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43rd ANNUAL CONFERENCE
SOCIETY FOR VECTOR ECOLOGY
SEPTEMBER 25-29, 2011
FLAGSTAFF, ARIZONA

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2011 SOVE Annual Conference
Flagstaff, Arizona
September 25-29, 2011
Program Chair: William Walton, University of California, Riverside
william.walton@ucr.edu

Sunday afternoon and evening – September 25, 2011

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

Monday – September 26, 2011

8:00-8:05 Welcome – **President Gregory Lanzaro**, gclanzaro@ucdavis.edu

8:05-8:10 Distinguished Achievement Award and Outstanding Service Award Presentations, **Vice-President William Walton,** william.walton@ucr.edu

8:10-8:15 Announcements – **Secretary/Treasurer Major Dhillon**, mdhillon@northwestmvcd.org

8:15-8:45 Presidential Address – **President Gregory Lanzaro**, gclanzaro@ucdavis.edu, Department of Pathology, Microbiology and

Immunology, School of Veterinary Medicine, University of California, Davis, CA, USA

8:45-9:20 Keynote Speaker – Vector Ecology and Control in the United States: Are Our Successful Methods Being Ignored? **Robert J. Novak**, rjnovak@uab.edu, Department of Medicine, Division of Infectious Diseases, University of Alabama at Birmingham, Birmingham, AL, USA

9:20-9:35 The Latest Chapter in Vector Ecology: Brazil SOVE – **Paulo Pimenta**, pimenta@cpqrr.fiocruz.br, Centro de Pesquisas Rene Rachou, Fundac, ao Oswaldo Cruz, Belo Horizonte, M.G., Brazil

- 9:35-10:00 Break

- **Symposium 1** (10:00-12:00) Landscape Ecology of Vectors and Vector-borne Diseases, **Lars Eisen**, lars.eisen@colostate.edu Colorado State University, Ft. Collins, CO, USA and **Rebecca J. Eisen**, dyn2@cdc.gov, Division of Vector Borne Diseases, CDC, Ft. Collins, CO, USA

    10:00-10:30 Landscape ecology of plague in Uganda, **Rebecca J. Eisen**, dyn2@cdc.gov, Division of Vector Borne Diseases, Centers for Disease Control and Prevention, Fort Collins, CO, USA

10:30-11:00 Landscape ecology of *Ixodes scapularis* and *Borrelia burgdorferi* in the eastern United States, **Jean I. Tsao**, tsao@msu.edu, Department of Fisheries and Wildlife, Michigan State University, East Lansing, MI, USA

11:00-11:30 Landscape ecology of *Culex* vectors and arboviruses in the southwestern United States, **William K. Reisen**, arbo123@pacbell.net, Center for Vector-borne Diseases, University of California, Davis, CA, USA

11:30-12:00 Landscape ecology of *Aedes* vectors of dengue virus at the United States-Mexico border, **Christopher K. Uejio**, uejio@ucar.edu, National Center for Atmospheric Research, Boulder, CO, USA

12:00-1:30 *Lunch*

- **Symposium 2** (1:30-3:35) Invasion Ecology of *Aedes japonicus*, **Michael Kaufman**, Kaufma15@msu.edu, Entomology Dept., Michigan State University, East Lansing, MI, USA

  1:00-1:35 Introduction, **Michael Kaufman**, kaufma15@msu.edu, Entomology Dept., Michigan State University, East Lansing, MI, USA

1:35-1:47 *Aedes japonicus*: A perspective from its early days in the United States, **Jamesina Scott**, jscott@mchsi.com, Lake County Vector Control District, Lakeport, CA, USA

1:48-2:00 Multiple introductions of *Aedes japonicus* in North America, **Dina Fonseca**, dinafons@rci.tutgers.edu, Center for Vector Biology, Rutgers University, New Brunswick, NJ, USA

2:01-2:13 Relative abundance of *Aedes japonicus* and *Aedes atropalpus* in rock pools at several sites in the eastern United States, **George O'Meara**, gfo@ufl.edu, Florida Medical Entomology Laboratory, IFAS, University of Florida, Vero Beach, FL, USA; D. Bustamante, K. Pesko, N. Nishimura, and B. Byrd.

