



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.

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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 Oregon State Univ., Corvallis, OR
Past President	Douglas Walsh Washington 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_Abstracts.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
2011 PBESA Meeting at a Glance	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	This “Meeting-at-a-Glance” grid is provided for your convenience. For more details, including location of each event, refer to the full program, starting on Page 10.
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 Kaya¹, Ed Lewis¹, James Bethke², ¹UC Davis, ²UCCE, 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 Sasaki¹, Shin-ichi Ito² & Aya Kobayashi³, ¹Fukushima Fruit Tree Experiment Station, Fukushima, ²Yamagata Integrated Agricultural Research Center, Yamagata, ³Dow 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 Walsh¹, Jana Lee², Vaughn Walton³, Lynell Tanigoshi⁴, Tom Walters⁴, Kim Patten⁵ & Frank Zalom⁵, ¹WSU, Prosser, ²USDA-ARS, Corvallis, OR, ³OSU, Corvallis, ⁴WSU, Mount Vernon, ⁵WSU, Long Beach, & ⁵UC Davis.
- 16 3:15 Spotted Wing *Drosophila* (SWD) Trap Design and Adult Fly Seasonal Distribution. William Coates¹, Robert Van Steenwyk², Janet Caprile³ & Joe Grant⁴, ¹UCCE, San Benito County, ²UC Berkeley, ³UCCE Contra Costa County, ⁴UCCE 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 Haviland¹, Mark Bolda² & Frank Zalom³, ¹UCCE, Kern Co., ²UCCE, Santa Cruz Co., ³UC Davis
- 18 4:15 Management of Spotted Wing *Drosophila* in Berries. Denny Bruck¹, Mark Bolda² & Lynell Tanigoshi³, ¹USDA-ARS, Corvallis OR, ²UCCE, Sacramento, CA, ³Washington 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 Steenwyk¹, Peter Shearer², Elizabeth Beers³, Bill Coates⁴ & Joe Grant⁵, ¹UC Berkeley, ²OSU, Hood River, ³WSU, Wenatchee, ⁴UCCE San Benito County, ⁵UCCE, 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, III¹ & Thomas Nishimura², ¹University of Hawaii at Manoa, ²BASF, Vancouver, WA
- 23 2:00 Development and Validation of Recruit HD Termite Bait for Control of Subterranean Termites in the Western U.S. Mike Lees¹, J. DeMark², J. Eger³, E. Thoms⁴, M. Fisher⁵, M. Melichar⁶, R. Hamm⁷ & J. McKern⁸, Dow AgroSciences: ¹Granite Bay, CA; ²Fayetteville, AR; ³Tampa, FL; ⁴Gainesville, FL; ⁵Dallas, TX; ⁶Indianapolis, IN; ⁷Fresno, CA; ⁸Christiansburg, 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. Copps¹, Ron Harrison¹ & Kate Johnson², ¹Orkin, LLC, Atlanta, GA, ²Research 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 Smith¹, Massimo Cristofaro², Rustem Hayat³, ¹USDA, ARS, Albany, CA, ²ENEA C.R. Casaccia BIOTEC-SIC, Rome, Italy, ³Ataturk 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 Randall¹, Marijka Haverhals², ¹USFS, Coeur d'Alene, ID, ²University 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. Rapo¹, Sanford D. Eigenbrode¹, Harriet L. Hinz², John Gaskin³, William J. Price¹, Urs Schaffner², Mark Schwarzländer¹, ¹University of Idaho, ²CABI Europe-Switzerland, ³USDA-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 Parubrub¹, David Haymer¹, Raymond Lee¹, Catherine J. Smallridge², & Bill Woods³, ¹University of Hawaii at Manoa, ²South Australian Research and Development Institute, Adelaide, Australia, ³Department 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. Roosien¹, Richard Gomulkiewicz¹, Laura L. Ingwell², Nilsa A. Bosque-Pérez² & Sanford D. Eigenbrode², ¹Washington State University, Pullman, WA, ²University of Idaho, Moscow, ID
- P12 Quantifying Arthropod Diversity in the Selkirk Mountains of Northern Idaho and Eastern Washington. Laine Smith¹, Stephen Cook¹, Michael Lucid² & Sam Cushman³, ¹University of Idaho, Moscow, ID, ²Idaho Department of Fish and Game, Coeur d'Alene, ID, ³USDA-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. Derstine¹, Elisa J. Troyer¹, Caitlyn Suttles¹, Leigh A. Siderhurst¹, Eric B. Jang² & Matthew S. Siderhurst¹, ¹Eastern Mennonite University, ²USDA-ARS, Hilo, HI
- 47 2:18 Pheromone Mating Disruption of Filbertworm Moth (*Cydia latiferreana*) in Commercial Hazelnut Orchards. Christopher Hedstrom¹, Ute Chambers², Vaughn Walton¹, ¹Oregon State University, Corvallis, OR, ²Washington 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. Morice¹, Roger I. Vargas², James F. Harwood¹, James R. Carey¹, ¹UC Davis, ²USDA-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 Zhou¹, James D. Barbour², Frank G. Zalom³, Douglas B. Walsh^{1,4}, Laura Corley Lavine¹, ¹Washington State University, Pullman WA, ²University of Idaho, Parma, ID, ³UC Davis, ⁴Washington 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 Chou¹, Roger I. Vargas², Eric B. Jang², Jaime C. Piñero³, Ronald F. L. Mau¹, ¹University of Hawaii at Manoa, ²USDA-ARS, Hilo, HI, ³Lincoln University of Missouri, Jefferson City, MO
- 3:30 BREAK

