



**Ninety-Fifth Annual Meeting**

**Pacific Branch of the  
Entomological  
Society of America**

**Hilton Waikoloa Village  
Waikoloa, Hawaii  
March 27-30, 2011**

**“Invasive Species of the  
Pacific Region”**



The Officers, Committee Chairs, and Members of  
The Pacific Branch of the Entomological Society of America wish to thank our  
sponsors, without whom our annual meeting would not be possible.

## SUSTAINING SPONSORS 2011-2012

### Gold (\$1,000)

Dow AgroSciences • Dupont Crop Protection  
Syngenta Crop Protection, Inc. • BASF Corporation

### Silver (\$500)

Bayer CropScience  
Trece, Inc. • JMS Stylet Oil

### Bronze (\$250)

FMC Agricultural Products • Gowan Company  
Nichino America

## Table of Contents

Branch Officers and Committees.....	4
PBESA 2010 Logistics and Basic Information .....	5
Special Meetings and Events at PBESA 2011.....	6
Presenter/Moderator Instructions.....	7
Meeting-At-A-Glance Grid .....	8
<b>PROGRAM</b>	
Sunday, March 27.....	9-10
Monday, March 28	
Morning Business Meeting and Opening Session.....	10
Afternoon Symposia .....	11-15
Student Poster Competition.....	16-17
Student Paper Competition .....	17-19
Evening Activities .....	20
Tuesday, March 29	
Morning Symposia .....	21-22, 27-29
Poster Session .....	24-25
Awards Luncheon.....	23
10-minute Paper Presentations .....	29-36
Afternoon Symposia .....	22, 36-37
Evening Activities .....	37-38
Wednesday, March 30	
Final Business Meeting .....	39
Morning Symposia .....	39-42
Author Index	
Papers and Symposia .....	46-53
Posters.....	53-55
HOTEL MEETING ROOMS MAP .....	Back Cover

# 2010-2011 Pacific Branch Entomological Society of America

## OFFICERS

President.....	Roger Vargas USDA-ARS Pacific Basin, Hilo, HI
President-Elect .....	Sujaya Rao Orgeon State Univ., Corvallis, OR
Past President .....	Douglas Walsh Washigton State Univ., Pullman, WA
Secretary-Treasurer .....	Mike Lees Dow AgroSciences, Granite Bay, CA
Governing Board Rep.....	Michael Parrella University of California, Davis, CA



*Roger Vargas, President*

## EXECUTIVE COMMITTEE

### MEMBERS AT LARGE

Robin Rosetta.....	Oregon State University, Aurora, OR (2008-2011)
Mark Wright.....	University of Hawaii, Honolulu, HI (2008-2011)
Mark Sisterson .....	USDA-ARS, Parlier, CA (2009-2012)
Carolyn Pickel.....	University of California, Davis, CA (2009-2012)
Harvey Yoshida .....	Dow AgroSciences (2010-2013)
Richard Zack.....	Washington State University (2010-2013)

## COMMITTEES 2010-2011

Auditing.....	Tad Gantenbein, Chair
Awards Canvassing.....	Doug Walsh, Chair
Employment Opportunities .....	David Cox, Chair
Graduate Student Symposium.....	Deane Zahn, Chair
Linnaean Games .....	Sujaya Rao, Chair
Local Arrangements .....	Darcy Oishi, Chair
On-Line Registration .....	Mike Lees, Chair
On-Site Registration .....	Lucia Varela and Steve Clement, Chairs
Operations .....	Rob Hollingsworth, Chair
Nominations.....	Keith Pike, Doug Walsh and Frank Zalom, Chairs
PBESA Representative to ESA Student Affairs Committee .....	Ashfaq Sial
Photo Salon .....	Helen Spafford, Chair
Program .....	Victoria Yokoyama and Peter Follett, Chairs
Resolutions .....	Chuck Burks, Chair
Site Selection (2013 Meeting).....	Brian Bret, Betsy Boyd and Mark Bolda, Chairs
Student Paper/Poster Competition .....	Diane Alston, Chair
Website .....	Mike Lees

# PBESA 2011 LOGISTICS & BASICS

## REGISTRATION

Everyone attending the Pacific Branch meeting must register. Those who have pre-registered on-line may pick up their registration packet at the registration desk. Those who have not yet registered may register on-site at the registration desk. On-site registration is \$190 for members, \$215 for non-members, and \$75 for students, honorary/emeritus members, and guests. Credit card payments cannot be accepted for on-site registration—cash or check only. There are ATMs at several locations around the hotel lobby. The registration desk will be open:

- Sunday, March 27, 1:00 to 8:00 pm in the Kona Promenade.
- Monday, March 28, 7:00 am to 4:00 pm on the Kona Promenade.
- Tuesday, March 29, 7:00 am to 4:00 pm on the Kona Promenade
- Wednesday, March 30, 7:00 am to 10:00 am on the Kona Promenade.

## HOTEL MAP

A map of Hilton Waikoloa Village meeting rooms is provided on the back cover of this program. The meeting rooms are at water level next to the lagoon, downstairs from the main lobby. A miniature map of the resort is shown on page 20.

## SCHEDULE

The “meeting-at-a-glance” grid on page 8 shows the overall schedule. Full chronological program with details including speakers, times, and event locations, begins on page 10.

## MEETING INFORMATION AND SCHEDULE CHANGES

Schedule changes and other information of general interest will be posted throughout the conference at the PBESA Registration Desk.

## ABSTRACTS

Abstracts for PBESA 2011 paper and poster presentations are available on-line at [http://www.entsoc.org/PDF/Pacific/meetings/FINAL\\_PBESA\\_2011\\_Abtracts.pdf](http://www.entsoc.org/PDF/Pacific/meetings/FINAL_PBESA_2011_Abtracts.pdf). Hard copy abstracts are not provided at the meeting.

## HOTEL INFORMATION

See: Hilton Waikoloa Village <http://www.hiltonwaikoloavillage.com/>. A special reduced room rate is available through March 7 only if reserving on-line.

## TRANSPORTATION

Taxi, shuttle service, and car rental are available at Kailua-Kona Airport.

## WEATHER

Kona’s weather averages in the low to mid-80s°F during March, with nighttime temperatures dipping to the mid-70s°F. Enjoy!

## SPECIAL MEETINGS AND EVENTS

### STUDENT COMPETITION JUDGES' MEETING

Those who have volunteered to serve as judges for the student poster or paper competitions should attend an organizational meeting on Sunday, March 27, from 5:00 to 6:00 pm in Queen's 6.

### EXECUTIVE COMMITTEE

The Pacific Branch Executive Committee will meet Sunday evening, March 27, from 6:00 to 8:00 pm in Queen's 6.

### BUSINESS MEETINGS

The preliminary business meeting will be held at the end of the opening session on Monday morning, March 28. The combination opening session/preliminary business meeting is scheduled from 8:10 to 11:30 am in the Monarchy. The final business meeting will be held from 7:30 to 8:30 am on Wednesday, March 30 in the Queen's 5. Please plan to attend and make your voice heard regarding Pacific Branch officers and future meeting sites.

### PBESA MIXER/PRESIDENT'S RECEPTION

Pacific Branch 2010-2011 President Roger Vargas will host a reception for all fully registered PBESA 2011 attendees at the Kona Pool on Monday, March 28, from 6:00 to 8:00 p.m. You can buy additional tickets at the registration desk.

### LINNAEAN GAMES

The Linnaean Games will be held on Monday evening, March 28, from 8:00 to 10:00 pm in the Kona 4. The winning Pacific Branch team and runner-up team both qualify to represent the branch by competing in the national ESA Linnaean Games. The winning team also receives \$500 to offset their travel expenses to the national competition (Reno, NV, Nov. 13-16, 2011).

### AWARDS LUNCHEON

The PBESA 2011 Awards Luncheon will be held on Tuesday, March 29, between 12:00 and 1:25 pm in the Kohala 1-2. Your full conference registration includes admission to the luncheon. You can buy additional tickets at the registration desk.

### EVENING PLENARY SESSION

We are pleased to present a Plenary Session on The Life and Times of the Wekiu Bug given by Jesses Eiben on Tuesday from 5:30 to 6:30 pm in the Monarchy. Jesse is a PhD student at UH-Manoa studying this unique high-elevation scavenger. More information can be found on page 38 of this program.

### EMPLOYMENT OPPORTUNITIES

A career development session for students will be held Tuesday evening, March 29, from 6:30-7:30 pm in Monarchy.

### PHOTO SALON

The insect photo salon has over 80 entries in this year's contest. Prizes will be given for Best of Show and Best Student Picture. Stop by the Waikoloa 1 to view photos throughout the meeting and cast your vote for the Delegates Choice award. Final showing and awards presentation on Wednesday, 9:30am, Queen's 5.

## PRESENTER/MODERATOR INSTRUCTIONS

### POWERPOINT SLIDESHOW PRESENTATIONS

The presentation format will be PowerPoint files using laptop computers and projectors. Laptop computers with Microsoft Windows XP or Vista and projection equipment will be available on site. Please contact Rob Hollingsworth, robert.hollingsworth@ars.usda.gov, with questions about Audio/Visual operations.

- Speakers who present submitted papers (Student Competition or General Session) should bring their PowerPoint files on a CD or flash drive (memory stick) to the Registration Desk by the day before their scheduled session. Mac users please make sure your presentation file has a .ppt file extension. The meeting Operations Committee will assist with transferring files. Talks can also be e-mailed to Darcy Oishi, darcy@hawaii.edu in advance.
- Symposia speakers should deliver their presentations to the organizer of their symposium prior to the session. This should be done according to the time line and instructions provided by the organizer of each symposium. Symposium organizers will then compile the talks onto their own laptop computers and bring them to the session.

### MODERATOR RESPONSIBILITIES

Moderator training will be offered in Waikoloa 1, 5:00-6:00 pm Sunday, March 27. Session moderators are responsible for keeping speakers on schedule. If a presentation is completed early or cancelled, the moderator must ensure that the subsequent presentation begins at the scheduled time. Symposia organizers see additional information under PowerPoint Slideshow Presentations, above.

### POSTER DISPLAY PRESENTATIONS

Student competition posters should be hung in the Queens 4 Room on Monday March 28, during the 11:30 am to 1:30 pm lunch break. Student competition judging will take place between 1:30 p.m. and 5:00 pm on Monday, and student competitors are asked to vacate the poster room during that time. Student must remove their posters between 5:00-6:00 pm General session posters should be hung, also in the Queens 4 Room, between 6:00 and 10:00 p.m. on Monday. Student posters may be viewed during their display periods from 1:30 p.m. until 5:00 pm on Monday. General posters may be viewed from 8:00 am to 5:30 pm on Tuesday. There is no specific time scheduled for poster authors to be present at their posters on Tuesday, however mid-morning and mid-afternoon break times are typically popular times to view posters. Poster authors who would like to plan to attend their poster at a specific time on Tuesday are encouraged to attach a small note to their poster explaining the time they will be present. All posters should be removed after 5:30 p.m. on Tuesday. Push pins provided on site.

Sunday	Monday	Tuesday	Wednesday
<b>2011 PBESA Meeting at a Glance</b>	Registration Desk Open 7:00 am-4:00 pm		7:00 - 10:00
		(General posters up all day)	7:30-8:30 am Final Business Meeting
	8:10-11:30 am Opening Session & Preliminary Business Meeting	8:00 am-noon Minor Crops Symposium Tephritid Outbreaks Symposium Teaching Symposium Hawaiian Insects Symposium Submitted 10-min Paper Presentations	8:30 am-noon New In Industry Symposium Population Ecology Symposium Alien Predators Symposium International Invasives Symposium
	11:30 am-1:30 pm Lunch on your own Students post their competition posters	Noon-1:25 pm Awards Luncheon	Noon Adjourn
1:00-8:00 pm Registration Desk Open	1:30-5:30 pm Ornamentals Symposium Spotted Wing Drosophila Symposium Urban Entomology Symposium Weed Biocontrol Symposium MS&PhD Paper & Poster Competition	1:30-5:30 pm Minor Crops Symposium, cont. Grad Student Symposium Coffee Berry Borer Symposium Submitted 10-minute Paper Presentations	<b>This “Meeting-at-a-Glance” grid is provided for your convenience.</b>  <b>For more details, including location of each event, refer to the full program, starting on Page 10.</b>
4:00-5:00 pm Astronomy Talk			
5:00-6:00 pm Moderator Training			
5:00-6:00 pm Student Competition Judges’ Meeting	6:00-10:00 pm General posters to be posted for Tuesday viewing	5:30-6:30 pm Plenary Session w/ Wekiu Bug Talk	
6:00-8:00 pm Executive Committee Meeting	6:00-8:00 pm Mixer/President’s Reception 8:00-10:00 Linnaean Games	6:30-7:30 pm Student Careers	

## Sunday Evening, March 27

### Public Presentation

# “A New Portal on the Universe – Laser Adaptive Optics at Gemini Observatory”

**Dr. Doug Simons**

**Director, Gemini Observatory**

**Mauna Kea, Hawaii and Cerro Pachon, Chile**

The youngest of 10 children and the son of an entomologist, Doug’s roots in science began as a child as he amassed a large butterfly collection while growing up in California and Florida. He received his B.S. in Astronomy at the California Institute of Technology in 1985 and Ph.D. in Astronomy at the University of Hawaii in 1990, before working as a staff astronomer at the Canada-France-Hawaii Telescope for 4 years, and then joining Gemini Observatory in 1994, where he has worked ever since.



Doug’s scientific interests include infrared research on low mass stars, brown dwarfs, and the Galactic center. Past contributions to astronomy include leading the development of advanced infrared instrumentation at major observatories, which has been used for a variety of research applications by the astronomical community. These efforts have been at various levels ranging from technical design, to scientific leadership within the community, to management of diverse teams and resources around the world tasked with developing instrumentation for Gemini Observatory. Since 2006, Doug has served as the Director of Gemini Observatory, which includes a pair of infrared optimized 8 meter telescopes located on the summits of Mauna Kea in Hawaii and Cerro Pachon in Chile. These unique world-class research facilities feature some of the most advanced electro-optic systems used in astronomy today, including high power sodium lasers and advanced high order adaptive optics systems.

**4:00-5:00 pm • Monarchy**

# PBESA 2011 Program

(See hotel meeting rooms map on back cover of program)

## Sunday, March 27

Registration • 1:00-8:00 pm  
Hilton Waikoloa • Kona Promenade

*Astronomy talk, Doug Simons, Director, Gemini Observatory • 4:00-5:00 • Monarchy*

Student Competition Judges' Meeting • 5:00-6:00 pm • *Queen's 6*  
Executive Committee Meeting • 6:00-8:00 pm • *Queen's 6*

## Monday, March 28

Registration • 7:00 am-4:00 pm  
Kona Promenade

Opening Session and Preliminary Business Meeting • 8:10-11:30 am  
*Monarchy Ballroom*

- 8:10 Welcome and Opening Remarks, Roger Vargas, President, Pacific Branch ESA
- 8:25 National ESA Report, Ernest "Del" Delfosse, President, and David Gammel, Executive Director
- 8:40 Introduction of the C.W. Woodworth Award, Roger Vargas, PBESA President
- 8:45 Update on the C.W. Woodworth Legacy, Brian Holden, Great-grandson of award sponsor
- 8:55 2011 C.W. Woodworth Award Winner Presentation, Dr. Frank Zalom, University of California, Davis, "IPM, are we there yet? Will we ever be?"
- 9:35 2011 John Henry Comstock Award Winner Presentation, Casey Butler, University of California, Riverside, "Developing a Pest Management Program for the Potato Psyllid"
- 10:00 BREAK
- 10:30 Preliminary Business Meeting (1 hr)
- Governing Board report, Business report, Announcements (BCE, Entomological Foundation, PIE), new business, and Nominations

### 12:00am-1:30pm - Lunch On Your Own

Posters for the Student Poster Competition should be posted in the Queen's 4 during this timeframe.

