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Note on the cover: the art by Portland-based artist and illustrator Lauren Jarret includes representations of *Hippodamia oregonensis*

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2016-2017 Pacific Branch Entomological Society of America

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COMMITTEE CHAIR(S)

Auditing Tad Gantenbein
Award Canvasing Charles Burks
Award Selection David Haviland
Bylaws Lisa Neven

Continuing Education Pedro Hernandez

Linnaean Games Mike Bush
Local Arrangements Nik Wiman
Nominations Silvia Rondon
Operations Kerry Mauck
Program Laura Lavine
Erik Wenninger

Resolutions Vonnie Barlow
Site Selection (2019 meeting) Jamie Strange
Hollis Woodard

Quinn McFrederick

Student Employment Opportunities Alix Whitener

Student Paper/Poster Competition Joe Hull

Chris Looney Michael Orr

Student Texting Competition Michael Orr
Brendan Boudinot

Student Travel Awards Mike Bush

MEETING INFORMATION

PBESA 2017 LOGISTICS & BASICS

REGISTRATION: All PBESA 2017 attendees must register. You can register by credit card through the start of the meeting at www.entsoc.org/Pacific/2017-pacific-branch-annual-meeting. Credit card, cash, and checks will be accepted for on-site registration: \$230 (members), \$260 (non-members), \$80 (guests), and \$70 (students and honorary/emeritus members). One-day registration is \$110. Register in Lloyd Center Pre-Function East: April 3, 1:00 to 4:30 p.m.; April 4-5, 7:00 a.m. to 4:00 p.m.; April 6, 7:00 to 10:00 a.m.

SCHEDULE: The "Meeting-at-a-Glance" grid on page 6 shows the overall schedule. Full program with details begins on page 9.

MEETING INFORMATION: Schedule changes and other information of general interest will be posted at the PBESA registration desk.

HOTEL INFORMATION: The DoubleTree by Hilton Portland is located at 1000 NE Multnomah Street, Portland OR, 97232. There are several on-site dining options, a fitness center, heated swimming pool, and self-service business center. The hotel is on the MAX light rail line, across the street from Oregon's largest shopping mile and nine miles from Portland International Airport. The DoubleTree Hotel Portland has one of the largest on-site parking structures in town. Parking rates: \$18.00 overnight and \$5.00 per day.

HOTEL MAP: The meeting rooms are located on the 1st and 2nd floors of the hotel. Maps are provided on the back cover.

TRANSPORTATION

The DoubleTree by Hilton Portland is on the MAX light rail line with service between the Hotel and Portland International Airport. For a minimal fee MAX will transport guests from the Airport directly to the Hotel's doorstep. Service runs every 15 minutes seven days a week between 4:30 a.m. and 11:30 p.m.

Special Meetings and Events

FUN RUN: Join us at 10:00 a.m. (start time) on Sunday, April 2 for a 5k or 3k run/walk along Portland's beautiful waterfront. The start/finish line—at the Lloyd Boulevard Peace Memorial on the corner of NE Oregon St and NE Lloyd Blvd—may be reached by foot or the MAX Blue Line at NE 7th to Rose Quarter. Volunteers will escort participants to the start from the hotel, departing at 9:30 a.m. Refreshments will be served at this FREE event.

PLENARY SESSION: We are pleased to present a Plenary Session by Dr. Gregory Jones titled "Climate, Grapes and Wine: Understanding Terroir Influences and Sustainability in a Variable and Changing Climate" on Sunday, April 2 from 5:00 to 6:00 p.m. in the Hawthorne/Sellwood Room. Details are on page 9.

PACIFIC BRANCH EXECUTIVE COMMITTEE

MEETING: The Executive Committee will meet Sunday, April 2, from 6:30 p.m. to 8:30 p.m. in the Ross Island Room located on the first level.

STUDENT COMPETITION JUDGES &

MODERATORS MEETING: Those who have volunteered to serve as moderators or as judges for the student poster and paper competitions should attend an organizational meeting on Sunday, April 2 at 6:00-6:30 p.m. in Ross Island. All judges should meet in the Office Room on the first level at 5:00 p.m. on Monday April 3 to finalize the student competition evaluations. See Chris Looney or Joe Hull with any questions.

BUSINESS MEETINGS: The combination opening session/preliminary business meeting will be held from 8:00 a.m. to 12:00 p.m. on Monday, April 3 in the Multnomah Ballroom. See page 10 for details.

The final business meeting will be held from 7:00 to 8:00 a.m. on Wednesday, April 5 in the Hawthorne Room. A complimentary breakfast will be served to final business meeting attendees.

MEETING INFORMATION

PBESA MIXER/PRESIDENT'S RECEPTION:

PBESA 2016-2017 President Sanford Eigenbrode will host a reception for all registered PBESA 2017 attendees on Monday, April 5, from 6:00 to 8:00 p.m. in the PNW Ballroom.

TEXTING COMPETITION: The sixth annual texting competition will be held Monday, April 3 from 7:00 to 7:30 p.m. in Ross Island. Test your entomological knowledge and texting skills in this fast and fun competition. Participants earn points for accurately and quickly texting insects' Latin names and the answers to insect trivia questions. Participants must supply their own mobile phones and are responsible for texting costs. To register your mobile phone or other texting device, text your name to (435) 554-8408. Prizes are donated by BioQuip Products and BioQuipBugs. Please contact Michael Orr if you have any questions: michael.christopher.orr@gmail.com.

LINNAEAN GAMES

Linnaean Games will be held on Monday, April 3 from 8:00 to 10:00 p.m. in Hawthorne/Sellwood. The winning PBESA team and runner-up team both qualify to represent the branch by competing in the National ESA Linnaean Games. To offset their travel expenses to the national competition in Denver, CO (November 5-8, 2017), the first place winning team will receive \$2000 and the second place team will receive \$1000.

AWARDS LUNCHEON

The PBESA 2017 Awards Luncheon will be held on Tuesday, April 4 from 12:00 to 1:30 p.m. in the Multnomah/Holladay Ballroom. Your full conference registration includes admission to the luncheon.

SOCIAL HOUR WITH POSTER PRESENTERS

Join us for social hour with poster presenters on Tuesday, April 4 from 4:30 to 6:00 p.m. Posters will be displayed in Broadway/Weidler/Halsey.

EMPLOYMENT OPPORTUNITIES

The Pacific Branch will host a Student and Early Career Professional Employment Fair in a symposium format on Tuesday, April 4 in the Hawthorne room from 1:30 to 5:00 p.m. Representatives from industry, academia, and government sectors will be there to answer your questions, provide advice, and highlight some current openings in entomology. Please bring your questions, CV, and business cards. A social hour with a cash bar will follow in Broadway/Weidler/Halsey from 4:30 to 6:00 p.m.

CONTINUING EDUCATION CREDITS

Continuing Education Credits (CEC) will be available for Arizona, California, Idaho, and Washington for the following sessions. Monday, April 3: (1) Past, Present, and Future Approaches for Sustainable Thrips Management (3 credits), 1:30-4:30 p.m. in Holladay and (2) What's New in Industry (1.5 credits), 4:45-6:15 p.m. in Holladay. Tuesday, April 4: (1) Ten Minute Paper Oral Presentations (2 credits), 8:00-10:00 a.m. in Multnomah/Holladay and (2) Advancements and Challenges in Alfalfa and Forage Pest Management (3 credits), 1:30-4:30 p.m. in Sellwood. A registration table will be set up outside these rooms. A total of 9.5 CEC will be offered for the meeting. Contact Pedro Hernandez for more information (PHernandez@nichino.net).

PHOTO SALON

The Photo Salon will be held Tuesday, April 4 from 4:30 to 6:00 p.m. in Broadway/Weidler/Halsey. This event is organized by Lisa Brain (brain@agrimgt.com). The Photo Salon features a \$50 prize and is for sharing your fascination of shots of insect form, function, and behavior. We highly encourage photos of outreach and extension, and of people interacting with insects. This is a great opportunity to see important or interesting insects, invasive species, native pollinators, natural enemies, and the artistic talents of PBESA entomologists.

MEETING INFORMATION

PRESENTER/MODERATOR INSTRUCTIONS

POWERPOINT SLIDESHOW PRESENTATIONS

Speakers who present submitted papers (Student Competition or General Session) must bring their PowerPoint files on a USB drive to the Operations Committee table in the Office behind the Registration Table preferably the day before their scheduled session. Student Competition speakers must have their talks uploaded by 11:00 a.m. on the day of their talk. Uploads on the day of the talk, however, will not be afforded the opportunity to correct any technical issues. Mac users, please make sure your presentation file has a .ppt(x) file extension. Members of the Operations Committee will upload the file and you will be provided a chance to look over the presentation and ensure that it transferred correctly. There will be no formal area for students to practice. Students are also asked to meet with their respective session moderators 5-10 minutes prior to the start of their session to go over presentation titles and final instructions.

Please contact Kerry Mauck (kerry.mauck@ucr.edu) with questions about audio/visual operations.

CODE OF CONDUCT

By attending the 2017 Pacific Branch ESA Annual Meeting, you agree voluntarily to abide by our ethics policy. The full policy may be found online at entsoc.org/conduct. If you need to file a complaint, please contact Rosina Romano at rromano@entsoc.org, 703-593-0222.

POSTER DISPLAY PRESENTATIONS

Student posters will be displayed Monday, April 3 from 1:30 to 5:00 p.m. in the Broadway/Weidler/Halsey rooms. Students are requested to hang their posters from 8:00 a.m. to 12:00 p.m. on Monday. Students should be prepared to discuss their poster with judges from 3:00 to 4:30 p.m. while judging is underway. Students who are not by their posters will not be judged. There is room to have your poster on display for the entire meeting, so posters do not have to be removed until the end of the meeting.

General Posters should be available for viewing on Tuesday in Broadway/Weidler/Halsey. There is room to have your poster on display for the entire meeting, so please put up your poster as soon as you are able, first thing Monday morning. Bring your own Velcro strips or tacks to secure your display to the poster board.

Tuesday poster presenters are encouraged to be present at their posters from 4:30 to 6:00 p.m. during the Social Hour with Poster Presenters. Breaks are also popular times to view posters. All posters should be removed by the end of the meeting.

MODERATOR RESPONSIBILITIES

Moderators for symposia are responsible for collecting and bringing symposia presentations on a personal laptop. Presentations for student competitions and general session papers will be collected by the Operations Committee and will be provided on a laptop for use in the session. Moderators of all symposia and general sessions should attend the moderators training meeting at 6:00 p.m. on Sunday, April 2 in Ross Island. If a presentation is completed early or cancelled, the moderator must ensure that the subsequent presentation begins at the scheduled time. Any questions regarding procedures or the roles of moderators can be addressed by contacting Kerry Mauck (kerry.mauck@ucr.edu).

SUNDAY	MONDAY	TUESDAY	WEDNESDAY
2-April 2017	3-April 2017	4-April 2017	5-April 2017
	7:00 a.m. to 4:00 p.m.		7:00 a.m. to 10:00 a.m.
2017 PBESA	Registration Desk Open : Lloyd Center Pre-Function East		Registration Desk
ZUI/ PBESA	8:00 a.m. to 12:00 p.m.	8:00 a.m. to 12:00 p.m.	7:00 a.m. to 8:00 a.m.
	1) Opening Session/	1) Symp: Bottom-Up	Final Business Meeting
"Foundations &	Preliminary Business	Control	
	Meeting 2) 2017 C.W. Woodworth	2) Symp: Host Plant Resist 3) Symp: Honoring WP	
Futures –	Winner Presentation	Stephen #1	
Recognizing	3) 2017 John Henry	4) TMP	
	Comstock Award Winner	5) Symp: Latest in BMSB	
PBESA's	Presentation	6) Symp: Molecular 1	
Contributions	4) Hang Student Posters	7) Science Communication	
Contributions		Panel (11-12)	
to Entomology"		8:00 a.m. to 6:00 p.m.	8:00 a.m. to 12:00 p.m.
		Posters available for	1) Symp: Honoring Les
		viewing	Ehler's Legacy 2) Symp: SWD
Meeting at a			3) Symp: Range
			Expansion of Insects
Glance			4) Symp: Floral
			Specializations
	12:00 p.m. to 1:30 p.m.	12:00 p.m. to 1:30 p.m.	12:00 p.m.
	Lunch on your own	Awards Luncheon Multnomah/Holladay	Meeting Adjourn
1:00 p.m. to 4:30 p.m.	1:30 p.m. to 5:00 p.m.	1:30 p.m. to 5:00 p.m.	
Registration Desk Open	1) Student oral and poster	1) Symp: Alfalfa & Forage	oCIETY o
Lloyd Center	competition	Pest Management	CAL SOCIAL PAR
Pre-Function East	2) Symp: Thrips Mgmt In	2) Symp: Molecular 2	TEAL TEAL
	Changing Climate	3) Symp: Invasive Species	010
	3) Symp: Pop Genetics of	4) Symp: Student & Early	8
	Herbivorous Insects 4) Symp: Natural &	Career Professional Employment Fair	No To
	Anthropogenic Disturbance	5) TMP	
	on Native Bee Communities	<i>5</i> ,	
	5) TMP		DoubleTree by
	4:45 p.m. to 6:30 p.m.	4:30 p to 6:00 p.m.	Hilton
	1) What's New in Industry	Career Fair Reception in	Portland, OR
E-00 t- C-00	2) Hang Posters (by 10 p.m.)	Conjunction with:	2-5 April 2017
5:00 p.m. to 6:00 p.m. Plenary Session	6:00 p.m. to 8:00 p.m. PBESA Mixer	4:30 p.m. to 6:00 p.m. Social Hour with Poster	
Greg Johnson	PDESA IVIIXEI	Presenters	http://www.entsoc
6:00 p.m. to 6:30 p.m.	7:00 p.m. to 7:30 p.m.	6:00 p.m.	.org/pacific/2017-
Moderator/Judge Mtg	Texting Competition	Dinner on your own	pacific-branch-
6:30 p.m. to 8:30 p.m.	8:00 p.m. to 10:00 p.m.	,	annualmeeting
Executive Board Mtg	Linnaean Games		aradimeeting
<u> </u>	<u> </u>	<u> </u>	

