid spread of disease vectors via commerce and travel. **Chester G. Moore**, culex.tarsalis@comcast.net, Colorado State University, Fort Collins, CO

10:30-10:50 Scales of climate variability and their impacts on mosquito-borne viruses. **Chris Barker**, cmbarker@ucdavis.edu, Center for Vectorborne Diseases, University of California, Davis, CA

10:50-11:10 Some Challenges of Relating Climate to Vector Populations. **Greg Glass** ggladd@jhsph.edu, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD

11:10-11:30 Landscape Modification and Mosquito-borne Diseases. **Douglas E. Norris** dnorris@jhsph.edu, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD

11:30-11:50 Prevalence of mosquito-borne viral diseases in the state of Punjab, India: A review. **Devinder Singh** devinder.ss.61@gmail.com, Dept. of Zoology, Punjabi University, Patiala, India

11:50-12:00 Discussion and concluding remarks: **Chester G. Moore** culex.tarsalis@comcast.net, and **Jerry Freier** jerome.e.freier@aphis.usda.gov

Lunch (12:00 – 1:00)

- **Symposium 2** (1:00 – 3:00) Emerging Vector-Borne Pathogens, **Ron Rosenberg** dcx7@cdc.gov, Center for Disease Control, Fort Collins, CO

1:00 – 1:30 Factors Involved in the Magnitude of the 2004-2009 Chikungunya Virus Epidemic. **Ann Powers** akp7@cdc.gov, CDC, Arboviral Diseases Branch, Fort Collins, CO

1:30 – 2:00 Dengue & Climate: Beyond the basics. **Mike Johansson** eyq9@cdc.gov, CDC, Dengue Branch, San Juan Puerto Rico

2:00 – 2:30 Climate Variability and Recent Patterns of Vector-borne Disease Outbreaks: Chikungunya and Rift Valley Fever. **Assaf Anyamba** asaph.anyamba-1@nasa.gov, NASA, Goddard Space Flight Center, MD

2:30 – 3:00 Emerging ehrlichioses in the USA: how many more pathogens are out there? **Marina Eremeeva** mge6@cdc.gov, CDC Rickettsial Zoonoses Branch, Atlanta, GA

- Break (3:00 – 3:30)
- **Symposium 3** (3:30 – 5:30) Ecology of higher Diptera in relation to emerging human and animal health issues. **Jerry Hogsette** jerry.hogsette@ars.usda.gov, and **Chris Geden** chris.geden@ars.usda.gov, USDA-ARS CMAVE, Gainesville, FL

3:30 – 3:40 Complex of higher Diptera associated with livestock and poultry in Europe and the US and implications for transmission of zoonotic diseases. **Jerry Hogsette** jerry.hogsette@ars.usda.gov, USDA, ARS, Center for Medical Agricultural and Veterinary Entomology, Gainesville, FL

3:40 – 4:00 Mastitis in dairy heifers: Prevalence of *Staphylococcus aureus* genotypes among NC horn fly (*Haematobia irritans*) populations. **Wes Watson** wes_watson@ncsu.edu, Department of Entomology, College of Agriculture and Life Sciences, North Carolina State University, Raleigh, NC, S. Denning, R. Lyman and K. Anderson

4:00 – 4:10 Feeding ecology of house flies on dairies. **Chris Geden** chris.geden@ars.usda.gov, USDA, ARS, Center for Medical Agricultural and Veterinary Entomology, Gainesville, FL and M. Doyle

4:10 – 4:30 The role of house flies (*Musca domestica*) in the ecology of antibiotic resistant and virulent enterococci. **Ludek Zurek** lzurek@ksu.edu, Department of Entomology, Kansas State University, Manhattan, KS

4:30 – 4:50 Factors contributing to survival and excretion of bacteria by house flies (*Musca domestica* L.). **Dana Nayduch** flylab@gmail.com, Department of Biology, Georgia Southern University, Statesboro, GA

4:50 – 5:10 Climate change and livestock pests in Canada. **Tim Lysyk** tim.lysyk@agr.gc.ca, Agriculture and Agrifood Canada, Lethbridge, Alberta

5:10 – 5:30 Impact of salivary gland hypertrophy virus on higher Diptera of medical and veterinary importance. **Chris Geden** chris.geden@ars.usda.gov, USDA-ARS, Center for Medical Agricultural and Veterinary Entomology, Gainesville, FL

- Reception (6:00 – 8:00)

Tuesday – September 28, 2010 – Ecological Field Trip

8:30 A.M. Buses load from front of Hilton.

All day Ecological Field Trip to Duplin Winery, Carolina Beach State Park (lunch provided) and North Carolina Aquarium. Dinner will be enjoyed at the Mad Boar Restaurant.