PhD PAPERS

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

- 53 3:45 Impact of Natural Enemies on Woolly Apple Aphid Suppression. Lessando Gontijo¹, Elizabeth Beers¹, William Snyder², ¹Tree Fruit Research and Extension Center, Wenatchee, WA, ²Washington State University, Pullman, WA
- 54 3:57 Diet and Host Access Influences Survival and Egg Production in Two Tephritid Fruit Flies. James F. Harwood¹, Roger I. Vargas², Amy E. Morice¹, James R. Carey¹, ¹UC Davis, ²USDA-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

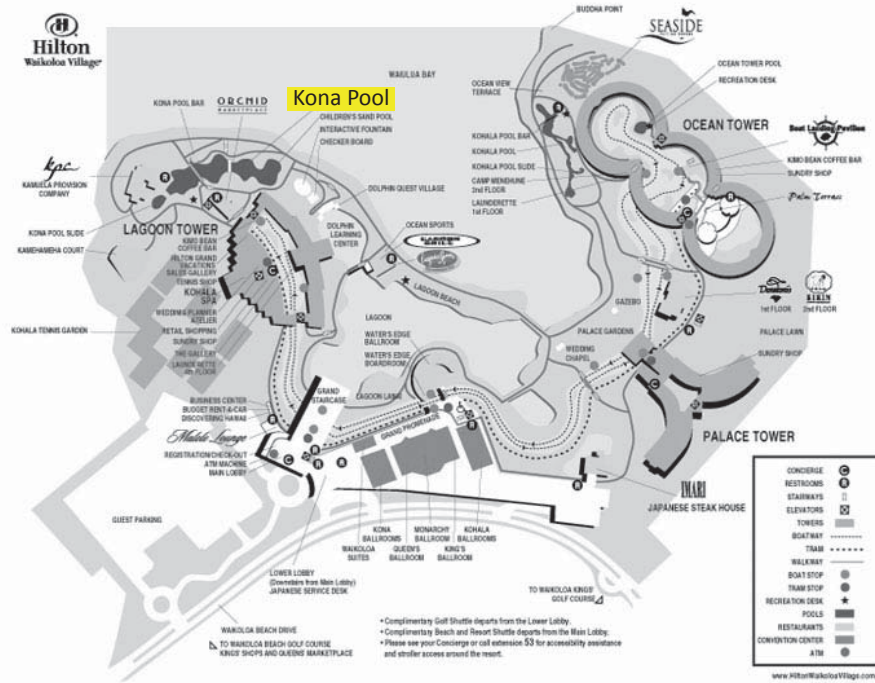
King's 2

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. Parker¹, William E. Snyder¹ & Sanford D. Eigenbrode², ¹Washington State University, Pullman, WA, ²University 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 Dorschner¹ & Becky Sisco², ¹Rutgers University, ²UC Davis
- 67 8:25 Attract-and-Kill Bait Stations for Improved Fruit Fly (Diptera: Tephritidae) Management in Papaya Orchards. Jaime C. Piñero¹, Ronald F. L. Mau², Roger I. Vargas³, ¹Lincoln University of Missouri, ²University of Hawaii at Manoa, ³USDA-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 Paniagua¹, Alejandro Cedeño¹, Luis Gomez² & Boris Castro³, Dow AgroSciences: ¹San Jose, Costa Rica, ²Indianapolis, IN, ³Fresno, CA.
- 70 9:25 Mating Disruption of Light Brown Apple Moth in California Strawberries. Hillary Thomas¹, Mark Bolda² & Frank Zalom¹, ¹UC Davis, ²Cooperative 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 Miller¹, Denny J. Bruck², Vaughn M. Walton¹, Oregon State University, ² 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. Rondon¹, Sudeep Bag², Hanu R. Pappu², ¹Oregon State University, ²Washington State University
- 73 10:40 Lygus Control in Alfalfa Produced for Seed: Killing the Bugs Without Killing the Buzz. Douglas Walsh¹, Timothy Waters¹, Sally O'Neal¹ & James Barbour², ¹Washington State University, ²University 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 Natwick¹, John Palumbo², Donna Henderson¹, Martin Lopez¹ & Surendra Dara³, ¹University of California ANR Cooperative Extension, Holtville, CA,² University of Arizona, ³University 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-Zada¹, Shaul Ben-Yehuda², Ezra Dunkelblum¹, Galina Gindin¹, Daniela Fefer¹, Alex Protasov¹, Tatiana Kuznetsowa¹, Shulamit Manulis-Sasson¹ & Zvi Mendel¹, ¹Volcani Center, Israel, ²Ministry 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. Barbour¹, Jocelyn G. Millar², Elin C. Maki¹, Joshua Rodstein² & Lawrence M. Hanks³, ¹University of Idaho, ²UC Riverside, ³University 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 Burks¹, Bradley Higbee², Joel Siegel¹ & Kent Daane³, ¹USDA-ARS, Parlier, CA, ²Paramount Farming Company, ³UC 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.

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

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. Butler¹, Beatriz Gonzalez¹, Manjunath L. Keremane², Richard F. Lee², Richard G. Novy³, J. Creighton Miller, Jr.⁴ & John T. Trumble¹, ¹UC Riverside, ²USDA-ARS, Riverside, CA, ³USDA-ARS, Aberdeen, ID, ⁴Texas 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 Chang¹, Il Kyu Cho², & Qing X. Li², ¹USDA-ARS, Hilo, HI, ²University of Hawaii at Manoa
- P18 Assessing Impacts of an Invasive Thrips (*Klombothrips myopori*) Infestation on Native *Myoporum* in Hawaii. Cynthia King¹, Robert Hauff¹, Leyla V. Kaufman² and Mark G. Wright², ¹Hawaii State Division of Forestry and Wildlife, ²University 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

