



NORTH CENTRAL BRANCH

ENTOMOLOGICAL SOCIETY OF AMERICA

JOHN RUBERSON, PRESIDENT
73RD ANNUAL MEETING OF THE NCB-ESA
MADISON MARRIOTT WEST, MIDDLETON, WISCONSIN

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This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Meeting Logistics

Registration

All participants must register for the meeting. Registration badges are required for admission to all conference functions. The meeting registration desk is located in the Atrium Coat Room. Registration will be open for check-in (pre-registered attendees) and for on-site registration at the following times:

Sunday 11:00 AM – 6:00 PM

Monday 7:45 AM – 4:00 PM

Tuesday 7:45 AM – 4:00 PM

Wednesday 7:45 AM – 10:00 AM

Code of Conduct

By attending the 2018 North Central Branch Annual Meeting, you agree voluntarily to abide by our ethics policy. The full policy may be found online at entsoc.org/conduct. If you need to file a complaint, please contact Rosina Romano at rromano@entsoc.org, 703-593-0222.

Guidelines for Speakers and Moderators

Speakers and moderators will follow standard procedures and practices for ESA meetings. Moderators are responsible for maintaining the printed schedule, by not starting any presentation prior to its scheduled time, and by not allowing a speaker to exceed the allotted time. If a presentation is cancelled, the moderator must wait to begin the next presentation until its scheduled time. If there are problems with the computer/projector, or other equipment, please come to the AV room (Middleton) to request assistance.

Moderator and Student Competition Judge Training

A Moderator and Student Competition Judge training session will be held on Sunday at 5:00 PM in the Salon A. Judging packets will be distributed at that time.

Audiovisual and Upload of Presentations

For All Presenters: Presentations should be created in a format compatible with MS Office-PowerPoint (.pptx). All meeting rooms will be equipped with an LCD projector, projector screen, computer and microphone. The AV room (Middleton) will have computer for presenters to load and preview presentations. **Please upload your presentation no less than two hours before the start of your session.** Folders with Session or Symposium Names will be provided—please upload your talk in the appropriate folder. Please name your presentation with your Last Name, First Name. All meeting room computers are PCs, so a presenter who creates a presentation using a Macintosh computer should test the file on a PC computer prior to the conference.

For Moderators: 20 minutes before the start of your session, you must come to the AV room to copy your session's folder onto a flash drive. There will be a laptop in each presentation room where you can transfer the session folder containing the presentations.

Poster Presentations

Poster Size and Mounting: Posters must be contained within the 46 x 46 inch (117 cm x 117 cm) space provided. The poster must NOT exceed the size limit. Posters will be mounted according to the signage provided. We will provide Velcro/tacks to secure your display to the poster board.

Set Up: Posters will be displayed in the Atrium. Student competition posters should be setup Sunday, March 18 between 4:00 PM and 8:00 PM and should remain posted until take-down on Monday, March 19 from 5:00 PM to 6:00 PM. Regular submission posters should be setup Monday, March 19 between 6:00 PM and 8:00 PM and should remain posted until takedown on Tuesday, March 20 from 6:00 PM to 8:00 PM.

Author Presence: Presenters for Student Competition posters should stand by their poster between **2:00 PM – 3:00 PM (odd numbers)** and **3:00 – 4:00 PM (even numbers)**. Submitted poster presenters should be present from **10:00 – 11:00 AM (odd numbers)** and **2:00 – 3:00 PM (even numbers)**.

No Photographs Please

NCB-ESA requests that attendees not take photographs or videos during sessions because they are disruptive to the presenters. If you wish to take photographs of a poster, please contact the poster presenter for permission. NCB-ESA reserves the right to use photographs and videos taken during the meeting for informational and promotional purposes.

Program Changes, Messages, Lost & Found

Please notify Program Chair, Joe Louis (joelouis@unl.edu), about any program changes. Also, notices concerning program changes can be submitted to the Meeting Registration Desk. A message board for posting meeting announcements will be displayed in the AV and Employment Opportunity room (Middleton). Lost and found items may be turned in and retrieved at the Registration Desk.

Employment Opportunity Center

Employers are invited to post job announcements and job seekers are encouraged to post their CVs in the Employment Opportunity Center in Middleton Room which is also the AV room. Please bring enough copies of your documents for distribution (no photocopy service will be provided).

Refreshments

Coffee and tea will be available during morning breaks each day. Light snacks will be served at the Welcome Reception and the Student Mixer. The Awards Luncheon (Tuesday) is included with registration for all participants, and the Student Sponsored Luncheon (Monday) is included with student registration.

Hotel Amenities

Food and Beverage: The Madison Marriott West has a few dining options. The Falling Water Café is located on the main lobby and is open for breakfast, lunch and dinner along with morning coffee. A convenience store is also located near the main lobby and offers snacks and beverages.

Internet: There is free wifi internet to all registered NCB-ESA meeting participants. To access the internet on the meeting area, connect to “Marriott CONF” or strongest signal. On the connection page, enter the access code “esa0318”. Please be courteous when using the internet during your stay. Refrain from streaming large files, such as video, so that everyone will have access to the internet. People staying at the Marriott will have a separate passcode for their sleeping rooms (provided at check-in).

Parking: Parking is complimentary for all NCB-ESA meeting participants. During the room reservation process, it may state that there is a fee for parking, however, the hotel will waive the parking fee for all NCB-ESA meeting participants and the Front Desk is aware of this.

Airport Shuttle: Airport shuttle service to Dane County Regional Airport (MSN) is available upon request during the hours of service by calling (608) 831-2000. The shuttle service is complimentary and available Mon - Fri: 6:30 AM – 10:00 PM, Sun: 2:30 PM – 10:00 PM. The hotel recommends calling with the flight information in advance, and then again when the plane has landed. Outside of the hours of service, taxi rides (and other services) are available and estimated taxi fare is \$36 (one-way).

Middleton Trolley: A free trolley runs throughout Middleton daily, leaving in front of the hotel every 30 minutes.

Trolley hours:

Monday-Thursday . . 5:30 PM – 10:30 PM

Friday 5:30 PM – 11:30 PM

Saturday 3 PM – 11 PM

A trolley map is provided below.

Special Events

Triplehorn Challenge: An insect pinning competition will take place as part of the Welcome Reception (Sunday, March 18) in the Salons D and E starting at 8:00 pm. Competition is limited to the first 20 sign-ups. Please direct any questions related to the Triplehorn Challenge to Craig Brabant (brabant@entomology.wisc.edu).

Early Career Professionals (ECP) Networking Event: Starting at 7:30 PM on Monday (March 19), ECP, and any other interested parties, are invited to an informal dinner and drinks at the Free House Pub in Middleton (<http://freehousepub.com>).

A room has been reserved and the restaurant will be offering happy hour prices for everyone's first beverage. Interested parties can either walk there from the hotel (10-15 minutes one way) or ride the complimentary Middleton Trolley. If you would like to attend, please notify Ben Jaffe (bjaffe2@wisc.edu) so he can inform the restaurant of expected numbers.

Brewery Tour: Starting at 4 PM on Tuesday (March 20), attendees are invited to go to the Capital Brewery (<http://capitalbrewery.com/>) for a tour and tasting. The visit itself lasts about 40 minutes, and visitors will receive a commemorative glass and either four samples or one pint of their award-winning beer. The cost is \$5.00 per person (to be paid onsite), and visitors can either walk there from the hotel (10-15 minutes one way) or ride the complimentary Middleton Trolley. If you would like to attend, please notify Ben Jaffe (bjaffe2@wisc.edu) so he can inform the brewery of expected numbers.

Other activities: Many activities are available in the Middleton/Madison area; some of the highlights are detailed on the following page.



<https://visitmiddleton.com/getting-around/trolley/>

MIDDLETON:**Pheasant Branch Conservancy**

- Large park with bike paths and hiking trails
- Address: 4864 Pheasant Branch Rd, Middleton, WI 53562
- Info: <http://www.pheasantbranch.org/>

National Mustard Museum

- Nearly 6,000 types of mustard; free admission and tastings
- Address: 7477 Hubbard Ave, Middleton, WI 53562
- Info: <http://www.mustardmuseum.com/>

Capital Brewery

- Taproom, restaurant, and weekend brewery tours
- Address: 7734 Terrace Ave, Middleton, WI 53562
- Info: <http://www.capitalbrewery.com/>

MADISON:**Olbrich Botanical Garden**

- Indoor conservatory and outdoor garden with Thai pavilion
- Address: 3330 Atwood Ave, Madison, WI 53704
- Info: <http://www.olbrich.org/>

University of Wisconsin-Madison Arboretum

- 1,200 acres representing varied habitats, plus a nature center
- Address: 1207 Seminole Hwy, Madison, WI 53711
- Info: <http://www.arboretum.wisc.edu/>

Henry Vilas Zoo

- Indoor and outdoor exhibits; free admission
- 702 S Randall Ave, Madison, WI 53715
- Info: <http://www.vilaszo.org/>

Wisconsin State Capitol

- Open to the public; free tours daily
- Address: 2 E Main St, Madison, WI 53703
- Info: <http://www.legis.wisconsin.gov/about/visit>

Madison Museum of Contemporary Art

- Located next to Overture Center performance venue; free admission
- Address: 227 State St, Madison, WI 53703
- Info: <http://www.mmoca.org/>

FURTHER AFIELD:**Devil's Lake State Park**

- Campground, hiking, rock climbing
- Address: S5975 Park Rd, Baraboo, WI 53913
- Info: <https://dnr.wi.gov/topic/parks/name/devilslake/>

Aldo Leopold Shack

- Setting for A Sand County Almanac; visitor center and trails also on-site
- Address: E13701 Levee Rd, Baraboo, WI 53913
- Info: <https://www.aldoleopold.org/>

Downtown Middleton and Madison

Information about Middleton and Madison dining and activities, as well as downtown maps will be provided in your meeting registration packet. Also, a map of the extensive Madison bike paths will be included in the registration packet.

For more information about Middleton and Madison, Visit Middleton website, <https://visitmiddleton.com/>, and Visit Madison website, <https://www.visitmadison.com/>.

SPECIAL THANKS TO OUR MEETING SPONSORS

2018 NCB-ESA Meeting Organizers



John Ruberson
President



Erin Hodgson
Secretary / Treasurer



Joe Louis
Program Chair



Christelle Guédot
Local Arrangements Chair



Priyanka Mittapelly
Student Rep – Executive
Committee

NCB-ESA Committee Information

Executive Committee

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John Ruberson, Kansas State University

PRESIDENT-ELECT

Bill Ravlin, Michigan State University

PAST PRESIDENT

Linda Mason, Purdue University

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Erin Hodgson, Iowa State University

STUDENT REPRESENTATIVE

Priyanka Mittapelly, The Ohio State University

NCB REPRESENTATIVE TO GOVERNING BOARD

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Deane Jorgenson, Syngenta

MEMBER-AT-LARGE 2

Laura Campbell, Dow Chemical Company

MEMBER-AT-LARGE 3

Ana Maria Vélez, University of Nebraska-Lincoln

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Christelle Guédot, University of Wisconsin-Madison

COMMITTEE MEMBERS

R. Chris Williamson, University of Wisconsin-Madison

Russell Groves, University of Wisconsin-Madison

Patrick (P.J.) Liesch, University of Wisconsin-Madison

Ben Jaffe (Early Career Professional), University of Wisconsin-Madison

Bonnie Jean Ohler (Student Representative), University of Wisconsin-Madison

Matt Kamiyama (Student Representative), University of Wisconsin-Madison

Program Committee

CHAIR

Joe Louis, University of Nebraska-Lincoln

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James Campbell (Past Chair), USDA-ARS

Matthew Grieshop (2019 Program Chair), Michigan State University

Sajjan Grover (Student Representative), University of Nebraska-Lincoln

John Jay Ternest (Student Representative), Purdue University

Student Affairs Committee

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Todd Johnson, University of Illinois at Urbana-Champaign

CHAIR-ELECT

Amanda Skidmore, University of Kentucky

NCB Representative to ESA

Edwin Benkert, University of Minnesota

Kaitlin Chapman, University of Nebraska-Lincoln

Sophia Conzemius, South Dakota State University

Grace Craigie, Kansas State University

Aleksandra Dolezal, University of Guelph

Emily Justus, The Ohio State University

Jessica Kansman, University of Missouri

Niranjana Krishnan, Iowa State University

Margie Lund, Michigan State University

Bonnie Jean Ohler, University of Wisconsin-Madison

Ryan Paul / Melissa Schreiner, Colorado State University

John Jay Ternest, Purdue University

AWARDS CZAR

Jen White, University of Kentucky

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Mark Asplen, Metropolitan State University

Amit Sethi, Pioneer

Mike McCarville, Bayer CropScience

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Scott Williams, Spensa Technologies

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Jason Harmon, North Dakota State University

Steve Bradbury, Iowa State University

Erin O'Brien, The Ohio State University

Kacie Athey, University of Kentucky

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Phil Sloderbeck, Kansas State University