9:00 P.M. Buses return to Hilton

Wednesday – September 29, 2010

- Poster session and continental breakfast (8:00 – 10:00)

P-01 Evaluating terpenoids ability to interact with an octopamine receptor and inhibit acetylcholinesterase. **Aaron D. Gross** adgross@iastate.edu, Pesticide Toxicology Laboratory, Department of Entomology, Iowa State University of Science and Technology, Ames, IA, J. A. Anderson, M. J. Kimber, P. Riberio, J. R. Coats

P-02 Species Diversity and Seasonal Abundance of Ixodid Ticks Feeding on Humans in Amasya, Turkey. **Ahmet Bursali** bursali383@yahoo.com, Department of Biology, Gaziosmanpasa University, Faculty of Science & Art, Turkey, S. Tekin and A. Keskin

- P-03 Detection of a novel *Rickettsia* in *Ixodes kingi*. **Clare Anstead** caa186@mail.usask.ca, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, N. B. Chilton
- P-04 Overview of the Deployed War-Fighter Protection Program (DWFP) Research Activities Administered by the Armed Forces Pest Management Board (AFPMB). **Douglas A. Burkett** douglas.burkett@osd.mil, Armed Forces Pest Management Board, Silver Spring, MD
- P-05 Preliminary plague assay results of fleas collected from federal lands in the northern plains region of the United States. **Erica L. Mize** erica.mize@usd.edu, Department of Biology, University of South Dakota, Vermillion, SD and H. B. Britten
- P-06 Effects of two terpenoid insecticides, carvacrol and nootkatone, on insect GABA receptor and nicotinic acetylcholine receptor. **Fan Tong** tongf@iastate.edu, Pesticide Toxicology Lab, Department of Entomology, Iowa State University, IA
- P-07 Using CDC Light Traps to Monitor Anopheles arabiensis Human Biting Rates in an Area with Low Vector Density and High Insecticide-Treated Bed Net Use. **Christen M. Fornadel** cfornade@jhsph.edu, Department of Molecular Microbiology and Immunology, The Johns Hopkins Malaria Research Institute, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, L. C. Norris and D. E. Norris
- P-08 Microbial responses to larval competition between *Aedes japonicus* and *Aedes triseriatus*. **Michael Kaufman** kaufma15@msu.edu, Michigan State University, MI, B. Brouhard, and E. Walker

- P-09 Presence of Crimean-Congo Hemorrhagic Fever Virus (CCHFV) in Ixodid Ticks Feeding on Humans in Amasya, Turke. **Saban Tekin** sabant@yahoo.com, Department of Biology, Gaziosmanpaşa University, Faculty of Science & Art, Tokat, Turkey, A. Bursali, M. Ekici, A. Keskin and E. Dundar.
- P-10 Relationship between edaphic factors and cropping systems and populations of the eye fly *Siphunculina funicola* (Diptera:Chloropidae) in Thailand. **Uruyakorn Chansang** uruyakorn.c@dmsc.mail.go.th, National Institute of Health, Dept. of Medical Sciences, Ministry of Public Health, Nonthaburi, Thailand, M. S. Mulla, E. Denchonchai and P. Sawanpanyalert
- P-11 Identification of *Francisella* spp. in *Dermacentor andersoni* and *D. variabilis* from western Canada. **Shaun J. Dergousoff** shaun.dergousoff@usask.ca, Department of Biology, University of Saskatchewan, Saskatoon, Saskatchewan, and N. B. Chilton
- P-12 The Role of Meteorological Factors in Off-Host Activity of *Amblyomma americanum* Ticks. **Drake Bouzek and Jenni Bevell**, Department of Biology and Department of Mathematics and Computer Science, Truman State University, Kirksville, MO, S. A. Foré sfore@truman.edu, and H. J. Kim
- P-13 Impact of thermal conditions on the relative abundance of *Aedes atropalpus* and *Ae. japonicus* in the Southern Appalachians. **Samantha Kunze**, Environmental Health Sciences Program, College of Health and Human Sciences, Western Carolina University, Cullowhee, NC, C. Sither, A. Goggins, B. Byrd bdbyrd@wcu.edu, D. Bustamante, K. Pesko, and G. O'Meara

P-14 Dose dependent survivability of GFP-expressing *Escherichia coli* in the digestive tract of house flies. **Naveen Kumar H.V** nh00160@georgiasouthern.edu, Georgia Southern University, Statesboro, GA

