

96th Annual Meeting
Pacific Branch
Entomological Society of America



March 25-28, 2012
Marriott Downtown Waterfront
Portland, Oregon

Strength in





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

SUSTAINING SPONSORS 2012-2013

Gold (\$1000)

BASF

Dow AgroSciences

DuPont Crop Protection

FMC Agricultural Products

Syngenta

Silver (\$500)

AgraQuest

Bayer CropScience

Nichino America, Inc.

Trece, Inc.

Bronze (\$250)

Gowan Company

Front cover design by Melissa Broussard, Oregon State University

Table of Contents

Branch Officers and Committees	4
PBESA 2012 Logistics and Basic Information	5
Special Meetings and Events at PBESA 2012	6
Presenter/Moderator Instructions	8
Meeting-at-a-Glance Grid	9
PROGRAM	10
Sunday, March 25	10
Monday, March 26	10
Morning Business Meeting & Opening Session	10
Student Poster Competition	12
Student Paper Competition	14
Afternoon Symposia	18
Evening Activities	21
Tuesday, March 27	22
Morning Symposia	22
Ten-Minutes Paper Presentations (am)	26
Poster Session	27
Awards Luncheon	33
Grant Writing Workshop	34
Ten-Minutes Paper Presentations (pm)	35
Afternoon Symposia	35
Evening Activities	42
Plenary Session: <i>Bugs in Amber</i>	43
Wednesday, March 28	44
Final Business Meeting	44
Morning Symposia	44
HOTEL MEETING ROOMS (MAP)	Back Cover

2011-2012 Pacific Branch Entomological Society of America

OFFICERS

President.....	Sujaya Rao Oregon State University, Corvallis, OR
President-Elect.....	Brian Bret Dow AgroSciences, Roseville, CA
Past President.....	Roger Vargas USDA-ARS Pacific Basin, Hilo, HI
Secretary-Treasurer.....	Boris Castro Dow AgroSciences, Fresno, CA
Governing Board Rep.....	Michael Parrella University of California, Davis, CA



EXECUTIVE COMMITTEE

MEMBERS AT LARGE

James Bethke.....	UC Cooperative Extension, San Marcos, CA (2011-2014)
Jocelyn Millar.....	University of California, Riverside, CA (2011-2012)
Mark Sisterson.....	USDA-ARS, Parlier, CA (2009-2012)
Vaughn Walton.....	Oregon State University, Corvallis, OR (2011-2014)
Harvey Yoshida.....	Dow AgroSciences, Richland, WA (2010-2013)
Richard Zack.....	Washington State University, Pullman, WA (2010-2013)

COMMITTEES 2011-2012

Auditing.....	Tad Gantenbein, Chair
Awards Canvassing.....	Diane Alston, Chair
Employment Opportunities.....	Silvia Rondon & Alex Murphy, Chairs
Linnaean Games.....	Michael Costello, Chair
Local Arrangements.....	Sujaya Rao, Allison Walston and Robin Rosetta
On-Line Registration.....	Boris Castro, Chair
On-Site Registration.....	Lisa Neven, Chair
Operations.....	Gail Langellotto, Chair
Nominations.....	Elizabeth (Betsy) Beers, Chair
Photo Salon.....	Jeff Miller & Chris Hedstrom, Chairs
Program.....	Allison Walston, Chair
Resolutions.....	Nilsa Bosque-Perez, Chair
Site Selection (2014 Meeting).....	Christa Kirk & Mark Sisterson, Chairs
Student Paper/Poster Competition.....	Laura Lavine, Chair
Tours.....	Vaughn Walton, Chair

PBESA 2012 LOGISTICS & BASICS

REGISTRATION

All PBESA 2012 attendees must register. If you have not yet done so, and wish to register with a credit card, please do so by **Tuesday March 20, 2012** through the online registration link: <http://www.entsoc.org/Pacific-Branch-2012-Meeting>. Credit card payments cannot be accepted for on-site registration – only cash and check will be accepted. Registration rates available at: <http://www.entsoc.org/Pacific-Branch-2012-Meeting>. On-site registration is \$170 for members, \$195 for non-members, and \$60 for students, honorary/emeritus members, and guests. Credit card (TBD), cash or check payments can be accepted for on-site registration. The registration desk will be open:

- Sunday, March 25, 1:00 to 6:00 pm in the ballroom lobby
- Monday, March 26, 7:00 am to 4:00 pm in the ballroom lobby
- Tuesday, March 27, 7:00 am to 4:00 pm in the ballroom lobby
- Wednesday, March 28, 7:00 am to 10:00 am in the ballroom lobby

SCHEDULE

The “meeting-at-a-glance” grid on page 8 shows the overall schedule. Full chronological program with details including speakers, times and event locations, begins on page 9.

MEETING INFORMATION AND SCHEDULE CHANGES

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

ABSTRACTS

Abstracts for PBESA 2012 paper and poster student competition will be available online. Hard copy abstracts will not be provided at the meeting.

HOTEL INFORMATION

Portland Marriott Downtown Waterfront Phone: 506-474-2009
1404 SW Naito Parkway, Portland, OR 97201

HOTEL MAP

The Portland Marriott Downtown Waterfront meeting rooms are located on the lower level of the hotel and a map is provided on the back cover of this program.

TRANSPORTATION

- Airport shuttle service, scheduled, fee: 14 USD (one way)
- Blue Star (503) 249-1837; fee: 14 USD (one way); scheduled

More transportation options on next page

PBESA 2012 LOGISTICS & BASICS cont.

TRANSPORTATION cont.

- Trimet MAX Subway: 2.30 USD (one way) (<http://trimet.org/max/>)
If traveling from the airport, get off at 2nd and Morrison, walk down to 1st and make a right, then take first to Columbia street and make a left. There will be an entrance for the hotel on the right hand side.
- Estimated taxi fare: 35.00 USD (one way)

WEATHER

We call it Oregon sunshine, but others call it rain. For late March, high temps average about 58° F and low temps average about 42°F.

SPECIAL MEETINGS AND EVENTS

STUDENT COMPETITION JUDGES' MEETING

Those who have volunteered to serve as judges for the student poster or paper competitions should attend an organizational meeting on Sunday, March 25, from 5 to 5:30 pm in the Eugene Room. New judges forms will be used.

EXECUTIVE COMMITTEE

The Pacific Branch Executive Committee will meet Sunday evening, March 25, from 6 pm to 8 pm in the Eugene Room.

BUSINESS MEETING

The combination opening session/preliminary business meeting will be held from 8 am to 11:30 am in Salon E on Monday morning, March 26th with the preliminary business meeting at the end of the opening session. The final business meeting will be held from 7:30 am to 8:30 am on Wednesday, March 28 in Salon A. Please plan to attend and make your voice heard regarding Pacific Branch officers and future meeting sites.

PBESA MIXER/PRESIDENT'S RECEPTION

PBESA 2011-2012 President Sujaya Rao will host a reception for all fully registered PBESA 2012 attendees in Salon E on Monday, March 26th from 6 pm to 7:30 pm

LINNAEAN GAMES

The Linnaean Games will be held on Monday evening, March 26th from 7:30 pm to 9:30 pm in Salon A. 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 (Knoxville, TN, Nov 11-14, 2012).

SPECIAL MEETINGS AND EVENTS cont.

AWARDS LUNCHEON

The PBESA 2012 Awards Luncheon will be held on Tuesday, March 27, from 12 pm to 1:25 pm in Salon E. Your full conference registration includes admission to the luncheon. You can buy additional tickets at the registration desk.

USDA-NIFA GRANTS WORKSHOP

Mary Purcell-Miramontes, National Program Leader, USDA-NIFA (National Institute of Food and Agriculture) will conduct a grant writing workshop on Tuesday, March 27 from 1:30 pm to 3:30 pm in Salon A.

EVENING PLENARY SESSION

We are pleased to present a Plenary Session by George Poinar titled “Bugs in Amber” on Tuesday from 5:30 pm to 6:30 pm in Salon E. Dr. Poinar is an entomologist and writer. He popularized the idea of extracting DNA from insects fossilized in amber, an idea which was later adapted for the book and movie *Jurassic Park*.

TEXTING COMPETITION

The first annual student texting competition will be held Tuesday evening, March 27 from 6:30 pm to 7 pm in Salon A. Test your entomological knowledge and texting skills in this fast and fun texting competition. Participants earn points for accurately and quickly texting insects’ Latin names and the answers to insect trivia questions, with the winner taking home an entomological prize from Portland’s offbeat Paxton Gate store. There will be 15 rounds of Latin names and questions, with each round increasing in point value and difficulty. 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 abbreviated, inaccurate or misspelled answers. Participants must supply their own mobile phone or texting device, and are responsible for text messaging rates that may be incurred. Registration is open until 5:00pm on the day of the competition. To register your mobile phone or other texting device, text your name to (541) 250-0170.

EMPLOYMENT OPPORTUNITIES

A student career fair will be Tuesday evening, March 27 from 7 pm to 8:30 pm in Salon F.

PHOTO SALON

The theme of this year’s Photo Salon is “**Sharing the Fascination – The Sequel**”, co-organized by Jeffrey C. Miller and Chris S. Hedstrom. Pacific Branch members are invited to submit up to three digital images to be presented in a photographic show that is the 2012 PBESA Photo Salon. Recognition will be given to the best image from a student member and the best image from a non-student member. For details see the announcement about the Photo Salon on the 2012 PBESA meeting website. Also, the Photo Salon will include a “cameo” showing of 20-30 macro+ images appearing by special invitation from the organizers of the Salon. Please direct any questions concerning the Photo Salon and submission of images to Dr. Jeffrey C. Miller, Department of Horticulture, 4017 Ag Life Sci Bldg, Oregon State University, Corvallis, OR 97331; Jeffrey.miller@oregonstate.edu; 541-737-5508.

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 Gail Langellotto gail.langellotto@oregonstate.edu with questions about Audio/ Visual operations.

- Speakers who present submitted papers (Student Competition or General Session) should bring their PowerPoint files on a CD or flash drive (USB memory stick) to the Presentation Upload Room by the day before their scheduled session. Mac users please make sure your presentation file has a .ppt file extension. The meeting Operations Committee will assist with transferring files. You can also view your presentations at these times.

Sunday: 1pm to 5pm (Salem Room)

Monday: 7-7:45am, noon-12:45pm, 5-5:45pm (Salem Room)

Tuesday: 7-7:45am and noon-1:15pm (Salon A)

- Symposia speakers should deliver their presentations to the organizer of their symposium prior to the session. This should be done according to the time line and instructions provided by the organizer of each symposium. Symposium organizers will then compile the talks onto their own laptop computers and bring them to the session.

MODERATOR RESPONSIBILITIES

Those who have volunteered to serve as moderators for the student competition and general papers should attend an organizational meeting on Sunday, March 25, from 5:30 pm to 6 pm in the Eugene Room. Session moderators are responsible for keeping speakers on schedule. If a presentation is completed early or cancelled, the moderator must ensure that the subsequent presentation begins at the scheduled time. Symposia organizers refer to the above information under PowerPoint Slideshow Presentations.

POSTER DISPLAY PRESENTATIONS

Student competition posters should be hung in Salon F on Monday, March 26, during the 11:30 am to 1:30 pm lunch break. Student competition judging will take place between 1:30 pm and 5 pm on Monday, and the student competitors are asked to vacate the poster room during that time. Students must remove their posters between 5 pm to 6 pm on Monday. General session posters should be hung in Salon F from 6 pm to 10 pm on Monday evening. General session posters may be viewed during their display periods from 8 am to 5:30 pm in Salon F on Tuesday. There is no specific time scheduled for poster authors to be present at their posters on Tuesday, however breaks are popular times to view posters. All posters should be removed after 5:30 pm on Tuesday. Push pins will be provided on site.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY
2012 PBESA Meeting at a Glance	Registration Desk Open 7 am to 4 pm		7 to 10 am
		General posters up all day	7:30 to 8:30 am Final Business Meeting
	8 to 11:30 am Opening Session & Preliminary Business Meeting	8 am to noon General Posters General Papers SYM: Tree Fruit SYM: Genomics SYM: Digital Imaging SYM: Water Quality	8:30 am to noon General Papers SYM: Extension SYM: Specialty Crops SYM: Pollination
	11:30 am to 1:30 pm Lunch on your own Student poster hanging	Noon to 1:25 pm Awards Luncheon	Noon Adjourn
1 to 6 pm Registration Desk Open 5 to 5:30 pm Student Competition Judges' Meeting 5:30 to 6 pm Moderator Meeting 6 to 8 pm Executive Committee Meeting	1:30 to 5:30 pm Student Poster & Paper Competition SYM: Invasive Pests SYM: Ornamentals	1:30 to 5:30 pm Grant Workshop General Papers SYM: Industry SYM: Forestry SYM: Social Media SYM: Student Photo Salon	This Meeting-at-a-glance grid is provided for your convenience. For more details, including location of each event, refer to the full program starting on page 10.
	6 to 10 pm General Poster Hanging 6 to 7:30 pm PBESA Mixer 7:30 to 9:30 Linnaean Games	5:30 to 6:30 Plenary Session Bugs in Amber 6:30 to 7 pm Texting comp 7 to 8:30 pm Student Career Fair	

PBESA 2012 Program

Portland Marriott Downtown Waterfront

Meeting Rooms Located on Lower Level

(See map of hotel meeting rooms on back cover)

