

**99<sup>th</sup> Annual Meeting  
Pacific Branch  
Entomological Society of America**



**April 12<sup>th</sup> to 15<sup>th</sup>, 2015**

**Coeur d'Alene Resort**

**Coeur d'Alene, ID**

***Celebrating Entomological Discoveries  
in the Pacific Branch***





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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# 2014-2015 Pacific Branch Entomological Society of America

## OFFICERS

President	Lisa Neven, USDA-ARS
President-Elect	Peter Follett, USDA-ARS
Past President	Steven Naranjo, USDA-ARS
Secretary-Treasurer	Jesse Richardson, DOW Agrosciences
Governing Board Rep	Douglas Walsh, Washington State University



## EXECUTIVE COMMITTEE

### MEMBERS AT LARGE

Betsy Beers, Washington State University	2012-2015
Silvia Rondon, Oregon State University	2012-2015
Surendra Dara, UC-ANR	2013-2016
Vonnie Barlow, UC-ANR	2013-2016
Laura Lavine, Washington State University	2014-2017
James Strange, USDA-ARS	2014-2017

## 2014-2015 COMMITTEE

Auditing  
Award Canvassing  
Award Selection  
Continuing Education  
Linnaean Games  
Local Arrangements  
Nominations  
Operations  
Program  
Registration  
Resolutions  
Site Selection (2016 meeting)

Student Employment Opportunities  
Student Symposium  
Student Paper/Poster Competition  
Student Texting Competition  
Student Travel Awards

## CHAIR(S)

Tad Gantenbein  
Vincent Jones, Charles Burks  
Eric Natwick  
Pedro Hernandez  
Michael Costello  
Sanford Eigenbrode  
Betsy Beers  
Erik Wenninger  
David Crowder, Rodney Cooper  
David Haviland  
Vonnie Barlow  
Jesse Richardson, Lisa Neven, Doug Walsh, Vonnie Barlow, Surendra Dara  
Alix Whitener, Danny Klittich  
Rebecca Schmidt, Ik Ju Park  
Jamie Strange, Joe Hull  
Michael Orr  
Holly Ferguson

# PBESA 2015 LOGISTICS & BASICS

## REGISTRATION

**All PBESA 2015 attendees must register.** You can continue to register by credit card up through the start of the meeting via the online registration link located on the meeting webpage:

<http://www.entsoc.org/Pacific/2015-esa-pacific-branch-annual-meeting>. For on-site registration credit card payments, cash and check will be accepted. Registration rates are available at the same webpage. On-site registration is \$170 for members, \$195 for non-members, \$80 for guests, and \$60 for students and honorary/emeritus members. One day registration is \$110. The registration desk will be open:

- Sunday, April 12, 1:00 pm to 4:30 pm in the Lobby
- Monday, April 13, 7:00 am to 4:00 pm in the Lobby
- Tuesday, April 14, 7:00 am to 4:00 pm in the Lobby
- Wednesday, April 15, 7:00 am to 10:00 am in the Lobby

## SCHEDULE

The “meeting-at-a-glance” grid on page 10 shows the overall schedule. Full chronological program with details including speakers, times and event locations, begins on page 11.

## MEETING INFORMATION AND SCHEDULE CHANGES

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

## HOTEL INFORMATION

**Coeur d’Alene Resort**  
155 South Second Street  
Coeur d’Alene, ID 83814  
Tel: (208) 209-5031

The hotel is located in downtown Coeur d’Alene adjacent to the lake. PBESA guests will receive special \$12/day parking and free internet in their rooms and the lobby. The resort is also offering discounts for golfing (\$90 per person including a cart, range balls, and a sports massage at the range) and spa packages for PBESA attendees. There are abundant restaurants, cafes, and shopping nearby. Lake Coeur d’Alene also offers abundant activities including boating, bike riding, hiking, fishing, and cruises.

## HOTEL MAP

The Resort’s meeting rooms are located in the Coeur d’Alene Conference Center and on the 1st floor of the hotel. Maps are provided on page 56.

## TRANSPORTATION

The Resort is easy to reach from just about anywhere: <http://www.cdaresort.com/discover/resort/directions>.

For those **traveling by air**, the Resort is located 40 minutes east of the Spokane International Airport (GEG), which offers non-stop or one-stop access from most major US and Canadian cities. The Coeur d’Alene Air Terminal is available for corporate and private aircraft. The **Coeur d’Alene Airport Shuttle** is available for a round trip cost of \$69. You must arrange for the shuttle by calling the Transportation Department at: 800-688-5253 ext 7133 or fill out the form on this website: <http://www.cdaresort.com/discover/resort/transportation>. A 24 hour notice is required for all transportation requests, or cancellations. Rental cars are available at the airport terminal.

For those **traveling by car** the Resort is easy to reach by automobile via Interstate 90 (Exit 11) or Highway 95 (Northwest Blvd). From the exit, follow the directions to downtown and watch for the Resort on your right.

## SPECIAL MEETINGS AND EVENTS

### PACIFIC BRANCH EXECUTIVE COMMITTEE MEETING

The Executive Committee will meet Sunday, April 12, from 6:30 p.m. to 8:30 p.m. in Kidd Island Bay.

### PLENARY SESSION

We are pleased to present a Plenary Session by Dr. Bethany Marshall titled "Nature as Teacher, Insect as Muse" on Sunday, April 12th from 5:00 pm to 6:00 pm in Bay 4. Dr. Marshall is a noted forensic Entomologist in Washington State, and has been involved in several human and wildlife crimes (<http://wsm.wsu.edu/s/index.php?id=348>). In a recent article, she was quoted as saying, "'Nature has the answers. We just don't know how to read the book yet.'" Join us for what promises to be a riveting story of Entomological curiosity and investigation!

### BUSINESS MEETINGS

The combination opening session/preliminary business meeting will be held from 8 am to 12:00 pm in Bay 4 on Monday morning, April 13th with the preliminary business meeting at the end of the opening session. The final business meeting will be held from 7:00 am to 8:00 am on Wednesday, April 15th in Bay 4. **A complimentary breakfast will be served to ALL final business meeting attendees.** Please plan to attend and make your voice heard regarding Pacific Branch officers and future meeting sites.

### STUDENT COMPETITION JUDGES/MODERATORS MEETING

Those who have volunteered to serve as moderators and judges for the student poster and paper competitions should attend an organizational meeting on Sunday at 6:00 pm in Bay 4. All judges should meet in Bay 6 at 5:00 pm on Monday April 13th to finalize the student competition evaluations. Please see James Strange or Joe Hull if you have any questions.

### PBESA MIXER/PRESIDENT'S RECEPTION

PBESA 2014-2015 President Lisa Neven will host a reception for all registered PBESA 2015 attendees on Monday evening, April 13th, from 6:00 p.m. to 8:00 p.m. in Bay 3/4. We will have a special presentation by the Vandal Native Drummers from the University of Idaho.

### TEXTING COMPETITION

The fourth annual student texting competition will be held Monday evening, April 13th from 7:00 pm to 7:30pm as part of the PBESA Mixer in the West Lobby. 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. There will be 4 rounds with 5 questions per round. The topics will be "Scientific Names", "Name that Bug", "PBESA Trivia", and "Entomology in the News". With each round, the questions will increase in difficulty and point value. The participant that accrues the most points is the winner. Don't let your auto-correct lead you astray. No points will be given for inaccurate or misspelled answers. Participants must supply their own mobile phone, and are responsible for text messaging rates that may be incurred. No traditional computer keyboards allowed, this is about texting speed, not typing speed! Registration is open until noon on the day of the competition. To register your mobile phone or other texting device, text your name to: 657-229-BUGS. Prizes are donated by BioQuip Products and BioQuipBugs.

### AWARDS LUNCHEON

The PBESA 2015 Awards Luncheon will be held on Tuesday, April 14th, from 12 pm to 1:25 pm in Bay 3/4. Your full conference registration includes admission to the luncheon.

## **LINNAEAN GAMES**

Linnaean Games will be held on Monday evening, April 14th from 8:00 pm to 10:00 pm in the Kidd Island/North Cape rooms. The winning PBESA 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 (Minneapolis, MN, Nov 15-18, 2015).

## **SOCIAL HOUR WITH POSTER PRESENTERS**

Join us for social hour with poster presenters on Tuesday from 5:00-6:00 pm. Grab a drink, check out the posters, and network with colleagues and friends.

## **EMPLOYMENT OPPORTUNITIES**

The Pacific Branch Career Fair will be held Tuesday, April 14th in Bay 4 from 6:00 to 7:00 pm. Are you looking for a job or interested in furthering your education? Do you wonder what opportunities are available? Attend the PBESA Career Fair to get your questions answered! Experienced 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. Appetizers and a cash bar will be provided and there will be fun prizes for students collecting the most employer business cards!

## **ELEVATOR OPPORTUNITY**

Right after the Career Fair on Tuesday evening, April 14th, we will have a brand new event we call 'Elevator Opportunity!' How would you react if you suddenly found yourself on an elevator with the President or other prominent person? Could you explain your research in the time it takes to reach your floor? Here is your chance to practice for this potential elevator opportunity. You will be given 3 minutes to describe your project/research to a prominent person. There will be no slides, but a substitute for a 'cocktail napkin' will be provided for drawing, if necessary. This is an open event, intended for students and early career professionals, and registration is limited to the first 20 people. You can register at the meeting. For further information contact either Alix Whitener ([alix.crilly@email.wsu.edu](mailto:alix.crilly@email.wsu.edu)) or Lisa Neven ([lisa.neven@ars.usda.gov](mailto:lisa.neven@ars.usda.gov)).

## **CONTINUING EDUCATION CREDITS**

Continuing Education Credits (CEC) will be available for Arizona, California, Idaho, Nevada and Washington. We have requested credits for the following sessions: (1) *What's New in Industry* (1 credit) session on Monday, April 13th from 5:10-6:15PM in Bay 5; (2) *General Paper Session II* (2.5 credits) on Tuesday, April 14th from 2:00 to 4:30 in Bay 1; (3) The Symposium "*Current Research on Vegetable Insect Pests in the Western USA*" (2 credits) on Tuesday, April 14th from 8:40-11:20 in Bay 6; and (4) The Symposium "*Role of Biopesticides in Managing Agricultural Pests*" (1.5 credits) on Wednesday April 15th from 8:15-10:00. A registration table will be set up outside those rooms. Please contact Pedro Hernandez for questions or further information ([Phernandez@nichino.net](mailto:Phernandez@nichino.net))

## **BEE LINE FUN RUN**

Join us for the first annual PBESA 'Bee-Line' 1 k Walk/5 k Fun Run benefitting the Entomological Foundation. The Bee Line will be held at 3 pm on Sunday, April 12, 2015. Participants should meet in Bay 1 before the race. There will be designer T-shirts and goodie bags for all participants. There will be 1st, 2nd, and 3rd place prizes for winners from the 1k 'Scouting' walkers and 5k 'Long-Distance Forager' runners. Special awards will be given to the most creative insect-themed costume/attire. To guarantee a designer T-shirt, you must register through the PBESA web site, <http://www.entsoc.org/Pacific/2015-esa-pacific-branch-annual-meeting>, by March 23, 2015. You may also pay at the meeting, but you may not get a T-shirt until the end of the meeting. The Entry fee is \$25 for non-members and members and \$15 for students.

## **FLY TYING WORKSHOP**

There will be a Fly Tying Workshop offered through the Northwest Outfitters Fly Fishing Store. Space is limited to the first 30 respondents. There will be 3 sessions of 1 hr each on Wednesday in North Cape. You will have hands-on instruction by trained professionals and you will keep your flies. You may register and pay the **\$20** fee on the PBESA web site, before the meeting. If slots are still available, you can register and pay at the meeting.

## **PHOTO SALON**

The Photo Salon will be held Monday afternoon from 1:30 to 5:00 p.m. in Bay 1. This event will be organized by Chris Hedstrom. Branch members are invited to submit no more than three digital images that will be shown on a continuous loop during the Photo Salon session. Need a quiet place to check your email? Wireless internet will be provided during the Photo Salon session. A select subset of images will be shown during the Monday Evening Reception and during the Tuesday Awards Luncheon. Cash prizes will be offered to the winners of each of the following categories: most outstanding image, best research/extension related image, best cellphone/smartphone image, best student image, and best video.



# Presenter/Moderator Instructions

## POWERPOINT SLIDESHOW PRESENTATIONS

The presentation format will be PowerPoint files using laptop computers and projectors. Laptop computers and projection equipment will be available on site. Please contact Erik Wenninger ([erikw@uidaho.edu](mailto:erikw@uidaho.edu)) with questions about Audio/ Visual operations.

Speakers who present submitted papers (Student Competition or General Session) should bring their PowerPoint files on a flash drive (USB memory stick) to the Operations Committee table in the registration room by the day before their scheduled session. 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. Speakers needing special accommodations, that have very large files, or that plan on using embedded video should contact Erik Wenninger ([erikw@uidaho.edu](mailto:erikw@uidaho.edu)) in advance of the session so that the Operations Committee can ensure that everything runs smoothly. There will be no formal area for students to practice.



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.

## POSTER DISPLAY PRESENTATIONS

Student posters will be on display Monday afternoon 1:30 to 5:00 pm in the East Lobby. Students are requested to post their competition posters from 8:00 am to 12:00 pm on Monday. Students should be prepared to discuss their poster with judges from 3:30-5 while judging is underway. Students who are not by their posters will not be judged. Student posters should be removed Monday evening between 5:00 to 6:00 pm. General Posters (non-students) should be posted between 6:00 to 10:00 pm in the East Lobby on Monday evening for viewing on Tuesday. Tuesday poster presenters are encouraged to be present at their posters for viewing and interaction with other PBESA members from 5:00-6:00 PM during Social Hour with Poster Presenters. Moreover, breaks are popular times to view posters. All posters should be removed after 6:00 pm on Tuesday. Posting materials will be provided on site.

