102nd Annual Meeting of the Pacific Branch of the Entomological Society of America

10-13 June 2018

Atlantis Casino Resort Spa

Reno, NV

Artwork: Anastasia Stanzak Layout: Erik J. Wenninger

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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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ISK Biosciences

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MEETING INFORMATION

PBESA 2018 LOGISTICS & BASICS

REGISTRATION:

All PBESA 2018 attendees must register. You can register by credit card through the start of the meeting at https://www.entsoc.org/pacific/registration. 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 the Grand Promenade: June 10, 1:00 to 4:30 p.m.; June 11-12, 7:30 a.m. to 4:00 p.m.; June 13, 7:30 to 10:00 a.m.

MEETING INFORMATION

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

HOTEL INFORMATION

Atlantis Casino Resort Spa is a AAA Four Diamond Reno hotel and casino thoughtfully designed for relaxation, celebration, and rejuvenation. The hotel is recognized for luxurious accommodations, exciting casino action, fine dining, and an award-winning spa. The resort is located at 3800 S. Virginia Street, Reno, Nevada 89502, and features free WiFi, custom furnishing, and complimentary access to an indoor atrium pool, outdoor whirlpool spa, Cardio Theater and Fitness Center, valet and self parking, concierge services, and complimentary round-trip shuttle service to the airport.

HOTEL MAP

The meeting rooms are located on the 2nd floor of the hotel. Maps are provided on the back cover.

TRANSPORTATION

Atlantis Casino Resort Spa shuttle runs from 4:30 am until 12:15 am. The shuttle departs the airport every 30 minutes, on the quarter hour, and can be found directly outside baggage claim. It departs Atlantis every 30 minutes, on the hour and half hour. For more information, please call 775.825.4700.

Special Meetings and Events

PLENARY SESSION

We are pleased to present a Plenary Session by Dr. Kevin Burls titled “Using pollinators as ‘gateway insects’ to the world of arthropods” on Sunday, June 10 from 5:00 to 6:00 p.m. in Grand 5-6.

PACIFIC BRANCH EXECUTIVE COMMITTEE MEETING

The Executive Committee will meet Sunday, June 10, from 6:30 p.m. to 8:30 p.m. in Treasures BC.

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, June 10 at 6:00-6:30 p.m. in Emerald A. All judges should meet in the Office Room (Treasures A) at 5:00 p.m. on Monday June 11 to finalize the student competition evaluations. See Peter McGhee 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, June 11 in Grand 6. The final business meeting will be from 7:00 to 8:00 a.m. on Wednesday, June 13 in Emerald A. **A complimentary breakfast will be served to final business meeting attendees.**

PBESA MIXER/PRESIDENT’S RECEPTION:

PBESA 2017-2018 President Brad Higbee will host a reception for all registered PBESA 2018 attendees on Monday, June 11, from 6:00 to 8:00 p.m. in the Grand 1-3 rooms.

TEXTING COMPETITION/ELEVATOR TALKS

The seventh annual texting competition will be held Monday, June 11 from 7:00 to 7:30 p.m. in Treasures D. 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 509.670.1132. Please contact Josh Milnes (joshua.milnes@wsu.edu) or Brendan Boudinot (boudinotb@gmail.com) for questions.

The fourth annual 'Elevator Opportunity' will happen just after the texting competition from 7:30 to 8:00 p.m. in Treasures D. How would you react if you suddenly found yourself on an elevator with the ESA President or other prominent person? Could you explain your research in the time it takes to reach your floor? 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 open event is limited to the first 20 people. You can register at the meeting. For further information contact Josh Milnes (joshua.milnes@wsu.edu).

LINNAEAN GAMES

Linnaean Games will be held on Monday, June 11 from 8:00 to 10:00 p.m. in Treasures BC. 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 Vancouver, British Columbia, (November 11-14, 2018), the first place winning team will receive $2000 and the second place team will receive $1000.

AWARDS LUNCHEON

The PBESA 2018 Awards Luncheon will be held on Tuesday, June 12 from 12:00 to 1:30 p.m. in Paradise DE. Your full conference registration includes admission to the luncheon.

SOCIAL HOUR WITH POSTER PRESENTERS

Join us for a social hour with poster presenters on Tuesday, June 12 from 4:30 to 6:00 p.m. Posters will be displayed in Emerald BCD.

EMPLOYMENT OPPORTUNITIES/PBESA CAREER FAIR 2018

The Pacific Branch will host a Student and Early Career Professional Employment Fair in a symposium format on Tuesday, June 12 in Emerald A from 1:30 to 4:30 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 Emerald BCD from 4:30 to 6:00 p.m.

CONTINUING EDUCATION CREDITS

Continuing Education Credits (CEC) have been applied for in AZ, ID, CA, NV, OR, UT, and WA. Look for updates of which sections will count towards continuing education credits at the registration desk. Contact Casey Butler for more information (casey.butler@bayer.com).

PHOTO SALON

The Photo Salon will be held Monday and Tuesday, June 11 and 12 from 8:00 a.m. to 6:00 p.m. The photos will be on rotation on the monitor in Grand Promenade. 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.

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 (Treasures A) 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.

Questions about audiovisual needs can be directed to David Haviland at dhaviland@ucdavis.edu prior to the conference, or by visiting the Operations Committee table during the conference. In particular, speakers with presentations that link to audio or video files are requested to provide advance notice to the Operations Committee.

CODE OF CONDUCT

By attending the 2018 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, June 11 from 1:00 to 5:00 p.m. in the Emerald BC 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 Emerald BC. 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 on Monday. **Tacks to secure your display to the poster board will be provided.**

Poster presenters are encouraged to be present at their posters on Tuesday 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, June 10 in Emerald A. 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 David Haviland (dhaviland@ucdavis.edu) prior to the conference, or the Operations Committee desk during the conference.

Pacific Branch Leadership - 2018

Officers and Committees

Executive Committee Members

President: *Brad Higbee*

Incoming President: *Jennifer Henke*

President Elect Nominee: *Elizabeth Beers*

Past President: *Sanford Eigenbrode*

Secretary-Treasurer: *Harvey Yoshida*

Members at Large: 2015-2018 – *Brad Higbee, Erik Wenninger*
2016-2019 – *Rodney Cooper, Ricardo Ramirez*
2017-2020 – *Arash Rashed, Allison Walston*
2018-2021 – *Ayman Mostafa, Laura Lavine*

Governing Board Representative: *Doug Walsh*

National ESA: Michael Parrella – *ESA President*
David Gammel – *ESA Executive Director*

Planning Committees:

Auditing: *Tad Gantenbein*

Awards Canvassing: *Mary Sorenson, Chuck Burks*

Awards Selection: *Diane Alston, Emily Symmes*

Bylaws: *Lisa Neven*

Continuing Education Credits: *Casey Butler, Tim Ksander*

Linnaean Games: *Mike Bush*

Local Arrangements: *Kevin Burls, Joy Newton, Co-Chairs; Monika Gulia-Nuss, Andrew Nuss*

Texting Competition: *Josh Milnes, Brendon Boudinot*

Elevator Talks: *Adekunle Adesanya, Josh Milnes*

Nominations Committee: *Vaughn Walton*

Operations: *David Haviland, Chair; Stephanie Rill, Chelsea Gordon*

Program: *Erik Wenninger, Todd Murray*

Photo Salon: *Lisa Brain*

Resolutions (pending): *Vonny Barlow*

Site Selection (2019 Meeting): *Jamie Strange, Hollis Woodward, Quinn McFredrick*

Site Selection (2020 meeting): *Emily Symmes, Charles Burks, Lisa Neven*

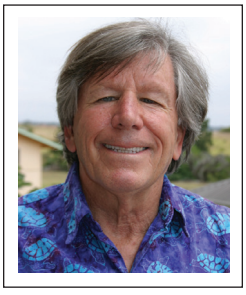
Student Employment Fair: *Ben Lee*

Student Paper/Poster Competition: *Peter McGhee*

Student Travel Awards: *Amber Vinchesi*

Awards WOODWORTH & COMSTOCK AWARD WINNER BIOS

2018 C.W. Woodworth Award



Roger I. Vargas
Research Entomologist
Daniel K. Inouye U. S. Pacific Basin Agricultural Research Denter, Hilo, HI; Collateral Appointment/ University of Hawaii, Manoa Graduate Faculty

Roger I. Vargas is a research entomologist at the Daniel K. Inouye U. S. Pacific Basin Agricultural Research Center, Hilo, HI and holds a collateral appointment with the University of Hawaii, Manoa Graduate Faculty. His research interests include: ecology, biological control, mass rearing, SIT and IPM of fruit flies. Roger and his many colleagues are the authors of over 250 scientific articles (170 peer-reviewed). He completed his B.A. in biology in 1969 at the University of California, Riverside and an M.S. in biology at San Diego State in 1974. He then studied at the University of Hawaii, Manoa, where he completed his Ph.D. in 1979 and has studied tropical entomology ever since. After a postdoc on Kauai Island with the University of Hawaii he accepted a position with the Agricultural Research Service in 1980 in Honolulu. From 1984 to 1990, he served as Research Leader of the Rearing, Radiation and Genetics Research Unit in Honolulu, where base funding increased from $500,000 to $3,000,000 through a series of area-wide fruit fly suppression trials primarily on Kauai Island. He has been called upon frequently by agencies such as the Animal Plant Health Inspection Service (APHIS), International Atomic Energy Agency (IAEA), Secretariat of the Pacific Community (SPC) and Foreign Agricultural Service (FAS) for technical assignments overseas. Roger has made over 100 scientific presentations and participated in workshops worldwide. He developed a research proposal that resulted in the award of over $16.5 million in USDA/ARS AWPM funds to Hawaii. From 2002 to 2009 he coordinated the highly successful Hawaii Fruit Fly AWPM program that received seven major awards for IPM excellence. From 2010–2011, he served as President of the Pacific Branch of the Entomological Society of America. Most recently Roger's laboratory has focused their research on development of reduced risk insecticides and novel area-wide fruit fly control methods for use in systems approaches for export of commodities grown in California, Florida and Texas. Roger has Mexican family roots from Arizona before statehood, holds dual U.S./Australian citizenship, and has two daughters, Noelani and Kela, and a wife, Kathy, who reside in Waimea on Hawaii Island. He hopes to continue his research on tropical fruit flies in the Pacific, which he has enjoyed immensely.

John Henry Comstock Graduate Student Award

Adekunle Adesanya, PhD
Department of Entomology
100 Dairy Road Pullman, WA 99164
24106 N Bunn Rd, Prosser, WA 99350
Washington State University

Adekunle Adesanya (aka Kunle) is a PhD candidate in the department of Entomology at Washington State University, under the mentorship of Dr. Doug Walsh (Committee Chair, and Major Advisor), Dr. Laura Lavine, and Dr Fang 'Rose' Zhu. Kunle's PhD research focus is on adaption of arthropods to xenobiotics, using the generalist herbivore two spotted spider mite as a model organism. His PhD project focus is on characterizing pesticides resistance in populations of two spotted spider mites in multiple cropping systems such as hop, alfalfa, peppermint, and also strawberry, using toxicological and molecular diagnostic approaches. Kunle is also using transcriptomics to identify molecular markers involved in two spotted spider mite's resistance to multiple chemistries of acaricide and also host plant adaption. Kunle was born and raised in Lagos, Nigeria where he received his elementary and high school education. He then proceeded to obtain his bachelor's degree in Crop Production and Protection at the Obafemi Awolowo University, Ile-ife Osun State, Nigeria in 2010. He worked as a Production/Supply chain associate in AACE food processing company and also as an Agricultural Consultant at Sahel Capital in Lagos Nigeria, where his passion for global food security intensified. Kunle proceeded to earn a Master of Science degree in Entomology at Auburn University, Alabama, graduating in summer 2015 under the direction of Dr. David Held. His masters' research focused on characterizing detoxification enzymes in the invasive polyphagous herbivore pest Japanese beetle in response to diet breadth, host preference, and host plant intoxication. Kunle has published 5 peer-reviewed papers and has many more in review and in preparation. Kunle has been actively involved in ESA student activities from 2015 till now. He has participated in Linnaean games, student debates and also helped organized program symposium for ESA students. Kunle is currently representing the PBESA on the ESA Student Affairs Committee. Kunle is a multi-award winner both in ESA and WSU, he was recently received the WSU graduate School/ GPSA excellent Graduate Research Assistant of the year. He has also being accepted into the Borlaug Institute on food security at Purdue University for summer 2018. In the future, Kunle hopes to secure an academic faculty position where he intends to use the triad of research, teaching and extension to address food security especially through crop protection.