Sunday, March 25

Student Competition Judges Meeting 5:00 pm to 5:30 pm

Eugene

Moderator Meeting 5:30 pm to 6:00 pm

Eugene

Executive Committee Meeting 6:00 pm to 8:00 pm

Eugene

Monday, March 26

OPENING SESSION AND PRELIMINARY BUSINESS MEETING

8:00 am to 11:50 am

Salon E

- | | |
|----------|---|
| 8:10 am | Welcome and Opening Remarks,
Sujaya Rao, President, Pacific Branch, ESA |
| 8:20 am | An entomologist's perspective on global challenges,
Sonny Ramaswamy, Dean, College of Agricultural Sciences,
Oregon State University |
| 8:40 am | National ESA Report, Grayson Brown, President, and David
Gammel, Executive Director |
| 9:00 am | Introduction of the C.W. Woodworth Award, Sujaya Rao,
President, Pacific Branch, ESA |
| 9:05 am | Update on the C.W. Woodworth Legacy, Brian Holden,
great grandson of award sponsor |
| 9:25 am | 2012 C.W. Woodworth Awardee Presentation,
Dr. Steve Naranjo, USDA-ARS, Maricopa, AZ,
Transformations in Cotton IPM: Strength in Diversity of
Tactics |
| 10:00 am | Break |

Monday, March 26, 2012

10:15 am 2012 PBESA John Henry Comstock Awardee Presentation,
Joyce Parker, Washington State University,
Diversity by design: Exploring trap crops and companion
plants to manage flea beetles in broccoli

Preliminary Business Meeting

10:50 am to 11:50 am

10:50 am Governing Board Report, Mike Parella
Treasurer Report, Boris Castro
Nominations, Betsy Beers
Announcements, Sujaya Rao
New Business, Sujaya Rao

12:00 pm to 1:30 pm—Lunch on Your Own

Student Competition Posters should be posted at this time in Salon F

STUDENT POSTER COMPETITION

1:30 pm to 5:00 pm

Salon F

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

UNDERGRADUATE POSTERS

- P1** **Interactive effects of *Mecinus janthiniformis* herbivory and varying soil resource conditions on the performance of Dalmatian toadflax, *Linaria dalmatica***
Tessa M. Scott¹, Aaron S. Weed², Mark Schwarzländer¹, Bradley L. Harmon¹ and **Jess R. Inskeep¹**, ¹University of Idaho, Moscow, ID, ²Dartmouth College, Hanover, NH
- P2** **Influence of varying soil nutrient conditions on the population dynamics of *Mecinus janthiniformis*, a stem-mining weevil of Dalmatian toadflax (*Linaria dalmatica*)**
Jess R. Inskeep¹, Aaron S. Weed², Mark Schwarzländer¹, Tessa M. Scott¹ and Bradley L. Harmon¹, ¹University of Idaho, Moscow, ID, ²Dartmouth College, Hanover, NH

MASTER'S POSTERS

- P3** **Feeding damage on hazelnuts by *Halyomorpha halys*, brown marmorated stink bug (Hemiptera: Pentatomidae)**
Christopher S. Hedstrom¹, Vaughn M. Walton¹, Jeffrey C. Miller¹, Peter W. Shearer² and Jeff Olsen³, ¹Oregon State University, Corvallis, OR, ²Oregon State University, Hood River, OR, ³Yamhill County Extension Service, Oregon State University, McMinnville, OR
- P4** **The effects of sublethal pesticide residues and flight on codling moth, *Cydia pomonella* (Linnaeus), obliquebanded leafroller, *Choristoneura rosaceana* (Harris) and convergent ladybird beetle, *Hippodamia convergens* (Guérin-Méneville)**
Teah J. Smith and Vincent P. Jones, Washington State University, Wenatchee, WA
- P5** **Curative activity of neonicotinoids on spotted wing *Drosophila* (*Drosophila suzukii* Mats.) in blueberry**
Charles Clark Coslor, Washington State University, Mt. Vernon, WA

Monday, March 26, 2012
STUDENT POSTER COMPETITION cont.

- P6 *Drosophila suzukii* degree-day modeling and field validation in the Willamette Valley**
Samantha L. Tochen and Vaughn M. Walton, Oregon State University, Corvallis, OR
- P7 The biology of a little known weevil: *Polydrusus Impressifrons***
Jack C. Niedbala, Washington State University, Pullman, WA
- P8 Development and fecundity of *Amyelois transitella* reared on mummy host material**
Devin A. Clarke¹, Justin E. Nay², Frank G. Zalom³ and Elizabeth A. Boyd¹,
1College of Agriculture, California State University, Chico, Chico, CA, 2Integral Ag. Inc, Durham, CA, 3University of California-Davis, Davis, CA
- P9 Post-release assessment of the efficacy of *Urophora cardui* and *Hadroplontus litura*, biological control agents of Canada thistle**
Joel R. Price, Mark Schwarzländer and Bradley L. Harmon, University of Idaho, Moscow, ID

PHD POSTERS

- P10 Seasonal phenology of *Amphorophora agathonica* and impact of aphid transmitted viruses in 'Meeker' raspberries**
Danielle Lightle¹, Diego Quito-Avila¹, Bob Martin² and Jana C. Lee², 1Oregon State University, Corvallis, OR, 2USDA - ARS, Corvallis, OR
- P11 Genomic and Sex-Allele Diversity between Old and New World Honey Bee (*Apis mellifera*) Populations**
Megan Taylor and Walter S. Sheppard, Washington State University, Pullman, WA
- P12 The Black-headed Conundrum: Species boundaries in *Chyphotes* (Hymenoptera: Chyphotidae)**
Emily A. Sadler and James P. Pitts, Utah State University, Logan, UT
- P13 Selenium In The Ant Diet: Detection and Impact of Selenate on Argentine Ant (*Linepithema humile*) Mortality**
Deborah De La Riva, University of California, Riverside, Riverside, CA
- P14 Persistence of three protein marks on *Drosophila suzukii* (Diptera: Drosophilidae)**
Jimmy Klick¹, Wei Q. Yang², James R. Hagler³ and Denny Bruck⁴, 1Oregon State University, Corvallis, OR, 2Oregon State University, North Willamette Research and Extension Center, Aurora, OR, , 3USDA - ARS, Maricopa, AZ , 4USDA-ARS Horticultural Crops Research Laboratory, Corvallis, OR

**STUDENT PAPER COMPETITION
(UNDERGRADUATE AND MASTER'S)**

1:30 pm to 4:06 pm

Salon A

Moderators Loys Hawkins and Phil VanBuskirk

UNDERGRADUATE

- 1 1:30 pm Efficacy of a novel baited trap at capturing gravid navel orangeworm (*Amyelois transitella*)**
Joanna B. Bloese and Elizabeth A. Boyd, California State University, Chico, Chico, CA

MASTER'S

- 2 1:42 pm Development of improved monitoring strategies for spotted wing *Drosophila***
Joe Kleiber¹, Denny Bruck² and Jana C. Lee², ¹Oregon State University, Corvallis, OR, ²USDA - ARS, Corvallis, OR
- 3 1:54 pm Effect of dispersed oil and gas development on a bee community in the Piceance Basin, Colorado**
Sarah L. Clark and James P. Pitts, Utah State University, Logan, UT
- 4 2:06 pm Potential push-pull cropping approach for pickleworm (*Diaphania nitidalis*) management in Hawaii**
Rosalie Leiner and Helen Spafford, University of Hawaii at Manoa, Honolulu, HI
- 5 2:18 pm Interactions among potato genotypes, virus strains, inoculation timing and method in the *Potato virus Y* and green peach aphid pathosystem**
Deepak Shrestha¹, Erik J. Wenninger², Pamela JS. Hutchinson³, Shaonpius Mondal¹, Jonathan L. Whitworth⁴ and Nilsa A. Bosque-Perez¹, ¹University of Idaho, Moscow, ID, ²University of Idaho, Kimberly, ID, ³University of Idaho, Aberdeen, ID, ⁴USDA - ARS, Aberdeen, ID
- 6 2:30 pm Is roadside disturbance 'no sweat' for sweat bees?**
Melissa A. Broussard, Sujaya Rao and William P. Stephen, Oregon State University, Corvallis, OR
- 7 2:42 pm *Ascophæra*: not just in larvae anymore!**
Sarah A. Maxfield-Taylor, Sujaya Rao and Kimberly Skyrn, Oregon State University, Corvallis, OR

Monday, March 26, 2012
Student Competition - Salon A cont.

- 8 2:55 pm **Effects of Maize Mosaic Virus on the Life History and Morphology of *Peregrinus Maidis* (Hemiptera: Delphacidae)**
Clesson Higashi and Alberto Bressan, University of Hawaii Manoa, Honolulu, HI
- 3:07 pm **Break**
- 9 3:30 pm **Trichome-density preferences of *Galendromus occidentalis* and implications for biological control**
Rebecca Schmidt Washington State University, Pullman, WA
- 10 3:42 pm **Effects of Local Landscape on Population Dynamics of Onion Thrips and Iris Yellow Spot Virus in Onion**
Bonnie Bunn, Diane Alston, Claudia Nischwitz and Daniel Drost, Utah State University, Logan, UT
- 11 3:54 pm **Niche Partitioning of Velvet Ant (Hymenoptera: Mutillidae) Communities in sand dune habitats at Ash Meadows National Wildlife Refuge, Nye County, Nevada**
Nicole F. Boehme and James P. Pitts, Utah State University, Logan, UT

STUDENT PAPER COMPETITION (PhD)

1:30 pm to 5:30 pm

Salons GH

Moderators: Ash Sial and Brad White

- 12 1:30 pm **Viability of Phasmid Eggs Post-Digestion by Granivorous Birds**
Matan Shelomi, University of California, Davis, Davis, CA
- 13 1:42 pm **Stinky pyrazines repel predators while inviting conspecifics: Defensive allomones as aggregation pheromones in the aphid predator *Hippodamia convergens* (Coccinellidae)**
Christopher A. Wheeler, University of California, Riverside, CA and Ring T. Cardé, University of California, Riverside, CA

Monday, March 26, 2012
Student Competition - Salons GH cont.

- 14 1:54 pm **Heterogeneous feeding patterns of *Aedes aegypti* in households in Iquitos, Peru**
Kelly A. Liebman¹, Helvio Astete², Steven T. Stoddard¹, Moises Sihuincha³, Eric Halsey⁴, Tadeusz J. Kochel⁴, Amy Morrison¹ and Thomas W. Scott¹, ¹University of California, Davis, Davis, CA, ²U.S. Naval Medical Research Unit - 6, Iquitos, Iquitos, Peru, ³Hospital Apoyo, Iquitos, Peru, ⁴US Naval Medical Research Center Detachment, Lima, Peru
- 15 2:06 pm **CANCELLED**
- 16 2:18 pm **The Grape Mealybug (*Pseudococcus maritimus*) as a Vector of GLRaV-3 in Concord Vineyards in Washington State**
Brian W. Bahder and Doug Walsh, Washington State University, Prosser, WA
- 17 2:30 pm **Applying molecular tools to investigate the species boundaries of North American *Thoracobombus* (Hymenoptera: Apidae, *Bombus*)**
Jonathan Koch, Utah State University, Logan, UT and James Strange, USDA - ARS, Logan, UT
- 18 2:42 pm **Evaluation and improvement of a sampling technique to estimate densities of *Oligonychus perseae* (Acari: Tetranychidae) on Hass avocado leaves**
Jesus R. Lara and Mark S. Hoddle, University of California-Riverside, Riverside, CA
- 19 2:54 pm **Acquisition of *Barley yellow dwarf virus* alters host plant preferences of its aphid vector**
Laura L. Ingwell, Nilsa A. Bosque-Pérez, Lana M. Unger and Sanford D. Eigenbrode, University of Idaho, Moscow, ID
- 3:06 pm **Break**
- 20 3:18 pm **Inter-populational differences in the response to dietary restriction: evidence for medfly (*Ceratitis capitata*) ecotypes on Hawaii**
James F. Harwood¹, Roger I. Vargas² and James R. Carey¹, ¹University of California-Davis, Davis, CA, ²U.S. Pacific Basin Agricultural Research Center, USDA-ARS, Hilo, HI

Monday, March 26, 2012
Student Competition - Salons GH cont.

- 21 3:30 pm **Manipulation of *Myzus persicae*, green peach aphid, and *Leptinotarsa decemlineata*, Colorado potato beetle, to determine predator distribution in potatoes**
Christine Ann Lynch¹, William E. Snyder¹, Eric G. Chapman² and James D. Harwood², ¹Washington State University, Pullman, WA, ²University of Kentucky, Lexington, KY
- 22 3:42 pm **Assessing olfactory and visual cues involved in the host selection behavior of the potential biological control agent *Mogulones borraginis* to improve pre-release host range predictions**
Ikju Park, Mark Schwarzländer and Sanford Eigenbrode, University of Idaho, Moscow, ID
- 23 3:54 pm **Regional differences in flea beetle response to trap cropping in Northern Idaho and Southeastern Norway**
Summer H. Lindzey¹, Sanford Eigenbrode¹, William Snyder², Richard Meadow³ and Pascale Metais⁴, ¹University of Idaho, Moscow, ID, ²Washington State University, Pullman, WA, ³Norwegian Institute of Agriculture and Environmental Research, As, Norway, ⁴VetAgro Sup, Clermont-Ferrand, France
- 24 4:06 pm **Exotic species skew floral visitation networks in simplified Hawaiian ecological communities**
Jennifer L. Imamura and George K. Roderick, University of California, Berkeley, CA
- 25 4:18 pm **The Utility of the Endophallus in *Trigonoscute* (Curculionidae: Entiminae)**
Matthew H. Van Dam, University of California Berkeley, Berkeley, CA
- 26 4:30 pm **European earwig (*Forficula auricularia*) responses to understory treatments in organic and conventional peach orchards of northern Utah**
Andrew S. Tebeau, Diane G. Alston, Jennifer R. Reeve, Brent L. Black and Corey V. Ransom, Utah State University, Logan, UT
- 27 4:42 pm **Distributions and interactions of tachinid (Diptera) parasitoids of leafrollers (Lepidoptera: Tortricidae) affecting tree fruits in central Washington**
Nik Wiman and Vincent P. Jones, Washington State University, Wenatchee, WA

Monday, March 26, 2012
Student Competition - Salons GH cont.