Monday, March 28, continued

## SYMPOSIUM: PREVENTION, CONTAINMENT AND MANAGEMENT OF INVASIVE ORNAMENTAL PESTS

1:30-5:50 pm • *Monarchy*

Organizers & Moderators: Arnold Hara, University of Hawaii, Rob Hollingsworth, USDA-ARS, Hilo, Hawaii

- 1:30 Welcome and Introduction. Arnold Hara
- 1 1:35 Invasive Species Situation in California Nurseries and Landscapes. John Kabashima, UCCE, Orange County, CA
- 2 1:55 Use of BMPs and IPM in the Face of Invasive Pests in California. James Bethke, UCCE, San Diego County
- 3 2:15 Management of Chilli Thrips. Scott Ludwig, Texas A & M University
- 4 2:35 Evaluating Use of Ethanol-Baited Traps and Ethanol-Injected Trees as a Trap Crop Strategy Against Ambrosia Beetles. Peter Schultz, Virginia Tech University
- 5 2:55 Preventing Spread of Invasive Species Using Heat Treatments and Irradiation. Arnold Hara, University of Hawaii at Manoa
- 3:15 BREAK
- 6 3:30 The High Cost of Invasive Pests in Tennessee: An Ecological, Regulatory, and IPM Perspective. Frank Hale, University of Tennessee
- 7 3:50 Potential of *Macaranga tanarius* as a Banker Plant for Anthocorids to Control Thrips in Orchids. Fran Calvert & Rob Hollingsworth, USDA-ARS, Hilo, HI
- 8 4:10 Biological Control and Thrips Competition. Joe Funderburk, University of Florida.
- 9 4:30 Microbial Control of Invasive Diaprepes, a Root Pest of Ornamentals. Harry Kaya<sup>1</sup>, Ed Lewis<sup>1</sup>, James Bethke<sup>2</sup>, <sup>1</sup>UC Davis, <sup>2</sup>UCCE, San Marcos
- 10 4:50 Managing B and Q Strains of Bemisia Whiteflies. Ron Oetting, University of Georgia
- 11 5:10 Running the Race with Slugs and Snails: A Pacific North West Research and Extension Program Targeting Invasive Gastropods. Robin Rosetta, Oregon State University Extension
- 12 5:30 The Guam Coconut Rhinoceros Beetle Eradication Project. Aubrey Moore, University of Guam

Monday, March 28, continued

**SYMPOSIUM:**

**MONITORING AND MANAGEMENT OF THE SPOTTED WING  
DROSOPHILA IN CHERRIES AND BERRIES**

1:30-5:30 pm

*Kona 5*

Organizers & Moderators: Robert Van Steenwyk, UC Berkeley & Vaughn Walton,  
Oregon State University

- 1:30 Welcome and Introduction. Robert Van Steenwyk and Vaughn Walton
- 13 1:35 Ecology of *Drosophila suzukii* in the Cherry Producing Region of Japan. Masatake Sasaki<sup>1</sup>, Shin-ichi Ito<sup>2</sup> & Aya Kobayashi<sup>3</sup>, <sup>1</sup>Fukushima Fruit Tree Experiment Station, Fukushima, <sup>2</sup>Yamagata Integrated Agricultural Research Center, Yamagata, <sup>3</sup>Dow AgroSciences, Shinagawa, Tokyo
- 14 2:05 Origin, Biology, and Taxonomy of SWD--Do We Know Enough? Martin Hauser, CDFA, Sacramento, CA
- 15 2:55 Crop Susceptibility to Spotted Wing *Drosophila* Attack. Douglas Walsh<sup>1</sup>, Jana Lee<sup>2</sup>, Vaughn Walton<sup>3</sup>, Lynell Tanigoshi<sup>4</sup>, Tom Walters<sup>4</sup>, Kim Patten<sup>5</sup> & Frank Zalom<sup>5</sup>, <sup>1</sup>WSU, Prosser, <sup>2</sup>USDA-ARS, Corvallis, OR, <sup>3</sup>OSU, Corvallis, <sup>4</sup>WSU, Mount Vernon, <sup>5</sup>WSU, Long Beach, & <sup>5</sup>UC Davis.
- 16 3:15 Spotted Wing *Drosophila* (SWD) Trap Design and Adult Fly Seasonal Distribution. William Coates<sup>1</sup>, Robert Van Steenwyk<sup>2</sup>, Janet Caprile<sup>3</sup> & Joe Grant<sup>4</sup>, <sup>1</sup>UCCE, San Benito County, <sup>2</sup>UC Berkeley, <sup>3</sup>UCCE Contra Costa County, <sup>4</sup>UCCE San Joaquin County
- 3: 35 BREAK
- 17 3:50 Establishment of Spotted Wing *Drosophila* in the Western United States and Impact on Small Fruit Crops. David Haviland<sup>1</sup>, Mark Bolda<sup>2</sup> & Frank Zalom<sup>3</sup>, <sup>1</sup>UCCE, Kern Co., <sup>2</sup>UCCE, Santa Cruz Co., <sup>3</sup>UC Davis
- 18 4:15 Management of Spotted Wing *Drosophila* in Berries. Denny Bruck<sup>1</sup>, Mark Bolda<sup>2</sup> & Lynell Tanigoshi<sup>3</sup>, <sup>1</sup>USDA-ARS, Corvallis OR, <sup>2</sup>UCCE, Sacramento, CA, <sup>3</sup>Washington State University, Mount Vernon
- 19 4:40 Shock and Awe: A Narrative History of Spotted Wing *Drosophila* in West Coast Cherries. Elizabeth Beers, Washington State University, Wenatchee
- 20 5:05 Management of Spotted Wing *Drosophila* in Sweet Cherries. Robert Van Steenwyk<sup>1</sup>, Peter Shearer<sup>2</sup>, Elizabeth Beers<sup>3</sup>, Bill Coates<sup>4</sup> & Joe Grant<sup>5</sup>, <sup>1</sup>UC Berkeley, <sup>2</sup>OSU, Hood River, <sup>3</sup>WSU, Wenatchee, <sup>4</sup>UCCE San Benito County, <sup>5</sup>UCCE, San Joaquin County

Monday, March 28, continued

**SYMPOSIUM:**

**URBAN PEST MANAGEMENT: FOUNDATIONS AND FRONTIERS**

1:30-5:30 pm

*Kona 4*

Organizers & Moderators: Ken Grace & Julian Yates, University of Hawaii

- 21 1:30 Hawaii Termites 101. J. Kenneth Grace, University of Hawaii, Honolulu, HI
- 22 1:45 Termidor® Dry: A Novel Insecticide Formulation for Spot Treatment of Drywood and Subterranean Termite Infestations. Julian R. Yates, III<sup>1</sup> & Thomas Nishimura<sup>2</sup>, <sup>1</sup>University of Hawaii at Manoa, <sup>2</sup>BASF, Vancouver, WA
- 23 2:00 Development and Validation of Recruit HD Termite Bait for Control of Subterranean Termites in the Western U.S. Mike Lees<sup>1</sup>, J. DeMark<sup>2</sup>, J. Eger<sup>3</sup>, E. Thoms<sup>4</sup>, M. Fisher<sup>5</sup>, M. Melichar<sup>6</sup>, R. Hamm<sup>7</sup> & J. McKern<sup>8</sup>, Dow AgroSciences: <sup>1</sup>Granite Bay, CA; <sup>2</sup>Fayetteville, AR; <sup>3</sup>Tampa, FL; <sup>4</sup>Gainesville, FL; <sup>5</sup>Dallas, TX; <sup>6</sup>Indianapolis, IN; <sup>7</sup>Fresno, CA; <sup>8</sup>Christiansburg, VA
- 24 2:15 Localized Chemical Treatments for Controlling Drywood Termites. Michael K. Rust, UC Riverside
- 25 2:30 Invasive Ants in Hawaii and the Pacific: An Overview of Current Trends. Paul D. Krushelnycky, University of Hawaii at Manoa
- 26 2:45 A New Approach for the Detection and Monitoring of the Common Bed Bug, *Cimex lectularius*. Patrick T. Copps<sup>1</sup>, Ron Harrison<sup>1</sup> & Kate Johnson<sup>2</sup>, <sup>1</sup>Orkin, LLC, Atlanta, GA, <sup>2</sup>Research Associates Laboratory, Inc., Dallas, TX
- 27 3:10 Additional Strategies for Limiting Insecticide Runoff from Homes Treated for Argentine Ant Infestations. Les Greenberg & Michael K. Rust, UC Riverside
- 3:25 BREAK
- 28 3:45 Optigard Flex, a New Frontier in Wasp Control for PMPs. David L. Cox, E.M. Roper and C.N. Lovelady, Syngenta Crop Protection, Madera, CA
- 29 4:00 Minimum Effective Rates to Control Urban Pest Spiders. Donald A. Reiersen, Richard S. Vetter & Michael K. Rust, UC Riverside

Monday, March 28, continued

**SYMPOSIUM:**

**URBAN PEST MANAGEMENT: FOUNDATIONS AND FRONTIERS**

**(CONT.)**

1:30-5:30 pm

*Kona 4*

- 30 4:15 Novel Approaches for Educating Pest Management Professionals about Bed Bug and Structural Pest IPM. Carrie R. Foss & Rebecca Maguire, Washington State University, Puyallup, WA
- 31 4:30 The Biology, Ecology and Control of Velvety Tree Ants (*Liometopum* spp.). Rochelle Hoey-Chamberlain, UC Riverside
- 32 4:42 Potential for Baits and Nest Drenches to Eradicate Argentine Ant on Santa Cruz Island. Andrew Soeprono, Donald A. Reiersen & Michael K. Rust, UC Riverside
- 33 4:54 Resistance of Bamboo and Woods Used in Hawaii to Attack by Two Subterranean Termites (Blattodea: Rhinotermitidae). Nirmala K. Hapukotuwa & J. Kenneth Grace, University of Hawaii at Manoa
- 34 5:06 Factors in Achieving Sustainability and Measuring the Impact of Termite Prevention Curriculum in Public Schools in Hawaii. Makena Mason, J. Kenneth Grace, Maria Aihara-Sasaki & Julian R. Yates, III, University of Hawaii at Manoa
- 35 5:18 Is that Your Final Answer? Tramp Ants in the Pacific. Laurel Hansen, Spokane Falls Community College, Spokane, WA

Monday, March 28, continued

**SYMPOSIUM:**

**NEW APPROACHES TO ASSESSING BIOLOGICAL WEED CONTROL AGENTS PRE- AND POST-RELEASE TO MEET CHANGING REGULATORY REQUIREMENTS**

1:30-5:00 pm

*Kona 1-3*

Organizers & Moderators: Mark Schwarzländer, University of Idaho, Moscow, ID, Carol Randall, USFS, Coeur d'Alene, ID & Link Smith, USDA, ARS, Albany, CA

- 1:30 Welcome and Introduction. Mark Schwarzländer
- 36 1:35 Use of Laboratory and Field Experiments to Assess Specificity of Prospective Weed Biological Control Agents. Lincoln Smith<sup>1</sup>, Massimo Cristofaro<sup>2</sup>, Rustem Hayat<sup>3</sup>, <sup>1</sup>USDA, ARS, Albany, CA, <sup>2</sup>ENEA C.R. Casaccia BIOTEC-SIC, Rome, Italy, <sup>3</sup>Ataturk University, Erzurum, Turkey
- 37 2:05 The Importance of Place: Distribution Mapping and Assessing Biological Control Agents of Invasive Plants in the Interior West in the Current Regulatory Environment. Carol Bell Randall<sup>1</sup>, Marijka Haverhals<sup>2</sup>, <sup>1</sup>USFS, Coeur d'Alene, ID, <sup>2</sup>University of Idaho
- 38 2:35 Evaluating Statewide Impact of Weed Biological Control Using the Standardized Impact Monitoring Protocol (PMP). Aaron Weed & Mark Schwarzländer, University of Idaho.
- 39 3:05 Metabolic Profiling: A New Tool in the Prediction of Host-Specificity in Classical Biological Control of Weeds. Carole B. Rapo<sup>1</sup>, Sanford D. Eigenbrode<sup>1</sup>, Harriet L. Hinz<sup>2</sup>, John Gaskin<sup>3</sup>, William J. Price<sup>1</sup>, Urs Schaffner<sup>2</sup>, Mark Schwarzländer<sup>1</sup>, <sup>1</sup>University of Idaho, <sup>2</sup>CABI Europe-Switzerland, <sup>3</sup>USDA-ARS, Sidney, MT
- 3:35 BREAK
- 40 3:50 Chemical Ecology Approaches for the Host Range Assessment of *Mogulones borraginis*, a Biocontrol Agent for Houndstongue. Ikju Park, University of Idaho
- 41 4:20 The Exceptional Case of the Lantana Lace Bug, *Teleonema scrupulosa*. M. Tracy Johnson, USDA Forest Service, Volcano, Hawaii
- 42 4:50 Biocontrol of Madagascar Fireweed in Hawaii: Foreign Explorations and Host Delineation of Two Arctiid Moths. Mohsen Ramadan, Hawaii Department of Agriculture



Monday, March 28, continued

## STUDENT POSTER COMPETITION

1:30-5:00 pm

*Queen's 4*

Student posters will be on display Monday afternoon 1:30-5:00 pm. Students are requested to post their competition posters during the 11:30am-1:30pm lunch break on Monday and then vacate the room while judging is underway. Student poster authors should remove their posters Monday evening between 5:00-6:00 pm. Note that general (non-student) posters should be posted between 6:00 and 10:00 pm on Monday for viewing on Tuesday.

### MASTER'S and UNDERGRADUATE POSTERS

- P1 Fitness of Different Clonal Lineages of Pentalonina Aphids Reared on Banana Leaves. April Greenwell & Alberto Bressan, University of Hawaii at Manoa
- P2 Influence of Maize Mosaic Virus on the Fitness of *Peregrinus maidis*. Clesson H. Higashi & Alberto Bressan, University of Hawaii Manoa
- P3 Green Peach Aphids in Potatoes: Field Populations and Management in Prosser, Washington. Erin N. Hollingbery, Keith S. Pike, George Graf & John Wilson, Washington State University, Prosser, WA
- P4 Identification of Genetic Markers to Distinguish Wild and Sterile Mediterranean Fruit Flies. Arlene Parubrub<sup>1</sup>, David Haymer<sup>1</sup>, Raymond Lee<sup>1</sup>, Catherine J. Smallridge<sup>2</sup>, & Bill Woods<sup>3</sup>, <sup>1</sup>University of Hawaii at Manoa, <sup>2</sup>South Australian Research and Development Institute, Adelaide, Australia, <sup>3</sup>Department of Agriculture and Food, Western Australia
- P5 Releasing the Olive Fruit Fly's Newest Enemy, *Psytalia humilis*, in the Field. Hana Yokoyama-Hatch, UC Davis
- P6 Pickleworm in Hawaii: Prospects for Management. Rosalie Leiner & Helen Spafford, University of Hawaii at Manoa
- P7 Alkali Bee Flight Monitoring with Vehicular Bee Sweeper in Washington State. Amber C. Vinchesi & Douglas B. Walsh, Washington State University, Prosser, WA

### PhD POSTERS

- P8 Using Photographs to Estimate Mosquito Larval Abundance. Jennifer Henke, Department of Entomology, UC Riverside
- P9 Selenium's Impact on the Pollination Ecology, Learning, and Survival of *Apis mellifera* (Hymenoptera: Apidae). Kristen R. Hladun, Ray Morton, & John T. Trumble. UC Riverside
- P10 Outcomes of Arsenate and Phosphate Exposure in *Chironomus riparius*. Christina L. Mogren & John T. Trumble, UC Riverside

Monday, March 28, continued

## STUDENT POSTER COMPETITION - PhD POSTERS, continued

- P11 Host Plant Preference, Vector Infectivity and Disease Status of Plants Affect the Spread of Plant Viruses: Results from a Model. Bryan K. Roosien<sup>1</sup>, Richard Gomulkiewicz<sup>1</sup>, Laura L. Ingwell<sup>2</sup>, Nilsa A. Bosque-Pérez<sup>2</sup> & Sanford D. Eigenbrode<sup>2</sup>, <sup>1</sup>Washington State University, Pullman, WA, <sup>2</sup>University of Idaho, Moscow, ID
- P12 Quantifying Arthropod Diversity in the Selkirk Mountains of Northern Idaho and Eastern Washington. Laine Smith<sup>1</sup>, Stephen Cook<sup>1</sup>, Michael Lucid<sup>2</sup> & Sam Cushman<sup>3</sup>, <sup>1</sup>University of Idaho, Moscow, ID, <sup>2</sup>Idaho Department of Fish and Game, Coeur d'Alene, ID, <sup>3</sup>USDA-Forest Service, Flagstaff, AZ

## 10-MINUTE STUDENT PAPER COMPETITION (1)

1:30-5:00 pm • *Queen's 5*

Moderators: Loys Hawkins, Suterra & Phil VanBuskirk, Oregon State Univ.