Pacific Branch Recognition Award in Entomology

"PBESA Announces Award Winners for 2018"

The Pacific Branch of the Entomological Society of America is pleased to announce the winners of its 2018 awards.

Pacific Branch President Brad Higbee reported that the Branch received 31 nomination packets for thirteen different awards. Nominees represented nine different institutions across six U.S. states and two other countries. Winners were selected by a diverse group of thirty-six anonymous judges from the Branch.

The awards will be presented at the Pacific Branch meeting in Reno, NV from June 10 to 13, 2018.

- Pacific Branch C.W. Woodworth Award- Roger Vargas, USDA ARS, Hilo, Hawaii
- Award for Excellence in Teaching- William Walton, University of California, Riverside
- Award for Excellence in Extension- David Haviland, University of California, Agriculture and Natural Resources
- Award for Excellence in Integrated Pest Management- Alan Knight, USDA ARS, Wapato, WA
- Systematics, Evolution, and Biodiversity Award- no awardee this year
- Physiology, Biochemistry and Toxicology Award- Jeffrey Fabrick, USDA ARS, Maricopa, AZ
- Medical, Urban and Veterinary Entomology Award- Alec Gerry, University of California, Riverside
- Plant-Insect Ecosystems Award- Theresa Pitts-Singer, USDA ARS, Logan, UT
- Distinction in Student Mentoring- Jay Rosenheim, University of California, Davis
- Excellence in Early Career- Amber Tripodi, USDA ARS, Logan, UT
- John Henry Comstock Graduate Student Award- Adekunle Adesanya, Washington State University
- Student Leadership Award- Jessica Gillung, University of California, Davis
- Entomology Team Work Award- led by Doug Walsh and including Sally O'Neal, Erik Johansen, Shane Johnson, Mark Waggoner, Harvey Yoshida, Jamey Thomas, and Mike Lees. "Pest and Pollinator Management Team"

President Bios

President, *Bradley S. Higbee*

Brad is currently the Field R & D Manager for Trécé Inc, a biotechnology company specializing in insect pheromone and kairomone products. He was formerly the Director of Entomology Research at Wonderful Orchards, one the largest growers of almonds, pistachios and pomegranates in the world. After graduating from the University of California, Irvine, he began his career as a technician with the USDA-ARS in Yakima, Wash. From 1978 to 1990, he worked on the development of biological control programs for pests of pears and insect predator rearing techniques, while continuing his studies at U.C. Berkeley, Central Wash. Univ. and Washington St. Univ. He was promoted to the level of scientist in 1990 and his research shifted to various aspects of apple and pear pest management, including pioneering work in the use of insect hormones for the control of pear psylla, a key homopteran pest of pears in the Pacific Northwest. In 1995, he was further promoted and assigned to manage two Codling Moth Areawide Projects, which were pivotal in the integration of mating disruption into the pest management programs of the apple and pear industries. In 2002, he accepted a position with Paramount Farming Co. and established a research laboratory. His work with Paramount (now Wonderful Orchards) included research leading to the implementation of mating disruption for control of navel orangeworm, development of pheromone and kairomone attractants, and the overall development of pest management tactics and programs for pests in almonds, pistachios and pomegranates. He has published over 65 research articles in peer reviewed scientific journals, 3 book chapters and has served on numerous industry and professional committees.

Incoming President, *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. Since 2015 she has managed 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 and 2017 annual meetings. 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.

President Elect Nominee, *Dr. Elizabeth (Betsy) Beers*

Dr. Elizabeth (Betsy) Beers is a professor of entomology at Washington State University, located at the Tree Fruit Research & Extension Center in Wenatchee, WA. She earned her Ph.D in Entomology at Penn State under the direction of Dr. Larry Hull. Dr. Beers' program has covered various aspects of tree fruit research and extension for the past 33 years at the heart of one of the largest and most innovative tree fruit industries in the nation.

Her research and outreach program during this time has adapted to the needs of the industry, and although the target pest has changed over time, the approach has always worked toward a broadly based IPM program. Early work focused on secondary pests, where the opportunity for partial or complete biological control is the greatest. Pests included aphids, leafhoppers and leafminers, some of which were reduced to non-pest status. A career-long area of interest is conservation biological control of spider mites, a successful program started the 1960s by colleague and mentor Stan Hoyt. This program continues today by examining the nontarget effects of a new suite of pesticides, with recent work on how the phytoseiid complex has responded to those changes. The most recent projects have focused on two invasive species that threaten Washington's tree crops, spotted wing drosophila and brown marmorated stink bug. The ongoing challenge is to find management solutions that are not disruptive to existing IPM programs by implementing alternative control tactics including cultural and biological control.

Plenary Speaker

Kevin Burls, Ph.D

Integrated Pest Management Educator
University of Nevada Cooperative Extension

Using pollinators as “gateway insects” to the world of arthropods

Summary: Despite being the most numerous and diverse group of organisms on the planet, the general public has limited knowledge about arthropod diversity and the roles these organisms play in our everyday lives. Adults especially are often limited to interacting with a sparse but very annoying set of pest organisms. However, children and adults of all ages are still eager to learn about arthropods if given the chance, and are often curious about what they can do to conserve local insect populations. Nevada Bugs & Butterflies was established in order to fill this niche and to take advantage of Nevada’s surprisingly rich biodiversity to teach the public about the natural history, biology, and ecology of arthropods. In this talk, I’ll discuss some of the programs our organization uses that allow people of all ages to interact with native arthropods in a friendly environment. These programs include numerous partnerships with local organizations as well as contributing to nationwide citizen science projects. If we take our passion as entomologists and ecologists to the public, we can not only open a world of diversity right in front of them, but we can also convince them to change their behavior to conserve their local arthropod populations.

Organization Bio: Nevada Bugs and Butterflies was started in 2012 by Cynthia Scholl and Kevin Burls as a way to use their love of insects to teach the northern Nevada community about Nevada’s amazing biodiversity. The mission of Nevada Bugs is to provide hands-on experiences with science and living things to cultivate love of the natural world and environmental responsibility. The organization’s flagship program is a seasonal science center and native butterfly house located north of Reno, Nevada. In addition, the group leads events throughout the community and has partnered with numerous local organizations to provide interactive science education to children and adults of all ages.

Program Schedule

Program Summary

SUNDAY, JUNE 10, 2018		
Program	**Time**	**Location**
Office	7:30 AM - 5:00 PM	Treasures A
Registration	1:00 PM - 4:30 PM	Registration Desk
Plenary Session: Kevin Burls, "Using pollinators as "gateway insects" to the world of arthropods"	4:30 PM - 6:00 PM	Grand 5-6
Moderator/Judge Meeting	6:00 PM - 6:30 PM	Emerald A
Executive Board Meeting	6:30 PM - 8:30 PM	Treasures BC

MONDAY, JUNE 11, 2018		
Program	**Time**	**Location**
Registration	7:30 AM - 4:00 PM	Registration Desk
Office	7:30 AM - 5:00 PM	Treasures A
Photo Salon	8:00 AM - 6:00 PM	Monitor in Promenade
Opening Session/Preliminary Business Meeting	8:00 AM - 12:00 PM	Grand 4
Break	10:05 AM - 10:25 AM	Grand Promenade
Poster set-up	11:30 AM - 1:00 PM	Emerald BC
Undergraduate Poster Competition	1:00 PM - 5:00 PM	Emerald BC
Masters Poster Competition	1:00 PM - 5:00 PM	Emerald BC
PhD Poster Competition	1:00 PM - 5:00 PM	Emerald BC
Undergraduate & Masters TMP Competition	1:30 PM - 3:20 PM	Treasures BC
PhD TMP Competition	1:30 PM - 4:15 PM	Grand 5
Advances in Insect Molecular Biology and Functional Genomics	1:30 PM - 5:35 PM	Grand 6
The State of IPM and Perceptions of Risk in Pest Management	1:30 PM - 3:20 PM	Emerald A
Discovery, Development, Regulation and Implementation of Novel Insect Pest Management Strategies in Urban and Agricultural Environments	1:50 PM - 4:40 PM	Grand 7
Entomological Models: Examples in Use and Application	3:35 PM - 5:45 PM	Emerald A
General Paper Session I	3:35 PM - 5:15 PM	Treasures BC
What's New in Industry	4:45 PM - 6:15 PM	Grand 5
PBESA Mixer	5:30 PM - 7:30 PM	Grand 1-3
Texting Competition & Elevator Talks	7:00 PM - 8:00 PM	Treasures D
Linnaean Games	8:00 PM - 10:00 PM	Treasures BC

TUESDAY, JUNE 12, 2018

Program	Time	Location
Registration	7:30 AM - 4:00 PM	Registration Desk
Office	7:30 AM - 5:00 PM	Treasures A
Photo Salon	8:00 AM - 6:00 PM	Monitor in Promenade
General Posters	8:00 AM - 6:00 PM	Emerald BC
Research and Collaboration: Veritable Tools for Enhancing Science and Industry Partnerships	8:00 AM - 10:10 AM	Grand 2
Board Certified Entomologists Provide Practical Solutions to Applied Entomological Problems	8:00 AM - 12:00 PM	Emerald A
High Impact Extension Entomology Programs and Methodologies in the Western U.S.	8:00 AM - 12:00 PM	Grand 7
Biological and Chemical Aspects of Plant-Microbe-Insect Interactions	8:40 AM - 12:00 PM	Grand 6
Big Impacts – Engaging kids and the public with stories that demonstrate the value of Entomological Science	9:20 AM - 11:10 AM	Grand 5
Break	10:05 AM - 10:25 AM	Grand Promenade
Town Hall on ESA Bylaws	11:00 AM - 12:00 PM	Grand 2
Awards Luncheon	12:00 PM - 1:30 PM	Paradise DE
Macrophotography Workshop	1:30 PM - 4:00 PM	Grand 2
PBESA 2018 Career Fair	1:30 PM - 4:30 PM	Emerald A
Advances in Brown Marmorated Stink Bug Research in the Western U.S.	1:30 PM - 5:00 PM	Grand 7
Ecological Implications of Plant-Insect Interactions for Agricultural Sustainability and Food Security	1:30 PM - 5:30 PM	Grand 6
The "omics" Tsunami: the Promise of Big Data... and the Dangers of Drowning in the Data Deluge	1:30 PM - 5:40 PM	Grand 5
Social Hour with Poster Presenters	4:30 PM - 6:30 PM	Emerald BCD
Student and Early Career Professional Employment Fair Social Hour	4:30 PM - 6:30 PM	Emerald BCD

WEDNESDAY, JUNE 13, 2018		
Program	**Time**	**Location**
Continental Breakfast	6:30 AM - 8:30 AM	Paradise Terrace
Final Business Meeting	7:00 AM - 8:00 AM	Emerald A
Registration	7:30 AM - 10:00 AM	Registration Desk
Office	7:30 AM - 12:00 PM	Treasures A
General Posters	8:00 AM - 12:00 PM	Emerald BC
Perspectives from Career Professionals on the Value of an Interdisciplinary Graduate Program in Educating Pest Managers	8:00 AM - 12:00 PM	Grand 7
Classical Biological Control of Tree and Vine Pests	8:00 AM - 12:00 PM	Grand 5
General Paper Session 2	8:15 AM - 11:30 AM	Grand 3
Leaffooted Bugs in Agriculture-Ecology and Management Strategies	8:20 AM - 12:00 PM	Grand 6
Break	10:05 AM - 10:25 AM	Grand Promenade

Program Schedule

MONDAY, JUNE 11, 2018, PRELIMINARY

Opening Session/Preliminary Business Meeting

Grand 4 (Atlantis Casino Resort Spa)

8:00 **Welcome**
Brad Higbee

8:20 **National ESA report**
Michael Parrella, President ESA

8:30 **National ESA Governing Report**
David Gammel, Executive Director ESA

8:40 **ESA section reports**
Diane Alston (P-I-E)

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 **2018 C.W. Woodworth Award presentation**
Roger Vargas, USDA-ARS, Hilo, Hawaii.

9:40 **2018 John Henry Comstock Award Presentation**
Adekunle Adeyasana, Washington St. Univ.