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. Higbee¹ & Charles S. Burks², ¹Paramount Farming Company, Bakersfield, CA., ²USDA-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 Mondal¹, Sanford D. Eigenbrode¹, Pamela J. Hutchinson², Juan Manuel Alvarez², William E. Snyder³, Jonathan Whitworth⁴ & Nilsa A. Bosque-Pérez¹, ¹University of Idaho, Moscow ID, ²University of Idaho, Aberdeen, ID, ³Washington State University, Pullman, WA, ⁴USDA-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. Rill¹, David Haviland¹ & Bradley S. Higbee², ¹UCCE, Kern County, Bakersfield, CA, ²Paramount 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 Spafford¹, David J. Merritt², et al., ¹University of Hawaii at Manoa & University of Western Australia, ²The 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. Hatten¹ & Norm Merz², ¹Invertebrate Ecology Inc., Moscow, ID, ²Fish 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. Wunderlich¹ & Kent M. Daane², ¹UCCE, Placerville, CA, ²UC Berkeley
- P42 Monitoring and Control of European Grapevine Moth, *Lobesia botrana* (Lepidoptera: Tortricidae) in California Vineyards. Lucia G. Varela¹, Monica L. Cooper², Robert A. Van Steenwyk³, ¹UCCE, Santa Rosa, CA, ²UCCE, Napa, CA, ³UC Berkeley
- P43 Outreach to Preserve Pheromone Mating Disruption Programs in Oregon and California Pear Orchards. Philip VanBuskirk¹, Rachel Elkins², Richard Hilton¹, Kris Lynn-Patterson³, Gabriele O'Neil², ¹Oregon State Univ., Central Point, OR, ²UCCE, Lakeport, CA, ³UC 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 & 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. Shelly¹, J. Nishimoto¹, A. Diaz², J. Leathers², M. War², R. Shemaker², M. Al-Zubaidy² & D. Joseph², ¹USDA-APHIS, ²California Dept. of Food and Agriculture
- 89 11:15 The Differential Invasion Potential of Six Medfly Biotypes. Alexandros D. Diamantidis^{1,2}, James R. Carey², Christos T. Nakas¹, Nikos T. Papadopoulos¹, ¹University of Thessaly, Magnisias, Greece, ²UC 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 Waters¹ & Doug Walsh², ¹Washington State University, Pasco, WA, ²Washington 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 Walton¹, Daniel Dalton¹, Sam Tochen¹, Denny Bruck², Doug Walsh³, Peter Shearer¹, Preston Brown⁴, ¹Oregon State University, ²USDA-ARS Corvallis, Oregon, ³Washington State University, Prosser, WA