WOODWORTH & COMSTOCK AWARD WINNER BIOS

GERHARD & REGINE GRIES 2017 C.W. WOODWORTH AWARD



Gerhard Gries received his PhD in Forest Entomology and Regine Gries earned her Agricultural Engineer's degree from the Georg-August-Universität (GAU) in Germany. Regine and Gerhard have been working together since 1988 and are currently at Simon Fraser University. Gerhard holds an Industrial Research Chair sponsored by Scotts Miracle-Gro and the Natural Sciences and Engineering Research Council of Canada. The Chair's research investigates olfaction, vision, audition, vibration, magneto-reception, and infra-red sensing mainly on insects and spiders to unravel the mechanisms of communication and resourceforaging to develop pest management tactics. Regine mentors students in electrophysiology and analytical chemistry. Regine and Gerhard have collaboratively identified pheromones for 65 species of insects and spiders, most recently the six-component aggregation pheromone of common bed bugs. Their laboratory has graduated 53 students (12 PhD, 41 Masters), published 262 peer-reviewed articles (141 coauthored by Gerhard and Regine), and filed 24 patent applications (including 19 co-inventions by Gerhard and Regine). Remarkably, 41 undergraduate investigators in the laboratory have co-authored peer-reviewed papers. The laboratory has received >\$9 million in research support and currently comprises 12 graduate students, three Research Associates, and many undergraduate students, often recruited from Gerhard's insect biology class.

AMELIA LINDSEY 2017 JOHN HENRY COMSTOCK GRADUATE STUDENT AWARD



Amelia Lindsey is a PhD candidate in the laboratory of Dr. Richard Stouthamer at the University of California Riverside (UCR). Broadly, she is interested in the evolution of symbiosis. Her dissertation research focuses on the genomic and evolutionary consequences of infection with parthenogenesis-inducing Wolbachia in the parasitoid wasp Trichogramma. As part of her dissertation, Amelia is coordinating the Trichogramma pretiosum genome project and has published the genome of the associated Wolbachia strain. In 2011, Amelia received her Bachelor's degree in Biological Sciences cum laude from San José State University. During her time as a Chancellor's Fellow at UCR, she has been awarded an NSF Doctoral Dissertation Improvement Grant, a USDA NIFA Pre-Doctoral Fellowship, two van den Bosch Scholarships for Research in Biological Control, and multiple UCR scholarships. As a student member of ESA, she has organized symposia, competed with the UCR Linnaean Games team, including the 2013 national championship team, and has won several awards. Amelia is also a coach for the Science Olympiad, leads outreach events for the community, and moderates the social media pages for UCR Entomology and the Annual Riverside Insect Fair.

PRESIDENT BIOS

PBESA 2017-2018 BRAD HIGBEE



Brad Higbee is the Field R & D Manager for Trécé Inc., a biotechnology company specializing in insect pheromone and kairomone products. He was formerly (until Jan 2017) Director of Entomology Research at Wonderful Orchards, one the largest growers of almonds, pistachios and pomegranates in the world. After attending the University of California, Irvine, he worked as a technician with the USDA-ARS in Yakima, WA from 1978 to 1990, developing biocontrol programs for pests of pears and insect predator rearing techniques, while continuing his studies at UC Berkeley, Central Wash. Univ. and Wash. St. Univ. He was promoted in 1990 and his research shifted to apple and pear pest management, including pioneering work in the use of insect hormones for the control of pear psylla. In 1995 he was promoted and assigned to manage two Codling Moth Area wide Projects, which were pivotal in the integration of mating disruption into the apple and pear industries. In 2002, he accepted a position with Paramount Farming Co. His work with Paramount (now Wonderful Orchards) has included mating disruption of navel orangeworm and development of management programs for pests in almonds, pistachios and pomegranates. He has published over 60 research articles in peer reviewed scientific journals, 3 book chapters and has served on numerous industry and professional committees.

PRESIDENT-ELECT NOMINEE JENNIFER A. HENKE



Jennifer A. Henke is the Laboratory Manager at the Coachella Valley Mosquito and Vector Control District. She has a Bachelor's of Science in Biology from the University of Alabama and a Master's of Science in Entomology from the University of Georgia. Jennifer began at the District in 2011 as the Environmental Biologist. She manages the laboratory group which conducts adult mosquito surveillance, tests for arboviruses, examines pesticide product efficacy, and implements novel control products and strategies targeted at mosquitoes and fire ants. Her work includes collaborating with researchers from universities and government agencies to explore novel control strategies for vectors in the desert. Jennifer currently serves on the Linnaean Games Committee and served as the moderator at the 2016 annual meeting. She is also active on committees within the Mosquito and Vector Control Association of California and the American Mosquito Control Association. Outside of work, she is likely to be found taking pictures, travelling to new places, or watching live music in southern California.

SUNDAY, APRIL 2nd

SUNDAY EVENTS

Fun Run

10:00 a.m. (start time) Lloyd Boulevard Peace Memorial on the corner of NE Oregon St and NE Lloyd Boulevard

Registration

1:00 p.m. to 4:30 p.m. Lloyd Center Pre-Function

Plenary Session

Dr. Gregory V. Jones

"Climate, Grapes and Wine: Understanding Terroir Influences and Sustainability in a Variable and Changing Climate"

5:00 p.m. to 6:00 p.m. Hawthorne/Sellwood

Student Competition Judge & Moderator Meeting

6:00 p.m. to 6:30 p.m. Ross Island

Executive Board Meeting

6:30 p.m. to 8:30 p.m. Ross Island



DR. GREGORY V. JONES PLENARY SPEAKER

Gregory V. Jones is a professor and research climatologist in the Department of Environmental Science and Policy at Southern Oregon University. He conducts applied research for the grape and wine industry in Oregon and many regions worldwide and has given hundreds of international, national, and regional presentations on climate and wine-related research. He is the author of numerous book chapters and other reports and articles on wine economics, grapevine phenology, site assessment methods for viticulture, climatological assessments of viticultural potential, and climate variability and change impacts on wine production. He was named to Decanter Magazine's 2009 Power List representing the top 50 most influential people in the world of wine, named the Oregon Wine Press's 2009 Wine Person of the Year, and has been in the top 100 most influential people in the US wine industry in 2012 and 2013.

OPENING SESSION AND PRELIMINARY BUSINESS MEETING

8:00 a.m. to 12:00 p.m. Multnomah Ballroom

8:00 Welcome and Opening Remarks, Sanford Eigenbrode 2017 ESA Pacific Branch President

8:20	National ESA Report, Susan Weller, President ESA
8:30	Update from ESA Central, David Gammel, Executive Director, ESA
8:40	ESA Section Reports
	P-IE Section, Diane Alston
	PBT Section, Joe Hull
8:50	Early Career Professionals Report, Jhalendra Rijal
9:00	The Legacy of C.W. Woodworth, Brian Holden, Great grandson of C.W. Woodworth
9:10	2017 C.W. Woodworth winner presentation – Gerhard and Regine Gries, Simon Fraser
	University, "Studying insect communication in the C.W. Woodworth spirit"
9:30	2017 John Henry Comstock Award winner presentation – Amelia Lindsey, University of
	California-Riverside, "Evolutionary consequences of Wolbachia-mediated
	parthenogenesis in <i>Trichogramma</i> wasps"
10:00	BREAK
10:30	Preliminary Business Meeting
	Governing Board report, Doug Walsh
	PBESA Executive Committee report, Sanford Eigenbrode
	Secretary/Treasurer report, Jesse Richardson
	Nominations report, Siliva Rondon
	Announcements/New business, Sanford Eigenbrode

12:00 to 1:30 p.m.—Lunch on Your Own

Student Competition Posters should be posted before 1:30 p.m. in Broadway/Weidler/Halsey

MONDAY FVFNTS

Registration

7:00 a.m. to 4:00 p.m. Lloyd Center Pre-Function East

Opening Session and Preliminary Business Meeting

8:00 a.m. to 12:00 p.m. Multnomah. See page 10 for details.

Student Competition Judges Meeting 5:00 to 5:30 p.m. Office

Hang General Posters

6:00 to 10:00 p.m. Broadway/Weidler/Halsey

PBESA Mixer/ President's Reception 6:00 to 8:00 p.m. PNW Ballroom

Texting Competition

7:00 to 7:30 p.m. Ross Island

Prizes Donated by BioQuip Products and
BioQuipBugs

Linnaean Games

8:00 to 10:00 p.m. Hawthorne/Sellwood

MONDAY POSTERS

Undergraduate Poster Competition Broadway/Weidler/Halsey

P1 Microbial-based production of RNAi targets to control spotted wing drosophila, *Drosophila suzukii*. **Hakyoung You** (youha@oregonstate.edu)¹, Kelly Donahue², Seung-Joon Ahn³, Robert Martin³ and Man-Yeon Choi², ¹Oregon State Univ., Corvallis, OR, ²USDA-ARS, Corvallis, OR, ³USDA-ARS, Corvallis, OR

P2 The search is on for zebra chip resistant potatoes. **Sara Shellenberger** (lyla80918223@gmail.com)¹, Joseph Munyaneza² and William Cooper², ¹Central Washington Univ., Ellensburg, WA, ²USDA-ARS, Wapato, WA

P3 Relationship of initial oviposition to colony success in three bumble bee species. Blake McKinley (blakejmckinley@gmail.com)¹, James Herndon¹, James Strange² and Karen Kapheim¹, ¹Utah State Univ., Logan, UT, ²USDA-ARS, Logan, UT

P4 Determining levels of etoxazole resistance in two-spotted spider mite (*Tetranychus urticae*) populations in almonds. **Lincoln Denlinger** (Idenlinger@mail.fresnostate.edu) and Jacob Wenger, California State Univ., Fresno, Fresno, CA

P5 Analyzing the effects of varying tropical forest conditions in Mastatal, Costa Rica on ground-dwelling spider (Araneae) biodiversity using functional diversity as a primary metric.

Mercedez Lam (mlam@csumb.edu), California State Univ., Monterey Bay, Seaside, CA

P6 Pesticide effects on *Micrococcus luteus*, *Metschnikowia reukaufii* populations, and *Apis mellifers* diets. **Crystal Espindola** (apbio28@mail.fresnostate.edu) and Jacob Wenger, California State Univ., Fresno, CA

P7 Insect and weed interactions in small-farm Southeast Asian cropping systems. May Yang (maynhiayang@mail.fresnostate.edu)^{1,2}, Robert Straser², Jesus Ceja^{1,2}, Alejandro Hernandez², Ruth Dahlquist-Willard³, Anil Shrestha¹ and Kent Daane², ¹California State Univ., Fresno, Fresno, CA, ²Univ. of California, Berkeley, Parlier, CA, ³Univ. of California Cooperative Extension, Fresno, CA

Masters Poster Competition Broadway/Weidler/Halsey

P8 Cold tolerance, diapause, and survival of the brown marmorated stink bug (*Halyomorpha halys*). **Naomi Rathburn** (rathbure@cwu.edu) and Dr. Jason Irwin, Central Washington Univ., Ellensburg, WA

P9 Estimating age structure of wild *Anopheles* populations using the captive cohort method. **Stephanie Kurniawan**

(skurniawan@ucdavis.edu)¹, Kong Cheung¹, James R. Carey², Shirley Luckhart² and Ed Lewis², ¹Univ. of California, Davis, Davis, CA, ²Univ. of California, Davis, CA

P10 Biocontrol of invasive BMSB using an exotic egg parasitoid in Washington State. **Joshua Milnes** (joshua.milnes@wsu.edu) and Elizabeth H. Beers, Washington State Univ., Wenatchee, WA

P11 Alternative routes: exploring new avenues for pesticide encounters by solitary bees. **Andi Kopit** (andikopit16@gmail.com)¹ and Theresa Pitts-Singer², ¹Utah State Univ., Logan, UT, ²USDA-ARS, Logan, UT

P12 Single-visit pollination efficacy of five managable bees for commercial raspberry (*Rubus idaeus*). **Corey Andrikopoulos** (cja576@gmail.com)¹, James H. Cane² and Diane G. Alston¹, ¹Utah State Univ., Logan, UT, ²USDA-ARS, Logan, UT

P13 Peak fertility age in *Bombus impatiens*. **James Herndon** (james.herndon85@gmail.com)¹, Lee Rickords¹, James Strange², Amber D. Tripodi² and Karen Kapheim¹, ¹Utah State Univ., Logan, UT, ²USDA-ARS, Logan, UT