10:00 **Break**

10:30 **Preliminary Business Meeting**
Governing Board Report –
Doug Walsh
PBESA Executive Committee Report –
Brad Higbee
Secretary/Treasurer Report –
Harvey Yoshida
Nominations Report –
Vaughn Walton
Announcements/New Business –
Brad Higbee

12:00 **Lunch on your own**

MONDAY, JUNE 11, 2018, POSTERS

Undergraduate Poster Competition / 1:00 PM-5:00 PM

Emerald BC (Atlantis Casino Resort Spa)

P1 **Spatial and temporal expression of cytochrome P450 subfamily G members in *Aedes aegypti*.**
Fiza Arshad *(farshad75@nevada.unr.edu)[1], Manoj Mathew[1], Andrew Nuss[1], Claus Tittiger[1], Gary J. Blomquist[2] and Monika Gulia-Nuss[2], [1]Univ. of Nevada Reno, Reno, NV, [2]Univ. of Nevada, Reno, NV*

P2 **Effects of a neonicotinoid pesticide on bumblebee behavior.**
Rebekah Gaxiola *(rgaxiola@nevada.unr.edu), Felicity Muth and Anne Leonard, Univ. of Nevada Reno, Reno, NV*

P3 **Trapping DNA: 3D printed traps capture insects directly into preservative for improved study of insect molecular ecology.**
Katie Wentz *(wentzk@heritage.edu)[1], William Rodney Cooper[2] and David R. Horton[2], [1]Heritage Univ., Toppenish, WA, [2]USDA-ARS, Wapato, WA*

P4 **Profiling insulin signaling during development in *Lygus hesperus*, the western tarnished plant bug.**
Devin Mazolewski *(dmazolewski@nevada.unr.edu), Rana Pooraiiouby, Dominic Basile and Andrew Nuss, Univ. of Nevada Reno, Reno, NV*

P5 **Blood digestion profile in the black-legged tick, *Ixodes scapularis*.**
Cuauhtemoc Ayala-Chavez *(cayalachavez@nevada.unr.edu)[1], Jeremiah Reyes[1] and Monika Gulia-Nuss[2], [1]Univ. of Nevada Reno, Reno, NV, [2]Univ. of Nevada, Reno, NV*

P5a **Division of labor in *Bombus impatiens* microcolonies.**
Christie Miranda *(cmiranda7037@panther.chaffey.edu)[1], Kaleigh Fisher[2], Natalie Fischer[2] and S. Hollis Woodard[3], [1]Chaffey College, Rancho Cucamonga, CA, [2]Univ. of California Riverside, Riverside, CA, [3]Univ. of California, Riverside, CA*

Masters Poster Competition / 1:00 PM-5:00 PM

Emerald BC (Atlantis Casino Resort Spa)

P6 **Brown marmorated stink bug overwintering success and survey for natural enemies in Utah.**
Zachary Schumm *(zach.schumm@aggiemail.usu.edu), Diane G. Alston and Lori R. Spears, Utah State Univ., Logan, UT*

P7 **Field assays for hygienic behavior comparing four strains of honey bees (Hymenoptera: Apidae).**
Megan Asche *(megan.asche@wsu.edu), Washington State Univ., Pullman, WA*

P8 **Integrating entomopathogenic fungi into IPM program of aphids in Arizona alfalfa.**
Kyle Harrington *(kgharrington@email.arizona.edu)[1] and Ayman Mostafa[2], [1]The Univ. of Arizona, Phoenix, AZ, [2]Univ. of Arizona, Phoenix, AZ*

P9 **Brown marmorated stink bug biological control options in Washington State.**
Joshua Milnes *(joshua.milnes@wsu.edu) and Betsy Beers, Washington State Univ., Wenatchee, WA*

PhD Poster Competition / 1:00 PM-5:00 PM

Emerald BC (Atlantis Casino Resort Spa)

P10 **Utilizing migration behavior for exclusion of stink bugs from apple orchards.**
Adrian Marshall *(atmarshall@wsu.edu) and Betsy Beers, Washington State Univ., Wenatchee, WA*

P11 **The effect of physiological resistance on behavioral responses of *Tetranychus urticae* to acaricides.**
Adekunle Adesanya *(adekunle.adesanya@wsu.edu)[1], Doug Walsh[2] and Laura Lavine[1], [1]Washington State Univ., Pullman, WA, [2]Washington State Univ., Prosser, WA*

P12 **Effect of '*Candidatus* Liberibacter solanacearum' on potato host and its potato psyllid vector, *Bactericera cockerelli* (Hemiptera: Triozidae).**
Regina Karin Cruzado Gutierrez *(cruz8967@vandals.uidaho.edu)[1], Xi Liang[1], Nilsa A. Bosque-Pérez[2] and Arash Rashed[1], [1]Univ. of Idaho, Aberdeen, ID, [2]Univ. of Idaho, Moscow, ID*

P13 **Do insect-vectored crop viruses threaten California native plants?**
Tessa Shates *(tshat003@ucr.edu)[1], Penglin Sun[1], Ian Wright[1] and Kerry Mauck[2], [1]Univ. of California Riverside, Riverside, CA, [2]Univ. of California, Riverside, CA*

P14 **The effects of alternative and conventional cropping methods on soil arthropod communities of wheat-based agroecosystems.**
Carter Westerhold *(west1322@vandals.uidaho.edu) and Sanford Eigenbrode, Univ. of Idaho, Moscow, ID*

MONDAY, JUNE 11, 2018, AFTERNOON

Undergraduate & Masters TMP Competition

Treasures BC (Atlantis Casino Resort Spa)

Moderator: Todd Murray, Washington State Univ., Pullman, WA

1:30 PM **1** **Investigation of genomic methylation and presence of active DNMTs in *Ixodes scapularis.***
*Lauren Mitchell[1], **Blanca Guzman** (bguzmanb3@gmail.com)[1], Andrew Nuss[1] and Monika Gulia-Nuss[2], [1]Univ. of Nevada Reno, Reno, NV, [2]Univ. of Nevada, Reno, NV*

1:42 PM **2** **Identification of circadian clock genes in Lyme disease vector tick, *Ixodes scapularis.***
***Katie Snow** (Katiesnow@nevada.unr.edu)[1], Arvind Sharma[2] and Monika Gulia-Nuss[3], [1]Univ. of Nevada Reno, Reno, NV, 2Maharshi Dayanand Univ., Rohtak, India, [3]Univ. of Nevada, Reno, NV*

1:54 PM **3** **Insecticide resistance development in the filth fly pupal parasitoid, *Spalangia cameroni* (Hymenoptera: Pteromalidae) using laboratory selections.**
***Vincent Maiquez** (vm935@csus.edu) and Jimmy Pitzer, California State Univ. Sacramento, Sacramento, CA*

2:06 PM **4** **Functional characterization of the insulin-like peptides in yellow fever mosquito, *Aedes aegypti*.**
***Jared Koler** (jaredkoler@hotmail.com)[1], Andrew Nuss[1] and Monika Gulia-Nuss[2], [1]Univ. of Nevada Reno, Reno, NV, [2]Univ. of Nevada, Reno, NV*

2:18 PM **5** **Identification and characterization of blood digestive enzymes in the midgut of Lyme disease vector, *Ixodes scapularis*.**
***Jeremiah Reyes** (jreyesunr@gmail.com)[1], Cuauhtemoc Ayala-Chavez[1] and Monika Gulia-Nuss[2], [1]Univ. of Nevada Reno, Reno, NV, [2]Univ. of Nevada, Reno, NV*

2:30 PM **6** **Evaluation of root-pest resistant alfalfa cultivars for potential management of the clover root curculio (Coleoptera: Curculionidae).**
***Kaitlin Rim** (krim19@aggiemail.usu.edu) and Ricardo Ramirez, Utah State Univ., Logan, UT*

2:42 PM **7** **Associative learning of food odors by the European paper wasp, *Polistes dominula* (Hymenoptera: Vespidae).**
***Dane Elmquist** (dane.elmquist@wsu.edu)[1] and Peter J. Landolt[2], [1]Washington State Univ., Pullman, WA, [2]USDA-ARS, Wapato, WA*

2:54 PM **8** **The White-shouldered bumble bee *(Bombus appositus)* is the predominate nesting bumble bee in above-ground nest boxes placed in the subalpine forests of northern Utah.**
***James Herndon** (james.herndon85@gmail.com)[1], Karen Kapheim[1], Amber Tripodi[2] and James Strange[3], [1]Utah State Univ., Logan, UT, [2]USDA-ARS, Logan, UT, [3]USDA - ARS, Logan, UT*

3:06 PM **9** **Establishing an economic threshold for Egyptian alfalfa weevil, *Hypera brunneipennis* (Coleoptera: Curculionidae), in low desert alfalfa hay.**
***Kyle Harrington** (kgharrington@email.arizona.edu)[1] and Ayman Mostafa[2], [1]The Univ. of Arizona, Phoenix, AZ, [2]Univ. of Arizona, Phoenix, AZ*

PhD TMP Competition

Grand 5 (Atlantis Casino Resort Spa)

Moderator: Laura Lavine, Washington State Univ., Pullman, WA

1:30 PM **10** **What the bee sees: How does floral similarity shape interactions between co-flowering Sierra wildflowers?**
***Devon Picklum** (dapicklum@gmail.com) and Anne Leonard, Univ. of Nevada Reno, Reno, NV*

1:42 PM **11** **Feeding and reproductive weed and cover crop hosts of *Spissistilus festinus*.**
***Cindy Preto** (crpreto@ucdavis.edu), Univ. of California Davis, Sacramento, CA*

1:54 PM **12** **Brown marmorated stink bug in the urban landscape of northern Utah: Host plants, trap efficacy, and biological control.**
***Cody Holthouse** (cody.holthouse@aggiemail.usu.edu), Diane G. Alston and Lori R. Spears, Utah State Univ., Logan, UT*

2:06 PM **13** **Developing sustainable pest management programs for diversified Southeast Asian farms in California's central valley.**
***Robert Straser** (rstra005@ucr.edu)[1,2], Xingeng Wang[2], May Yang[2], Pahoua Yang[2], Michael Yang[3], Ruth Dahlquist-Willard[3] and Kent Daane[4], [1]Univ. of California Riverside, Riverside, CA, [2]Univ. of California Berkeley, Parlier, CA, [3]Univ. of California Cooperative Extension, Fresno, CA, [4]Univ. of California, Parlier, CA*

2:18 PM **14** **A sweet solution to the pollen paradox: bees prefer flowers with chemically defended pollen if they offer high quality nectar.**
***Jacob Francis** (jacob.franci@gmail.com), Felicity Muth and Anne Leonard, Univ. of Nevada Reno, Reno, NV*

2:30 PM **15** **Hidden treasures of Taiwan: promising natural enemies of the polyphagous shot hole borer.**
Deena Husein *(dhuse001@ucr.edu), Richard Stouthamer and Paul F. Rugman-Jones, Univ. of California Riverside, Riverside, CA*

2:42 PM **16** **Variation in immune performance and interactions with a viral pathogen in *Euphydryas phaeton* (Lepidoptera: Nymphalidae) populations utilizing native and novel host plants.**
Nadya Muchoney *(nmuchoney@nevada.unr.edu)[1], M. Deane Bowers[2], Peri Mason[2], Adrian L. Carper[2], Mike Teglas[1] and Angela Smilanich[1], [1]Univ. of Nevada Reno, Reno, NV, [2]Univ. of Colorado, Boulder, CO*

2:54 PM **17** **Forecasting the developmental niche of *Xylocopa californica* in a changing thermal world.**
M. Kathryn Busby *(mkbusby@email.arizona.edu), Kathleen L. Prudic, Goggy Davidowitz and Judith L. Bronstein, Univ. of Arizona, Tucson, AZ*

3:06 PM **18** **Characterization of neuropeptide F and its receptor in the tobacco hornworm, *Manduca sexta*.**
Gurlaz Kaur *(gurlazk@nevada.unr.edu), Rana Pooraiiouby and Andrew Nuss, Univ. of Nevada Reno, Reno, NV*

3:18 PM **19** **Can we engineer a human-avoiding mosquito?**
Zachary Speth *(zspeth@nevada.unr.edu), Rana Pooraiiouby, Dennis Mathew and Andrew Nuss, Univ. of Nevada Reno, Reno, NV*

3:30 PM **20** **Effects of water stress on maize plant defenses against specialist and generalist spider mite.**
Gunbharpur Gill *(gunn.gill@usu.edu)[1], Huyen Bui[2], Richard Clark[2] and Ricardo Ramirez[1], [1]Utah State Univ., Logan, UT, [2]Univ. of Utah, Salt Lake City, UT*

Advances in Insect Molecular Biology and Functional Genomics

Grand 6 (Atlantis Casino Resort Spa)

Organizers: Monika Gulia-Nuss, Univ. of Nevada, Reno, NV and Andrew Nuss, Univ. of Nevada Reno, Reno, NV

1:30 **Introductory Remarks**

1:35 PM **21** **Genome manipulation of insect pests of agriculture in the genomics era.**
Peter Atkinson *(peter.atkinson@ucr.edu) and Linda Walling, Univ. of California, Riverside, CA*