### MASTER'S and UNDERGRADUATE PAPERS

- 43 1:30 Introduction, Release and Recovery of the Aphid Parasitoid *Binodoxys communis* for Improved Aphid Control in Hawaii. Angelita L. Acebes & Russell H. Messing, University of Hawaii at Manoa, Kapaa, HI
- 44 1:42 An Apiary-Wide Study of Sub-Lethal Pesticide Effects on Honey Bee (*Apis mellifera*) Colony Health. Natalie K. Boyle & Walter S. Sheppard, Washington State University, Pullman, WA
- 45 1:54 *Gluphisia septentrionis*: Life History and Biological Control of an Emerging Pest in Hybrid Poplars. Alejandro Del Pozo, Andrew Rodstrom & John Brown, Washington State University, Pullman, WA
- 46 2:06 Field Trapping Little Fire Ant, *Wasmannia auropunctata* (Roger) (Hymenoptera: Formicidae). Nathan T. Derstine<sup>1</sup>, Elisa J. Troyer<sup>1</sup>, Caitlyn Suttles<sup>1</sup>, Leigh A. Siderhurst<sup>1</sup>, Eric B. Jang<sup>2</sup> & Matthew S. Siderhurst<sup>1</sup>, <sup>1</sup>Eastern Mennonite University, <sup>2</sup>USDA-ARS, Hilo, HI
- 47 2:18 Pheromone Mating Disruption of Filbertworm Moth (*Cydia latiferreana*) in Commercial Hazelnut Orchards. Christopher Hedstrom<sup>1</sup>, Ute Chambers<sup>2</sup>, Vaughn Walton<sup>1</sup>, <sup>1</sup>Oregon State University, Corvallis, OR, <sup>2</sup>Washington State University, Wenatchee, WA
- 48 2:30 Drone Brood Removal: A Tool for Managing *Varroa destructor* in *Apis mellifera* Colonies in Hawaii. Tyler Ito, Ethel Villalobos, Scott Nikaido, Mark G. Wright, University of Hawaii at Manoa

**10-MINUTE STUDENT PAPER COMPETITION (CONT.)**1:30-5:00 pm • *Queen's 5*

## MASTER'S PAPERS (CONT.)

- 49 2:42 Demographic Consequences of Differing Dietary Sequences in Two Tephritids. Amy E. Morice<sup>1</sup>, Roger I. Vargas<sup>2</sup>, James F. Harwood<sup>1</sup>, James R. Carey<sup>1</sup>, <sup>1</sup>UC Davis, <sup>2</sup>USDA-ARS Hilo, HI
- 50 2:54 Systematics of the Genus *Bactrocera* (Diptera: Tephritidae) Based on Mitochondrial and Nuclear Genes. Michael San Jose, Luc Leblanc & Daniel Rubinoff, University of Hawaii Manoa
- 51 3:06 Identification of *Lygus* Bugs by DNA Barcoding for IPM. Changqing Zhou<sup>1</sup>, James D. Barbour<sup>2</sup>, Frank G. Zalom<sup>3</sup>, Douglas B. Walsh<sup>1,4</sup>, Laura Corley Lavine<sup>1</sup>, <sup>1</sup>Washington State University, Pullman WA, <sup>2</sup>University of Idaho, Parma, ID, <sup>3</sup>UC Davis, <sup>4</sup>Washington State University, Prosser WA
- 52 3:18 Morphological Features in Oogenesis of Oriental Fruit Fly in Relation to Physiological Age in Field Populations. Ming-Yi Chou<sup>1</sup>, Roger I. Vargas<sup>2</sup>, Eric B. Jang<sup>2</sup>, Jaime C. Piñero<sup>3</sup>, Ronald F. L. Mau<sup>1</sup>, <sup>1</sup>University of Hawaii at Manoa, <sup>2</sup>USDA-ARS, Hilo, HI, <sup>3</sup>Lincoln University of Missouri, Jefferson City, MO
- 3:30 BREAK

## PhD PAPERS

Moderators: Sujaya Rao, Oregon State Univ. &amp; Harvey Yoshida, Dow Agrosiences

- 53 3:45 Impact of Natural Enemies on Woolly Apple Aphid Suppression. Lessando Gontijo<sup>1</sup>, Elizabeth Beers<sup>1</sup>, William Snyder<sup>2</sup>, <sup>1</sup>Tree Fruit Research and Extension Center, Wenatchee, WA, <sup>2</sup>Washington State University, Pullman, WA
- 54 3:57 Diet and Host Access Influences Survival and Egg Production in Two Tephritid Fruit Flies. James F. Harwood<sup>1</sup>, Roger I. Vargas<sup>2</sup>, Amy E. Morice<sup>1</sup>, James R. Carey<sup>1</sup>, <sup>1</sup>UC Davis, <sup>2</sup>USDA-ARS Hilo, HI
- 55 4:09 Viruliferous and Nonviruliferous Aphid Responses to Barley Yellow Dwarf Virus-Infected Plants. Laura L. Ingwell, Nilsa A. Bosque-Pérez, & Sanford D. Eigenbrode, University of Idaho, Moscow ID
- 56 4:21 Development of A Sequential Binomial Sampling Plan for *Oligonychus perseae* (Acari: Tetranychidae) on Avocado. Jesus R. Lara & Mark S. Hoddle, UC Riverside (cancelled)

**10-MINUTE STUDENT PAPER COMPETITION (2)**

1:30-5:00 pm

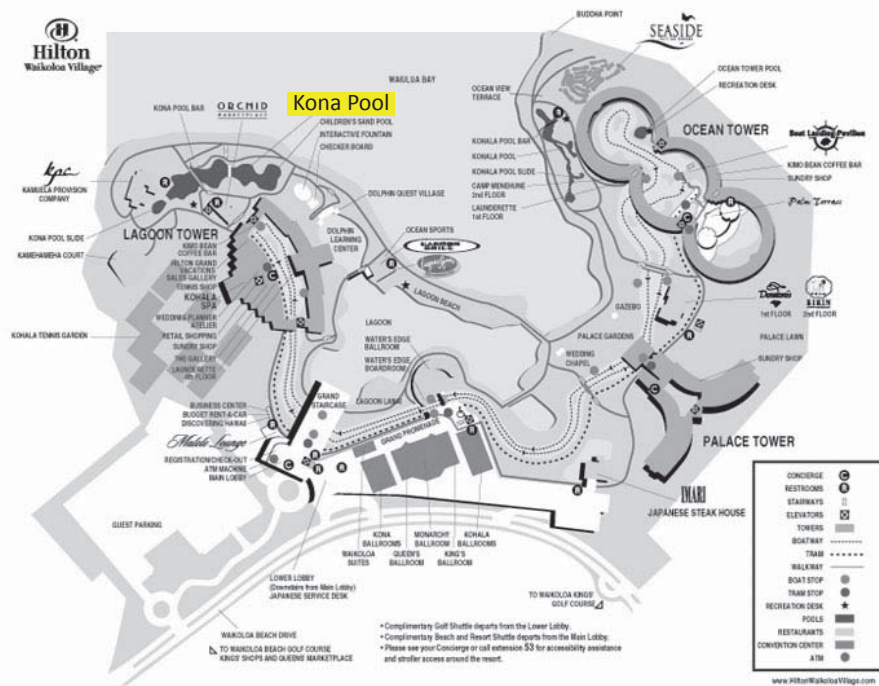
*King's 2*

## PhD PAPERS (CONT.)

- 57 1:30 Effects of Cover Crops on Parasitism of *Helicoverpa zea* and Occurrence of *Orius* spp. in Corn Intercropping Systems. Roshan Manandhar & Mark G. Wright, University of Hawaii at Manoa
- 58 1:42 Host Relationships of the Eucharitid Ant Parasitoids (Hymenoptera). Elizabeth Murray & John Heraty, UC Riverside
- 59 1:54 Comparing Simple Versus Diverse Trap Crops for Control of the Crucifer Flea Beetle. Joyce E. Parker<sup>1</sup>, William E. Snyder<sup>1</sup> & Sanford D. Eigenbrode<sup>2</sup>, <sup>1</sup>Washington State University, Pullman, WA, <sup>2</sup>University of Idaho, Moscow, ID
- 60 2:06 Evaluating New Pest Control Strategies in Hybrid Poplars Grown Under Forest Stewardship Council Guidelines. R. Andrew Rodstrom, Bryan Carlson, Alejandro Del Pozo & John J. Brown, Washington State University, Pullman, WA
- 61 2:18 Seasonal Activities and Feeding of Ground Beetles in Western Oregon Agricultural Landscapes. Michael Russell, Oregon State University, Corvallis, OR
- 62 2:30 Pheromone-Based Monitoring of Aphids in California Dried Plum Orchards: Comparisons Among Trap Types. Emily J. Symmes & Frank G. Zalom, University of California, Davis CA
- 63 2:42 Phenology and Functional Roles of the European Earwig in Organic and Conventional Peach Orchards. Andrew Tebeau & Diane Alston, Utah State University, Logan, UT
- 64 2:54 Insecticidal Implications on the Native Predacious Mite, *Euseius hibisci* (Acari: Phytoseiidae) in Southern California Avocados. Deane K. Zahn & Joseph G. Morse, University of California, Riverside, CA
- 65 3:06 Pollen Foraging Behavior of Native Bumble Bee Colonies in Mass Flowering Resources. Kimberly M. Skyrn, Sujaya Rao & William P. Stephen, Oregon State University, Corvallis, OR

Monday, March 28, continued

## RESORT MAP



## Monday Evening, March 28

**5:00-6:00 pm**

Students remove their posters

**6:00-8:00 pm**

PBESA Mixer/President's Reception at the Kona Pool (see map above)

**6:00-10:00 pm**

General (non-student) posters should be posted in the Queen's 4 for Tuesday viewing.

**8:00-10:00 pm**

The LINNAEAN GAMES student competition will be held in the Kona 4. Stop by and cheer for your favorite team. Winner and runner-up teams qualify to represent the Pacific Branch at the next national ESA meeting.

## Tuesday, March 29

Registration • 7:00 am - 4:00 pm

*Kona Promenade*

### SYMPOSIUM:

## MAJOR PESTS ON MINOR CROPS: MANAGEMENT STRATEGIES FOR SPECIALTY CROPS

8:00 am-5:30 pm

*Kona 5*

Organizer & Moderator: Brian Bret, Dow AgroSciences

- 8:00 Introduction: Brian Bret
- 66 8:05 Developing New Technologies for Insect Control in Specialty Crops. Keith Dorschner<sup>1</sup> & Becky Sisco<sup>2</sup>, <sup>1</sup>Rutgers University, <sup>2</sup>UC Davis
- 67 8:25 Attract-and-Kill Bait Stations for Improved Fruit Fly (Diptera: Tephritidae) Management in Papaya Orchards. Jaime C. Piñero<sup>1</sup>, Ronald F. L. Mau<sup>2</sup>, Roger I. Vargas<sup>3</sup>, <sup>1</sup>Lincoln University of Missouri, <sup>2</sup>University of Hawaii at Manoa, <sup>3</sup>USDA-ARS, Hilo
- 68 8:45 A Diamondback Moth Insecticide Resistance Management Program for Continuous Crucifer Production. R.F.L. Mau, R. Shimabuku, M.-Y. Cho, R.T. Hamasaki, University of Hawaii at Manoa
- 69 9:05 Efficacy of Two Spinosad-Based and One Methoxyfenozide-Based Insecticides for *Solenopsis* sp. and *Strymon basilides* Control in Pineapple. Leonardo Paniagua<sup>1</sup>, Alejandro Cedeño<sup>1</sup>, Luis Gomez<sup>2</sup> & Boris Castro<sup>3</sup>, Dow AgroSciences: <sup>1</sup>San Jose, Costa Rica, <sup>2</sup>Indianapolis, IN, <sup>3</sup>Fresno, CA.
- 70 9:25 Mating Disruption of Light Brown Apple Moth in California Strawberries. Hillary Thomas<sup>1</sup>, Mark Boldt<sup>2</sup> & Frank Zalom<sup>1</sup>, <sup>1</sup>UC Davis, <sup>2</sup>Cooperative Extension, Santa Cruz County, Watsonville, CA
- 9:45 BREAK
- 71 10:00 Damage Assessment and IPM Strategies for Black Vine Weevil in Cranberries and Blueberries. Betsey Miller<sup>1</sup>, Denny J. Bruck<sup>2</sup>, Vaughn M. Walton<sup>1</sup>, Oregon State University, <sup>2</sup> USDA-ARS, Corvallis, OR
- 72 10:20 Iris Yellow Spot Virus in the Pacific Northwest: Relationship Between Overwintering Onions and Onion Thrips Activity. Silvia I. Rondon<sup>1</sup>, Sudeep Bag<sup>2</sup>, Hanu R. Pappu<sup>2</sup>, <sup>1</sup>Oregon State University, <sup>2</sup>Washington State University
- 73 10:40 Lygus Control in Alfalfa Produced for Seed: Killing the Bugs Without Killing the Buzz. Douglas Walsh<sup>1</sup>, Timothy Waters<sup>1</sup>, Sally O'Neal<sup>1</sup> & James Barbour<sup>2</sup>, <sup>1</sup>Washington State University, <sup>2</sup>University of Idaho

**SYMPOSIUM: MAJOR PESTS ON MINOR CROPS (CONT.)**

8:00 am-5:30 pm

*Kona 5*

Moderator: Keith Dorschner, Rutgers University

- 74 11:00 Integrated Management Strategies in Arizona and California to Control and Invasive Stink Bug, *Bagrada hilaris*. Eric Natwick<sup>1</sup>, John Palumbo<sup>2</sup>, Donna Henderson<sup>1</sup>, Martin Lopez<sup>1</sup> & Surendra Dara<sup>3</sup>, <sup>1</sup>University of California ANR Cooperative Extension, Holtville, CA,<sup>2</sup> University of Arizona, <sup>3</sup>University of California ANR Cooperative Extension, San Luis Obispo, CA
- 75 11:20 Identification and Field Bioassays of the Sex Pheromone of *Synanthedon vespiformis* (Lep.: Sesiidae). Anat Levi-Zada<sup>1</sup>, Shaul Ben-Yehuda<sup>2</sup>, Ezra Dunkelblum<sup>1</sup>, Galina Gindin<sup>1</sup>, Daniela Fefer<sup>1</sup>, Alex Protasov<sup>1</sup>, Tatiana Kuznetsowa<sup>1</sup>, Shulamit Manulis-Sasson<sup>1</sup> & Zvi Mendel<sup>1</sup>, <sup>1</sup>Volcani Center, Israel, <sup>2</sup>Ministry of Agriculture, Extension Service, Israel
- 76 11:40 *Prionus californicus* (Coleoptera: Cerambycidae), a Major Pest of Hops: Use of its Sex Pheromone for Monitoring, Mass Trapping, and Mating Disruption. James D. Barbour<sup>1</sup>, Jocelyn G. Millar<sup>2</sup>, Elin C. Maki<sup>1</sup>, Joshua Rodstein<sup>2</sup> & Lawrence M. Hanks<sup>3</sup>, <sup>1</sup>University of Idaho, <sup>2</sup>UC Riverside, <sup>3</sup>University of Illinois at Urbana-Champaign
- 12:00 LUNCH
- 77 1:30 These Little Suckers are Mitey Problematic in Hops. Sally O'Neal, Jim Barbour, Holly Ferguson, Dan Groenendale, Deborah Brooks, & Doug Walsh, Washington State University
- 78 1:50 A Novel Attract-and-Kill Strategy for Suppression of Hop Looper in Hops. Holly Ferguson, Sally O'Neal & Doug Walsh, Washington State University
- 79 2:10 Navel Orangeworm: A Major Pest in Many Crops. Charles Burks<sup>1</sup>, Bradley Higbee<sup>2</sup>, Joel Siegel<sup>1</sup> & Kent Daane<sup>3</sup>, <sup>1</sup>USDA-ARS, Parlier, CA, <sup>2</sup>Paramount Farming Company, <sup>3</sup>UC Berkeley
- 80 2:30 Some Ecological Aspects on the Phenology and Development of Grapevine Scale in Vineyards in the Canberra Region, Australia. N. A. Simbiken & P. D. Cooper, Australian National University, Canberra
- 81 2:50 Evaluating New Pest Control Strategies in Hybrid Poplars Grown Under Forest Stewardship Council Guidelines. R. Andrew Rodstrom, Bryan Carlson, Alejandro Del Pozo & John J. Brown, Washington State University
- 3:10 Entomology in China: the Past, the Present and the Perspective. T.-X. Liu, Northwest A&F University Yangling, China.