P14 Incorporating insect sensory behavior in host-specificity testing for safety assessments in classical weed biological control. Basu Kafle (basukafle@uidaho.edu), Sanford Eigenbrode and Mark Schwarzlaender, Univ. of Idaho, Moscow, ID

P15 Locomotory responses to olfactory cues during host finding can inform environmental safety assessments of biological weed control agents. Jessica Fung (jfung@uidaho.edu), Basu Kafle, Karuna Nepal, Sanford Eigenbrode and Mark Schwarzlaender, Univ. of Idaho, Moscow, ID

PhD Poster Competition Broadway/Weidler/Halsey

P16 Possible pheromones of leaffooted bugs. **Tessa Shates** (tshat003@ucr.edu)¹, Jeffrey Aldrich², Steven McElfresh¹, Sean T. Halloran¹, Kent Daane³ and Jocelyn G. Millar¹, ¹Univ. of California, Riverside, Riverside, CA, ²Univ. of California, Davis, CA, ³Univ. of California, Berkeley, Parlier, CA

P17 Screening for resistance to zebra chip in potato germplasm. Regina Karin Cruzado Gutierrez (cruz8967@vandals.uidaho.edu)¹, Nora Olsen², Erik J. Wenninger², Richard G. Novy³, Nilsa Bosque-Perez⁴ and Arash Rashed¹, ¹Univ. of Idaho, Aberdeen, ID, ²Univ. of Idaho, Kimberly, ID, ³USDA-ARS, Aberdeen, ID, ⁴Plant, Soil and Entomological Sciences, Univ. of Idaho, Moscow, ID

P18 Direct pest exclusion: a potential solution. **Adrian Marshall** (atmarshall@wsu.edu) and Elizabeth H. Beers, Washington State Univ., Wenatchee, WA

P19 Multiple acaricide resistance of *Teteranchyus urticae* in hops. **Adekunle Adesanya** (adekunle.adesanya@wsu.edu)¹,
Meixiang Wu², Laura Lavine³, Doug Walsh⁴ and Fang Zhu⁵, ¹Washington State Univ., Pullman, WA, ²Visiting Research Scholar, pullman, WA, Afghanistan, ³WSU, Pullman, WA, ⁴Washington State Univ., Prosser, WA, ⁵Professor, pullman, WA

P20 Plant defense responses to generalist and specialist spider mites in maize. **Gunbharpur Gill** (Gunn.Gill@usu.edu)¹, Alice Ruckert¹, Huyen Bui², Richard Clark² and Ricardo Ramirez¹, ¹Utah State Univ., Logan, UT, ²Univ. of Utah, Salt Lake City, UT

P21 Toxicity of Rimon and Dimilin to *Drosophila suzukii* (Diptera:Drosophilidae) by three routes of exposure. **Alix Whitener** (alix.crilly@wsu.edu) and Elizabeth H. Beers, Washington State Univ., Wenatchee, WA

MONDAY ORAL

Undergraduate TMP Competition *Hawthorne*

Moderators: Chris Looney¹ and Steven F. Garcyznski², ¹Washington State Dept. of Agriculture, Olympia, WA, ²USDA-ARS, Wapato, WA

1:30 PM 1 Monitoring *Bombus impatiens* in cold storage. Thuy Tien Lindsay (TIEN1438@GMAIL.COM), Utah State Univ., Logan, UT

1:42 PM 2 Effects of "Candidatus Phytoplasma pyri" on the flight behavior of pear psylla, Cacopsylla pyricola (Hemiptera: Psyllidae). **Mireya Cruz** (CruzM5@heritage.edu)¹, William Cooper² and David Horton², ¹Heritage Univ., Toppenish, WA, ²USDA-ARS, Wapato, WA

1:54 PM 3 Functional characterization of CYP4G36 in yellow fever mosquito, *Aedes aegypti*. Manoj Mathew (manojm@nevada.unr.edu) and Monika Gulia-Nuss, Univ. of Nevada, Reno, Reno, NV

2:06 PM 4 Comparison of the thermal performance between two resident pupal parasitoids of *Drosophila suzukii*. Xingeng Wang¹, Kent Daane², Betsey Miller³, Vaughn Walton³ and **Michael Serrato** (michaelserrato222@gmail.com)⁴, ¹Univ. of California Berkeley, Parlier, CA, ²Univ. of California, Berkeley, Parlier, CA, ³Oregon State Univ., Corvallis, OR, ⁴Univ. of California Berkeley, Perlier, CA

Masters TMP Competition Hawthorne

Moderators: Chris Looney¹ and Steven F. Garcyznski², ¹Washington State Dept. of Agriculture, Olympia, WA, ²USDA-ARS, Wapato, WA

2:05 PM 53 Effect of non-nutritive sugars on *Drosophila suzukii*. Siew Bee Tang (tangsie@oregonstate.edu)¹, Seung-Joon Ahn², Jana Lee² and Man-Yeon Choi², ¹Oregon State Univ., Corvallis, OR, ²USDA-ARS, Corvallis, OR

2:17 PM 54 Observing the settling behavior of the potato/tomato psyllid, *Bactericera cockerelli* (Šulc) (Hemiptera: Triozidae), on different potato (*Solanum tuberosum*) germplasms. Austin Fife (afife@uidaho.edu)¹, Erik J. Wenninger¹, Richard G. Novy², Arash Rashed³ and Nilsa A. Bosque-Pérez⁴, ¹Univ. of Idaho, Kimberly, ID, ²USDA-ARS, Aberdeen, ID, ³Univ. of Idaho, Aberdeen, ID, ⁴Univ. of Idaho, Moscow, ID

2:29 PM 55 Screening for host plant resistance against the sugar beet root maggot, *Tetanops myopaeformis* (Diptera: Ulidiidae), using a greenhouse bioassay. **Tucker Daley** (tdaley@uidaho.edu)¹ and Erik J. Wenninger², ¹Univ. of Idaho, Moscow, ID, ²Univ. of Idaho, Kimberly, ID

2:41 PM Break

PhD 2 Competition

Hawthorne

Moderators: Chris Looney¹ and Steven F. Garcyznski², ¹Washington State Dept. of Agriculture, Olympia, WA, ²USDA-ARS, Wapato, WA

3:30 PM 56 The effects of climate change on nectar microbes and pollinator preference. **Kaleigh Russell** (kruss002@ucr.edu)¹ and Quinn McFrederick², ¹Univ. of California Riverside, Riverside, CA, ²Univ. of California, Riverside, CA

- **3:42 PM 57** The influence of overwintering lifestage on emergence responses to temperature and duration of winter in solitary bees. **Anthony Slominski** (anthony.slominski@gmail.com), Montana State Univ., Bozeman, MT
- **3:54 PM 58** Is city life affecting your diet? A study of bumble bee lipid content across urbanized landscapes. **Rachel Olsson** (rachel.olsson@wsu.edu) and David Crowder, Washington State Univ., Pullman, WA
- **4:06 PM 59** Diverse pollinator assemblages use planted forb "island" restoration treatments within burned areas in shrub-steppe habitats. **Ashley Rohde** (a.t.rohde@hotmail.com)¹, David Pilliod² and Anne Halford³, ¹Utah State Univ., Logan, UT, ²U.S. Geological Survey, Boise, ID, ³Bureau of Land Management, Boise, ID
- **4:18 PM 60** [Cancelled] Longitudinal effects of forage exposure on the honey bee microbiome. **Jason Rothman** (jason.rothman@email.ucr.edu)¹ and Quinn McFrederick², ¹Univ. of California Riverside, Riverside, CA, ²Univ. of California, Riverside, CA
- **4:30 PM 61** Bumblebee and pollen foraging relationships after wildfire. **Michael Simanonok** (michael.simanonok@msu.montana.edu) and Laura Burkle, Montana State Univ., Bozeman
- **4:42 PM 62** Resolving the phylogeny of ant parasitoids in the subfamily Oraseminae (Hymenoptera: Eucharitidae) using anchored hybrid enrichment. **Austin Baker** (bakerau73@gmail.com) and John M. Heraty, Univ. of California, Riverside, CA

PhD 1 TMP Competition

Mt Helens

Moderators: Joe Hull and Jeffrey A. Fabrick, USDA-ARS, Maricopa, AZ

- 1:30 PM 22 First identification of likely pheromones for North American click beetle species. Jacqueline Serrano (jserr005@ucr.edu)¹, R. Maxwell Collignon¹, J. Steven McElfresh¹ and Jocelyn G. Millar², ¹Univ. of California, Riverside, CA, ²Univ. of California, Riverside, CA
- 1:42 PM 23 Developing a degree-day model to predict billbug (Coleoptera: Curculionidae) seasonal activity in managed turfgrass.

 Madeleine Dupuy (madeleine.dupuy@usu.edu), James Powell and Ricardo Ramirez, Utah State Univ., Logan, UT
- **1:54 PM 24** European earwig (*Forficula auricularia*) is an underappreciated aphid predator in apple orchards. **Robert Orpet** (robert.orpet@wsu.edu)¹, Vincent Jones¹ and David Crowder², ¹Washington State Univ., Wenatchee, WA, ²Washington State Univ., Pullman, WA
- 2:06 PM 25 The effects of outbreeding on a parasitoid wasp infected with parthenogenesis-inducing *Wolbachia*. Amelia Lindsey (alind005@ucr.edu) and Richard Stouthamer, Univ. of California, Riverside, CA
- 2:18 PM 26 Partnering with a pest: insights from the genomes of the bacterial symbionts of hemlock woolly adelgid. Kathryn Weglarz (kathryn.weglarz@usu.edu) and Carol von Dohlen, Utah State Univ., Logan, UT
- 2:30 PM 27 An Argentine ant baiting system for improved biological control of honeydew-producing hemipteran pests in southern California commercial citrus. Kelsey Schall (kscha008@ucr.edu) and Mark S. Hoddle, Univ. of California, Riverside, CA
- **2:42 PM 28** Assessing the importance of associational susceptibility in declines of a native shrub. **Sarah O'Neill** (sdave001@ucr.edu), Matt Daugherty and Richard Redak, Univ. of California, Riverside, CA

2:54 PM Break

- **3:24 PM 29** Banks grass mite (Acari: Tetranychidae) suppression may be an added benefit of drought-tolerant corn hybrids in drought conditions. **Alice Ruckert** (alice.ruckert@usu.edu) and Ricardo Ramirez, Utah State Univ., Logan, UT
- **3:36 PM 30** Modeling seasonal population dynamics of the potato psyllid, *Bactericera cockerelli* (Hemiptera: Triozidae). **Abigail Cohen** (abigail.cohen@wsu.edu), Washington State Univ., Pullman, WA
- **3:48 PM 31** Seasonal dynamics of *Spissistilus festinus*, a vector of grapevine red blotchassociated virus, in Californian vineyards. **Cindy Preto** (crpreto@ucdavis.edu), Univ. of California Davis, Sacramento, CA
- **4:00 PM 32** Ovipositional responses of *Culex tarsalis* to semiochemicals associated with fish in laboratory bioassays. **Adena Why** (awhy001@ucr.edu), William E. Walton and Dong-Hwan Choe, Univ. of California, Riverside, CA
- **4:12 PM 33** Upregulation of plant defense genes on organic farms. **Karol Krey** (karol.krey@wsu.edu)¹, Paul Nabity², John Reganold¹ and William E. Snyder¹, ¹Washington State Univ., Pullman, WA, ²UC Riverside, Riverside, CA
- **4:24 PM 34** Evaluating the role of NADPH-cytochrome P450 reductase in acaricide resistance in the generalist herbivore: *Tetranchyus urticae* Koch. **Adekunle Adesanya** (adekunle.adesanya@wsu.edu)¹, Mariany Morales¹, Doug Walsh², Laura Lavine³ and Fang (Rose) Zhu¹, ¹Washington State Univ., Pullman, WA, ²Washington State Univ., Prosser, WA, ³WSU, Pullman, WA

Monday Afternoon TMP

Ross Island

Moderator: Luc Leblanc, Univ. of Idaho, Moscow, ID

- **1:30 PM 5** Implications of no-chill duration on post-diapause emergence of the western cherry fruit fly, *Rhagoletis indifferens*. **Lisa Neven** (lisa.neven@ars.usda.gov) and Wee Yee, USDA-ARS, Wapato, WA
- 1:42 PM 6 Transmission-conducive effects of a plant virus on host chemistry and vector behavior depend on host symbiosis with a beneficial root microbe. Kerry Mauck (kerry.mauck@ucr.edu)¹, Milica Nenadic², Luca Grandi³, Mark Mescher⁴ and Consuelo De Moraes⁴, ¹Univ. of California, Riverside, Riverside, CA, ²ETH Zurich, Zurich, Switzerland, ³Univ. de Neuchâtel, Institute of Biology, Neuchâtel, Switzerland, ⁴ETH Zürich, Zuerich, Switzerland
- 1:54 PM 7 Two in one: cryptic species discovered in biological control agent populations using molecular data and crossbreeding experiments. Doug Downie (dddaddownie@gmail.com)¹, Iain Paterson¹, Rosie Mangan¹, Julie Coetzee¹, Martin Hill¹, Thomas Henry², Ashley Burke¹, Stephen Compton¹ and Paul Downey³, ¹Rhodes Univ., Grahamstown, South Africa, ²USDA-ARS, Washington, DC, ³Univ. of Canberra, Canberra, Australia
- 2:06 PM 8 Report on recent surveys of fruit flies (Diptera: Tephritidae: Dacinae) in Bangladesh. Luc Leblanc (leblancl@uidaho.edu)¹, M. Aftab Hossain² and Shakil Khan², ¹Univ. of Idaho, Moscow, ID, ²Atomic Energy Research Establishment, Dhaka, Bangladesh
- **2:18 PM 9** Transcriptome analysis and neuropeptide repertoire of the gray garden slug, *Deroceras reticulatum*. **Seung-Joon Ahn** (ahns@oregonstate.edu)^{1,2}, Ruth Martin¹, Sujaya Rao² and Man-Yeon Choi², ¹USDA-ARS, Corvallis, OR, ²Oregon State Univ., Corvallis, OR