2:14-2:26 Thermal conditions influence the relative abundance of *Aedes atropalpus* and *Aedes japonicus* in the Southern Appalachians, **Brian Byrd**, bdbyrd@email.wcu.edu, Environmental Health Sciences Program, Western Carolina University, Cullowhee, NC , USA, S. Kunze, C. Sither, A. Goggins and G. O'Meara.

2:27-2:39 Oviposition site selection of *Aedes japonicus*, **Melissa Hardstone**, melissa.hardstone@ct.gov, Connecticut Agricultural Experiment Station, New Haven, CT, USA and T. Andreadis

2:40-2:52 Algae as a food resource for larval *Aedes japonicus*, **Amanda Lorenz**, lorenzam@msu.edu, Entomology Dept., Michigan State University, East Lansing, MI, USA, E. Walker and M. Kaufman.

2:53-3:05 Temporal colonization patterns and competitive abilities of Midwest container Diptera: Where does *Aedes japonicus* fit in? **Ebony Murrell,** egmurre@ilstu.edu, BEES section, School of Biological Science, Illinois State Univ., Normal, IL, USA and S. Juliano

3:06-3:18 Do multiple competitors influence *Aedes japonicus* invasion success? **Steven Juliano**, sajulian@ilstu.edu, BEES section, School of Biological Science, Illinois State Univ., Normal, IL, USA, E. Murrell, and B. Noden.

3:19-3:35 Are microorganisms important in interactions between larval *Aedes japonicus* and *Aedes triseriatus*? **Michael Kaufman,**

kaufma15@msu.edu, Entomology Dept., Michigan State University, East Lansing, MI, USA, E. Brouhard and E. Walker

- 3:35-4:00 Break

- **Symposium 3** (4:00-6:30) Critical Vector Ecology Questions Relevant to Autocidal Mosquito Control Approaches **Stephen Dobson**, dobson.stephen@gmail.com, University of Kentucky, Lexington, KY, USA

  4:00-4:20 Can the sugar feeding behavior of *Anopheles gambiae* in Mali West Africa be used for control? **Günter C. Müller**, guntercmuller@hotmail.com, Hebrew University, Kuvin Center for the Study of Tropical & Infectious Diseases, Israel J. C. Beier, S. F. Traore, M. M. Traore, S. Doumbia, Z. A. Yefremova, V. D. Kravchenko and Y. Schlein.

  4:20-4:40 Ecological and behavioral considerations for the autodissemination of lethal agents to aquatic habitats for mosquito population control, **Steven Stoddard**, ststoddard@gmail.com, Department of Entomology, University of California, Davis, USA

4:40-5:00 A *Wolbachia*-based mosquito population replacement strategy to reduce dengue transmission by *Aedes aegypti* in northern Australia, **Peter Ryan**, peter.ryan@qimr.edu.au, School of Biological Sciences, Monash University, Victoria, Australia

5:00-5:20 Toward the suppression of the malaria vector in a pilot site in Northern Sudan, progress and challenges, **Jeremie Gilles**, j.gilles@iaea.org, Insect Pest Control Laboratory, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, FAO/IAEA Agriculture and Biotechnology Laboratories, Seibersdorf, Austria

5:20-5:40 Genetic control of *Aedes aegypti* by periodic release of engineered sterile males (RIDL) **Andrew McKemey,** andrew.mckemey@oxitec.com, Oxitec Ltd, Oxford, UK; Department of Zoology, University of Oxford, Oxford, UK, L. Alphey

5:40-6:00 Exploitation of a non-native *Wolbachia* strain in *Aedes albopictus*: potential benefits on a suppression strategy for this mosquito vector in Italy, **Maurizio Calvitti**, maurizio.calvitti@enea.it, Laboratory of

Sustainable Management of Agro-ecosystems - ENEA, National Agency for New Technologies, Energy and Sustainable Economic- Rome, Italy

6:00-6:20 Suppression of *Aedes polynesiensis*: Results from an initial feasibility trial and downstream plans **Stephen Dobson**, sdobson@uky.edu, Department of Entomology, University of Kentucky, Lexington, KY, USA

6:20-6:30 Discussion

Tuesday – September 27, 2011 – Ecological Field Trip

8:30 A.M. Buses load from front of Little America Hotel.