**PBESA 2011 Awards Luncheon**

**Tuesday, March 29**

**12:00-1:25 pm**

**Kohala 1-2**

**Your full-meeting registration includes admission to the luncheon.**

- |  |   |
|--|---|
| C.W. WOODWORTH AWARD<br>Dr. Frank Zalom<br>University of California, Davis                             | Jeffery LaFage Graduate Student Award<br>Makena Mason, Univ. Hawaii   |
| ESA Honorary Member<br>Ron Mau, Univ. Hawaii   | Shripat Kamble Urban Entomology Award<br>Nirmala Hapukotuwa, Univ. Hawaii   |
| PROFESSIONAL AWARD WINNERS 2011  | Snodgrass Memorial Award<br>Jesse Eiben, Univ. Hawaii   |
| Distinguished Achievement Award in Extension<br>Dr. Peter Ellsworth<br>University of Arizona, Maricopa | Larry Larson Graduate Student Award for Leadership in Applied Entomology<br>Alejandro Del Pozo<br>Washington State University |
| Distinguished Achievement in Horticultural Entomology<br>Dr. Rob Hollingsworth<br>USDA-ARS, Hilo, HI   | ENTOMOLOGICAL FOUNDATION PROFESSIONAL AWARD WINNERS 2011  |
| ESA Early Career Innovation Award<br>Jeb Owen, Washington State Univ.                                  | Excellence in Integrated Pest Management<br>Dr. Joseph Morse<br>University of California, Riverside                           |
| Distinguished Achievement Award in Teaching<br>Dr. Tim Paine<br>University of California, Riverside    | Henry & Sylvia Richardson Research Grant<br>Dr. Ashfaq Sial<br>UC Kearney Agric. Center                                       |
| Recognition Award in Entomology<br>Dr. Steve Naranjo<br>USDA-ARS, Maricopa, AZ                         | Integrated Pest Management Team Award<br>Potato Tuberworm<br>Oregon State University et al.                                   |
| ESA Recognition Award Physiol/Biochem<br>John Stark, Washington State Univ.                            | Recognition Award in Urban Entomology<br>Dr. Carrie Foss<br>Washington State University                                       |
| STUDENT AWARD WINNERS 2011   | Thomas Say Award<br>Luc Leblanc, University of Hawaii   |
| Comstock Graduate Student Award<br>Casey Butler, UC Riverside  |   |
| ESA Student Activity Award<br>Deane Zahn, UC Riverside   |   |

Tuesday, March 29, continued

## GENERAL POSTER SESSION

8:00 am-5:30 pm

*Queen's 4*

- P13 Effects of Two Key Orchard Fungicides on the Natural Enemy *Deraeocoris brevis* (Uhler) (Hemiptera: Miriadae). Kaushalya G. Amarasekare, Peter W. Shearer & Amanda A. Borel. Oregon State University, Hood River, OR
- P14 *Duponchella fovealis*, a Recent Pest Introduction to the U.S. and a Significant Pest for Ornamental Plant Production. James A. Bethke, UCCE, San Marcos, CA
- P15 The Complex Implementation of an IPM Program for Fresh Market Tomatoes. William G. Carson, Gregory S. Kund, Beatriz Gonzalez, & John T. Trumble, UC Riverside
- P16 Behavioral Responses of Potato Psyllid to Potato Germplasm and Transmission of *Candidatus Liberibacter psyllauros*. Casey D. Butler<sup>1</sup>, Beatriz Gonzalez<sup>1</sup>, Manjunath L. Keremane<sup>2</sup>, Richard F. Lee<sup>2</sup>, Richard G. Novy<sup>3</sup>, J. Creighton Miller, Jr.<sup>4</sup> & John T. Trumble<sup>1</sup>, <sup>1</sup>UC Riverside, <sup>2</sup>USDA-ARS, Riverside, CA, <sup>3</sup>USDA-ARS, Aberdeen, ID, <sup>4</sup>Texas A&M University, College Station, TX
- P17 Laboratory Evaluation of the Chemosterilant Lufenuron Against *Ceratitis capitata*, *Bactrocera dorsalis*, *B. cucurbitae*, and *B. latifrons*. Chiou Ling Chang<sup>1</sup>, Il Kyu Cho<sup>2</sup>, & Qing X. Li<sup>2</sup>, <sup>1</sup>USDA-ARS, Hilo, HI, <sup>2</sup>University of Hawaii at Manoa
- P18 Assessing Impacts of an Invasive Thrips (*Klombothrips myopori*) Infestation on Native *Myoporum* in Hawaii. Cynthia King<sup>1</sup>, Robert Hauff<sup>1</sup>, Leyla V. Kaufman<sup>2</sup> and Mark G. Wright<sup>2</sup>, <sup>1</sup>Hawaii State Division of Forestry and Wildlife, <sup>2</sup>University of Hawaii at Manoa
- P19 Arthropod Pests of Tea (*Camellia sinensis* L.) in Hawai'i. Maria Derval C. Diaz-Lyke, Randall T. Hamasaki & Stuart T. Nakamoto. University of Hawaii at Manoa
- P20 Arthropod Pests of Blueberries in Hawai'i. Maria Derval C. Diaz-Lyke, Randall T. Hamasaki, Andrew Kawabata & Stuart T. Nakamoto. University of Hawaii at Manoa
- P21 Effect of Leaf Volatiles of Pepper, Potato, Tomato and a Commercial Repellent on Behavioral Responses of the Potato Psyllid, *Bactericera cockerelli* (Sulc). John Diaz-Montano, John Trumble, UC Riverside
- P22 Integrating Practices to Manage Spotted Wing *Drosophila*, a New Invasive Pest in Small and Stone Fruits. Amy J. Dreves, Oregon State University, Corvallis, OR

Tuesday, March 29, continued

## GENERAL POSTER SESSION (CONT.)

8:00 am-5:30 pm

*Queen's 4*

- P23 Irradiation for Quarantine Control of Light Brown Apple Moth. Peter Follett, Steve Brown, Kirsten Snook & Mariko Okamura. USDA-ARS, Hilo, Hawaii
- P24 RNA-Seq Analysis of the Oriental Fruit Fly (*Bactrocera dorsalis*). Scott Geib & Tom Walk, USDA-ARS, Hilo, HI
- P25 Establishment of an Economically Viable Celery IPM Program. Beatriz Gonzalez, William G. Carson, Gregory S. Kund & John T. Trumble, UC Riverside
- P26 Mating Disruption of Navel Orangeworm: Results from Five Years of Areawide Control. Bradley S. Higbee<sup>1</sup> & Charles S. Burks<sup>2</sup>, <sup>1</sup>Paramount Farming Company, Bakersfield, CA., <sup>2</sup>USDA-ARS, Parlier CA
- P27 Historic Links: the First Golf Course in Southern Oregon and Tree Fruit Pest Management. Richard J. Hilton, Oregon State University, Central Point, OR
- P28 The Effect of Sex Ratio on Copulation, Sperm Transfer, and Sperm Reserves in a Water Strider. Clayton Houck & Daphne Fairbairn, UC Riverside
- P29 Fruit Flies Used as Carriers of Moth Pheromone for Mating Disruption Control Techniques. Eric Jang, USDA-ARS, Hilo, Hawaii
- P30 Vector Ability and Reproductive Characteristics of *Homalodisca vitripennis* (Germar) (Hemiptera: Cicadellidae) from Geographically Separated Populations in California. Rodrigo Krugner, Mark S. Sisterson & Hong Lin, USDA-ARS, Parlier, CA
- P31 Coffee Berry Borer in Hawai'i. Bernarr R. Kumashiro, Neil J. Reimer & Janis N. Garcia, Hawaii Department of Agriculture, Honolulu, HI
- P32 Developing an IPM Program to Manage Pepper Plant Pests. Gregory S. Kund, William G. Carson & John T. Trumble, UC Riverside
- P33 Effects of Potato Variety and Locality on the Densities of Aphids that Vector Potato Leaf Roll Virus in Southern Idaho. Shaonpius Mondal<sup>1</sup>, Sanford D. Eigenbrode<sup>1</sup>, Pamela J. Hutchinson<sup>2</sup>, Juan Manuel Alvarez<sup>2</sup>, William E. Snyder<sup>3</sup>, Jonathan Whitworth<sup>4</sup> & Nilsa A. Bosque-Pérez<sup>1</sup>, <sup>1</sup>University of Idaho, Moscow ID, <sup>2</sup>University of Idaho, Aberdeen, ID, <sup>3</sup>Washington State University, Pullman, WA, <sup>4</sup>USDA-ARS, University of Idaho, Aberdeen, ID

**GENERAL POSTER SESSION (CONT.)**

8:00 am-5:30 pm

*Queen's 4*

- P34 Survey of Predatory Mites in California Agriculture. Maria Murrietta, David Headrick, California Polytechnic State University, San Luis Obispo, CA
- P35 Pacific Spider Mite Control in the Lower San Joaquin Valley. Stephanie M. Rill<sup>1</sup>, David Haviland<sup>1</sup> & Bradley S. Higbee<sup>2</sup>, <sup>1</sup>UCCE, Kern County, Bakersfield, CA, <sup>2</sup>Paramount Farming Company, Bakersfield, CA
- P36 Effects of Pollen Quality on Honey Bee Nutritional Status, Colony Growth and Immunocompetence. Ramesh Sagili & Carolyn Breece, Oregon State University, Corvallis, OR
- P37 Managing the Invasive *Drosophila suzukii*, a New Pest of Oregon Cherries. Peter W. Shearer, Amanda Borel & Preston Brown, Oregon State University, Hood River, OR
- P38 Entomology Curriculum Australia: A Collaborative Project to Develop Online Entomology Courses. Helen Spafford<sup>1</sup>, David J. Merritt<sup>2</sup>, et al., <sup>1</sup>University of Hawaii at Manoa & University of Western Australia, <sup>2</sup>The University of Queensland
- P39 Spatial Dynamics of Dalmatian Toadflax (*Linaria dalmatica*) and the Stem Mining Weevil *Mecinus janthinus* in the Northwestern United States. Aaron Weed & Mark Schwarzländer, University of Idaho, Moscow, ID
- P40 Community Composition and Structure of Terrestrial Invertebrates in an Altered, Large-River Floodplain of Northern Idaho and Western Montana. Timothy D. Hatten<sup>1</sup> & Norm Merz<sup>2</sup>, <sup>1</sup>Invertebrate Ecology Inc., Moscow, ID, <sup>2</sup>Fish and Wildlife Department, Kootenai Tribe of Idaho, Bonners Ferry, ID
- P41 Field Evaluation Of Insecticides For Managing Gill's Mealybug (*Ferrisia gilli*) In Vineyards. Lynn R. Wunderlich<sup>1</sup> & Kent M. Daane<sup>2</sup>, <sup>1</sup>UCCE, Placerville, CA, <sup>2</sup>UC Berkeley
- P42 Monitoring and Control of European Grapevine Moth, *Lobesia botrana* (Lepidoptera: Tortricidae) in California Vineyards. Lucia G. Varela<sup>1</sup>, Monica L. Cooper<sup>2</sup>, Robert A. Van Steenwyk<sup>3</sup>, <sup>1</sup>UCCE, Santa Rosa, CA, <sup>2</sup>UCCE, Napa, CA, <sup>3</sup>UC Berkeley
- P43 Outreach to Preserve Pheromone Mating Disruption Programs in Oregon and California Pear Orchards. Philip VanBuskirk<sup>1</sup>, Rachel Elkins<sup>2</sup>, Richard Hilton<sup>1</sup>, Kris Lynn-Patterson<sup>3</sup>, Gabriele O'Neil<sup>2</sup>, <sup>1</sup>Oregon State Univ., Central Point, OR, <sup>2</sup>UCCE, Lakeport, CA, <sup>3</sup>UC Kearney Agric. Ctr., Parlier, CA

- P44 Virtual Weather Stations. Ute Chambers, Vince Jones & Gary Grove, Washington State University, Wenatchee, WA

**SYMPOSIUM:****THE INCREASING FREQUENCY OF TEPHRITID OUTBREAKS IN CALIFORNIA: WHAT IS GOING ON?**

8:00 am-12:00

*Kona 4*

Organizer &amp; Moderator: James R. Carey, UC Davis

- 8:00 Opening Remarks. Jim Carey, UC Davis
- 82 8:05 The Recurring Tephritid Outbreaks in California: An Insider's Perspective. Kevin M. Hoffman, California Dept. Food & Agric.
- 83 8:30 Subtropical Fruit fly Invasions into Temperate Fruit Fly Territory in California's San Joaquin Valley. Victoria Y. Yokoyama, USDA-ARS, Parlier, CA
- 84 8:55 Strong Evidence for Medfly California Residency: What Should be Done? James R. Carey, UC Davis
- 85 9:20 Using Genetic Markers to Understand the Origins and Dynamics of Biological Invasions. David Haymer, University of Hawaii at Manoa
- 9:45 BREAK
- 86 10:00 The Global Invasion of the Medfly: Dispersion and Establishment in More Temperate Areas. Nikos T. Papadopoulos, University of Thessaly, Magnisia, Greece
- 87 10:25 Estimating and Optimizing Sensitivity of Detection Trapping Systems for Tephritid Fruit Flies. David Lance, USDA-APHIS-PPQ, Buzzards Bay, MA
- 88 10:50 Capture Probability of Released Males of Two *Bactrocera* Species in Detection Traps in California. T. Shelly<sup>1</sup>, J. Nishimoto<sup>1</sup>, A. Diaz<sup>2</sup>, J. Leathers<sup>2</sup>, M. War<sup>2</sup>, R. Shemaker<sup>2</sup>, M. Al-Zubaidy<sup>2</sup> & D. Joseph<sup>2</sup>, <sup>1</sup>USDA-APHIS, <sup>2</sup>California Dept. of Food and Agriculture
- 89 11:15 The Differential Invasion Potential of Six Medfly Biotypes. Alexandros D. Diamantidis<sup>1,2</sup>, James R. Carey<sup>2</sup>, Christos T. Nakas<sup>1</sup>, Nikos T. Papadopoulos<sup>1</sup>, <sup>1</sup>University of Thessaly, Magnisias, Greece, <sup>2</sup>UC Davis

Tuesday, March 29, continued

**SYMPOSIUM: LESSONS LEARNED WITH NEW TEACHING AND RESEARCH EXPERIENCES FOR UNDERGRADS: WHAT WORKED AND WHAT DIDN'T**

8:00am-12:00

*Kona 1-3 (discussion follows in Queen's 6)*

Organizers and Moderators: Carol Anelli, Washington State University & Catherine Loudon, UC Irvine

- 90 8:00 Group Take-Home Exams: Promise, Pitfalls, and Possible Solutions. Carol Anelli, Corey J. Johnson, Betty Galbraith, Kimberly Green, Washington State University, Pullman, WA
- 91 8:30 Making the Invisible, Visible: Having Students Make and Analyze Movies in a Class. Catherine Loudon, UC Irvine
- 92 9:00 Engaging Non-Major Students in Entomology. Helen Spafford, University of Hawaii at Manoa
- 9:30 BREAK
- 93 9:45 Getting It Right! Lessons Learned from a Unique Undergraduate Summer Research Program. Sujaya Rao, Sandra J. DeBano & Andrew R. Moldenke, Oregon State University
- 94 10:15 Undergraduate Experiences in ARS Research Labs: Perspectives and Opportunities. Eric Jang, USDA-ARS, Hilo, HI

**SYMPOSIUM: HAWAIIAN INSECT DIVERSITY: BIOLOGY MEETS CONSERVATION MANAGEMENT**

8:00 am-12:00

*Monarchy*

Organizer & Moderator: James K. Liebherr, Cornell University

- 8:00 Opening Remarks: James Liebherr, Cornell University
- 95 8:10 Conservation Status of the Hawaiian Picture-Wing *Drosophila*. Karl Magnacca, University of Hawaii at Hilo
- 96 8:35 Strengths and Weaknesses of Species-Centric Conservation Practices for Insects: A Hawaiian Case Study Using the Wekiu Bug. Jesse Eiben, University of Hawaii at Manoa
- 97 9:00 Contrasting Patterns of Population Structure in Eight Species of Congeneric Hawaiian Leafroller Moths (Omiodes: Crambidae). William Haines, University of Hawaii at Manoa

Tuesday, March 29, continued

**SYMPOSIUM: HAWAIIAN INSECT DIVERSITY (CONT.)**

8:00 am-12:00 • *Monarchy*

- 98 9:25 Biogeography and Biodiversity of Arthropods from Ohia Lehua (*Metrosideros polymorpha*), Foundation of Hawaiian Forests. Dan Gruner, University of Maryland, College Park, MD
- 9:50 BREAK
- 99 10:05 Keep Your Friends Close and Your Enemies Closer: Recent Progress in Studies of Behavioral Ecology of Invasive Predators in Hawaii. Brenden Holland, University of Hawaii at Manoa
- 100 10:30 Abundance is a Virtue: Megadiverse Endemic Lineages Should Guide Conservation. Daniel Rubinoff, University of Hawaii at Manoa
- 101 10:55 The Role of Invasive Insects in Conserving Native Hawaiian Insect Biodiversity: What is Known and What is Needed. Paul Krushelnycky, University of Hawaii at Manoa
- 102 11:20 Native Hawaiian Carabid Beetles: Their Relative Persistence and Utility for Conservation Management. James Liebherr, Cornell University
- Discussion session, *Queen's 6*, 1:30 - 5:30 pm