## 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 on Sunday in Bay 4. 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 Erik Wenninger ([erikw@uidaho.edu](mailto:erikw@uidaho.edu)).

<b>SUNDAY</b> <b>12-April 2015</b>	<b>MONDAY</b> <b>13-April 2015</b>	<b>TUESDAY</b> <b>14-April 2015</b>	<b>WEDNESDAY</b> <b>15-April 2015</b>
<b>2015 PBESA</b> <i>“Celebrating Entomological Discoveries in the Pacific Branch”</i>  <b>Meeting at a Glance.</b>	<b>7:00 am to 4:00 pm</b> Registration Desk Open		<b>7:00 am to 10:00 am</b> Registration Desk Open
	<b>8:00 am to 12:00 pm</b> 1) Opening Session/ Preliminary Business Meeting 2) Hang Student Posters	<b>8:00 am to 12:00 pm</b> 1) Symbioses Symp. 2) Vegetable Pests Symp. 3) Exotic Pests Symp. 4) Potato Psyllid Symp. 5) Ten-Minute Presentations	<b>7:00 am to 8:00 am</b> Final Business Meeting (Breakfast provided for attendees only)
		<b>8:00 am to 6:00 pm</b> Posters available for viewing	<b>8:00 am to 12:00 pm</b> 1) Insects in EDEN Symp. 2) Managing Pollinator Health Symp. 3) Student Symp. 4) Biopesticides Symp. 5) Fly Tying Workshop (starts at 9:00 am)
	<b>12:00 pm to 1:30 pm</b> Lunch on your own	<b>12:00 pm to 1:30 pm</b> Awards Luncheon	<b>12:00 pm</b> Meeting Adjourn
<b>1:00 pm to 4:30 pm</b> Registration Desk Open	<b>1:30 pm to 5:00 pm</b> 1) Student competition 2) Mol. Entomol. Symp. 3) Arthropod Interact. with Plants and Path. Symp. 4) Photo Salon	<b>1:30 pm to 5:00 pm</b> 1) Insect Diversity Symp. 2) Pollinators Symp. 3) Potato Psyllid Symp. (cont'd) 4) Ten-Minute Presentations 5) Arthropod Displays	<div>  </div> <div> <b>Coeur d'Alene, Idaho</b>  <b>April 12-15, 2015</b> </div> <div>  </div>
<b>3:00 pm to 4:30 pm</b> <i>“Bee Line,”</i> the 1 <sup>st</sup> Annual PBESA Fun Run (after-run snacks provided)	<b>5:00 pm to 6:15 pm</b> 1) What's New in Industry (starts 5:10) 2) Hang General Posters (by 6 pm)	<b>5:00 pm to 6:00 pm</b> Social Hour with Poster Presenters (Cash Bar)	
<b>5:00 pm to 6:00 pm</b> Plenary Session <i>“Nature as Teacher, Insect as Muse”</i>	<b>6:00 pm to 8:00 pm</b> PBESA Mixer (Appetizers and cash bar)	<b>6:00 pm to 7:00 pm</b> Career Fair (Appetizers and cash bar)	
<b>6:00 pm to 6:30 pm</b> Moderator/Judge meeting	<b>7:00 pm to 7:30 pm</b> Texting Competition	<b>7:00 pm to 8:00 pm</b> Elevator Opportunity	
<b>6:30 pm to 8:30 pm</b> Executive Board Meeting	<b>8:00 pm to 10:00 pm</b> Linnaean Games		

# PBESA 2015 Program

**Coeur d'Alene Resort**

Meeting Rooms Located on 1st Floor  
(See map on back cover)

**Sunday, April 12**

## **REGISTRATION**

1:00 p.m. to 4:30 p.m.  
*East Lobby*

## **PLENARY SESSION**

Dr. Bethany Marshall  
“*Nature as Teacher, Insect as Muse*”  
5:00 p.m. to 6:00 p.m.  
*Bay 4*

## **STUDENT COMPETITION JUDGE & MODERATOR MEETING**

6:00 p.m. to 6:30 p.m.  
*Bay 4*

## **EXECUTIVE BOARD MEETING**

6:30 p.m. to 8:30 p.m.  
*Kidd Island Bay*

**Sunday, April 12**

**Plenary Session:**

**“Nature as Teacher, Insect as Muse”**

**Dr. Bethany Marshall**

School of Biological Sciences  
Washington State University

5:00 p.m. to 6:00 p.m.

*Bay 4*



Dr. Marshall is a noted forensic Entomologist in Washington State, School of Biological Sciences, and has been involved in several human and wildlife crimes (<http://wsm.wsu.edu/s/index.php?id=348>). In a recent article, she was quoted as saying, “Nature has the answers. We just don't know how to read the book yet.” Join us for what promises to be a riveting story of Entomological curiosity and investigation!

# Monday, April 13

## REGISTRATION

7:00 a.m. to 4:00 p.m.

*East Lobby*

## OPENING SESSION AND PRELIMINARY BUSINESS MEETING

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

*Bay 4*

- 8:00 Welcome and Opening Remarks, Lisa Neven, President Pacific Branch ESA
- 8:15 National ESA Report, Phil Mulder, President ESA
- 8:30 National ESA Governing Report, David Gammel, Executive Director, ESA  
ICE 2016 announcements and up-date Walter Leal, Co-Chair, ICE  
ESA Section reports, Section representatives  
Update on P-IE Section, Sujaya Rao, President P-IE
- 9:00 The Legacy of C.W. Woodworth, Brian Holden, Great grandson of C.W. Woodworth.
- 9:15 2014 C.W. Woodworth Winner presentation – Dr. Thomas W. Scott, University of California-Davis
- 9:35 2014 John Henry Comstock Award Winner presentation – Mohammad-Amir Aghaee, University of California-Davis
- 10:00 BREAK
- 10:30 Preliminary Business Meeting  
Governing Board report, Douglas Walsh  
Pacific Branch Executive Committee report, Lisa Neven  
Secretary/Treasurer report, Jesse Richardson  
Nominations, Betsy Beers  
Announcements/New business, Lisa Neven
- 12:00 LUNCH

## 12:00 to 1:30 pm—Lunch on Your Own

Student Competition Posters should be posted before 1:30 pm in the East Lobby

Monday, April 13, 2015

**PROGRAM SYMPOSIUM: ARTHROPOD INTERACTIONS WITH PLANTS AND PATHOGENS**

1:30 p.m. to 5:30 p.m.

Casco Bay

Moderators and Organizers: David Crowder<sup>1</sup> and Ricardo A. Ramirez<sup>2</sup>, <sup>1</sup>Washington State Univ., Pullman, WA,

<sup>2</sup>Utah State Univ., Logan, UT

**1 1:30 PM Microclimates from macroclimates: the biophysical ecology of a plant-insect interaction in the Chihuahuan Desert.**

**Art Woods** (art.woods@mso.umt.edu), Univ. of Montana, Missoula, MT

**2 1:50 PM Honey bee pathogen and immune pathway discovery.**

**Michelle Flenniken** (michelleflenniken@gmail.com), Montana State Univ., Bozeman, MT

**3 2:10 PM When natives and invasives meet: Bark beetle-pathogen interactions in whitebark pine.**

**Diana Six** (diana.six@cfc.umt.edu), Univ. of Montana, Missoula, MT

**4 2:30 PM Counteracting plant resistance: Interactions between nematodes and aphids.**

**Ricardo A. Ramirez** (ricardo.ramirez@usu.edu) and Lori R. Spears, Utah State Univ., Logan, UT

**5 2:50 PM Genomic basis of insect induced phenotypes.**

**Paul Nabity** (paul.nabity@wsu.edu), Washington State Univ., Pullman, WA

**3:10 PM Break**

**6 3:30 PM Conflicting effects of climate and vector behavior on the spread of a plant pathogen.**

**Matt Daugherty** (matt.daugherty@ucr.edu), Univ. of California, Riverside, CA

**7 3:50 PM The importance of vector population dynamics: studies evaluating glassy-winged sharpshooter egg maturation.**

**Mark Sisterson** (mark.sisterson@ars.usda.gov), USDA - ARS, Parlier, CA

**8 4:10 PM Impact of herbivory by a non-vector on the spread of a plant pathogen.**

**David Crowder** (dcrowder@wsu.edu) and Paul Chisholm, Washington State Univ., Pullman, WA

**9 4:30 PM Host plant-virus-vector interactions and barley yellow dwarf disease management.**

**Arash Rashed** (arashed@uidaho.edu)<sup>1</sup>, Mahnaz Rashidi<sup>1</sup>, Juliet Marshall<sup>1</sup> and Nilsa A. Bosque-Pérez<sup>2</sup>, <sup>1</sup>Univ. of Idaho, Aberdeen, ID, <sup>2</sup>Univ. of Idaho, Moscow, ID

**10 4:50 PM Disruption of ethylene signaling by Turnip mosaic virus mediates suppression of plant defense against the aphid vector, *Myzus persicae*.**

**Clare Casteel** (ccasteel@ucdavis.edu), Univ. of California, Davis, CA, Aurelie Bak, UC Davis, NA, CA, Steven Whitman, Iowa State Univ., NA, IA and Georg Jander, Cornell Univ., Ithaca, NY

**11 5:10 PM Factors influencing host choice in a vector of plant pathogens.**

**Sean Prager** (Sean.prager@ucr.edu)<sup>1</sup>, Isaac Esquivel<sup>2</sup> and John T. Trumble<sup>1</sup>, <sup>1</sup>Univ. of California, Riverside, CA,

<sup>2</sup>Univ. of California Riverside, Riverside, CA

**Monday, April 13, 2015**

**PROGRAM SYMPOSIUM: MOLECULAR ENTOMOLOGY**

1:30 p.m. to 5:30 p.m.  
Kidd Island/N. Cape

Moderators and Organizers: Joe Hull, USDA-ARS, U.S. Arid Land Agricultural Research Center, Maricopa, AZ

**12 1:30 PM Uncovering the cryptic diversity of a North American Bumble Bee.**

**Jonathan Koch** (jonathan.b.koch@gmail.com), Utah State Univ., Logan, UT and James Strange, USDA - ARS, Logan, UT

**13 1:50 PM Identification of cryptic insect populations with next generation sequencing.**

**Bradley White** (bradley.white@ucr.edu), Univ. of California, Riverside, CA

**14 2:10 PM Biorational control: your genes can and will be used against you.**

**Evelien VanEkert** (Evelien.VanEkert@ARS.USDA.GOV), USDA-ARS ALARC, Maricopa, AZ

**15 2:30 PM Its about time: integrating circadian biology in the development of pest management strategies.**

**Rosanna Kwok** (rskwok@ucdavis.edu), Univ. of California, Davis, CA

**16 2:50 PM Insecticide resistance in the field: A population study linking genotype to phenotype.**

**Herma Amalia** (herma.amalia@email.wsu.edu), Bogor Agricultural University, Bogor, Indonesia

**3:10 PM Break**

**17 3:30 PM Acaricide resistance of two-spotted spider mite in Pacific Northwest hop fields.**

**Fang Zhu** (fang.zhu@wsu.edu), Washington State Univ., Pullman, WA

**18 3:50 PM Identification of neuropeptides and peptide hormones expressed in codling moth heads.**

**Stephen F. Garczynski** (steve.garczynski@ars.usda.gov), USDA - ARS, Wapato, WA

**19 4:10 PM Insect Pyrokinin/PBAN peptides and application.**

**Man-Yeon Choi** (mychoi@ars.usda.gov), USDA - ARS, Corvallis, OR

**20 4:30 PM Molecular mechanism of honey bee social behavior.**

**Ying Wang** (ying.wang.6@asu.edu), Arizona State Univ., Tempe, AZ

**21 4:50 PM Integrated control of Drosophila aging by insulin and TGF-beta signaling.**

**Hua Bai** (baihuao@gmail.com), Brown Univ., Providence, RI

**22 5:10 PM What happens after sex: structure-function analyses of the Drosophila sex peptide receptor.**

**Joe Hull** (joe.hull@ars.usda.gov), USDA-ARS, U.S. Arid Land Agricultural Research Center, Maricopa, AZ

**Monday, April 13, 2015**

**UNDERGRADUATE**

2:00 p.m. to 2:24 p.m.  
Bay 6

Moderators: Lori Spears, Utah State University; Joe Hull, USDA-ARS, Maricopa, AZ

**23 2:00 PM Dermacentor Tick Exposure Risk Assessment on Four Types of Recreational Trails.**

**Heather Forrest Fruscalzo** (heather.fraday@eagles.ewu.edu), Eastern Washington Univ., Spokane, WA

**24 2:12 PM Soak or Spray: Control of *Polydrusus impressifrons* on un-rooted hybrid poplar cuttings.**

**Justin Skoczylas** (jksoczylas@gmail.com), Washington State Univ. - Tri-Cities, Pasco, WA, Timothy Waters, Washington State Univ., Pasco, WA and R. Andrew Rodstrom, Greenwood Resources, Hermiston, OR

**MASTERS**

2:24 p.m. to 4:30 p.m.  
Bay 6

Moderators: Lori Spears, Utah State University; Joe Hull, USDA-ARS, Maricopa, AZ

**25 2:24 PM Transition from bee-dominated to fly-dominated pollinators along an elevation gradient.**

**Lindsie McCabe** (lmca243@nau.edu), Northern Arizona Univ., Flagstaff, AZ

**26 2:36 PM Factors influencing cumulative pollen deposition by bee assemblages in Southern California watermelon crops.**

**Jacob Cecala** (jmcecala@cpp.edu) and Joan Leong, California State Polytechnic Univ., Pomona, Pomona, CA

**27 2:48 PM Bees associated with Linden (*Tilia* spp.) trees and their susceptibility to toxic sugars in nectar.**

**Adriana Argoti** (Adriana.Argoti@oregonstate.edu) and Sujaya Rao, Oregon State Univ., Corvallis, OR

**3:00 PM Break**

**28 3:30 PM Pollen requirements and leaf preference of the leaf-cutting bee *Megachile wheeleri* Mitchell.**

**Corey Andrikopoulos** (cja576@gmail.com) and Corey Andrikopoulos, Utah State Univ., Logan, UT

**29 3:42 PM Interspecific interactions between aphids infesting wheat: evidence of facilitation across differing water inputs of the shared host plant.**

**Nathaniel E. Foote** (foot2969@vandals.uidaho.edu), Sanford D. Eigenbrode and Thomas S. Davis, Univ. of Idaho, Moscow, ID

**30 3:54 PM Evaluating the impact of a diverse crop landscape on the occurrence of potato psyllid (*Bactericera cockerelli*) and other insects with the use of two sampling techniques.**

**Matthew Klein** (matthew.klein@oregonstate.edu) and Silvia Rondon, Oregon State Univ., Hermiston, OR

**31 4:06 PM Entomopathogenic fungi as potential biological control agents for unique bark beetle (Coleoptera: Curculionidae: Scolytinae) field crop pest.**

**Anis Lestari** (anislestari@gmail.com) and Sujaya Rao, Oregon State Univ., Corvallis, OR

**32 4:18 PM Host range evaluation of *Diaphorencyrtus aligarhensis* (Hymenoptera: Encyrtidae) for biological control of Asian citrus psyllid in California.**

**Allison Bistline-East** (allison.bistline@ucr.edu) and Mark S. Hoddle, Univ. of California, Riverside, CA



**Monday, April 13, 2015**

**PhD**

2:00 p.m. to 4:30 p.m.