Nominating Committee

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Boris Castro, Dow AgroSciences

MEMBERS

Ernest Delfosse, Michigan State University

Zsafia Szendrei, Michigan State University

Audit Committee

CHAIR

Matthew Carroll, Monsanto

MEMBER

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Photo Salon Committee

CHAIR

Tom Myers, All-Rite Pest Control

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Ric Bessin, University of Kentucky

Gary Hein, University of Nebraska-Lincoln

David Voegtlin, Illinois Natural History Survey

Linnaean Games Committee

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Dan Young, University of Wisconsin-Madison

GAMES MASTER

Deane Jorgenson, Syngenta

MEMBER

Wayne Ohnesorg, University of Nebraska-Lincoln

STUDENT REPRESENTATIVE

Amanda Skidmore, University of Kentucky

ESA Representatives

AWARDS AND HONORS

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Gary Brewer, University of Nebraska-Lincoln

SCIENCE POLICY COMMITTEE

Marianne Alleyne, University of Illinois at Urbana-Champaign

EARLY CAREER PROFESSIONALS

COMMITTEE

Hannah Penn, Miami University

DIVERSITY AND INCLUSION

COMMITTEE

Susan Moser, Pioneer

Special Acknowledgements

ADDITIONAL MEETING ORGANIZERS

- Craig Brabant: Triplehorn Challenge Coordinator
- David Hogg: Awards Luncheon Emcee
- Adam Varenhorst: Student Competition Judging and Moderator Coordinator

- Laura Campbell: Meeting Sponsorship Coordinator

SPECIAL THANKS

- ESA Central Staff: Becky Anthony, Josh Lancette
- Confex Staff, especially Amy Coli for program assistance and Karen Morrissey for program book assembly

- Madison Marriott West Staff, especially Catherine Davis, Director of Event Sales Stefanie Maher, ConferenceDirect
- All of our moderators, Student Competition judges, and student volunteers
- All of our meeting sponsors

2018 NCB-ESA Awards Committee Chairs



Jennifer White
NCB Awards Czar



Adam Varenhorst
NCB Student Awards Chair



Thomas Hunt
NCB Professional Awards Chair



Sarah Zukoff
NCB Honorary Awards Chair

2018 NCB-ESA Award Winners

C.V. Riley Achievement Award



Dr. Joel R. Coats
Iowa State University

Dr. Joel Coats is Distinguished Professor of Entomology and Toxicology in the Department of Entomology at Iowa State University. He is originally from Ohio and received his Ph.D. in Entomology (Chemistry minor) from the University of Illinois at Urbana-Champaign, with specialization in insecticide toxicology. He was a Visiting Professor for two years in the Department of Environmental Biology at the University of Guelph in Ontario, Canada. Dr. Coats has been on the faculty at Iowa State University since 1978 and served as Department Chairman for seven years. He teaches in courses on pesticides and toxicology. Joel has served as major professor for 44 graduate students who have graduated from his lab, plus 6 current PhD students. His research program focuses on insect toxicology and the environmental toxicology and chemistry of pesticides. His scientific publications include 11 books, 7 review articles, 46 book chapters, and 152 peer-reviewed journal articles, and he holds 9 patents. He has received the International Award for Research in Agrochemicals from the American Chemical Society Agrochemical Division and the Alumni Achievement Award from the University of Illinois' College of Liberal Arts and Sciences. He is also a Fellow of the Entomological Society of America and the American Association for the Advancement of Science.

Award Winners

Distinguished Achievement Award in Teaching



Dr. Peter White
Michigan State University

Dr. Peter White is an entomologist and science education researcher at Michigan State University. He earned his Ph.D. in Biology from McGill University in Canada and has been working at MSU since 2011. His entomological research examines how moth assemblages are structured across urban and rural landscapes while his science education research explores pedagogical interventions to improve student learning in gateway undergraduate biology courses. He is the co-founder of the evolution education website, www.evo-ed.org, that is used by more than 25,000 instructors and students across the US and Canada, annually. Dr. White often uses insect-based examples in his undergraduate biology teaching, and has a track record of involving undergraduate students as co-authors in his research. His video-based "flipped" teaching approach has provided his students with a high-impact and unique way of learning fundamental biological concepts. He recently developed a graduate lab course in insect genetics designed to give entomology students a practical primer in modern genetic techniques to apply in their research. Dr. White is a member of the Entomological Society of America, the Lepidopterists' Society, the National Association of Biology Teachers, and the Ontario Consortium of Undergraduate Biology Educators. He also serves as an associate editor at Biodiversity and Conservation.

Distinguished Achievement Award in Extension



Dr. Erin Hodgson
Iowa State University

Dr. Erin Hodgson is originally from North Dakota and received her B.S. (Biology) and M.S. (Entomology) from North Dakota State University. She got her Ph.D. (Entomology) in 2005 from the University of Minnesota. Erin worked as an extension entomologist for three years at Utah State University before starting at Iowa State University in 2009. Currently, she is an extension entomologist and associate professor at ISU, and works on IPM of field crop insects. Her extension and research programs improve profitability, sustainability and environmental stewardship in agriculture. In 2013, Erin became the Crops Team Leader for Agriculture and Natural Resources, which is a large group of extension faculty and staff at ISU. Erin regularly attends ESA and NCB-ESA meetings, and has served on several committees: ESA Local Arrangements (2007), NCB-ESA Student Competition and Awards (2011-2013; Chair in 2013), NCB-ESA Local Arrangements (2012-2014; Chair), NCB-ESA Executive (2011-2014; Member-at-Large), and ESA Distinguished Achievement Award in Extension Review (2014-2016). Currently she serves as NCB-ESA Secretary/Treasurer and a subject editor for JIPM

Distinguished Achievement Award in Horticultural Entomology



Dr. Raymond Cloyd
Kansas State University

Dr. Raymond Cloyd is a Professor at Kansas State University (Manhattan, KS). Dr. Cloyd received his MS and PhD from the Department of Entomology at Purdue University (West Lafayette, IN), and was employed at the University of Illinois (Urbana, IL) in the Department of Natural Resources and Environmental Sciences prior to his employment at Kansas State University in the Department of Entomology. His research and extension program involves plant protection in greenhouses, nurseries, landscapes, turfgrass, conservatories, interiorscapes, Christmas trees, and vegetables and fruits. Dr. Cloyd is the extension specialist in horticultural entomology for the state of Kansas with a major clientele that includes homeowners, master gardeners, and professional and commercial operators. He is an author of > 80 scientific refereed papers, > 900 trade journals, and > 60 extension publications on topics related to plant protection. Dr. Cloyd has also authored or co-authored numerous books, book chapters, manuals, PICT or picture-pocket guides, and other extension-related publications.

Dr. Cloyd's research program focuses on key insect pests of horticultural cropping systems associated with greenhouses. Dr. Cloyd's research program has been instrumental in developing rotation programs that are designed to reduce the potential for insecticide resistance developing in western flower thrips populations. Dr. Cloyd's research program also seeks to understand the effects of pesticides on biological control agents so that greenhouse producers can integrate pesticides with biological control and more effectively address insect and mite pest problems.

Dr. Cloyd is a frequent speaker at state, national, and international conferences and seminars; and has received numerous awards and honors during his nearly 20 year academic career. Dr. Cloyd's professional specialty areas include: plant protection, biological control, plant-insect interactions, insect ecology, pesticides, integrating pesticides with biological control agents, and sanitation.

Excellence in Early Career Award



Dr. Scott O'Neal
University of Nebraska-
Lincoln

Dr. Scott O'Neal grew up on a farm in southern Indiana and credits his many years of participation in 4-H with fostering his love of entomology. He attended Purdue University, where he earned his B.S. in Genetics and Microbiology and gained research experience by working in the Department of Entomology. Scott earned his M.S. in Forensic Science from Virginia Commonwealth University, after which he remained there and accepted a laboratory manager position in the Department of Pharmacology and Toxicology. After working for several years as a researcher in the field of mammalian behavioral pharmacology, Scott returned to graduate school to earn his Ph.D. in Entomology from Virginia Tech under the mentorship of Dr. Troy Anderson. He initially conducted research in the area of virology and vector biology, then shifted his research focus when he was awarded a USDA NIFA Predoctoral Fellowship to study ion channel regulation of honey bee cardiac function and antiviral immunity. As a Postdoctoral Research Associate at the University of Nebraska-Lincoln, Scott continues to investigate questions related to honey bee physiology and immunity, in addition to developing projects related to the stress biology of disease vector mosquitoes. He has also assumed a more active role in ESA, where he currently serves on the Early Career Professionals Committee, as well as the Governing Council of the Physiology, Biochemistry, and Toxicology Section. Scott's career goal is to attain a faculty position that integrates teaching and outreach into a research program focused on understanding the mechanisms that govern interactions between viruses and the immune response of the insect host.

Educational Project Award

Presented by BCEs of Mid-America



Dr. John Schrock
Emporia State University

Dr. John Richard Schrock is Professor Biology Emeritus and Roe. R. Cross Distinguished Professor at Emporia State University, and English editor of the insect taxonomy journal *Entomotaxonomia* in China. When John Richard Schrock graduated from the University of Kansas with a Ph.D. in entomology, he became Publications Manager for the Association of Systematics Collections where he communicated with many systematists worldwide. When he joined the Biology Department at Emporia State University, he became the fourth editor of the *Kansas School Naturalist*, a free publication serving teachers, students and citizen naturalists nationwide.

Distributed free upon request, the *Kansas School Naturalist* reaches 5000 readers in Kansas, over 5000 additional readers across the United States, and over 500 overseas. Well over a million copies of these booklets have been distributed free since its founding in 1954. Issues include the 2017 publication "Biology of the Monarch Butterfly", and many illustrated state checklists of butterflies, dragonflies and damselflies, spider families and other taxonomic groups. These checklists allow elementary teachers to help young students match photos with specimens they have collected, while at the same time providing authoritative life history and records valuable for students in graduate level research. Many issues have been directly responsible for drawing youngsters into the study of invertebrates, eventually contributing to a new generation of entomologists and invertebrate zoologists.

J.H. Comstock Graduate Student Award



Rachael Sitz

Colorado State University

Rachael graduated with B.S. degrees in Insect Science and Plant Biology from the University of Nebraska-Lincoln in 2011 where her research focused on plant-insect interactions in a biofuel grass system. During her M.S. and Ph.D. degrees in Dr. Whitney Cranshaw's lab in the Department of Bioagricultural Sciences and Pest Management at Colorado State University, Rachael started work on insect-associated diseases of trees. Her focus is on the insect causal agents of two emergent diseases including thousand cankers disease of walnut and drippy blight disease of red oak. Her M.S. research investigated cold tolerance in the walnut twig beetle, and sanitation options for thousand cankers diseased trees and felled logs. Her work has also looked at insecticide resistance in the European elm scale as well as the life history of the kermes scale involved in drippy blight disease, and insect involvement in the spread of a bacterial tree pathogen. She integrates basic entomology, microbiology, ecology to answer applied research questions that aid management of insect-associated diseases in urban and natural forests.

Graduate Student Scholarship Award



Kaitlin Chapman

University of Nebraska-Lincoln

Kait Chapman received her BS in Insect Science from the University of Nebraska-Lincoln before starting her PhD program at the same university. Under the supervisions of Dr. Joe Louis and Dr. Tiffany Heng-Moss, Kait's PhD research is broadly focused on host-plant resistance to aphids with an emphasis on host-lipids as a potential mechanism of defense. She also continues work on the possible mechanisms involved in soybean tolerance to the soybean aphid with the hopes of including aphid-tolerance in integrated pest management practices. In addition to her research, Kait has participated heavily in departmental outreach and activities, currently serving as the president of the UNL entomology graduate organization, the Bruner Club, and on the department's Science Literacy Committee.