All day Ecological Field Trip to the Grand Canyon National Park and to Sunset Crater Volcano National Monument. Kyle Wright, REHS, LT, USPHS, Public Health Consultant, NPS Public Health Program, IMR, has scheduled an auditorium at the south rim of Grand Canyon National Park for 10:00AM. One of the park biologists has agreed to give a presentation on the introduction and spread of the Tamarisk Beetle as a control method for the Tamarisk tree. While the beetle is not a known disease vector, it is an interesting topic and one of the most significant issues in the park at the moment. Hopefully this will be of interest to SOVE. Dinner will be enjoyed at Thornager's on Kiltie Lane, Flagstaff.

8:30 P.M. Buses return to Little America Hotel.

Wednesday – September 28, 2011

- 8:00-10:00 Poster session and continental breakfast

P-01 A first look into the function of the PiRNA System in the medically significant mosquito, *Aedes aegypti*, **Jennifer Wright**, jwrig004@ucr.edu, Department of Entomology, University of California, Riverside, CA; R. Hice, P. Arensburger and P. Atkinson.

P-02 Identification of morphologic and chemical markers of aestivation conditions in female *Anopheles gambiae*, **Kaira Wagoner**, kmwagone@uncg.edu, University of North Carolina, Greensboro, NC, T. Lehmann, N. Cech, B. Ehrmann and G. Wasserberg

P-03 Ground ultra-low volume spray of permethrin does not have effect on activity patterns of *Psorophora columbiae* in open grass field, northeast Florida, **Rui-De Xue**, xueamcd@yahoo.com, Anastasia Mosquito Control District, 500 Old Beach Road, St. Augustine, FL, and M. Smith

P-04 Modeling the biotic and abiotic factors that describe the number of active *Amblyomma americanum* larvae, **E. C. York,**

sfore@truman.edu, Truman State University, Kirksville, MO, A. M. Kaizer, H. J. Kim and S. A. Foré

P-05 Development of a novel diagnostic test for Lyme disease infections using flow cytomety, **M. C. Scott**, mcscott@utk.edu , University of Tennessee, Knoxville, TN, K. White, S. Eda and G.J. Hickling

P-06 LAMP: A novel detection method for rickettsial diseases, **Adam W. Beard**, vld5@cdc.gov, Rickettsial Zoonoses Branch, Division of Vector-borne Diseases, Centers for Disease Control and Prevention, Atlanta, GA, and W. L. Nicholson

P-07 Effects of plant-community composition on the vectorial capacity of the malaria mosquito *Anopheles gambiae,* **Chris M. Stone**, chrism.stone@gmail.com, Ohio State University, Columbus, OH, B. T. Jackson and W. A. Foster

P-08 A comparison of adult surveillance methods for *Aedes japonicus*, **Kirk A. Johnson**, kjohnson@mmcd.org, Metropolitan Mosquito Control District, St. Paul, MN

P-09 Geo-space analysis on the density and virus-carrying of *Culex tritaeniorhynchus*, **Meide Liu**, aedes@263.net, Beijing Institute of Microbiology of Epidemiology, State Key

Laboratory of Pathogen and Biosecurity, Beijing 10071, China, J. Chen, Y. Dong, J. Zhao, X. Kong, P. Dai and T. Zhao

P-10 Mosquito habitat, host preferences and arbovirus prevalence in the Beiwan area of China's Xinjiang Uigur Autonomous Region **Xiaoxia Guo**, guoxx99@yahoo.com.cn, Department of Vector Biology and Control, State Key Laboratory of Pathogen and Biosecurity, Institute of Microbiology and Epidemiology, Beijing 100071, Chin, Y. Zhang, C. Li, G. Zhang, Z. Zheng, Z. Wang, M. Liu, Y. Dong and T. Zhao

P-11 Calibration of large enclosures for experimental study of medically important mosquitoes in Thailand, **Wachiraphan Chittham**, alongkotp@afrims.org, Department of Entomology, Armed Forces Research Institute of Medical Sciences (AFRIMS), Bangkok, Thailand, A. Pongsiri, C. Nitatsukpresert, U. Kijchalao, B. P. Evans and A. Ponlawat

P-12 Outbreak and non-outbreak levels of West Nile virus infections in humans related to different patterns of seasonal heat accumulation in southern Manitoba, **Robert A. Anderson,** r.anderson@uwinnipeg.ca, Biology Department, University of Winnipeg, Winnipeg, Manitoba R3B2E9, Canada, and W. Cade