Bay 5

Moderators: Amber Tripodi, USDA-ARS, Logan, UT; Rodney Cooper, USDA-ARS, Wapato, WA

**33 2:00 PM The impact of land use and landscape context on bee populations in a seasonally dry tropical agro-ecosystem.**

**Sara M. Galbraith** (sara.marie.galbraith@gmail.com)<sup>1</sup>, Jenny Ordoñez<sup>2</sup>, Lee A. Vierling<sup>3</sup> and Nilsa A. Bosque-Pérez<sup>3</sup>, <sup>1</sup>Tropical Agricultural Research and Higher Education Center (CATIE), Turrialba, Costa Rica, <sup>2</sup>World Agroforestry Centre - Latin America, Turrialba, Costa Rica, <sup>3</sup>Univ. of Idaho, Moscow, ID

**34 2:12 PM Evolution of pollen transport in bees is influenced by pollen morphology.**

**Zach Portman** (zportman@gmail.com), Utah State Univ., Logan, UT and Terry Griswold, USDA - ARS, Logan, UT

**35 2:24 PM Remnant natural areas as “islands” of bee pollinator diversity: can small noncultivated areas support diverse bee communities?.**

**Levi Keesecker** (levi.keesecker@gmail.com)<sup>1,2</sup>, Philippe Tixier<sup>1</sup>, Terry Griswold<sup>3</sup> and Nilsa A. Bosque-Pérez<sup>2</sup>, <sup>1</sup>CATIE, Turrialba, Costa Rica, <sup>2</sup>Univ. of Idaho, Moscow, ID, <sup>3</sup>USDA - ARS, Logan, UT

**36 2:36 PM Brown marmorated stink bug (*Halyomorpha halys* Stal) may pose a threat to California rice.**

**Mohammad-Amir Aghaee** (maghaee@ucdavis.edu), Univ. of California, Davis, CA, Larry D. Godfrey, Univ. of California - Davis, Davis, CA and Jhalendra Rijal, Univ. of California-Davis, Davis, CA

**37 2:48 PM Implications of non-vector herbivores for management of plant viruses in agricultural systems.**

**Paul Chisholm** (paul.chisholm@email.wsu.edu) and David Crowder, Washington State Univ., Pullman, WA

**3:00 PM Break**

**38 3:30 PM Host plant water stress effects on vector transmission efficiency of a plant pathogen is context dependent .**

**Celia Del Cid** (celiadelcid@berkeley.edu)<sup>1</sup>, Rodrigo Krugner<sup>2</sup> and Rodrigo P. P. Almeida<sup>1</sup>, <sup>1</sup>Univ. of California, Berkeley, Berkeley, CA, <sup>2</sup>USDA-ARS, San Joaquin Valley Agricultural Sciences Center, Parlier, CA

**39 3:42 PM Interactions between neonicotinoids and water stress lead to Banks grass mite outbreaks in corn.**

**Alice Ruckert** (alice.ruckert@usu.edu), Utah State Univ., Logan, UT

**40 3:54 PM Dynamics of woolly apple aphid (*Erisoma lanigerum*) under organic and conventional orchard management.**

**Robert Orpet** (robert.orpet@wsu.edu)<sup>1</sup>, Elizabeth E. Beers<sup>1</sup>, John Reganold<sup>2</sup>, Jessica Goldberger<sup>2</sup>, Vincent Jones<sup>1</sup> and David Crowder<sup>2</sup>, <sup>1</sup>Washington State Univ., Wenatchee, WA, <sup>2</sup>Washington State Univ., Pullman, WA

**41 4:06 PM Ovipositional responses of *Culex tarsalis* to semiochemicals produced by aquatic taxa in different guilds.**

**Adena Why** (awhy001@ucr.edu) and William E. Walton, Univ. of California, Riverside, CA

**42 4:18 PM Beneficial Insects in Home and School Gardens along an Urban to Rural Landscape Gradient.**

**Kevi C. Mace-Hill** (kmace@berkeley.edu), Univ. of California, Berkeley, CA

**Monday, April 13, 2015**

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

5:10 p.m. to 6:15 p.m.

Bay 5

Moderators and Organizers: Jesse M. Richardson, Dow AgroSciences, Hesperia, CA

**43 5:10 PM Trece product update.**

**Bill Lingren** (blingren@trece.com), Trece Incorporated, Adair, OK

**44 5:17 PM Bayer CropScience Sivanto introduction and product portfolio update.**

**Seth Gersdorf**, Bayer CropScience

**45 5:24 PM Syngenta products update.**

**Joshua Adkins** (joshua.adkins@syngenta.com), Syngenta Crop Protection LLC, Greensboro, NC

**46 5:31 PM Dow AgroSciences product update.**

**Alistair McKay** (ahmckay@dow.com), Dow AgroSciences, Clovis, CA

**47 5:38 PM Pyrifluquinazon, a new agricultural insecticide in the western U.S.**

**Pedro Hernandez** (PHernandez@nichino.net), Nichino America, Inc, Wilmington, DE

**48 5:45 PM BASF product update.**

**Curtis Rainbolt** (curtis.rainbolt@basf.com), BASF Corporation, Research Triangle Park, NC

**49 5:52 PM Cyclaniliprole 50SL: New diamide insecticide in the U.S.**

**Sean Whipple** (whipples@iskbc.com), ISK Biosciences Corporation, Kearney, MO

**50 5:59 PM Marrone Bio Innovations product update.**

**Pam Marrone**, Marrone Bio Innovations

**51 6:06 PM FMC product update.**

**Mac Learned**, FMC

**52 6:13 PM Gowan Company product update.**

**Gary Melchior** (gmelchior@gowanco.com), Gowan Co, Walla Walla, WA

Monday, April 13, 2015

## STUDENT POSTER COMPETITION

1:30 pm to 5:00 pm  
East Lobby

Student posters will be on display Monday afternoon 1:30 to 5:00 pm in the East Lobby. Students are requested to post their competition posters from 8:00 am to 12:00 pm on Monday. Students should be prepared to discuss their poster with judges from 3:30-5 while judging is underway. Students who are not by their posters will not be judged.

### UNDERGRADUATE

1:30 p.m. to 5:00 p.m.  
East Lobby

**P1 Variability of taxonomically significant features of *Boreus* species.**

**Megan Asche** (megan.asche@gmail.com)<sup>1,2</sup>, Maggie Freeman<sup>2</sup> and Chris Looney<sup>2</sup>, <sup>1</sup>The Evergreen State College, Olympia, WA, <sup>2</sup>Washington State Dept. of Agriculture, Olympia, WA

**P2 Can *Bactericera cockerelli* (Hemiptera: Trioizidae) acquire *Liberibacter solanacearum* from Convolvulaceous plants?.**

**Glenda Torres** (TorresG4@heritage.edu)<sup>1</sup>, David Horton<sup>2</sup>, Nina M. Barcenas<sup>1</sup> and William Rodney Cooper<sup>2</sup>, <sup>1</sup>Heritage Univ., Toppenish, WA, <sup>2</sup>USDA - ARS, Wapato, WA

**P3 Snow scorpionflies (Mecoptera: Boreidae) of the Hanford Reach National Monument.**

**Maggie Freeman** (mmfreeman@comcast.net)<sup>1</sup>, Megan Asche<sup>2</sup>, Chris Looney<sup>1</sup> and Richard Zack<sup>3</sup>, <sup>1</sup>Washington State Dept. of Agriculture, Olympia, WA, <sup>2</sup>The Evergreen State College, Olympia, WA, <sup>3</sup>Washington State Univ., Pullman, WA

**P4 Lethal and Sublethal Effects of Several Miticides on the Beneficial Predatory Mite, *Phytoseiulus persimilis* (Acari: Phytoseiidae) in Commercial Strawberry Production.**

**Meghan Malloy** (malloymk@whitman.edu)<sup>1</sup>, Oleg Daugovich<sup>2</sup> and Anna D. Howell<sup>2</sup>. <sup>1</sup>Whitman College, Walla Walla, WA, <sup>2</sup>Univ. of California, Ventura, CA

**P5 The Effects of Absciscic Acid on *Anopheles stephensi* Lifespan and Fecundity.**

**Jadrian Ejercito** (joejercito@ucdavis.edu), Univ. of California, Davis, CA, Shirley Luckhart, Univ. of California, Davis, CA and Elizabeth Glennon, Univ. of California Davis, Davis, CA  
Tuesday, April 14, 2015

### MASTERS

1:30 p.m. to 5:00 p.m.  
East Lobby

**P6 Comparative Studies of Pollinator Diversity Among Perennial Irrigated Crops and Adjacent Habitats in Eastern Washington.**

**Courtney Grula** (courtneygrula@gmail.com) and Douglas Walsh, Washington State Univ., Prosser, WA

**P7 Volatile and within-needle terpene response of Douglas-fir trees (*Pseudotsuga menziesii* var. *glauca*) to attack by Douglas-fir beetles (*Dendroctonus pseudotsugae*).**

**Andrew Giunta** (adgiunta@gmail.com)<sup>1</sup>, Michael J. Jenkins<sup>1</sup> and Justin B. Runyon<sup>2</sup>, <sup>1</sup>Utah State Univ., Logan, UT, <sup>2</sup>USDA Forest Service, Bozeman, MT

**Monday, April 13, 2015**

**P8 Pollen foraging comparison of *Bombus huntii* and *Apis mellifera*.**

Andi Kopit<sup>1</sup>, **Houston Judd** (houstonjudd@gmail.com)<sup>2</sup>, James Strange<sup>3</sup>, Theresa L. Pitts-Singer<sup>3</sup> and Ricardo Ramirez<sup>4</sup>,  
<sup>1</sup>Utah State Univ. and USDA-ARS-PIRU, Logan, UT, <sup>2</sup>Utah State Univ. and USDA-ARS-PIRU, Logan, UT, <sup>3</sup>USDA - ARS, Logan, UT, <sup>4</sup>Utah State Univ., Logan, UT

**PHD**

1:30 p.m. to 5:00 p.m.  
East Lobby

**P9 Across the pollen nation: Do migratory beekeeping efforts affect transgenic pollen flow in alfalfa seed fields?**

**Natalie Boyle** (nboyle@wsu.edu)<sup>1</sup>, Sandya Kesoju<sup>1</sup>, Stephanie Greene<sup>2</sup>, Ruth Martin<sup>3</sup> and Douglas Walsh<sup>1</sup>,  
<sup>1</sup>Washington State Univ., Prosser, WA, <sup>2</sup>USDA - ARS, Fort Collins, CO, <sup>3</sup>USDA - ARS, Corvallis, OR

**P10 Unlocking the microbiome: endosymbionts affect pathogen acquisition in *Dermacentor andersoni* ticks.**

**Cory Gall** (cgall@vetmed.wsu.edu)<sup>1</sup>, Glen Scoles<sup>2</sup> and Kelly Brayton<sup>1</sup>, <sup>1</sup>Washington State Univ., Pullman, WA,  
<sup>2</sup>USDA - ARS, Pullman, WA

**P11 Bodacious Bee Biodiversity at Pinnacles National Park, California.**

**Joan M. Meiners** (joan.meiners@usu.edu)<sup>1</sup>, Terry Griswold<sup>2</sup> and Edward W. Evans<sup>1</sup>, <sup>1</sup>Utah State Univ., Logan, UT, <sup>2</sup>USDA - ARS, Logan, UT

**P12 Baseline susceptibility of *Drosophila suzukii* to orchard insecticides.**

**Alix Whitener** (alix.crilly@email.wsu.edu), Washington State Univ., Pullman, WA and Elizabeth H. Beers, Washington State Univ., Wenatchee, WA

Monday, April 13, 2015

**PHOTO SALON**

1:30 p.m. to 5:00 p.m.

Bay 1

**STUDENT COMPETITION JUDGES MEETING**

5:00 p.m. to 5:30 p.m.