- 28 4:54 pm **Arsenic altered susceptibility to *Bacillus* sp. in *Culex* mosquitoes**
Christina Loraine Mogren and John T. Trumble, University of California-Riverside, Riverside, CA
- 29 5:06 pm **Studies on the virus-vector relationships of different isolates of *Potato Virus Y* strains and their three aphid vectors on potato**
Shaonpius Mondal¹, Erik J. Wenninger², Pamela J.S. Hutchinson³, Sanford D. Eigenbrode¹, Nilsa A. Bosque-Pérez¹, Deepak Shrestha¹ and Jonathan Whitworth⁴, ¹University of Idaho, Moscow, ID, ²Kimberley R and E Center, University of Idaho, Kimberley, ID, ³Aberdeen R and E Center, University of Idaho, Aberdeen, ID, ⁴USDA-ARS, Aberdeen R and E Center, University of Idaho, Aberdeen, ID
- 30 5:18 pm **Non-consumptive effects of predators on *Culex* mosquitoes**
Amanda Jean Meadows, Jeb Owen and WE. Snyder, Washington State University, Pullman, WA

SYMPOSIUM: WHAT'S BUGGING ORNAMENTALS IN THE WEST

1:30 pm-4:20 pm

Salon I

Organizers and Moderators: Jennifer Bergh and Jana C. Lee

- 31 1:30 pm **On the horizon: options, old timers, and invasives**
Jana C. Lee, USDA - ARS, Corvallis, OR
- 32 1:35 pm **Pesticides And Biological Control: Are These Two Strategies Compatible?**
Raymond A. Cloyd, Kansas State University, Manhattan, KS
- 33 2:00 pm **Collaborating Across the Pond: Developing a Black Vine Weevil Management Program for Ornamentals**
Denny Bruck¹, Rob W. H. M. Van Tol², Frans Griepink² and Willem Jan de Kogel², ¹USDA - ARS, Corvallis, OR, ²Plant Research International, Wageningen, Netherlands
- 34 2:25 pm **Now what? - An update on new and emerging pests of ornamental plants in the PNW**
Robin Rosetta, Oregon State University, Aurora, OR
- 35 2:50 pm **Japanese Beetle interceptions at PDX: Are Oregon's ornamentals at risk**
Pat Mitchell, Oregon Department of Agriculture, Portland, OR

Monday, March 26, 2012
Ornamentals Symposium Salon I cont.

- 3:15 pm **Break**
- 36 3:30 pm **Biology, phenology and management of the Cherry Bark Tortrix, *Enarmonia formosana* in the Pacific Northwest**
Todd Murray¹, Lynell Tanigoshi², and Barry Bai³, ¹Skamania County Extension, Washington State University, Stevenson, WA,
²Washington State University, Mt. Vernon, WA ³Plant Division, Oregon Department of Agriculture, Salem, OR
- 37 3:55 pm **Industry's IPM challenges and future directions**
Jennifer Bergh, BASF, OR

SYMPOSIUM: BUGS WITHOUT BORDERS: NEW INVASIVE PESTS IN THE WEST

1:30 pm-4:50 pm

Salons BC

Organizer and Moderators: Vaughn Walton and Monica Cooper

- 38 1:30 pm **Initiating Classical Biological Control Projects: A Response To Two Recent Exotic insect Pests**
Jeffrey C. Miller, Oregon State University, Corvallis, OR
- 39 1:50 pm **The Brown Marmorated Stink Bug, An Alien Invader in the PNW**
Peter W. Shearer¹, Christopher S. Hedstrom², Vaughn M. Walton², Jay F. Brunner³ and Todd Murray⁴, ¹Oregon State University, Hood River, OR, ²Oregon State University, Corvallis, OR, ³Washington State University, Tree Fruit Research and Extension Center, Wenatchee, WA, ⁴Skamania County Extension, Washington State University, Stevenson, WA

Monday, March 26, 2012
Invasive Pests Symposium Salons BC cont.

- 40 2:10 pm **Vine mealybug as an invasive pest - what went wrong, what went right with initial control efforts**
Kent Daane¹, Monica Cooper², Vaughn M. Walton³, Raksha Malakar Keunen¹, Ashfaq A. Sial⁴, David Haviland⁵, Walter J. Bentley⁶ and Jocelyn Millar⁷, ¹University of California-Berkeley, Berkeley, CA, ²Anr, UC Davis, Napa, CA, ³Horticulture, Oregon State University, Corvallis, OR, ⁴Environmental Science, Policy and Management, Division of Organisms and Environment, University of California-Berkeley, Berkeley, CA, ⁵University of California Cooperative Extension, Bakersfield, CA, ⁶Statewide IPM Program, University of California, Davis, Kearney Agricultural Center, Parlier, CA, ⁷Department of Entomology, University of California-Riverside, Riverside, CA
- 41 2:30 pm **Light Brown Apple Moth (*Epiphyas postvittana*): An IPM Approach for a Regulated Invasive Pest in California Nurseries**
SA Tjosvold and NB Murray, University of California Cooperative Extension, Watsonville, CA
- 42 2:50 pm **The Effect of Light Brown Apple Moth Regulation (*Epiphyas postvittana*) on California Caneberry and Strawberry Industries**
Hillary Q. Thomas, California Strawberry Commission, Watsonville, CA
- 3:10 pm **Break**
- 43 3:30 pm **European Grapevine Moth (*Lobesia botrana*): The California Experience**
Monica Cooper¹, Lucia Varela², Rhonda J. Smith³, Gregory S. Simmons⁴, Robert A. Van Steenwyk⁵, and Kent Daane⁶, ¹Anr, UC Davis, Napa, CA, ²North Coast IPM Advisor, University of California, Santa Rosa, CA, ³University of California, UC Cooperative Extension, Santa Rosa, CA, ⁴USDA APHIS PPQ CPHST, Moss Landing, CA, ⁵E.S.P.M, University of California-Berkeley, Berkeley, CA, ⁶Dept. of Environmental Science, Policy, and Management, University of California, Berkeley, Berkeley, CA

Monday, March 26, 2012
Invasive Pests Symposium Salons BC cont.

- 44 3:50 pm **Proactive approach to the invasion of the European pepper moth, *Duponchelia fovealis* Zeller (Lepidoptera: Crambidae)**
James A. Bethke¹, Lance Osborne², Stephanie Stocks³, Bryan Vander Mey⁴, SA.. Tjosvold⁵, Surendra Dara⁶, and Diane Schuble⁷,
¹University of California Cooperative Extension, San Marcos, CA,
²Mid-Florida Research and Education Center, University of Florida, Apopka, FL, ³University of Florida, Gainesville, FL,
⁴University of California Cooperative Extension, San Diego County, San Marcos, CA, ⁵University of California Cooperative Extension, Watsonville, CA, ⁶Santa Barbara County Cooperative Extension, University of California ANR Coop. Ext, Santa Maria, CA, ⁷USDA APHIS, Riverdale, MD
- 45 4:10 pm **Coffee berry borer, an existential threat to Hawaii's Kona coffee industry**
Russell Messing, Kauai Agricultural Research Center, University of Hawaii, Kapaa, HI
- 46 4:30 pm **Fire in the Pacific: *Wasmannia auropunctata* on Guam**
Ross H. Miller, University of Guam, Mangilao, Guam, Guam

Monday Evening, March 26

Salon F

Students Remove Posters - 5:00 to 6:00 pm
Hang General Session Posters - 6:00 to 10:00 pm

6:00 pm to 7:30 pm

PBESA Mixer

Salon E

7:30 pm to 9:30 pm

Linnaean Games

Salon A

Tuesday, March 27, 2012

SYMPOSIUM: HONORING PNW TREE FRUIT ENTOMOLOGISTS: EMBRACING THE PAST AND FACING THE FUTURE

8:00 am to 11:40 am

Salons BC

Organizers and Moderators: Richard Hilton, Larry Gut and Lindsey Flexner

- | | | |
|----|----------|---|
| 47 | 8:00 am | The birth of IPM: straight out of Berkeley and into the orchard

Richard Hilton, Southern Oregon Research & Extension Center, Oregon State University, Central Point, OR |
| 48 | 8:20 am | Resistance through the years: managing it or just managing to get it?

John Dunley, Agribusiness Division, Wilbur-Ellis, Cashmere, WA |
| 49 | 8:45 am | "On the pavement thinking about the government": the intersection of IPM philosophy and regulatory requirements

Mike Willett, Northwest Horticultural Council, Yakima, WA |
| 50 | 9:10 am | The M's in IPM: monitoring and modeling

Alan L. Knight, USDA, ARS, Wapato, WA |
| 51 | 9:35 am | The road from IPM to GMO's

Lindsey Flexner, DuPont Crop Genetics R&D, Wilmington, DE |
| | 10:00 am | Break |
| 52 | 10:20 am | Pheromone-based pest management in orchards: a look back with an eye on the future

Donald Thomson, Pacific Biocontrol Corporation, Seattle, WA |
| 53 | 10:45 am | Biocontrol and IPM: the key component or the missing link?

Elizabeth H. Beers, Tree Fruit Research and Extension Center, Washington State University, Wenatchee, WA |
| 54 | 11:10 am | Working with growers to increase IPM adoption in tree fruits: a PNW legacy

Larry J. Gut, Michigan State University, E. Lansing, MI |

Tuesday, March 27, 2012

**SYMPOSIUM: THE FUTURE OF ENTOMOLOGY: USING GENOMICS
TOOLS TO ANSWER FUNDAMENTAL QUESTIONS IN ENTOMOLOGY,
FROM BASIC SCIENCE TO APPLICATION TO MANAGEMENT**

8:00 am to 11:40 am

Salon G

Organizer and Moderator: Laura Lavine

- | | | |
|----|----------|---|
| | 8:00 am | Introductory Remarks |
| 55 | 8:05 am | Anti-tick Antibodies: using host immunoglobulins as biomarkers in the ecology of the Rocky Mountain Wood Tick (<i>Dermacentor andersoni</i>)
Cami R. Jones ¹ , Jeb Owen ¹ , and Glen A. Scoles ² , ¹ Washington State University, Pullman, WA, ² USDA - ARS, Pullman, WA |
| 56 | 8:30 am | Using molecular tools to study plant virus-vector interactions
Laura L. Ingwell and Nilsa A. Bosque-Pérez, University of Idaho, Moscow, ID |
| 57 | 8:55 am | Mechanisms of Insecticide Resistance in the Bed Bug, <i>Cimex lectularius</i>
Jennifer Gordon, Michael F. Potter, Kenneth F. Haynes, University of Kentucky, Lexington, KY |
| 58 | 9:20 am | Application of Genomic Tools to Integrated Pest Management
Kelly A. Hamby, J.C. Chiu, Frank G. Zalom, University of California-Davis, Davis, CA |
| 59 | 9:45 am | Initial steps in the molecular identification of "behavioral locks" in <i>Lygus hesperus</i>: The potential for blocking bad bug behavior
Joe Hull, USDA - ARS, Maricopa, AZ |
| | 10:10 am | Break |
| 60 | 10:25 am | Identification and characterization of gene transcripts encoding proteins involved in codling moth olfaction
Stephen F. Garczynski, USDA - ARS, Wapato, WA |
| 61 | 10:50 am | Using genome scans to identify targets of natural selection in malaria mosquitoes
Bradley J. White, University of California, Riverside, Riverside, CA |
| 62 | 11:15 am | Mechanisms underlying the development of extreme traits in beetles
Laura Lavine, Washington State University, Pullman, WA |

Tuesday, March 27, 2012

**SYMPOSIUM: WATER QUALITY AND INVERTEBRATES:
EMERGENT ISSUES**

8:00 AM to 11:40 AM

Salon I

Organizer and Moderator: Melissa Scherr

- 8:00 am **Welcoming Remarks**
- 63 8:05 am **Interactions between macroinvertebrate taxa and complex environmental gradients influencing abundance and distribution**
Melissa Scherr¹, David Wooster², and Sujaya Rao³, ¹Northwest Entomological Research Center, Eugene, OR, ²OSU-HAREC, Hermiston, OR, ³Oregon State University, Corvallis, OR
- 64 8:30 am **Invertebrate top predator extinctions in drying streams modify community structure and ecosystem functioning**
Kate S. Boersma, Michael T. Bogan, David A. Lytle, Oregon State University, Corvallis, OR
- 65 8:55 am **Re-structuring effects of past wildfires on present food web dynamics in stream ecosystems**
Peter Koetsier, Boise State University, Boise, ID
- 66 9:20 am **Threats to the Pacific Northwest: an introduction and overview of invasive aquatic invertebrates**
Robyn C. Draheim, Portland State University, Portland, OR
- 67 9:45 am **Constructed wetlands: When does improving water quality jeopardize public health?**
William E. Walton, University of California-Riverside, Riverside, CA
- 10:10 am **Break**
- 68 10:25 am **Toxicant mixtures in freshwater ecosystems: implications for protection of aquatic invertebrates**
John D. Stark, Washington State University, Puyallup, WA
- 69 10:50 am **Surface Water Monitoring for Pesticides in Salmon-Bearing Streams: Status and Trends 2003-2010**
Jim Cowles, Washington State University, Puyallup, WA
- 70 11:15 am **Reducing Pesticides in Surface Water**
Brian Bret and Nick Poletika, Dow AgroSciences, Indianapolis, IN