- 110 9:24 Status of Grape-Infesting Mealybug Species and Associated Leafroll Viruses in Wine-Producing Regions of Oregon. Daniel Dalton¹, Vaughn Walton¹, Rick Hilton², Marcus Buchanan², Clive Kaiser³, Kent Daane⁴, Rodrigo Almeida⁵, Robert Martin⁶, Jocelyn Millar⁷, ¹Oregon State University, Corvallis, Oregon, ²Oregon State University, Central Point, OR, ³Oregon State University, Milton-Freewater, OR, ⁴UC Berkeley, ⁵ UC Berkeley, ⁶USDA-ARS, Corvallis, OR, ⁷UC 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. Gadino¹, Vaughn. M. Walton¹, Jana Lee², ¹Oregon State University, Corvallis, OR, ²USDA-ARS, Corvallis OR
- 112 10:03 Monitoring House Fly Activity on Commercial Dairy Operations: The Start of a Dairy IPM Program. Alec C. Gerry¹, Gerald E. Higginbotham², Christian R. Shelton³, ¹UC Riverside, ² UCCE, Fresno, CA, ³ UC Riverside
- 113 10:15 Improved Management of Cotton Aphids in Cotton and Citrus: Importance of Overwintering Populations in Pomegranates. Larry D. Godfrey¹, Elizabeth Grafton-Cardwell², Kris Lynn-Patterson³, Kristine E. Godfrey⁴, Treanna Pierce⁵, Janine Lee² & Evan Goldman¹, ¹UC Davis, ²UC Riverside, ³Kearney Agricultural Center, Parlier, CA, ⁴California Dept. of Food & Agriculture, Sacramento, CA, ⁵Univ. 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. Johnson¹, Shaojin Wang², Shunshan Jiao², Juming Tang², ¹USDA-ARS, Parlier, CA, ² Washington State University, Pullman, WA
- 116 10:51 Differential Scanning Calorimetry as a Tool for Studying Insect Metabolism. Lisa G. Neven¹, Lee D. Hansen², ¹USDA-ARS, Wapato, WA, ²Brigham Young University, Provo, UT
- 117 11:03 Insecticide Resistance in the Western Tarnished Plant Bug. Laura Corley Lavine¹, Keriann Bennett¹, David Hawthorne² & Douglas Walsh¹, ¹Washington State University, ²University of Maryland
- 118 11:15 Activity Profiles of Neonicotinoids in Crops and their Relevance to Pest Control. S.J. Castle¹, J.P. Palumbo², N. Prabhaker³, ¹USDA-ARS, Maricopa, AZ, ²University of Arizona, Yuma, AZ, ³UC Riverside
- 119 11:27 Targeting Invasive Species with SPLAT Attract & Kill. Agenor Mafraneto¹, Lyndsie Stoltman¹, Carmem Bernardi¹, Diego Zeni¹, Lisiane Perez Silva¹, Marcos Botton², Odimar Zanardi², Leandro Mafrá³, Rafael Borges³ & Roger Vargas⁴, ¹ISCA Technologies, Riverside, CA, ²Centro Nacional de Pesquisa de Uva e Vinho, Brazil, ³ISCA Tecnologias, Brazil, ⁴USDA 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 Clemens¹, Caydee Savinelli², ¹Syngenta Crop Protection, LLC, Richland, WA, ²Syngenta Crop Protection, LLC, Greensboro, NC
- 126 2:18 The Role of Systemic Insecticides in the Management of Vine Mealybug (*Planococcus ficus*). N. Prabhaker¹, S. J. Castle², D.R. Haviland³, W.J. Bentley⁴ & T. M. Perring¹, ¹UC Riverside, ²USDA-ARS Maricopa, AZ, ³UCCE, Kern County, CA, ⁴UCCE, 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. Castro¹, Jesse M. Richardson¹, James Thomas¹, Peter C. Ellsworth², Larry Godfrey³, David L. Kerns⁴, ¹Dow AgroSciences LLC, Indianapolis, IN, ²University of Arizona, Maricopa, AZ, ³UC Davis, CA, ⁴Texas AgriLife Extension, Lubbock, TX