2:30 PM 10 New molecular tools for tick research. **Monika Gulia-Nuss** (mgulianuss@unr.edu), Univ. of Nevada, Reno, RENO, NV

2:42 PM 11 Six-spined pine engraver (*Ips calligraphus*) experimenting with a Mediterranean diet in southern Arizona. Peter Warren (plwarren@cals.arizona.edu), Univ. of Arizona, Tucson, AZ

2:54 PM 12 Rising hazelnut acreage could increase area wide pest pressure from wood boring beetles Pacific flatheaded borer Chrysobothris mali Horn, and the ambrosia beetles Anisandrus dispar (Fabricius) and Xyleborinus saxesenii (Ratzeburg). Heather Andrews (heather.andrews@oregonstate.edu)¹, Kody Transue², Kylie Mendonca³ and Nik G. Wiman¹, ¹Oregon State Univ., Aurora, OR, ²Clackamas Community College, Oregon City, OR, ³Cal Poly San Luis Obispo, San Luis Obispo, CA

3:06 PM 13 Acoustics of the coconut rhinoceros beetle (*Oryctes rhinoceros*). **John Allen** (alleniii@hawaii.edu), Daniel Jenkins and Mitch McLean, Univ. of Hawaii Manoa, Honolulu, HI

Past, Present, and Future Approaches for Sustainable Thrips Management in a Changing Climate Holladay

Moderator: Alistair McKay, Dow AgroSciences

1:30 PM 14 The role of thrips in spider mite biocontrol: *Scolothrips sexmaculatus* in California almonds. **David R. Haviland** (dhaviland@ucdavis.edu)¹ and Stephanie M. Rill², ¹Univ. of California Cooperative Extension, Bakersfield, CA, ²Univ. of California, Bakersfield, CA

1:50 PM 15 Postharvest management of bean thrips. Sandipa Gautam (sandipa.gautam@ucr.edu)¹, Spencer Walse² and Elizabeth Grafton-Cardwell³, ¹Univ. of California at Riverside, Parlier, CA, ²USDA-ARS, Parlier, CA, ³Univ. of California, Riverside, CA

2:10 PM 16 Management strategies for thrips in onions: a major pest in a minor crop. Timothy Waters (twaters@wsu.edu), Washington State Univ., Pasco, WA

2:30 PM 17 Citrus thrips management in blueberries: an economic injury level quagmire. **Stephanie M. Rill** (smrill@ucdavis.edu)¹ and David R. Haviland², ¹Univ. of California, Bakersfield, CA, ²Univ. of California Cooperative Extension, Bakersfield, CA

2:50 PM 18 Integrated citrus thrips management using spinosyn and spinetoram in western citrus production. **Alistair McKay** (ahmckay@dow.com)¹ and Elizabeth Grafton-Cardwell², ¹Dow AgroSciences, Clovis, CA, ²Univ. of California, Riverside, CA

3:10 PM Break

3:30 PM 19 Temporal incidence and host preference of western flower thrips in the Salinas Valley of California. **Shimat Joseph** (svjoseph@ucanr.edu), Univ. of California Cooperative Extension, Salinas, CA

3:50 PM 20 Sustainable management of the western flower thrips as a *Tospovirus* vector. **Diane E. Ullman** (deullman@ucdavis.edu), Univ. of California, Davis, CA

4:10 PM 21 Thrips management on desert lettuce: an historical perspective and future outlook. **John Palumbo** (jpalumbo@ag.arizona.edu)¹ and Jesse M. Richardson², ¹Univ. of Arizona, Yuma, AZ, ²Dow AgroSciences, Hesperia, CA

Population Genetics of Herbivorous Insects

Sellwood

Organizer: Daisy Zhen Fu, Washington State

University

1:30 PM 35 Population genetic patterns observed in bumble bee in heterogeneous habitats of the western U.S. **James Strange** (James.Strange@ars.usda.gov), USDA-ARS, Logan, UT

1:50 PM 36 Genomic basis of rapid adaptation to a low quality host plant in *Callosobruchus maculatus*. Alexandre Rego (alexandre.rego@aggiemail.usu.edu) and Zachariah Gompert, Utah State Univ., Logan, UT

2:10 PM 37 Population genetics of cyclic forest Lepidoptera. **Judith H. Myers** (myers@zoology.ubc.ca)¹, Michelle Franklin² and Jennifer Cory³, ¹Univ. of British Columbia, Vancouver, BC, Canada, ²Kwantlen Polytechnic Univ., Surrey, BC, Canada, ³Simon Fraser Univ., Burnaby, BC, Canada

2:30 PM 38 Genomic analyses uncover parallel and idiosyncratic evolutionary changes following the colonization of a novel host plant. **Samridhi Chaturvedi** (schaturvedi@aggiemail.usu.edu)¹, Lauren Lucas¹, Matthew L. Forister² and Zachariah Gompert¹, ¹Utah State Univ., Logan, UT, ²Univ. of Nevada, Reno, NV

2:50 PM 39 Population genomics of tephritid fruit fly pests: towards economical and efficient source determination. **Julian Dupuis** (jrdupuis@hawaii.edu)^{1,2}, Sheina Sim³, Daniel Rubinoff⁴ and Scott Geib³, ¹Univ. of Hawaii, Honolulu, HI, ²USDA-ARS, Hilo, HI, ³USDA-ARS, Hilo, HI, ⁴Univ. of Hawai'i Insect Museum, Honolulu, HI

3:10 PM Break

3:30 PM 40 Population genetics of pea aphid in the PNW: what does it mean for pest and virus disease management in pulses? **Sanford Eigenbrode** (sanforde@uidaho.edu)¹ and Seth Davis² (Seth.Davis@colostate.edu), ¹Univ. of Idaho, Moscow, ID, ²Colorado State Univ., Fort Collins, CO

3:50 PM 41 Adaptation over seasonal time scales in *Drosophila melanogaster*. **Alan Bergland** (aob2x@virginia.edu), Univ. of Virginia, Charlottesville, VA

4:10 PM 42 Population genetics of *Limonius* californicus across the inland Northwest. **Alida Gerritsen** (alida@uidaho.edu) and Samuel Hunter, Univ. of Idaho, Moscow, ID

4:30 PM 43 Genotyping and sequencing methods for small insects. **Eric Johnson** (eric-johnson@molbio.uoregon.edu), Univ. of Oregon, Eugene, OR

4:50 PM 44 Population genomics of potato psyllids in the Pacific Northwest. **Zhen Fu** (zhen.fu@wsu.edu), Washington State Univ., Pullman, WA

Understanding Ecological Foundations to Ensure the Future of Pollination: Examining the Impact of Natural and Anthropogenic Disturbance on Native Bee Communities

Multnomah

Organizer: Sara Galbraith, Oregon State University

1:30 PM Introductory Remarks

1:50 PM 45 Fire severity and salvage logging influence bee communities in post-wildfire mixed conifer forests. **Sara Galbraith** (sara.galbraith@oregonstate.edu)¹, James H. Cane² and James Rivers¹, ¹Oregon State Univ., Corvallis, OR, ²USDA-ARS, Logan, UT

2:10 PM 46 The influence of invasive plants on native bee communities. Paul Rhoades (paul.r.rhoades@gmail.com), Sanford Eigenbrode, Lisette Waits and Nilsa A. Bosque-Pérez, Univ. of Idaho, Moscow, ID

2:30 PM 47 Native forb seed production. **Kelsey Prickett** (kloeffler@bfinativeseeds.com), BFI Native Seeds, Moses Lake, WA

2:50 PM 48 Where honeybees dominate native bees at wildflowers: spatial extent around wildland apiaries and calculated reproductive costs. **James H. Cane** (Jim.Cane@ars.usda.gov), USDA-ARS, Logan, UT

3:10 PM Break

3:30 PM 49 Bumble bees and climate-induced habitat fragmentation in alpine systems. **James Strange** (James.Strange@ars.usda.gov), USDA-ARS, Logan, UT

3:50 PM 50 Understanding the impact of human-dominated land uses on bee populations in the seasonally dry tropics. **Nilsa A. Bosque-Pérez** (nbosque@uidaho.edu)¹ and Sara Galbraith², ¹Univ. of Idaho, Moscow, ID, ²Oregon State Univ., Corvallis, OR

4:10 PM 51 Conserving pollinator communities in diversified organic farms along an urbanization gradient. **David Crowder** (dcrowder@wsu.edu), Washington State Univ., Pullman, WA

4:30 PM 52 Bee communities in home and community gardens. **Gail A. Langellotto** (gail.langellotto@oregonstate.edu), Oregon State Univ., Corvallis, OR

What's New in Industry?

Holladay

Organizer: Jesse M. Richardson, Dow AgroSciences

4:45 PM 63 Trece product update. **Bill Lingren** (blingren@trece.com), Trece, Inc., Adair, OK

4:52 PM 64 BASF product update. **Curtis Rainbolt** (curtis.rainbolt@basf.com), BASF Corporation, Research Triangle Park, NC

4:59 PM 65 Syngenta product update. **Joshua Adkins** (joshua.adkins@syngenta.com), Syngenta Crop Protection LLC, Greensboro, NC

5:06 PM 66 Bayer CropScience product update. **Casey Butler** (casey.butler@bayer.com), Bayer CropScience, Arroyo Grande, CA

5:13 PM 67 Dow AgroSciences product update. **Brian Bret** (blbret@dow.com), Dow AgroSciences, Roseville, CA

5:20 PM 68 Gowan product update. **Ray O'Bosky** (robosky@gowanco.com), Gowan USA, Visalia, CA

5:27 PM 69 DuPont product update. **Amanda Koppel** (amanda.l.koppel@dupont.com), DuPont Crop Protection, Richland, WA

5:34 PM 70 Valent product update. **Allison Walston** (allison.walston@valent.com), Valent, Hood River, OR

5:41 PM 71 FMC product update. **Tim Ksander** (tim.ksander@fmc.com), FMC, Yuba City, CA

5:48 PM 72 ISK Biosciences product update. **Sean Whipple** (whipples@iskbc.com), ISK Biosciences Corporation, Kearney, MO

5:55 PM 73 Nichino America product update. **Pedro Hernandez** (PHernandez@nichino.net), Nichino America Inc., Wilmington, DE

6:02 PM 74 Marrone Bio Innovations product update. **Emily Smith** (esmith@marronebio.com), Marrone Bio Innovations, Napa, CA

TUESDAY EVENTS

Registration

7:00 a.m. to 4:00 p.m. Lloyd Center Pre-Function Fast

Science Communication Panel

11:00 a.m. to 12:00 p.m. Three Sisters

Awards Luncheon

12:00 to 1:30 p.m. Multnomah/Holladay Schedule on page 27

Photo Salon/Insect Exhibits

4:30 p.m. to 6:00 p.m. Broadway/Weidler/Halsey

Social Hour with Poster Presenters

4:30 p.m. to 6:00 p.m. Broadway/Weidler/Halsey

Employment Fair

4:30 p.m. to 6:00 p.m. Broadway/Weidler/Halsey

TUESDAY POSTERS

General Poster Session Broadway/Weidler/Halsey

P22 Arthropod pests and predators associated with bittersweet nightshade, a noncrop host of the potato psyllid (Hemiptera: Triozidae). **Carmen Castillo** (carisacc@yahoo.com), WSU, INIAP, Quito, Ecuador

P23 Efficacy of bifenthrin in reducing feeding damage caused by adult coconut rhinoceros beetle (*Oryctes rhinoceros*) on coconut palms in Hawai`i. **Arnold Hara** (arnold@hawaii.edu)¹, Megan Manley² and Ruth Y. Niino-DuPonte³, ¹Univ. of Hawai'i, Hilo, HI, ²Univ. of Hawai'i Manoa, Honolulu, HI, ³Univ. of Hawai'i Manoa, Hilo, HI

P24 Thermo-regulation to improve practical applications of *RTA-Bddsx* hybrid system of *Bactrocera dorsalis*. **Cheng Chang** (cchang1@dragon.nchu.edu.tw), National Chung-Hsing Univ., Taichung, Taiwan

P25 Current and future potential risk of the spread of oriental fruit moth in Washington. Lisa Neven¹, Wee Yee¹, Sunil Kumar² and **Tewodros Wakie**

(tewodros.wakie@ars.usda.gov)¹, ¹USDA-ARS, Wapato, WA, ²USDA-APHIS, Raleigh, NC

P26 Effects of an aerial treatment of *Bacillus* thuringiensis kurstaki on non-target Lepidoptera caterpillars in Forest Park, Portland, Oregon. **Diana N Kearns** (dkearns@oda.state.or.us),
Thomas E Valente, Chris S Hedstrom and Joshua J Vlach, Oregon Dept. of Agriculture, Salem, OR

P27 Examination of the ornamental *Nolana* (Solanaceae) for suitability to potato psyllid and the zebra chip pathogen. Jenita Thinakaran¹, Joseph Munyaneza¹, David Horton¹, **William Cooper** (rodney.cooper@ars.usda.gov)¹ and Alexander Karasev², ¹USDA-ARS, Wapato, WA, ²Univ. of Idaho, Moscow, ID

P28 Instar-specific photoperiodic diapause response of *Lygus hesperus*. **Dale Spurgeon** (dale.spurgeon@ars.usda.gov), USDA-ARS, Maricopa, AZ

P29 Carabidae and Tenebrionidae trapped in the Great Basin Province of California. **Kirk C. Tonkel** (kirk.tonkel@ars.usda.gov)¹,

Veronica S. Kirchoff² and Brian G. Rector¹,

¹USDA-ARS, Reno, NV, ²Univ. of Nevada - Reno, NV

P30 School IPM - inside and out: advances and accomplishments of the Arizona program.