**10-MIN PAPER PRESENTATIONS - INSECT IPM AND CONTROL**

8:00 am-3:06 pm

*Queen's 5*

Moderators AM: Lisa Neven, USDA, ARS, Wapato, WA & Alec Gerry, UC Riverside

Moderators PM: Harvey Yoshida & Boris Castro, Dow AgroSciences

- 103 8:00 A Major Caneboring Pest of Raspberry in the Intermount West, Raspberry Horntail, *Hartigia cressoni* (Hymenoptera: Cephidae). Diane G. Alston and Brent Black, Utah State University, Logan, UT,
- 104 8:12 Spring Stubble Insecticide Applications in Alfalfa as a Way of Managing the Threecornered Alfalfa Tree Hopper, *Spissistilus festinus*. Vonny M. Barlow, University of California ANR, Blythe, CA
- 105 8:24 Scolytinae (Coleoptera: Curculionidae) Attacking Coffee Berries in Hawai'i. Elsie G. Burbano & Mark G. Wright, University of Hawaii at Manoa
- 106 8:36 Implementation of Database Management and Analysis Pipeline for Oriental Fruit Fly Genomics Research. Thomas C. Walk & Scott M. Geib, USDA-ARS, Hilo, HI

Tuesday, March 29, continued

10-MINUTE IPM & CONTROL PAPERS, continued  
*Queen's 5*

- 107 8:48 Control of Onion Thrips in Dry Bulb Onions in Washington State. Tim Waters<sup>1</sup> & Doug Walsh<sup>2</sup>, <sup>1</sup>Washington State University, Pasco, WA, <sup>2</sup>Washington State University, Prosser, WA
- 108 9:00 Insect Pest Response to Conservation Tillage in Sugar Beets. Erik J. Wenninger & Kristin Daku, University of Idaho, Twin Falls, ID
- 109 9:12 Spotted Wing Drosophila Observations in Commercial Blueberry and Wine Grapes in the Willamette Valley of Oregon. Vaughn Walton<sup>1</sup>, Daniel Dalton<sup>1</sup>, Sam Tochen<sup>1</sup>, Denny Bruck<sup>2</sup>, Doug Walsh<sup>3</sup>, Peter Shearer<sup>1</sup>, Preston Brown<sup>4</sup>, <sup>1</sup>Oregon State University, <sup>2</sup>USDA-ARS Corvallis, Oregon, <sup>3</sup>Washington State University, Prosser, WA
- 110 9:24 Status of Grape-Infesting Mealybug Species and Associated Leafroll Viruses in Wine-Producing Regions of Oregon. Daniel Dalton<sup>1</sup>, Vaughn Walton<sup>1</sup>, Rick Hilton<sup>2</sup>, Marcus Buchanan<sup>2</sup>, Clive Kaiser<sup>3</sup>, Kent Daane<sup>4</sup>, Rodrigo Almeida<sup>5</sup>, Robert Martin<sup>6</sup>, Jocelyn Millar<sup>7</sup>, <sup>1</sup>Oregon State University, Corvallis, Oregon, <sup>2</sup>Oregon State University, Central Point, OR, <sup>3</sup>Oregon State University, Milton-Freewater, OR, <sup>4</sup>UC Berkeley, <sup>5</sup> UC Berkeley, <sup>6</sup>USDA-ARS, Corvallis, OR, <sup>7</sup>UC Riverside
- 9:36 BREAK
- 111 9:51 Effect of Methyl Salicylate Lures on Typhlodromus pyri (Acari: Phytoseiidae) and Other Natural Enemies in Vineyards. Angela N. Gadino<sup>1</sup>, Vaughn. M. Walton<sup>1</sup>, Jana Lee<sup>2</sup>, <sup>1</sup>Oregon State University, Corvallis, OR, <sup>2</sup>USDA-ARS, Corvallis OR
- 112 10:03 Monitoring House Fly Activity on Commercial Dairy Operations: The Start of a Dairy IPM Program. Alec C. Gerry<sup>1</sup>, Gerald E. Higginbotham<sup>2</sup>, Christian R. Shelton<sup>3</sup>, <sup>1</sup>UC Riverside, <sup>2</sup> UCCE, Fresno, CA, <sup>3</sup> UC Riverside
- 113 10:15 Improved Management of Cotton Aphids in Cotton and Citrus: Importance of Overwintering Populations in Pomegranates. Larry D. Godfrey<sup>1</sup>, Elizabeth Grafton-Cardwell<sup>2</sup>, Kris Lynn-Patterson<sup>3</sup>, Kristine E. Godfrey<sup>4</sup>, Treanna Pierce<sup>5</sup>, Janine Lee<sup>2</sup> & Evan Goldman<sup>1</sup>, <sup>1</sup>UC Davis, <sup>2</sup>UC Riverside, <sup>3</sup>Kearney Agricultural Center, Parlier, CA, <sup>4</sup>California Dept. of Food & Agriculture, Sacramento, CA, <sup>5</sup>Univ. of California, Shafter, CA
- 114 10:27 Mealybugs and Viruses in Washington State Vineyards. Brian Bahder & Doug Walsh, Washington State Univ., Prosser, WA.

Tuesday, March 29, continued

10-MINUTE IPM & CONTROL PAPERS, cont., *Queen's 5*

- 115 10:39 Effect of Radio Frequency Treatments on Cowpea Weevil Adults. Judy A. Johnson<sup>1</sup>, Shaojin Wang<sup>2</sup>, Shunshan Jiao<sup>2</sup>, Juming Tang<sup>2</sup>, <sup>1</sup>USDA-ARS, Parlier, CA, <sup>2</sup> Washington State University, Pullman, WA
- 116 10:51 Differential Scanning Calorimetry as a Tool for Studying Insect Metabolism. Lisa G. Neven<sup>1</sup>, Lee D. Hansen<sup>2</sup>, <sup>1</sup>USDA-ARS, Wapato, WA, <sup>2</sup>Brigham Young University, Provo, UT
- 117 11:03 Insecticide Resistance in the Western Tarnished Plant Bug. Laura Corley Lavine<sup>1</sup>, Keriann Bennett<sup>1</sup>, David Hawthorne<sup>2</sup> & Douglas Walsh<sup>1</sup>, <sup>1</sup>Washington State University, <sup>2</sup>University of Maryland
- 118 11:15 Activity Profiles of Neonicotinoids in Crops and their Relevance to Pest Control. S.J. Castle<sup>1</sup>, J.P. Palumbo<sup>2</sup>, N. Prabhaker<sup>3</sup>, <sup>1</sup>USDA-ARS, Maricopa, AZ, <sup>2</sup>University of Arizona, Yuma, AZ, <sup>3</sup>UC Riverside
- 119 11:27 Targeting Invasive Species with SPLAT Attract & Kill. Agenor Mafraneto<sup>1</sup>, Lyndsie Stoltman<sup>1</sup>, Carmem Bernardi<sup>1</sup>, Diego Zeni<sup>1</sup>, Lisiane Perez Silva<sup>1</sup>, Marcos Botton<sup>2</sup>, Odimar Zanardi<sup>2</sup>, Leandro Mafra<sup>3</sup>, Rafael Borges<sup>3</sup> & Roger Vargas<sup>4</sup>, <sup>1</sup>ISCA Technologies, Riverside, CA, <sup>2</sup>Centro Nacional de Pesquisa de Uva e Vinho, Brazil, <sup>3</sup>ISCA Tecnologias, Brazil, <sup>4</sup>USDA ARS, Hilo, HI
- 120 11:39 Evaluation of Altacor and Delegate for Control of Codling Moth in Problematic Edges of Walnut Orchards under Pheromone Mating Disruption. L.M. Novotny & R.A. Van Steenwyk, UC Berkeley
- 121 11:51 Reduction of Pesticide Inputs for Control of European Corn Borer in Bell Pepper using Coragen® Via Drip Irrigation. Gerald M. Ghidui & Daniel L. Ward, Rutgers University, Bridgeton, NJ
- 12:03 LUNCH
- 122 1:30 Athena™ - A New Insecticide / Miticide from FMC Corporation. Leland W. Learned, Rusty Mitchell, Curtis Sandberg, Robert Hooten & Robert Leifker, FMC Corp., Philadelphia, PA
- 123 1:42 Beleaf®, A New Class of Insecticide for Piercing and Sucking Insects with Soft Activity on Beneficials. Robert Hooten, Leland W. Learned, Curtis Sandberg & Robert Leifker, FMC Corp., Philadelphia, PA
- 124 1:54 Stallion®, An Insecticide Offering with Two Modes of Action To Prevent Insect Resistance in Several Crops. Robert Hooten, Leland W. Learned, FMC Corp., Philadelphia, PA



10-MINUTE IPM & CONTROL PAPERS, cont., *Queen's 5*

- 125 2:06 Thiamethoxam and Cyantraniliprole Soil Applications: A Novel Broad Spectrum At-Planting Insecticide for Potato Production. Christopher G Clemens<sup>1</sup>, Caydee Savinelli<sup>2</sup>, <sup>1</sup>Syngenta Crop Protection, LLC, Richland, WA, <sup>2</sup>Syngenta Crop Protection, LLC, Greensboro, NC
- 126 2:18 The Role of Systemic Insecticides in the Management of Vine Mealybug (*Planococcus ficus*). N. Prabhaker<sup>1</sup>, S. J. Castle<sup>2</sup>, D.R. Haviland<sup>3</sup>, W.J. Bentley<sup>4</sup> & T. M. Perring<sup>1</sup>, <sup>1</sup>UC Riverside, <sup>2</sup>USDA-ARS Maricopa, AZ, <sup>3</sup>UCCE, Kern County, CA, <sup>4</sup>UCCE, Kern County, CA
- 127 2:30 Management of Aphids, Plant Bugs and Whiteflies on Western U.S. Cotton with Dow Agrosciences' Sulfoxaflor Insecticide. Boris A. Castro<sup>1</sup>, Jesse M. Richardson<sup>1</sup>, James Thomas<sup>1</sup>, Peter C. Ellsworth<sup>2</sup>, Larry Godfrey<sup>3</sup>, David L. Kerns<sup>4</sup>, <sup>1</sup>Dow AgroSciences LLC, Indianapolis, IN, <sup>2</sup>University of Arizona, Maricopa, AZ, <sup>3</sup>UC Davis, CA, <sup>4</sup>Texas AgriLife Extension, Lubbock, TX
- 128 2:42 Sulfoxaflor: A New SAP-Feeding Insecticide. Harvey Yoshida<sup>1</sup>, James Thomas<sup>2</sup>, Brian Olson<sup>3</sup>, Jon Babcock<sup>2</sup>, John Richburg<sup>4</sup>, Ian Denholm<sup>5</sup>, Kevin Gorman<sup>5</sup>, <sup>1</sup>Dow AgroSciences, Richland, WA, <sup>2</sup>Dow AgroSciences, Indianapolis, IN, <sup>3</sup>Dow AgroSciences, Geneva, NY, <sup>4</sup>Dow AgroSciences, Headland, AL <sup>5</sup>Rothamsted Research, Hertfordshire, UK
- 129 2:54 Sulfoxaflor Performance on Aphids in Western Vegetables. Jesse Richardson<sup>1</sup>, B Castro<sup>1</sup>, J.C. Palumbo<sup>2</sup>, J. P. Mueller<sup>1</sup>, J. D. Thomas<sup>1</sup>, <sup>1</sup>Dow AgroSciences, Indianapolis, IN, <sup>2</sup>Univ. Arizona

**10-MIN PAPER PRESENTATIONS -  
INSECT BEHAVIOR AND CONSERVATION**

8:00 am-3:54 pm

*King's 2*

Moderators AM: Amanda Ramsey, Scentry Biologicals & Leyla Kaufman, UH-Manoa  
Moderators PM: Alexandra Harmon-Threatt, UC Berkeley & Akito Kawahara, UH-Manoa

- 130 8:00 The Samoan Swallowtail Butterfly *Papilio godeffroyi* in the Samoan Archipelago: Status and Conservation. Lainie Berry<sup>1</sup>, S. Turnbull<sup>1</sup>, E. Edwards<sup>2</sup>, B. Patrick<sup>2</sup>, <sup>1</sup>American Samoa Government, <sup>2</sup>New Zealand Butterfly Enterprises
- 131 8:12 Distribution and Abundance of Endemic Drosophilidae in the Hawaiian Forest and Agricultural Environments. Luc Leblanc & Daniel Rubinoff, University of Hawaii at Manoa

## 10-MINUTE INSECT BEHAVIOR &amp; CONSERVATION PAPERS, cont.

8:00 am-12:00

*King's 2*

- 132 8:24 Two New Species of Robber Flies of the Tribe Stichopogonini (Diptera: Asilidae) from Remote Islands of the Pacific. Limb Kemp Mataute Hapirai<sup>1,2</sup> & Charles Riley Nelson<sup>1</sup>, <sup>1</sup>Brigham Young University, Provo, Utah, <sup>2</sup>Institut Louis Malardé, Papeete, Tahiti
- 133 8:36 Analysis of Vertical Distributions and Effective Flight Layers of Insects: 3-D Simulations of Flying Insects and Catch at Trap Heights. John A. Byers, USDA-ARS, Maricopa, Arizona
- 134 8:48 Quantifying and Analyzing the Mosquito Dance in Mating Swarms. Nicholas C Manoukis<sup>1</sup>, Sachit Butai<sup>2</sup>, Derek Paley<sup>2</sup>, Alpha S Yaro<sup>3</sup>, Moussa Diallo<sup>3</sup>, Sékou F Traoré<sup>3</sup>, Adama Dao<sup>3</sup>, Tovi Lehmann<sup>4</sup> & José MC Ribeiro<sup>4</sup>, <sup>1</sup>USDA-ARS, Hilo HI, <sup>2</sup>University of Maryland, College Park, MD, <sup>3</sup>Université de Bamako, Mali, <sup>4</sup>NIAID/NIH, Rockville MD.
- 135 9:00 *Aedes japonicus japonicus*: A New Mosquito in Hawaiian Bird Habitat and its Potential as a Vector of Avian Malaria. Dennis A. LaPointe, US Geological Survey, Hawaii National Park, HI
- 136 9:12 Release of Sterile Codling Moth to Challenge Mating Disruption Technologies in Commercial Orchards. Jay F. Brunner, Michael D. Doerr, Washington State University, Wenatchee, WA
- 137 9:24 Response of Summerform Pear Psylla (Hemiptera: Psyllidae) to Male- and Female-Produced Odors. Christelle Guédot, David R. Horton & Peter J. Landolt, USDA-ARS, Wapato, WA
- 9:36 BREAK
- 138 9:51 Interaction of Acetic Acid and Ethanol as Attractants for the Spotted Winged Drosophila, *Drosophila suzukii*, (Diptera: Drosophilidae). Peter J. Landolt<sup>1</sup>, Todd Adams<sup>2</sup> & Helmuth Rogg<sup>2</sup>, <sup>1</sup>USDA, ARS, Wapato, WA, <sup>2</sup>Oregon State Dept. of Agric., Salem, OR
- 139 10:03 Development of Monitoring and Control Devices for Invasive Species and Exotic Fruit Flies. Amanda Ramsey<sup>1</sup>; Eric Jang<sup>2</sup>; Lori Carvalho<sup>2</sup>, Mike Doerr<sup>3</sup>, Jay Brunner<sup>3</sup>, & Jocelyn Millar<sup>4</sup>, <sup>1</sup>Scentry Biologicals, Inc. Billings, MT, <sup>2</sup>USDA-ARS, Hilo, HI, <sup>3</sup>Washington State University Wenatchee, WA, <sup>4</sup>UC Riverside CA
- 140 10:15 Feeding Preference and Impact on an Invasive Weed (*Crepis tectorum* L.) by a Native, Generalist Grasshopper, *Melanoplus borealis* (Orthoptera: Acrididae). Dennis Fielding, USDA-ARS, Fairbanks AK

## 10-MINUTE INSECT BEHAVIOR &amp; CONSERVATION PAPERS, cont.

*King's 2*

- 141 10:27 Lethal Effects of New Generation Pesticides on the Convergent Ladybird Beetle (*Hippodamia convergens*). Lisa Fernandez & Nicholas J. Mills, UC Berkeley
- 142 10:39 Deadly Ambrosia Beetles: Sudden Emergence of Pathogenicity in Insect-Fungus Symbiosis and a Catastrophic Future for Naïve Forest Ecosystems. Jiri Hulcr & Rob R. Dunn, N. C. State University, Raleigh, NC
- 143 10:51 Widespread Native or Cryptic Invader? Phylogeography of the Pacific Ant, *Tetramorium pacificum* Mayr. Andrea Lucky, Robert R. Dunn, North Carolina State University, Raleigh, NC
- 144 11:03 When "Leaving a Light On for You" is Not Welcoming: Protection of Young Cacao Orchards from Chinese Rose Beetle Defoliation. Grant T. McQuate, USDA-ARS, Hilo, HI
- 145 11:15 Pre and Post Release Monitoring of *Eurytoma erythrinae* and Gall Wasp Populations on Exotic *Erythrina* Species in Hawaii. Leyla V. Kaufman<sup>1</sup>, Juliana Yalamar<sup>2</sup>, Mark G. Wright<sup>1</sup>, Russell H. Messing<sup>1</sup>, Daniel Rubinoff<sup>1</sup>, <sup>1</sup>University of Hawaii at Manoa, <sup>2</sup>Hawaii Department of Agriculture
- 146 11:27 Post Release Evaluation of the Impacts of the Eurytomid Parasitoid on *Erythrina* Gall Wasp and the Native Wiliwili. Juliana Yalamar<sup>1</sup>, Leyla Kaufman<sup>2</sup>, Cynthia King<sup>3</sup>, <sup>1</sup>Hawaii Department of Agriculture, <sup>2</sup>University of Hawaii at Manoa, <sup>3</sup>DLNR, Honolulu, HI
- 147 11:39 *Syphraea uberabensis*: A Potential Insect Biocontrol for Invasive Melastomes. Erin Raboin<sup>1</sup>, Steve Souder<sup>2</sup> & M. Tracy Johnson<sup>1</sup>, <sup>1</sup>USDA Forest Service, Volcano, HI, <sup>2</sup>USDA ARS, Hilo, HI
- 148 11:51 Risk Assessment of Eucalyptus-Feeding Insects as an Ecoterrorism Weapon. Matan Shelomi, UC Davis