Tuesday, March 27, 2012

**SYMPOSIUM: DIGITAL IMAGING OF INSECTS FOR SCIENCE,
ART, AND HOBBY**

8:00 am to 12:00 pm

Salon H

Organizer and Moderator: Jeffrey C. Miller

- | | | |
|-----------|-----------------|---|
| | 8:00 am | Welcoming Remarks |
| 71 | 8:15 am | Introduction and welcome
Jeffrey C. Miller, Oregon State University, Corvallis, OR |
| 72 | 8:20 am | Focus stacking: how to make sharp pictures of small 3D things
Rik Littlefield, Zerene Systems, Richland, WA |
| 73 | 8:50 am | Confessions of a stacker: addiction to extreme depth of field
Steve Valley, Oregon Department of Agriculture, Salem, OR |
| 74 | 9:20 am | Scanning electronmicrography in regulatory and taxonomic entomology
James R. LaBonte, Oregon Department of Agriculture, Salem, OR |
| | 9:50 am | Break |
| 75 | 10:00 am | Staging macro-shots and for an automated identification website
Hang-Kwang Luh and Jeffrey C Miller, Oregon State University, Corvallis, OR |
| 76 | 10:30 am | Automated identification of aquatic macroarthropods
Andrew Moldenke, Oregon State University, Corvallis, OR |
| 77 | 11:00 am | A crash course in insect videography: equipment, editing, publishing and powerpoint
Christopher S. Hedstrom, Oregon State University, Corvallis, OR |
| 78 | 11:30 am | Metamorphosis of a digital photo into an artistic impression
Jeffrey C. Miller, Oregon State University, Corvallis, OR |

Tuesday, March 27, 2012

GENERAL PAPERS

8:00 am to 11:06 am

Salon A

Moderators: Sanford Eigenbrode and Preston Brown

- 79 8:00 am **Evaluation of Environmental Data Used for IPM Models**
Ute Chambers¹, Vincent P. Jones¹ and Gary Grove², ¹Washington State University, Wenatchee, WA, ²Washington State University, Prosser, WA
- 80 8:12 am **How many insecticides can be formulated into a pre-mix?**
Paul W. Borth, Dow AgroSciences, Indianapolis, IN
- 81 8:24 am **Relationship between black vine weevil egg density and damage to cranberry vines**
Betsey Miller¹, Denny Bruck² and Vaughn Walton¹, ¹Oregon State University, Corvallis, OR, ²USDA - ARS, Corvallis, OR
- 82 8:36 am **Development of IPM on Oregon Hazelnuts**
Vaughn M. Walton¹, Ute Chambers² and Christopher S. Hedstrom¹, ¹Oregon State University, Corvallis, OR, ²Washington State University, Wenatchee, WA
- 83 8:48 am **Mating Disruption as a Component of Sustainable Management of Vine Mealybug in Vineyards: An Areawide Investigation**
Ashfaq A. Sial¹, Stephen C. Welter¹, Monica Cooper², S. Kaan Curtural³, Brian N. Hogg¹, John T. Hutchins¹ and Kent M. Daane¹, ¹University of California-Berkeley, Berkeley, CA, ²Anr, UC Davis, Napa, CA, ³California State University Fresno, Fresno, CA
- 84 9:00 am **Dynamics of arrestment of green peach aphid *Myzus persicae* by volatiles from Potato leaf roll virus-infected potato plants during disease progression**
Rajabaskar Dheivasigamani, Wu Ying, Nilsa A. Bosque-Pérez and Sanford D. Eigenbrode, University of Idaho, Moscow, ID
- 85 9:12 am **Spotted Wing *Drosophila* (*Drosophila suzukii*): Update for Coastal British Columbia**
Tracy Hueppelsheuser, British Columbia Ministry of Agriculture, Abbotsford, BC, Canada

Tuesday, March 27, 2012
General Papers Salon A cont.

- 86 9:24 am **Spotted Wing *Drosophila* in Oregon: An Update from the Mid-Columbia Region**
Preston H. Brown, Peter W. Shearer, and Steve Castagnoli, Mid-Columbia Agricultural Research and Ext Center, Oregon State University, Hood River, OR
- 87 9:36 am **Trapping spotted wing drosophila (*Drosophila suzukii*) with wine and vinegar**
Todd B. Adams¹, Peter J. Landolt², and Helmuth W. Rogg¹,
¹Oregon Department of Agriculture, Salem, OR, ²USDA-ARS, Wapato, WA
- 88 9:48 am **Trapping study of several species of the genus *Drosophila* (Diptera: Drosophilidae) in Benton County, Washington**
Luz D. Barrantes-Barrantes¹, Martin Hauser² and Douglas Walsh¹,
¹Washington State University, Prosser, WA, ²California Department of Food and Agriculture, Sacramento, CA
- 10:00 am **Break**
- 89 10:30 am **Alternative hosts and standard trap for Spotted wing drosophila**
Jana C. Lee and Denny Bruck, USDA - ARS, Corvallis, OR
- 90 10:42 am **The Development of a Host Suitability Index for Insects and its Application to the Spotted Wing *Drosophila*, *Drosophila suzukii***
David Bellamy and Spencer Walse, USDA-ARS, Parlier, CA
- 91 10:54 am **Influence of citrus on overwintering and early spring populations of spotted-wing drosophila, *Drosophila suzukii*, in the lower San Joaquin Valley of California**
Stephanie M. Rill and David R. Haviland, University of California Cooperative Extension, Bakersfield, CA

GENERAL POSTERS

8:00 am to 5:00 pm

Salon F

- P15 **Spotting the Uninvited: Monitoring winter survival, adult activity, and fruit infestation of *Drosophila suzukii***
Amy J. Dreves¹, Amanda Ohrn¹, Leonard Coop², Denny Bruck³ and Jana C. Lee³, ¹Oregon State University, Corvallis, OR, ²lppc, Oregon State University, Corvallis, OR, ³USDA - ARS, Corvallis, OR

Tuesday, March 27, 2012

General Posters Salon F cont.

- P16 Seasonal Occurrence and Alternative Hosts of Spotted Wing *Drosophila* (*Drosophila suzukii*) in Florida**
James F. Price, University of Florida, Wimauma, FL
- P17 Living on the edge: the interaction between spotted wing *Drosophila*, crop, and surrounding landscape**
Amanda Ohrn and Amy J. Dreves, Oregon State University, Corvallis, OR
- P18 Management of spotted wing *Drosophila* in west coast small fruits**
Denny Bruck¹, Amy J. Dreves², Peter W. Shearer³, Lynell Tanigoshi⁴, Kelly A. Hamby⁵, Frank G. Zalom⁵, Tracy Hueppelsheuser⁶, Jana C. Lee¹ and Adam Cave¹, ¹USDA - ARS, Corvallis, OR, ²Oregon State University, Corvallis, OR, ³Oregon State University, Hood River, OR, ⁴Washington State University, Mt. Vernon, WA, ⁵University of California-Davis, Davis, CA, ⁶British Columbia Ministry of Agriculture, Abbotsford, BC, Canada
- P19 Effects of spinetoram on San Jose scale (*Quadraspidiotus perniciosus*) and European earwig (*Forficula auricularia*)**
Richard Hilton, Southern Oregon Research & Extension Center, Oregon State University, Central Point, OR
- P20 Effects of Newer Insecticides on the Green Lacewing *Chrysoperla carnea* (Neuroptera: Chrysopidae)**
Kaushalya G. Amarasekare, Peter W. Shearer, Nicole Allum and Amanda A. Borel, Mid-Columbia Agricultural Research and Extension Center, Oregon State University, Hood River, OR
- P21 Seasonal profiles of neonicotinoid insecticides in table grapes**
Nilima Prabhaker¹, S. J. Castle², and David Haviland³, and Thomas M. Perring¹, ¹University of California, Riverside, CA, ²USDA-ARS, Maricopa, AZ, ³University of California Cooperative Extension, Bakersfield, CA
- P22 Field Evaluation of Insecticide Efficacy for the Control of Light Brown Apple Moth (*Epiphyas postvittana*) on Nursery Stock**
SA Tjosvold and NB Murray, University of California Cooperative Extension, Watsonville, CA
- P23 An Overview of Nichino America's New Insecticide, Bexar 15SC**
James Adams, Allison Walston, Pedro Hernandez, Botond Balogh and Scott Ludwig, Nichino America, Inc, Wilmington, DE
- P24 Torac 15EC a new insecticide to manage western flower thrips (*Frankliniella occidentalis*) in lettuce**
Pedro Hernandez, James Adams, Allison Walston, Botond Balogh and Scott Ludwig, Nichino America, Inc, Wilmington, DE

Tuesday, March 27, 2012
General Posters Salon F cont.

- P25 Managing Key Pests in Potatoes with Torac 15EC Insecticide**
Allison Walston, Pedro Hernandez, James Adams, Botond Balogh and Scott Ludwig, Nichino America, Inc, Wilmington, DE
- P26 Mating disruption for Navel Orangeworm using puffers - 1 or 2 per acre?**
Bradley S. Higbee¹ and Charles S. Burks², ¹Paramount Farming Co, Bakersfield, CA, ²USDA - ARS, Parlier, CA
- P27 Potential for managing *Prionus californicus* in hops using mating disruption**
James D. Barbour¹, Doug Walsh² and Brian W. Bahder², ¹Southwest Idaho Research and Extension Center, University of Idaho, Parma, ID, ²Washington State University, Prosser, WA
- P28 Ecological Niche Modeling for Temperate Pests in Exported Fruits**
Lisa Gail Neven¹, Sunil Kumar², and Wee Yee¹, ¹USDA - ARS, Wapato, WA, ²Colorado State University, Fort Collins, CO
- P29 Phenology of *Xylella fastidiosa* and its Vector, *Draeculacephala minerva*, in vegetation surrounding California Almond Nurseries**
Rodrigo Krugner¹, Craig A. Ledbetter¹, Jianchi Chen¹ and Anil Shrestha², ¹USDA-ARS SJVASC, Parlier, CA, ²California State University, Fresno, Fresno, CA
- P30 Deriving economic models for pea aphid (*Acyrtosiphum pisum*) as direct pest as well as vector for *Pea enation mosaic virus* and *Bean leaf roll virus* in dry lentil**
Sunil Paudel and Sanford D. Eigenbrode, University of Idaho, Moscow, ID
- P31 Marker-assisted breeding for Hessian fly and disease resistance in spring wheat**
Nilsa A. Bosque-Pérez¹, Jianli Chen², Lana M. Unger¹, Deven R. See³, Steve Odubiyi¹ and Justin Wheeler², ¹University of Idaho, Moscow, ID, ²University of Idaho, Aberdeen, ID, ³USDA-ARS, Pullman, WA
- P32 Regional Approaches to Climate Change for Inland Pacific Northwest Cereal Production Systems**
Sanford Eigenbrode, University of Idaho, Moscow, ID
- P33 Ear tag efficacy trials and resistance screening of horn flies and face flies in Washington State**
Holly Ferguson¹, Michael Fletcher² and Douglas Walsh¹, ¹Washington State University, Prosser, WA, ²Y-TEX Corporation, Cody, WY

Tuesday, March 27, 2012
General Posters Salon F cont.

- P34 Environmental limitations for the spread of *Diaprepes* root weevil, *Diaprepes abbreviatus* (Coleoptera: Curculionidae), in California**
James A. Bethke¹, Loretta M. Bates¹, Gary S. Bender¹, Joseph C. Morse² and Kris E. Godfrey³, ¹University of California Cooperative Extension, San Marcos, CA, ²University of California-Riverside, Riverside, CA, ³California Department of Food and Agriculture, Sacramento, CA
- P35 Evidence suggests cryptic speciation in *Dasineura oxycoccana* on cranberry and blueberry.**
S.M. Fitzpatrick¹, M.A. Cook², S. Mathur¹, B.J. Sinclair³, B.D. Roitberg² and G. Gries², ¹Pacific Agri-Food Research Centre, Agriculture and Agri-Food Canada, Agassiz, BC, Canada, ²Simon Fraser University, Burnaby, BC, Canada, ³Canadian Food Inspection Agency, Ottawa, ON, Canada
- P36 Pollination Services in Changing Landscapes: New Tools for Understanding the Distribution of Native Bees in Hojancha, Costa Rica**
Sara M. Galbraith, Nilsa A. Bosque-Pérez, Zayra Ramos Bendana, Lee A. Vierling, University of Idaho, Moscow, ID
- P37 Biodiversity conservation and pest control in agricultural landscapes: Multigraph analysis to meet multiple ecological objectives in a biological corridor in Costa Rica**
Levi Keesecker¹, Nilsa Bosque-Pérez¹, Fabrice DeClerck², and Jacques Avelino³, ¹University of Idaho, Moscow, ID, ²Biodiversity International, Turrialba, Cartago, Costa Rica, ³lica/Promecafe, CIRAD, Turrialba, Cartago, Costa Rica
- P38 An interdisciplinary assessment of River Health and water resource governance in Cartago Province, Costa Rica**
Kristen Welsh¹, **Levi Keesecker**¹, Reneé Hill¹, Taylor Joyal¹, Jan Boll¹, Alexander Fremier¹, J.D. Wulffhorst¹, Fabrice DeClerck² and Nilsa Bosque-Pérez¹, ¹University of Idaho, Moscow, ID, ²Biodiversity International, Turrialba, Cartago, Costa Rica
- P39 The Mysterious Migrations of the *Myoporum* Thrips**
Cynthia B. A. King¹, Stephen Cameron², Laurence Mound³, and Richard Hill⁴, ¹Division of Forestry and Wildlife, State of Hawaii, Honolulu, HI, ²CSIRO Ecosystem Sciences, Acton, ACT, Australia, ³CSIRO, Canberra, ACT, Australia, ⁴Richard Hill and Associates, Christchurch, Canterbury, New Zealand

Tuesday, March 27, 2012
General Posters Salon F cont.