- 128 2:42 Sulfoxaflor: A New SAP-Feeding Insecticide. Harvey Yoshida¹, James Thomas², Brian Olson³, Jon Babcock², John Richburg⁴, Ian Denholm⁵, Kevin Gorman⁵, ¹Dow AgroSciences, Richland, WA, ²Dow AgroSciences, Indianapolis, IN, ³Dow AgroSciences, Geneva, NY, ⁴Dow AgroSciences, Headland, AL ⁵Rothamsted Research, Hertfordshire, UK
- 129 2:54 Sulfoxaflor Performance on Aphids in Western Vegetables. Jesse Richardson¹, B Castro¹, J.C. Palumbo², J. P. Mueller¹, J. D. Thomas¹, ¹Dow AgroSciences, Indianapolis, IN, ²Univ. 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 Berry¹, S. Turnbull¹, E. Edwards², B. Patrick², ¹American Samoa Government, ²New 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 & 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 Hapairai^{1,2} & Charles Riley Nelson¹, ¹Brigham Young University, Provo, Utah, ²Institut 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 Manoukis¹, Sachit Butai², Derek Paley², Alpha S Yaro³, Moussa Diallo³, Sékou F Traoré³, Adama Dao³, Tovi Lehmann⁴ & José MC Ribeiro⁴, ¹USDA-ARS, Hilo HI, ²University of Maryland, College Park, MD, ³Université de Bamako, Mali, ⁴NIAID/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. Landolt¹, Todd Adams² & Helmuth Rogg², ¹USDA, ARS, Wapato, WA, ²Oregon State Dept. of Agric., Salem, OR
- 139 10:03 Development of Monitoring and Control Devices for Invasive Species and Exotic Fruit Flies. Amanda Ramsey¹; Eric Jang²; Lori Carvalho², Mike Doerr³, Jay Brunner³, & Jocelyn Millar⁴, ¹Scentry Biologicals, Inc. Billings, MT, ²USDA-ARS, Hilo, HI, ³Washington State University Wenatchee, WA, ⁴UC 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 & 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. Kaufman¹, Juliana Yalamar², Mark G. Wright¹, Russell H. Messing¹, Daniel Rubinoff¹, ¹University of Hawaii at Manoa, ²Hawaii 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 Yalamar¹, Leyla Kaufman², Cynthia King³, ¹Hawaii Department of Agriculture, ²University of Hawaii at Manoa, ³DLNR, Honolulu, HI
- 147 11:39 *Syphraea uberabensis*: A Potential Insect Biocontrol for Invasive Melastomes. Erin Raboin¹, Steve Souder² & M. Tracy Johnson¹, ¹USDA Forest Service, Volcano, HI, ²USDA 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 Pelham¹ and G. P. Walker², ¹USDA-ARS, Parlier CA, ²UC Riverside
- 150 1:42 Short-Term Physiological Response of a Native Hawaiian Hibiscus Plant to Injury by the Exotic *Sophonia* Leafhopper. Kirsten Snook¹, William O. Lamp² & Peter A. Follett¹, ¹USDA-ARS, Hilo, Hawaii, ²University of Maryland, College Park, MD