P-15 Mapping the risk of *Aedes aegypti* larval habitats using tree cover in Puntarenas, Costa Rica. **Adriana Troyo** adriana.troyo@ucr.ac.cr, Centro de Investigación en Enfermedades Tropicales, Departamento de Parasitología, Facultad de Microbiología, Universidad de Costa Rica, O. Calderon-Arguedas, A. Avendañ, G. Mora-Pineda and D. O. Fuller

Symposium 4 (10:00 – 12:00) Changing Ecological Patterns of Tick-Borne Diseases in the United States. **Charles Apperson**, North Carolina State University, Raleigh, NC

10:00 – 10:30 Anticipated Effects of Climate Change on Tick-Borne Diseases. **Ben Beard** cbb0@cdc.gov Center for Disease Control, Ft. Collins, CO

10:30 – 11:00 Emergence of *Rhipicephalus sanguineus* as a Vector of Rocky Mountain Spotted Fever. **William Nicholson** wan6@cdc.gov Center for Disease Control, Ft. Collins, CO

11:00 – 11:30 Spotted Fever Group Rickettsia and RMSF: A Status Report. **Kevin Macaluso** kmacaluso@vetmed.lsu.edu, Louisiana State University, LA

11:30 – 12:00 Lyme Disease in the Southern US. **Lorenza Beati** lorenzabeati@georgiasouthern.edu Georgia Southern University, Statesboro, GA

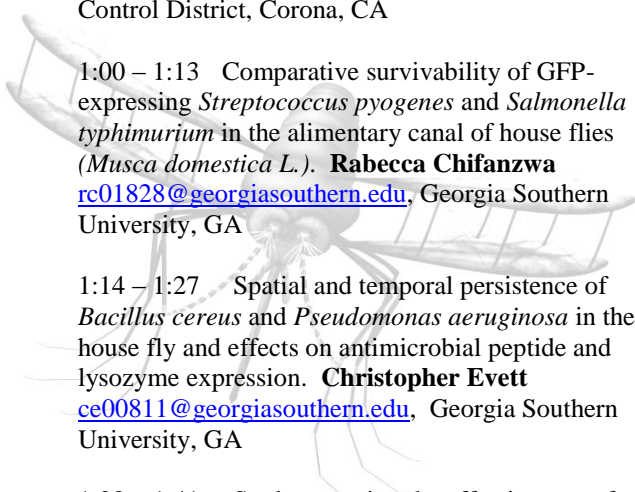
Lunch (12:00 – 1:00)

- **Symposium 5** (1:00 – 3:00) Student presentations.
Mir Mulla -University of California, Riverside, CA

Coordinator: **Mir Mulla** mir.mulla@ucr.edu,
University of California, Riverside, CA

Moderators: **Jennifer Wright**
jwrig004@student.ucr.edu University of California,
Riverside, CA

Tejbir S. Sandhu tsandhu@northwestmvcd.org
Punjabi University, Northwest Mosquito and Vector
Control District, Corona, CA



1:00 – 1:13 Comparative survivability of GFP-
expressing *Streptococcus pyogenes* and *Salmonella*
typhimurium in the alimentary canal of house flies
(*Musca domestica* L.). **Rebecca Chifanzwa**
rc01828@georgiasouthern.edu, Georgia Southern
University, GA

1:14 – 1:27 Spatial and temporal persistence of
Bacillus cereus and *Pseudomonas aeruginosa* in the
house fly and effects on antimicrobial peptide and
lysozyme expression. **Christopher Evett**
ce00811@georgiasouthern.edu, Georgia Southern
University, GA

1:28 – 1:41 Study assessing the effectiveness of
wearing long lasting permethrin treated clothing for
the prevention of tick bites. **Meagan F. Vaughn**
vaughn.meagan@gmail.com, Department of
Epidemiology, Gillings School of Global Public
Health, University of North Carolina, Chapel Hill,
NC

1:42 – 1:55 Identification of genes involved in the
infection process of tick (ISE6) and human (HL-60)
cells by the tick-borne pathogen *Anaplasma*
phagocytophilum. **Adela Oliva Chávez**

chave028@umn.edu, R. Felsheim, M. Herron,
N. Burkhardt, T. Kurtti, and U. Munderloh, University
of Minnesota, MN

1:55 – 2:08 Bed bug (*Cimex lectularius*) population
genetic structure and survey of *Bartonella henselae*
in U.S. bed bug populations. **Virna L. Saenz**
vlsaenz@ncsu.edu, Department of Entomology,
North Carolina State University, Raleigh, NC

2:08 – 2:21 Developing a mouse model to
determine the effect of sand fly saliva on the
visceralization of *Leishmania chagasi*. **Melody
Schmid** mpschmid@ucdavis.edu, C. Meneses, D.-E.
Elnaiem, and G. Lanzaro, University of California,
Davis, CA