1:55 PM **22** **Antagonists and odors: novel strategies for insect pest management.**
Andrew Nuss *(nuss@cabnr.unr.edu), Univ. of Nevada Reno, Reno, NV*

2:15 PM **23** **Circular RNAs: An insect aging biomarker?**
Pedro Miura *(pmiura@unr.edu), Univ. of Nevada Reno, Reno, NV*

2:35 PM **24** **Roles of miRNA in the control of *Drosophila* circadian clock.**
Yong Zhang *(yongzhang@unr.edu), Univ. of Nevada Reno, Reno, NV*

2:55 PM **25** **Delineating the physiological role of a novel glycoprotein hormone signaling system, GPA2/GPB5, and its receptor LGR1, in the Zika vector mosquito *Aedes aegypti.***
David Rocco *(davrocco@yorku.ca) and Jean-Paul Paluzzi, York Univ., Toronto, ON, Canada*

3:15 PM **26** **Functional dissection of an olfactory circuit.**
Dennis Mathew *(dennismathew@unr.edu), Univ. of Nevada Reno, Reno, NV*

3:35 PM **27** **Discovering and characterizing pheromone-biosynthetic enzymes in the mountain pine beetle.**
Claus Tittiger *(crt@unr.edu), Univ. of Nevada Reno, Reno, NV*

3:55 PM **28** **Does ecdysone freely traverse lipid bilayers? - a molecular genetics approach**
Naoki Yamanaka *(naoki.yamanaka@ucr.edu), Univ. of California, Riverside, CA*

4:15 PM **29** **Can we get codling moth females to stop laying eggs on apple?**
Steve G. Garczynski *(Steve.Garczynski@ars.usda.gov), USDA-ARS, Wapato, WA*

4:35 PM **30** **Functional characterization of insect specific CYP4Gs and their role in cuticular hydrocarbon production.**
Marina MacLean *(marinamaclean6@gmail.com)[1] and Gary J. Blomquist[2], [1]Univ. of Nevada Reno, Reno, NV, [2]Univ. of Nevada, Reno, NV*

4:55 PM **31** **An overview of tick genomics and genetics.**
Monika Gulia-Nuss *(mgulianuss@unr.edu), Univ. of Nevada, Reno, NV*

5:15 PM **32** **The Egg and I: coupling transcriptomic data and RNAi to elucidate the molecular basis of oogenesis in the non-model pest, *Lygus hesperus.***
Joe Hull *(joe.hull@ars.usda.gov)[1], Colin Brent[1], Jeffrey Fabrick[1] and Evelien Van Ekert[2], [1]USDA-ARS, Maricopa, AZ, [2]USDA-ARS, Vero Beach, FL*

The State of IPM and Perceptions of Risk in Pest Management

Emerald A (Atlantis Casino Resort Spa)

Moderator and Organizers: Lori Berger, Univ. of California Cooperative Extension, Parlier, CA and Doug Downie, Dept. of Pesticide Regulation, Sacramento, CA

1:30 — **Introductory Remarks**

1:35 PM **33** — **Expanding the dialogue: The pests, pesticides and IPM project.**
Lori Berger *(lberger@ucanr.edu), Univ. of California Cooperative Extension, Parlier, CA*

1:55 PM **34** — **The state of IPM and perceptions of risk in pest management in biopesticides.**
Pamela Marrone *(pmarrone@marronebio.com), Marrone Bio Innovations, Davis, CA*

2:15 PM **35** — **The state of IPM and perceptions of risk in pest management in urban environments.**
Cheryl A. Wilen *(cawilen@ucanr.edu), Univ. of California Statewide IPM Program, San Diego, CA*

2:35 PM **36** — **The state of IPM and perceptions of risk in pest management in schools.**
Eric Denemark *(Eric.Denemark@cdpr.ca.gov), Dept. of Pesticide Regulation, Sacramento, CA*

2:55 — **Concluding Remarks**

Discovery, Development, Regulation and Implementation of Novel Insect Pest Management Strategies in Urban and Agricultural Environments

Grand 7 (Atlantis Casino Resort Spa)

Organizer: Alistair McKay, Dow AgroSciences, Clovis, CA

1:50 — **Introductory Remarks**

1:55 PM **37** — **Agrochemical discovery and the process of building a new insecticide.**
T. C. Sparks *(tcsparks@dow.com), Beth Lorsbach and Jeffrey Nelson, Dow AgroSciences, Indianapolis, IN*

2:15 PM **38** — **Drones: Innovative technology for precision pest control in strawberry.**
Elvira de Lange *(esdelange@ucdavis.edu), Univ. of California, Davis, CA*

2:35 PM **39** — **Recruit™ HD: The first termite bait registered under Termiticide Scientific Review Panel (TSRP) requirements.**
Joe DeMark *(jjdemark@dow.com), Dow AgroSciences, Fayetteville, AR*

2:55 PM **40** — **Novel ways to respond to Asian citrus psyllid in commercial and residential citrus.**
Elizabeth Grafton-Cardwell *(eegraftoncardwell@ucanr.edu), Univ. of California, Riverside, CA*

3:15 — **Break**

3:35 PM **41** — **The rise of biologicals with increasing demand for sustainably produced food.**
Surendra Dara *(skdara@ucdavis.edu), Univ. of California Cooperative Extension, San Luis Obispo, CA*

3:55 PM **42** — **Navigating regulatory challenges in the biopesticide industry.**
Jennifer Lilly *(jlilly@isagro-usa.com), Isagro USA, Morrisville, NC*

4:15 PM **43** — **New Grandevo formulation and new uses for Venerate XC.**
Denis Miller *(denis.miller@marronebio.com)[1], Melissa O'Neal[2], B Mueller[2] and Timothy Johnson[2], [1]Marrone Bio Innovations, Othello, WA, [2]Marrone Bio Innovations, Davis, CA*

4:35 — **Concluding Remarks**

Entomological Models: Examples in Use and Application

Emerald A (Atlantis Casino Resort Spa)

Moderator and Organizer: Emily Bick, Univ. of California Davis, Davis, CA

3:35 — **Introductory Remarks**

3:40 PM **44** — **Predicting climate change effects on phenological synchrony of rice and *Scotinophara lurida* (Hemiptera: Pentatomidae).**
Hyoseok Lee *(hyslee@ucdavis.edu), Univ. of California Davis, Davis, CA*

4:00 PM **45** — **HAedes: an integrative model for *Aedes albopictus* Skuse population dynamics and movement among households in urban landscapes.**
Matteo Marcantonio *(matmarcantonio@ucdavis.edu)[1], Diego Montecino-Latorre[1] and Christopher M. Barker[2], [1]Univ. of California Davis, Davis, CA, [2]Univ. of California, Davis, CA*

4:20 PM **46** — **SnapCard: an app for better pest control in strawberry.**
Elvira de Lange *(esdelange@ucdavis.edu), Univ. of California, Davis, CA*

4:40 PM **47** — **Modeling the impact of temperature on *Lobesia botrana* (Lepidoptera: Tortricidae) Development.**
Cindy Preto *(crpreto@ucdavis.edu), Univ. of California Davis, Sacramento, CA*

5:00 PM **48** — **Preliminary results in modeling phenotypic character evolution applied to big-eyed tree ants (Formicidae: Pseudomyrmecinae).**
Brendon Boudinot *(beboudinotb@ucdavis.edu), Evergreen State College, Olympia, WA*

5:20 PM **49** **Use of a model to predict efficacy of western tarnished plant bug vacuum control strategy in California strawberry.**
Emily Bick *(Enb45@cornell.edu), Univ. of California Davis, Davis, CA*

5:40 **Concluding Remarks**

General Paper Session I

Treasures BC (Atlantis Casino Resort Spa)

Moderator: Arash Rashed, Univ. of Idaho, Aberdeen, ID

3:35 PM **50** **Control of *Aedes aegypti* through aerial applications of larvicide.**
Jennifer Henke *(JHenke@cvmvcd.org), Coachella Valley Mosquito and Vector Control District, Indio, CA*

3:47 PM **51** **Adult house fly (Diptera: Muscidae) insectcide resistance development using larval population selections with commercially-available bait formulations.**
Jimmy Pitzer *(jimmy.pitzerjr@csus.edu), California State Univ. Sacramento, Sacramento, CA*

3:59 PM **52** **Potential of propylene oxide (PPO) as a postharvest fumigant for controlling arthropod pests in fresh citrus.**
Sandipa Gautam *(sangautam@ucanr.edu)[1], Elizabeth Grafton-Cardwell[2] and Spencer Walse[3], [1]Kearney Agricultural Sciences Center, Parlier, CA, [2]Univ. of California, Riverside, CA, [3]USDA-ARS, Parlier, CA*

4:11 PM **53** **Sugar substitutes affect physiology of yellow fever vector, *Aedes aegypti*.**
Arvind Sharma *(arvinds@unr.edu)[1], Jeremiah Reyes[2], Blanca Guzman[2], Davidson Borgmeyer[2], Andrew Nuss[2] and Monika Gulia-Nuss[1], [1]Univ. of Nevada, Reno, NV, [2]Univ. of Nevada Reno, Reno, NV*

4:23 PM **54** **Characterization of insulin-like peptides (ILPs) in the black-legged tick, *Ixodes scapularis*.**
Rana Pooraiiouby *(rpooraiiouby@cabnr.unr.edu)[1], Blanca Guzman[1], Preston Vu[1], Monika Gulia-Nuss[2] and Andrew Nuss[1], [1]Univ. of Nevada Reno, Reno, NV, [2]Univ. of Nevada, Reno, NV*

4:35 PM **55** **Threshold, selective insecticides and biocontrol agents: IPM for alfalfa aphids in the Southwest U.S.A.**
Ayman Mostafa *(ayman@email.arizona.edu) and Kyle Harrington, Univ. of Arizona, Phoenix, AZ*

4:47 PM **56** **Developing a "treat-and-ship" program for nurseries against the light brown apple moth in the California central coast.**
H. Alejandro Merchan *(hamercha@ncsu.edu)[1] and Gregory S. Simmons[2], [1]North Carolina State Univ., Raleigh, NC, 2USDA-APHIS-PPQ-S&T, Salinas, CA*

4:59 PM **57** **Augmentative releases of the pupal parasitoid *Trichopria drosophilae* for the suppression of early-season spotted-wing drosophila (SWD) populations.**
Marco Valerio Stacconi *(marco.stacconi@oregonstate.edu)[1], Claudio Ioriatti[2], Alberto Grassi[2] and Gianfranco Anfora[2,3], [1]Oregon State Univ., Corvallis, OR, [2]Edmund Mach Foundation, San Michele all'Adige, Italy, [3]Univ. of Trento, San Michele all'Adige, Italy*

What's New in Industry

Grand 5 (Atlantis Casino Resort Spa)

Organizers: Jesse Richardson, Dow AgroSciences, Hesperia, CA and Christopher Clemens, Syngenta Crop Protection LLC, Richland, WA

4:45 PM **58** **Trece product update.**
Bill Lingren *(blingren@trece.com), Trece, Inc., Adair, OK*

4:52 PM **59** **Bayer Cropscience product update.**
Casey Butler *(casey.butler@bayer.com), Bayer CropScience, Arroyo Grande, CA*

4:59 PM **60** **Corteva Agriscience product update.**
Sunil Tewari *(stewari@dow.com), Dow AgroSciences, Fresno, CA*

5:06 PM **61** **Valent product update.**
Allison Walston *(allison.walston@valent.com), Valent, Hood River, OR*

5:13 PM **62** **Syngenta product update.**
Christopher Clemens *(christopher.clemens@syngenta.com), Syngenta Crop Protection LLC, Richland, WA*

5:20 PM **63** **Marrone Bio Innovations product update.**
Denis Miller *(denis.miller@marronebio.com), Marrone Bio Innovations, Othello, WA*

5:27 PM **64** **FMC product update.**
W. Scott *(dennis.scott@fmc.com), FMC, Richland, WA*

5:34 PM **65** **Certis product update.**
Scott Ockey *(sockey@certisusa.com), Certis USA, Columbia, MD*

5:41 PM **66** **Isagro product update.**
Michael Allan *(mallan@isagro-usa.com), Isagro USA, Modesto, CA*

5:48 PM **67** **ISK Biosciences product update.**
Christopher Philips *(philipsc@iskbc.com), ISK Biosciences, Concord, OH*

5:55 PM **68** **Vestaron product update.**
Tim Ksander *(tksander@vestaron.com), Vestaron Corporation, Kalamazoo, MI*