Student Travel Scholarship Winners

BRADY HAUSWEDELL

South Dakota State University

KAITLIN CHAPMAN

University of Nebraska

CARLOS ESQUIVEL

The Ohio State University

MAN HUYNH

University of Missouri

TODD JOHNSON

University of Illinois

JOHN TERNEST

Purdue University

JULIA LEONE

University of Minnesota

EMILY JUSTUS

The Ohio State University

JESSICA KANSMAN

University of Missouri

KELSEY FISHER

Iowa State University

KABITA KHAREL

Purdue University

ELLIOT KNOELL

University of Nebraska

CHRISTOPHER KOSITZKE

University of Kentucky

DALTON LUDWICK

University of Missouri

MARGARET LUND

Michigan State University

RACHEL MCLAUGHLIN

The Ohio State University

PRIYANKA MITTAPELLE

The Ohio State University

RYAN SCHMID

Kansas State University

AMANDA SKIDMORE

University of Kentucky

SURESH VARSANI

University of Nebraska

Program Summary

SUNDAY, MARCH 18, 2018		
Program	Time	Location
NCERA 220 Working Group Meeting	8:00 AM - 12:00 PM	Milwaukee
Mothers' Room	9:00 AM - 10:00 PM	La Crosse
Executive Committee Meeting	10:00 AM - 12:00 PM	Green Bay
Registration	11:00 AM - 6:00 PM	Atrium Coat Room
AV and Employment Opportunity Room	12:00 PM - 7:00 PM	Middleton
Advances in alternative insecticide-based tools for the control of agricultural pests by early career and young entomologists	1:00 PM - 4:20 PM	Salon A
Vector-borne disease in the north central region	1:00 PM - 4:45 PM	Geneva
Beyond corn and soy: Advances in the integrated pest management of underrepresented Midwest crops	1:00 PM - 5:00 PM	Salon B
NCAC-15 Working Group Meeting	2:00 PM - 5:00 PM	Milwaukee
Linnaean Games - Preliminary Rounds	5:00 PM - 7:00 PM	Salons D and E
Judges and Moderators Training	5:00 PM - 5:30 PM	Salon A
Opening Session and Business Meeting	7:00 PM - 7:30 PM	Salons D and E
Welcome Reception	7:30 PM - 10:00 PM	Salons D and E
Triplehorn Pinning Challenge	8:00 PM - 9:00 PM	Salons D and E
MONDAY, MARCH 19, 2018		
Program	Time	Location
AV and Employment Opportunity Room	7:30 AM - 5:00 PM	Middleton
Registration	7:45 AM - 4:00 PM	Atrium Coat Room
Mothers' Room	8:00 AM - 10:00 PM	La Crosse
Ph.D. Student Ten-Minute Paper Competition (P-IE Session I)	8:00 AM - 10:00 AM	Salon A
Ph.D. Student Ten-Minute Paper Competition (SysEB, MUVE, PBT Session)	8:00 AM - 10:00 AM	Salon B
B.S. Student Poster Competition	8:00 AM - 5:00 PM	Atrium
M.S. Student Poster Competition - I	8:00 AM - 5:00 PM	Atrium
M.S. Student Poster Competition - II	8:00 AM - 5:00 PM	Atrium
Ph.D. Student Poster Competition	8:00 AM - 5:00 PM	Atrium
B.S. Student Ten-Minute Paper Competition	8:10 AM - 9:00 AM	Salon C

Program Summary

MONDAY, MARCH 19, 2018, CONT'D

M.S. Student Ten-Minute Paper Competition (P-IE Session I)	9:10 AM - 10:30 AM	Salon C
Ph.D. Student Ten-Minute Paper Competition (P-IE Session II)	10:10 AM - 12:00 PM	Salon A
M.S. Student Ten-Minute Paper Competition (SysEB, MUVE, PBT Session)	10:30 AM - 11:40 AM	Salon B
M.S. Student Ten-Minute Paper Competition (P-IE Session II)	10:40 AM - 12:00 PM	Salon C
Students Luncheon: Developing broader impacts from your research	12:00 PM - 1:30 PM	Salons D and E
Ecological effects and molecular mechanisms underlying insect-plant interactions	1:30 PM - 3:10 PM	Salon C
Decoding urban entomology challenges	1:30 PM - 4:30 PM	Salon A
Influence of cover crops on crop insect management	1:30 PM - 5:05 PM	Geneva
Societal Challenges with Entomological Solutions	3:20 PM - 5:50 PM	Salon C
Photo Salon	4:00 PM - 5:00 PM	Salon B
Linnaean Games - Final Rounds	5:30 PM - 7:30 PM	Salons D and E
NCB Early Career Professional Networking	7:30 PM - 11:00 PM	Freehouse Pub
Student Mixer	7:45 PM - 10:00 PM	Essen Haus

TUESDAY, MARCH 20, 2018

Program	Time	Location
AV and Employment Opportunity Room	7:30 AM - 5:00 PM	Middleton
Registration	7:45 AM - 4:00 PM	Atrium Coat Room
Mothers' Room	8:00 AM - 10:00 PM	La Crosse
Shifting Pest Complexes: Management and Challenges in Soybean	8:00 AM - 11:35 AM	Salon B
Regular Submitted Posters	8:00 AM - 5:00 PM	Atrium
A Sensible Symposium: Exploring the sensory ecology of insects and related arthropods	8:30 AM - 11:30 AM	Salon A
A spectrum of symbioses: Microbial dimensions of entomology	10:00 AM - 11:45 AM	Salon C
Pollination Research in the North Central Region - Part I	10:00 AM - 12:00 PM	Geneva
Awards Luncheon	12:00 PM - 1:30 PM	Salons D and E
Submitted Ten-Minute Presentations: P-IE Session I	1:30 PM - 4:00 PM	Salon C
Pollination Research in the North Central Region - Part II	1:30 PM - 5:15 PM	Geneva
Growing entomology literacy and science understanding through innovative extension, outreach, and teaching programs	1:30 PM - 5:35 PM	Salon A
Workshop: North Central Region Extension Entomologists Share Fair	4:00 PM - 6:00 PM	Green Bay and Milwaukee
Brewery Tour: Ticketed event	4:00 PM - 9:00 PM	Capital Brewery
Submitted Ten-Minute Presentations: MUVE Session	4:10 PM - 5:50 PM	Salon C
Student Affairs Committee Meeting	5:00 PM - 6:30 PM	Salon B

Program Summary

WEDNESDAY, MARCH 21, 2018

Program	Time	Location
Final Business Meeting	7:30 AM - 8:30 AM	Green Bay
AV and Employment Opportunity Room	7:30 AM - 12:00 PM	Middleton
Registration	7:45 AM - 10:00 AM	Atrium Coat Room
Mothers' Room	8:00 AM - 2:00 PM	La Crosse
Submitted Ten-Minute Presentations: P-IE Session II	8:00 AM - 10:10 AM	Salon F
Monarch butterfly (<i>Danaus plexippus</i>) conservation in the north central states: Challenges and opportunities	8:00 AM - 11:55 AM	Salons G and H
Forest Entomology	8:30 AM - 11:00 AM	Salon E
Lett-uce get together: Ecological insect management in fruits and vegetables	8:30 AM - 11:30 AM	Salon C
Submitted Ten-Minute Presentations: PBT, SysEB Session	10:20 AM - 11:50 AM	Salon F
Executive Committee Final Meeting	12:00 PM - 2:00 PM	Green Bay

Oral & Poster Presentation Schedule

SUNDAY, MARCH 18, 2018, AFTERNOON

Advances in alternative insecticide-based tools for the control of agricultural pests by early career and young entomologists

Salon A (Madison Marriott West)

Moderators and Organizers: Rob Morrison, USDA - ARS, Manhattan, KS and Deanna Scheff, USDA - ARS, Manhattan, KS

1:00		Introductory Remarks
1:05 PM	1	In no uncertain terms: Consequences of the language entomologists use to categorize insecticides. <i>Theresa Cira</i> (cirax002@umn.edu) ¹ , <i>Kathy Quick</i> ² and <i>William D. Hutchison</i> ¹ , ¹ Univ. of Minnesota, St. Paul, MN, ² Univ. of Minnesota, Minneapolis, MN
1:25 PM	2	Attract and kill technology to manage a generalist herbivore. <i>Amanda Buchanan</i> (alynn@msu.edu), <i>Zsolt Szendrei</i> and <i>Matt Grieshop</i> , Michigan State Univ., East Lansing, MI
1:45 PM	3	Mass trapping codling moth (<i>Cydia pomonella</i>) with a kairomonal lure reduces damage in apple orchards. <i>Benjamin Jaffe</i> (bjaffe2@wisc.edu) ¹ , <i>Peter J. Landolt</i> ² and <i>Christelle Guédot</i> ¹ , ¹ Univ. of Wisconsin, Madison, WI, ² USDA - ARS, Wapato, WA
2:05 PM	4	Assessing attractants for potential inclusion in behaviorally-based monitoring and management strategies for warehouse and Khapra beetle. <i>Rob Morrison</i> (William.Morrison@ARS.USDA.GOV) ¹ , <i>Michael Domingue</i> ² and <i>Frank Arthur</i> ¹ , ¹ USDA - ARS, Manhattan, KS, ² USDA-APHIS, Buzzards Bay, MA
2:25		Break
2:40 PM	5	Alternative applications of RNA interference for western corn rootworm management. <i>Ana Vélez</i> (avelezarango2@unl.edu) ¹ , <i>Elane Fishilevich</i> ² , <i>Etsuko Moriyama</i> ¹ , <i>Mariana Londono</i> ¹ , <i>Molly Darlington</i> ¹ and <i>Blair Siegfried</i> ³ , ¹ Univ. of Nebraska, Lincoln, NE, ² Dow AgroSciences, Indianapolis, IN, ³ Univ. of Florida, Gainesville, FL

3:00 PM	6	Impacts of insecticide deployment practices on insecticide resistance evolution in field-collected German cockroaches (<i>Blattella germanica</i> (L.)). <i>Mahsa Fardisi</i> (mfardisi@purdue.edu), <i>Ameya Gondhalekar</i> and <i>Mike Scharf</i> , Purdue Univ., West Lafayette, IN
3:20 PM	7	Utilizing insecticide treated netting against stored-product insects. <i>Deanna Scheff</i> (deanna.scheff@ars.usda.gov) and <i>Frank Arthur</i> , USDA - ARS, Manhattan, KS
3:40 PM	8	Innovative repellent strategy for managing the stored-product pest <i>Tribolium castaneum</i>. <i>Leslie Rault</i> (leslie.rault@huskers.unl.edu) ¹ , <i>Troy Anderson</i> ¹ and <i>Georgina Bingham</i> ² , ¹ Univ. of Nebraska, Lincoln, NE, ² Vestergaard S. A., Lausanne, Switzerland
4:00 PM	9	Hypoxia treatment of red flour beetle, <i>Tribolium castaneum</i> (Herbst). <i>Kabita Kharel</i> (kkharel@purdue.edu), <i>Linda Mason</i> and <i>Dieudonne Baributsa</i> , Purdue Univ., West Lafayette, IN

Vector-borne disease in the north central region

Geneva (Madison Marriott West)

Organizer: Susan Paskewitz, Univ. of Wisconsin, Madison, WI

1:00 PM	10	Keeping tabs on the mosquito fauna of Wisconsin. <i>Lyric Bartholomay</i> (lbartholomay@wisc.edu), Univ. of Wisconsin, Madison, WI
1:30 PM	11	Wherefore art thou albopictus? Mosquito surveillance in Michigan 2017 <i>Michael Kaufman</i> (kaufma15@msu.edu), Michigan State Univ., East Lansing, MI
2:00 PM	12	A tale of three cities: Introduction and potential establishment of <i>Aedes albopictus</i> in Iowa. <i>Ryan Smith</i> (smithr@iastate.edu), Iowa State Univ., Ames, IA
2:30 PM	13	A spatial model of the potential for invasion and colonization of <i>Aedes albopictus</i> in Illinois. <i>Marilyn Ruiz</i> (moruiz@uiuc.edu), Univ. of Illinois, Champaign, IL
3:00		Break

- 3:15 PM 14 Boots on the ground: Mosquito control perspectives from a Mosquito Abatement District.**
Patrick Irwin (*pirwin@nwmadil.com*) and *Dan Bartlett*, Northwest Mosquito Abatement District, Wheeling, IL
- 3:45 PM 15 Ticks and tickborne disease surveillance: a public health perspective from Minnesota.**
Jenna Bjork (*jenna.bjork@state.mn.us*), Minnesota Dept. of Health, St Paul, MN
- 4:15 PM 16 Integrated tick management in Wisconsin.**
Scott Larson (*srlarson3@wisc.edu*), *Xia Lee*, *Jordan Mandli* and *Susan Paskewitz*, Univ. of Wisconsin, Madison, WI

Beyond corn and soy: Advances in the integrated pest management of underrepresented Midwest crops

Salon B (Madison Marriott West)

Moderators and Organizers: Jessica Kansman, Univ. of Missouri, Columbia, MO and Dalton Ludwick, Univ. of Missouri, Columbia, MO

- 1:00 Introductory Remarks**
- 1:05 PM 17 Variety selection for the sugarcane aphid in the high plains: What's hot and what's not.**
Sarah Zukoff (*snzukoff@ksu.edu*)¹, *J. P. Michaud*² and *Brian McCornack*³, ¹Kansas State Univ., Garden City, KS, ²Kansas State Univ., Hays, KS, ³Kansas State Univ., Manhattan, KS
- 1:25 PM 18 Population densities and development of the major Lepidopteran pests in Wisconsin cranberry.**
Christelle Guédot (*guedot@wisc.edu*) and *Erin McMahan*, Univ. of Wisconsin, Madison, WI
- 1:45 PM 19 Spatiotemporal resource heterogeneity in agroecosystems: implications for bumble bees and other beneficial insects.**
Jeremy Hemberger (*hemberger@wisc.edu*) and *Claudio Gratton*, Univ. of Wisconsin, Madison, WI