2:21 – 2:34 Molecular identification of *Ehrlichia*
spp. and host bloodmeal source in *Amblyomma*
americanum. **Jessica Harmon** jharmon4@utk.edu,
C. Scott, G. Hickling, and C. Jones. University of
Tennessee, Knoxville, TN

2:34 – 2:47 A molecular method of identification
for *Culicoides* (Diptera: *Ceratopogonidae*). **Dustin
Swanson** dswanso@g.clemson.edu, Department of
Entomology, Soils & Plant Sciences, Clemson
University, SC

2:47 – 3:00 The Role of algae in the ecology of the
invasive mosquito species *Aedes japonicas*.
Amanda R. Lorenz lorenzam@msu.edu, E. D.
Walker and M. G. Kaufman, Michigan State
University, MI

- Break (3:00 – 3:30)
- **Symposium 6** (3:30 – 5:30) Chemical Ecology of
Vectors. **Uli Bernier** ubernier@cox.net, USDA-ARS

Center for Medical, Agricultural, and Veterinary
Entomology, Gainesville, FL

3:30 – 3:50 Repellency of Plant-Based Methyl
Ketones against Ticks. **Brooke W. Bissinger**
brookellen@yahoo.com), Department of
Entomology, North Carolina State University,
Raleigh, NC, N. W. Kimps, J. Zhu and R. M. Roe

3:50 – 4:10 Semiochemicals Mediating Choice of
Oviposition Site by *Aedes aegypti* and *Aedes*
albopictus. **Loganathan Ponnusamy**, N. Xu, T.
Nojima, K. Böröczky, L. Abu Ayyash, D. M.
Wesson, C. Schal, and C. S. Apperson
charles_apperson@ncsu.edu, Department of
Entomology, North Carolina State University,
Raleigh, NC.

4:10 – 4:30 Mosquito behavior in the presence of
repellents and insecticides. **Lee W. Cohnstaedt**
lee.cohnstaedt@ars.usda.gov, USDA-ARS, Center
for Medical Agricultural and Veterinary Entomology,
Gainesville, FL, U. Bernier and S. A. Allan

4:30 – 4:50 Synthesis and Evaluation of Biting Fly
Repellents. **Kamal Chauhan**
kamal.chauhan@ars.usda.gov, USDA-ARS, Invasive
Insect Biocontrol and Behavior Laboratory,
Beltsville, MD, U. R. Bernier and J. A. Hogsette, Jr.

4:50 – 5:10 Mosquito Bite Reduction from
Permethrin-Treated Military Uniforms. **Ulrich R.**
Bernier uli.bernier@ars.usda.gov, USDA-ARS,
Center for Medical Agricultural and Veterinary
Entomology, Gainesville, FL and M. K. Perry

5:10 – 5:30 Chemical Ecology of Stable Flies,
Discovery of novel repellents and their practical
applications. **Junwei Jerry Zhu**

jerry.zhu@ars.usda.gov, USDA-ARS,
Agroecosystem Management Research Unit, Lincoln,
NE.

- **Business meeting (5:30 – 6:00)**

Thursday – September 30, 2010

- **Symposium 7 (8:00-10.00)** Student Presentations.
Mir Mulla - University of California, Riverside, CA

Coordinator: **Mir Mulla** mir.mulla@ucr.edu,
University of California, Riverside, CA

Moderators: **Virna L. Saenz** vlsaenz@ncsu.edu,
North Carolina State University, Raleigh, NC

Christopher Stone stone.361@buckeyemail.osu.edu,
Ohio State University, OH

8:00 – 8:15 Regulating mosquito reproduction by
manipulating insulin signaling in the fat body and
ovaries. **Anam Arik** anamj@email.arizona.edu,
University of Arizona, AZ

8:15 – 8:30 Vector host preferences influence
transmission of multi-host pathogens: Using West
Nile virus as a model System. **Jennifer Simpson**
jennifer.simpson@yale.edu, Yale University, New
Haven, CT

8:30 – 8:45 A putative hyperactive *PiggyBac*
transposase: Will it be enough to overcome the
genomic defenses of *Aedes aegypti*? **Jennifer**
Wright jwrig004@student.ucr.edu, L. Zhou, N. L.
Craig and P. W. Atkinson. University of California,
Riverside, CA

8:45 – 9:00 Population dynamics of blood-fed
female mosquitoes and comparative efficacy of
Resting Box collections made in northwestern

Riverside County, California. **Tejbir S. Sandhu** tsandhu@northwestmvecd.org, Punjabi University, Northwest Mosquito and Vector Control District, Corona, CA, G. Williams and M. S. Dhillon