Kai Umeda (kumeda@cals.arizona.edu)¹, Shaku Nair², Dawn Gouge², Al Fournier², Ursula K. Schuch³, Shujuan Li², Peter Warren³, David Kopec³ and Michael Wierda², ¹Univ. of Arizona, Phoenix, AZ, ²Univ. of Arizona, Maricopa, AZ, ³Univ. of Arizona, Tucson, AZ

P31 California Department of Pesticide Regulation's Research and Alliance Grant Program. Doug Downie (ddownie@cdpr.ca.gov), California Dept. of Pesticide Regulation, Sacramento, CA

P32 Using pumpkin as an alternate host plant for laboratory colony of grape mealybug (*Pseudococcus maritimus*). Jonathan O'Hearn (jonathan.ohearn@wsu.edu), Washington State Univ., Pullman, WA

P33 Development of an efficacious, practical, UV protectant formulation for entomopathogenic fungi. **Stefan T. Jaronski** (stefan.jaronski@ars.usda.gov)¹, Steve Miller² and Katherine Rodgers², ¹USDA-ARS, Sidney, MT, ²Ecopesticides International, Santa Fe, NM

P34 Response of a differential panel of wheat varieties to geographically diverse Hessian fly populations. Steven Odubiyi (stevenodubiyi@uidaho.edu)¹, Esraa A. Alalwan², Michael Pumphrey² and Nilsa A. Bosque-Pérez¹, ¹Univ. of Idaho, Moscow, ID, ²Washington State Univ., Pullman, WA

P35 Determining alkali bee nesting requirements. Emily Wine (emily.wine@wsu.edu)¹, Doug Walsh² and Troy Peters², ¹Washington State Univ., Pullman, WA, ²Washington State Univ., Prosser, WA

P36 Miticide compatability with predatory mites (Phytoseiidae). Anna Howell (adhowell@ucanr.edu) and Oleg Daugovish, Univ. of California, Ventura, CA

P37 Vine mealybug controls; using HPLC to follow the movement of a systemic insecticide through vine to optimize application methods. **Pahoua Yang**

(pahoua10yang@mail.fresnostate.edu)¹, Kent Daane², Valeria Hochman Adler¹ and Noemi Fonseca-Espinoza¹, ¹Univ. of California Berkeley, Parlier, CA, ²Univ. of California, Berkeley, Parlier, CA

P38 Insects of the Grandes Heures of Anne of Brittany. **Victoria Skillman** (skillmav@onid.orst.edu), Oregon State Univ., Corvallis, OR

P39 The effect of mob grazing versus conventional grazing practices on the abundance and diversity of pasture dwelling macroarthropods. Richard Hilton (richard.hilton@oregonstate.edu)¹ and Lora Stamper², ¹Oregon State Univ., Central Point, OR, ²Bellingham, WA

P40 Stressors in a changing (political) climate: transforming sciences through collaborative research design. Krisha Hernández (kjh@ucsc.edu), Univ. of California, Santa Cruz, Santa Cruz, CA

P41 Surprise! A subtropical thrips survives (and possibly thrives) in SW Oregon coastal forests. **Chris Hedstrom** (chedstrom@oda.state.or.us) and James R. LaBonte, Oregon Dept. of Agriculture, Salem, OR

P42 Surveys for resident natural enemies of bagrada bug, *Bagrada hilaris*, in California. **Brian Hogg** (brian.hogg@ars.usda.gov)¹, Keith Stokes¹ and Charles Pickett², ¹USDA-ARS, Albany, CA, ²California Dept. of Food and Agriculture, Sacramento, CA

P43 Combining large genetic datasets with small sample sizes to identify adaptive evolution in a pest species. **Jacob Wenger** (jawenger@csufresno.edu)¹ and Andy Michel², ¹California State Univ., Fresno, Fresno, CA, ²The Ohio State Univ., Wooster, OH

P44 How changes in plant community structure affect ant communities. Chadwick Tillberg (ctillbe@linfield.edu), Renee LaFountain, Jackson O'Keefe and Kathy Trinh, Linfield College, McMinnville, OR

P45 Improving leaffooted bug management in almond by enhancing monitoring tools. Kris Tollerup (ketollerup@ucanr.edu), Univ. of California, Parlier, CA

TUESDAY MORNING ORAL

General Paper Session I Multnomah/Holladay

Moderator: Daniel Dalton, Oregon State Univ., Corvallis, OR

8:00 AM 81 Area-wide IPM program for Virginia creeper leafhopper (*Erythroneura ziczac*) in northern California vineyards. **Houston Wilson** (houston@berkeley.edu)¹, Lucia Varela², Glenn McGourty³, Serguei Triapitsyn⁴ and Kent M. Daane¹, ¹Univ. of California, Berkeley, CA, ²UC Cooperative Extension, Santa Rosa, CA, ³UC Cooperative Extension, Ukiah, CA, ⁴Univ. of California, Riverside, CA

8:12 AM 82 Efficacy of the bioinsecticides Grandevo and Venerate against walnut husk fly (*Rhagoletis completa*), western grape leafhopper (*Erythroneura elegantula*), Virginia creeper leafhopper (*Erythroneura ziczac*), and San Jose scale (*Quadraspidiotus perniciosus*). Melissa O'Neal (moneal@marronebio.com), Timothy Johnson and Pamela G Marrone, Marrone Bio Innovations, Inc., Davis, CA

8:24 AM 83 Implicated vectors in the observed spread of grapevine red blotch-associated virus in two winegrape growing regions of Oregon. **Daniel Dalton** (daniel.dalton@oregonstate.edu)¹, Richard Hilton² and Vaughn Walton¹, ¹Oregon State Univ., Corvallis, OR, ²Oregon State Univ., Central Point, OR

8:36 AM 84 Pests, pesticides and IPM: a new initiative of CDPR and UC-IPM. **Doug Downie** (ddownie@cdpr.ca.gov), California Dept. of Pesticide Regulation, Sacramento, CA

8:48 AM 85 Lygus bugs on potatoes in the Pacific Northwest. **Silvia Rondon** (silvia.rondon@oregonstate.edu) and Josephine Antwi, Oregon State Univ., Hermiston, OR

9:00 AM 86 Western tarnished plant bug (*Lygus hesperus*) and its natural enemy populations in organic and conventional strawberries. **Surendra Dara** (skdara@ucdavis.edu)¹ and Dave Peck², ¹Univ. of California, San Luis Obispo, CA, ²Manzanita Berry Farms, Santa Maria, CA

9:12 AM 87 Transform® WG insecticide (Isoclast® Active): a new management option for western tarnished plant bug (*Lygus hesperus*) in alfalfa grown for seed in the Pacific Northwest.

M.D. Lees (mdlees@dow.com)¹, Doug Walsh², James D. Barbour³, Harvey A. Yoshida⁴ and Melissa Willrich Siebert⁵, ¹Dow AgroSciences, Seattle, WA, ²Washington State Univ., Prosser, WA, ³Univ. of Idaho, Parma, ID, ⁴Dow AgroSciences, Richland, WA, ⁵Dow AgroSciences, Greenville, MS

9:24 AM 88 The metabolism and excretion of nicotine in the cabbage looper (*Trichoplusia ni*). **Brett Saremba** (brettsaremba@gmail.com), The Univ. of British Columbia, Kelowna, BC, Canada

9:36 AM 89 A putative aggregation pheromone in the sugar beet root maggot fly (Diptera: Ulidiidae). Erik J. Wenninger (erikw@uidaho.edu)¹, Susan Emmert², Kelly Tindall³, Hongjian Ding⁴, Mark A. Boetel⁵, D. Rajabaskar⁶ and Sanford Eigenbrode², ¹Univ. of Idaho, Kimberly, ID, ²Univ. of Idaho, Moscow, ID, ³Univ. of Idaho, Twin Falls, ID, ⁴U.S. Food and Drug Administration, Jefferson, AR, ⁵North Dakota State Univ., Fargo, ND, ⁶Tamil Nadu Agricultural Univ., Coimbatore, India

9:48 AM 90 Influence of food-deprivation on locomotor behavior of *Bagrada hilaris* (Hemiptera: Pentatomidae). Shimat Villanassery Joseph (svjoseph@ucanr.edu)¹, Larry Godfrey² and Ian Grettenberger², ¹Univ. of California Cooperative Extension, Salinas, CA, ²Univ. of California, Davis, CA

10:00 AM 91 Where to oviposit: influence of host plants on *Bagrada hilaris* (Hemiptera: Pentatomidae) oviposition site selection. **Stacey Rice** (slrice@ucdavis.edu)¹, Ian Grettenberger¹, Shimat Joseph² and Larry Godfrey¹, ¹Univ. of California, Davis, CA, ²Univ. of California Cooperative Extension, Salinas, CA

Honoring W.P. Stephen: Founder of West Coast Alkali Bee, Bumble Bee, and Leaf Cutting Bee Research. Hawthorne

Organizers: Sujaya Rao¹, Robbin W. Thorp² and James H. Cane³, ¹Oregon State Univ., Corvallis, OR, ²Univ. of California, Davis, CA, ³USDA-ARS, Logan, UT

8:00 AM 75 Growing up around a researcher dedicated to the cause of wild bees: a daughter's experience. **Jan Boukather** (jan.boukather@cox.net), Muir Fundamental Elementary School, Santa Ana, CA

8:20 AM 76 W. P. Stephen's buzz in the Willamette Valley: impacts on a bumble bee research mentee. **Kim Skyrm** (kim.skyrm@state.ma.us), Massachusetts Dept. of Agricultural Resources, Boston, MA

8:40 AM 77 Lumping and splitting' and lessons learned from W.P. Stephen: implications of wild bee species and morphospecies for integrated pest management (IPM). **Jennifer Bergh** (jennifer.bergh@basf.com), Oregon State Univ., Corvallis, OR

9:00 AM 78 The trials and tribulations of bee domestication, with an emphasis on leaf cutting bees and disease: a look back at the accomplishments of W.P. Stephen. **Sarah Kincaid** (skincaid@oda.state.or.us), Oregon Dept. of Agriculture, Salem, OR

9:20 AM 79 Advancing W.P. Stephen's pioneering insights into soil-water relations of alkali bees. **James H. Cane**, USDA-ARS, Logan, UT

9:40 AM 80 W.P. Stephen's legacy: half a century of ground breaking and innovative wild bee research! **Sujaya Rao** (sujaya@oregonstate.edu)¹, John Vandenberg² and Robbin W. Thorp³, ¹Oreogn State Univ., Corvallis, OR, ²USDA-ARS, Ithaca, NY, ³Univ. of California, Davis, CA

Honoring W.P. Stephen: The Bee Team: Non-Apis Pollinators Important to Agriculture in the Western US. Hawthorne

Organizers: Amber Vinchesi, Univ. of California Cooperative Extension, Colusa, CA

10:20 AM Introductory Remarks

10:25 AM 127 Alkali bee management and mitigation in Washington State. **Amber Vinchesi** (acvinchesi@ucanr.edu)¹ and Doug Walsh², ¹Univ. of California Cooperative Extension, Colusa, CA, ²Washington State Univ., WA

10:45 AM 128 Biology and management of leafcutting bees on alfalfa produced for seed. Doug Walsh (dwalsh@wsu.edu), Washington State Univ., Prosser, WA

11:05 AM 129 Crop pollination by wild bumble bees in western Oregon crops. **Sujaya Rao** (sujaya@oregonstate.edu), Oregon State Univ., Corvallis, OR

11:25 AM 130 Sustainable management and propagation of the blue orchard bee in commercial tree fruit orchards. Natalie Boyle (NATALIE.BOYLE@ARS.USDA.GOV)¹, Theresa Pitts-Singer¹, Derek Artz¹ and Stephen Peterson², ¹USDA-ARS, Logan, UT, ²Foothills Bee Ranch, Visalia, CA

11:45 AM Concluding Remarks

Bottom-Up Control Tactics: the Foundation and Future of IPM

Mt. Hood

Organizer: Danny Klittich, Redox Chemicals, LLC,

Burley, ID

8:00 AM Introductory Remarks

8:10 AM 92 Micro-sprinklers to microbes: interdisciplinary approaches in IPM. **Surendra Dara** (skdara@ucdavis.edu), Univ. of California, San Luis Obispo, CA