TUESDAY, JUNE 12 - 13, 2018, POSTERS

General Posters / 8:00 AM-6:00 PM

Emerald BC (Atlantis Casino Resort Spa)

P15 **Dual biocontrol of insect pathogenic fungus *Isaria fumosorosea* isolates on aphid and anthracnose disease in pepper.**
Young Cheol Kim *(yckimyc@jnu.ac.kr)[1], Yong Seong Lee[1] and Ji Hee Han[2], [1]Chonnam National Univ., Gwangju, Korea, Republic of (South), [2]National Academy of Agricultural Science, Wan-ju Gun, Korea, Republic of (South)*

P16 **Laboratory demonstrations of pheromone-mediated scent-marking, orientation, and mounting behavior in *Polistes exclamans* (Hymenoptera: Vespidae).**
Dane Elmquist *(dane.elmquist@wsu.edu)[1], Peter J. Landolt[2], Lee Ream[2] and Dong Cha[3], [1]Washington State Univ., Pullman, WA, [2]USDA-ARS, Wapato, WA, [3]USDA - ARS, Hilo, HI*

P17 **Notes on the distribution and life history of members of the genus *Paraterellia Foote* (Diptera: Tephritidae) in the western U.S.**
Kirk C. Tonkel *(kirk.tonkel@ars.usda.gov)[1], Lindsay A. Dimitri[1], Brian G. Rector[1], William S. Longland[1] and Veronica S. Kirchoff[2], 1USDA-ARS, Reno, NV, [2]Charles River Laboratories, Reno, NV*

P18 **Effect of sex and bait on source of navel orangeworm *Amyelois transitella* trapped in adjacent almond and walnut orchards.**
Charles Burks *(charles.burks@ars.usda.gov)[1], Jhalendra Rijal[2] and Emily Symmes[3], [1]USDA-ARS, Parlier, CA, [2]Univ. of California Cooperative Extension, Modesto, CA, [3]Univ. of California, Davis, CA*

P19 **Host stage preferences of parasitoids of the giant whitefly *Aleurodicus dugesii* (Hemiptera: Aleyrodidae).**
Erich Schoeller (escho002@ucr.edu) and Richard Redak, Univ. of California Riverside, Riverside, CA

P20 **First release of a shoot-tip galling fly in California for biological control of cape-ivy.**
Scott Portman *(scott.portman@ars.usda.gov), USDA-ARS, Albany, CA*

P21 **Cloning, characterization and analysis of expression carboxypeptidase B gene of Indian malaria vector *Anopheles culicifacies* (Diptera: Culicidae).**
Surendra Kumar Gakhar (surengak@gmail.com)*, Maharshi Dayanand Univ., Rohtak, India*

P22 **Impact of outreach on the *Ips paraconfusus* lanier (Coleoptera: Curculionidae) out-break in the Pacific Northwest.**
Todd Murray *(tmurray@wsu.edu)[1], Glenn R. Kohler[2], Elizabeth A. Willhite[3], Glenn Ahrens[4] and Chuck Hersey[2], [1]Washington State Univ., Pullman, WA, [2]Washington State Dept. of Natural Resources, Olympia, WA, [3]USDA - Forest Service, Sandy, OR, [4]Oregon State Univ., Oregon City, OR*

P23 **Little fire ant (Hymenoptera: Formicidae) on the move in Micronesia.**
Ross Miller *(millerr@triton.uog.edu), Univ. of Guam, Mangilao, Guam*

P24 **Combining a plant immune activator with an insecticide to disrupt virus infection.**
Ian Wright *(wright@ucr.edu)[1], Marie-Eve Grandmont[2] and Kerry Mauck[1], [1]Univ. of California, Riverside, CA, [2]Univ. of California Riverside, Riverside, CA*

P25 **Landscape ecology of beneficial insects in agronomic crops of Utah.**
Morgan Christman *(morgan.christman@aggiemail.usu.edu), Ricardo Ramirez, Lori R. Spears and Emily Burchfield, Utah State Univ., Logan, UT*

P26 **Will spotted wing drosophila, *Drosophila suzukii*, or Asian citrus psyllid, *Diaphorina citri*, foliar sprays meet fruit fly (Diptera: Tephritidae) quarantine requirements?**
Roger Vargas *(roger.vargas@ars.usda.gov)[1], Steven Souder[2] and Colby Maeda[2], [1]USDA/ARS DKI US Pacific Basin Agricultural Research Center, Hilo, HI, [2]USDA-ARS, Hilo, HI*

P27 **Development of eco-friendly agro-materials to protect from Chinese cabbage against high temperature, drought, and aphids.**
Song Hee Han *(molmol@hanmail.net)[1], Ju Yeon Park[1], Cheol Hong Kim[1] and Young Cheol Kim[2], [1]Hyunnong Co., Gokseong-gun, Korea, Republic of (South), [2]Chonnam National Univ., Gwangju, Korea, Republic of (South)*

P28 **Plant growth promotion by volatile metabolites produced from an insect pathogenic fungus *Isaria javanica* pf-185.**
Ju Yeon Park (jjanggu282@hanmail.net)[1], Song Hee Han[1], Cheol Hong Kim[1], Young Cheol Kim[2], Yong Seong Lee[2] and Ji Hee Han[3], [1]Hyunnong Co., Gokseong-gun, Korea, Republic of (South), [2]Chonnam National Univ., Gwangju, Korea, Republic of (South), [3]National Academy of Agricultural Science, Wan-ju Gun, Korea, Republic of (South)

P29 **Comparative analysis of three pollen sterilization methods for feeding bumble bees *(Bombus,* Hymenoptera: Apidae*).***
James Strange *(james.strange@ars.usda.gov)[1], Amber Tripodi[2], Joyce Knoblett[2], Craig Huntzinger[2], Ellen Klinger[1] and Quinn McFrederick[3], [1]USDA - ARS, Logan, UT, [2]USDA-ARS, Logan, UT, [3]Univ. of California, Riverside, CA*

P30 **Quantification of territorial behaviors of male *Anthidium manicatum*.**
Carter Odean*, Nicholas Sadilek, Patrick Kirsch, Kalina Klisz and Gary Chang (chang@gonzaga.edu), Gonzaga Univ., Spokane, WA*

P31 **Efficacy evaluations of commercial and field-collected entomopathogenic nematodes against wireworm (Coleoptera: Elateridae).**
Atoosa Nikoukar *(Anikoukar@uidaho.edu)[1], Pooria Ensafi[2], Edwin Lewis[1], Nilsa A. Bosque-Pérez[1] and Arash Rashed[2], [1]Univ. of Idaho, Moscow, ID, [2]Univ. of Idaho, Aberdeen, ID*

P32 **Seasonal native bee diversity on Santa Rosa Island.**
Alixandria Cauthron *(alixandria.cauthron487@myci.csuci.edu)[1], Gabriella Junquera[1], Denise Knapp[2], Kathryn McEachern[3] and Ruben Alarcón[1], [1]California State Univ. Channel Islands, Camarillo, CA, [2]Santa Barbara Botanic Garden, Santa Barbara, CA, [3]U.S. Geological Survey, Ventura, CA*

P33 **Prospects for development of an area-wide control program of navel orangeworm affecting tree nuts in California.**
Gregory S. Simmons *(gregory.s.simmons@aphis.usda.gov)[1], Charles Burks[2], Bradley Higbee[3], Ring T. Cardé[4], Douglas Light[5], Ron Haff[5] and Earl Andress[6], [1]USDA-APHIS-PPQ-CPHST, Salinas, CA, [2]USDA-ARS, Parlier, CA, [3]Trece, Inc., Bakersfield, CA, [4]Univ. of California, Riverside, CA, [5]USDA-ARS, Albany, CA, [6]USDA-APHIS-PPQ, Phoenix, AZ*

P34 **Arthropod community composition in current and projected agricultural systems in the Inland Pacific Northwest.**
Jessica Kalin (kali0912@vandals.uidaho.edu) and Sanford Eigenbrode, Univ. of Idaho, Moscow, ID

P35 **Monitoring the efficacy of Flonicamid™ against the western tarnished plant bug, *Lygus hesperus* (Hemiptera: Miridae).**
Ayman Mostafa and ***Gadelhak Ahmed*** *(gadelhakg@email.arizona.edu), Univ. of Arizona, Phoenix, AZ*

P36 **Mating preferences of *Vanessa cardui*.**
Daniel Moore (lieutenantdanmoore@gmail.com) and Angela Smilanich, Univ. of Nevada Reno, Reno, NV

P37 **Comparative analysis of carboxypeptidase a gene in three sibling species of *Anopheles culicifacies* (Diptera: Culicidae).**
Ashwani Kumar (ashwanikhairwal@gmail.com)[1], Richa Sharma[2] and Surendra Kumar Gakhar[2], [1]Ch. Bansi Lal Univ., Rohtak, India, [2]Maharshi Dayanand Univ., Rohtak, India

TUESDAY, JUNE 12, 2018, MORNING

Research and Collaboration: Veritable Tools for Enhancing Science and Industry Partnerships

Grand 2 (Atlantis Casino Resort Spa)

Moderator and Organizer: Ismaila Aderolu, Kwara State Univ., Ilorin, Nigeria and Adeolu Ande, Univ. of Ilorin, Ilorin, Nigeria

8:00 **Introductory Remarks**

8:05 AM **69** **Value chain development of honeybee *(Apis mellifera adansonii)* products for industry and economic diversification in Nigeria.**
Akeem Oyerinde[1], ***Abdrahman Lawal*** *(princeadebowale639@gmail.com)[1], Theresa Omara-achong[2], Adeolu Ande[3], Abdulrasak Musa[3], Ismaila Aderolu[4] and Adeyemi Ajao[4], [1]Univ. of Abuja, Abuja, Nigeria, [2]Raw Material Research and Development Council Abuja, Nigeria, Abuja, Nigeria, [3]Univ. of Ilorin, Ilorin, Nigeria, [4]Kwara State Univ., Ilorin, Nigeria*

8:25 AM **70** **Comparative efficacy of *Azadirachta indica A. Juss* and *Ampligo* against fall armyworm *(Spodoptera frugiperda)* on *Zea mays* in Moro Local Government, Nigeria.**
Ismaila Aderolu *(adeisma@yahoo.com) and Nafisat Bello, Kwara State Univ., Ilorin, Nigeria*

8:45 AM **71** **Status and prospects of industrial development of indigenous pesticidal plants in pest management in Nigeria.**
Akeem Oyerinde *(oyerindehyphae2002@gmail.com)[1], Ezekiel Salako[1], Samuel Anjorin[1] and Theresa Omara-achong[2], [1]Univ. of Abuja, Abuja, Nigeria, [2]Raw Material Research and Development Council Abuja, Nigeria, Abuja, Nigeria*

9:05 AM **72** **Bee pollination service (BPS): veritable tools for enhancing collaborative practical solution for agricultural and industrial partnerships.**
Adeyemi Ajao *(ajaoadeyemi@yahoo.com)[1], Ismaila Aderolu[1] and Yusuf Oladimeji[2], [1]Kwara State Univ., Ilorin, Nigeria, [2]Ahmadu Bello Univ., Zaria, Nigeria*

9:25 AM **73** **Effect of adoption of macro propagation technology on plantain and banana farmers' livelihood in Southwest Nigeria.**
Latifat Salawu *(latifaht22@yahoo.com)[1], Israel Ogunlade[2] and Funmilayo Omotesho2, [1]Kwara State Univ., Ilorin, Nigeria, [2]Univ. of Ilorin, Ilorin, Nigeria*

9:45 AM **74** **Computational, structural analysis of protein kinase domain of EGFR and molecular docking simulation of bioactive compounds of *Cajanus cajan*.**
Ismaila Nurain *(ismaila4u2@yahoo.com), Kwara State Univ., Ilorin, Nigeria*

10:05 **Concluding Remarks**

Board Certified Entomologists Provide Practical Solutions to Applied Entomological Problems

Emerald A (Atlantis Casino Resort Spa)

Moderators and Organizer: Andrew Sutherland, Univ. of California Cooperative Extension, Hayward, CA and Alix Whitener, Washington State Univ., Wenatchee, WA

8:00 **Introductory Remarks**

8:05 AM **75** **ESA's certification program: what's in it for you?**
Arun Sen *(arun.sen@sbcglobal.net), Entomological Society of America (retired), CA*

8:25 AM **76** **BCEs and global entomology: international IPM consultation.**
Vernard Lewis *(urbanpests@berkeley.edu), Univ. of California, Richmond, CA*

8:45 AM **77** **BCEs and public health: case studies from a county vector control perspective.**
Laura Krueger *(lkrueger@ocvcd.org), Orange County Mosquito and Vector Control District, Garden Grove, CA*

9:05 AM **78** **BCEs and communication: marketing IPM to millennials.**
Pat Copps *(pcopps@rollins.com), Orkin Pest Control, Riverside, CA*

9:25 AM **79** **BCEs and agriculture: a student's perspective.**
Alix Whitener *(alix.crilly@wsu.edu), Washington State Univ., Wenatchee, WA*

9:45 AM **80** **BCEs and industry: what's the value of certification in pest control?**
Sylvia Kenmuir *(sylvia.kenmuir@target-specialty.com), Target Specialty Products, Santa Fe Springs, CA*

10:05 **Break**

10:25 AM **81** **BCEs and innovation: an agrichemical industry perspective.**
Freder Medina *(freder.medina@basf.com), BASF, Phoenix, AZ*

10:45 AM **82** **BCEs and structural entomology: case studies from the built environment.**
Nick Grisafe *(nick.grisafe@syngenta.com), Syngenta Professional Pest Management, Yucaipa, CA*

11:05 AM **83** **BCEs and the legal system: case studies from a litigation support perspective.**
Gail Getty *(InsectConsulting@gmail.com), Insect Consulting, La Crescenta, CA*

11:25 AM **84** **BCEs and education: an extension faculty member's perspective.**
Andrew Sutherland *(amsutherland@ucanr.edu), Univ. of California Cooperative Extension, Hayward, CA*

11:45 **Concluding Remarks**

High Impact Extension Entomology Programs and Methodologies in the Western U.S.