- P40 Native Hawaiian tree under attack by Tasmanian thrips**
Leyla V. Kaufman¹, **Cynthia B. A. King**², Rob Hauff³, Mark Wright¹,
¹University of Hawaii at Manoa, Honolulu, HI, ²Dept. of Land and Natural
Resources, Div. of Forestry and Wildlife, State of Hawaii, Honolulu, HI,
³Division of Forestry and Wildlife, DLNR, Hawaii State Department of
Land and Natural Resources, Honolulu, HI
- P41 Improving management practices for a faster *Osmia lignaria*
(Hymenoptera: Megachilidae)**
Ruben Alarcón¹, Anna Howell², and Gorden Wardell³, ¹California State
University, Channel Islands, Camarillo, CA, ²UC Cooperative Extension-
Ventura, University of California, Ventura, CA, ³Paramount Farming Co,
Bakersfield, CA
- P42 Using landscape factors to estimate abundance, species diversity and
genetic structure of native bees: a conceptual approach**
Paul Raymond Rhoades, Sanford D. Eigenbrode, Lisette Waits,
University of Idaho, Moscow, ID
- P43 The Green Alder Sawfly, *Monsoma pulveratum* -- Pacific Northwest
Surveys in 2011**
Katharine A. Sheehan¹, **Chris Looney**², Glenn R. Kohler³ and Eric LaGasa²,
¹Forest Health Protection, Pacific Northwest Region, United States
Forest Service, Portland, OR, ²Washington State Department of
Agriculture, Olympia, WA, ³Washington State Department of Natural
Resources, Olympia, WA

Tuesday, March 27, 2012
General Posters Salon F cont.

- P44 Green alder sawfly, *Monsoma pulveratum* -- Pacific Northwest surveys in 2011**
Chris Looney¹, Katharine A. Sheehan², Barry Bai³, Darci Carlson⁴, Jenni Cena¹, Rob Flowers⁵, Ellen Goheen⁶, Mark E. Hitchcox⁷, Mike Johnson⁸, Sandy Kegley⁹, Glenn R. Kohler⁸, Eric LaGasa¹, Todd Murray¹⁰, Karen Ripley⁸, Lia Spiegel¹¹ and Elizabeth A. Willhite¹², ¹Washington State Department of Agriculture, Olympia, WA, ²Forest Health Protection, US Forest Service, Portland, OR, ³Plant Division, Oregon Department of Agriculture, Salem, OR, ⁴Forest Health Protection, US Forest Service, Wenatchee, WA, ⁵Oregon Department of Forestry, Salem, OR, ⁶Forest Health Protection, US Forest Service, Central Point, OR, ⁷USDA-APHIS-PPQ, Portland, OR, ⁸Washington State Department of Natural Resources, Olympia, WA, ⁹Forest Health Protection, US Forest Service, Coeur d'Alene, ID, ¹⁰Skamania County Extension, Washington State University, Stevenson, WA, ¹¹Forest Health Protection, USDA Forest Service, La Grande, OR, ¹²Westside Forest Insect and Disease Service Center, USDA Forest Service, Sandy, OR
- P45 Range expansion of the California fivespined ips, *Ips paraconfusus* Lanier (Coleoptera: Scolytidae) into Washington State**
Todd Murray¹, Glenn R. Kohler², and Elizabeth A. Willhite³, ¹Skamania County Extension, Washington State University, Stevenson, WA, ²Washington State Department of Natural Resources, Olympia, WA, ³Westside Forest Insect and Disease Service Center, USDA Forest Service, Sandy, OR
- P46 Mechanisms of exaggerated growth in beetle weapons**
Robert A. Zinna and Laura Lavine, Washington State University, Pullman, WA
- P47 Commercial adoption of generic quarantine irradiation protocols**
Peter A. Follett, USDA-ARS, Hilo, HI

2012 PBESA Awards Luncheon



Tuesday, March 27, 2012

12:00 pm to 1:25 pm

Salon E



Your full-meeting registration includes admission to the luncheon.

Awards to be presented:

C. W. Woodworth Award

PBESA Systematics, Evolution, and Biodiversity Award

PBESA Physiology, Biochemistry, and Toxicology Award

PBESA Medical, Urban, and Veterinary Entomology Award

PBESA Plant-Insect Ecosystems Award

PBESA Award for Excellence in Teaching

PBESA Award for Excellence in Teaching

PBESA Award for Excellence in Integrated Pest Management

PBESA Entomology Team Work Award

John Henry Comstock Graduate Student Award

PBESA Student Leadership Award

The Insect Photo Salon “Sharing the Fascination – The Sequel” will recognize the best image from a student member and from a non-student member.

Strength in



Grant Writing Workshop

Tuesday, March 27, 2012

1:30 pm to 3:30 pm

Salon A



Mary Purcell-Miramontes, National Program Leader, NIFA (National Institute of Food and Agriculture) is offering up-to-date information about NIFA's competitive grants programs relevant to extension and research in agricultural entomology.

Graduate students, postdoctoral researchers, and new investigators or even experienced investigators needing to obtain current information on NIFA's competitive grants programs, here is an opportunity not to be missed!

This workshop will provide up-to-date information about NIFA's competitive grants programs relevant to extension and research in agricultural entomology. The workshop will be relevant to graduate students, postdoctoral researchers, and new investigators or even experienced investigators needing to obtain current information on NIFA's competitive grants programs. Tips for writing a successful grant will also be featured. The highlight of the workshop will be a "mock panel", in which the audience will get an insider's view of the panel review process.

Tips for writing a successful grant will also be featured. The highlight of the workshop will be a "mock panel", in which the audience will get an insider's view of the panel review process!

GENERAL PAPERS: BIOCONTROL

3:30 pm to 4:45 pm

Salon A

Moderators: Peter Follett and Eric Natwick

- 92 3:30 pm **Mortality of *Blapstinus* spp. beetles exposed to various formulations of entomopathogenic fungi**
Eric T. Natwick¹, Robert W. Behle², and Mark A. Jackson²,
¹University of California Cooperative Extension, Holtville, CA,
²USDA - ARS, Peoria, IL
- 93 3:42 pm **Adapting strategies to establish biological weed control agents for field bindweed (*Convolvulus arvensis*) in the Pacific Northwest**
Jessica Green, Oregon State University, Corvallis, OR
- 94 3:54 pm **Biological control of codling moth in the apple orchard system**
Vonny Barlow, University of California, Blythe, CA
- 95 4:06 pm **Parasitism of Light Brown Apple Moth in California**
Linda P. Buergi and Nick J. Mills, UC Berkeley, Berkeley, CA
- 96 4:18 pm **Predator diversity and multiple predator life stages improves aphid suppression in alfalfa**
Ricardo A. Ramirez Utah State University, Logan, UT
- 97 4:30 pm **A standardized impact monitoring protocol (SIMP) for the assessment of weed biological control efficacy**
Mark Schwarzländer¹, Aaron S. Weed², and Joseph Milan³,
¹University of Idaho, Moscow, ID, ²Dartmouth College, Hanover, NH, ³USDI-Bureau of Land Management, Boise, ID

SYMPOSIUM: WHAT'S NEW IN INDUSTRY

1:30 pm to 3:20 pm

Salons BC

Organizers and Moderators: Jesse M. Richardson and Chris Clemens

CONTINUING EDUCATION CREDITS ARE AVAILABLE FOR ATTENDING

- 98 1:30 pm **Syngenta, LLC. Insecticide Label Update**
Christopher Clemens, Syngenta LLC, Richland, WA
- 99 1:40 pm **An update from Nichino America**
Allison Walston, Nichino America, Inc, Wilmington, DE

Tuesday, March 27, 2012
What's New in Industry Salons BC cont.

- 100 1:50 pm **Magister (ai: fenazaquin) Update**
Gary Melchior, Gowan Co, Walla Walla, WA
- 101 2:00 pm **DuPont™ Cyazypyr™ a new cross-spectrum insecticide with excellent fit in potato insect management programs**
Juan M. Alvarez, DuPont Crop Protection, Palmyra, NY
- 102 2:10 pm **Dow AgroSciences Insecticide Label Updates**
Jesse M. Richardson, Dow AgroSciences, Hesperia, CA
- 103 2:20 pm **Rimon Label Update**
Mike Doerr, Chemtura AgroSolutions, Lawrenceville, GA
- 104 2:30 pm **Bayer Insecticide Label Update**
Dean Christie, Bayer Crop Sciences, Spokane, WA
- 105 2:40 pm **Nealta™: Field Performance of A New Miticide from BASF**
Sam Willingham, BASF Corporation, Research Triangle Park, NC
- 106 2:50 pm **Marrone Bio Innovations Insecticide Label Update**
April Yang, Maronne Bioinnovations, Inc, Davis, CA
- 107 3:00 pm **FMC Insecticide Label Update**
Houston Joost, FMC, Corp, Philadelphia, PA
- 3:10 pm **Break**

GENERAL PAPERS: CHEMICAL CONTROL

Salons BC

Moderators: Jesse M. Richardson and Chris Clemens

CONTINUING EDUCATION CREDITS ARE AVAILABLE FOR ATTENDING

- 108 3:30 pm **Managing aphids in tree nuts with sulfoxaflor**
Jesse M. Richardson¹, John Richburg¹, Barat Bisabri¹, James Thomas¹, Brad Lewis², and James D. Dutcher³, ¹Dow AgroSciences, Indianapolis, IN, ²New Mexico State University, Las Cruces, NM, ³University of Georgia, Tifton, GA
- 109 3:42 pm **Management of sap-feeding pests of tree fruits with sulfoxaflor**
Harvey Yoshida¹, Barat Bisabri², Boris Castro³, James Thomas⁴ and Jon Babcock⁴, ¹Dow AgroSciences, Richland, WA, ²Dow AgroSciences, Orinda, CA, ³Dow AgroSciences, Fresno, CA, ⁴Dow AgroSciences, Indianapolis, IN

Tuesday, March 27, 2012
General Papers: Chemical Control Salons BC cont.

- 110 3:54 pm **Field Performance of Sulfoxaflor (Closer™) to Manage Sucking Pests on Vegetable Crops**
Boris Castro¹, Jesse M. Richardson², James Thomas³, John C. Palumbo⁴, and Larry D. Godfrey⁵, ¹Dow AgroSciences, Fresno, CA, ²Dow AgroSciences, Hesperia, CA, ³Dow AgroSciences, Indianapolis, IN, ⁴University of Arizona, Yuma, AZ, ⁵University of California-Davis, Davis, CA
- 111 4:06 pm **Exirel™ and Verimark™ new cross-spectrum insecticides for Crop Protection in Western vegetables**
Danny M. Tamayo¹, Wayne J. Steele², Hugo T. Ramirez³, Stephen F. Colbert⁴, Terri L. Thomas⁵, Hector E. Portillo⁶, I. Billy Annan⁶ and Juan M. Alvarez⁶, ¹DuPont Crop Protection, Yuma, AZ, ²DuPont Crop Protection, Fresno, CA, ³Dupont Crop Protection, Visalia, CA, ⁴Dupont Crop Protection, Escalon, CA, ⁵Dupont Crop Protection, Madera, CA, ⁶DuPont Crop Protection, Newark, DE
- 112 4:18 pm **Exirel™ and Verimark™ new cross-spectrum insecticides for crop protection in California citrus**
Hugo T. Ramirez¹, Wayne J. Steele², Stanley S. Royal³, Hector E. Portillo⁴, I. Billy Annan⁴ and Juan M. Alvarez⁴, ¹Dupont Crop Protection, Visalia, CA, ²DuPont Crop Protection, Fresno, CA, ³DuPont Crop Protection, Girard, GA, ⁴DuPont Crop Protection, Newark, DE
- 113 4:30 pm **DuPont™ Cyazypyr™ a new cross-spectrum insecticide with excellent fit in tree fruit insect management programs**
Norman D. McKinley¹, Stephen F. Colbert², Terri L. Thomas³, Hector E. Portillo⁴, I. Billy Annan⁴ and Juan M. Alvarez⁴, ¹Dupont Crop Protection, Salem, OR, ²Dupont Crop Protection, Escalon, CA, ³Dupont Crop Protection, Madera, CA, ⁴DuPont Crop Protection, Newark, DE

CONTINUING EDUCATION CREDITS AVAILABLE FOR ATTENDING

Northwest (CA, AZ, WA, OR) Certified Crop Advisor Program: 3 credit hours
(pest management category)

CA Department of Pesticide Regulation: 3 credit hours
(2 hours “Other” and 1 hour “Laws and Regulations”)

Washington Department of Agriculture: 3 credit hours

Arizona Department of Agriculture: 3 credit hours

Oregon Department of Agriculture: 1 credit hour

Tuesday, March 27, 2012

SYMPOSIUM: FOREST INSECT SEMIOCHEMISTRY

1:30 pm to 4:40 pm

Salon G

Organizer and Moderator: Jocelyn Millar

- 1:30 pm** **Introductory Remarks**
- 114 1:40 pm** **Kairomones produced by *Phytophthora ramorum*-infected coast live oaks influence ambrosia beetle responses and tree survival**
Brice A. McPherson¹, Anna Conrad², David L. Wood¹ and Pierluigi Bonello², ¹UC Berkeley, Berkeley, CA, ²Ohio State University, Columbus, OH
- 115 2:00 pm** **Updates on the Gold Spotted Oak Borer (*Agrilus auroguttatus*) Invasion in Southern California and Biocontrol Efforts**
Mark Hoddle¹, Vanessa Lopez¹, Tom W. Coleman², Paul Rugman-Jones¹, Richard Stouthamer¹, Steven J. Seybold³ and Richard Reardon⁴, ¹University of California-Riverside, Riverside, CA, ²Forest Health Protection, USDA - Forest Service, San Bernardino, CA, ³USDA Forest Service, Davis, CA, ⁴USDA Forest Service-Forest Health Technology and Enterprise Team, Morgantown, WV
- 116 2:20 pm** **The Red Palm Weevil (*Rhynchophorus ferrugineus*), should it have been synonymized? Findings from pheromone, molecular and flight activity studies**
Christina D. Hoddle, Mark S. Hoddle, Jocelyn Millar, Paul Rugman-Jones and Richard Stouthamer, University Of California-Riverside, Riverside, CA
- 117 2:40 pm** **Contrasting multimodal communication systems of egg and pupal parasitoid wasps of gypsy moth**
Kelly M. Ablard, Adela Danci, Michael Hrabar and **Gerhard Gries**, Simon Fraser University, Burnaby, BC, Canada
- 3:00 pm** **Break**

Tuesday, March 27, 2012
Forest Insect Semiochemistry, Salon G cont.