10-MINUTE INSECT BEHAVIOR & 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. Ramadan¹ & Alex V. Gumovsky², ¹State of Hawaii Department of Agriculture, Honolulu, HI, ²Schmalhausen 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 Visscher¹, Thomas D. Seeley², Thomas Schlegel³, James A. R. Marshall⁴, ¹UC Riverside, ²Cornell University, Ithaca, NY, ³University of Bristol, Bristol, UK, ⁴University 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. Hatten¹, Jill M. Maxwell¹ & James P. Strange², ¹Invertebrate Ecology Inc., Moscow, ID, ²USDA-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^{1,3}, Elaine A. Backus², John J. Brown³ & Joseph E. Munyaneza¹, ¹USDA-ARS, Wapato, WA, ²USDA-ARS, Parlier, CA, ³Washington 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. Cox¹, S.W. Cosky², D.K. Mosdell³ & E.M. Roper⁴, Syngenta Crop Protection: ¹Madera, CA, ²Greensboro, NC, ³Newberry Park, CA, ⁴Provo, 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. Banks¹, John D. Stark², Roger Vargas³, & Azmy S. Ackleh⁴, ¹University of Washington, Tacoma, WA, ²Washington State University, Puyallup, WA, ³USDA-ARS, Hilo, HI, ⁴University of Louisiana at Lafayette
- 190 9:25 Use of Population Models for Protection of Biocontrols in IPM and Endangered Species. John D. Stark¹, John E. Banks², & Roger Vargas³, ¹Washington State University, Puyallup, WA, ²University of Washington, Tacoma, WA, ³USDA-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. Naranjo¹, Shujuan Li², ¹USDA-ARS, Maricopa, AZ, ²University 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 Peck¹ & Paul Banko², ¹University of Hawai'i at Hilo, ²USGS, 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. Banko¹, Chris Farmer² & Kevin Brinck², ¹USGS Hawaii, ²University 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 Cory¹, Scott A. Morrison², Lotus A. Vermeer¹, Kathryn R. Faulkner³, ¹TNC, Ventura, CA, ²TNC, San Francisco, CA, ³Channel 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 Foote¹, Cause Hanna² & Eric Spurr³, ¹USGS, HAVO, ²UC Berkeley, ³Landcare 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 Jaramillo¹ & James D. Harwood², ¹ICIPE, Nairobi, Kenya, ²University 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. Boser¹, Kathryn R. Faulkner², Coleen Cory¹, Lotus A. Vermeer¹, John M. Randall¹ & Scott A. Morrison¹, ¹The Nature Conservancy, San Francisco, CA, ²National 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.