12:03 LUNCH

*Kona 1-3 (afternoon room change)*

- 149 1:30 Evidence for an Egestion Mechanism of Inoculation of a Semipersistently Transmitted Closterovirus by its Aphid Vector. Sean Pelham<sup>1</sup> and G. P. Walker<sup>2</sup>, <sup>1</sup>USDA-ARS, Parlier CA, <sup>2</sup>UC Riverside
- 150 1:42 Short-Term Physiological Response of a Native Hawaiian Hibiscus Plant to Injury by the Exotic *Sophonia* Leafhopper. Kirsten Snook<sup>1</sup>, William O. Lamp<sup>2</sup> & Peter A. Follett<sup>1</sup>, <sup>1</sup>USDA-ARS, Hilo, Hawaii, <sup>2</sup>University of Maryland, College Park, MD

## 10-MINUTE INSECT BEHAVIOR &amp; CONSERVATION PAPERS, cont.

*Kona 1-3*

- 151 1:54 An Extraordinary Radiation of Hawaiian Purse-Cased Hyposmocoma (*Lepidoptera: Cosmopterigidae*). Akito Y. Kawahara & Daniel Rubinoff, University of Hawai'i at Manoa
- 152 2:06 Eating Flies: Parasitoids of Tephritidae and Drosophilidae. Robert A. Wharton, Texas A&M University, College Station, TX
- 153 2:18 Saving Wiliwili-Part 2: Fortuitous Biocontrol of *Specularius impressithorax* (*Coleptera: Bruchinae*) on *Erythrina* Seeds. Mohsen M. Ramadan<sup>1</sup> & Alex V. Gumovsky<sup>2</sup>, <sup>1</sup>State of Hawaii Department of Agriculture, Honolulu, HI, <sup>2</sup>Schmalhausen Institute of Zoology, Kiev, Ukraine
- 154 2:30 Analysis of Factors Associated with Successful Establishment of Hymenoptera Introduced to Hawaii as Biological Control Agents. Mark G. Wright, Adam E. Vorsino, Leyla V. Kaufman, University of Hawaii at Manoa
- 155 2:42 Honey Bee Swarms' Group Decision-Making Involves Cross Inhibition Signals, Similar to Vertebrate-Brain Decision-Making. P. Kirk Visscher<sup>1</sup>, Thomas D. Seeley<sup>2</sup>, Thomas Schlegel<sup>3</sup>, James A. R. Marshall<sup>4</sup>, <sup>1</sup>UC Riverside, <sup>2</sup>Cornell University, Ithaca, NY, <sup>3</sup>University of Bristol, Bristol, UK, <sup>4</sup>University of Sheffield, Sheffield, UK.
- 156 2:54 A Contrary Perspective to Bumble Bee Declines: The Oregon Experience. Sujaya Rao & W. P. Stephen, Oregon State University, Corvallis OR
- 157 3:06 Coarse-Scale Survey of Bumble Bees (*Hymenoptera: Bombus*) Along Several Highways of British Columbia and Yukon Territory, Canada. Timothy D. Hatten<sup>1</sup>, Jill M. Maxwell<sup>1</sup> & James P. Strange<sup>2</sup>, <sup>1</sup>Invertebrate Ecology Inc., Moscow, ID, <sup>2</sup>USDA-ARS, Utah State University, Logan, UT
- 158 3:18 Preference of Native or Invasive Plants by Native *Bombus* Influenced by Nutrition and Availability. Alexandra Harmon-Threatt & Claire Kremen, UC Berkeley
- 159 3:30 Mark-Release-Recapture and Pterin-Based Estimates of Survival and Density of Canyon Flies in the Field. Bradley A. Mullens, Alesha N. Diniz, Diane Soto & Alec C. Gerry, UC Riverside
- 3:42 BREAK

10-MINUTE INSECT BEHAVIOR & CONSERVATION PAPERS, cont.

*Kona 1-3*

- 160 3:42 Spotted Wing Drosophila Host Suitability Index for Several California Fresh Fruits. David Bellamy & Spencer Walse, USDA-ARS Parlier, CA (cancelled)

**SYMPOSIUM**

**INVADED! IMPLICATIONS OF COFFEE BERRY BORER IN HAWAII AND PROSPECTS FOR ITS MANAGEMENT**

1:40-5:30 pm

*Monarchy*

Organizers: Robert Hollingsworth & Eric Jang, USDA-ARS, Hilo, HI

- 1:40 Welcome and Introduction. Robert Hollingsworth
- 161 1:45 The Coffee Berry Borer: An Overview. Fernando Vega, USDA-ARS, Beltsville, MD
- 162 2:25 Detection, Rapid Response, and Containment of Coffee Berry Borer, a New Threat to Coffee Production in Hawaii. Neil Reimer, Hawaii Dept. of Agriculture, Honolulu, HI
- 163 2:45 Industry Response and Implementation to Coffee Berry Borer in Hawaii. Dan Kuhn, P.O. Box 250, Kualapu'u, HI
- 164 3:00 Coffee Berry Borer: Scrambling for Answers in Hawaii's Unique Agro-Ecosystems. Russell Messing, University of Hawaii at Manoa
- 165 3:20 Trapping in Coffee Berry Borer Management. Mark G. Wright, University of Hawaii at Manoa
- 3:40 BREAK
- 166 4:00 A View From the Trenches: A Kona Coffee Farmer's Perspective on the Invasion. Suzanne Shriner, Lion's Gate Farms, Honaunau, HI
- 167 4:15 Beauvaria and Other Fungi: Tools to Manage Coffee Berry Borer, Not Magic Bullets. Stefan Jaronski, USDA-ARS, Sidney, MT
- 168 4:55 Prospects for Area-Wide Management of CBB in Hawaii. Eric Jang, USDA-ARS, Hilo, HI

**SYMPOSIUM**

**OUR CONTRIBUTIONS: HOW GRADUATE STUDENT RESEARCH IS IMPROVING INTEGRATED PEST MANAGEMENT**

1:30-5:00 pm

*Kona 4*

Organizer & Moderator: Deane Zahn, UC Riverside

- 1:30 Introductory Remarks. Deane Zahn, UC Riverside
- 169 1:35 Larval Mosquito Control as Part of Integrated Mosquito Management. Jennifer Henke, UC Riverside
- 170 2:00 Prominent Professors Youthful Beginnings: The Graduate Work of Big Names in IPM. Meredith Censer, UC Davis
- 171 2:25 Evaluating the Impact of Graduate Student Contributions to IPM: A "Phylogenetic" Approach. Emily J. Symmes, UC Davis
- 172 2:50 Advancement of Molecular Methods in IPM. Deane K. Zahn & Jennifer A. Wright, UC Riverside
- 173 3:15 To Spray or Not to Spray? Evaluating Non-Target Impacts on Bumble Bee Pollinators. Kimberly M. Skyrn, Sujaya Rao & Glenn C. Fisher, Oregon State University, Corvallis, OR
- 3:40 BREAK
- 174 4:00 The Complicated Nature of Using Native Species for Biocontrol. Adena M. Why & William E. Walton, UC Riverside
- 175 4:25 Electrical Penetration Graph (EPG) as a Tool to Develop IPM Strategies in Vegetable Crops: Case Study of *Bactericera cockerelli* and Zebra Chip. Cole C. Pearson<sup>1,3</sup>, Elaine A. Backus<sup>2</sup>, John J. Brown<sup>3</sup> & Joseph E. Munyaneza<sup>1</sup>, <sup>1</sup>USDA-ARS, Wapato, WA, <sup>2</sup>USDA-ARS, Parlier, CA, <sup>3</sup>Washington State University, Pullman, WA
- 4:50 Final Remarks. Deane Zahn, UC Riverside

**Tuesday Evening, March 29**

**5:30-6:30 pm • Monarchy**

Plenary Session with Jesse Eiben, PhD Student, UH Manoa (see next page)

**"Life and Times of the Wekiu Bug"**

**6:30-7:30 pm • Monarchy**

Student Careers Session with David Cox (moderator) and a panel of recent graduates, "Their Journey to Finding a Job". Refreshments will be served

## Tuesday Evening, March 29

### “LIFE AND TIMES OF THE WEKIU BUG

**Jesse Eiben**

**PhD Student, University of Hawaii at Manoa**

There are innumerable examples in the insect world of species that are living marvels of evolutionary adaptation. But there are relatively few insects that receive attention from non-entomologists. Much to the detriment of the perception of insects and entomology, however, the public-at-large most often identifies insects as pests of home or farm, on TV as odd documentary subjects or forensic evidence on the crime-show du jour, or as the spotlight of an occasional environmental law controversy.

The wēkiu bug, *Nysius wekiuicola*, is one of those few aforementioned insects that have found its way into public notoriety due to its unique evolutionary characteristics and legal designation as a Candidate for Listing under the Endangered Species Act (ESA). It was described in the early 1980s from a putatively barren and lifeless alpine desert environment. The wēkiu bug is only found in the summit region of Mauna Kea on the island of Hawaii above 11,000ft, and it depends wholly on wind blown, gravity deposited insect prey from much lower elevations.

The wēkiu bug's ancestral lineage in Hawaii is comprised of herbivorous seed bugs in the cosmopolitan genus *Nysius*. Hawaii holds a full quarter of the world's *Nysius* species, and the morphological diversity seen on these islands is greater than the rest of the world's species. The wēkiu bug appears to be the strangest of these species, with elongated legs, micropterous flightlessness, carnivorous feeding, and the ability to survive extremes in temperature, blanketing snowfall, drastic fluxes in water availability and solar radiation.

Without formal investigation, the wēkiu bug gained much attention when it was described as rare in the early 1990's, and its odd life history was aggrandized by the media and books. Prior to the ESA petition, the only formal scientific manuscripts published on the wēkiu bug were its species description by Ashlock and Gagné in 1983 and an investigation in 1991 into supercooling abilities of three arthropod species found at near the summit of Mauna Kea. There have been repeated and more formal efforts to study the wēkiu bug over the past 10 years, mostly spurred by legal requirements for the University of Hawaii and the State to better manage the land in the Mauna Kea Science Reserve (MKSr), comprising the only known wēkiu bug habitat.



**5:30-6:30 pm • Monarchy**

## Wednesday, March 30

**Registration 7:00-10:00 am**

**Final Business Meeting 7:30-8:30 am • Queen's 5**

### **SYMPOSIUM: WHAT'S NEW IN INDUSTRY**

8:30 am-12:00 pm

*Kona 4*

Organizers: Jesse Richardson, Dow AgroSciences & Chris Clemens, Syngenta

- 176 8:30 Nealta™: A Novel BASF Acaricide for Crop Protection. Tommy Wofford & Venkat Pedibhotla, BASF Corporation, Research Triangle Park, NC
- 177 8:42 Bayer CropScience Insect Management Update. Dean Christie, Bayer CropScience, Spokane, WA
- 178 8:54 Dow AgroSciences Insect Management Update. Jesse M. Richardson, Dow AgroSciences, Hesperia, CA
- 179 9:06 Dow AgroSciences Urban Pest Management Business New Product Update. M. Lees, Dow AgroSciences, Granite Bay, CA
- 180 9:18 Biological Attributes of Cyazypyr™ (DPX-HGW86, Cyantraniliprole): A Novel Cross-Spectrum Anthranilic Diamide Insecticide. Hector E. Portillo, DuPont Crop Protection, Newark, DE
- 181 9:30 What's New From FMC. Leland W. Learned & Robert Hooten, FMC Corporation, Philadelphia, PA
- 9:42 BREAK
- 182 9:57 Marrone Bio Innovations Insect Management Update. Lisa Chanbusarakum, Marrone Bio Innovations, Davis, CA
- 183 10:09 Nichino America's Tofenpyrad Update. Allison Walston, Nichino America, The Dalles, OR
- 184 10:21 Syngenta Crop Protection Industry Update: Lawn and Garden Insecticides. D.L. Cox<sup>1</sup>, S.W. Cosky<sup>2</sup>, D.K. Mosdell<sup>3</sup> & E.M. Roper<sup>4</sup>, Syngenta Crop Protection: <sup>1</sup>Madera, CA, <sup>2</sup>Greensboro, NC, <sup>3</sup>Newberry Park, CA, <sup>4</sup>Provo, UT
- 185 10:33 Syngenta Crop Protection Industry Update: Crop Protection Insecticides. Marty Schraer, Syngenta Crop Protection, Meridian, ID
- 186 10:45 Gowan Co. Insect Management Update. G. Melchior, Walla Walla, WA
- 187 10:57 BELAY® Insecticide, New Crop Registrations. Mike Ansolabehere, Valent U.S.A. Corporation, Fresno, CA

Wednesday, March 30, continued

**SYMPOSIUM:  
POPULATION PERSPECTIVES IN INSECT ECOLOGY:  
MODELS AND DATA**

8:30 am-12:00 pm

*Kona 5*

Organizer and Moderator: John E. Banks, University of Washington

8:30 Introduction: John E. Banks, University of Washington

- 188 8:35 Management of Insect-Transmitted Plant Pathogens: Defining Conditions for Successful Roguing with a Simulation Model. Mark S. Sisterson, USDA-ARS, Parlier, CA
- 189 9:00 Parasitoids and Ecological Risk Assessment: Using Life History Data to Predict Population Responses to Pesticides. John E. Banks<sup>1</sup>, John D. Stark<sup>2</sup>, Roger Vargas<sup>3</sup>, & Azmy S. Ackleh<sup>4</sup>, <sup>1</sup>University of Washington, Tacoma, WA, <sup>2</sup>Washington State University, Puyallup, WA, <sup>3</sup>USDA-ARS, Hilo, HI, <sup>4</sup>University of Louisiana at Lafayette
- 190 9:25 Use of Population Models for Protection of Biocontrols in IPM and Endangered Species. John D. Stark<sup>1</sup>, John E. Banks<sup>2</sup>, & Roger Vargas<sup>3</sup>, <sup>1</sup>Washington State University, Puyallup, WA, <sup>2</sup>University of Washington, Tacoma, WA, <sup>3</sup>USDA-ARS, Hilo, HI
- 191 9:50 Life Table Based Assessment of the Impact of a Classical Biological Control Program for Bemisia tabaci in Arizona. Steven E. Naranjo<sup>1</sup>, Shujuan Li<sup>2</sup>, <sup>1</sup>USDA-ARS, Maricopa, AZ, <sup>2</sup>University of Arizona, Maricopa, AZ
- 192 10:15 Spatial and Temporal Dynamics of Predator Responses to Variable Prey Density: Lady Beetles and Aphids. Edward W. Evans, Utah State University, Logan, UT
- 192.5 10:40 Dipteran Parasitoids Enforce Periodic Population Dynamics of Grasshoppers in Subarctic Regions. Dennis Fielding, USDA-ARS, Fairbanks, AK
- 11:05 Discussion

**INSECT PHOTO SALON**

9:30-10:30 am

*Queen's 5*

Organizer and Moderator: Helen Spafford, University of Hawaii at Manoa

Presentation of photos selected from over 80 entries, including Best in Show, Best Student Photo and the Delegates Award