- 118 3:20 pm **Development of a trapping system for Asian longhorned beetle (*Anoplophora glabripennis*) using semiochemicals**
Kelli Hoover¹, Melody A. Keena², Peter S. Meng¹, R. Talbot Trotter², Mark C. Mescher¹ and Consuelo M. De Moraes¹, ¹Penn State University, University Park, PA, ²Northern Research Station, USDA - Forest Service, Hamden, CT
- 119 3:40 pm **Developing an improved trapping tool to survey cerambycid beetles: evaluation of trap height and lure composition**
Elizabeth E. Graham¹, Therese M. Poland², Deborah G. McCullough¹, and Jocelyn G. Millar³, ¹Michigan State University, East Lansing, MI, ²USDA - Forest Service, East Lansing, MI, ³University of California-Riverside, Riverside, CA
- 120 4:00 pm **The molecular basis of pheromone detection in the longhorned beetles**
Robert F. Mitchell¹, David T. Hughes², Charles W. Luetje², Jocelyn G. Millar³, Lawrence M. Hanks¹ and Hugh M. Robertson¹, ¹University of Illinois at Urbana-Champaign, Urbana, IL, ²University of Miami, Miami, FL, ³University of California-Riverside, Riverside, CA
- 121 4:20 pm **An overview of semiochemical attractants for cerambycid beetles**
Jocelyn Millar¹ and Lawrence M. Hanks², ¹University of California Riverside, Riverside, CA, ²University of Illinois, Urbana, IL

SYMPOSIUM: SOCIAL MEDIA, SMART DEVICES AND OTHER NEW GIZMOS IN EXTENSIONS AND TEACHING

1:30 pm to 4:50 pm

Salon H

Organizers and Moderators: Vince Jones and Sujaya Rao

- 122 1:30 pm **Introduction**
- 123 1:35 pm **Using image analysis in teaching: student exercises in insect locomotion**
Catherine Loudon, University of California, Irvine, Irvine, CA

Tuesday, March 27, 2012
Social Media Symposium Salon H cont.

- 124 2:00 pm **YouTube U, and iBooks 2: Online opportunities for instruction in the life sciences**
Kevin Ahern, Oregon State University, Corvallis, OR
- 125 2:25 pm **Using technology for distance education and improving student engagement**
Allan Felsot, Washington State University, Richland, WA
- 126 2:50 pm **Using clicker technology as an innovative tool for capturing information in research and extension**
Angela Gadino, Washington State University, Wenatchee, WA
- 3:20 pm **Break**
- 127 3:35 pm **Pests in the Net: building a multi-media Extension outreach IPM program**
Robin Rosetta, Oregon State University, Aurora, OR
- 128 4:00 pm **Growers playing computer games? Get serious!**
Andrew Corbett, Veterinary Information Network, Davis, CA
- 129 4:25 pm **Decision support systems to aid in the adoption of IPM programs in tree fruits**
Vincent P. Jones and Ute Chambers, Washington State University, Wenatchee, WA

STUDENT SYMPOSIUM: FIFTY YEARS SINCE SILENT SPRING!

1:30 pm to 4:15 pm

Salon I

Organizers and Moderators: Christina Mogren and Amber C. Vinchesi

- 130 1:30 pm **Introduction: Who was Rachel Carson?**
Christina Loraine Mogren, University of California-Riverside, Riverside, CA
- 131 1:40 pm **Science friction: America's growing distrust and disbelief in science**
Andrew Merwin, University of California-Davis, Davis, CA
- 132 1:55 pm **Pollinators in the toxic landscape: Bees as bioindicators and bioaccumulators of pollutants**
Kristen R. Hladun and John T. Trumble, University of California-Riverside, Riverside, CA

Tuesday, March 27, 2012
Student Symposium Salon I cont.

- 133 2:10 pm **Resistance is futile? Utilizing host plant resistance for pest management**
Danielle Lightle, Oregon State University, Corvallis, OR
- 134 2:25 pm **Effects of sublethal pesticide residues on the dispersal capabilities of codling moth (*Cydia pomonella*) and obliquebanded leafroller (*Choristoneura rosaceana*)**
Teah J. Smith and Vincent P. Jones, Washington State University, Wenatchee, WA
- 135 2:40 pm **Maintaining a biological control agent (*Trichogramma pretiosum*) in mass cultures vs. isofemale lines: Implications for release strategies**
Holly M. Hills and Richard Stouthamer, University Of California-Riverside, Riverside, CA
- 136 2:55 pm **Management of *Drosophila suzukii* with minimal insecticide inputs**
Jimmy Klick¹, Wei Q. Yang², Amy J. Dreves¹, Vaughn M. Walton¹ and Denny Bruck³, ¹Oregon State University, Corvallis, OR, ²Oregon State University, North Willamette Research and Extension Center, Aurora, OR, ³USDA-ARS Horticultural Crops Research Laboratory, Corvallis, OR
- 3:10 pm **Break**
- 137 3:30 pm **The effect of pesticide residues in brood comb on honey bee (*Apis mellifera*) colony growth and performance**
Natalie K. Boyle and Walter S. Sheppard, Washington State University, Pullman, WA
- 138 3:45 pm **Successful Science Communication: Lessons Learned From Silent Spring**
Sara M. Galbraith and Nilsa A. Bosque-Perez, University of Idaho, Moscow, ID
- 139 4:00 pm **Conclusion: Silent Spring themes and pesticide reform since 1962**
Amber C. Vinchesi, Washington State University, Prosser, WA

Tuesday Evening, March 27

Insect Photo Salon

4:30 pm to 5:30 pm

Salon I

Plenary Session

5:30 pm to 6:30 pm

Salon E

Texting Competition

6:30 pm to 7:00 pm

Salon A

Student Career Fair/ Student Mixer

7:00 pm to 8:30 pm

Salon F

Tuesday , March 27

Plenary Session: “Bugs in Amber”

Dr. George Poinar

5:30 pm to 6:30 pm in Salon E



George O. Poinar, Jr., Emeritus Professor at Oregon State University, is world renowned for his studies in insect pathology and insects in amber. He and his wife, Roberta, discovered intact nuclei in amber- entombed insects, which led to the extraction of DNA from insects fossilized in amber, an idea adapted by Michael Crichton for the book and movie *Jurassic Park*. His findings in Cretaceous amber that malaria and other diseases could have affected dinosaurs are published in the book “*What Bugged the Dinosaurs? Insects, Disease, and Death in the Cretaceous*”.

Prof. Poinar will share his passion and experiences with organisms in amber during the public presentation and specimens will be displayed for a first-hand look at insects trapped eons ago. Bring your own fossilized bugs in amber to share with others!



Sponsored by the College of Agricultural Sciences, Oregon State University

Wednesday, March 28, 2012

7:30 am to 8:30 am

Business Meeting

Salon A

7:30 am Debriefing of 2012 PBESA Meeting
Nominations/Elections for 2012-2013
Introduction of 2012-2013 PBESA President

SYMPOSIUM: CRISIS IN EXTENSION: CURRENT SITUATION AND POSSIBLE SOLUTIONS

8:30 am to 12:00 pm

Salon A

Organizers and Moderators: Lynn R. Wunderlich and Michael P. Parrella

- 140 8:30 am **Is Cooperative Extension on the Path to Extinction?**
Michael P. Parrella, University of California-Davis, Davis, CA
- 141 9:00 am **University of California 'Uncooperative' Extension-a Historical
Perspective**
Nick Toscano, University of California-Riverside, Riverside, CA
- 142 9:30 am **The reorganization of county based extension in California: can
we do more with less?**
Lynn R. Wunderlich, Cooperative Extension, University of
California, Placerville, CA
- 143 9:45 am **Crisis in Extension: An Idaho perspective**
E. J. Bechinski, University of Idaho, Moscow, ID
- 9:55 am **Break**
- 144 10:15 am **Crisis or Opportunity? You Decide!**
Deborah J. Maddy, Oregon State University, Corvallis, OR
- 145 10:35 am **Strengthening Extension through Industry Partnerships**
Elizabeth Beers, Washington State University, Wenatchee, WA
- 10:55 am **Panel Discussion**

Wednesday, March 28, 2012

**SYMPOSIUM: OLD PESTS AND NEW PESTS OF WESTERN
SPECIALTY CROPS**

8:30 am to 12:00 pm

Salons BC

Organizers and Moderators: Silvia I. Rondon and Brian Bret

- 146 8:30 am Role of The IR-4 Project in managing specialty crop pests**
Stephen Flanagan¹, Rebecca Sisco¹, and Keith Dorschner²,
¹University of California-Davis, Davis, CA, ²Rutgers University,
Princeton, NJ
- 147 8:50 am From grasshoppers to Christmas tree pests: What is new in Oregon?**
Helmuth W. Rogg, Oregon Department of Agriculture, Salem,
OR
- 148 9:10 am Psyllids as vectors of emerging pathogens of potato and other annual crops**
Joseph E. Munyaneza, USDA-ARS Yakima Agricultural
Research Lab, USDA - ARS, Wapato, WA
- 149 9:30 am Onion thrips' life history strategies: one tough pest**
Diane G. Alston and Bonnie Bunn, Biology, Utah State
University, Logan, UT
- 150 9:50 am A new look at an old pest: Clover root borer in red clover seed production**
Andrew Corkery and Sujaya Rao, Oregon State University,
Corvallis, OR
- 151 10:10 am Refined management of arthropod pests of mint to improve sustainability and protect water quality**
Larry Godfrey¹, Kris Tollerup¹ and Daniel Marcum², ¹University
of California-Davis, Davis, CA, ²Univ. of California Cooperative
Extension, University of California, Davis, CA
- 10:30 am Break**
- 152 10:50 am New perspectives on an old pest: abiotic factors influencing the beet leafhopper (*Circulifer tenellus*) in the lower Columbia Basin**
Alexzandra Murphy and Silvia I. Rondon, Hermiston
Agricultural Research and Extension Center, Oregon State
University

Wednesday, March 28, 2012
Specialty Crop Symposium Salons BC cont.

- 153 11:10 am **Biological Control of Lewis spider mite (*Eotetranychus lewisi*) in strawberries**
Anna Howell and Oleg Daugovish, UC Cooperative Extension, Ventura Co, University of California, Davis, Ventura, CA
- 154 11:30 am **120 years after Comstock the wireworm battle continues**
Kevin W. Wanner and Anuar Morales-Rodriguez, Montana State University, Bozeman, MT
- 11:50 am **Concluding Remarks**

GENERAL PAPERS

8:30 am to 12:00 pm

Salons GH

Moderators: Sam Willingham and Harvey Yoshida

- 155 8:30 am **Effect of mating on sex attraction in *Bactericera cockerelli* with evidence of post-mating refractoriness**
Christelle Guédot¹, David R. Horton², Peter J. Landolt² and Joseph E. Munyaneza², ¹Washington State University, Wapato, WA, ²USDA-ARS, Wapato, WA
- 156 8:42 am **Performance of a polyphagous herbivore on single vs. multiple hosts**
S. J. Castle, USDA-ARS, Maricopa, AZ
- 157 8:54 am **Using disease mapping to develop a virus disease management strategy for two plant viruses in the Palouse region of the Pacific Northwest**
Damon Husebye¹, Sanford Eigenbrode¹, and Stephen Clement², ¹University of Idaho, Moscow, ID, ²USDA-ARS, Pullman, WA
- 158 9:06 am **Conflicting effects of climate and vector behavior on the spread of a plant pathogen**
Matt Daugherty and Rodrigo P. P. Almeida, University of California-Berkeley, Berkeley, CA

Wednesday, March 28, 2012
General Papers Salons GH cont.