8:30 AM 93 From the bottom up: nitrogen and biological control in a walnut-aphid-parasitoid system. **Kevi C. Mace-Hill** (kmace@berkeley.edu), Univ. of California, Berkeley, CA

8:50 AM 94 Bottom-up processes can also facilitate crop pests. **Carmen K. Blubaugh** (carmen.blubaugh@wsu.edu), Washington State Univ., Pullman, WA

9:10 AM 95 Bottoms-up for spotted wing drosophila and lace bug control. **Jana Lee** jana.lee@ars.usda.gov, USDA-ARS, Corvallis, OR

9:30 AM 96 Spotted wing drosophila management in California cherries. **Jhalendra Rijal** (jrijal@ucdavis.edu), Univ. of California Cooperative Extension, Modesto, CA

9:50 AM Break

10:20 AM 97 Silicon: increasing plant resistance to pests. **Daniel Klittich** (danny.klittich@redoxchem.com), Redox Chemicals, LLC, Burley, ID

10:40 AM 98 Modeling impacts of bottom up effects of salinity and nutrients on success of water hyacinth and its biological control agent. **Emily Bick** (enbick@ucdavis.edu), Univ. of California, Davis, CA

11:00 AM 99 An alternative perspective to the bottom-up approach in IPM research management. Joanna Bloese (jbbloese@ucdavis.edu), Univ. of California, Davis, CA

11:20 AM Discussion

Foundations and Future of Host Plant Resistance to Insect Pests and Pathogens

Ross Island

Organizers: Nilsa Bosque-Perez¹ and Arash Rashed², ¹Plant, Soil and Entomological Sciences, Univ. of Idaho, Moscow, ID, ²Univ. of Idaho, Aberdeen, ID

8:00 AM 100 Vector-borne plant pathogens and next generation host plant resistance. **Clare Casteel** (ccasteel@ucdavis.edu)¹ and Aurelie Bak², ¹Univ. of California, Davis, CA, ²UC Davis, NA, CA

8:20 AM 101 Russian wheat aphid resistance in wheat: 30 years of traditional and molecular approaches. **C. Michael Smith** (cmsmith@ksu.edu)¹, Lina Aguirre-Rojas¹, Laramy Enders², Xiang Liu¹ and Deepak Kumar Sinha³, ¹Kansas State Univ., Manhattan, KS, ²Dept. of Entomology, Kansas State Univ., Manhattan, KS, ³International Centre for Genetic Engineering and Biotechnology, New Delhi, India

8:40 AM 102 Host physiological shifts as determinants in susceptibility or tolerance to plant pathogens and pests: examples from grapevine research. **Christopher Wallis** (christopher.wallis@ars.usda.gov), USDA-ARS, Parlier, CA

9:00 AM 103 Hessian fly resistance in wheat: foundations and future research to enhance durability of resistance. **Nilsa A. Bosque-Pérez** (nbosque@uidaho.edu), Univ. of Idaho, Moscow, ID

9:20 AM 104 Acylsugar-mediated resistance in tomato and future management of the western flower thrips (*Frankliniella occidentalis*) and *Tomato spotted wilt virus*. Diane E. Ullman (deullman@ucdavis.edu)¹, Martha A. Mutschler², John Smeda², George G. Kennedy³, Thomas Chappell³ and Sulley Ben-Mahmoud⁴, ¹Univ. of California, Davis, CA, ²Cornell Univ., Ithaca, NY, ³North Carolina State Univ., Raleigh, NC, ⁴Univ. of Florida, FL

9:40 AM 105 Resistance or tolerance? Assessing epidemic risks from novel defenses against a vector-borne plant pathogen, *Xylella fastidiosa*. **Adam Zeilinger** (arz@berkeley.edu)¹ and Rodrigo P. P. Almeida², ¹Univ. of California Berkeley, Berkeley, CA, ²Univ. of California, Berkeley, Berkeley, CA

10:00 AM Break

10:20 AM 106 Zebra chip resistance in potato: building upon our current knowledge, shaping the future. **Arash Rashed** (arashed@uidaho.edu)¹, Mahnaz Rashidi¹, Regina Cruzado¹, Nora Olsen², Erik J. Wenninger², Nilsa A. Bosque-Pérez³ and Richard G. Novy⁴, ¹Univ. of Idaho, Aberdeen, ID, ²Univ. of Idaho, Kimberly, ID, ³Univ. of Idaho, Moscow, ID, ⁴USDA-ARS, Aberdeen, ID

10:40 AM 107 Resistance to whiteflies and *Tomato yellow leaf curl virus* in tomato: Impact on vector fitness, virus transmission, and virus epidemics. **Rajagopalbabu Srinivasan** (babusri@uga.edu)¹, Wendy G. Marchant¹ and Martha A. Mutschler², ¹Univ. of Georgia, Tifton, GA, ²Cornell Univ., Ithaca, NY

11:00 AM 108 Understanding multiple pathogen interactions in peppers and tomatoes as a foundation for plant resistance research.

Sean Prager (sean.prager@usask.ca), Univ. of Saskatchewan, Saskatoon, SK, Canada

11:20 AM Discussion

Latest in BMSB Research in the West Sellwood

Organizer: Diane Alston, Utah State University

8:00 AM Introductory Remarks

8:05 AM 109 Invasion history and status of brown marmorated stink bug in Oregon. **Nik G. Wiman** (nik.wiman@oregonstate.edu)¹, Vaughn Walton², Silvia Rondon³ and David Lowenstein¹, ¹Oregon State Univ., Aurora, OR, ²Oregon State Univ., Corvallis, OR, ³Oregon State Univ., Hermiston, OR

8:25 AM 110 Temperature dependent survival and reproduction of brown marmorated stink bug. **Vaughn Walton** (vaughn.walton@oregonstate.edu), Oregon State Univ., Corvallis, OR

8:45 AM 111 Nutrient profiles of brown marmorated stink bug. **Victoria Skillman** (skillmav@onid.orst.edu)¹, Nik G. Wiman² and Jana Lee³, ¹Oregon State Univ., Corvallis, OR, ²Oregon State Univ., Aurora, OR, ³USDA-ARS, Corvallis, OR

9:05 AM 112 Brown marmorated stink bug in Sacramento county: phenology, distribution and trap comparisons. Chuck Ingels (caingels@ucanr.edu), Univ. of California Cooperative Extension, Sacramento, CA

9:25 AM 113 Brown marmorated stink bug host plant use and phenology in northern Utah. **Lori R. Spears** (lori.spears@usu.edu), Cody Holthouse and Diane G. Alston, Utah State Univ., Logan, UT

9:45 AM 114 Multi-tactic approach to manage the brown marmorated stink bug. Adrian Marshall (adrianm460@gmail.com), Elizabeth H. Beers and Joshua Milnes, Washington State Univ., Wenatchee, WA

10:05 AM Break

10:25 AM 115 Developing a biological control program for brown marmorated stink bug in California. **Jesus Lara** (jlara007@ucr.edu)¹, Charles H. Pickett² and Mark S. Hoddle¹, ¹Univ. of California, Riverside, CA, ²California Dept. of Food and Agriculture, Sacramento, CA

10:45 AM 116 Characterizing the success of an Asian egg parasitoid, *Trissolcus japonicus*, at management of brown marmorated stink bug. **David Lowenstein**

(david.lowenstein@oregonstate.edu), Nik G. Wiman and Heather Andrews, Oregon State Univ., Aurora, OR

11:05 AM Discussion

Molecular Symposium 1

Mt. Helens

Organizers: Stephen Garczynski¹, Joe Hull², Sheina Sim³ and Jeffrey A. Fabrick², ¹USDA-ARS, Wapato, WA, ²USDA-ARS, Maricopa, AZ, ³USDA-ARS, Hilo, HI

8:00 AM Introductory Remarks

8:10 AM 117 Transcriptional level analysis of honey bee dsRNA triggered antiviral responses. **Michelle Flenniken**

(michelle.flenniken@montana.edu), Montana State Univ., Bozeman, MT

8:30 AM 118 The new generation of insect paratransgenesis. **Pamela Pennington** (pamelap@uvg.edu.gt), Simon Fraser Univ., Burnaby, BC, Canada

8:50 AM 119 New targets for vector control using functional genomics. **Monika Gulia-Nuss** (mgulianuss@unr.edu), Univ. of Nevada, Reno, Reno, NV

9:10 AM 120 RNAi-based functional genomics in a non-model hemipteran pest: challenges of the post-transcriptomic world. **Joe Hull** (joe.hull@ars.usda.gov), USDA-ARS, Maricopa, AZ

9:30 AM 121 Manipulating mosquito fitness through insulin signaling and mitochondrial dynamics. **Michael A. Riehle** (mriehle@ag.arizona.edu), Univ. of Arizona, Tucson, AZ

9:50 AM Break

10:10 AM 122 Insect peptide neurohormone signaling: physiological functions and insecticide targets. **Andrew Nuss** (nuss@cabnr.unr.edu), Univ. of Nevada, Reno, NV

10:30 AM 123 Regulation of drosophila circadian neuronal structure plasticity by miRNA. **Yong Zhang** (yongzhang@unr.edu), Univ. of Nevada, Reno, Reno, NV

10:50 AM 124 Perspectives on the identification of microRNAs and pattern recognition receptors in *Manduca sexta* - riding the tide of high throughput sequencing. Xiufeng Zhang (xiufeng.zhang@ucr.edu), Univ. of California, Riverside, Riverside, CA

11:10 AM 125 Scent of a leg: male legs are a source of the male-sex pheromone in heliothine moths. Man-Yeon Choi mychoi@ars.usda.gov, USDA-ARS, Corvallis, OR

11:30 AM 126 Insect sex pheromone receptors: discovery and applications. **Kevin Wanner** (kwanner@montana.edu), Montana State Univ., Bozeman, MT

11:50 AM Concluding Remarks

Communicating Science Through the

Press: a Panel Discussion

Three Sisters

Moderator: Bill Loftus, University of Idaho

11:00 AM to 12:00 noon

Panelists: Sanford Eigenbrode¹, Eric Mortensen², Ramesh Sagili³ and Tiffany Woods³, ¹University of Idaho, Moscow, ID, ²Capital Press, ³Oregon

State University, Corvallis, OR

2017 PBESA Awards Luncheon

Tuesday, April 4, 2017 12:00 p.m. to 1:30 p.m. Multnomah/Holladay

Your full-meeting registration includes admission to the luncheon.

C. W. Woodworth Award – Gerhard and Regine Gries (Simon Fraser University)

John Henry Comstock Graduate Student Award – Amelia Lindsey (University of California-Riverside)

PBESA Distinguished Achievement Award in Teaching – Helen Spafford (University of Hawaii at Manoa)

PBESA Distinguished Achievement Award in Extension – Carol Black (Washington State University)

PBESA Award for Excellence in Integrated Pest Management – Elizabeth Beers (Washington State University)

PBESA Plant-Insect Ecosystems Award – David Crowder (Washington State University)

PBESA Systematics, Evolution, and Biodiversity Award – Marek Boroweic (University of California-Davis)

PBESA Physiology, Biochemistry, and Toxicology Award – Ramesh Sagili (Oregon State University)

PBESA Medical, Urban, and Veterinary Entomology Award – Shirley Luckhart (University of California-Davis)

PBESA Distinction in Student Mentoring – James Strange (USDA-ARS, Logan, UT)

PBESA Excellence in Early Career — Sarah Woodard (University of California-Riverside)

PBESA Student Leadership Award – Ralph Washington, Jr. (University of California-Davis)

PBESA Team Work Award — Lisa Neven, Wee Yee, and Sunil Kumar for the team project "Pest Risk Analyses for Temperate Fruit Flies in Exported Fruits Team"

TUESDAY AFTERNOON ORAL

General Session II

Mt. Hood

Moderators: Felicity Muth¹ and Kris Tollerup², ¹Univ. of Nevada, Reno, Reno, NV, ²Univ. of California, Parlier, CA

1:30 PM 131 The roles of behavior and ecology in the transition to perennial, multiple-queen societies in invasive yellowjacket wasps (*Vespula penyslvancia*) in Hawaii. **Kevin Loope** (kjl75@cornell.edu) and Erin Rankin, Univ. of California, Riverside, CA

1:42 PM 132 Learning under ecologically relevant conditions: an investigation into pollen rewards for bees. Felicity Muth (fmuth@unr.edu) and Anne Leonard, Univ. of Nevada, Reno, Reno, NV

1:54 PM 133 Unusual pollination by honey bees in blueberries. George D. Hoffman, Claire Lande (claire.lande@oregonstate.edu) and Sujaya Rao, Oregon State Univ., Corvallis, OR

2:06 PM 134 Presence of pathogen killed larvae may enhance the nesting behavior of the alfalfa leafcutting bee, *Megachile rotundata*. Ellen Klinger (Ellen.Klinger@ars.usda.gov)¹, Rosalind James² and Dennis Welker³, ¹USDA-ARS, Logan, UT, ²USDA-ARS, Beltsville, MD, ³Utah State Univ., Logan, UT

2:18 PM 135 Holey corms in central WA timothy hay. **Michael Bush** (bushm@wsu.edu)¹ and Peter J. Landolt², ¹WA State Univ., Union Gap, WA, ²USDA-ARS, Wapato, WA