Wednesday, March 30, continued

**SYMPOSIUM: INTEGRATED STRATEGIES FOR ALIEN PREDATORS  
IN CONSERVATION LANDS OF THE PACIFIC**

8:30 am-12:00 pm • *Monarchy*

Organizers: David Foote, USGS, Volcano, HI & Cause Hanna, UC Berkeley

- 8:30 Welcome and Introduction. David Foote and Cause Hanna
- 193 8:45 Past, Current, and Future Threats of Social Hymenoptera Invading Hawaii. Neil Reimer, Hawaii Department of Agriculture
- 194 9:00 Case History of the Impacts and Control of Invasive Invertebrates in New Zealand. Jacqueline Beggs, University of Auckland, NZ
- 195 9:15 Ecological Effects of Vespula pensylvanica on Hawaii Arthropods. Erin Wilson, University of Maryland
- 196 9:30 Short and Long Term Control of the Western Yellowjacket Wasp (Vespula pensylvanica) in Hawaii by Toxic Baiting. Cause Hanna, UC Berkeley, David Foote, USGS Hawaii, Claire Kremen, UC Berkeley
- 9:45 BREAK
- 197 10:00 Attractants and Baits for Pestiferous and Social Wasps. Peter Landolt, USDA-ARS, Wapato, WA
- 198 10:15 Ecology and Genetics of the Invasive Argentine Ant. Andrew Suarez, University of Illinois, Urbana, IL
- 199 10:30 Management of Little Fire Ants (Wasmannia auropunctata) in the Pacific. Cas Vanderwoude, University of Hawaii, Sheri Mann, DLNR, Hawaii
- 200 10:45 Assessing the Incursion of Alien Ants Within the National Park of American Samoa. Robert Peck<sup>1</sup> & Paul Banko<sup>2</sup>, <sup>1</sup>University of Hawai'i at Hilo, <sup>2</sup>USGS, Hawai'i National Park
- 201 11:00 PIAKEY: Interactive Identification Guide to Invasive Ants of the Pacific Islands. Eli Sarnat, University of Illinois
- 202 11:15 Long-term Studies of Threats to the Palila, an Endangered Forest Bird on Mauna Kea, Hawaii. Paul C. Banko<sup>1</sup>, Chris Farmer<sup>2</sup> & Kevin Brinck<sup>2</sup>, <sup>1</sup>USGS Hawaii, <sup>2</sup>University of Hawaii at Hilo
- 203 11:30 Restoring a Slice of Old California: 30 Years of Non-Native Species Removal on Santa Cruz Island. Coleen Cory<sup>1</sup>, Scott A. Morrison<sup>2</sup>, Lotus A. Vermeer<sup>1</sup>, Kathryn R. Faulkner<sup>3</sup>, <sup>1</sup>TNC, Ventura, CA, <sup>2</sup>TNC, San Francisco, CA, <sup>3</sup>Channel Islands National Park, Ventura, CA
- 204 11:45 Management of Alien Predators to Protect Park Resources. Raina Kaholoaa, Haleakalā National Park, Maui
- 205 12:00 Integrated Management of Alien Predators in Hawaii Volcanoes National Park. David Foote<sup>1</sup>, Cause Hanna<sup>2</sup> & Eric Spurr<sup>3</sup>, <sup>1</sup>USGS, HAVO, <sup>2</sup>UC Berkeley, <sup>3</sup>Landcare Research Inc., Lincoln, NZ

Wednesday, March 30, continued

**SYMPOSIUM:  
INVASIVE SPECIES IN THE INTERNATIONAL ARENA**

8:30-12:00 pm  
*Kona 1-3*

Organizer: James D. Harwood, University of Kentucky

- 8:30 Welcome and Introduction. James D. Harwood, Univ. Kentucky
- 206 8:35 Is There a Role for Professional Societies in International Invasive Species Research? Ernest Delfosse, Michigan State University, E. Lansing, MI
- 207 8:55 International Biological Control Research at the USDA-ARS Overseas Biological Control Laboratories. Kim Hoelmer, USDA-ARS-EBCL, Montferrier-sur-Lez, France
- 208 9:15 Red Gum Lerp Psyllid and Other Eucalyptus Pests: Worldwide Invaders. Timothy D. Paine, UC Riverside
- 209 9:35 From Africa With Love. Juliana Jaramillo<sup>1</sup> & James D. Harwood<sup>2</sup>, <sup>1</sup>ICIPE, Nairobi, Kenya, <sup>2</sup>University of Kentucky, Lexington KY
- 9:55 BREAK
- 210 10:10 The Invasion of Pacific Islands: Some Thoughts on Invasive Species, Insular Ecosystems, and Human Impact in the Western Pacific. Ross H. Miller, Aubrey Moore & G.V.P. Reddy, University of Guam, Mangilao, Guam
- 211 10:30 Invasive Pest Challenges to an International Fruit Company. Michael Seagraves, Driscoll, Watsonville, CA
- 212 10:50 Sex Pheromone of *Acutaspis albopicta*, An Invasive Exotic Pest Entering California on Shipments of Fresh Avocados from Mexico. Jocelyn Millar, J. Steven McElfresh, Lindsay Robinson, Satya Chinta & Joseph Morse, UC Riverside
- 213 11:10 Argentine Ant Spread and Management on Santa Cruz Island. Christina L. Boser<sup>1</sup>, Kathryn R. Faulkner<sup>2</sup>, Coleen Cory<sup>1</sup>, Lotus A. Vermeer<sup>1</sup>, John M. Randall<sup>1</sup> & Scott A. Morrison<sup>1</sup>, <sup>1</sup>The Nature Conservancy, San Francisco, CA, <sup>2</sup>National Park Service, Ventura, CA
- 214 11:30 Crumbling Foundations? Could Climate Change and Landscape Simplification Jointly Aggravate the Invasive Species Problem in South America? Kris A. G. Wyckhuys, ICTA CIAT, Cali, Colombia
- 215 11:50 Biological Control of Medically Important *Aedes* Mosquitos. Stephen L. Dobson & Amanda L. Koppel, University of Kentucky, Lexington, KY (cancelled)



**DR. FRANK ZALOM  
C.W. WOODWORTH AWARD  
2011**

Dr. Zalom is Professor of Entomology, AES Entomologist and Extension Specialist at UC Davis where he teaches Arthropod Pest Management and conducts IPM research on tree, small fruit and vegetable crops. He received BS and MS degrees in Zoology and Ecology at Arizona State University, and a PhD at UC Davis. He did a brief Post Doc at UC Berkeley in the late 1970s, working on mosquito genetics with Doctor Sister Monica Asman, a member of Dr. Bill Reeves outstanding group in the School of Public Health working on encephalitis vectors. He became an Assistant Professor at the University of Minnesota where he taught Economic Entomology and Insects in Relation to Plant Disease, and conducted research in insect vectors of plant diseases especially aster yellows. He returned to the University of California as Extension IPM Coordinator in 1980. He became the UCIPM Program's Director in 2006, serving for over 16 years before retreating to the Department of Entomology in 2002. Zalom continues to provide leadership for IPM nationally, co-Chairing the National IPM Committee since 1999, serving as IPM representative to the APLU Science and Technology Committee since 2003, and as the USDA Western Region IPM Competitive Grants Program Manager since 2004. Among Zalom's honors include being elected a Fellow of the California Academy of Sciences, the Entomological Society of America, and most recently the American Association for the Advancement of Science. He has been awarded a Fulbright Senior Research Scholarship, the ESA Achievement Award in Extension, the ESA Recognition Award, the ESA Excellence in IPM Award, an ESA IPM Team Award, and the James H. Meyer Award from UC Davis for teaching, research and service. During this time he has authored 290 peer reviewed journal articles, book chapters and books, including "Food, Crop Pests, and the Environments" published by the American Phytopathological Society Press. Currently, he serves as Major Professor for 3 PhD and 2 MS students in Entomology at UC Davis.

**CASEY D. BUTLER  
UNIVERSITY OF CALIFORNIA - RIVERSIDE  
COMSTOCK GRADUATE STUDENT AWARD  
2011**



Casey D. Butler is a Ph.D. candidate at the University of California, Riverside. His main research interest is the development of pest management strategies for the potato psyllid in southern California. Casey's interest in entomology began with 4-H, which then led him to Purdue University where he completed his Bachelor of Science and Master of Science degrees in entomology.

**DR. BRIAN BRET, PRESIDENT-ELECT NOMINEE  
PBESA 2012-2013**



The Pacific Branch Nominations Committee (Doug Walsh, Chair) recommends Brian Bret for President-Elect of the Pacific Branch of the ESA. Brian Bret is Regulatory Manager for Dow AgroSciences and is the company's IR-4 Minor Crops coordinator. He is responsible for obtaining and maintaining state registrations to meet the needs of western growers and urban professionals and for developing and implementing strategic responses to address the numerous regulatory issues in the western states. Brian started with Dow AgroSciences as a Technical Service and Development biologist in the urban pest control business in the northeast US. He later moved to the company's global headquarters in Indianapolis as a Technology Transfer Manager where he developed the educational programs to help launch new pest management tools such as spinosad. Continuing westward to Sacramento, he became Western R&D Leader for the western US and field biologist for the Pacific Northwest prior to his current role as a Regulatory Manager.

Brian received a B.S. degree in biology from the University of Notre Dame, and an M.S. and Ph.D. in entomology from VPI. Brian has been active in the ESA Pacific Branch since moving to California in 1997, including serving as Secretary/Treasurer from 2003-2007, Executive Board from 2007-2010, chair of 2002 Local Arrangements Committee, various Site Selection Committees twice serving as chair, Ad-hoc By-Laws Revisions Committee, and has organized various symposia at both Pacific Branch and National ESA meetings. He was the Pacific Branch nominee for the national ESA Treasurer position in 2007.

# Author Index

## Papers/Symposia

Author	#	Page
Acebes, Angelita L.	43	17
Ackleh, Azmy S.	189	40
Adams, Todd	138	33
Aihara-Sasaki, Maria	34	14
Almeida, Rodrigo	110	30
Alston, Diane	63	19
	103	29
Al-Zubaidy, M.	88	27
Anelli, Carol	90	28
Ansolabehere, Mike	187	39
Babcock, Jon	128	32
Backus, Elaine A.	175	37
Bahder, B.	114	30
Banko, Paul	200	41
	202	41
Banks, John E.	189	40
	190	40
Barbour, James D.	51	18
	73	21
	76	22
	77	22
Barlow, Vonny M.	104	29
Beers, Elizabeth	19	12
	20	12
	53	18
Beggs, Jacqueline	194	41
Bellamy, David	160	36
Bennett, Kerriann	117	31
Bentley, W.J.	126	32
Ben-Yehuda, Shaul	75	22
	151	35
Bernardi, Carmem	119	31
Berry, Lainie	130	32
Bethke, James	2	11

Author	#	Page
Black, Brent	103	29
Bolda, Mark	17	12
	18	12
	70	21
Borges, Rafael	119	31
Boser, Christina L.	140	33
	213	42
Bosque-Pérez, Nilsa A.	55	18
Botton, Marcos	119	31
Boyle, Natalie K.	44	17
Brink, Kevin	202	41
Brooks, Deborah	77	22
Brown, John J.	45	17
	60	19
	81	22
	175	37
Brown, Preston	109	30
Bruck, Denny	18	12
	109	30
	71	21
Brunner, Jay F.	136	33
	139	33
Buchanan, Marcus	110	30
Burbano, Elsie G.	105	29
Burks, Charles	79	22
Butai, Sachit	134	33
Byers, John A.	133	33
Calvert, Fran	7	11
Caprile, Janet	16	12
Carey, James R.	49	18
	54	18
	84	27
	89	27
Carlson, Bryan	60	19

Author	#	Page
	81	22
Carvalho, Lori	139	33
Castle, S.J.	118	31
	126	32
Castro, Boris	69	21
	127	32
	129	32
Cedeño, Alejandro	69	21
Center, Meredith	170	37
Chambers, Ute	47	17
Chanbusarakum, Lisa	182	39
Chinta, Satya	212	42
Cho, Ming-Yi	68	21
	52	18
Christie, Dean	177	39
Clemens, Christopher G.	125	32
Coates, William	16	12
	20	12
Cooper, P.D.	80	22
Copps, Patrick T.	26	13
Cory, Coleen	140	33
	203	41
	214	42
Cosky, S.W.	184	39
Cox, David L.	184	39
	28	13
Daane, Kent	79	22
	110	30
Daku, Kristin	108	30
Dalton, Daniel	110	30
	109	30
Dao, Adama	134	33
Dara, Surendra	74	22
DeBano, Sandra J.	93	28
Del Pozo, Alejandro	45	17
	60	19
	81	22
Delfosse, Ernest	206	42

Author	#	Page
DeMark, J.	23	13
Denholm, Ian	128	32
Derstine, Nathan T.	46	17
Diallo, Moussa	134	33
Diamantidis, Alexandros D.	89	27
Diaz, A.	88	27
Diniz, Alesha N.	159	35
Dobson, Stephen L.	215	42
Doerr, Michael D.	136	33
	139	33
Dorschner, Keith	66	21
Dunkelblum, Ezra	75	22
	151	35
Dunn, Robert R.	143	34
	142	34
Edwards, E.	139	33
Eger, J.	23	13
Eiben, Jesse	96	28
Eigenbrode, Sanford D.	39	15
	55	18
	59	19
Ellsworth, Peter C.	127	32
Evans, Edward W.	192	40
Farmer, Chris	202	41
Faulkner, Kathryn R.	140	33
	203	41
	214	42
Fefer, Daniela	75	22
	151	35
Ferguson, Holly	77	22
	78	22
Fernandez, Lisa	141	34
Fielding, Dennis (also 192.5, p. 40)	140	33
Fisher, Glenn C.	173	37
Fisher, M.	23	13
Follett, Peter A.	150	34
Footte, David	196	41
	205	41



Author	#	Page
Foss, Carrie R.	30	13
Funderburk, Joe	8	11
Gadino, Angela N.	111	30
Galbraith, Betty	90	28
Gaskin, John	39	15
Geib, Scott M.	106	29
Gerry, Alec C.	112	30
	159	35
Ghidiu, Gerald M.	121	31
Gindin, Galina	75	22
	151	35
Godfrey, Kristine E.	113	30
Godfrey, Larry	127	32
	113	30
Goldman, Evan	113	30
Gomez, Luis	69	21
Gontijo, Lessando	53	18
Gorman, Kevin	128	32
Grace, J. Kenneth	33	14
	34	14
	21	13
Grafton-Cardwell, Elizabeth	113	30
Grant, Joe	16	12
	20	12
Green, Kimberly	90	28
Greenberg, Les	27	13
Groenendale, Dan	77	22
Gruner, Dan	98	29
Guédot, Christelle	137	33
Gumovsky, Alex V.	153	35
Haines, William	97	28
Hale, Frank	6	11
Hamasaki, R.T.	68	21
Hamm, R.	23	13
Hanks, Lawrence M.	76	22
Hanna, Cause	196	41
	205	41
Hansen, Laurel	35	14

Author	#	Page
Hansen, Lee D.	116	31
Hapairai, Limb Kemp Mataute	132	33
Hapukotuwa, Nirmala K.	33	14
Hara, Arnold	5	11
Harmon-Threatt, Alexandra	158	35
Harrison, Ron	26	13
Harwood, James D.	209	42
Harwood, James F.	49	18
	54	18
Hatten, Timothy D.	157	35
Hauser, Martin	14	12
Haverhals, Marijka	37	15
Haviland, David	126	32
	17	12
Hawthorne, David	117	31
Hayat, Rustem	36	15
Haymer, David	85	27
Hedstrom, Christopher	47	17
Henderson, Donna	74	22
Henke, Jennifer	169	37
Heraty, John	58	19
Higbee, Bradley	79	22
Higginbotham, Gerald E.	112	30
Hilton, Rick	110	30
Hinz, Harriet L.	39	15
Hoddle, Mark S.	56	18
Hoelmer, Kim	207	42
Hoey-Chamberlain, Rochelle	31	14
Hoffman, Kevin M.	82	27
Holland, Brenden	99	29
Hollingsworth, Robert	7	11
Hooten, Robert	123	31
	124	31
	122	31
	181	39
Horton, David R.	137	33
Hulcr, Jiri	142	34
Ingwell, Laura L.	55	18

Author	#	Page
Ito, Shin-ichi	13	12
Ito, Tyler	48	17
Jang, Eric B.	46	17
	52	18
	94	28
	139	33
	168	36
Jaramillo, Juliana	209	42
Jaronski, Stefan	167	36
Jiao, Shunshan	115	31
Johnson, Corey J.	90	28
Johnson, Judy A.	115	31
Johnson, Kate	26	13
Johnson, M. Tracy	41	15
	147	34
Joseph, D.	88	27
Kabashima, John	1	11
Kaholoaa, Raina	204	41
Kaiser, Clive	110	30
Kaufman, Leyla V.	145	34
	146	34
	154	35
Kawahara, Akito Y.	151	35
Kaya, Harry	9	11
Kerns, David L.	127	32
King, Cynthia	146	34
Kobayashi, Aya	13	12
Koppel, Amanda L.	215	42
Kremen, Claire	158	35
	196	41
Krushelnycky, Paul D.	25	13
	101	29
Kuhn, Dan	163	36
Kuznetsowa, Tatiana	75	22
	151	35
Lamp, William O.	150	34
Lance, David	87	27
Landolt, Peter	197	41