Bay 6

**HANG GENERAL POSTERS**

6:00 p.m. to 10:00 p.m.

*East Lobby*

**PBESA MIXER/ PRESIDENT'S RECEPTION**

6:00 p.m. to 8:00 p.m.

*Bay 3/4*

**TEXTING COMPETITION**

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

*West Lobby*

*Prizes Donated by BioQuip Products and BioQuipBugs*

**LINNAEAN GAMES**

8:00 p.m. to 10:00 p.m.

*Kidd Island/North Cape*

# Tuesday, April 14

## REGISTRATION

7:00 a.m. to 4:00 p.m.

East Lobby

## PROGRAM SYMPOSIUM: EXOTIC AND INVASIVE PESTS

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

Bay 5

Moderators and Organizers: Surendra Dara, Univ. of California, San Luis Obispo, CA

**53 8:00 AM The effect of pesticides on egg sac emergence of the invasive brown widow spider (Araneae: Theridiidae).**

**Dong-Hwan Choe** (donghwan.choe@ucr.edu), Univ. of California, Riverside, CA

**54 8:20 AM Recent Invasive Pests in Hawaii.**

**Arnold Hara** (arnold@hawaii.edu), Univ. of Hawai'i, Hilo, HI

**55 8:40 AM Impacts of Invasive Pests on IPM of Field Crops in the Sacramento Valley and Intermountain Region of California.**

**Larry D. Godfrey** (ldgodfrey@ucdavis.edu)<sup>1</sup>, Jhalendra Rijal<sup>1</sup>, Kris Tollerup<sup>2</sup> and Mohammad-Amir Aghaee<sup>1</sup>,

<sup>1</sup>Univ. of California, Davis, CA, <sup>2</sup>Univ. of California, Parlier, CA

**56 9:00 AM Status of apple maggot as a pest in the Pacific Northwest.**

**Wee Yee** (wee.yee@ars.usda.gov), USDA - ARS, Wapato, WA

**57 9:20 AM Spotted Wing Drosophila: IPM Challenge or Opportunity?.**

**Elizabeth H. Beers** (ebeers@wsu.edu), Washington State Univ., Wenatchee, WA

**58 9:40 AM Impacts of exotic pests on IPM programs for California table grapes.**

**David R. Haviland** (dhaviland@ucdavis.edu), Univ. of California, Bakersfield, CA

**10:00 AM Break**

**59 10:20 AM Bagrada bug biology, distribution, research, and outreach in California.**

**Surendra Dara** (skdara@ucanr.edu), Univ. of California, San Luis Obispo, CA

**60 10:40 AM Bagrada bug: Research efforts to tackle the newcomer in California's central coast.**

**Shimat V. Joseph** (svjoseph@ucanr.edu), Univ. of California, Salinas, CA

**61 11:00 AM Monitoring and biological control research of brown marmorated stink bug in Southern California.**

**Jesus R. Lara** (jlara007@ucr.edu), Univ. of California, Riverside, CA

**62 11:20 AM Life table analyses to determine natural enemy impact on Asian citrus psyllid in southern California.**

**Erica Kistner** (ekistner@ucr.edu), Univ. of California-Riverside, Riverside, CA

**63 11:40 AM Monitoring and Managing Brown Marmorated Stink Bug in the Pacific Northwest: An Extension Perspective.**

**Michael Bush** (bushm@wsu.edu)<sup>1</sup>, Silvia Rondon<sup>2</sup>, Nik G. Wiman<sup>3</sup>, Peter W. Shearer<sup>4</sup>, Vaughn Walton<sup>3</sup> and Jana C. Lee<sup>5</sup>, <sup>1</sup>Washington State Univ., Union Gap, WA, <sup>2</sup>Oregon State Univ., Hermiston, OR, <sup>3</sup>Oregon State Univ., Corvallis, OR, <sup>4</sup>Oregon State Univ., Hood River, OR, <sup>5</sup>USDA - ARS, Corvallis, OR

Tuesday, April 14, 2015

**PROGRAM SYMPOSIUM: POTATO PSYLLID AND ZEBRA CHIP DISEASE: A THREAT TO THE  
PACIFIC NORTHWEST POTATO INDUSTRY (MORNING SESSION)**

8:15 a.m. to 12:00 p.m. (continues after lunch at 1:30, pg. 29)  
The Shore Room

Moderators and Organizers: Joseph Munyaneza and Kylie Swisher, USDA - ARS, Wapato, WA

**8:15 AM Introductory Remarks**

**64 8:20 AM History, distribution, and importance of zebra chip disease of potato.**

**Joseph Munyaneza** (joseph.munyaneza@ars.usda.gov), USDA - ARS, Wapato, WA

**65 8:40 AM Zebra chip economics.**

**Joe Guenther** (jguenthn@uidaho.edu), Univ. of Idaho, Moscow, ID and Gina Greenway, College of Idaho, Caldwell, ID

**66 9:00 AM Identification and molecular characterization of potato psyllid haplotypes.**

**Kylie Swisher** (Kylie.Swisher@ars.usda.gov)<sup>1</sup>, Joseph Munyaneza<sup>1</sup> and James Crosslin<sup>2</sup>, <sup>1</sup>USDA - ARS, Wapato, WA, <sup>2</sup>USDA-ARS, Prosser, WA

**67 9:20 AM Population genomics of the potato psyllid in the Pacific Northwest.**

**Zhen Fu** (zhen.fu@wsu.edu)<sup>1</sup>, Carmen Castillo<sup>1</sup>, William E. Snyder<sup>1</sup>, Alan Bergland<sup>2</sup> and Andrew Jensen<sup>3</sup>, <sup>1</sup>Washington State Univ., Pullman, WA, <sup>2</sup>Stanford Univ., Stanford, CA, <sup>3</sup>Northwest Potato Research Consortium, Eagle, ID

**68 9:40 AM Changes in haplotype distribution of '*Candidatus Liberibacter solanacearum*' and its psyllid vector in potato fields in Southern Idaho.**

**Jennifer Dahan** (jdahan@uidaho.edu)<sup>1</sup>, Brandon Thompson<sup>1</sup>, Nora Olsen<sup>2</sup>, Erik Wenninger<sup>2</sup> and Alexander Karasev<sup>1</sup>, <sup>1</sup>Univ. of Idaho, Moscow, ID, <sup>2</sup>Univ. of Idaho, Kimberly, ID

**10:00 AM Break**

**69 10:20 AM Differences in bacterial endosymbionts among potato psyllid haplotypes.**

**William Rodney Cooper** (rodney.cooper@ars.usda.gov), Kylie Swisher, Stephen F. Garczynski, Tariq Mustafa, Joseph Munyaneza and David Horton, USDA - ARS, Wapato, WA

**70 10:40 AM Potato psyllid genomics: using data from the laboratory to impact field production.**

**Blake R. Bextine** (Bbextine@uttyler.edu), Univ. of Texas at Tyler, Tyler, TX and Wayne B. Hunter, USDA-ARS, Ft. Pierce, FL

**71 11:00 AM Evidence for '*Candidatus Liberibacter*' invasion, adherence, and motility in the psyllid vector.**

**Judith K. Brown** (jkbrown@ag.arizona.edu), Univ. of Arizona, Tucson, AZ

**72 11:20 AM Characterization and correlation of EPG waveforms of potato psyllid, *Bactericera cockerelli*.**

**Cole Pearson** (cpearson@marronebio.com), Marrone Bio Innovations, Davis, CA, Joseph Munyaneza, USDA - ARS, Wapato, WA, Elaine Backus, USDA - ARS, Parlier, CA and Holly Shugart, Univ. of Florida, Lake Alfred, FL

**73 11:40 AM '*Candidatus Liberibacter solanacearum*' transmission efficiency among three potato psyllid haplotypes.**

**Tariq Mustafa** (tariq.mustafa@wsu.edu)<sup>1</sup>, Joseph Munyaneza<sup>1</sup>, Kylie Swisher<sup>1</sup>, William Rodney Cooper<sup>1</sup>, David Horton<sup>1</sup>, Richard Zack<sup>2</sup> and Hanu Pappu<sup>2</sup>, <sup>1</sup>USDA - ARS, Wapato, WA, <sup>2</sup>Washington State Univ., Pullman, WA

Tuesday, April 14, 2015

**PROGRAM SYMPOSIUM: CURRENT RESEARCH ON VEGETABLE INSECT PESTS IN THE  
WESTERN UNITED STATES**

8:40 a.m. to 11:20 a.m.

Bay 6

Moderators and Organizers: Jhalendra Rijal<sup>1</sup> and Shimat V. Joseph<sup>2</sup>, <sup>1</sup>Univ. of California-Davis, Davis, CA, <sup>2</sup>Univ. of California, Salinas, CA

**74 8:40 AM From corn to potatoes: what is new in the Columbia Basin.**

**Silvia Rondon** (silvia.rondon@oregonstate.edu), Oregon State Univ., Hermiston, OR

**75 9:00 AM Struggles and strategies to manage year-round vegetable pests in paradise.**

**Helen Spafford** (hspaffor@hawaii.edu)<sup>1</sup>, Jari Sugano<sup>1</sup>, Jensen Uyeda<sup>1</sup>, Robin Shimabuku<sup>2</sup> and Roger Vargas<sup>3</sup>, <sup>1</sup>Univ. of Hawai'i, Honolulu, HI, <sup>2</sup>Univ. of Hawaii, Kahului, HI, <sup>3</sup>USDA - ARS, Hilo, HI

**76 9:20 AM Comparing efficacy of insecticides against cabbage maggot (Diptera: Anthomyiidae) in the laboratory and field.**

**Shimat V. Joseph** (svjoseph@ucanr.edu), Univ. of California Cooperative Extension,, Salinas, CA

**77 9:40 AM Management of insect pests of vegetable crops in Imperial Valley, California.**

**Eric T. Natwick** (etnatwick@ucdavis.edu), Univ. of California, Holtville, CA

**10:00 AM Break**

**78 10:20 AM Refined Management of Cucumber Beetles (*Diabrotica* sp. and *Acalymma* sp.) in Central California Melons: Implications for Organic Vegetable Production.**

**Larry D. Godfrey** (ldgodfrey@ucdavis.edu), Univ. of California - Davis, Davis, CA, Rachael Long, Univ. of California, Woodland, CA, Amy Bell, Univ. of California, Davis, Davis, CA and Kevin Goding, Univ. of California Davis, Davis, CA

**79 10:40 AM Progress towards organic management of the exotic invasive stink bug *Bagrada hilaris*.**

**Tessa R. Grasswitz** (tgrasswi@nmsu.edu), New Mexico State Univ., Los Lunas, NM

**80 11:00 AM Recent Conspire stink bug research in the Central San Joaquin Valley, California.**

**Tom Turini** (taturini@ucanr.edu), Univ. of California, Fresno, CA



Tuesday, April 14, 2015

**PROGRAM SYMPOSIUM: INSECT - MICROBIAL SYMBIOSES: NEW DISCOVERIES**

8:40 a.m. to 11:40 a.m.

Kidd Island/N. Cape

Moderators and Organizers: Diana Six, Univ. of Montana, Missoula, MT

**81 8:40 AM Bacterial symbiont *Rickettsia* impacts whitefly fitness and ecology.**

**Anna G. Himler** (ahimler@email.arizona.edu)<sup>1</sup>, Martha S. Hunter<sup>2</sup>, Suzanne E. Kelly<sup>2</sup>, Paul Nabity<sup>2</sup>, Peter Asimwe<sup>3</sup>, Bodil N. Cass<sup>2</sup> and Jacqueline E. Bergen<sup>2</sup>, <sup>1</sup>College of Idaho, Caldwell, ID, <sup>2</sup>Univ. of Arizona, Tucson, AZ, <sup>3</sup>Monsanto Company, St. Louis, MO

**82 9:00 AM Temperature as a major driver of insect-microbe symbioses: Lessons from bark beetles and fungi.**

**Diana Six** (diana.six@cfc.umt.edu), Univ. of Montana, Missoula, MT

**83 9:20 AM Using population genomics to explore evolution in a bark beetle-fungus symbiosis.**

**Ryan Bracewell** (ryan.bracewell@umontana.edu), Jeff Good and Diana Six, Univ. of Montana, Missoula, MT

**84 9:40 AM *Acremonium* sp. and *Graphium* sp. - two new mycangial fungus associates of the invasive polyphagous shothole borer (*Euwallacea* sp.) on avocado and other host plants in California.**

**Shannon Lynch** (shannon.lynn@ucr.edu), Center for Conservation Biology, Riverside, CA

**10:00 AM Break**

**85 10:20 AM Mechanisms of genome degradation in nascent symbionts.**

**Colin Dale** (colin.dale@utah.edu), Univ. of Utah, Salt Lake City, UT

**86 10:40 AM Microbes associated with wild and solitary bees: transmission and microbial interactions.**

**Quinn McFrederick** (quinn.mcfrederick@ucr.edu), Univ. of California, Riverside, CA

**87 11:00 AM Endosymbiont genomes from sap-feeding insects: from big to small to big again.**

**John McCutcheon** (john.mccutcheon@mso.umt.edu), Univ. of Montana, Missoula, MT

**88 11:20 AM Drought stress facilitates conditional mutualism in a multi-trophic pathosystem.**

**Thomas S. Davis** (tsdavis1@gmail.com), Nilsa A. Bosque-Pérez and Sanford D. Eigenbrode, Univ. of Idaho, Moscow, ID

Tuesday, April 14, 2015

## GENERAL PAPERS SESSION I

8:45 a.m. to 11:45 a.m.