Grand 7 (Atlantis Casino Resort Spa)

Organizers: Doug Walsh, Washington State Univ., Prosser, WA and Diane G. Alston, Utah State Univ., Logan, UT

8:00 **Welcoming Remarks**

8:05 AM **85** **Establishing adoption of IPM principles on large scale commercial vegetable farms.**
Timothy Waters *(twaters@wsu.edu), Washington State Univ., Pasco, WA*

8:25 AM **86** **Meeting stakeholder needs while reaching academic success.**
Silvia Rondon *(Silvia.Rondon@oregonstate.edu), Oregon State Univ., Hermiston, OR*

8:45 AM **87** **Past, present and future of *Drosophila suzukii* management in Western USA susceptible berry fruits.**
Vaughn Walton *(vaughn.walton@oregonstate.edu), Oregon State Univ., Corvallis, OR*

9:05 AM **88** **Keeping the buzz in Extension integrated pest and pollinator management. Extension successes in alfalfa produced for seed.**
Doug Walsh *(dwalsh@wsu.edu)[1], Sally O'Neal[1] and Erik Johansen[2], [1]Washington State Univ., Prosser, WA, [2]Washington State Dept. of Agriculture, Olympia, WA*

9:25 AM **89** **Cry havoc! A century of progress in the battle against tree fruit pests.**
Betsy Beers *(ebeers@wsu.edu), Washington State Univ., Wenatchee, WA*

9:45 AM **90** **Leading IPM successes in Utah's specialty crops, communities and schools.**
Diane G. Alston *(diane.alston@usu.edu), Marion Murray, Ryan S. Davis and Cami Cannon, Utah State Univ., Logan, UT*

10:05 **Break**

10:25 AM **91** **The rise, fall and resurgence of California's entomology extension over the past 50 years.**
Kent Daane *(kdaane@ucanr.edu), Univ. of California, Parlier, CA*

10:45 AM **92** **Old challenges for new farm advisors.**
Kris Tollerup *(ketollerup@ucanr.edu), Univ. of California, Parlier, CA*

11:05 AM **93** **Developing an extension program for vegetable crops in the Sacramento Valley.**
Amber Vinchesi *(acvinchesi@ucanr.edu), Univ. of California Cooperative Extension, Colusa, CA*

11:25 AM **94** **Extension entomology to improve biological control of leafhoppers in California vineyards.**
Houston Wilson *(houston.wilson@ucr.edu), Univ. of California, Parlier, CA*

11:45 AM **95** **Improving integrated mite management in California's berry production.**
Anna Howell *(adhowell@ucanr.edu), Univ. of California, Ventura, CA*

12:05 **Concluding Remarks**

Biological and Chemical Aspects of Plant-Microbe-Insect Interactions

Grand 6 (Atlantis Casino Resort Spa)

Moderator and Organizer: Navneet Kaur, Univ. of Idaho, Wapato, WA

8:40 **Introductory Remarks**

8:45 AM **96** **The impact of community host chemistry on butterfly diversity across the world.**
Judith Becerra *(jxb@email.arizona.edu), Univ. of Arizona, Tucson, AZ*

9:05 AM **97** **Orchard management practices tempo flower microbiome structure, assembly and function in a mass-flowering crop.**
Robert Schaeffer *(schaeffer.robert@gmail.com)[1], John Beck[2], Tadashi Fukami[3], Neal M. Williams[4], David Crowder[1] and Rachel Vannette[4], 1Washington State Univ., Pullman, WA, [2]USDA-ARS, Gainesville, FL, [3]Stanford Univ., Stanford, CA, [4]Univ. of California, Davis, CA*

9:25 AM **98** **Effects of yeasts and bacteria on floral traits and attractiveness to honey bees.**
Rachel Vannette *(rlvannette@ucdavis.edu)[1], Caitlin Rering[2] and John Beck2, [1]Univ. of California, Davis, CA, [2]USDA-ARS, Gainesville, FL*

9:45 AM **99** **Eco-evolutionary consequences of insect microbial symbionts for plant indirect defense.**
Elizabeth Pringle *(epringle@unr.edu), Univ. of Nevada Reno, Reno, NV*

10:05 **Break**

10:25 AM **100** **Intersections between variation in foliar chemical defenses and insect gut symbionts.**
Charles Mason *(cjm360@psu.edu), Pennsylvania State Univ., Univ. Park, PA*

10:45 AM **101** **Disentangling the dark matter of an obligate symbiosis in the pea aphid.**
Allison Hansen *(ahans003@ucr.edu)[1], Margaret W. Thairu[2] and Dohyup Kim[2], [1]Univ. of California, Riverside, CA, [2]Univ. of Illinois, Champaign, IL*

11:05 AM **102** **Anti-insect defenses provided by *Epichloë* endophytes in native grasses.**
Stanley H. Faeth *(shfaeth@uncg.edu) and Tatsiana Shymanovich, Univ. of North Carolina, Greensboro, NC*

11:25 AM **103** **Evidence that a mutualistic association between Convolvulaceae and clavicipitaceous fungi *(Periglandula)* defends plants against psyllids.**
Navneet Kaur *(Navneet.Kaur2@ars.usda.gov)[1], William Rodney Cooper[2], Jennifer Duringer[3], Gabriela Esparza-Diaz[4], Ismael E. Badillo-Vargas[5], Arash Rashed[6] and David R. Horton[2], [1]Univ. of Idaho, Wapato, WA, [2]USDA-ARS, Wapato, WA, [3]Oregon State Univ., Corvallis, OR, [4]Amerstem, Inc, Camarillo, CA, [5]Texas A&M AgriLife Research, Weslaco, TX, [6]Univ. of Idaho, Aberdeen, ID*

11:45 **Concluding Remarks**

Big Impacts – Engaging kids and the public with stories that demonstrate the value of Entomological Science

Grand 5 (Atlantis Casino Resort Spa)

Moderator and Organizers: Laura Lavine, Washington State Univ., Pullman, WA; Bradley Higbee, Trece, Inc., Bakersfield, CA and Allison Walston, Nichino America Inc, Wilmington, DE

9:20 AM **104** **Big impacts - engaging kids and the public with stories that demonstrate the value of entomological science (part I).**
Rachel Webber *(rcwebber@wsu.edu), Washington State Univ., Pullman, WA*

10:05 **Break**

10:25 AM **105** **Big impacts - engaging kids and the public with stories that demonstrate the value of entomological science (part II).**
Sarah Lupis *(sarah.lupis@colostate.edu), Western Association of Agricultural Experiment Station Directors (, Fort Collins, CO*

TUESDAY, JUNE 12, 2018, AFTERNOON

Macrophotography Workshop

Grand 2 (Atlantis Casino Resort Spa)

Organizer: Ian Wright, Univ. of California Riverside, Riverside, CA

1:30 PM - 4:00 PM

PBESA 2018 Career Fair

Emerald A (Atlantis Casino Resort Spa)

Organizers: Benjamin Lee, Washington State Univ., Pullman, WA; Megan Asche, Washington State Univ., Pullman, WA and Adrian Marshall, Washington State Univ., Wenatchee, WA

1:30 **Featured Speakers from Government**

1:50 **Featured Speakers from Industry**

2:10 **Featured Speakers from Academia**

2:30 **Featured Speakers from Extension**

2:50 **Social Media as a Tool for Career Development Workshop**

Rachel Olsson

Washington State Univ., Pullman, WA

3:10 **Coffee Break**

3:30 **Q&A Panel and Discussion**

Advances in Brown Marmorated Stink Bug Research in the Western U.S.

Grand 7 (Atlantis Casino Resort Spa)

Moderators and Organizers: Jhalendra Rijal, Univ. of California Cooperative Extension, Modesto, CA and Diane G. Alston, Utah State Univ., Logan, UT

1:30 **Introductory Remarks**

1:35 PM **106** **BMSB monitoring and search for biological control agents in Southern Interior British Columbia, Canada.**
Susanna Acheampong *(Susanna.Acheampong@gov.bc.ca)[1], Paul Abram[2] and Joan Cossentine[1], [1]Agriculture and Agri-Food Canada, Summerland, BC, Canada, [2]Agriculture and Agri-Food Canada, Agassiz, BC, Canada*

1:55 PM **107** **Impact of BMSB on fruit and vegetable production in Utah, a Mountain West State.**
Diane G. Alston *(diane.alston@usu.edu), Lori R. Spears, Cody Holthouse, Zachary Schumm and Cami Cannon, Utah State Univ., Logan, UT*

2:15 PM **108** **Seasonal phenology and damage characterization by BMSB feeding in almonds and Cling peaches in California.**
Jhalendra Rijal *(jrijal@ucdavis.edu)[1], Joanna Fisher[2] and Frank Zalom[2], [1]Univ. of California Cooperative Extension, Modesto, CA, [2]Univ. of California, Davis, CA*

2:35 PM **109** **Influences of temperature and humidity on brown marmorated stink bug survival.**
Joanna Fisher *(jfisher@ucdavis.edu)[1], Jhalendra Rijal[2], Chuck Ingels[3] and Frank Zalom[1], [1]Univ. of California, Davis, CA, [2]Univ. of California Cooperative Extension, Modesto, CA, [3]Univ. of California Cooperative Extension, Sacramento, CA*

2:55 PM **110** **Population estimates of two *Halyomorpha halys* (Hemiptera: Pentatomidae) populations based on temperature-related life table parameters.**
Vaughn Walton *(vaughn.walton@oregonstate.edu)[1], Erika Maslen[1], Anne Nielson[2], Ferdinand Pfab[3], Daniel T. Dalton[1], Ann Rucker[2], David Lowenstein[4], Nik G. Wiman[4], Mukesh Bhattarai[5], Brent Short[6] and Tracy C. Leskey[6], [1]Oregon State Univ., Corvallis, OR, [2]Rutgers, The State Univ. of New Jersey, Bridgeton, NJ, [3]Trento Univ., Trento, Italy, [4]Oregon State Univ., Aurora, OR, [5]Southern Illinois Univ. Carbondale, Carbondale, IL, [6]USDA-ARS, Kearneysville, WV*

3:15 **Break**

3:35 PM **111** **Episodic cold shock and its effects on *Halyomorpha halys* diapause, survival and emergence behavior.**
David Lowenstein *(david.lowenstein@oregonstate.edu)[1], Nik G. Wiman[1] and Vaughn Walton[2], [1]Oregon State Univ., Aurora, OR, [2]Oregon State Univ., Corvallis, OR*

3:55 PM **112** **Trapping and management of *Halyomorpha halys* (Hemiptera: Pentatomidae) in tree fruit in mid-Atlantic.**
Clement Akotsen-Mensah *(ca555@scarletmail.Rutgers.edu)[1], Chris Bergh[2], Tracy C. Leskey[3] and Anne Nielson[1], [1]Rutgers, The State Univ. of New Jersey, Bridgeton, NJ, [2]Virginia Polytechnic Institute and State Univ., Winchester, VA, [3]USDA-ARS, Kearneysville, WV*