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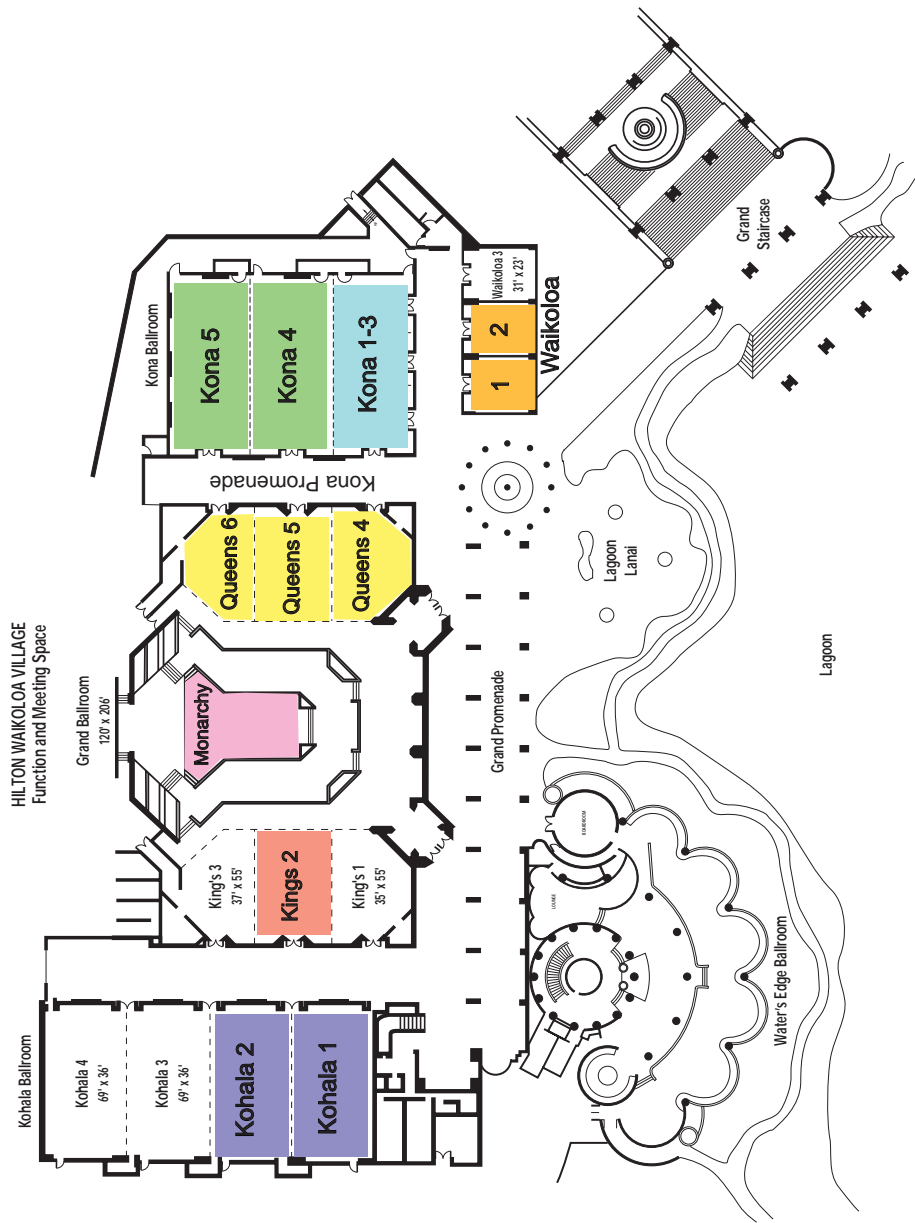
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Hilton Waikoloa Village Hotel

Meeting Room Layout