Bay 1

Moderators: Joy Paterson, Univ. of Nevada; Luis Espino, University of California

**89 8:45 AM Integrating Navel orangeworm (*Amyelois transitella*) control in almonds: Living without pyrethroids.**

**Bradley Higbee** (bradh@paramountfarming.com), Paramount Farming Co, Shafter, CA

**90 8:57 AM Small Scale Beekeeper Integrated Pest Management in Nevada.**

**Joy Paterson** (patersonj@unce.unr.edu), Univ. of Nevada Cooperative Extension, Yerington, NV

**91 9:09 AM The tadpole shrimp (*Triops longicaudatus*) as a pest of rice in California.**

**Luis Espino** (laespino@ucanr.edu), Univ. of California Cooperative Extension, Colusa, CA

**92 9:21 AM Weathering and Chemical Degradation of Methyl Eugenol and Raspberry Ketone Solid Dispensers for Detection and Male Annihilation of Oriental fruit fly (*Bactrocera dorsalis*) and Melon fly (*Bactrocera cucurbitae*) in Hawaii.**

**Roger Vargas** (roger.vargas@ars.usda.gov)<sup>1</sup>, Steven K. Souder<sup>1</sup>, Eddie Nkomo<sup>2</sup>, Peter Cook<sup>2</sup>, Bruce Mackey<sup>3</sup> and John Stark<sup>4</sup>, <sup>1</sup>USDA - ARS, Hilo, HI, <sup>2</sup>Farma Tech International, North Bend, WA, <sup>3</sup>USDA-ARS-PWA, Albany, CA, <sup>4</sup>Washington State Univ., Puyallup, WA

**93 9:33 AM Biological control of the Virginia creeper leafhopper (*Erythroneura ziczac* Walsh), a new invasive pest in northern California vineyards.**

**Houston Wilson** (houston@berkeley.edu)<sup>1</sup>, Glenn McGourty<sup>2</sup>, Lucia Varela<sup>3</sup>, Serguei Triapitsyn<sup>4</sup> and Kent M. Daane<sup>1</sup>, <sup>1</sup>Univ. of California, Berkeley, CA, <sup>2</sup>UC Cooperative Extension, Ukiah, CA, <sup>3</sup>UC Cooperative Extension, Santa Rosa, CA, <sup>4</sup>Univ. of California, Riverside, CA

**94 9:45 AM Wireworm control in PNW cereal based cropping systems.**

**Aaron Esser** (aaron@wsu.edu)<sup>1</sup>, Ivan Milosavljevic<sup>2</sup> and David Crowder<sup>2</sup>, <sup>1</sup>Washington State Univ., Ritzville, WA, <sup>2</sup>Washington State Univ., Pullman, WA

**9:57 AM Break**

**95 10:20 AM Learning to love leftovers: using bycatch to expand our knowledge in entomology.**

**Lori R. Spears** (lori.spears@usu.edu) and Ricardo A. Ramirez, Utah State Univ., Logan, UT

**96 10:32 AM Plant size and distance affect the colonization of Dalmatian toadflax by the stem-mining weevil, *Mecinus janthiniformis*.**

**Gary Chang** (chang@gonzaga.edu), Braeden Van Deynze and Rebecca Velasco, Gonzaga Univ., Spokane, WA

**97 10:44 AM Does pollination limitation occur in Oregon blueberries?.**

George D. Hoffman and **Sujaya Rao** (sujaya@oregonstate.edu), Oregon State Univ., Corvallis, OR

**98 10:56 AM Within-field distribution of twospotted spider mites in peppermint: implications for developing quantitative sampling plan.**

**Jhalendra Rijal** (jrijal@ucdavis.edu)<sup>1</sup>, Rob Wilson<sup>2</sup>, and Larry D. Godfrey<sup>1</sup>. <sup>1</sup>Univ. of California-Davis, Davis, CA, <sup>2</sup>Univ. of California, Tulelake, CA

Tuesday, April 14, 2015

**99 11:08 AM Anomalous armyworm infestations in eastern Washington wheat implicate *Dargida diffusa* (Walker) and *Dargida terrapictalis* (Buckett).**

**Diana Roberts** (robertsd@wsu.edu), Washington State Univ., Spokane, WA, Peter J. Landolt, USDA - ARS, Wapato, WA and Kevin Wanner, Montana State Univ., Bozeman, MT

**100 11:20 AM Speciation in the *Encarsia pergandiella* complex (Hymenoptera: Aphelinidae): modeling the effect of *Cardinium*-induced cytoplasmic incompatibility and hybrid incompatibilities.**

**Marco Gebiola** (marco.gebiola@gmail.com)<sup>1,2</sup>, Peter Hammerstein<sup>3</sup>, Suzanne E. Kelly<sup>2</sup>, Massimo Giorgini<sup>4</sup> and Martha S. Hunter<sup>2</sup>, <sup>1</sup>Consiglio Nazionale delle Ricerche, Portici, Italy, <sup>2</sup>Univ. of Arizona, Tucson, AZ, <sup>3</sup>Institute for Theoretical Biology, Humboldt-Universität zu Berlin, Berlin, Germany, <sup>4</sup>National Research Council of Italy, Portici, Italy

**101 11:32 AM Determination of Population Distribution of Macadamia felted Coccid (Hemiptera: Eriococcidae) in Hawaii.**

**Rosemary Gutierrez** (gr6@hawaii.edu), university of Hawaii, Hilo, HI, Ishakh Pulakkatu-Thodi, Univ. of Hawaii Manoa, Honolulu, HI, Mark Wright, Univ. of Hawai'i, Honolulu, HI and Juliana Yalem, Hawaii Dept. of Agriculture, Honolulu, HI

## AWARDS LUNCHEON

12:00 p.m. to 1:25 p.m.

Bay 3/4

Tuesday, April 14, 2015

## 2014 PBESA Awards Luncheon

Tuesday, April 14, 2015

12:00 pm to 1:25 pm

Bay 3/4

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

***Congratulations to the following recipients of Pacific Branch recognition awards:***

**C. W. Woodworth Award** – Thomas Scott (University of California Davis)

**John Henry Comstock Graduate Student Award** – Mohammad-Amir Aghaee (University of California Davis)

**PBESA Distinguished Achievement Award in Teaching** – James Carey (University of California Davis)

**PBESA Distinguished Achievement Award in Extension** – Alec Gerry (University of California Riverside)

**PBESA Award for Excellence in Integrated Pest Management** – James Hagler (USDA-ARS, Maricopa, AZ)

**PBESA Medical, Urban, and Veterinary Entomology Award** – No candidates

**PBESA Plant-Insect Ecosystems Award** – Elaine Backus (USDA-ARS, Parlier, CA)

**PBESA Systematics, Evolution and Biodiversity Award** – No Candidates

**PBESA Physiology, Biochemistry, and Toxicology Award** – Joe Hull (USDA-ARS, Maricopa, AZ)

**PBESA Distinction in Student Mentoring** – No candidates

**PBESA Student Leadership Award** – Alix Whitener (Washington State University)

**PBESA Team Work Award** – No Candidates

Tuesday, April 14, 2015

**PROGRAM SYMPOSIUM: POTATO PSYLLID AND ZEBRA CHIP DISEASE: A THREAT TO THE  
PACIFIC NORTHWEST POTATO INDUSTRY (AFTERNOON SESSION)**

1:30 a.m. to 5:10 p.m.

The Shore Room

Moderators and Organizers: Joseph Munyaneza and Kylie Swisher, USDA - ARS, Wapato, WA

**102 1:30 PM Zebra chip complex: vector density, time of infection, and disease development.**

**Arash Rashed** (arashed@uidaho.edu)<sup>1</sup>, Xi Liang<sup>1</sup>, Mahnaz Rashidi<sup>1</sup>, Christopher Rogers<sup>1</sup>, Erik Wenninger<sup>2</sup>, Nora Olsen<sup>2</sup>, Alexander Karasev<sup>3</sup> and Phillip Wharton<sup>1</sup>, <sup>1</sup>Univ. of Idaho, Aberdeen, ID, <sup>2</sup>Univ. of Idaho, Kimberly, ID, <sup>3</sup>Univ. of Idaho, Moscow, ID

**103 1:50 PM Three years of natural history studies of psyllids in the wake of zebra chip in the Northwest.**

**Andrew Jensen** (ajensen@potatoes.com), Northwest Potato Research Consortium, Eagle, ID

**104 2:10 PM Matrimony vine (*Lycium* spp.): a new overwintering plant host for potato psyllid in the Pacific Northwest.**

**Jenita Thinakaran** (jenita.thinakaran@ars.usda.gov), Joseph Munyaneza, William Rodney Cooper and David Horton, USDA - ARS, Wapato, WA

**105 2:30 PM The complexity of potato psyllid management in a multiple crop system.**

**John T. Trumble** (john.trumble@ucr.edu) and Sean Prager, Univ. of California, Riverside, CA

**106 2:50 PM Development and impact of a potato psyllid monitoring network and pest alert system in the Columbia Basin of Washington.**

**Carrie Wohleb** (cwohleb@wsu.edu), Washington State Univ., Moses Lake, WA

**3:10 PM Break**

**107 3:30 PM Monitoring potato psyllids, '*Candidatus Liberibacter solanacearum*', and zebra chip in Idaho.**

**Erik Wenninger** (erikw@uidaho.edu)<sup>1</sup>, Nora Olsen<sup>1</sup>, Michael Thornton<sup>2</sup>, Phillip Nolte<sup>3</sup>, Jeff Miller<sup>4</sup>, Jennifer Dahan<sup>5</sup> and Alexander Karasev<sup>5</sup>, <sup>1</sup>Univ. of Idaho, Kimberly, ID, <sup>2</sup>Univ. of Idaho, Parma, ID, <sup>3</sup>Univ. of Idaho, Idaho Falls, ID, <sup>4</sup>Miller Research, LLC, Rupert, ID, <sup>5</sup>Univ. of Idaho, Moscow, ID

**108 3:50 PM An extension specialist perspective on the management of potato psyllid and zebra chip disease in the Columbia Basin.**

**Silvia Rondon** (Silvia.rondon@oregonstate.edu), Oregon State Univ., Hermiston, OR

**109 4:10 PM Potato pest management in the Treasure Valley in the wake of zebra chip.**

**Stuart Reitz** (Stuart.Reitz@oregonstate.edu), Oregon State Univ., Ontario, OR

**110 4:30 PM Managing insect pests of potato after the detection of zebra chip in the Columbia Basin.**

**Timothy Waters** (twaters@wsu.edu), Washington State Univ., Pasco, WA

**111 4:50 PM The effect of an anthranilic diamide in the management of the tomato-potato psyllid and zebra chip.**

**Juan M. Alvarez** (juan.m.alvarez@usa.dupont.com)<sup>1</sup>, Joseph Munyaneza<sup>2</sup>, Tariq Mustafa<sup>2</sup>, Silvia Rondon<sup>3</sup> and Hector E. Portillo<sup>1</sup>, <sup>1</sup>DuPont Crop Protection, Newark, DE, <sup>2</sup>USDA - ARS, Wapato, WA, <sup>3</sup>Oregon State Univ., Hermiston, OR

Tuesday, April 14, 2015

**PROGRAM SYMPOSIUM: DISCOVERING THE PATTERNS AND PROCESSES OF INSECT  
DIVERSITY IN THE AMERICAN WEST**

1:25 p.m. to 4:35 p.m.

Bay 6

Moderators and Organizers: James Strange<sup>1</sup> and Jonathan Koch<sup>2</sup>, <sup>1</sup>USDA - ARS, Logan, UT, <sup>2</sup>Utah State Univ., Logan, UT

**1:25 PM Introductory Remarks**

**112 1:30 PM Bee Diversity in the Bitterroot Valley.**

**Skyler Burrows** (skyler3887@gmail.com) and Marirose Kuhlman, MPG Ranch, Florence, MT

**113 1:50 PM Landscape genetics of *Bombus bifarius* in the inland Pacific Northwest at fine and coarse scales.**

**Paul Rhoades** (paul.r.rhoades@gmail.com), Univ. of Idaho, Moscow, ID

**114 2:10 PM Missing bees or missed bees?: using *Anthophora* to investigate rarity.**

**Michael Orr** (michael.christopher.orr@gmail.com)<sup>1</sup>, Terry Griswold<sup>2</sup> and James P. Pitts<sup>1</sup>, <sup>1</sup>Utah State Univ., Logan, UT, <sup>2</sup>USDA - ARS, Logan, UT

**115 2:30 PM Comparative Historical Biogeography of the Southwest Using Three Families of Nocturnal Wasps.**

**Emily A. Sadler** (sadler.e@gmail.com) and James P. Pitts, Utah State Univ., Logan, UT

**116 2:50 PM Sun, Sand and Insanity: The Biodiversity of the Algodones Dunes.**

**Lynn S. Kimsey** (lskimsey@ucdavis.edu), Univ. of California, Davis, Davis, CA

**3:10 PM Break**

**117 3:30 PM Historical Biogeography of the Southwestern USA: A Lack of Consensus.**

**James P. Pitts** (jpitts@biology.usu.edu)<sup>1</sup>, Emily A. Sadler<sup>1</sup> and Joseph S. Wilson<sup>2</sup>, <sup>1</sup>Utah State Univ., Logan, UT, <sup>2</sup>Utah State Univ., Tooele, UT

**118 3:50 PM The complex evolutionary history of the pallid dotted-blue butterfly (*Lycaenidae: Euphilotes pallescens*) in the Great Basin Desert.**