P-13 Landscape ecology of La Crosse encephalitis in western North Carolina I: Does anthropogenic disturbance affect ecological transmission drivers? **Laura White** (lmwhite2@uncg.edu), University of North Carolina at Greensboro, NC, T. Tamini, G. Wasserberg and B. Byrd

P-14 Landscape ecology of La Crosse encephalitis in western North Carolina II: The effect of a forest-to-field ecotone on the distribution and abundance of potential La Crosse virus vectors, **Marcelo Schwarz**, m_schwar@uncg.edu, University of North Carolina at Greensboro, NC; B. Byrd and G. Wasserberg

P-15 Implications of understanding the degree of vector-host coupling on epidemiological patterns of vector-borne diseases: Cutaneous leishmaniasis as a case syste, **Gideon Wasserberg**, g_wasser@uncg.edu, University of North Carolina at Greensboro, NC, I. Duncan, A. Eury, E. Dely, D. Kwan and C. Smyth

P-16 Modeling the risk of arbovirus spread via travelers: yellow fever virus, **Michael A. Johansson**, mjohansson@cdc.gov, Centers for Disease Control and Prevention, Division of Vector-borne Diseases, San Juan, Puerto Rico, N. Arana-Vizcarrondo, B. J. Biggerstaff, N. Gallagher, N. Marano, and J. E. Staples

P-17 Improving tick (*Acari: Ixodidae*) distribution maps for effective public health information **R. Ryan Lash**, RLash@cdc.gov, Rickettsial Zoonoses Branch, Division of Vector-borne Diseases, Centers for Disease Control and Prevention, Atlanta, GA, W. L. Nicholson

P-18 Overview of the Deployed War-Fighter Protection Program research activities administered by the Armed Forces Pest Management Board, **Douglas A. Burkett**, douglas.burkett@osd.mil, Armed Forces Pest Management Board, Silver Spring, MD, S. E. Cope, D. A. Strickman and G. B. White

P-19 Malaria and vector surveillance in Liberia: Building new partnerships through scientific collaborations and Force Health Protection Measures, **P. J. Obenauer**, peter.obenauer@med.navy.mil, U.S. Naval Medical Research Unit No. 3, Cairo, Egypt, F. Bolay, M. Saleh, C. A. Stoops, F. Hernandez, B. Wirtz and J. J. Jones

P-20 Development of a PCR-RFLP assay to distinguish the human pathogenic strain (Ap-ha) from a non-human pathogenic strain (Ap-variant 1) of *Anaplasma phagocytophilum* in *Ixodes scapularia,* **Chantel N. Krakowetz,** cnk735@mail.usask.ca, University of

Saskatchewan, Saskatoon, SK, Canada, A. Dibernardo, L. Robbin Lindsay and N. B. Chilton

- **Symposium 4** (10:00 – 12:10) Bedbugs: Health, Economics and Legal Impacts of Infestations, **Jung Wook Kim**, jung.kim@ncdenr.gov, Public Health Pest Management, Division of Environmental Health, Raleigh, N.C., USA

  10:00 – 10:25 Bed bug bite: A medical perspective, **Stuart Mitchell**, www.pestwest.com, PestWest Training, Sarasota, FL, USA

  10:25 - 10:40 Bed bug control: The Good, The Bad, The Ugly, **Fred Willey**, willey@invader.net, Invader Pest Management, Glendale, AZ, USA

  10:40 – 11:00 Bed bugs: Multimodal abatement strategies, **Ron Ketner**, www.azpest.com, AZEX Pest Solutions, Prescott, AZ, USA

  11:00 – 11:30 The benefits of bed bug detection canines**, Keith Coddington**, CIMEX K9 - Bedbug Detection Dogs, Phoenix, AZ, USA

  11:30 – 11:45 Legal exposure and liability caused by bed bugs and their control**, Douglas Seemann**, Oro Valley, AZ, USA

11:45 – 12:10 Past, present, and future of bed bug infestation, **Jung Wook Kim**, jung.kim@ncdenr.gov, Environmental Senior Specialist/ Bed Bug Specialist, Public Health Pest Management, Division of Environmental Health, Raleigh, NC, USA

12:10-1:10 *Lunch*

- **Symposium 5** (1:10 – 3:00) Recent Advances and Issues with Vectors of Animal Diseases/Zoonoses, **Tim Lysyk**, tim.lysyk@agr.gc.ca, Lethbridge Research Centre, Lethbridge, Alberta, Canada