- 2:05 PM 20 Cucurbits in Kentucky: A multi-year, multi-study investigation into IPM techniques for organic and conventional cucurbit production.**
Amanda Skidmore (*amanda.skidmore@gmail.com*), *Neil Wilson*, *Mark A. Williams* and *Ric Bessin*, Univ. of Kentucky, Lexington, KY
- 2:25 PM 21 Biological control for herbivore management in a perennial vegetable crop.**
Amanda Buchanan (*alynn@msu.edu*), *Matt Grieshop* and *Zsafia Szendrei*, Michigan State Univ., East Lansing, MI
- 2:45 Break**
- 3:00 PM 22 Bottom-up effects of drought on aphids and their natural enemies.**
Jessica Kansman (*jtkp8b@missouri.edu*) and *Debbie Finke*, Univ. of Missouri, Columbia, MO
- 3:20 PM 23 Identification and quantification of parasitoids in blackberries sprayed with three biologically based insecticides and bordered by native perennial and pasture in Franklin County, KY.**
Kyle Slusher (*eddie.slusher@kysu.edu*), *John Sedlacek*, *Karen Friley*, *Mamata Bashyal*, *Sathya Govindasamy* and *Megan McCoun*, Kentucky State Univ., Frankfort, KY
- 3:40 PM 24 Can *Trichogramma ostrinae* be used for the biological control of western bean cutworm in dry edible beans?**
Jeff Bradshaw (*jbradshaw2@unl.edu*)¹, *Julie Peterson*² and *Robert Wright*³, ¹Univ. of Nebraska, Scottsbluff, NE, ²Univ. of Nebraska, North Platte, NE, ³Univ. of Nebraska, Lincoln, NE
- 4:00 PM 25 Synergistic effects of visual and olfactory stimuli to *D. suzukii*.**
Grant Bolton (*lgbcm4@mail.missouri.edu*)¹, *Jaime Pinero*² and *Bruce Barrett*¹, ¹Univ. of Missouri, Columbia, MO, ²Lincoln Univ., Jefferson City, MO
- 4:20 PM 26 A novel attract and kill tactic for Oriental fruit moth and Japanese beetle in MI specialty crops.**
Matt Grieshop (*grieshop@msu.edu*), *Amanda Buchanan* and *Juan Huang*, Michigan State Univ., East Lansing, MI
- 4:40 Discussion**

MONDAY, MARCH 19, 2018, POSTERS

B.S. Student Poster Competition / 8:00 AM-5:00 PM

Atrium (Madison Marriott West)

- D1** Pollen host relationships in four oligolectic South American bees (Hymenoptera: Apidae).
Kristian Williams (*kristianw@siu.edu*) and *Sedonia Sipes*, Southern Illinois Univ., Carbondale, IL
- D2** Evaluation of insect pests on edamame (vegetable soybean) varieties in Minnesota.
James Menger (*meng0025@umn.edu*), *Anthony Hanson* and *Robert Koch*, Univ. of Minnesota, St. Paul, MN
- D3** Effects of honey bee colony presence on bumble bee populations in Iowa prairies.
Zoe Pritchard (*zpritch@iastate.edu*), *David Stein*, *Ashley St. Clair*, *Harmen P. Hendriksma*, *Matthew O'Neal* and *Amy Toth*, Iowa State Univ., Ames, IA
- D4** Behavioral responses of *Rhyzopertha dominica* and *Tribolium castaneum* to commercially available multi-species lures in the laboratory: Implications for attract-and-kill.
Matt Hamblin (*mkhamblin@ksu.edu*)¹ and *Rob Morrison*², ¹Kansas State Univ., Manhattan, KS, ²USDA - ARS, Manhattan, KS
- D5** Bee-searching for a solution: using an antifeedant to conserve bees.
Chloe Weingarten (*weingartenchloe@gmail.com*)¹, *Erin Hodgson*², *Matthew O'Neal*² and *Russell Jurenka*², ¹Friedell Middle School, Rochester, MN, ²Iowa State Univ., Ames, IA
- D6** Sugar composition can enhance oral insecticide toxicity in attractive toxic sugar baits.
Katherine Kudrna (*kudrna@wisc.edu*), *Paul Airs* and *Lytic Bartholomay*, Univ. of Wisconsin, Madison, WI
- D7** A survey of the false blister beetles of the western Great Lakes region (Coleoptera: Oedemeridae).
Elizabeth Clodfelter (*clodfelter@wisc.edu*) and *Daniel K. Young*, Univ. of Wisconsin, Madison, WI
- D8** Mycteridae and boridae of the western Great Lakes region (Coleoptera: Tenebrionoidea).
Claire Melidosian (*cmelidosian@wisc.edu*) and *Daniel K. Young*, Univ. of Wisconsin, Madison, WI

- D8a** Development of an innovative cucumber beetle monitoring trap.
Christoph Kositzke (*christopher.kositzke@uky.edu*), *Amanda Skidmore* and *Ric Bessin*, Univ. of Kentucky, Lexington, KY

M.S. Student Poster Competition - I / 8:00 AM-5:00 PM

Atrium (Madison Marriott West)

- D9** Active surveillance for emerging *Ixodes scapularis* populations in eastern Michigan.
Megan Porter (*porter.dvm@gmail.com*) and *Jean Tsao*, Michigan State Univ., East Lansing, MI
- D10** Status and inheritance patterns of Indoxacarb and Fipronil resistance in field strains of the German cockroach, *Blattella germanica* L.; (Blattodea: Blattellidae).
Ashari Zain (*asharizain@purdue.edu*), *Michael Scharf* and *Ameya Gondhalekar*, Purdue Univ., West Lafayette, IN
- D11** Surveying the diversity and function of stridulatory plates in longhorned beetles.
Lyndsay Poeschl (*poeschl59@uwosh.edu*)¹, *Emma Reading*², *Jodi Sedlock*² and *Robert Mitchell*¹, ¹Univ. of Wisconsin-Oshkosh, Oshkosh, WI, ²Lawrence Univ., Appleton, WI
- D12** Gut morphology of the small hive beetle, *Aethina tumida* Murray (Coleoptera: Nitidulidae) and its association with a fungal mutualist.
William Montag (*montag2@illinois.edu*), Univ. of Illinois, Champaign, IL
- D13** Transgenerational stress inheritance in the honey bee (Hymenoptera: *Apis mellifera*) the impacts of queen stress on worker behavior and health.
Sarah Preston (*sarah.peaslee@uky.edu*) and *Clare Rittschof*, Univ. of Kentucky, Lexington, KY
- D14** Variation in pollinators and pollinator resources across former conservation reserve program fields managed with patch-burn grazing using cattle or sheep.
Jasmine Cutter (*Jasmine.Cutter@ndsu.edu*)^{1,2}, *Torre Hovick*¹, *Benjamin Geaumont*², *Devan McGranahan*¹ and *Ryan Limb*¹, ¹North Dakota State Univ., Fargo, ND, ²North Dakota State Univ., Hettinger, ND
- D15** Statewide status update of threatened butterfly pollinators in North Dakota.
Adrienne Antonsen (*adrienne.antonsen@ndsu.edu*)¹, *Chyna Pei*¹, *Jason Harmon*¹, *Torre Hovick*¹, *Ryan Limb*¹ and *Benjamin*

Geaumont², ¹North Dakota State Univ., Fargo, ND, ²North Dakota State Univ., Hettinger, ND

M.S. Student Poster Competition - II / 8:00 AM-5:00 PM

Atrium (Madison Marriott West)

- D16 Differential defenses in prey: the effects of consuming aphids by a Linyphiid spider.**
Laura Rosenwald (laura.rosenwald@uky.edu) and Jennifer White, Univ. of Kentucky, Lexington, KY
- D17 Parasitism and predation of *Halyomorpha halys* (Hemiptera: Pentatomidae) sentinel egg masses in Minnesota.**
Daniela Pezzini (pezzi004@umn.edu), Erica C. Nystrom Santacruz and Robert Koch, Univ. of Minnesota, St. Paul, MN
- D18 Butterfly densities in mixed-grass prairie with restored fire and grazing disturbances.**
Brooke Karasch (brooke.karasch@ndsu.edu), Torre Hovick, Jason Harmon and Ryan Limb, North Dakota State Univ., Fargo, ND
- D19 Fortenza® seed treatment as a potential strategy to control fall armyworm *Bt* resistance.**
Ana Trabanino (trabaninopino.1@buckeyemail.osu.edu)¹, Aline S. Guidolin¹, Julio Fatoletto² and Andy Michel¹, ¹The Ohio State Univ., Wooster, OH, ²Syngenta Proteção de Cultivos Ltda., São Paulo, Brazil
- D20 Efficacy of seed and in-furrow treatments in sunflower for early season insect pests.**
Brady Hauswedell (brady.hauswedell@sdstate.edu)¹, Philip Rozeboom¹, J. P. Michaud², Janet Knodel³ and Adam Varenhorst¹, ¹South Dakota State Univ., Brookings, SD, ²Kansas State Univ., Hays, KS, ³North Dakota State Univ., Fargo, ND
- D21 Grasshoppers of Eastern South Dakota: A species abundance and diversity survey.**
Erica Anderson (Erica.Anderson@sdstate.edu)¹, Billy Fuller¹, Patrick Wagner² and Adam Varenhorst¹, ¹South Dakota State Univ., Brookings, SD, ²South Dakota State Univ., Rapid City, SD
- D22 Landscape ecology of the wheat stem sawfly and its natural enemies in Nebraska.**
Bethany Bergstrom (bbergstrom4@unl.edu)¹, Gary Hein¹ and Jeffery Bradshaw², ¹Univ. of Nebraska, Lincoln, NE, ²Univ. of Nebraska, Scottsbluff, NE

- D23 Evaluating wheat stem maggot as an emerging pest of cover crop to corn transitions.**
Gabriela Inveninato Carmona (gabiinveninato@gmail.com) and Anthony J. McMechan, Univ. of Nebraska, Lincoln, NE

Ph.D. Student Poster Competition / 8:00 AM-5:00 PM

Atrium (Madison Marriott West)

- D24 Landscape scale movement: Adapting radio telemetry technology to track monarch butterflies.**
Kelsey E. Fisher (kefisher@iastate.edu), James Adelman and Steven Bradbury, Iowa State Univ., Ames, IA
- D25 Regional pollinator diversity mediates land-use impacts to bees.**
Cameron Duquette (cameron.duquette@gmail.com), Torre Hovick and Jason Harmon, North Dakota State Univ., Fargo, ND
- D26 Grassland butterfly community responses to Kentucky bluegrass invasions.**
Katherine Kral (katherine.kral@ndsu.edu), Torre Hovick, Ryan Limb and Jason Harmon, North Dakota State Univ., Fargo, ND
- D27 Timed bumble bee hive placement in covered organic cantaloupe production.**
Amanda Skidmore (amanda.skidmore@gmail.com), Neil Wilson, Mark A. Williams and Ric Bessin, Univ. of Kentucky, Lexington, KY
- D28 Using field history data to predict current western corn rootworm (Coleoptera: Chrysomelidae) susceptibility levels to Cry3Bb1 in Nebraska.**
Jordan Reinders (jordan.reinders3@gmail.com) and Lance J. Meinke, Univ. of Nebraska, Lincoln, NE
- D29 Assessment of potential reference genes for the wheat curl mite, *Aceria tosichella* Keifer.**
Luaay Khalaf (luaay_kalani@yahoo.com)¹, Laramy Enders², Peter Klein¹ and C. Michael Smith¹, ¹Kansas State Univ., Manhattan, KS, ²Purdue Univ., West Lafayette, IN
- D31 Biases associated with bee-sampling methods.**
Chyna Pei (chyna.pei@ndsu.edu), Torre Hovick and Jason Harmon, North Dakota State Univ., Fargo, ND

- D32** 20-hydroxyecdysone (20E) induces priming of mosquito immunity and limits malaria parasite infection in *Anopheles gambiae*. **Rebekah Reynolds** (rebekahr@iastate.edu), Hyeogsun Kwon and Ryan Smith, Iowa State Univ., Ames, IA
- D33** Assessment of mosquito trap efforts to optimize metrics of West Nile virus transmission risk. **Haley Johnson** (hejohnson4@wisc.edu)¹, John Hausbeck², Lyric Bartholomay¹ and Susan Paskewitz¹, ¹Univ. of Wisconsin, Madison, WI, ²Madison & Dane County Public Health, Madison, WI
- D34** A metabolomics approach to better understand soybean aphid (*Aphis glycines*) adaptation to aphid-resistant soybean. **Ashley Yates** (yates.229@buckeyemail.osu.edu), Andy Michel and Joshua Blakeslee, The Ohio State Univ., Wooster, OH

- 8:50 AM 32** The response of lentic aquatic invertebrate assemblages to simulated climate change. **Nicholas Bielski** (biels003@rangers.uwp.edu), Jessica Orlofske and Josie Ackmann, Univ. of Wisconsin-Parkside, Kenosha, WI