4:15 PM **113** **Preventative restoration of IPM for brown marmorated stink bug in Washington tree fruits.**
Betsy Beers *(ebeers@wsu.edu), Adrian Marshall, Joshua Milnes and James Hepler, Washington State Univ., Wenatchee, WA*

4:35 PM **114** **Biological control of brown marmorated stink bug in California.**
Ricky Lara *(jlara007@ucr.edu)[1], Charles Pickett[2] and Mark S. Hoddle[1], [1]Univ. of California, Riverside, CA, [2]California Dept. of Food and Agriculture, Sacramento, CA*

4:55 **Concluding Remarks**

Ecological Implications of Plant-Insect Interactions for Agricultural Sustainability and Food Security

Grand 6 (Atlantis Casino Resort Spa)

Moderator and Organizer: Jenita Thinakaran, Univ. of California Davis, Shafter, CA

1:30 **Introductory Remarks**

1:35 PM **115** **Development of insecticide resistance: Is glassy-winged sharpshooter management sustainable?**
Richard Redak *(richard.redak@ucr.edu)[1] and Frank J. Byrne[2], [1]Univ. of California Riverside, Riverside, CA, [2]Univ. of California, Riverside, CA*

1:55 PM **116** **Asian citrus psyllid and huanglongbing disease wreak havoc on citrus IPM programs in California.**
Elizabeth Grafton-Cardwell *(eegraftoncardwell@ucanr.edu), Univ. of California, Riverside, CA*

2:15 PM **117** **The weed link in zebra chip epidemiology: Annual and perennial weeds as sources of the zebra chip pathogen.**
William Rodney Cooper *(rodney.cooper@ars.usda.gov) and David R. Horton, USDA-ARS, Wapato, WA*

2:35 PM **118** **Use of commercially available plant elicitors to disrupt virus manipulation of hosts and vectors cucurbit yellow stunting disorder virus (CYSDV).**
Kerry Mauck *(kerry.mauck@ucr.edu)[1], Ian Wright[1], Marie-Eve Grandmont[2] and Quentin Chesnais[1], [1]Univ. of California, Riverside, CA, [2]Univ. of California Riverside, Riverside, CA*

2:55 PM **119** **Legume viruses within Pacific Northwest landscapes in transition.**
Sanford Eigenbrode *(sanforde@uidaho.edu)[1], Jake Hennessey[1], Ying Wu[1] and Seth Davis[2], [1]Univ. of Idaho, Moscow, ID, [2]Colorado State Univ., Fort Collins, CO*

3:15 **Break**

3:35 PM **120** **Delivery of semiochemicals for pest management: Dispensers, sprays and the future.**
Bradley Higbee *(bhigbee@trece.com), Trece, Inc., Bakersfield, CA*

3:55 PM **121** **Role of entomopathogenic fungi in insect-plant interactions towards ensuring food safety and sustainable agriculture.**
Surendra Dara *(skdara@ucdavis.edu)[1] and Jenita Thinakaran[2], [1]Univ. of California Cooperative Extension, San Luis Obispo, CA, [2]Univ. of California Davis, Shafter, CA*

4:15 PM **122** **Integrated pest management of wireworms, with particular emphasis on biological control.**
Arash Rashed *(arashed@uidaho.edu)[1], Pooria Ensafi[1], Aaron Esser[2] and David Crowder[3], [1]Univ. of Idaho, Aberdeen, ID, 2Washington State Univ., Ritzville, WA, [3]Washington State Univ., Pullman, WA*

4:35 PM **123** **Phenology of the potato psyllid (Bactericera cockerelli) (Hemiptera: Triozidae) and *Candidatus* Liberibacter solanacearum in Idaho on bittersweet nightshade and field bindweed.**
Erik Wenninger *(erikw@uidaho.edu)[1], Jennifer Dahan[2], Michael Thornton[3] and Alexander Karasev[2], [1]Univ. of Idaho, Kimberly, ID, [2]Univ. of Idaho, Moscow, ID, [3]Univ. of Idaho, Parma, ID*

4:55 PM **124** **Potential role of ornamental Solanaceae as a source of potato psyllids and the zebra chip pathogen.**
Jenita Thinakaran *(jthinakaran@ucdavis.edu), Univ. of California Davis, Shafter, CA*

5:15 **Concluding Remarks**

The "omics" Tsunami: the Promise of Big Data. and the Dangers of Drowning in the Data Deluge

Grand 5 (Atlantis Casino Resort Spa)

Moderator and Organizers: Joe Hull, USDA-ARS, Maricopa, AZ and Jeffrey Fabrick, USDA-ARS, Maricopa, AZ

1:30 **Introductory Remarks**

1:35 PM **125** **High quality draft genome assemblies for invasive and emerging pests from 10X chromium libraries.**
Erin Scully *(erin.scully@ars.usda.gov), USDA-ARS, Manhattan, KS*

1:55 PM **126** **Investigating the evolution of DNA methylation in Hemiptera.**
Allison Hansen *(ahans003@ucr.edu), Univ. of California, Riverside, CA*

2:15 PM **127** **Avoiding the potholes on the road to non-model transcriptomics.**
Robert Zinna *(zinnar@email.arizona.edu), Univ. of Arizona, Tucson, AZ*

2:35 PM **128** **Pros and cons of transcriptome analysis of an endocrine gland: a model system approach.**
Naoki Yamanaka *(naoki.yamanaka@ucr.edu), Univ. of California, Riverside, CA*

2:55 PM **129** **A needle in a haystack: Identifying tomato spotted wilt virus (TSWV) - responsive genes in thrips.**
Dorith Rotenberg *(drotenb@ncsu.edu), Kansas State Univ., Manhattan, KS; North Carolina State Univ., Raleigh, NC*

3:15 **Break**

3:35 PM **130** **Transcriptomics of whitefly.**
William Wintermantel *(bill.wintermantel@ars.usda.gov), USDA-ARS, Salinas, CA*

3:55 PM **131** **Non-crop sources of insect pests: Weedy sanctuaries and non-host whistle stops.**
William Rodney Cooper *(rodney.cooper@ars.usda.gov), USDA-ARS, Wapato, WA*

4:15 PM **132** **Gut properties and microbial assembly drive sequential lignocellulose degradation and promote colony fitness of a wood-feeding beetle.**
Javier Ceja-Navarro *(JCNavarro@lbl.gov), Lawrence Berkeley National Laboratory, Berkeley, CA*

4:35 PM **133** **Honey bees modify royal jelly protein content in response to immune challenge.**
Gyan Harwood *(gyan.harwood@asu.edu), Arizona State Univ., Tempe, AZ*

4:55 PM **134** **Unraveling the relationship between the Tsetse fly and its obligate symbiont *Wigglesworthia*: Transcriptomic and metabolomic landscapes reveals highly integrated physiological network.**
Geoffrey Attardo *(gmattardo@ucdavis.edu), Univ. of California, Davis, CA*

5:15 PM **135** **Metabolic reconfiguration upon redox shift: impact on mosquito fecundity, microbiota structure and insecticide detoxification.**
Jiannong Xu (jxu@nmsu.edu), New Mexico State Univ., Las Cruces, NM

5:35 **Concluding Remarks**

WEDNESDAY, JUNE 13, 2018, MORNING

Perspectives from Career Professionals on the Value of an Interdisciplinary Graduate Program in Educating Pest Managers

Grand 7 (Atlantis Casino Resort Spa)

Organizers: Richard Hilton, Oregon State Univ., Central Point, OR and David R. Haviland, Univ. of California Cooperative Extension, Bakersfield, CA

8:00 **Introductory Remarks**

8:05 AM **136** **The graduate program in plant protection & pest management at UCD: A retrospective.**
Frank Zalom *(fgzalom@ucdavis.edu), Univ. of California, Davis, CA*

8:25 AM **137** **Applied and interdisciplinary: Graduate education needs for extension in academia.**
David R. Haviland *(dhaviland@ucdavis.edu), Univ. of California Cooperative Extension, Bakersfield, CA*

8:45 AM **138** **Oktoberpest, slime time, and my shop of little horrors: A quarter century of extension IPM in nursery and greenhouse production.**
Robin Rosetta *(robin.rosetta@oregonstate.edu), Oregon State Univ., Aurora, OR*

9:05 AM **139** **Pest management and pomology: partners in developing a comprehensive Extension program for orchards.**
Rachel Elkins *(rbelkins@ucanr.edu), Univ. of California, Lakeport, CA*

9:25 AM **140** **Urban and community IPM: how the PPPM program prepared me for coordinating Extension programs.**
Karey Windbiel-Rojas *(kwindbiel@ucanr.edu), Univ. of California, Davis, CA*

9:45 AM **141** **Perspectives on the value of an interdisciplinary education within a regulatory agency.**
Matt Fossen *(matt.fossen@cdpr.ca.gov), Dept. of Pesticide Regulation, Sacramento, CA*

10:05 **Break**

10:25 AM **142** **Life as a PCA: challenges and opportunities.**
Bill Oldham *(billoldh@comcast.net), Ag Unlimited Consultants, Redwood Valley, CA*

10:45 AM **143** **Agrochemical industry perspective on the value of interdisciplinary graduate programs.**
Dawn Brunmeier *(brunmeierd@helenachemical.com), Helena Chemical Co., Stockton, CA*

11:05 AM **144** **Preparing for a career in Extension: the multidisciplinary approach of the UF Plant Medicine Program.**
Monica Cooper *(mlycooper@ucanr.edu), Univ. of California, Napa, CA*

11:25 AM **145** **Current pest management graduate programs in the Western US: filling a continuing demand for IPM professionals.**
Richard Hilton *(richard.hilton@oregonstate.edu), Oregon State Univ., Central Point, OR*

11:35 **Concluding Remarks**

Classical Biological Control of Tree and Vine Pests

Grand 5 (Atlantis Casino Resort Spa)

Organizers: Houston Wilson, Univ. of California, Parlier, CA and Mark S. Hoddle, Univ. of California, Riverside, CA

8:00 **Introductory Remarks**

8:05 AM **146** **Is classical biocontrol waning as a pest management tool?**
Mark S. Hoddle *(mark.hoddle@ucr.edu), Univ. of California, Riverside, CA*

8:25 AM **147** **Establishment of Psyttalia lounsburyi to control olive fruit fly in California: a case study of pre-and post-release population genetics.**
Kent Daane *(kdaane@ucanr.edu)[1], Marie-Claude Bon[2], Xingeng Wang[3], Charles H. Pickett[4], Floriane Chardonnet[5] and Kim Hoelmer[6], [1]Univ. of California, Parlier, CA, [2]USDA - ARS, Montferrier-sur-Lez, France, [3]Univ. of California Berkeley, Parlier, CA, [4]California Dept. of Food and Agriculture, Sacramento, CA, [5]USDA-ARS, Montpellier, France, [6]USDA - ARS, Newark, DE*

8:45 AM **148** **Prospects and challenges: safety testing with samurai wasp for classical biological control of brown marmorated stink bug in Califorina.**
Ricky Lara *(jlara007@ucr.edu)[1], Charles H. Pickett[2] and Mark S. Hoddle[1], [1]Univ. of California, Riverside, CA, [2]California Dept. of Food and Agriculture, Sacramento, CA*

9:05 AM **149** **Biotic resistance to the invasion of light brown apple moth in California.**
Nicholas Mills *(nmills@berkeley.edu), Univ. of California, Berkeley, CA*

9:25 AM **150** **Classic biological control of spotted-wing drosophila: foreign exploration and quarantine evaluations for specialist Asian parasitoids.**
Xingeng Wang *(xggwang@ucanr.edu)[1], Antonio Biondi[2], Allie Nance[1], Evelyne Hougardy[3], Massimo Giorgini[4], Emilio Guerrieri[4], Vaughn Walton[5], Kim Hoelmer[6] and Kent Daane[7], [1]Univ. of California Berkeley, Parlier, CA, [2]Univ. of California, Berkeley, CA, [3]Univ. of California Berkeley, Berkeley, CA, [4]National Research Council of Italy, Portici, Italy, [5]Oregon State Univ., Corvallis, OR, [6]USDA - ARS, Newark, DE, [7]Univ. of California, Parlier, CA*

9:45 AM **151** **Biocontrol program targets Asian citrus psyllid, *Diaphorina citri* (Hemiptera: Liviidae) in California's urban areas.**
Ivan Milosavljević *(ivanm@ucr.edu) and Mark S. Hoddle, Univ. of California, Riverside, CA*

10:05 **Concluding Remarks**

General Paper Session 2

Grand 3 (Atlantis Casino Resort Spa)