  1:10 – 1:15 Introduction, **Tim Lysyk**, tim.lysyk@agr.gc.ca, Lethbridge Research Centre, Lethbridge, Alberta, Canada

  1:15 – 1:30 Rift Valley Fever Virus and its potential for incursion and establishment into Canada, **Robbin Lindsay**, robbin.lindsay@phac-aspc.gc.ca, Zoonoses and Special Pathogens Division, Public Health Agency of Canada, National Microbiology Laboratory, Winnipeg, Manitoba, Canada

  1:30 – 1:45 Field studies on mosquitoes and Cache Valley Virus in the Northern Great Plains, **Greg**

Johnson, gdj@montana.edu, Department Animal and Range Science, Montana State University, Bozeman, MT, USA

1:45 – 2:00 Zombie ants – parasitic manipulation by the liver fluke *Dicrocoelium dendriticum,* **Doug Colwell**, doug.colwell@agr.gc.ca, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

2:00 – 2:15 Factors influencing the dissemination of antibiotic resistant bacteria on diversified farms, **Wes Watson**, wes_watson@ncsu.edu, Department of Entomology, North Carolina State University, Raleigh, NC, USA, L. Guisewite, E. Susick and S. Thakur

2:15 – 2:30 Will immunology at the host-vector interface extend to the ecological scale? **Jeb Owen**, jowen@wsu.edu, Department of Entomology, Washington State University, Pullman, WA, USA

2:30 – 2:45 On -host dynamics of tick vectors of animal disease**, Tim Lysyk**, tim.lysyk@agr.gc.ca, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

2:45 – 3:00 Equine piroplasmosis **Glen Scoles**, scoles@vetmed.wsu.edu, Animal Disease Research Unit, USDA-ARS, Pullman, WA, USA

- 3:00-3:30 Break

- **Symposium 6** (3:30 – 5:50) Area Protection Using Repellents and Insecticides, **Dan Kline,** dan.kline@ars.usda.gov, USDA,ARS, CMAVE, Gainesville, FL, USA and **Uli Bernier**, uli.bernier@ars.usda.gov, USDA-ARS Center for Medical, Agricultural and Veterinary Entomology, Gainesville, FL, USA

  3:30-3:50 Utilizing spatial repellents in a push-pull strategy for vector control, **Nicole Achee**, nachee@usuhs.mil, USUHS, Department of Preventive Medicine & Biometrics, Bethesda, MD, USA

  3:50-4:10 Development of inhibitors that block host kairomone detection, **Ulrich Bernier**, uli.bernier@ars.usda.gov, USDA-ARS, Center for Medical, Agricultural, and Veterinary Entomology, Gainesville, FL, USA

  4:10-4:30 Screening of novel spatial repellent compounds and platforms, **John Grieco**, jgrieco@usuhs.mil, USUHS, Department of Preventive

Medicine & Biometrics, Bethesda, MD, USA

4:30-4:50 Semi-field and field evaluation of spatial repellents, **Daniel Kline**, dan.kline@ars.usda.gov, USDA-ARS, Center for Medical, Agricultural, and Veterinary Entomology, Gainesville, FL, USA

4:50-5:10 Novel field studies to develop methods to protect deployed troops from mosquito and sand fly vectors, **Kenneth Linthicum**, kenneth.linthicum@ars.usda.gov, USDA-ARS, Center for Medical, Agricultural, and Veterinary Entomology, Gainesville, FL, USA

5:10–5:30 Protecting Australia from *Aedes albopictus* : A 'worthwhile war' or a 'futile fight'? **Richard C. Russell**, richard.russell@sydney.edu.au, Department of Medical Entomology, University of Sydney and Centre for Infectious Diseases and Microbiology, Westmead Hospital, Westmead, NSW, Australia, O. Muzari and J. Davis

5:30-5:50 Repellency evaluation challenges: Defining repellency, knockdown and efficacy success, **Kevin J. Sweeney**, sweeney.kevin@pamail.gov, US EPA, Office of Chemical Safety and Pollution Prevention Office of Pesticide

Programs Registration Division, Washington, D.C., USA

Thursday – September 29, 2011

- **Symposium 7** (8:00-10:00) Student Presentations I, **Mir Mulla**, mir.mulla@ucr.edu, University of California-Riverside, Riverside, CA, USA; Moderator: **Dagne Duguma**, ddemi002@student.ucr.edu, University of California, Riverside, CA, USA