Ph.D. Student Ten-Minute Paper Competition (P-IE Session I)

Salon A (Madison Marriott West)

Moderators: Mia Park, Univ. of North Dakota, Grand Forks, ND and Sarah Zukoff, Kansas State Univ., Garden City, KS

- 8:00 AM 33** Effects of insecticides on predatory natural enemies. **Carlos Esquivel** (esquivelpalma.1@buckeyemail.osu.edu)¹, Luis Canas¹, Bill Hendrix² and Andy Michel¹, ¹The Ohio State Univ., Wooster, OH, ²Dow AgroSciences, Indianapolis, IN
- 8:10 AM 34** Queen of the prairie: Can honey bee queen fecundity be rescued by prairie in a cultivated landscape? **Ashley St. Clair** (astclair@iastate.edu)¹, Edward Hsieh¹, David Stein¹, Adam Dolezal¹, Matthew O'Neal¹ and Amy Toth¹, ¹Iowa State Univ., Ames, IA, ²Univ. of Illinois, Champaign, IL
- 8:20 AM 35** The effect of proximity to past problem fields on western corn rootworm abundance, injury to corn, and resistance to Cry3Bb1. **Coy St. Clair** (cstclair@iastate.edu)¹, Graham P. Head² and Aaron Gassmann¹, ¹Iowa State Univ., Ames, IA, ²Monsanto Company, St. Louis, MO
- 8:30 AM 36** Response by two species of ants in the genus *Camponotus* exposed to different concentrations of their alarm pheromones. **Todd D. Johnson** (tdjohns2@illinois.edu) and Lawrence M. Hanks, Univ. of Illinois, Champaign, IL
- 8:40 AM 37** Getting smart with Christmas lighting to improve management of the Hessian fly, *Mayetiola destructor* (Diptera: Cecidomyiidae). **Ryan Schmid** (rbschmid@ksu.edu)^{1,2} and Brian McCornack^{1,2}, ¹Kansas State Univ., Manhattan, KS, ²Plant Biosecurity Cooperative Research Centre, Bruce, Australia
- 8:50 AM 38** Evaluation of sampling methods and foliar insecticide efficacy for Asiatic garden beetle, *Maladera castanea*, in a soybean-corn rotation. **Adrian Pekarcik** (pekarcik.4@osu.edu)¹, Eric Richer², Andy Michel¹ and Kelley Tilmon¹, ¹The Ohio State Univ., Wooster, OH, ²The Ohio State Univ., Wauseon, OH
- 9:00** Break

MONDAY, MARCH 19, 2018, MORNING

B.S. Student Ten-Minute Paper Competition

Salon C (Madison Marriott West)

Moderator: Scott O'Neal, Univ. of Nebraska, Lincoln, NE

- 8:10 AM 27** Ovaries are hypersensitive to RNAi trigger uptake in mosquito disease vector species. **Bailey Lubinski** (blubinski@wisc.edu), Paul Airs and Lyric Bartholomay, Univ. of Wisconsin, Madison, WI
- 8:20 AM 29** Effects of soil cadmium contamination on pollination services. **Rachel McLaughlin** (mclaughlin.384@osu.edu), Frances S. Sivakoff and Mary Gardiner, The Ohio State Univ., Columbus, OH
- 8:30 AM 30** Do plant genotype, population density, and order of colonization of soybean by virulent and avirulent biotypes of the soybean aphid (*Aphis glycines*, Hemiptera: aphididae) affect the rate of subsequent population growth? **Taylor Heinrichs** (tayhein@iastate.edu), Matthew Kaiser, Jessica Hohenstein and Matthew O'Neal, Iowa State Univ., Ames, IA
- 8:40 AM 31** Environmental regulation of riverine dragonfly (Odonata) emergence from Wisconsin rivers. **Danielle Tesar** (tesar.danielle@gmail.com) and Jessica Orlofske, Univ. of Wisconsin-Parkside, Kenosha, WI

- 9:10 AM 39 Non-consumptive effects of a native predator, *Hippodamia convergens* (Coleoptera: Coccinellidae) on a cabbage pest, *Pieris rapae* (Lepidoptera: Pieridae).
Margaret Lund (lundmar6@msu.edu) and Zsolt Szendrei, Michigan State Univ., East Lansing, MI
- 9:20 AM 40 Evaluating nodal injury caused by corn rootworm (*Diabrotica* spp.) undergoing resistance development to Bt-RW traits.
Edwin Benkert III (benke017@umn.edu) and Ken Ostlie, Univ. of Minnesota, St. Paul, MN
- 9:30 AM 41 Oxylin-based defense responses in maize against corn leaf aphids.
Suresh Varsani (ssvarsani@gmail.com), Saumik Basu and Joe Louis, Univ. of Nebraska, Lincoln, NE
- 9:40 AM 42 Understanding how landscape composition and complexity affect honey bee (*Apis mellifera*) growth and survival via a nutrition intake mechanism.
Gabriela Quinlan (quinlang@msu.edu)¹, Rufus Isaacs¹, Meghan Milbrath¹ and Clint Otto², ¹Michigan State Univ., East Lansing, MI, ²U.S. Geological Survey, Jamestown, ND
- 9:50 AM 43 To graze or to burn? Effects of management on Minnesota tallgrass prairie butterflies
Julia Leone (leone050@umn.edu), Univ. of Minnesota, St. Paul, MN
- 8:20 AM 46 Heteroptera phylogeny analyzed with transcriptomes.
Robert de Moya (rdemoya2@illinois.edu)¹, Kevin P. Johnson¹, Christopher H. Dietrich¹, Malte Petersen², Lars Podsiadlowski³, Kimberly K. O. Walden¹, Hugh M. Robertson¹ and Christiane Weirauch⁴, ¹Univ. of Illinois, Champaign, IL, ²Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany, ³Univ. of Bonn, Bonn, Germany, ⁴Univ. of California, Riverside, CA
- 8:40 AM 48 Identification of cytochrome P450 monooxygenases contributing to bifenthrin metabolism and resistance in the navel orangeworm (*Amyelois transitella*) (Lepidoptera:Pyralidae).
Mark Demkovich (mdemkov3@illinois.edu), Bernarda Calla and May Berenbaum, Univ. of Illinois, Champaign, IL
- 8:50 AM 49 From meta-analysis to mechanics – delineating determinants in RNAi success in *Aedes aegypti*.
Paul Airs (airs@wisc.edu), Bailey Lubinski and Lyric Bartholomay, Univ. of Wisconsin, Madison, WI
- 9:00 Break
- 9:10 AM 50 Estimation of daily and total oxygen used by *Tribolium castaneum* to complete its life cycle.
Kabita Kharel (kkharel@purdue.edu), Linda Mason and Dieudonne Baributsa, Purdue Univ., West Lafayette, IN
- 9:20 AM 51 Analysis of activity of monoterpenoid plant compounds on invertebrate acetylcholine receptors.
Colin Wong (cwong1@iastate.edu) and Joel Coats, Iowa State Univ., Ames, IA
- 9:30 AM 52 Impact of bacterial endosymbiont on free amino acid levels in brown marmorated stink bug.
Priyanka Mittapelly (mittapelly.1@buckeyemail.osu.edu), Larry Phelan and Andy Michel, The Ohio State Univ., Wooster, OH
- 9:40 AM 53 Milkweed (*Asclepias* spp.) placements in agricultural landscapes: risks of insecticide exposure to the monarch butterfly (*Danaus plexippus*) larvae.
Niranjana Krishnan (nkrish@iastate.edu)¹, Keith Bidne², Richard Hellmich², Joel Coats¹ and Steven Bradbury¹, ¹Iowa State Univ., Ames, IA, ²USDA - ARS, Ames, IA
- 9:50 AM 54 Using biorational products as spatial mosquito repellents.
Caleb Corona (clcorona@iastate.edu), James Klimavicz, Edmund Norris and Joel R. Coats, Iowa State Univ., Ames, IA

Ph.D. Student Ten-Minute Paper Competition (SysEB, MUVE, PBT Session)

Salon B (Madison Marriott West)

Moderator: Jessica Hartshorn, Minnesota Dept. of Natural Resources, Grand Rapids, MN

- 8:00 AM 44 A surprisingly narrow dose range for *Beauveria bassiana* when applied to *Anopheles gambiae* mosquitoes.
Patil Tawidian (patilt@ksu.edu) and Kristin Michel, Kansas State Univ., Manhattan, KS
- 8:10 AM 45 Plant essential oils synergize pyrethroid insecticides against medically relevant mosquito species.
Edmund Norris (ejnorris@iastate.edu)¹, Aaron Gross², Lyric Bartholomay³ and Joel R. Coats¹, ¹Iowa State Univ., Ames, IA, ²Virginia Polytechnic Institute and State Univ., Blacksburg, VA, ³Univ. of Wisconsin, Madison, WI

M.S. Student Ten-Minute Paper Competition (P-IE Session I)

Salon C (Madison Marriott West)

Moderator: Kacie J. Athey, Univ. of Kentucky, Lexington, KY

- 9:10 AM 55 **Emergence of wheat stem sawfly (*Cephus cinctus*) as a pest of winter wheat in Colorado.**
Erika Peirce (erika.peirce@gmail.com), Frank Peairs, Darren Cockrell, Jeff Rudolph and Terri Randolph, Colorado State Univ., Fort Collins, CO
- 9:20 AM 56 **Determining the varietal and developmental susceptibility of tart cherry to *Drosophila suzukii*.**
Matthew Kamiyama (mkamiyama@wisc.edu) and Christelle Guédot, Univ. of Wisconsin, Madison, WI
- 9:30 AM 57 **Using soybean genetics to evaluate the value of soybean aphid management tactics.**
Ashley Dean (adean@iastate.edu), Shelby Pritchard, Erin Hodgson and Matthew O'Neal, Iowa State Univ., Ames, IA
- 9:40 AM 58 **Effects of larval density on dispersal and fecundity of *Diabrotica virgifera virgifera*.**
Eric Yu (eyuyu@iastate.edu)¹, Aaron Gassmann¹ and Tom Sappington², ¹Iowa State Univ., Ames, IA, ²USDA - ARS, Ames, IA
- 9:50 AM 59 **Biological control of the brown marmorated stink bug, *Halymorpha halys*, in Kentucky.**
Lauren Fann (lefa228@uky.edu)¹, Ric Bessin¹ and Raul T. Villanueva², ¹Univ. of Kentucky, Lexington, KY, ²Univ. of Kentucky, Princeton, KY
- 10:00 AM 60 **Eat, drink, and be varied: soybean aphid intrabiotypic variants on soybean accessions.**
Sophia Conzemius (sophia.conzemius@jacks.sdstate.edu)¹, Louis Hesler², Adam Varenhorst¹ and Kelley Tilmon³, ¹South Dakota State Univ., Brookings, SD, ²USDA - ARS, Brookings, SD, ³The Ohio State Univ., Wooster, OH
- 10:10 AM 61 **Effect of aphid-resistant soybean (*Rag1+Rag2* pyramid) on non-target herbivores in Minnesota.**
Obiratanea Da Silva Queiroz (oqueiroz@umn.edu), Anthony Hanson and Robert Koch, Univ. of Minnesota, St. Paul, MN
- 10:20 AM 62 **Evaluation of exclusion netting for spotted wing drosophila management in Minnesota wine grapes.**
Dominique Ebbenga (ebbe0031@umn.edu), Eric C. Burkness and William D. Hutchison, Univ. of Minnesota, St. Paul, MN

Ph.D. Student Ten-Minute Paper Competition (P-IE Session II)

Salon A (Madison Marriott West)

Moderator: Robert Mitchell, Univ. of Wisconsin-Oshkosh, Oshkosh, WI

- 10:10 AM 63 **Examining the local overwintering hypothesis for *Drosophila suzukii* by comparing degree-day models to adult trap-catches.**
Anh K. Tran (aktran@umn.edu)¹, Eric C. Burkness¹, Christelle Guédot² and William D. Hutchison¹, ¹Univ. of Minnesota, St. Paul, MN, ²Univ. of Wisconsin, Madison, WI
- 10:20 AM 64 **Historic levels of agricultural connectivity drive patterns of genetic differentiation in Colorado potato beetle.**
Michael S. Crossley (mcrossley3@gmail.com)¹, Ryan Haas² and Sean Schoville¹, ¹Univ. of Wisconsin, Madison, WI, ²Univ. of Wisconsin-Platteville, Platteville, WI
- 10:30 AM 65 **Do honey bees (*Apis mellifera* [Hymenoptera: Apidae]) forage in prairies?**
Ge Zhang (gezhang@iastate.edu)¹, Adam Dolezal², Harmen P. Hendriksma¹, Amy Toth¹ and Matthew O'Neal¹, ¹Iowa State Univ., Ames, IA, ²Univ. of Illinois, Champaign, IL
- 10:40 AM 66 **Where'd that caterpillar go? Frequency of larval movement and estimates of milkweed utilization by monarch caterpillars**
Kelsey E. Fisher (kefisher@iastate.edu) and Steven Bradbury, Iowa State Univ., Ames, IA
- 10:50 AM 67 **Clonal ramets of trembling aspen do not coordinate defense induction.**
Olivia Cope (ocope@wisc.edu) and Richard L. Lindroth, Univ. of Wisconsin, Madison, WI
- 11:00 **Break**
- 11:10 AM 68 **Dissecting the role of monolignol biosynthetic pathway in sorghum resistance to fall armyworm.**
Sajjan Grover (sajjan.grover@huskers.unl.edu)¹, Suresh Varsani¹, Scott E. Sattler² and Joe Louis¹, ¹Univ. of Nebraska, Lincoln, NE, ²USDA - ARS, Lincoln, NE
- 11:20 AM 69 **Identifying attractive cranberry volatile chemicals for cranberry fruitworm (*Acrobasis vaccinii*) and sparganothis fruitworm (*Sparganothis sulfureana*).**
Bonnie Ohler (bjohler@wisc.edu) and Christelle Guédot, Univ. of Wisconsin, Madison, WI
- 11:40 AM 71 **Elucidating the role of host lipids in plant defense against aphids.**
Kaitlin Chapman (Karmit.chapman@gmail.com) and Joe Louis, Univ. of Nebraska, Lincoln, NE