Moderator: Amber Tripodi, USDA - ARS, Logan, UT

8:15 AM **152** **The effects of neonicotinoid pesticides on the behavior and learning abilities of wild and captive-foraging bumblebees.**
Felicity Muth *(fmuth@unr.edu) and Anne Leonard, Univ. of Nevada Reno, Reno, NV*

8:27 AM **153** **Bee foraging patterns and microbial communities correlate across diverse landscapes.**
Quinn McFrederick *(quinn.mcfrederick@ucr.edu)[1] and Sandra Rehan[2], [1]Univ. of California, Riverside, CA, [2]Univ. of New Hampshire, Durham, NH*

8:39 AM **154** **Plant virus manipulation of (hosts and) vectors progress with disease progression and host phenology.**

8:51 AM **155** **Belowground nematode infection negatively affects aboveground tri-trophic interactions in milkweed species.**
Fabiane Mundim *(fabianemmundim@gmail.com) and Elizabeth Pringle, Univ. of Nevada Reno, Reno, NV*

9:03 AM **156** **Patterns of bumble bee parasitism across the US.**
Amber Tripodi *(amberdtripodi@gmail.com) and James Strange, USDA - ARS, Logan, UT*

9:15 AM **157** **Virus enhancement of host plant palatability for vectors tracks with severity of infection.**
Quentin Chesnais *(quentin.chesnais@ucr.edu)[1], Ian Wright[2] and Kerry Mauck[1], [1]Univ. of California, Riverside, CA, [2]Univ. of California Riverside, Riverside, CA*

9:27 AM **158** **Phenology of the Asian citrus psyllid (Hemiptera: Liviidae) and parasitism by *Tamarixia radiata* (Hymenoptera: Eulophidae) in Arizona.**
Francesc Gomez-Marco *(francegm@ucr.edu)[1], Marco Gebiola[1], Bobby Baker[2], Richard Stouthamer[1] and Gregory S. Simmons[3], [1]Univ. of California, Riverside, CA, [2]United States Dept. of Agriculture, Yuma, AZ, [3]USDA-APHIS-PPQ-S&T, Salinas, CA*

9:39 AM **159** **Life cycle and management of walnut scale, *Quadraspidiotus juglansregiae* (Comstock), in English walnuts.**
Emily Symmes *(ejsymmes@ucanr.edu)[1], Robert Van Steenwyk[2], Christian Cabuslay[3] and Danielle Lightle[4], [1]Univ. of California, Oroville, CA, [2]Univ. of California, Berkeley, CA, [3]Univ. of California Berkeley, Berkeley, CA, [4]Univ. of California, Orland, CA*

9:51 **Break**

10:03 AM **160** **Incidental stink bug captures in BMSB traps in southern Oregon.**
Judith Chiginsky *(Judy.chiginsky@oregonstate.edu) and Richard Hilton, Oregon State Univ., Central Point, OR*

10:15 AM **161** **Seasonal abundances of spotted wing drosophila, *Drosophila suzukii*, in cane berry fields and adjacent semi-natural habitats in California.**
Brian Hogg *(brian.hogg@ars.usda.gov)[1], Xingeng Wang[2] and Kent Daane[3], 1USDA-ARS, Albany, CA, [2]Univ. of California Berkeley, Parlier, CA, [3]Univ. of California, Parlier, CA*

10:27 AM **162** **Neonicotinoid residues in honeybee products in Arizona.**
Gadelhak Ahmed *(gadelhakg@email.arizona.edu), Kyle Harrington and Ayman Mostafa, Univ. of Arizona, Phoenix, AZ*

10:39 AM **163** **Insect pests and aphid-transmitted viruses in fall-sown dry pea *(Pisum sativum)* in the inland Pacific Northwest region.**
Jake Hennessey *(henn8441@vandals.uidaho.edu), Univ. of Idaho, Moscow, ID*

10:51 AM **164** **Understanding field dynamics of using mosquito fish (*Gambusia* spp.) and predatory beetles (*hydrophilid* & *dytisid spp*.) as biocontrols on tadpole shrimp *(Triops longicaudatus)* in California rice.**
Joanna Bloese *(jbbloese@ucdavis.edu)[1], Kevin Goding[1], Luis Espino[2] and Larry Godfrey[1], [1]Univ. of California, Davis, CA, [2]Univ. of California Cooperative Extension, Colusa, CA*

11:03 AM **165** **Insights into the reproductive life of the bagrada bug (Hemiptera: Pentatomidae).**
Ian Grettenberger *(imgrettenberger@ucdavis.edu), Brian Gress and Frank Zalom, Univ. of California, Davis, CA*

11:15 AM **166** **Managing *Lygus hesperus* with Isoclast® in western field crops.**
Jesse Richardson *(jmrichardson@dow.com)[1], Peter Ellsworth[2], Eric Natwick[3], Treanna Pierce[4] and Melissa Siebert[5], [1]Dow AgroSciences, Hesperia, CA, [2]Univ. of Arizona, Maricopa, AZ, [3]Univ. of California, Holtville, CA, [4]Univ. of California Davis, Shafter, CA, [5]Dow AgroSciences, Greenville, MS*

Leaffooted Bugs in Agriculture-Ecology and Management Strategies

Grand 6 (Atlantis Casino Resort Spa)

Organizers: Kris Tollerup, Univ. of California, Parlier, CA and Andrea Joyce, Univ. of California, Merced, CA

8:20 **Welcoming Remarks**

8:25 AM **167** **Foraging and communication ecology of the western conifer seed bug.**
G. Gries *(gries@sfu.ca), Simon Fraser Univ., Burnaby, BC, Canada*

8:45 AM **168** **Overwintering behavior and biology of *Leptoglossus zonatus* (Hemiptera: Coreidae) in California.**
Kris Tollerup *(ketollerup@ucanr.edu), Univ. of California, Parlier, CA*

9:05 AM **169** **Feeding behavior of *Leptoglossus* spp.**
Paula Mitchell *(mitchellp@winthrop.edu), Winthrop Univ., Rock Hill, SC*

9:25 AM **170** **Behavioral evidence for pheromones of *Leptoglossus zonatus.***
Andrea Joyce *(ajoyce2@ucmerced.edu), Univ. of California, Merced, CA*

9:45 AM **171** **Association of *Leptoglossus clypealis* and *L. zonatus* with fungal diseases of almond and pistachio and other crops in California.**
Themis Michailides *(tjmichailides@ucanr.edu)[1], David R. Haviland[2] and Joel Siegel[3], [1]Univ. of California Davis, Parlier, CA, [2]Univ. of California Cooperative Extension, Bakersfield, CA, [3]USDA-ARS, Parlier, CA*

10:05 **Break**

10:25 AM **172** **Pheromone and related attractants for leaffooted bugs in California nut crops.**
Houston Wilson *(houston.wilson@ucr.edu)[1], Jocelyn G. Millar[2] and Kent Daane[1], [1]Univ. of California, Parlier, CA, [2]Univ. of California, Riverside, CA*

10:45 AM **173** **Exploration of California host plant-based semiochemicals to attract the leaffooted bug.**
John Beck *(john.beck@ars.usda.gov), USDA-ARS, Gainesville, FL*

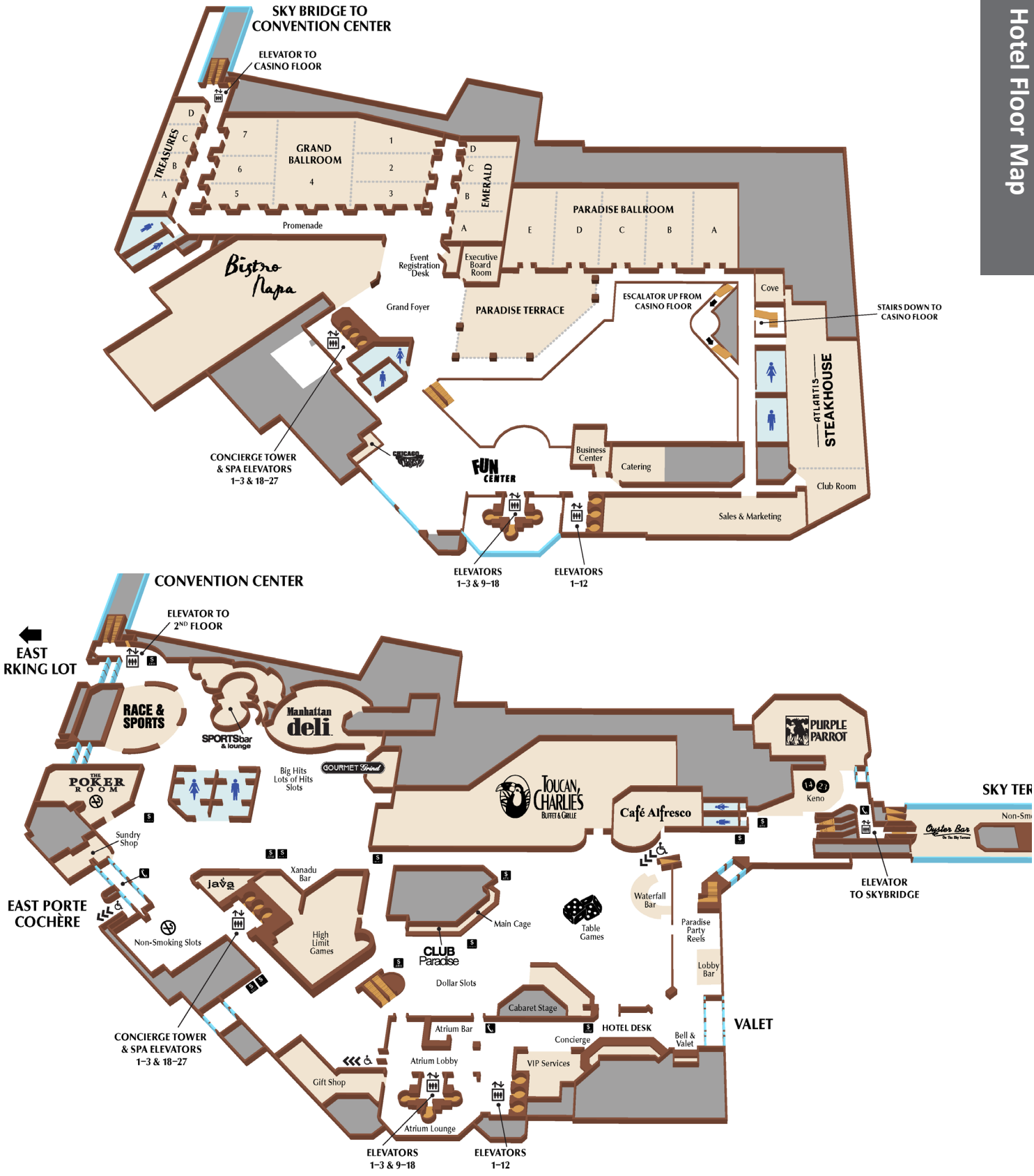
11:05 **Concluding Remarks**

Author Index

* presenting

Scientific Name Index

Atlantis Casino Resort and Spa, Reno, NV
FLOOR MAPS



Notes

2018 ESA, ESC and ESBC Joint Annual Meeting

Crossing Borders: Entomology in a Changing World

11–14 November | Vancouver, BC, Canada

Réunion annuelle conjointe ESA, SEC et SECB 2018

Au-delà des frontières: l'entomologie dans un monde en changement

11–14 novembre | Vancouver, Columbia-Britannique, Canada

Participate in this collaborative meeting to celebrate the science next year in breathtaking Vancouver!

Crossing Borders…

from the entomological, geographic, and interdisciplinary perspectives

Submit a paper or poster entsoc.org/submit

Vancouver, our host city

As a bustling seaport and Canada's greenest city, Vancouver offers a plethora of culinary delights, museums and markets, along with a colorful past. You can easily walk, bike or ride around the city; be sure to stop at Stanley Park for a breathtaking view of the harbor and its constant activities.

Entomology 2018 takes place in the Vancouver Convention Centre, one of the greenest structures in Canada, offering a 6-acre living grass roof and a seawater heating and cooling system. It even boasts its own European honeybee hives, that help pollinate the plants on the living roof while supplying honey for its 'scratch' kitchen.

Watch eNews and visit **entsoc.org/entomology2018** for details.

IMPORTANT DATES/DEADLINES:	
Paper/poster submission, and Lunch & Learns deadline	4 JUNE 2018
Functions (complimentary) deadline	30 JUNE 2018
Virtual Poster deadline	31 JULY 2018

SAVE THE DATE

103rd Annual Meeting of PBESA

March 30-April 4, 2019

Hyatt Regency Mission Bay Spa and Marina

San Diego, CA