  8:00-8:15 Urban eco-epidemiology of West Nile Virus in Atlanta, Georgia **Rebecca Levine**, rclevin@emory.edu, Emory University, Atlanta, GA, USA

  8:15-8:30 The role of circadian clock genes in the overwintering diapause of the Northern House Mosquito, *Culex pipiens*, **Megan E. Meuti**, meuti.1@osu.edu, Department of Entomology, Ohio State University, Columbus, OH, USA, T. Ikeno and D. L. Denlinger

  8:30-8:45 Phenotypic diversity among *Culex pipiens* complex populations in the Sacramento Valley, California, **Brittany Nelms**, bmmills@ucdavis.edu, Department of Entomology, University of California, Davis, CA, USA

8:45-9:00 Estimating the age of the dengue vector *Aedes aegypti* in the Southwest United States, **Teresa Kathleen Joy**, tstorch1@email.arizona.edu, Department of Entomology, University of Arizona, Tuscan, AZ, USA

9:00-9:15 Blood hosts and variation in pyloric armatures of mosquitoes in zoos, **Holly C. Tuten**, htuten@clemson.edu, Department of Entomology, Soils, and Plant Sciences, Clemson University, Clemson, SC, USA

9:15-9:30 The housefly, *Musca domestica* (Diptera: Muscidae) as a mechanical vector of *Clostridium difficile*-associated diarrhea in hospitals, **Matthew Davies**, daviesmp@aston.ac.uk, , School of Life & Health Sciences, Aston University, Birmingham, B4 7ET, UK, A. C. Hilton, and M. Anderson

9:30-9:45 Seasonal abundance, oviposition substrate preference, and natural parasitism of stable flies, *Stomoxys calcitrans*, and house flies, *Musca domestica*, (Diptera: Muscidae) to improve integrated pest management for North Florida small equestrian farms, **Erika T. Machtinger**, tangerinesporthorses@yahoo.com,

Department of Entomology and Nematology, University of Florida, Gainesville, FL, USA

9:45-10:00 Climate-based dynamic modeling of disease vectors, **Cory Morin**, cmorin@email.arizona.edu, School of Geography and Development, University of Arizona, Tuscan, AZ, USA and A. Comrie

- 10:00-10:30 Break

- **Symposium 8** (10:30 – 12:30) Student presentations II, **Mir Mulla**, mir.mulla@ucr.edu, University of California-Riverside, Riverside, CA, USA; Moderator: **Brittany Nelms**, bmmills@ucdavis.edu, Department of Entomology, University of California, Davis, CA, USA

  10:30-11:45 Developmental plasticity and tradeoffs in the mosquito predator, *Corethrella appendiculata*, **Erik Blosser**, eblosser@ufl.edu, Florida Medical Entomology Laboratory, University of Florida, Vero Beach, FL, USA

  10:45-11:00 Responses of alkali bulrush and mosquito production across a gradient of nitrogen enrichment, **Dagne Duguma**, ddemi002@student.ucr.edu, and William E. Walton, walton@ucr.edu,

Department of Entomology, University of California, Riverside, CA, USA

11:00-11:15 Discovery of a new species of *Rickettsia* in *Ixodes angustus,* **C. Anstead,** caa186@mail.usask.ca, Department of Biology, University of Saskatchewan, Saskatoon, SK, Canada

11:15-11:30 Identification of medically important lice in Thailand by using DNA barcode technique, **Wachiraphan Chittham**, wachiraphanc@afrims.org, Department of Medical Entomology, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand, C. Apiwathnasorn, J. Ruangsithichai, Y. Trongtokit and S. Sungvornyothin

11:30-11:45 Effects of behavioral and immunological defenses against vectors of avian blood parasites, **Jessica Waite**, jessi.waite@gmail.com, Department of Biology, University of Utah, Salt Lake City, UT, USA, A. Henry, J. Owen, and D. Clayton.

11-45-12:00 Tracing the evolution and adaptations of blood-feeding Triatomine bugs (Triatominae: Reduviidae: Hemiptera), **Wei Song Hwang**, weisong.hwang@email.ucr.edu, Department of Entomology, University of California, Riverside, CA, USA