**Joseph S. Wilson** (joeswilson@gmail.com), Utah State Univ., Tooele, UT

**119 4:10 PM Population genetics of alpine bumble bees in western North America.**

**James Strange** (James.Strange@ars.usda.gov), USDA - ARS, Logan, UT and Jonathan Koch, USDA-ARS, Logan, UT

**4:30 PM Concluding Remarks**

Tuesday, April 14, 2015

**PROGRAM SYMPOSIUM: POLLINATORS: CELEBRATING POLLINATION BIOLOGY IN  
CHANGING LANDSCAPES**

1:30 p.m. to 4:50 p.m.  
Kidd Island/N. Cape

Moderators and Organizers: Natalie Boyle, Washington State Univ., Prosser, WA

**120 1:30 PM Floral cues used in host-flower recognition by oligolectic solitary bees.**

**Heidi Dobson** (dobsonhe@whitman.edu), Whitman College, Walla Walla, WA

**121 1:50 PM Bumblebees learn the species context of flower size cues.**

**Carla Essenberg** (essenberg@email.arizona.edu)<sup>1</sup>, Rebekah Easter<sup>1</sup>, Rachel Simmons<sup>2</sup> and Daniel Papaj<sup>1</sup>, <sup>1</sup>Univ. of Arizona, Tucson, AZ, <sup>2</sup>National Marine Mammal Foundation, San Diego, CA

**122 2:10 PM The Role of Experience in Floral Sonication Behavior by a Bumble Bee.**

**Avery Russell** (averyrussell@email.arizona.edu)<sup>1</sup>, Anne Leonard<sup>2</sup> and Daniel Papaj<sup>1</sup>, <sup>1</sup>Univ. of Arizona, Tucson, AZ, <sup>2</sup>Univ. of Nevada, Reno, Reno, NV

**123 2:30 PM Climate change-induced shifts in flowering phenology: consequences for floral traits, plant-pollinator interactions, and reproductive output of plants.**

**Nicole Rafferty** (nicole.rafferty@utoronto.ca), Univ. of Toronto, Toronto, ON, Canada

**124 2:50 PM Influence of exotic annual grass invasion on native bee community structure and functional diversity in the Palouse Prairie.**

**Paul Raymond Rhoades** (paul.r.rhoades@gmail.com)<sup>1</sup>, Sanford D. Eigenbrode<sup>1</sup>, Nilsa A. Bosque-Pérez<sup>1</sup>, Lisette Waits<sup>1</sup> and Walter Sheppard<sup>2</sup>, <sup>1</sup>Univ. of Idaho, Moscow, ID, <sup>2</sup>Washington State Univ., Pullman, WA

**3:10 PM Break**

**125 3:30 PM Ecology of an Ozark bee community.**

**Amber D. Tripodi** (AMBER.TRIPODI@ARS.USDA.GOV), USDA ARS, Logan, UT and Allen L. Szalanski, Univ. of Arkansas, Fayetteville, AR

**126 3:50 PM The influence of spatial pattern of *Osmia lignaria* nest locations on almond yield.**

**Derek R. Artz** (Derek.Artz@ars.usda.gov) and Theresa L. Pitts-Singer, USDA - ARS, Logan, UT

**127 4:10 PM Foraging behavior in the alfalfa leafcutting bee (*Megachile rotundata*) and gene flow in alfalfa seed fields.**

**Natalie Boyle** (nboyle@wsu.edu)<sup>1</sup>, Sandya Kesoju<sup>1</sup>, Stephanie Greene<sup>2</sup>, Ruth Martin<sup>3</sup> and Douglas Walsh<sup>1</sup>, <sup>1</sup>Washington State Univ., Prosser, WA, <sup>2</sup>USDA - ARS, Fort Collins, CO, <sup>3</sup>USDA - ARS, Corvallis, OR

**128 4:30 PM Project Apis m.'s Focus on Forage.**

**Christi Heintz** (Christih@cox.net), Project Apis m., Paso Robles, CA

Tuesday, April 14, 2015

**PROGRAM SYMPOSIUM: INVASIVE ARTHROPODS: EXOTIC STORIES AND DISPLAYS**

1:50 p.m. to 5:00 p.m.

Bay 5

Organizers: William Rodney Cooper<sup>1</sup> and Surendra Dara<sup>2</sup>, <sup>1</sup>USDA - ARS, Wapato, WA, <sup>2</sup>Univ. of California, San Luis Obispo, CA

**Display format. Pinned/preserved invasive arthropods will be on display from 1:50 to 5:00.**

**129 1:50 PM Invasive stinkbugs in California.**

**David R. Haviland** (dhaviland@ucdavis.edu), Univ. of California, Bakersfield, CA

**130 1:50 PM Oregon Efforts Toward Controlling the Brown Marmorated Stink Bug: An Extension Perspective.**

**Silvia Rondon** (Silvia.rondon@oregonstate.edu)<sup>1</sup>, Nik G. Wiman<sup>2</sup>, Peter W. Shearer<sup>3</sup>, Vaughn Walton<sup>2</sup> and Jana C. Lee<sup>4</sup>, <sup>1</sup>Oregon State Univ., Hermiston, OR, <sup>2</sup>Oregon State Univ., Corvallis, OR, <sup>3</sup>Oregon State Univ., Hood River, OR, <sup>4</sup>USDA - ARS, Corvallis, OR

**131 1:50 PM Idaho State Department of Agriculture's Response to First Japanese Beetle Infestation.**

**Paul Castrovillo** (Paul.Castrovillo@agri.idaho.gov), Idaho State Department of Agriculture, Boise, ID and Darcy Heckathorne, Boise, ID

**132 1:50 PM Invasive and Pestiferous Tephritid Fruit Flies in the Western U.S.**

**Wee Yee** (wee.yee@ars.usda.gov), USDA - ARS, Wapato, WA

**133 1:50 PM Invasive Loopers and Solitary Wasps in Washington State.**

**Peter J. Landolt** (peter.landolt@ars.usda.gov), USDA - ARS, Wapato, WA

**134 1:50 PM Invasion of the Bee Girls.**

**Amber D. Tripodi** (AMBER.TRIPODI@ARS.USDA.GOV)<sup>1</sup>, Michael Orr<sup>2</sup>, Jonathan Koch<sup>3</sup>, Corey Andikopoulos<sup>2</sup>, Skyler Burrows<sup>4</sup>, Houston Judd<sup>5</sup>, Andi Kopit<sup>6</sup>, Byron Love<sup>2</sup>, Joan M. Meiners<sup>2</sup>, James H. Cane<sup>7</sup>, Sam Droege<sup>8</sup>, Terry Griswold<sup>7</sup>, Theresa L. Pitts-Singer<sup>7</sup> and James Strange<sup>7</sup>, <sup>1</sup>USDA ARS, Logan, UT, <sup>2</sup>Utah State Univ., Logan, UT, <sup>3</sup>USDA-ARS, Logan, UT, <sup>4</sup>MPG Ranch, Florence, MT, <sup>5</sup>Utah State Univ. and USDA-ARS-PIRU, Logan, UT, <sup>6</sup>Utah State Univ. and USDA-ARS-PIRU, Logan, UT, <sup>7</sup>USDA - ARS, Logan, UT, <sup>8</sup>USGS, Beltsville, MD

**135 1:50 PM *Anthidium manicatum* (Hymenoptera: Apidae), the wool carder bee, is a new invasive species in western North America.** **James Strange** (James.Strange@ars.usda.gov)<sup>1</sup>, Jonathan Koch<sup>2</sup>, Harold Ikerd<sup>1</sup> and Terry Griswold<sup>1</sup>, <sup>1</sup>USDA - ARS, Logan, UT, <sup>2</sup>USDA-ARS, Logan, UT

**136 1:50 PM Exotic “stinky” bugs of the PNW.**

**Michael Bush** (bushm@wsu.edu), Washington State Univ., Union Gap, WA



Tuesday, April 14, 2015

**GENERAL PAPERS SESSION II**

2:00 p.m. to 4:30 p.m.

Bay 1

Moderators: Phil McNally and Hank Mager, Bayer CropScience

**137 2:00 PM Sivanto; new chemistry from Bayer for citrus and grapes.**

**Phil McNally** (phil.mcnally@bayer.com), Bayer CropScience, Lake Forest, CA

**138 2:12 PM Blue Alfalfa Aphid (*Acyrtosiphon kondoi*) control in Alfalfa with Sivanto.**

**Hank Mager** (hank.mager@bayer.com), Bayer CropScience, Fountain Hills, AZ

**139 2:24 PM SIVANTO : A New Chemical Class of Insecticide from Bayer CropScience for Broad-spectrum Sucking Insect Control.**

**Dean Christie** (dean.christie@bayer.com), Bayer Crop Sciences, Spokane, WA

**140 2:36 PM Efficacy of XXpire™ WG Insecticide on ornamental greenhouse and nursery pests.**

**Vanelle Peterson** (vfpeterson@dow.com), Dow AgroSciences LLC, Fort Collins, CO, James Breuninger, Dow AgroSciences, Indianapolis, IN, Anita Alexander, Dow AgroSciences, Lawrenceville, GA and Daniel Loughner, Dow AgroSciences, Lawrenceville, NJ

**141 2:48 PM Effect of Several Insecticides on the Potato Psyllid (Hemiptera: Trioizidae) under Controlled Environments.**

**Amber Vinchesi** (amber.vinchesi@oregonstate.edu)<sup>1</sup>, Erik Echegaray<sup>1</sup>, Juan M. Alvarez<sup>2</sup>, Norman D. McKinley<sup>3</sup> and Silvia Rondon<sup>1</sup>, <sup>1</sup>Oregon State Univ., Hermiston, OR, <sup>2</sup>DuPont Crop Protection, Newark, DE, <sup>3</sup>Dupont Crop Protection, Salem, OR

**3:00 PM Break**

**142 3:30 PM Control of western flower thrips (*Frankliniella occidentalis*) in apple with Delegate® WG insecticide.**

**Harvey A. Yoshida** (hyoshida@dow.com), Dow AgroSciences, Richland, WA and Melissa Siebert, Dow AgroSciences, Greenville, MS

**143 3:42 PM Evaluation of Intelligent Spray Systems in Oregon Nursery Production.**

**Robin Rosetta** (robin.rosetta@oregonstate.edu)<sup>1</sup>, Heping Zhu<sup>2</sup>, Derek Wells<sup>1</sup> and Adam Clark<sup>2</sup>, <sup>1</sup>Oregon State Univ., Aurora, OR, <sup>2</sup>USDA - ARS, Wooster, OH

**144 3:54 PM Effectiveness of a new miticide in controlling *Eotetranychus lewisi* and *Tetranychus urticae* in strawberry.**

**Anna Howell** (adhowell@ucanr.edu) and Oleg Daugovish, Univ. of California, Ventura, CA

**145 4:06 PM Sulfoxaflor for management of key sucking insect pests in western row crops.**

**Jesse M. Richardson** (jmrichardson@dow.com), Dow AgroSciences, Hesperia, CA, John C. Palumbo, Univ. of Arizona, Yuma, AZ, Peter Ellsworth, Univ. of Arizona, Maricopa, AZ, Eric T. Natwick, Univ. of California, Holtville, CA, Ayman Mostafa, Univ. of Arizona, Phoenix, AZ and Melissa Siebert, Dow AgroSciences, Greenville, MS

**146 4:18 PM Sequoia™ SC: A new selective insecticide to control multiple pests of Citrus in the Western USA.**

**Alistair McKay** (ahmckay@dow.com), Dow AgroSciences, Clovis, CA, Barat Bisabri, Dow AgroSciences, Orinda, CA, Garrick Stuhr, Dow AgroSciences LLC, Fresno, CA, Elizabeth E. Grafton-Cardwell, Univ. of California-Riverside, Parlier, CA and Melissa Willrich Siebert, Dow AgroSciences, Greenville, MS

Tuesday, April 14, 2015

## **SOCIAL HOUR WITH POSTER PRESENTERS**

5:00 p.m. to 6:00 p.m.

*East Lobby*

## **EMPLOYMENT FAIR**

6:00 p.m. to 7:00 p.m.

*Bay 4*

## **PROGRAM SYMPOSIUM: ELEVATOR OPPORTUNITY -- BLITZ PRESENTATIONS**

7:00 p.m. to 8:00 p.m.

*Bay 4*

Moderators and Organizers: Alix Whitener<sup>1</sup> and Lisa Neven<sup>2</sup>, <sup>1</sup>Washington State Univ., Pullman, WA, <sup>2</sup>USDA - ARS, Wapato, WA

Tuesday, April 14, 2015

## GENERAL POSTER SESSION

8:30 a.m. to 6:00 p.m.  
East Lobby

Tuesday poster presenters are encouraged to be present at their posters for viewing and interaction with other PBESA members from 5:00-6:00 PM. Moreover, breaks are popular times to view posters and authors are encouraged to be present at these times.