- 159 9:18 am **Alert citizens and naturalists contribute to exotic pest detection in Washington State**
Chris Looney¹, Eric LaGasa¹, Warren Hellman¹ and Todd Murray², ¹Washington State Department of Agriculture, Olympia, WA, ²Skamania County Extension, Washington State University, Stevenson, WA
- 160 9:30 am **Colonization patterns provide clues to larval case types in *Hyposmocoma* (Lepidoptera: Cosmopterigidae) on an uninhabited, severely degraded Hawaiian Island**
Matthew J. Medeiros¹, William P. Haines² and Daniel Rubinoff², ¹University of California-Berkeley, Berkeley, CA, ²University of Hawaii, Honolulu, HI
- 161 9:42 am **Effects of projected climate change on the phenology of wheat and the cereal leaf beetle**
Sanford Eigenbrode, and John Abatzoglou, University of Idaho, Moscow, ID
- 162 9:54 am **Stable isotope analysis of Japanese beetles (*Popillia japonica* Newman) detected in Oregon: A novel method to determine exotic pest origins**
Bruce A. Hungate¹, **Diana N. Kimberling**², Richard R. Doucett¹, Melanie Caron¹ and Helmuth W. Rogg², ¹Colorado Plateau Stable Isotope Laboratory, Northern Arizona University, Flagstaff, AZ, ²Plant Division, Oregon Department of Agriculture, Salem, OR
- 10:06 am **Break**

SYMPOSIUM: THE CHANGING FACE OF POLLINATION IN WESTERN AGRICULTURE

8:30 am to 12:00 pm

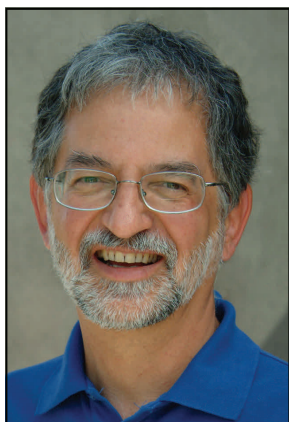
Salon I

Organizers and Moderators: Ramesh R. Sagili and James Strange

- 8:30 am **Welcoming Remarks**
- 163 8:35 am **Mining collections for viable candidate pollinators of crops**
Terry Griswold, Bee Biology & Systematics Laboratory, USDA-ARS, Logan, UT

Wednesday, March 28, 2012
Pollination Symposium Salon I cont.

- 164 8:59 AM **Establishing habitat for pollinators of orchards**
Michael Omeg, Omeg Orchards, The Dalles, OR
- 165 9:23 AM **Arthropod communities in bumble bee nests**
Lynn Royce, Oregon State University, Corvallis, OR
- 166 9:47 am **Fine-tuning blue orchard bee management for almond pollination**
Theresa L. Pitts-Singer¹, James H. Cane¹ and Derek R. Artz²,
¹Bee Biology & Systematics Laboratory, USDA - ARS, Logan, UT, ²Pollinating Insects Research Unit, USDA - ARS, Logan, UT
- 10:11 am **Break**
- 167 10:21 am **Indirect effects of insecticides on pollination in hybrid onion seed production**
Sandra Gillespie¹, Rachael F. Long², and Neal Williams¹,
¹University of California-Davis, Davis, CA, ²University of California Cooperative Extension, Woodland, CA
- 168 10:45 am **SETAC Pellston workshop on pesticide risk assessment for pollinators**
Erik Johansen, Pesticide Management Division, Washington State Department of Agriculture, Olympia, WA
- 169 11:09 am **Honeybee pollination strategies for agricultural crops in western Oregon**
George Hansen, Foothills Honey Company, Colton, OR
- 170 11:33 am **Honey bee health in the Pacific Northwest**
Ramesh R. Sagili, Oregon State University, Corvallis, OR
- 11:57 am **Discussion**



DR. STEVEN NARANJO
C.W. WOODWORTH AWARD
2012

Dr. Steven Naranjo is the newly appointed Director of the USDA-ARS, Arid-Land Agricultural Research Center in Maricopa, Arizona. He joined USDA-ARS in 1988 and was a Research Entomologist at the Western Cotton Research Laboratory in Phoenix from 1990-2005. In 2006, the laboratory was relocated to the new facility in Maricopa and he served as Research Leader of the Entomology Unit at the new Center from 2006 to early 2012.

Dr. Naranjo is internationally recognized for his research in insect sampling and decision aids, integrated pest management, conservation biological control, insect population ecology, and environmental risk assessment of transgenic crops. He was a key architect in the development and implementation of a highly successful Integrated Pest Management (IPM) program for sweetpotato whitefly in Arizona cotton that has been widely adopted in other parts of the world. In Arizona, the cotton IPM program has reduced insecticide use by nearly 90% and saved growers more than \$210 million in the last 15 years. He conducted one of the first long-term field studies to document the non-target effects of transgenic Bt cotton with specific emphasis on natural enemy abundance and function. He also led and collaborated on several large meta-analyses to evaluate and quantify non-target effects of Bt crops worldwide. This work has collectively demonstrated the low risk of Bt technology to the environment and also helped to validate the tier-testing system for risk assessment employed by many regulatory agencies.

Dr. Naranjo received a Ph.D. (1987) in Entomology from Cornell University, an M.S. (1983) in Entomology from the University of Florida, and a B.S. (1978) in Zoology from Colorado State University. He has authored over 180 scientific papers, books and book chapters and technical reports and has presented numerous invitational papers and seminars at professional conferences, symposia, and academic institutions. He recently co-edited the book "*Bemisia: Bionomics and Management of a Global Pest*". Dr. Naranjo served as Co-Editor-in-Chief of the international journal, *Crop Protection*, from 1995-2006 and currently serves as Subject Editor for *Environmental Entomology*, covering the topic area of Transgenic Plants and Insect. Dr. Naranjo holds an adjunct appointment in the Department of Entomology at the University of Arizona, and he serves on a number of state and national agricultural boards and advisory committees. He has been the recipient of several awards and honors including the USDA-ARS Early Career Scientist of the Year, the Pacific Branch ESA Recognition Award in Entomology and the ESA Recognition Award in Entomology.

**JOYCE E. PARKER
WASHINGTON STATE UNIVERSITY
COMSTOCK GRADUATE STUDENT AWARD
2012**



Joyce E. Parker is a Ph.D. candidate at Washington State University in Pullman, WA. After a summer job with the USDA-ARS beneficial insect unit working with weed biocontrol in the Rio Grande Valley of Texas, Joyce got interested in entomology. She obtained her M.S. at New Mexico State University by investigating the impacts of locoweed on the livestock industry with implications for conservation weed biocontrol. During her PhD, Joyce explored sustainable pest management strategies for the crucifer flea beetle by developing trap cropping and companion-planting techniques that examine how to “ecologically engineer” broccoli fields to discourage pests and encourage beneficial insects.

OUT-GOING PRESIDENT

PBESA 2011-2012

DR. SUJAYA RAO

Congratulations to Dr. Sujaya Rao, professor at Oregon State University, for being selected for the 2012-2013 Fulbright U.S. Scholar Program for research on "Native Bees Associated with Ecuador Agriculture: Assessment, Conservation and Management." She will also teach a pest-management course at her host institution, the Pontificia Universidad Católica del Ecuador (PUCE).

IN-COMING PRESIDENT

PBESA 2012-2013

DR. BRIAN BRET

Welcome to Dr. Brian Bret the PBESA President for 2012-2013 year. Brian will be arranging a great meeting in the beautiful Lake Tahoe, NV. The PBESA meeting will be April 7-10, 2013 at Harrah's Resort and Casino in South Lake Tahoe, NV. The theme of the meeting will be, "Entomology in the Pacific Branch: A Sustainability Science for a Sustainable Environment." Please see the last page of the program for the meeting details.

PRESIDENT-ELECT NOMINEE

PBESA 2013-2014

DR. STEVEN NARANJO

The Pacific Branch Nominations Committee (Elizabeth Beers, Chair) recommends Dr. Steven Naranjo for President-Elect of the Pacific Branch of the ESA. Dr. Steven Naranjo is the newly appointed Director of the USDA-ARS, Arid-Land Agricultural Research Center in Maricopa, Arizona. Dr. Steven Naranjo is also the C.W. Woodward award recipient for 2012 (page 49).

AUTHOR	#	pg
Abatzoglou, John	161	47
Ablard, Kelly M.	117	38
Adams, James	P23 P24 P25	28 28 29
Adams, Todd B.	87	27
Ahern, Kevin	124	40
Alarcón, Ruben	P41	31
Allum, Nicole	P20	28
Almeida, Rodrigo	158	47
Alston, Diane G.	10, 26, 149	15 17 45
Alvarez, Juan M.	101, 111, 112, 113	36 37 37 37
Amarasekare, Kaushalya G.	P20	28
Annan, I. Billy	111, 112, 113	37 37 37
Artz, Derek R.	166	48
Astete, Helvio	14	16
Avelino, Jacques	P37	30
Babcock, Jon	109	36
Bahder, Brian W.	16, P27	16 29
Bai, Barry	36, P44	19 32
Balogh, Botond	P23, P24, P25	28 28 29
Barbour, James D.	P27	29
Barlow, Vonny	94	35
Barrantes-Barrantes, Luz D.	88	27
Bates, Loretta M.	P34	30
Bechinski, E. J.	143	44
Beers, Elizabeth H.	53, 145	22 44
Behle, Robert W.	92	35

AUTHOR	#	pg
Bellamy, David	90	27
Bender, Gary S.	P34	30
Bentley, Walter J.	40	20
Bergh, Jennifer	37	19
Bethke, James A.	44, P34	21 30
Bisabri, Barat	108, 109	36 36
Black, Brent L.	26	17
Bloese, Joanna B.	1	14
Boehme, Nicole F.	11	15
Boersma, Kate S.	64	24
Bogan, Michael T.	64	24
Boll, Jan	P38	30
Bonello, Pierluigi	114	38
Borel, Amanda A.	P20	28
Borth, Paul W.	80	26
Bosque-Pérez, Nilsa A.	5, 19, 29, 56, 84, 138, P31, P36, P37, P38	14 16 18 23 26 41 29 30 30 30
Boyd, Elizabeth A.	1, P8	14 13
Boyle, Natalie K.	137	41
Bressan, Alberto	8	15
Bret, Brian	70	24
Broussard, Melissa A.	6	14
Brown, Preston H.	86	27
Bruck, Denny	2, 33, 81, 89, 136, P14, P15, P18	14 18 26 27 41 13 27 28

AUTHOR	#	pg
Brunner, Jay F.	39	19
Buergi, Linda P.	95	35
Bunn, Bonnie	10, 149	15 45
Burks, Charles S.	P26	29
Cameron, Stephen	P39	30
Cane, James H.	166	48
Cardé, Ring T.	13	15
Carey, James R.	20	16
Carlson, Darci	P44	32
Caron, Melanie	162	47
Castagnoli, Steve	86	27
Castle, S. J.	156, P21	46 28
Castro, Boris	109, 110	36 37
Cave, Adam	P18	28
Cena, Jenni	P44	32
Chambers, Ute	79, 82, 129	26 26 40
Chapman, Eric G.	21	17
Chen, Jianchi	P29	29
Chen, Jianli	P31	29
Chiu, J.C.	58	23
Christie, Dean	104	36
Clark, Sarah L.	3	14
Clarke, Devin A.	P8	13
Clemens, Christopher	98	35
Clement, Stephen	157	46
Cloyd, Raymond A.	32	18
Colbert, Stephen F.	111, 113	37 37
Coleman, Tom W.	115	38
Conrad, Anna	114	38
Cook, M.A.	P35	30
Coop, Leonard	P15	27
Cooper, Monica	40, 43, 83	20 20 26
Corbett, Andrew	128	40

AUTHOR	#	pg
Corkery, Andrew	150	45
Coslor, Charles Clark	P5	12
Cowles, Jim	69	24
Curtural, S. Kaan	83	26
Daane, Kent M.	40, 43, 83	20 20 26
Danci, Adela	117	38
Dara, Surendra	44	21
Daugherty, Matt	158	46
Daugovish, Oleg	153	46
DeClerck, Fabrice	P37, P38	30 30
De La Riva, Deborah	P13	13
De Moraes, Consuelo M.	118	39
Dheivasigamani, Rajabaskar	84	26
Doerr, Mike	103	36
Dorschner, Keith	146	45
Doucett, Richard R.	162	47
Draheim, Robyn C.	66	24
Dreves, Amy J.	136, P15, P17, P18	41 27 28 28
Drost, Daniel	10	15
Dunley, John	48	22
Dutcher, James D.	108	36
Eigenbrode, Sanford D.	19, 22, 23, 29, 84, 157, 161, P30, P32, P42	16 17 16 18 26 46 47 29 29 31
Felsot, Allan	125	40
Ferguson, Holly	P33	29
Fitzpatrick, S.M.	P35	30
Flanagan, Stephen	146	45

AUTHOR	#	pg
Fletcher, Michael	P33	29
Flexner, Lindsey	51	22
Flowers, Rob	P44	32
Follett, Peter A.	P47	32
Fremier, Alexander	P38	30
Gadino, Angela	126	40
Galbraith, Sara M.	138, P36	41 30
Garczynski, Stephen F.	60	23
Gillespie, Sandra	167	48
Godfrey, Kris E.	P34	30
Godfrey, Larry D.	110, 151	37 46
Goheen, Ellen	P44	32
Gordon, Jennifer	57	23
Graham, Elizabeth E.	119	39
Green, Jessica	93	35
Griepink, Frans	33	18
Gries, Gerhard	117, P35	38 30
Griswold, Terry	163	47
Grove, Gary	79	26
Guédot, Christelle	155	46
Gut, Larry J.	54	22
Hagler, James R.	P14	13
Haines, William P.	160	47
Halsey, Eric	14	16
Hamby, Kelly A.	58, P18	23 28
Hanks, Lawrence M.	120, 121	39 39
Hansen, George	169	48
Harmon, Bradley L.	P1, P2, P9	12 12 13
Harwood, James	20, 21	16 17
Hauff, Rob	P40	31
Hauser, Martin	88	27