- 11:50 AM 72 Monarch butterflies do not place all of their eggs in one basket: oviposition on nine Midwestern milkweed species.
Victoria Pocius (pociusv@iastate.edu)¹, Diane Debinski², John Pleasants¹, Keith Bidne³ and Richard Hellmich³, ¹Iowa State Univ., Ames, IA, ²Montana State Univ., Bozeman, MT, ³USDA - ARS, Ames, IA

M.S. Student Ten-Minute Paper Competition (SysEB, MUVE, PBT Session)

Salon B (Madison Marriott West)

Moderator: Rebecca B. Simmons, Univ. of North Dakota, Grand Forks, ND

- 10:30 AM 73 Fumigant toxicity of ethyl formate and propylene oxide to control *Tyrophagus putrescentiae*.
Jacqueline Maille (jmaille@ksu.edu), Salehe Abbar, Michael J. Aikins and Thomas Phillips, Kansas State Univ., Manhattan, KS
- 10:40 AM 74 Active surveillance for emerging *Ixodes scapularis* populations in Michigan using a veterinary canine network.
Megan Porter (porter.dvm@gmail.com) and Jean Tsao, Michigan State Univ., East Lansing, MI
- 10:50 AM 75 Investigating *Reticulitermes flavipes* movement patterns using Y-tube arenas.
Tae-Young Lee (lee.8230@osu.edu)¹ and Brian T. Forschler², ¹The Ohio State Univ., Columbus, OH, ²Univ. of Georgia, Athens, GA
- 11:00 AM 76 Effects of neem on plasmatocyte counts in *Galleria melonella* larvae.
Michael Fenske (Fenske333@live.missouristate.edu) and Katherine Haszcz, Missouri State Univ., Mountain Grove, MO
- 11:10 AM 77 Studying insect immune response using cost efficient pseudo nomarski contrast.
Westley Peterson (Westley338@live.missouristate.edu), Missouri State Univ., Mountain Grove, MO
- 11:20 AM 78 Investigation of pheromone biosynthetic genes in the longhorned beetle, *Neoclytus mucronatus mucronatus* (F.) (Coleoptera: Cerambycidae) using a differential gene expression approach.
Scott Gula (sgula@purdue.edu)¹, Gabriel Hughes² and Matthew Ginzl¹, ¹Purdue Univ., West Lafayette, IN, ²Univ. of California, Riverside, CA
- 11:30 AM 79 Moth community response to bat predation and habitat structure.
Matthew Safford (safford3@illinois.edu)¹, Alexandra Harmon-Threatt¹, Steven Taylor² and Sara Andree¹, ¹Univ. of Illinois, Champaign, IL, ²Colorado College, Colorado Springs, CO

M.S. Student Ten-Minute Paper Competition (P-IE Session II)

Salon C (Madison Marriott West)

Moderator: Elizabeth Long, The Ohio State Univ., Wooster, OH

- 10:40 AM 80 Attractiveness and susceptibility of northern apple cultivars to *Halyomorpha halys*.
Hailey Shanovich (shano004@umn.edu) and Robert Koch, Univ. of Minnesota, St. Paul, MN
- 10:50 AM 81 Exposure to long-lasting insecticide netting reduces the dispersal capacity and movement of stored product beetles in the laboratory.
Rachel Wilkins (rachwilk15@gmail.com)¹ and Rob Morrison², ¹Kansas State Univ., Manhattan, KS, ²USDA - ARS, Manhattan, KS
- 11:00 AM 82 Assessing pest management strategies and their impact on pollinator health in watermelon production.
John Ternest (jternest@purdue.edu), Ian Kaplan and Rick Foster, Purdue Univ., West Lafayette, IN
- 11:10 AM 83 Dynamics of wheat curl mite and its associated viruses on field corn during the green bridge.
Elliot Knoell (elliottknoell@yahoo.com) and Gary Hein, Univ. of Nebraska, Lincoln, NE
- 11:20 AM 84 Effect of surrounding landscape on Japanese Beetle abundance and spatial distribution in vineyards across Southern Wisconsin.
Jacob Henden (jlhenden@wisc.edu) and Christelle Guédot, Univ. of Wisconsin, Madison, WI
- 11:30 AM 85 The development of Thousand Cankers Disease (TCD) in the eastern United States.
Tyler Stewart (stewart23@purdue.edu)¹, Jennifer Juzwik² and Matthew Ginzl¹, ¹Purdue Univ., West Lafayette, IN, ²USDA Forest Service, St. Paul, MN
- 11:40 AM 86 Effect of crop rotation on soybean aphid.
Erika Rodbell (erodbell@iastate.edu), Erin Hodgson, Matthew Liebman and Matthew O'Neal, Iowa State Univ., Ames, IA
- 11:50 AM 87 Do cover crops and tillage affect the efficacy of soybean insecticide seed treatments?
Cole Dierks (cole.dierks@sdstate.edu), Brady Hauswedell, Philip Rozeboom and Adam Varenhorst, South Dakota State Univ., Brookings, SD

MONDAY, MARCH 19, 2018, AFTERNOON

Ecological effects and molecular mechanisms underlying insect-plant interactions

Salon C (Madison Marriott West)

Organizers: Rupesh Kariyat, Univ. of Texas, Edinburg, TX and Joe Louis, Univ. of Nebraska, Lincoln, NE

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| 1:30 PM | 88 | The influence of plant identity and quality on plant-insect-microbe interactions.
<i>John J. Couture</i> (couture@purdue.edu) and <i>Laramy Enders</i> , Purdue Univ., West Lafayette, IN |
| 1:50 PM | 89 | Methyl jasmonate-induction of cotton: a field test of the “attract and reward” strategy of conservation biological control.
<i>Livy Williams</i> (livy.williams@ars.usda.gov), USDA - ARS, Charleston, SC |
| 2:10 PM | 90 | Effects of structural and chemical defenses on specialist herbivores in Solanaceae.
<i>Rupesh Kariyat</i> (rupesh.kariyat@utrgv.edu), Univ. of Texas, Edinburg, TX |
| 2:30 PM | 91 | Do plants manipulate pollinator behavior via caffeinated nectar.
<i>Julie Mustard</i> (julie.mustard@utrgv.edu), Univ. of Texas, Brownsville, TX |
| 2:50 PM | 92 | Molecular insights into maize response to corn leaf aphids.
<i>Joe Louis</i> (joelouis@unl.edu), Univ. of Nebraska, Lincoln, NE |

Decoding urban entomology challenges

Salon A (Madison Marriott West)

Moderator and Organizer: Shripat Kamble, Univ. of Nebraska, Lincoln, NE

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| 1:30 | | Introductory Remarks |
| 1:35 PM | 93 | History of urban entomology.
<i>Jody Green</i> (jgreen17@unl.edu), Univ. of Nebraska, Lincoln, NE |
| 1:55 PM | 94 | Tales from the frontlines: Urban pests in the midwest.
<i>Jonathan Larson</i> (jonathan.larson@unl.edu) ¹ and <i>Jody Green</i> ² , ¹ Univ. of Nebraska, Omaha, NE, ² Univ. of Nebraska, Lincoln, NE |
| 2:15 PM | 95 | A decade-long perspective on German cockroach resistance to bait insecticides.
<i>Ameya Gondhalekar</i> (ameyag@purdue.edu), <i>Mahsa Fardisi</i> , <i>Ashari Zain</i> and <i>Mike Scharf</i> , Purdue Univ., West Lafayette, IN |
| 2:35 PM | 96 | Mosquito management in the urban environment.
<i>Nicola Gallagher</i> (nicky.gallagher@syngenta.com), Syngenta, Columbus, OH |

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| 2:55 | | Break |
| 3:10 PM | 97 | Current status of the bed bug resurgence in North America.
<i>Stephen Kells</i> (kells002@umn.edu), Univ. of Minnesota, St. Paul, MN |
| 3:30 PM | 98 | Sensory ecology of host and refuge finding in the bed bugs.
<i>Kenneth F. Haynes</i> (khaynes@uky.edu), Univ. of Kentucky, Lexington, KY |
| 3:50 PM | 99 | Urban entomology careers with industry.
<i>Jason Meyers</i> (jason.meyers@basf.com), BASF, Kansas City, MO |
| 4:10 PM | 100 | Past, present and future: A focus on structural pest pressures in the mid United States.
<i>Shripat Kamble</i> (skamble1@unl.edu), Univ. of Nebraska, Lincoln, NE |

Influence of cover crops on crop insect management

Geneva (Madison Marriott West)

Moderators and Organizers: Erin Hodgson, Iowa State Univ., Ames, IA; Justin McMechan, Univ. of Nebraska, Lincoln, NE and Robert Wright, Univ. of Nebraska, Lincoln, NE

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| 1:30 | | Introductory Remarks |
| 1:35 PM | 101 | Increased risk of insect injury to corn following rye cover crop.
<i>Michael Dunbar</i> (dunbar17@gmail.com), <i>Matthew O'Neal</i> and <i>Aaron Gassmann</i> , Iowa State Univ., Ames, IA |
| 2:05 PM | 102 | Emergence of wheat stem maggot as a pest of corn in Nebraska.
<i>Justin McMechan</i> (justin.mcmehan@unl.edu) and <i>Gabriela Carmona</i> , Univ. of Nebraska, Lincoln, NE |
| 2:20 PM | 103 | Cover crops as a green bridge for wheat curl mite and wheat streak mosaic in the western Great Plains.
<i>Elliot Knoell</i> (elliotknoell@yahoo.com) and <i>Gary Hein</i> , Univ. of Nebraska, Lincoln, NE |
| 2:50 PM | 104 | Interactive effects of cover crops, invertebrate communities, and soil health in corn production systems in the upper Midwest.
<i>Claire LaCanne</i> (laccanne@umn.edu) ¹ and <i>Jonathan Lundgren</i> ² , ¹ Univ. of Minnesota, Faribault, MN, ² Ecdysis Foundation, Estelline, SD |
| 3:20 | | Break |
| 3:35 PM | 105 | Cover crop effects on invertebrate pests and their natural enemies in conservation tillage cropping systems.
<i>Mary Barbercheck</i> (meb34@psu.edu), Pennsylvania State Univ., Univ. Park, PA |

- 4:05 PM 106 **Agronomic factors influencing cover crop adoption and use.**
Rodrigo Werle (rwerle@wisc.edu), Univ. of Wisconsin, Madison, WI
- 4:35 PM 107 **USDA programs influencing cover crop adoption and use.**
Heidi Johnson (johnson.heidi@countyofdane.com), Univ. of Wisconsin, Madison, WI

Societal challenges with entomological solutions

Salon C (Madison Marriott West)

Moderators and Organizers: Amy Morey, Univ. of Minnesota, St. Paul, MN; Ana Vélez, Univ. of Nebraska, Lincoln, NE; Rob Morrison, USDA - ARS, Manhattan, KS and Scott O'Neal, Univ. of Nebraska, Lincoln, NE