2:30 PM 136 Chemical degradation of TMR (trimedlure, methyl eugenol, and raspberry ketone) multi-lure dispensers for fruit fly detection weathered under California climatic conditions. **Roger Vargas** (roger.vargas@ars.usda.gov)¹, Steven Souder¹, Joseph G. Morse², Elizabeth Grafton-Cardwell²,

David R. Haviland³, John Kabashima⁴, Ben Faber⁵, Bruce Mackey⁶, Peter Cook⁷ and John Stark⁸, ¹DKI-USDA-ARS, Pacific Basin Agricultural Research Center, Hilo, HI, ²Univ. of California, Riverside, CA, ³Univ. of California Cooperative Extension, Bakersfield, CA, ⁴Univ. of California Cooperative Extension, Costa Mesa, CA, ⁵Univ. of California Cooperative Extension, Ventura, CA, ⁶USDA-ARS, Albany, CA, ⁷Farma Tech International, North Bend, WA, ⁸Washington State Univ., Puyallup, WA

2:42 PM Break

2:54 PM 137 Insecticide resistance in California populations of the glassy-winged sharpshooter *Homalodisca vitripennis*. Frank J. Byrne (frank.byrne@ucr.edu), Ming Li, Bradley White and Richard Redak, Univ. of California, Riverside, CA

3:06 PM 138 Fire or flood: the efficacy of cultural management practices on managing tadpole shrimp (*Triops longicaudatus*) populations in California rice. **Joanna Bloese** (jbbloese@ucdavis.edu)¹, Luis Espino², Kevin Goding¹ and Larry Godfrey¹, ¹Univ. of California, Davis, CA, ²Univ. of California Cooperative Extension, Colusa, CA

3:18 PM 139 Managing aphids in western crops with IsoclastTM. **Jesse Richardson** (jmrichardson@dow.com)¹, C. Kuniyoshi², Melissa Siebert³, John Palumbo⁴, Larry Godfrey⁵, Eric Natwick⁶ and Brad Lewis⁷, ¹Dow AgroSciences, Hesperia, CA, ²Dow AgroSciences, Fresno, CA, ³Dow AgroSciences, Greenville, MS, ⁴Univ. of Arizona, Yuma, AZ, ⁵Univ. of California, Davis, CA, ⁶Univ. of California, Holtville, CA, ⁷New Mexico State Univ., Las Cruces, NM

3:30 PM 140 Developing improved sustainable pest management programs for Southeast Asian farmers among California's Central Valley. **Rob Straser** (rstraser@berkeley.edu)¹, May Yang², Pahoua Yang¹, Michael Yang³, Ruth Dahlquist-Willard³ and Kent Daane⁴, ¹Univ. of California Berkeley, Parlier, CA, ²California State Univ., Fresno, Fresno, CA, ³Univ. of California Cooperative Extension, Fresno County, Fresno, CA, ⁴Univ. of California, Berkeley, Parlier, CA

3:42 PM 141 Brown stink bug (*Euschistus servus*) in southern California cotton crops. **Vonny Barlow** (vmbarlow@ucdavis.edu)¹ and Enrique Medrano², ¹Univ. of California, Davis, CA, ²USDA-ARS, College Station, TX

3:54 PM 142 Control of sap-feeding tree fruit pests with Closer SC insecticide. **Harvey A. Yoshida** (hyoshida@dow.com)¹, Melissa Willrich Siebert² and Michael D. Lees³, ¹Dow AgroSciences, Richland, WA, ²Dow AgroSciences, Greenville, MS, ³Dow AgroSciences, Seattle, WA

4:06 PM 143 Spray deposition and drift ratios of the commercial sprayers in blueberry production. **Serhan Mermer** (mermers@oregonstate.edu)¹, Lav Khot², Haitam Bahlol², Gwen Hoheisel³ and Vaughn Walton¹, ¹Oregon State Univ., Corvallis, OR, ²Washington State Univ., Prosser, WA, ³Washington State Univ. Extension, Prosser, WA

disruption: area of influence and implications for monitoring. **Charles Burks** (charles.burks@ars.usda.gov)¹, Don Thomson², Cris Wilk³ and Christeen Abbott-Hearn⁴, ¹USDA-ARS, Parlier, CA, ²Pacific Biocontrol Corporation, Calgary, AB, Canada, ³Scientific Methods, Durham, CA, ⁴Pacific Biocontrol Corporation, Kingsburg, CA

4:18 PM 144 Navel orangeworm mating

4:30 PM 145 State-wide monitoring study to determine relationship between navel orangeworm egg and male moth capture. **Kris Tollerup** (ketollerup@ucanr.edu)¹, Roger Duncan², David Doll³, Danielle Lightle⁴, Franz Niederholzer⁵, Emily J. Symmes⁶ and Frank Zalom⁶, ¹Univ. of California, Parlier, CA, ²Univ. of California Cooperative Extension, Modesto, CA, ³Univ. of California, Merced, CA, ⁴Univ. of California, Orland, CA, ⁵Univ. of California Cooperative Extension, Yuba, CA, ⁶Univ. of California, Davis, CA

Advancements and Challenges in Alfalfa and Forage Pest Management: an Historical Perspective Sellwood

Organizer: Ayman Mostafa, Univ. of Arizona

1:30 PM Introductory Remarks

1:30 PM 146 History of alfalfa pest management in the western US: insects, chemicals and the struggle. Jesse M. Richardson (jmrichardson@dow.com)¹, John Palumbo² and C. Scott Bundy³, ¹Dow AgroSciences, Hesperia, CA, ²University of Arizona, Yuma, AZ, ³New Mexico State University, Las Cruces, NM

1:50 PM 147 Alfalfa: the ideal crop for IPM. Peter Goodell (pbgoodell@ucanr.edu), Univ. of California, Parlier, CA

2:10 PM 148 Management of the worm pest complex in alfalfa. Eric Natwick (etnatwick@ucanr.edu), Univ. of California, Holtville, CA

2:30 PM 149 Biology and management of the alfalfa weevil complex: California style. Larry Godfrey (Idgodfrey@ucdavis.edu), Univ. of California, Davis, CA

2:50 PM 150 Economics of the management of alfalfa winter insect pests of the Southwest low desert. Ayman Mostafa (ayman@cals.arizona.edu), Univ. of Arizona

3:10 PM Break

3:30 PM 151 Fitting predator and pest phenology in alfalfa management. **Ricardo Ramirez** (ricardo.ramirez@usu.edu), Utah State Univ., Logan, UT

3:50 PM 152 Pest and pollinator management on alfalfa produced for seed. **Doug Walsh** (dwalsh@wsu.edu), Washington State Univ., Pullman, WA

4:10 PM 153 Status, crop injury and management of sugarcane aphid in sorghum in the Southern U.S. **David Kerns** (dkerns@agcenter.lsu.edu), Texas AgriLife Extension Service, College Station, TX

4:30 PM 154 Sorghum pest management: efforts to restore IPM following the introduction of sugarcane aphid. **David R. Haviland** (dhaviland@ucdavis.edu), Univ. of California Cooperative Extension, Bakersfield, CA

Molecular Symposium 2

Mt. Helens

Organizers: Stephen F. Garczynski¹, Joe Hull², Sheina Sim³ and Jeffrey A. Fabrick², ¹USDA-ARS, Wapato, WA, ²USDA-ARS, Maricopa, AZ, ³USDA-ARS, Hilo, HI

1:30 PM Introductory Remarks

1:35 PM 155 Novel genetic manipulation strategies to control arthropod vectors of human disease. Omar Akbari (Omar.Akbari@ucr.edu), Univ. of California, Riverside, CA

1:55 PM 156 Use of CRISPR/Cas9 genome editing in codling moth. Stephen Garczynski (Steve.Garczynski@ARS.USDA.GOV), USDA-ARS, Wapato, WA

2:15 PM 157 Use of molecular techniques to study psyllid ecology. **William Cooper** (rodney.cooper@ars.usda.gov), USDA-ARS, Wapato, WA

2:35 PM 158 Integrating diverse genomic resources for cost-effective phylogenomics. **Julian Dupuis** (jrdupuis@hawaii.edu)¹, Forest Bremer² and Scott Geib¹, ¹USDA-ARS, Hilo, HI, ²Univ. of Hawaii, HIIo, HI

2:55 PM 159 Resistance to dual-toxin Bt cotton in the pink bollworm: a brave new world. **Jeffrey A. Fabrick** jeff.fabrick@ars.usda.gov, USDA-ARS, Maricopa, AZ

3:15 PM Break

3:35 PM 160 Expressional divergence of GOX and L-ACY-1 genes in helicoverpa species. **Xianchun Li** (lxc@email.arizona.edu), Univ. of Arizona, Tucson, AZ

3:55 PM 161 Role of type 6 secretion system in the life cycle of entomopathogenic *Xenorhabdus* bacteria. **S. Patricia Stock** (spstock@email.arizona.edu), Univ. of Arizona, Tucson, AZ

4:15 PM 162 A *Wolbachia* deubiquitylating enzyme induces cytoplasmic incompatibility. **John Beckmann** (john.beckmann@yale.edu), Yale Univ., New Haven, CT

4:35 PM 163 Arthropods are living microbial bioreactors that support ecosystem services. **Javier Ceja-Navarro** (JCNavarro@lbl.gov), Lawrence Berkeley National Laboratory, Berkeley, CA

4:55 PM Concluding Remarks

Solutions and challenges with invasive species: the past, present, and future. *Ross Island*

Organizer: Shimat Joseph, Univ. of California Cooperative Extension, Salinas, CA

1:30 PM Introductory Remarks

1:35 PM 164 European grapevine moth cooperative program, 2010-2016: a model collaborative effort. Lucia Varela (Igvarela@ucanr.edu)¹ and Monica Cooper², ¹UC Cooperative Extension, Santa Rosa, CA, ²Univ. of California, Napa, CA

1:55 PM 165 Addressing the challenge of BMSB in Oregon. Nik G. Wiman (nik.wiman@oregonstate.edu)¹, Chris Hedstrom², David Lowenstein¹, Peter Shearer³, Vaughn Walton⁴, Jana Lee⁵ and Heather Andrews¹, ¹Oregon State Univ., Aurora, OR, ²Oregon Dept. of Agriculture, Salem, OR, ³Oregon State Univ., Hood River, OR, ⁴Oregon State Univ., Corvallis, OR, ⁵USDA-ARS, Corvallis,

2:15 PM 166 The bagrada bug and non-crop habitat: how weeds affect population dynamics and management. **Ian Grettenberger** (imgrettenberger@ucdavis.edu)¹, Richard Smith², Larry Godfrey¹ and Shimat Joseph², ¹Univ. of California, Davis, CA, ²Univ. of California Cooperative Extension, Salinas, CA

2:35 PM 167 Risks versus rewards: managing spotted wing drosophila in tree fruits. Elizabeth H. Beers (ebeers@wsu.edu), Washington State Univ., Wenatchee, WA

2:55 PM Break

3:20 PM 168 Life history shifts in invasive yellow jackets: investigating underlying causes and quantifying impacts. **Erin Rankin** (erin.rankin@ucr.edu) and Kevin Loope, Univ. of California, Riverside, CA

3:40 PM 169 Challenges in projecting real-world outcomes of field trials from laboratory experiments using the little fire ant (*Wasmannia auropunctata*) as a case study. **Michelle Montgomery**

(michelle.montgomery@littlefireants.com)¹ and Cas Vanderwoude², ¹Hawaii Ant Lab, Hilo, HI, ²Univ. of Hawai'i, Hilo, HI

4:00 PM 170 The onslaught of exotic terrestrial invertebrates in Oregon. **James R. LaBonte** (jlabonte@oda.state.or.us), Oregon Dept. of Agriculture, Salem, OR

4:20 PM 171 California citrus braces for the impact of Asian citrus psyllid vectored huanglongbing disease. **Elizabeth Grafton-Cardwell** (eegraftoncardwell@ucanr.edu), Univ. of California, Riverside, CA

4:40 PM Concluding Remarks

Student and Early Career Professional Employment Fair

Hawthorne

Organizers: Alix Whitener¹, Jhalendra Rijal² and Sarah O'Neill³, ¹Washington State Univ., Wenatchee, WA, ²Univ. of California Cooperative Extension, Modesto, CA, ³Univ. of California, Riverside, CA

1:30 PM 172 Features from government: Lisa Neven. Lisa Neven lisa.neven@ars.usda.gov, USDA-ARS, Wapato, WA

1:35 PM 173 Features from government: Rodney Cooper. William Cooper (rodney.cooper@ars.usda.gov), USDA-ARS, Wapato, WA

1:40 PM 174 Features from government: James Strange. James Strange (James.Strange@ars.usda.gov), USDA-ARS, Logan, UT

1:45 PM 175 Features from government: Peter Follett. **Peter Follett** peter.follett@ars.usda.gov, USDA-ARS, Hilo, HI

1:50 PM 176 Features from industry: Brian Bret. Brian Bret (blbret@dow.com), Dow AgroSciences, Roseville, CA

1:55 PM 177 Features from industry: Harvey Yoshida. Harvey A. Yoshida (hyoshida@dow.com), Dow AgroSciences, Richland, WA

2:00 PM 178 Features from industry: Jesse Richardson. **Jesse M. Richardson** (jmrichardson@dow.com), Dow AgroSciences, Hesperia, CA

2:05 PM 179 Features from industry: Bill Lingren. Bill Lingren (blingren@trece.com), Trece, Inc., Adair, OK