**P13 Extension Entomology Program Developing in Nevada.**

**Joy Paterson** (patersonj@unce.unr.edu), Univ. of Nevada Cooperative Extension, Yerington, NV

**P14 Risk assessment of *Metaphycus* sp. -A promising biocontrol agent of *Macadamia Felted Coccid* (*Eriococcus ironsidei*) in Hawaii.**

**Juliana Yalemar** (Juliana.A.Yalemar@hawaii.gov), Renato Bautista and Mohsen M. Ramadan, Hawaii Dept. of Agriculture, Honolulu, HI

**P15 Phenology of phytoseiid populations in an unsprayed apple orchard.**

**Rebecca Schmidt-Jeffris** (rebecca.schmidt@wsu.edu) and Elizabeth H. Beers, Washington State Univ., Wenatchee, WA

**P16 A Critical Assessment of the Effect of Cry Proteins on Beneficial Natural Enemies.**

**Steven Naranjo** (steve.naranjo@ars.usda.gov), USDA - ARS, Maricopa, AZ, Anthony M. Shelton, Cornell Univ., Geneva, NY, Jörg Romeis, Agroscope, Institute for Sustainability Sciences, Zurich, Switzerland and Richard Hellmich, USDA - ARS, Ames, IA

**P17 Bee abundance in Southern California pepper field.**

**Ruben Alarcón** (ruben.alarcon@csuci.edu), Lori Guadarrama, Clairia Castillo and Katherine Soto, California State Univ. Channel Islands, Camarillo, CA

**P18 Trichome Density Differences in *Boechera stricta* Across an Elevational Gradient.**

**Katherine Soto** (katherine.soto723@myci.csuci.edu), California State Univ. Channel Islands, Camarillo, CA and Jill Anderson, Univ. of Georgia, Athens, GA

**P19 Use of Differential Scanning Calorimetry and CO<sub>2</sub> Evolution to Identify Sub-lethal Effects of a Biopesticide.**

**Lisa Neven** (Lisa.Neven@ars.usda.gov), USDA - ARS, Wapato, WA

**P20 Navel Orangeworm in Walnuts: Monitoring and Management.**

**Charles Burks** (charles.burks@ars.usda.gov), USDA - ARS, Parlier, CA, Elizabeth Fichtner, UC Cooperative Extension, Tulare, CA and Kathleen Anderson, UC Cooperative Extension, Modesto, CA

**P21 Flat Bark Beetles Gorge on Coffee Berry Borer in Hawaii Coffee.**

**Peter A. Follett** (peter.follett@ars.usda.gov), USDA-ARS, Hilo, HI

**P22 Influence of fungicides, drought and mite injury on Pacific spider mite development and reproduction, and grapevine gene expression.**

**Michael J. Costello** (mcostell@calpoly.edu), Jeffrey C. Wong and Christina A. Perry, California Polytechnic State Univ., San Luis Obispo, CA

Tuesday, April 14, 2015

**P23 Monitoring the range and infestation intensity of the wheat midge, *Sitodiplosis mosellana* (Géhin), in eastern Washington.**

**Diana Roberts** (robertsd@wsu.edu), Washington State Univ., Spokane, WA, Rory Eggers, Primeland Cooperative, Mead, WA and JJ. Knodel, North Dakota State Univ., Fargo, ND

**P24 Identifying new sources of resistance to Hessian fly in Pacific Northwest spring wheat germplasm.**

Esraa A. Alalwan<sup>1</sup>, **Nilsa A. Bosque-Pérez** (nbosque@uidaho.edu)<sup>2</sup>, Lana M. Unger<sup>2</sup>, Steve Odubiyi<sup>2</sup>, Deven R. See<sup>3</sup> and Michael Pumphrey<sup>1</sup>, <sup>1</sup>Washington State Univ., Pullman, WA, <sup>2</sup>Univ. of Idaho, Moscow, ID, <sup>3</sup>USDA-ARS, Pullman, WA

**P25 Balsam woolly adelgid (*Adelges piceae*) impact on *Abies* species in Idaho.**

**Gina Davis** (gdavis@idl.idaho.gov), Idaho Dept. of Lands, Coeur d'Alene, ID, Laura Lowrey, USDA Forest Service, Boise, ID and Lee Pederson, USDA, Forest Service, Coeur d'Alene, ID

**P26 Unmanned Aircraft Systems to release sterile pink bollworm (*Pectinophora gossypiella*) in Arizona.**

**Nathan Moses-Gonzales** (nmosesgo@m3cg.us)<sup>1</sup>, Michael Milam<sup>1</sup>, Dustin Krompetz<sup>1</sup>, Robert Mahrt<sup>1</sup> and Michelle Walters<sup>2</sup>, <sup>1</sup>M3 Consulting Group, Dayton, OH, <sup>2</sup>USDA - APHIS - PPQ, Phoenix, AZ

**P27 Survey of Biological Control Agents of Yellow Starthistle in Columbia County, Washington.**

**Andrew Clark** (clarka2@whitman.edu), Whitman College, Walla Walla, CA

**P28 Development of trapping methods to control stinging wasps (Hymenoptera: Vespidae).**

**Jenny Finitzer** (jennifer.finitzer@email.wsu.edu)<sup>1</sup>, Richard Zack<sup>1</sup> and Peter J. Landolt<sup>2</sup>, <sup>1</sup>Washington State Univ., Pullman, WA, <sup>2</sup>USDA - ARS, Wapato, WA

**P29 Spatial distribution of coffee berry borer, *Hypothenemus hampei* (Ferrari) infestations in coffee orchards of Hawaii Island.**

**Ishakh Pulakkatu-Thodi** (ishakpt@gmail.com), Rosemary Gutierrez and Mark Wright, Univ. of Hawaii Manoa, Honolulu, HI

**P30 Effect of food resources on the olive fruit fly parasitoid, *Psytalia lounsburyi*.**

**Livy Williams** (lwilliams@ars-ebcl.org)<sup>1,2</sup>, Michelangelo La Spina<sup>2</sup>, Olivia Pointurier<sup>3</sup> and Pauline Deschodt<sup>3</sup>, <sup>1</sup>USDA-ARS, Montferrier sur Lez, France, <sup>2</sup>USDA - ARS, Montpellier, France, <sup>3</sup>Montpellier SupAgro, Montpellier, France

**P31 Bees and Nanopesticides: Do nanotechnology-based pesticide formulations increase toxicity to honey bees (*Apis mellifera*) compared to active ingredients?.**

**Louisa Hooven** (Louisa.Hooven@oregonstate.edu)<sup>1</sup>, Jino Son<sup>2</sup> and Stacey Harper<sup>2</sup>, <sup>1</sup>Oregon State Univ., United States, OR, <sup>2</sup>Oregon State Univ., Corvallis, OR

**P32 Changes in whitebark pine stand composition following mountain pine beetle (*Dendroctonus ponderosae*) outbreaks.**

**Kendra Schotzko** (kschotzko@vandals.uidaho.edu)<sup>1</sup>, Stephen Cook<sup>1</sup>, Carl Jorgensen<sup>2</sup>, Laura Lowrey<sup>2</sup> and Sandy Kegley<sup>3</sup>, <sup>1</sup>Univ. of Idaho, Moscow, ID, <sup>2</sup>USDA - Forest Service, Boise, ID, <sup>3</sup>USDA - Forest Service, Coeur d'Alene, ID

**P33 - Impacts of climatic and landscape factors on cereal aphid populations in the inland Pacific Northwest USA.**

**S. Ebrahim Sadeghi** (ebrahims@uidaho.edu), Thomas Davis, Ying Wu, Bahman Shafii and Sanford D. Eigenbrode, Univ. of Idaho, Moscow, ID

Tuesday, April 14, 2015

**P34 Coupling pest-crop models in CropSyst to predict yield loss: Cereal Leaf Beetle (*Oulema melanopus* (L.)) and Winter Wheat.**

**Byju N. Govindan** (byju.ng@wsu.edu)<sup>1</sup>, Thomas S. Davis<sup>2</sup>, Sanford D. Eigenbrode<sup>2</sup> and Claudio Stockle<sup>1</sup>,  
<sup>1</sup>Washington State Univ., Pullman, WA, <sup>2</sup>Univ. of Idaho, Moscow, ID

**P35 Silverleaf nightshade, an alternate host of potato psyllid and '*Candidatus Liberibacter solanacearum*'.**

**Jenita Thinakaran** (jenita.thinakaran@ars.usda.gov)<sup>1</sup>, Joseph Munyaneza<sup>1</sup>, Charles Rush<sup>2</sup> and D. Henne<sup>3</sup>, <sup>1</sup>USDA - ARS, Wapato, WA, <sup>2</sup>Texas A&M Univ., Amarillo, TX, <sup>3</sup>Texas A&M Univ., Weslaco, TX

**P36 Ants (Hymenoptera: Formicidae) associated with rabbit carcasses in different ecological habitats in Riyadh, Saudi Arabia.**

**Ashraf Mashaly** (mmashely@ksu.edu.sa) and Mohammad Waddan, King Saud Univ., Riyadh, Saudi Arabia

**P37 Extension Entomology is Returning to Nevada and in Need of Collaborators.**

**Joy Paterson** (patersonj@unce.unr.edu), Univ. of Nevada Cooperative Extension, Yerington, NV

**P38 Potential Implications in the Introduction of a Second Natural Enemy (*Aprostocetus nitens*) in Hawaii for Biological Control of the Erythrina Gall Wasp.**

**Renato C. Bautista** (Renato.C.Bautista@hawaii.gov), Hawaii Dept. of Agriculture, Honolulu, HI and Juliana A. Yalem, Hawaii Dept. of Agriculture, Honolulu, HI

**P39 How changes in plant community structure affect terrestrial invertebrate food webs.**

**Chadwick Tillberg** (ctillbe@linfield.edu)<sup>1</sup>, Dillon Alegre<sup>1</sup>, Henry Simons<sup>1</sup>, Casey Thein<sup>1</sup> and Cheryl Schultz<sup>2</sup>,  
<sup>1</sup>Linfield College, McMinnville, OR, <sup>2</sup>Washington State Univ.-Vancouver, Vancouver, WA

# Wednesday, April 15, 2015

## REGISTRATION

7:00 a.m. to 10:00 a.m.

*East Lobby*

## FINAL BUSINESS MEETING

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

*Bay 4*

Breakfast will be offered to final business meeting attendees only.

- 7:00** Debriefing of 2014 PBESA Meeting
- Unfinished business, new business
- Call for resolutions
- Nominations & Elections for 2015-2016
- Introduction of 2015-2016 PBESA President

Wednesday, April 15, 2015

**PROGRAM SYMPOSIUM: INSECTS IN EDEN - FRONTIERS IN INSECT ECOLOGY,  
DEVELOPMENT, AND EVOLUTION**

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

Bay 6

Moderators and Organizers: Robert A. Zinna, Washington State Univ., Pullman, WA

**147 8:00 AM Effects of plant chemistry and egg microbes on the immune response of a specialist caterpillar.**  
**Tara Langus** (tlangus5@gmail.com), Univ. of Nevada, Reno, Reno, NV

**148 8:20 AM From chemosensory cues to behavior: an OA neural circuit that regulates aggression in *Drosophila* males.**  
**Jonathan Andrews** (jonathan.andrews@umconnect.umt.edu), Univ. of Montana, Missoula, MT

**149 8:40 AM *Drosophila* larval development uses aerobic glycolysis to support rapid growth.**  
**Jason Tennessen** (jtenness@indiana.edu), Indiana Univ. Bloomington, Bloomington, IN

**150 9:00 AM Insulin signaling regulates diverse physiological processes in mosquitoes.**  
**Michael A. Riehle** (mriehe@ag.arizona.edu), Univ. of Arizona, Tucson, AZ

**151 9:20 AM Novel growth factors regulate tube formation in the *Drosophila* ovary.**  
**Sandra Zimmerman** (sgzimmerm@gmail.com), Univ. of Washington, Seattle, WA

**152 9:40 AM Endocrine signals and their role in the evolution of trait exaggeration.**  
**Robert Zinna** (Robert.Zinna@wsu.edu), Washington State Univ., Pullman, WA

**10:00 AM Break**

**153 10:20 AM Using biomechanics to understand diversity in beetle weapons.**  
**Brook Swanson** (swansonb@gonzaga.edu), Gonzaga Univ., Spokane, WA

**154 10:40 AM Sexual selection and the evolution of male ornaments in sepsid flies.**  
**Julia Bowsher** (Julia.bowsher@ndsu.edu), North Dakota State Univ., Fargo, ND

**155 11:00 AM Adaptation to an extreme environment -- the genome of the Antarctic midge, *Belgica antarctica*.**  
**Joanna Kelley** (joanna.l.kelley@wsu.edu), Washington State Univ., Pullman, WA

**156 11:20 AM Mapping your favorite genome just got easier: physical maps based on imaging ultra-long molecules of DNA.**  
**Susan Brown** (sjbrown@k-state.edu), Kansas State Univ., Manhattan, KS

**157 11:40 AM The Origin of the Holometabolous Larval Form.**  
**Yui Suzuki** (ysuzuki@wellesley.edu), Wellesley College, Wellesley, MA

Wednesday, April 15, 2015

**PROGRAM SYMPOSIUM: POLLINATORS: EVALUATING AND MANAGING POLLINATOR  
HEALTH**

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

Kidd Island Bay

Moderators and Organizers: Brian Bret<sup>1</sup> and Erik Johansen<sup>2</sup>, <sup>1</sup>Dow AgroSciences, Roseville, CA, <sup>2</sup>Washington State Dept. of Agriculture, Olympia, WA

**158 8:00 AM Bee breeding and enhancement of honey bee diversity by importing honey bee semen.**

Brandon Hopkins, Susan Cobey and **Walter Sheppard** (shepp@wsu.edu), Washington State Univ., Pullman, WA

**159 8:20 AM Honey bee communication, coordination, and colony performance under nutritional stress.**

**Mark J Carroll** (Mark.Carroll@ars.usda.gov), USDA - ARS, Tucson, AZ

**160 8:40 AM Bumble bee deaths associated with linden trees.**

**Sujaya Rao** (sujaya@oregonstate.edu) and Adriana Argoti, Oregon State Univ., Corvallis, OR

**161 9:00 AM Assessing the impacts of cultural and pest control strategies on the health, behavior, and fecundity of alfalfa leafcutting and alkali bees in Pacific Northwest alfalfa seed production.**

**Douglas Walsh** (dwalsh@wsu.edu)<sup>1</sup>, James D. Barbour<sup>2</sup>, Natalie Boyle<sup>1</sup> and Theresa L. Pitts-Singer<sup>3</sup>,

<sup>1</sup>Washington State Univ., Prosser, WA, <sup>2</sup>Univ. of Idaho, Parma, ID, <sup>3</sup>USDA - ARS, Logan, UT

**162 9:20 AM Developing laboratory test methods for evaluating toxicity to solitary bees.**

**Silvia Hinarejos** (silvia.hinarejos@sumitomo-chem.fr), Sumitomo Chemical, Barcelona, Spain and Jordi Bosch, Ecologia - CREA, Bellaterra, Spain

**163 9:40 AM Challenges in conducting and evaluating larval honey bee (*Apis mellifera*) laboratory toxicity studies.**

**James Hoberg** (jhoberg@smithers.com)<sup>1</sup>, Ronald Biever<sup>1</sup> and Michael Patnaude<sup>2</sup>, <sup>1</sup>Smithers Viscient, Wareham, MA, <sup>2</sup>Smithers Viscient Laboratories, Wareham, MA

**10:00 AM Break**

**164 10:20 AM Development of managed pollinator protection plans by state lead agencies.**

**Erik Johansen** (EJohansen@agr.wa.gov), Washington State Dept. of Agriculture, Olympia, WA

**165 10:40 AM Evaluating management practices and major stressors facing bees and commercial pollination today.**

**Gorden Wardell** (GordonW@paramountfarming.com), Paramount Farming Co, Bakersfield, CA

**166 11:00 AM Honey Bee Health Coalition: An example of stakeholder collaboration.**

**Caydee Savinelli** (caydee.savinelli@syngenta.com), Syngenta Plant Protection, Greensboro, NC and Julie Shapiro, The Keystone Center, Keystone, CO

**11:20 AM Round Table Group Discussion**



Wednesday, April 15, 2015

**PROGRAM SYMPOSIUM: ROLE OF BIOPESTICIDES IN MANAGING ARTHROPOD PESTS**

8:15 a.m. to 10:00 a.m.