- 3:20 Welcoming Remarks
- 3:25 PM 108 **Whole genome sequencing sheds light on the evolutionary history and rapid evolution of a superpest, the Colorado potato beetle, *Leptinotarsa decemlineata*.**
Benjamin Pelissie (benjamin.pelissie@icloud.com), Univ. of Wisconsin, Madison, WI
- 3:40 PM 109 **Improving the genomic resources for emerging and invasive insect pests.**
Erin Scully (erin.scully@ars.usda.gov)¹, Scott Geib², Nathan Palmer³, Gautam Sarath³ and Scott E. Sattler⁴, ¹USDA - ARS, Manhattan, KS, ²USDA - ARS, Hilo, HI, ³USDA-ARS Wheat, Sorghum and Forage Research Unit, Lincoln, NE, ⁴USDA - ARS, Lincoln, NE
- 3:55 PM 110 **Host/pathogen interactions and entomology: More than just vector biology.**
Scott O'Neal (soneal3@unl.edu), Univ. of Nebraska, Lincoln, NE
- 4:10 PM 111 **Refining methods to model invasive species distributions.**
Amy Morey (morey041@umn.edu), Univ. of Minnesota, St. Paul, MN
- 4:25 PM 112 **Systematics as a biodiversity toolkit in pollinator conservation.**
Sydney A. Cameron (scameron@life.illinois.edu), Univ. of Illinois, Champaign, IL
- 4:40 Break
- 4:50 PM 113 **Climate change impacts and the prospect of climate adaptation in insects.**
Sean Schoville (sean.schoville@wisc.edu), Univ. of Wisconsin, Madison, WI
- 5:05 PM 114 **Urban food production and entomological opportunities.**
Laura Ingwell (laura.ingwell@gmail.com), Purdue Univ., West Lafayette, IN

- 5:20 PM 115 **Entomology informing environmental risk analyses: Spatial, temporal and social dimensions.**
Steven Bradbury (spbrad@iastate.edu), Iowa State Univ., Ames, IA
- 5:35 PM 116 **Breaking the communication barriers.**
Jody Green (jgreen17@unl.edu), Univ. of Nebraska, Lincoln, NE
- 5:50 Concluding Remarks

TUESDAY, MARCH 20, 2018, POSTERS

Regular Submitted Posters / 8:00 AM-5:00 PM

Atrium (Madison Marriott West)

- D35 **Using composting as a method of fruit waste disposal to reduce late season reproduction resources for spotted wing drosophila (*Drosophila suzukii*).**
Holly Hooper (hooperho@msu.edu) and Matt Grieshop, Michigan State Univ., East Lansing, MI
- D36 **The impact of reclaimed surface mines on bee (Hymenoptera, Apoidea) communities in Southeastern KY.**
Amanda Dunaway (amanda_dunaway4@mymail.eku.edu)¹ and Valerie Peters², ¹Eastern Kentucky Univ., Lexington, KY, ²Eastern Kentucky Univ., Richmond, KY
- D37 **Residual efficacy evaluation for Sefina on soybean aphid.**
Erin Hodgson (ewh@iastate.edu)¹, Greg VanNostrand¹ and Christa Ellers-Kirk², ¹Iowa State Univ., Ames, IA, ²BASF, Research Triangle Park, NC
- D38 **Soy to the world! Plant resistance to South Dakota's most virulent soybean aphids.**
Sophia Conzemius (sophia.conzemius@jacks.sdstate.edu)¹, Louis Hesler², Adam Varenhorst¹ and Kelley Tilmon³, ¹South Dakota State Univ., Brookings, SD, ²USDA - ARS, Brookings, SD, ³The Ohio State Univ., Wooster, OH
- D39 **Greenbug resistance and the *Dn7* gene from rye - potential cross-taxa insect resistance in wheat.**
Catherine Stewart and *C. Michael Smith* (cmsmith@ksu.edu), Kansas State Univ., Manhattan, KS

- D40 On- and off-season habitat evaluation for *Drosophila suzukii*.**
Harit K. Bal (bal@msu.edu)¹, Clarence Green², Christelle Guédot³, Lindsay Iglesias⁴, Oscar Liburd⁴, Ashfaq Sial² and Matt Grieshop¹, ¹Michigan State Univ., East Lansing, MI, ²Univ. of Georgia, Athens, GA, ³Univ. of Wisconsin, Madison, WI, ⁴Univ. of Florida, Gainesville, FL
- D41 Species composition and seasonal phenology of social wasps in grapes.**
Abby Lois (anlois@wisc.edu) and Christelle Guédot, Univ. of Wisconsin, Madison, WI
- D42 Evaluating the efficacy of seed treatments and planting dates against aphid pests in South Dakota winter wheat.**
Philip Rozeboom (philip.rozeboom@sdstate.edu), Brady Hauswedell, Cole Dierks and Adam Varenhorst, South Dakota State Univ., Brookings, SD
- D43 Arthropod natural enemies of *Danaus plexippus* eggs and neonates in central Michigan.**
Carissa Blackledge (blackl13@msu.edu), Sara Hermann, Andrew Myers, Julia Perrone and Douglas A. Landis, Michigan State Univ., East Lansing, MI
- D44 Do dung beetles provide services in grazed cover crops?**
Patrick Wagner (patrick.wagner@sdstate.edu)¹ and Adam Varenhorst², ¹South Dakota State Univ., Rapid City, SD, ²South Dakota State Univ., Brookings, SD
- D45 Developing an efficacy study for foliar insecticidal management of soybean aphids in South Dakota.**
Cole Dierks (cole.dierks@sdstate.edu), Brady Hauswedell, Philip Rozeboom and Adam Varenhorst, South Dakota State Univ., Brookings, SD
- D46 Baseline susceptibility to afidopyropen of soybean aphid from the north central United States.**
Robert Koch (koch0125@umn.edu)¹, Obiratanea da Silva Queiroz¹ and Teresia Nyoike², ¹Univ. of Minnesota, St. Paul, MN, ²BASF Corporation, Research Triangle Park, NC
- D47 What metabolites mediate host finding in *Lygus hesperus*?**
Matthew Hetherington (mhetherinto@wisc.edu), Univ. of Wisconsin, Fitchburg, WI
- D48 Influence of patch size and isolation on bumblebee foraging behavior.**
Fabiana Fragoso (palmeirafrag@wisc.edu)¹ and Johanne Brunet², ¹Univ. of Wisconsin, Madison, WI, ²USDA - ARS, Madison, WI
- D50 Re-defining the known geographical distribution of *Coleomegilla maculata lengi*.**
Louis Hesler (louis.hesler@ars.usda.gov)¹, Pamela B. Bartlett² and Mathew L. Brust³, ¹USDA - ARS, Brookings, SD, ²South Dakota State Univ., Brookings, SD, ³Chadron State College, Chadron, NE
- D51 Metagenomic assessment of viruses of black-legged ticks (*Ixodes scapularis*) in Wisconsin.**
Avery Peace (apeace@wisc.edu)¹, Tony Goldberg¹, Kristen Bernard¹, Anna Schotthoefer², Lyric Bartholomay¹ and Susan Paskewitz¹, ¹Univ. of Wisconsin, Madison, WI, ²Marshfield Clinic Research Foundation, Marshfield, WI
- D52 Mosquito surveillance in dane county, WI: A 5-year analysis.**
Kristina Lopez (kalopez@wisc.edu)¹, John Hausbeck² and Susan Paskewitz¹, ¹Univ. of Wisconsin, Madison, WI, ²Madison & Dane County Public Health, Madison, WI
- D53 PCR for *Dirofilaria immitis* in wild-caught mosquitoes in the UW Madison Arboretum.**
Melissa Farquhar (mrfarquhar@wisc.edu), Paul Airs and Lyric Bartholomay, Univ. of Wisconsin, Madison, WI
- D54 An overview of *Aedes albopictus* introductions and potential overwintering capacity in southern Wisconsin.**
Bradley Tucker (bjtucker2@wisc.edu), Thomas Richards, Hassan Hassan, Lyric Bartholomay and Susan Paskewitz, Univ. of Wisconsin, Madison, WI
- D55 Comparison of pink bollworm, *Pectinophora gossypiella*, pheromone gland transcriptome in two populations: Laboratory and mating disruption resistant.**
Xiaoyi Dou (xydou@iastate.edu), Iowa State Univ., Ames, IA
- D56 Optimizing egg recovery from wild northern corn rootworm beetles.**
Adriano Pereira (aelias374@yahoo.com.br)¹, Dalton Ludwick¹, Julie Barry² and Bruce Hibbard², ¹Univ. of Missouri, Columbia, MO, ²USDA - ARS, Columbia, MO

TUESDAY, MARCH 20, 2018, MORNING

Shifting pest complexes: Management and challenges in soybean

Salon B (Madison Marriott West)

Moderators and Organizers: Carlos Esquivel, The Ohio State Univ., Wooster, OH; Ashley Yates, The Ohio State Univ., Wooster, OH and Swapna Rajarapu, The Ohio State Univ., Wooster, OH

- 8:00 AM 117 Ecological and molecular mechanisms underlying vector competency in soybean vein necrosis virus-thrips interaction.**
Punya Nachappa (nachappa@ipfw.edu), Jinlong Han and Stacy Keough, Indiana Univ.-Purdue Univ., Fort Wayne, IN
- 8:20 AM 118 Development and implementation of management strategies for the kudzu bug in soybean.**
Nick Seiter (nseiter@uaex.edu), Univ. of Illinois, Champaign, IL
- 8:40 AM 119 Improving spidermite IPM in soybeans.**
Sarah Zukoff (snzukoff@ksu.edu), Univ. of Missouri, Columbia, MO
- 9:00 AM 120 Modeling for soybean-aphid IRM: What do we need to investigate?**
David Onstad (david.onstad@pioneer.com), DuPont Pioneer, Johnston, IA
- 9:20 AM 121 Geographic distribution and intra-biotypic variability of four biotypes of *Aphis glycines*.**
Jessie Alt (JESSIE.ALT@PIONEER.COM), Pioneer, Algona, IA
- 9:40 Break**
- 9:55 AM 122 Insecticide resistance in soybean aphid: An emerging challenge in soybean production.**
Robert Koch (koch0125@umn.edu)¹, James Menger¹, Ian MacRae², Janet Knodel³, Bruce Potter⁴, Philip Glogoza⁵, Erin Hodgson⁶, Adam Varenhorst⁷, Anitha Chirumamilla⁸ and John Gavloski⁹, ¹Univ. of Minnesota, St. Paul, MN, ²Univ. of Minnesota, Crookston, MN, ³North Dakota State Univ., Fargo, ND, ⁴Univ. of Minnesota, Lamberton, MN, ⁵Univ. of Minnesota, Moorhead, MN, ⁶Iowa State Univ., Ames, IA, ⁷South Dakota State Univ., Brookings, SD, ⁸North Dakota State Univ., Langdon, ND, ⁹Manitoba Agriculture, Carman, MB, Canada
- 10:15 AM 123 An industry perspective on soybean insecticide development.**
Kevin Johnson (kdjohnson@dow.com)¹, Luis Gomez², Dave Ruen³ and Melissa Willrich Siebert⁴, ¹Dow AgroSciences, Danville, IL, ²Dow AgroSciences, Indianapolis, IN, ³Dow AgroSciences, Lanesboro, MN, ⁴Dow AgroSciences, Greenville, MS

- 10:35 AM 124 Can we grow soybeans and protect pollinators while managing invasive pests? (A: maybe)**
Matthew O'Neal (oneal@iastate.edu)¹, Amy Toth¹, Erin Hodgson¹, Harmen P. Hendriksma¹, Ashley St. Clair¹, Ge Zhang¹ and Adam Dolezal², ¹Iowa State Univ., Ames, IA, ²Univ. of Illinois, Champaign, IL
- 10:55 AM 125 Emerging stink bugs on soybean – Where are they and what do they like to eat?**
Daniela Pezzini (pezzini004@umn.edu)¹, **Priyanka Mittapelly** (mittapelly.1@buckeyemail.osu.edu)², Christina DiFonzo³, Debbie Finke⁴, Thomas Hunt⁵, Janet Knodel⁶, Christian Krupke⁷, Brian McCornack⁸, Andy Michel⁹, Christopher R. Philips¹, Adam Varenhorst⁹, Robert Wright¹⁰ and Robert Koch¹, ¹Univ. of Minnesota, St. Paul, MN, ²The Ohio State Univ., Wooster, OH, ³Michigan State Univ., East Lansing, MI, ⁴Univ. of Missouri, Columbia, MO, ⁵Univ. of Nebraska, Concord, NE, ⁶North Dakota State Univ., Fargo, ND, ⁷Purdue Univ., West Lafayette, IN, ⁸Kansas State Univ., Manhattan, KS, ⁹South Dakota State Univ., Brookings, SD, ¹⁰Univ. of Nebraska, Lincoln, NE
- 11:15 AM 126 Not one insecticide to rule them all: How controlling an invasive stink bug is driving population increases in lepidoptera.**
Jeffrey Davis (jeffdavis@agcenter.lsu.edu), Louisiana State Univ., Baton Rouge, LA

A sensible symposium: Exploring the sensory ecology of insects and related arthropods

Salon A (Madison Marriott West)

Moderators and Organizers: Todd D. Johnson, Univ. of Illinois, Champaign, IL and Amanda Skidmore, Univ. of Kentucky, Lexington, KY