2:10 PM 180 Features from academia: Sujaya Rao. **Sujaya Rao** (sujaya@oregonstate.edu), Oregon State Univ.,

2:15 PM 182 Features from academia: Diane Ullman. **Diane E. Ullman** deullman@ucdavis.edu, Univ. of California-Davis

2:20 PM 183 Features from academia: Ricardo Ramirez. Ricardo Ramirez (ricardo.ramirez@usu.edu), Utah State Univ., Logan, UT

2:25 PM 184 Features from extension: Silvia Rondon. Silvia Rondon (silvia.rondon@oregonstate.edu), Oregon State Univ., Hermiston, OR

2:30 PM 185 Features from extension: David Haviland. **David R. Haviland** (dhaviland@ucdavis.edu), Univ. of California Cooperative Extension, Bakersfield, CA

2:35 PM 186 Features from extension: Diane Alston. **Diane G. Alston** (diane.alston@usu.edu), Utah State Univ., Logan, UT

2:40 PM 187 Features from extension: John Palumbo. **John Palumbo** (jpalumbo@ag.arizona.edu), Univ. of Arizona, Yuma, AZ

2:45 PM Curriculum vitae workshop. **Carmen K. Blubaugh** (carmen.blubaugh@wsu.edu), Washington State Univ., Pullman, WA

3:05 PM Break

3:30 PM Panel Discussion

Student and Early Career Professional Employment Fair Social Hour Broadway/Weidsler/Halsey 4:30 to 6:30 PM

WEDNESDAY, APRIL 5TH

WEDNESDAY EVENTS

Registration

7:00 a.m. to 10:00 a.m. Lloyd Center Pre-Function East

Final Business Meeting

7:00 a.m. to 8:00 a.m. Hawthorne

WEDNESDAY MORNING ORAL

Recent Advances in Understanding Floral Specialization in Bees

Ross Island

Organizers: Michael Orr¹ and S. Hollis Woodard², ¹Utah State Univ., Logan, UT, ²Univ. of California, Riverside, CA

8:00 AM 188 Floral specialization by bees: the many paths to oligolecty. **James H. Cane** (Jim.Cane@ars.usda.gov), USDA-ARS, Logan, UT

8:20 AM 189 How does specializing on Asteraceae influence species diversification rates in bees? **Michael Orr** (michael.christopher.orr@gmail.com)¹, Karen Wright² and James P. Pitts¹, ¹Utah State Univ., Logan, UT, ²Univ. of New Mexico, Albuquerque

8:40 AM 190 Examining bumble bee pollen foraging in the Arctic: a comparison between species and castes along a latitudinal gradient. **Natalie Fischer** (nfisc001@ucr.edu)¹, Kristal Watrous² and S. Hollis Woodard³, ¹Univ. of California Riverside, Riverside, CA, ²Pennsylvania State Univ., Univ. Park, PA, ³Univ. of California, Riverside, CA

9:00 AM 191 Floral specialization in the pollen consumption by adult solitary bees. **Heidi Dobson** (dobsonhe@whitman.edu), Whitman College, Walla Walla, WA

9:20 AM 192 Pollen gathering behavior and specialization in bees. **Zach Portman** (zportman@gmail.com), Utah State Univ., Logan, UT

9:40 AM 193 Biased floral color learning by pollen-foraging bumble bees. **Avery Russell** (averyrussell@email.arizona.edu), Stephen Buchmann and Daniel Papaj, Univ. of Arizona, Tucson, AZ

Honoring Professor Les Ehler's Legacy and Contributions to Biological Control and IPM

Multnomah

Organizers: Jay Rosenheim and Larry Godfrey, Univ. of California Davis, Davis, CA

8:00 AM 194 Remembering Les Ehler and his contributions to entomology. **Jay Rosenheim** (jarosenheim@ucdavis.edu), Univ. of California Davis, Davis, CA

8:10 AM 195 When does competition matter to biological control? Always. **Judith H. Myers** (myers@zoology.ubc.ca), Univ. of British Columbia, Vancouver, BC, Canada

8:30 AM 196 Bees, flowers, and people in urban environments. **Gordon Frankie** (gwfrankie@berkeley.edu), Univ. of California, Berkeley, Berkeley, CA

8:50 AM 197 Ehlerian graduate student mentoring: observations, questions, and deductions. **Jeffrey C. Miller** (jeffrey.miller@oregonstate.edu), Oregon State Univ., Corvallis, OR

9:10 AM 198 Les Ehler's search for 'real' IPM. Marshall Johnson (mwjohnson@ucanr.edu), Univ. of California Riverside, Parlier, CA

9:30 AM 199 Classic biological control in the changing landscape of the University of California - success continues in spite of reduced resources. Kent Daane (kdaane@ucanr.edu), Univ. of California, Berkeley, Parlier, CA

9:50 AM Break

WEDNESDAY, APRIL 5TH

10:20 AM 200 Les Ehler — a systematist? **Catherine A. Tauber** (cat6@cornell.edu), Cornell Univ., Davis, CA

10:40 AM 201 Guild ecology of biological control organisms. **Nicholas Mills** (nmills@berkeley.edu), Univ. of California at Berkeley, Berkeley, CA

11:00 AM 202 Linking field studies with policy to increase field edge habitat, pollination, and pest control services on farms. Rachael Long (rflong@ucanr.edu), Univ. of California, Woodland, CA

11:20 AM 203 Les Ehler, biological control, and organic farming. Charles Pickett (charlie.pickett@cdfa.ca.gov), California Dept. of Food and Agriculture, Sacramento, CA

11:40 AM Concluding Remarks

Improving Knowledge and Management of Spotted Wing Drosophila in the Pacific Region. *Sellwood*

Organizers: Nik G. Wiman¹, Dalila Rendon² and Cherre Bezerra Da Silva², ¹Oregon State Univ., Aurora, OR, ²Oregon State Univ., Corvallis, OR

8:00 AM 204 Drosophila suzukii (Diptera: Drosophilidae) mating, flight, and courtship behavior in response to yeast species Hanseniaspora uvarum. Alix Whitener (alix.crilly@wsu.edu)¹, Boyd Mori², Paul Becher², Peter Witzgall² and Elizabeth H. Beers¹, ¹Washington State Univ., Wenatchee, WA, ²Swedish Univ. of Agricultural Sciences, Alnarp, Sweden

8:20 AM 205 Contextual olfactory avoidance of the ubiquitous phytopathogen *Botrytis cinerea* by *Drosophila suzukii*. **Dong H. Cha** (dong.cha@ars.usda.gov)¹, Stephen P. Hesler², Gabrielle Brind'Amour², Karen Wentworth², Sara Villani², Kerik Cox², Matthew Boucher², Anna Wallingford², Jan P. Nyrop² and Gregory Loeb², ¹USDA-ARS, Hilo, HI, ²Cornell Univ., Geneva, NY

8:40 AM 206 Investigating population structure and dispersal of spotted wing drosophila in the United States. Joanna Chiu (cchiu@ucdavis.edu)¹, Antoine Abrieux¹, Derek Wilson¹, Yoosook Lee², Hannah Burrack³, Gregory Loeb⁴, Stephen P. Hesler⁴, Vaughn Walton⁵, Betsey Miller⁵, Xingeng Wang⁶, Kent Daane⁷, Steven Van Timmeren⁸, Rufus Isaacs⁸, Frank Drummond⁹ and Ashfaq Sial¹⁰, ¹Univ. of California, Davis, CA, ²Univ. of California, Davis, Davis, CA, ³North Carolina State Univ., Raleigh, NC, ⁴Cornell Univ., Geneva, NY, ⁵Oregon State Univ., Corvallis, OR, ⁶Univ. of California Berkeley, Parlier, CA, ⁷Univ. of California, Berkeley, Parlier, CA, 8Michigan State Univ., East Lansing, MI, ⁹Univ. of Maine, Orono, ME, ¹⁰Univ. of Georgia, Athens, GA

9:00 AM 207 Invasion biology of the spotted wing drosophila (*Drosophila suzukii*) on Hawaii island. **Keena Newton** (keena@hawaii.edu)¹, Jonathan Koch² and Donald Price², ¹Univ. of Hawai'i Hilo, Hilo, HI, ²Univ. of Hawai'i, Hilo, HI

9:20 AM 208 Overwintering and early spring nutrition, fecundity and longevity in spotted wing drosophila. **Dalila Rendon** (dalila.rendon@oregonstate.edu)¹, Jana Lee², Anna Wallingford³ and Vaughn Walton¹, ¹Oregon State Univ., Corvallis, OR, ²USDA-ARS, Corvallis, OR, ³Cornell Univ., Geneva, NY

9:40 AM 209 Larval competition affects behavior, development, and survival of the spotted wing drosophila (*Drosophila suzukii*). **Cherre Bezera Da Silva** (cherre.dasilva@oregonstate.edu) and Vaughn

Walton, Oregon State Univ., Corvallis, OR

10:00 AM Break

10:20 AM 210 Flight capabilities of *Drosophila suzukii* as measured by flight mills. **Jessica Wong** (wongjes@oregonstate.edu)¹ and Jana Lee², ¹Oregon State Univ., Corvallis, OR, ²USDA-ARS, Corvallis, OR

WEDNESDAY, APRIL 5TH

10:40 AM 211 Foreign exploration for *Drosophila suzukii* parasitoids in China and South Korea. **Kent Daane** (kdaane@ucanr.edu)¹, Xingeng Wang², Kim Hoelmer³, Betsey Miller⁴, Emilio Guerrieri⁵ and Massimo Giorgini⁵, ¹Univ. of California, Berkeley, Parlier, CA, ²Univ. of California Berkeley, Parlier, CA, ³USDA-ARS, Newark, DE, ⁴Oregon State Univ., Corvallis, OR, ⁵National Research Council of Italy, Portici, Italy

11:00 AM 212 Evaluations of native Asian parasitoids for biological control of *Drosophila suzukii*. Xingeng Wang (xggwang@ucanr.edu)¹, Kent Daane², Antonio Biondi³, John Jones¹ and Allie Nance¹, ¹Univ. of California Berkeley, Parlier, CA, ²Univ. of California, Berkeley, Parlier, CA, ³Univ. of California, Berkeley, CA

Western Insect Range Expansion in the Anthropocene

Holladay

Organizers: Chris Looney¹ and Todd Murray^{2,3},
¹Washington State Dept. of Agriculture, Olympia,
WA, ²Washington State Univ., Stevenson, WA,
³Washington State Univ. College of Agriculture,
Human, and Natural Resource Sciences,
Pullman, WA

8:00 AM 213 Range expansion of the California fivespined *lps* into Washington State. **Glenn R. Kohler** (glenn.kohler@dnr.wa.gov), Washington Dept. of Natural Resources, Olympia, WA

8:20 AM 214 Public witness program: collaboratively mapping the ranges of new exotic pests in Washington State. **Chris Looney** (clooney@agr.wa.gov), Washington State Dept. of Agriculture, Olympia, WA

8:40 AM 215 Range expansion of key forest pests in California. **Steven Seybold** (sjseybold@gmail.com), USDA-Forest Service, Davis, CA

9:00 AM 216 Biological collections – invaluable resources in determining change. **Richard Zack** (zack@wsu.edu), Washington State Univ., Pullman, WA

9:20 AM 217 Moths new to the Pacific Northwest, with thoughts on their arrival and detection. Peter J. Landolt (peter.landolt@ars.usda.gov), USDA-ARS, Wapato, WA

9:40 AM 218 Ground-dwelling arthropod communities of a sky island mountain range in southeastern Arizona, USA: implications for understanding climate change. **Wallace Meyer** (Wallace.Meyer@pomona.edu), Pomona College, Claremont, CA

10:00 AM Break

10:20 AM 219 Invasion of the Bee Girls. **Amber D. Tripodi** (amber.tripodi@ars.usda.gov), USDA-ARS, Logan, UT

10:40 AM 220 Exotic Carabidae: cultural steppe inhabitants, disturbance specialists, or invaders. **James R. LaBonte** (jlabonte@oda.state.or.us), Oregon Dept. of Agriculture, Salem, OR

11:00 AM 221 Establishing traits that may determine the impact of introduced herbivorous insects on North American conifers. Kathryn Thomas (kathryn_a_thomas@usgs.gov)¹, Angela Mech², Daniel Herms³, Patrick Tobin² and Travis D. Marsico⁴, ¹U.S. Geological Survey, Tucson, AZ, ²Univ. of Washington, Seattle, WA, ³The Ohio State Univ., Wooster, OH, ⁴Arkansas State Univ., State Univ., AR

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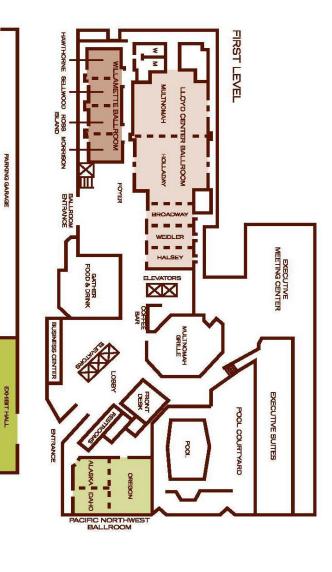
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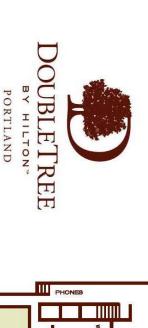


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