9:00 – 9:15 Insecticide resistance in the anthropophilic mosquitoes *Anopheles arabiensis* and *Culex quinquefasciatus* in Macha, Zambia. **Laura Norris** dnorris@jhsph.edu, John Hopkins University, MD

9:15 – 9:30 Sugar-feeding in relation to the mating behavior of *Anopheles gambiae* s.s. **Christopher Stone** stone.361@buckeyemail.osu.edu, Ohio State University, OH

9:30 – 9:45 The role of Venezuelan equine encephalitis virus nonstructural genes in infection of the enzootic mosquito vector. **Joanie Kenney** jkenney@utmb.edu, University of Texas Medical Branch, Department of Pathology, R. Gorchakov, A. P. Adams and S. Weaver

9:45 – 10:00 Comparison of development time between susceptible versus pyrethroid resistant *An. gambiae* strains. **Dennis Otali** otalid@uab.edu, University of Alabama at Birmingham, AL

- *Break (10:00-10:30)*
- **Symposium 8** (10:30 – 12:30) Remote Sensing and Geographic Information Systems. **Clair Witt** – Armed Forces Health Surveillance Center, Silver Spring, MD

Introduction: **Clair Witt**

10:30 – 11:00 Remote sensing model for Central Asia. **Jorge Pinzon** (NASA)

11:00 – 11:30 VectorMap - an online mapping resource for arthropod vectors. **Des Foley** (WRAIR/WRBU)

11:30 – 12:00 Ecologic niche modeling for JE vectors. **John Greico** (USUHS) and P. Masuoka

12:00 – 12:30 Surveillance for human and animal vector borne diseases. **Mark Duffy** (USAFSAM)

Lunch (12:30 – 1:30)

- **Symposium 9** (1:30-3:30) Attractants for Control of Mosquitoes and other Vectors. **Rui-De Xue**, xueamcd@yahoo.com and **Gunter Muller** guntercmuller@hotmail.com

1:30 – 1:45 Overview of attractants/trapping used for control/ management. **Dan Kline** dan.kline@ars.usda.gov, USDA, ARS, CMAVE, Gainesville, FL

1:45 – 2:00 Attractants from plant resource (most sugar) and possible for control. **Woody Foster** foster.13@osu.edu, Department of EEOB, Ohio State University, Columbus, OH

2:00 – 2:15 Chemical analysis of host odors to discover attractants and inhibitors. **Uli Bernier** uli.bernier@ars.usda.gov, Mosquito and Fly Research Unit, USDA-ARS-CMAVE, Gainesville, FL

2:15 – 2:30 Attractive toxic sugar baits for control. **Gunter Muller** guntercmuller@hotmail.com, Department of Microbiology and Molecular Genetics, IMRIC, Kuvin Centre for the Study of

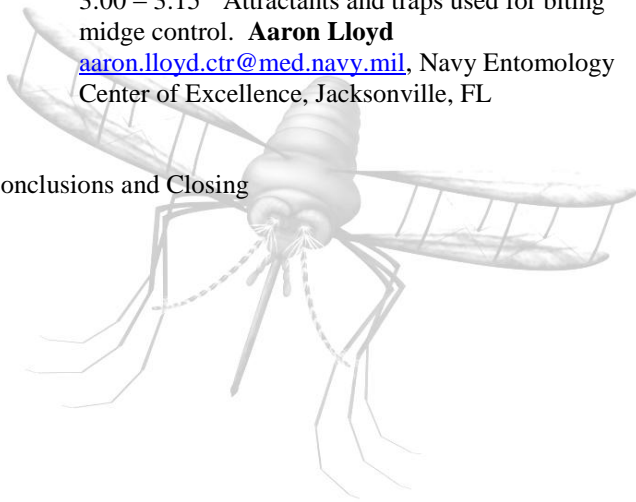
Infectious and Tropical Diseases, Faculty of
Medicine, Hebrew University, Jerusalem, Israel.

2:30 – 2:45 Sugar selection behavior and boric acid
sugar baits for control. **Rui-De Xue**
xueamcd@yahoo.com, AMCD, St. Augustine, FL

2:45 – 3:00 Attractants for stable fly control. **Jerry
Zhu** jerry.zhu@usda.gov, USDA-ARS-NPA,
University of Nebraska, East Campus, Lincoln, NE

3:00 – 3:15 Attractants and traps used for biting
midge control. **Aaron Lloyd**
aaron.lloyd.ctr@med.navy.mil, Navy Entomology
Center of Excellence, Jacksonville, FL

Conclusions and Closing



NOTES