AUTHOR	#	pg
Haviland, David	40, 91, P21	20 27 28
Haynes, Kenneth F.	57	23
Hedstrom, Christopher S.	39, 77, 82, P3	19 25 26 12
Hellman, Warren	159	47
Hernandez, Pedro	P23, P24, P25	28 28 29
Higashi, Clesson	8	15
Higbee, Bradley S.	P26	29
Hill, René	P38	30
Hill, Richard	P39	30
Hills, Holly M.	135	41
Hilton, Richard	47, P19	22 28
Hitchcox, Mark E.	P44	32
Hladun, Kristen R.	132	40
Hoddle, Christina D.	116	38
Hoddle, Mark	18, 115, 116	16 38 38
Hogg, Brian N.	83	26
Hoover, Kelli	118	39
Horton, David R.	155	46
Howell, Anna	153, P41	46 31
Hrabar, Michael	117	38
Hueppelsheuser, Tracy	85, P18	26 28
Hughes, David T.	120	39
Hull, Joe	59	23
Hungate, Bruce A.	162	47
Husebye, Damon	157	46
Hutchins, John T.	83	26
Hutchinson, Pamela	5, 29	14 17
Imamura, Jennifer L.	24	17

AUTHOR	#	pg
Ingwell, Laura L.	19, 56	16 23
Inskeep, Jess R.	P1, P2	12 12
Jackson, Mark A.	92	35
Jan de Kogel, Willem	33	18
Johansen, Erik	168	48
Johnson, Mike	P44	32
Jones, Cami R.	55	23
Jones, Vincent P.	27, 79, 122, 129, 134, P4	17 26 39 40 41 12
Joost, Houston	107	36
Joyal, Taylor	P38	30
Kaufman, Leyla V.	P40	31
Keena, Melody A.	118	39
Keesecker, Levi	P37, P38	30 30
Kegley, Sandy	P44	32
Kimberling, Diana N.	162	47
King, Cynthia B. A.	P39, P40	30 31
Kleiber, Joe	2	14
Klick, Jimmy	136, P14	41 13
Knight, Alan L.	50	22
Koch, Jonathan	17	16
Kochel, Tadeusz J.	14	16
Koetsier, Peter	65	24
Kohler, Glenn R.	P43, P44 P45	31 32 32
Krugner, Rodrigo	P29	29
Kumar, Sunil	P28	29
LaBonte, James R.	74	25
LaGasa, Eric	159, P43, P44	47 31 32

AUTHOR	#	pg
Landolt, Peter J.	87, 155	27 46
Lara, Jesus R.	18	16
Lavine, Laura Corley	62, P46	23 32
Ledbetter, Craig A.	P29	29
Lee, Jana C.	2, 31, 89, P10, P15, P18	14 18 27 13 27 28
Leiner, Rosalie	4	14
Lewis, Brad	108	36
Liebman, Kelly A.	14	16
Lightle, Danielle	133, P10	41 13
Lindzey, Summer H.	23	17
Littlefield, Rik	72	25
Long, Rachael F.	167	48
Looney, Chris	159, P43, P44	47 31 32
Lopez, Vanessa	115	38
Loudon, Catherine	123	39
Ludwig, Scott	P23, P24, P25	28 28 29
Luetje, Charles W.	120	39
Luh, Hang-Kwang	75	25
Lynch, Christine Ann	21	17
Lytle, David A.	64	24
Maddy, Deborah J.	144	44
Malakar Keunen, Raksha	40	20
Marcum, Daniel	151	45
Martin, Bob	P10	13
Mathur, S.	P35	30
Maxfield-Taylor, Sarah A.	7	14
McCullough, Deborah G.	119	39
McKinley, Norman D.	113	37

AUTHOR	#	pg
McPherson, Brice A.	114	38
Meadow, Richard	23	17
Meadows, Amanda Jean	30	18
Medeiros, Matthew J.	160	47
Melchior, Gary	100	36
Meng, Peter S.	118	39
Merwin, Andrew	131	40
Mescher, Mark C.	118	39
Messing, Russell	45	21
Metais, Pascale	23	17
Milan, Joseph	97	35
Millar, Jocelyn	40, 116, 119, 120, 121	20 38 39 39 39
Miller, Betsey	81	26
Miller, Jeffrey C.	38, 71, 75, 78, P3	19 25 25 25 12
Miller, Ross H.	46	21
Mills, Nick J.	95	35
Mitchell, Pat	35	18
Mitchell, Robert F.	120	39
Mogren, Christina	28,	18
Loraine	130	40
Moldenke, Andrew	76	25
Mondal, Shaonpius	5, 29	14 18
Morales-Rodriguez, Anuar	154	46
Morrison, Amy	14	16
Morse, Joseph C.	P34	30
Mound, Laurence	P39	30
Munyaneza, Joseph E.	148, 155	45 46
Murphy, Alexandra	152	45
Murray, NB	41, P22	20 28

AUTHOR	#	pg
Murray, Todd	36, 39, 159, P44 P45	19 19 47 32 32
Natwick, Eric T.	92	35
Nay, Justin E.	P8	13
Neven, Lisa Gail	P28	29
Niedbala, Jack C.	P7	13
Nischwitz, Claudia	10	15
Odubiyi, Steve	P31	29
Ohrn, Amanda	P15, P17	27 28
Olsen, Jeff	P3	12
Omeg, Michael	164	48
Osborne, Lance	44	21
Owen, Jeb	30, 55	18 23
Palumbo, John C.	110	37
Park, Ikju	22	17
Parrella, Michael P.	140	44
Paudel, Sunil	P30	29
Perring, Thomas M.	P21	28
Pitts, James P.	3, 11, P12	14 15 13
Pitts-Singer, Theresa L.	166	48
Poland, Therese M.	119	39
Poletika, Nick	70	24
Portillo, Hector E.	111, 112, 113	37 37 37
Potter, Michael F.	57	23
Prabhaker, Nilima	P21	28
Price, James F.	P16	28
Price, Joel R.	P9	13
Quito-Avila, Diego	P10	13
Ramirez, Hugo T.	111, 112	37 37
Ramirez, Ricardo A.	96	35
Ramos Bendana, Zayra	P36	30

AUTHOR	#	pg
Ransom, Corey V.	26	17
Rao, Sujaya	6, 7, 63, 122, 150	14 14 24 39 45
Reardon, Richard	115	38
Reeve, Jennifer R.	26	17
Rhoades, Paul Raymond	P42	31
Richardson, Jesse M.	102, 108, 110	36 36 37
Richburg, John	108	36
Rill, Stephanie M.	91	27
Ripley, Karen	P44	32
Robertson, Hugh M.	120	39
Roderick, George K.	24	17
Rogg, Helmuth W.	87, 147, 162	27 45 47
Roitberg, B.D.	P35	30
Rondon, Silvia I.	152	45
Rosetta, Robin	34, 127	18 40
Royal, Stanley S.	112	37
Royce, Lynn	165	48
Rubinoff, Daniel	160	47
Rugman-Jones, Paul	115, 116	38 38
Sadler, Emily A.	P12	13
Sagili, Ramesh R.	170	48
Scherr, Melissa	63	24
Schmidt, Rebecca	9	15
Schuble, Diane	44	21
Schwarzländer, Mark	22, 97, P1, P2, P9	17 35 12 12 13
Scoles, Glen A.	55	23
Scott, Tessa M.	P1, P2	12 12

AUTHOR	#	pg
Scott, Thomas W.	14	16
See, Deven R.	P31	29
Seybold, Steven J.	115	38
Shearer, Peter W.	39, 86, P3, P18, P20	19 27 12 28 28
Sheehan, Katharine A.	P43, P44	31 32
Shelomi, Matan	12	15
Sheppard, Walter S.	137, P11	41 13
Shrestha, Anil	P29	29
Shrestha, Deepak	5, 29	14 18
Sial, Ashfaq A.	40, 83	20 26
Sihuincha, Moises	14	16
Simmons, Gregory S.	43	20
Sinclair, B.J.	P35	30
Sisco, Rebecca	146	45
Skym, Kimberly	7	14
Smith, Rhonda J.	43	20
Smith, Teah J.	134, P4	41 12
Snyder, William	21, 23, 30	17 17 18
Spafford, Helen	4	14
Spiegel, Lia	P44	32
Stark, John D.	68	24
Steele, Wayne J.	111, 112	37 37
Stephen, William P.	6	14
Stocks, Stephanie	44	21
Stoddard, Steven T.	14	16
Stouthamer, Richard	115, 116, 135	38 38 41
Strange, James	17	16
Tamayo, Danny M.	111	37

AUTHOR	#	pg
Tanigoshi, Lynell	36, P18	19 28
Taylor, Megan	P11	13
Tebeau, Andrew S.	26	17
Thomas, Hillary Q.	42	20
Thomas, James	108, 109, 110	36 36 37
Thomas, Terri L.	111, 113	37 37
Thomson, Donald	52	22
Tjosvold, SA	41, 44, P22	20 21 28
Tochen, Samantha L.	P6	13
Tollerup, Kris	151	45
Toscano, Nick	141	44
Trotter, R. Talbot	118	39
Trumble, John T.	28, 132	18 40
Unger, Lana M.	19, P31	16 29
Valley, Steve	73	25
Van Dam, Matthew H.	25	17
Vander Mey, Bryan	44	21
Van Steenwyk, Robert A.	43	20
Van Tol, Rob W. H. M.	33	18
Varela, Lucia	43	20
Vargas, Roger I.	20	16
Vierling, Lee A.	P36	30
Vinchesi, Amber C.	139	41
Waits, Lisette	P42	31
Walse, Spencer	90	27
Walsh, Doug	16, P27	16 29
Walsh, Douglas	88, P33	27 29
Walston, Allison	99, P23, P24, P25	35 28 28 29

AUTHOR	#	pg
Walton, Vaughn M.	39, 40, 81, 82, 136, P3, P6	19 20 26 26 41 12 13
Walton, William E.	67	24
Wanner, Kevin W.	154	46
Wardell, Gorden	P41	31
Weed, Aaron S.	97, P1, P2	35 12 12
Welsh, Kristen	P38	30
Welter, Stephen C.	83	26
Wenninger, Erik J.	5, 29	14 18
Wheeler, Christopher A.	13	15
Wheeler, Justin	P31	29
White, Bradley J.	61	23
Whitworth, Jonathan	5, 29	14 18
Willett, Mike	49	22
Willhite, Elizabeth A.	P44 P45	32 32
Williams, Neal	167	48
Willingham, Sam	105	36
Wiman, Nik	27	17
Wood, David L.	114	38
Wooster, David	63	24
Wright, Mark	P40	31
Wulfhorst, J.D.	P38	30
Wunderlich, Lynn R.	142	44
Yang, April	106	36
Yang, Wei Q.	136, P14	41 13
Yee, Wee	P28	18
Ying, Wu	84	26
Yoshida, Harvey	109	36
Zalom, Frank G.	58, P8, P18	23 13 28

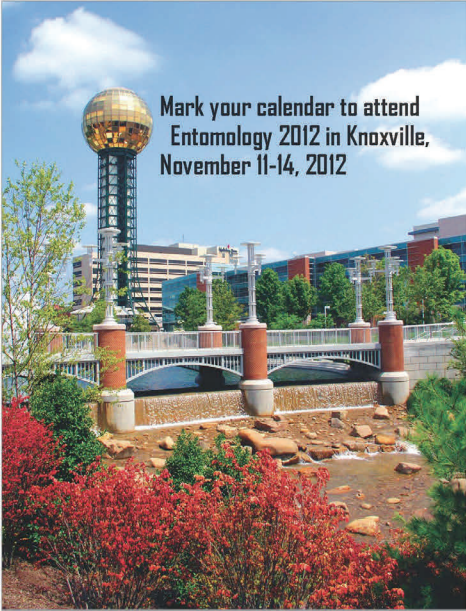
AUTHOR	#	pg
Zinna, Robert A.	P46	32

NOTES

NOTES

NOTES

NOTES



Mark your calendar to attend
Entomology 2012 in Knoxville,
November 11-14, 2012

**Knoxville, Tennessee, home of the
1982 World's Fair, welcomes the
Entomological Society of America for**

ENTOMOLOGY 2012

ESA 60th Annual Meeting
November 11-14, 2012
Knoxville Convention Center, Knoxville, TN

Plan to join **3,000** researchers, professors, graduate
and undergraduate students, extension service
personnel, administrators, research technicians,
consultants, and others from around the globe for
four days of science, networking and fun.

**This is the most important annual conference
anywhere in the world for the science of entomology.**

Bookmark www.entsoc.org/entomology2012

Registration and Housing Opens July 2!



ENTOMOLOGY 2012

How Do You Spell

C

O

M

P

E

T

E

N

C

E

in Pest Management to the public and legal profession?

Let ESA help you prove that you won't just do the job,
but you'll do it right!

If you are an individual who likes to be the best,
and who wants to go a step above the competition,
ACE and/or BCE certification is a great choice!



**BOARD
CERTIFIED
ENTOMOLOGIST**

Become certified today!

For information, visit www.entocert.org
or call 301-731-4535, ext. 3022



**ASSOCIATE
CERTIFIED
ENTOMOLOGIST**

Join us in Tahoe next year!
2013 ESA Pacific Branch
 Harrah's Resort and Casino, South Lake Tahoe, NV
 April 7-10, 2013



portland marriott downtown waterfront
lower level 1

Marriott.
PORTLAND DOWNTOWN
WATERFRONT

1401 SW Naito Parkway • Portland, Oregon 97201
 Hotel (503) 226-7600
 Sales Facsimile (503) 226-1209
 portlandmarriott.com