Author	#	Page
	137	33
	138	33
LaPointe, Dennis A.	135	33
Lara, Jesus R.	56	18
Lavine, Laura Corley	51	18
	117	31
Learned, Leland W.	123	31
	124	31
	122	31
	181	39
Leathers, J.	88	27
Leblanc, Luc	131	32
Lee, Jana	15	12
	111	30
	113	30
Lees, Mike	179	39
	23	13
Lehmann, Tovi	134	33
Leifker, Robert	123	31
	122	31
Levi-Zada, Anat	75	22
	151	35
Li, Shujuan	191	40
Liebherr, James	102	29
Lopez, Martin	74	22
Loudon, Catherine	91	28
Lovelady, C.N.	28	13
Lucky, Andrea	143	34
Ludwig, Scott	3	11
Lynn-Patterson, Kris	113	30
Mafra, Leandro	119	31
Mafra-Neto, Agenor	119	31
Magnacca, Karl	95	28
Maguire, Rebecca	30	13
Maki, Elin C.	76	22
Manandhar, Roshan	57	19
Mann, Sheri	199	41
Manoukis, Nicholas C.	134	33

Author	#	Page
Manulis-Sasson, Shulamit	75	22
	151	35
Marshall, James A.R.	155	35
Martin, Robert	110	30
Mason, Makena	34	14
Massimo, Cristofaro	36	15
Mau, Ronald F. L.	52	18
	67	21
	68	21
Maxwell, Jill M.	157	35
McElfresh, J. Steven	212	42
McKern, J.	23	13
McQuate, Grant	144	34
Melchior, G.	186	39
Melichar, M.	23	13
Mendel, Zvi	75	22
	151	35
Messing, Russell	164	36
	43	17
	145	34
Millar, Jocelyn	110	30
	139	33
	76	22
Millar, Jocelyn	212	42
Miller, Betsey	71	21
Miller, Ross H.	210	42
Mills, Nicholas J.	141	34
Mitchell, Rusty	122	31
Moldenke, Andrew R.	93	28
Moore, Aubrey	12	11
	210	42
Morice, Amy E.	49	18
	54	18
Morrison, Scott A.	140	33
	203	41
	214	42
Morse, Joseph G.	64	19
	212	42

Author	#	Page
Mosdell, D.K.	184	39
Muelle, J.P.	129	32
Mullens, Bradley A.	159	35
Munyaneza, Joseph E.	175	37
Murray, Elizabeth	58	19
Nakas, Christos T.	89	27
Naranjo, Steven E.	191	40
Natwick, Eric	74	22
Nelson, Charles Riley	132	33
Neven, Lisa G.	116	31
Nikaido, Scott	48	17
Nishimoto, J.	88	27
Nishimura, Thomas	22	13
Novotny, L. M.	120	31
Oetting, Ron	10	11
Olson, Brian	128	32
O'Neal, Sally	73	21
	77	22
	78	22
Paine, Timothy D.	208	42
Paley, Derek	134	33
Palumbo, John	129	32
	118	31
	74	22
Paniagua, Leonardo	69	21
Papadopoulos, Nikos T.	86	27
	89	27
Pappu, Hanu R.	72	21
Park, Ikju	40	15
Parker, Joyce E.	59	19
Patrick, B.	139	33
Patten, Kim	15	12
Pearson, Cole C.	175	37
Peck, Robert	200	41
Pedibhotla, Venkat	176	39
Pelham, Sean	149	34
Perring, T.M.	126	32
Pierce, Treanna	113	30

Author	#	Page
Piñero, Jaime C.	52	18
	67	21
Portillo, Hector E.	180	39
Prabhaker, N.	118	31
	126	32
Price, William J.	39	15
Protasov, Alex	75	22
	151	35
Raboin, Erin	147	34
Ramadan, Mohsen	42	15
	153	35
Ramsey, Amanda	139	33
Randall, Carol Bell	37	15
Randall, John M.	140	33
	214	42
Rao, Sujaya	65	19
	93	28
	156	35
	173	37
Rapo, Carole B.	39	15
Reddy, G.V.P.	210	42
Reiersen, Donald A.	29	13
	32	14
Reimer, Neil	162	36
	193	41
Ribeiro, José MC	134	33
Richardson, Jesse	129	32
	127	32
	178	39
Richburg, John	128	32
Robinson, Lindsay	212	42
Rodstein, Joshua	76	22
Rodstrom, R. Andrew	45	17
	60	19
	81	22
Rogg, Helmuth	138	33
Rondon, Silvia I.	72	21
Roper, E.M.	28	13

Author	#	Page
	184	39
Rosetta, Robin	11	11
Rubinoff, Daniel	131	32
	100	29
	151	35
	145	34
Russell, Michael	61	19
Rust, Michael K.	24	13
	27	13
	29	13
	32	14
San Jose, Michael	50	18
Sandberg, Curtis	123	31
	122	31
Sarnat, Eli	201	41
Sasaki, Masatake	13	12
Savinelli, Caydee	125	32
Schaffner, Urs	39	15
Schlegel, Thomas	155	35
Schraer, Marty	185	39
Schultz, Peter	4	11
Schwarzländer, Mark	38	15
	39	15
Seagraves, Michael	211	42
Seeley, Thomas D.	155	35
Shearer, Peter	20	12
	109	30
Shelly, T.	88	27
Shelomi, Matan	148	34
Shelton, Christian R.	112	30
Shemaker, R.	88	27
Sheppard, Walter S.	44	17
Shimabuku, R.	68	21
Shriner, Suzanne	166	36
Siderhurst, Leigh A.	46	17
Siderhurst, Mathew S.	46	17
Siegel, Joel	79	22
Silva, Lisiane Perez	119	31

Author	#	Page
Simbiken, N.A.	80	22
Sisco, Becky	66	21
Sisterson, Mark S.	188	40
Skyrm, Kimberly M.	65	19
	173	37
Smith, Lincoln	36	15
Snook, Kirsten	150	34
Soeprono, Andrew	32	14
Soto, Diane	159	35
Souder, Steve	147	34
Spafford, Helen	92	28
Spurr, Eric	205	41
Stark, John D.	189	40
	190	40
Stephen William P.	65	19
	156	35
Stoltman, Lyndsie	119	31
Strange, James P.	157	35
Suarez, Andrew	198	41
Sudeep, Bag	72	21
Suttles, Caitlyn	46	17
Symmes, Emily J.	62	19
	171	37
Synder, William	53	18
	59	19
Tang, Juming	115	31
Tanigoshi, Lynell	15	12
	18	12
Tebeau, Andrew	63	19
Thomas, E.	23	13
Thomas, Hillary	70	21
Thomas, J.D.	129	32
Thomas, James	127	32
	128	32
Tochen, Sam	109	30
Traoré, Sékou F.	134	33
Troyer, Elisa J.	46	17
Turnbull, S.	139	33

Author	#	Page
Vallalobs, Ethel	48	17
Van Steenwyk, Robert	16	12
	20	12
	120	31
Vanderwoude, Cas	199	41
Vargas, Roger I.	49	18
	52	18
	54	18
	67	21
	119	31
	189	40
	190	40
Vega, Fernando	161	36
Vermeer, Lotus A.	140	33
	203	41
	214	42
Vetter, Richard S.	29	13
Visscher, P. Kirk	155	35
Vorsino, Adam E.	154	35
Walk, Thomas C.	106	29
Walker, G.P.	149	34
Walse, Spencer	160	36
Walsh, Douglas	77	22
	78	22
	109	30
	107	30
	15	12
	73	21
	114	30
	117	31
	51	18
Walston, Allison	183	39
Walters, Tom	15	12
Walton, Vaughn	15	12
	47	17
	110	30
	109	30
	71	21

Author	#	Page
	111	30
Walton, William E.	174	37
Wang, Shaojin	115	31
War, M.	88	27
Ward, Daniel L.	121	31
Waters, Timothy	107	30
	73	21
Weed, Aaron	38	15
Wenninger, Erik J.	108	30
Wharton, Robert A.	152	35
Why, Adena M.	174	37
Wilson, Erin	195	41
Wofford, Tommy	176	39
Wright, Jennifer A.	172	37
Wright, Mark G.	48	17
	57	19
	105	29
	145	34
	153	35
	165	36
Wyckuys, Kris A. G.	214	42
Yalemar, Juliana	145	34
	146	34
Yaro, Alpha S.	134	33
Yates III, Julian R.	34	14
	22	13
Yokoyama, Victoria Y.	83	27
Yoshida, Harvey	128	32
Zahn, Deane K.	64	19
	172	37
Zalom, Frank	15	12
	17	12
	70	21
	51	18
	62	19
Zanardi, Odimar	119	31
Zeni, Diego	119	31
Zhou, Changqing	51	18

## Author Index

### Posters

Author	#	Page
Alvarez, Juan Manuel	P33	25
Amarasekare, Kaushalya G.	P13	24
Andrew, Nigel	P38	26
Bethke, James A.	P14	24
Borel, Amanda A.	P13	24
	P37	26
Bosque-Pérez, Nilsa A.	P11	17
	P33	25
Breece, Carolyn	P36	26
Bressan, Albert	P1	16
	P2	16
Brown, Preston	P37	26
Brown, Steve	P23	25
Burks, Charles S.	P26	25
Butler, Casey D.	P16	24
Carson, William G.	P15	24
	P25	25
	P32	25
Chambers, Ute	P44	27
Chang, Chiou Ling	P17	24
Cho, Il Kyu	P17	24
Cook, Lyn	P38	26
Cook, Stephen	P12	17
Cooper, Monica L.	P42	26
Cushman, Sam	P12	17
Daane, Kent M.	P41	26
Diaz-Lyke, Maria Derval C.	P19	24
	P20	24
Diaz-Montano, John	P21	24
Dreves, Amy J.	P22	24
Eigenbrode, Sanford D.	P11	17
	P33	25
Fairbairn, Daphne	P28	25
Follett, Peter	P23	25

Author	#	Page
Garcia, Janis N.	P31	25
Geib, Scott	P24	25
Gomulkiewicz, Richard	P11	17
Gonzalez, Beatriz	P15	24
	P16	24
	P25	25
Graf, George	P3	16
Greenwell, April	P1	16
Gurr, Geoff	P38	26
Hamasaki, Randall T.	P19	24
	P20	24
Hatten, Timothy D.	P40	26
Hauff, Robert	P18	24
Haviland, David	P35	26
Haymer, David	P4	16
Headrick, David	P34	26
Henke, Jennifer	P8	16
Higashi, Clesson H.	P2	16
Higbee, Bradley S.	P26	25
	P35	26
Hilton, Richard J.	P27	25
Hladun, Kristen R.	P9	16
Hollingberty, Erin	P3	16
Houck, Clayton	P28	25
Hutchinson, Pamela J.	P33	25
Ingwell, Laura L.	P11	17
Jang, Eric B.	P29	25
Jennings, John T.	P38	26
Kaufman, Leyla V.	P18	24
Kawabata, Andrew	P20	24
Keller, Michael	P38	26
Keremane, Manjunath L.	P16	24
King, Cynthia	P18	24
Krugner, Rodrigo	P30	25
Kumashiro, Bernarr R.	P31	25
Kund, Gregory S.	P15	24
	P25	25
	P32	25

Author	#	Page
Lee, Raymond	P4	16
Lee, Richard F.	P16	24
Leiner, Rosalie	P6	16
Li, Qing X.	P17	24
Lin, Hong	P30	25
Lucid, Michael	P12	17
Merritt, David J.	P38	26
Merz, Norm	P40	26
Miller, J. Creighton	P16	24
Mogren, Christina L.	P10	16
Mondal, Shaonpius	P33	25
Morley, Rebecca	P38	26
Morton, Ray	P9	16
Murrietta, Maria	P34	26
Nakamoto, Stuart T.	P19	24
	P20	24
Novy, Richard G.	P16	24
Okamura, Mariko	P23	25
Parubrur, Arlene	P4	16
Pike, Keith S.	P3	16
Reimer, Neil J.	P31	25
Rill, Stephanie M.	P35	26
Roosien, Bryan K.	P11	17
Sagili, Ramesh	P36	26
Schwarzländer, Mark	P39	26
Shearer, Peter W.	P13	24
	P37	26
Sisterson, Mark S.	P30	25
Smallridge, Catherine J.	P4	16
Smith, Laine	P12	17
Snook, Kirsten	P23	25
Spafford, Helen	P6	16
	P38	26
Synder, William E.	P33	25
Trumble, John T.	P9	16
	P10	16
	P15	24
	P16	24

Author	#	Page
	P21	24
Trumble, John T.	P25	25
	P32	25
VanBuskirk, Phil	P43	23
Van Steenwyk, Robert A.	P42	26
Varela, Lucia G.	P42	26
Vinchesi, Amber C.	P7	16
Walk, Tom	P24	25
Walsh, Douglas B.	P7	16
Weed Aaron	P39	26
Whitworth, Jonathan	P33	25
Wilson, John	P3	16
Woods, Bill	P4	16
Wright, Mark G.	P18	24
Wunderlich, Lynn R.	P41	26
Yokoyama-Hatch, Hana	P5	16

## Notes

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

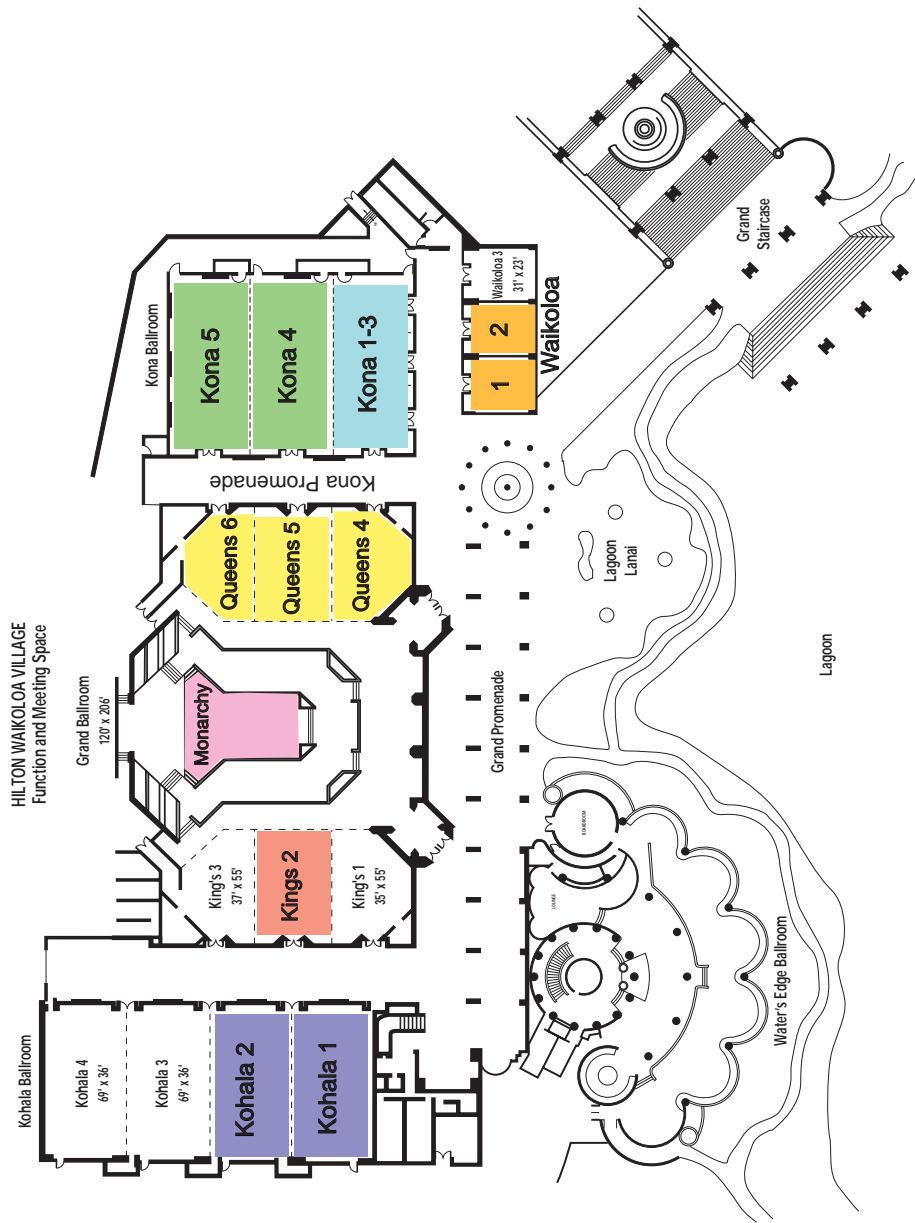
---

---

---







12

# Hilton Waikoloa Village Hotel

## Meeting Room Layout