Bay 5

Moderator and Organizer: Surendra Dara, Univ. of California, San Luis Obispo, CA

**8:15 AM Welcoming Remarks**

**167 8:20 AM Sympatico™ and Leap™: Development of two new *Bacillus thuringiensis* insecticides.**

**Russell Eldridge** (Russell.Eldridge@valentbiosciences.com)<sup>1</sup>, Bala Devisetty<sup>2</sup>, Fred Marmor<sup>2</sup>, Rick Hopkins<sup>2</sup>, Craig Campbell<sup>2</sup> and Max Villalobos<sup>2</sup>, <sup>1</sup>Valent BioSciences Corporation, Libertyville, IL, <sup>2</sup>Valent, Libertyville, IL

**168 8:40 AM Entrust as an Effective Tool in Insect Management.**

**Jesse M. Richardson** (jmrichardson@dow.com), Dow AgroSciences, Hesperia, CA

**169 9:00 AM Psyllid Management Using a Novel Bio-Insecticide in Two Cropping Systems.**

**Frank Sances** (frank@pacificaggroup.com)<sup>1</sup>, Brad Booker<sup>2</sup>, Vishal Shinde<sup>1</sup> and Ki Kim<sup>3</sup>, <sup>1</sup>Pacific Ag Research, San Luis Obispo, CA, <sup>2</sup>Florida Ag Research, Thonotosassa, FL, <sup>3</sup>Univ. of Florida, Lake Alfred, FL

**170 9:20 AM Biopesticides and Their Role in Vegetable Pest Management in California's Central Coast.**

**Surendra Dara** (skdara@ucanr.edu), Univ. of California, San Luis Obispo, CA

**171 9:40 AM Microbial Insecticides for IPM.**

**Cole Pearson** (cpearson@marronebio.com), Washington State Univ., Pullman, WA

Wednesday, April 15, 2015

## STUDENT SYMPOSIUM: DISCOVERING ENTOMOLOGY: STUDENTS AS TEACHERS

8:15 a.m. to 11:40 a.m.

Bay 4

Moderators and Organizers: Rebecca Schmidt-Jeffris<sup>1</sup> and Ikju Park<sup>2</sup>, <sup>1</sup>Washington State Univ., Wenatchee, WA,  
<sup>2</sup>Univ. of Idaho, Moscow, ID

### 8:15 AM Welcoming Remarks

#### 172 8:20 AM Beyond Bugs: Teaching Preschoolers about Insects.

**Jordie Ocenar** (jordie@hawaii.edu), Univ. of Hawaii, Honolulu, HI and Helen Spafford, Univ. of Hawai'i, Honolulu, HI

#### 173 8:40 AM From fruit flies to the nobel prize: Using insects to teach science to non-majors.

**Robert Zinna** (Robert.Zinna@wsu.edu), Washington State Univ., Pullman, WA

#### 174 9:00 AM Adjunctivitis and Teaching in the 21st Century.

**Brad S. Stokes** (bstokes@vandals.uidaho.edu), Univ. of Idaho, Moscow, ID

#### 175 9:20 AM Charge of the Bug Brigade: An Interactive Group Project on Insects, Disease, and the Crimean War.

**Mohammad-Amir Aghaee** (maghaee@ucdavis.edu), Univ. of California, Davis, CA and Maribel Portilla, USDA - ARS, Stoneville, MS

#### 176 9:40 AM Is this real?: Promoting insect science in northern Utah.

**Jonathan Koch** (jonathan.b.koch@gmail.com), USDA-ARS, Logan, UT

### 10:00 AM Break

#### 177 10:20 AM How to build an insect zoo.

**Michael Orr** (michael.christopher.orr@gmail.com), Utah State Univ., Logan, UT and Jonathan Koch, USDA-ARS, Logan, UT

#### 178 10:40 AM Extending your teaching: extension work at a land grant university.

**Rebecca Schmidt-Jeffris** (rebecca.schmidt@wsu.edu) and Timothy J. Smith, Washington State Univ., Wenatchee, WA

### 11:00 AM Discussion

## FLY TYING WORKSHOP

9:00 a.m. to 12:00 p.m.

North Cape

**THOMAS W. SCOTT**  
**2015 C.W. WOODWORTH AWARD**



**Thomas W. Scott** earned his Ph.D. in ecology from Pennsylvania State University, was a post-doctoral fellow in epidemiology at the Yale School of Medicine, and held his first faculty position in the Department of Entomology, University of Maryland. In 1996 he relocated to the Department of Entomology and Nematology, University of California at Davis (UC Davis) where he is Distinguished Professor of Entomology and Director of the UC Davis Vector-Borne Disease Laboratory and was a co-founder of the Center for Vector-Borne Research, Director of the Davis Arbovirus Research Unit, and Vice-Chair of the Entomology Department. He has been a member of the ESA since 1983, was chair of Section on Medical and Veterinary Entomology in ESA, was on the American Committee for Entomology and American Committee on Arthropod-Borne Viruses in the American Society for Tropical Medicine and Hygiene, and has published over 240 research articles, reviews, and book chapters. As Convenor, he organized the Medical and Veterinary Entomology section of the XXI International Congress of Entomology in Iguassu, Brazil. He is a fellow of the Entomological Society of America, the American Association for the Advancement of Science, and the American Society of Tropical Medicine and Hygiene. He was a National Research Council Associate in Bangkok, Thailand, is a Past-President of the Society for Vector Ecology, is chair of the Mosquito Modeling Group in the program on Research and Policy in Infectious Disease Dynamics (modelers and vector-borne disease specialists who report to the Science and Technology Directorate, Department of Homeland Security, and the Fogarty International Center, National Institutes of Health), chairs activities on vector control for the Partnership for Dengue Control, serves on several committees for the World Health Organization, and is an editor for the *American Journal of Tropical Medicine and Hygiene*, *Journal of Insect Science*, and *Transactions of the Royal Society of Tropical Medicine and Hygiene*.

**MOHAMMAD-AMIR AGHAEI**

**2015 JOHN HENRY COMSTOCK  
GRADUATE STUDENT AWARD**



**Mohammad-Amir Aghaei** is a Ph.D. candidate in the laboratory of Dr. Larry Godfrey at the Department of Entomology and Nematology, University of California, Davis. Upon entering the Ph.D. program in 2010, his research has concentrated on developing innovative management options for Rice Water Weevil in the California rice agroecosystem. Mohammad received his B.S. degree in 2010 from the University of California, Berkeley with a Major in Environmental Science, and his M.S. degree in Entomology in 2012 from the University of California, Davis. Mohammad was awarded the William and Kathleen Golden International Agricultural Fellowship in 2014, the Eugene Cota-Robels Fellowship in 2010-2012, the Bill and Jane Vegetation Management Award in 2010, the Garden Club of America Summer Field Studies Scholarship in 2009, and the Undergraduate Research Apprenticeship Program Summer Employment Award in 2009. He won 1<sup>st</sup> place in the ESA Student Competition for President's Prize in 2013, and won 1<sup>st</sup> place in the ESA Student Debates in 2013 and 2014. He has received research funding from the McBeth Memorial Scholarship and Henry A. Jastro awards and a nationally competitive IR-4 Biopesticide Research grant. To-date, Mohammad has four scientific publications.

## IN-COMING PRESIDENT

PBESA 2015-2016

DR. PETER FOLLETT



**Peter Follett** received his B.S. in Plant & Soil Science from the University of Vermont; his M.S. in Entomology from Oregon State University, and his Ph.D. in Entomology from N. C. State University. He held postdoctoral fellowships in conservation biology and entomology at the University of Maryland and the University of Hawaii at Manoa. Since 1997, Peter has been a Research Entomologist with USDA-ARS at the U.S. Pacific Basin Agricultural Research Center in Hilo, Hawaii. He is responsible for coordinating research efforts to develop new or improved postharvest treatments and field measures to control quarantine pests that restrict the export of tropical fruits and vegetables from Hawaii; to increase product quality, marketability, and safety, while reducing treatment costs; and to develop holistic approaches to quarantine security that result in realistic pest-risk analyses and reduced treatment severity. He recently developed phytosanitary irradiation treatments for light brown apple moth, spotted wing drosophila, rice weevil, and various ants. Biological control projects include the recent first field release of *Encarsia diaspidicola* against white peach scale in papaya, and new research to enhance predation by the square necked grain beetle of coffee berry borer in Kona coffee fields. Peter served as co-program chair for the 2011 PBESA meeting in Kona, and has served as the student travel award coordinator the past 4 years.

## PRESIDENT-ELECT NOMINEE

PBESA 2016-2017

DR. SANFORD EIGENBRODE



**Sanford D. Eigenbrode** is Professor and Chair of the Division of Entomology at the University of Idaho. He received degrees in Natural Resources (M.S., 1986) and Entomology (Ph.D., 1990) from Cornell University. Sanford conducts research on the chemical ecology of insect-plant and multi-trophic interactions. This has included an emphasis on the chemical ecology, landscape ecology and management of insect-vectored viruses of wheat, potatoes and legumes in the Pacific Northwest. The regional scope of this work has led to substantial interdisciplinary effort addressing the sustainability of agricultural systems. He is project director for a \$20M NIFA Coordinated Agricultural Project on Regional Approaches to Climate Change in Pacific Northwest Agriculture. He has been a co-PI on two NSF-IGERT projects, one ongoing, studying resilience of ecological and social systems in changing landscapes, which includes extensive collaboration with the Tropical Agricultural Research and Higher Education Center in Costa Rica. Sanford is engaged in research with philosophers and sociologists focused on improving the process of collaborative science. In 2013, he was named University Distinguished Professor at the University of Idaho.

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(bold indicates presenting author)

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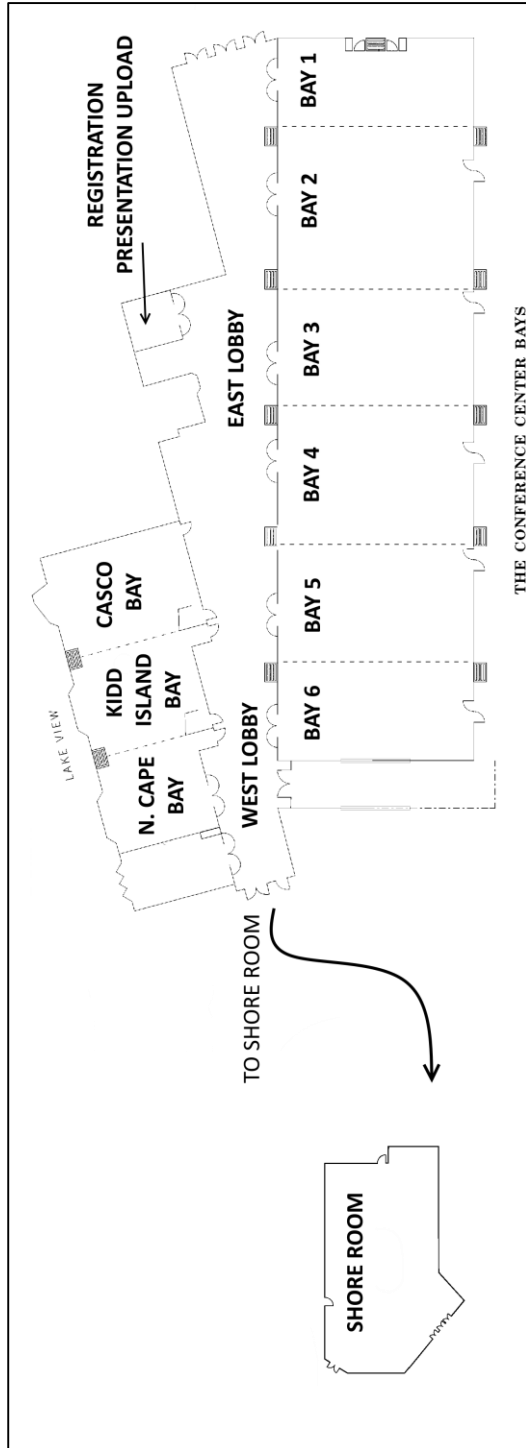
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## Couer d'Alene Resort Layout





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