- 8:30 Introductory Remarks**
- 8:35 AM 127 Testing hypotheses about multi-modal communication and individual recognition using visual and chemical signals in *Polistes* wasps.**
Christian C. Ortiz (cely@umich.edu) and Elizabeth Tibbetts, Univ. of Michigan, Ann Arbor, MI
- 8:55 AM 128 Differential sensory reliance in the courtship and mate choice of two sister species of wolf spider.**
Eileen Hebets (ehebets2@unl.edu), Mitch Bern and Rowan McGinley, Univ. of Nebraska, Lincoln, NE
- 9:15 AM 129 Good vibrations: Mediating sexual encounters in treehoppers and spiders.**
Laura S. Beckers (lbeckers@murraystate.edu), Murray State Univ., Murray, KY

9:35 AM 130 Sex attractant pheromones from cuticular hydrocarbons: an example with psyllids.
Christelle Guédot (guedot@wisc.edu)¹, Jocelyn G. Millar², David R. Horton³ and Peter J. Landolt³, ¹Univ. of Wisconsin, Madison, WI, ²Univ. of California, Riverside, CA, ³USDA - ARS, Wapato, WA

9:55 Break

10:10 AM 131 Odorant receptors of the Coleoptera: evolution, diversity, and application.
Robert F. Mitchell (mitchellr@uwosh.edu), Univ. of Wisconsin-Oshkosh, Oshkosh, WI

10:30 AM 132 Volatile profiles of five hosts of emerald ash borer and their relationship to host selection.
Donnie L. Peterson (peterdon.143@wright.edu)¹, James Tumlinson² and Don Cipollini¹, ¹Wright State Univ., Dayton, OH, ²Pennsylvania State Univ., Univ. Park, PA

10:50 AM 133 A deeper look into the sensory abilities of the haller's organ.
Tanya Josek (tanyajosek@gmail.com), Brian F. Allan, Hugh M. Robertson and Marianne Alleyne, Univ. of Illinois, Champaign, IL

11:10 Concluding Remarks

A spectrum of symbioses: Microbial dimensions of entomology

Salon C (Madison Marriott West)

Moderator and Organizer: Jennifer White, Univ. of Kentucky, Lexington, KY

10:00 Welcoming Remarks

10:05 AM 134 Pine engravers carry bacterial communities whose members reduce concentrations of host monoterpenes.
Michael Howe (howe3@wisc.edu), Ken Keefover-Ring and Kenneth Raffa, Univ. of Wisconsin, Madison, WI

10:25 AM 135 Investigating the effects of repeated exposure to pest control practices on soybean aphids and their microbial communities.
Laramy Enders (lenders@purdue.edu)¹, Erin Scully² and Nick Miller³, ¹Purdue Univ., West Lafayette, IN, ²USDA - ARS, Manhattan, KS, ³Illinois Institute of Technology, Chicago, IL

10:45 Break

11:00 AM 136 Bacterial symbionts of stinkbugs provide insights into genome evolution and host requirements.
Alejandro Otero Bravo (oterobravo1@buckeyemail.osu.edu)¹, Shana K. Goffredi² and Zakee Sabree¹, ¹The Ohio State Univ., Columbus, OH, ²Occidental College, Los Angeles, CA

11:20 AM 137 Untangling the web: interacting microbial communities in agricultural spiders.
Jennifer White (jenawhite@uky.edu), Laura Rosenwald and Alex Styer, Univ. of Kentucky, Lexington, KY

11:40 Concluding Remarks

Pollination Research in the North Central Region - Part I

Geneva (Madison Marriott West)

Moderators and Organizers: Jason Harmon, North Dakota State Univ., Fargo, ND; Claudio Gratton, Univ. of Wisconsin, Madison, WI; Benjamin Geaumont, North Dakota State Univ., Hettinger, ND; Christelle Guédot, Univ. of Wisconsin, Madison, WI; Torre Hovick, North Dakota State Univ., Fargo, ND and Shawn Steffan, USDA - ARS, Madison, WI

10:00 AM 138 The "where" and "when" of honey bee decline in an agricultural landscape.
Adam Dolezal (adolezal@illinois.edu)¹, Ashley St. Clair², Ge Zhang², Matthew O'Neal² and Amy Toth², ¹Univ. of Illinois, Champaign, IL, ²Iowa State Univ., Ames, IA

10:15 AM 139 Quantifying unforeseen exposures to neonicotinoid seed treatments for pollinators, and other things.
Christian Krupke (ckrupke@purdue.edu) and Adam Alford, Purdue Univ., West Lafayette, IN

10:30 AM 140 Is the Conservation Reserve Program losing its sting? Losses, and future projections, of conservation grassland in the last frontier of the beekeeping industry
Clint Otto (cotto@usgs.gov)¹, Haochi Zheng², Alisa Gallant³, Rich Iovanna⁴, Skip Hyberg⁴, Ben Carlson⁵ and Matthew Smart⁶, ¹U.S. Geological Survey, Jamestown, ND, ²Univ. of North Dakota, Grand Forks, ND, ³U.S. Geological Survey, Sioux Falls, SD, ⁴USDA - Farm Services Agency, Washington, DC, ⁵Xerces Society, Portland, OR, ⁶U.S. Geological Survey, Lincoln, NE

10:45 AM 141 Wild bees nesting in native plants.
Colleen Satyshur (csatyshu@umn.edu), Aaron Irber, Daniel Cariveau and Marla Spivak, Univ. of Minnesota, St. Paul, MN

11:00 Break

11:15 AM 142 From birds to butterflies: the evolution and use of line transect distance sampling.
Torre Hovick (torre.hovick@ndsu.edu), Katherine Kral, Ryan Limb and Jason Harmon, North Dakota State Univ., Fargo, ND

11:30 AM 143 Comparing statistically-based survey methods to improve grassland butterfly conservation.
Katherine Kral (katherine.kral@ndsu.edu), Torre Hovick, Ryan Limb and Jason Harmon, North Dakota State Univ., Fargo, ND

11:45 AM 144 Rapid identification of pollinator communities via a DNA sequencing pipeline.
Rebecca B. Simmons (rebecca.simmons@und.edu), Brian Darby and Mia Park, Univ. of North Dakota, Grand Forks, ND

TUESDAY, MARCH 20, 2018, AFTERNOON

Submitted Ten-Minute Presentations: P-IE Session I

Salon C (Madison Marriott West)

Moderators: Robert Koch, Univ. of Minnesota, St. Paul, MN and Raul T. Villanueva, Univ. of Kentucky, Princeton, KY

1:30 PM 145 Introgression as a potential contributor to fitness in an invasive agricultural pest, *Aphis glycines*.
Hilary Edgington (hedgington10@wooster.edu)¹, Vitor Pavinato¹, Doris Lagos-Kutz², Glen L. Hartman³ and Andy Michel¹, ¹The Ohio State Univ., Wooster, OH, ²USDA-ARS, Urbana, IL, ³USDA-ARS and Univ. of Illinois, Urbana, IL

1:40 PM 146 Managing biotype-4 soybean aphids using a *Rag1+Rag2+Rag4* pyramid.
Adam Varenhorst (adam.varenhorst@sdstate.edu)¹, Shelby Pritchard², Matthew O'Neal², Erin Hodgson² and Asheesh Singh², ¹South Dakota State Univ., Brookings, SD, ²Iowa State Univ., Ames, IA

1:50 PM 147 Evaluation of damage by rice stink bug (Hemiptera: Pentatomidae) on barley.
Yaziri Gonzalez (yazgonzalez17@uky.edu) and Raul T. Villanueva, Univ. of Kentucky, Princeton, KY

2:00 PM 148 Field and laboratory studies of *Bt* resistance by western corn rootworm.
Ram B. Shrestha (shresthb@iastate.edu) and Aaron J. Gassmann, Iowa State Univ., Ames, IA

2:10 PM 149 Virulence response of soybean aphids clones collected on soybean and buckthorn to soybean genotypes with *Rag* genes and PI437696.
Doris Lagos-Kutz (Doris.Lagos-Kutz@ARS.USDA.GOV)¹, Michelle Pawlowski², Brian W. Diers², Swapna R. Purandare³ and Glen L. Hartman¹, ¹USDA-ARS, Urbana, IL, ²Univ. of Illinois, Champaign, IL, ³Jamia Millia Islamia, New Dehli, India

2:20 PM 150 Determining carrot weevil (*Listronotus oregonensis*) host finding cues to improve integrated pest management.
Emily Justus (justus.67@osu.edu) and Elizabeth Long, The Ohio State Univ., Wooster, OH

2:30 PM 151 Does planting date, location and seeding rate affect the efficacy of seed treatments in soybean.
Brady Hauswedell (brady.hauswedell@sdstate.edu), Cole Dierks, Philip Rozeboom, Febina Mathew, Jonathan Kleinjan and Adam Varenhorst, South Dakota State Univ., Brookings, SD

2:40 Break

2:50 PM 152 Best method(s) for detecting Cry34/35Ab1 resistance in western corn rootworm.
Dalton Ludwick (dclmrd@mail.missouri.edu)¹, Lisa Meihs² and Bruce Hibbard³, ¹Univ. of Missouri, Columbia, MO, ²Evogene Inc, St. Louis, MO, ³USDA - ARS, Columbia, MO

3:00 PM 153 Influence of variety and management on chemically mediated hemp-pest interactions.
Marguerite Bolt (mbolt@purdue.edu), Janna Beckerman and John J. Couture, Purdue Univ., West Lafayette, IN

3:10 PM 154 Flower color polymorphism has cascading effects on floral defenses in *Solanum elaeagnifolium*.
Rupesh Kariyat (rupesh.kariyat@utrgv.edu)¹, James Sims², Dinka Velkic², Corinne Hertaeg², Theodora Petanidou³, Thomas Tscheulin³, Consuelo De Moraes² and Mark Mescher², ¹Univ. of Texas, Edinburg, TX, ²ETH Zurich, Zurich, Switzerland, ³Univ. of the Aegean, Mytilene, Greece

3:20 PM 155 Blackberry damage by the Japanese beetle.
Maciej A. Pszczolkowski (mpszczolkowski@missouristate.edu), Rachel Veenstra, Kyndra Chastain and Martin Kaps, Missouri State Univ., Mountain Grove, MO

3:30 PM 156 Conservation biological control of sugarcane aphid (*Melanaphis sacchari*) in Kentucky sweet sorghum.
Nathan Mercer (nhmercer13@gmail.com), Ric Bessin and John Obrycki, Univ. of Kentucky, Lexington, KY

3:40 PM 157 Connecting insects and human enteric bacterial pathogens: Using electrical conductivity as a proxy for direct plant damage caused by *Macrostes quadrilineatus* in lettuce and tomato.
Victoria Lason (lason@wisc.edu), Russell Groves and Jeri Barak, Univ. of Wisconsin, Madison, WI

3:50 PM 158 Hyperspectral detection of drought and western corn rootworm stress in maize.
Raquel Peron (rperon@purdue.edu), Lorenzo Cotrozzi, Laramy Enders, Mike V. Mickelbart and John J. Couture, Purdue Univ., West Lafayette, IN

Pollination Research in the North Central Region**- Part II****Geneva (Madison Marriott West)**

Moderators and Organizers: Jason Harmon, North Dakota State Univ., Fargo, ND; Claudio Gratton, Univ. of Wisconsin, Madison, WI; Benjamin Geaumont, North Dakota State Univ., Hettinger, ND; Christelle Guédot, Univ. of Wisconsin, Madison, WI; Torre Hovick, North Dakota State Univ., Fargo, ND and Shawn Steffan, USDA - ARS, Madison, WI

- 1:30 PM 159** **Back to the future: predicting effects of pollinator loss on apple pollination services.**
Mia Park (mia.park@und.edu)¹, Louis Sutter² and Matthias Albrecht², ¹Univ. of North Dakota, Grand Forks, ND, ²Agroscope, Zürich, Switzerland
- 1:45 PM 160** **The effects of understory floral management on bees and fruit set in Wisconsin apple orchards.**
Hannah Gaines-Day (hgaines@wisc.edu)¹, Katie Hietala-Henschel² and Claudio Gratton¹, ¹Univ. of Wisconsin, Madison, WI, ²The Xerces Society for Invertebrate Conservation, Portland, OR
- 2:00 PM 161** **The impact of herbaceous floral enhancements on the wild bee pollinator communities of two contrasting spring-flowering crops: the importance of phenological overlap.**
Thomas Wood (woodtho4@msu.edu)¹, Jason Gibbs², Jeanette E. Wilson¹, Larry Gut¹, Nikki Rothwell³ and Rufus Isaacs¹, ¹Michigan State Univ., East Lansing, MI, ²Univ. of Manitoba, Winnipeg, MB, Canada, ³Michigan State Univ., Traverse City, MI
- 2:15 PM 162** **Bumble bee responses to spatiotemporal floral resource abundance in WI cranberry.**
Jeremy Hemberger (hemberger@wisc.edu) and Claudio Gratton, Univ. of Wisconsin, Madison, WI
- 2:30** **Break**
- 2:40 PM 163** **Effect of landscape and hive placement on honeybee visitation to a native North American fruit crop.**
*Christelle Guédot*¹, *Aidee Guzman* (aguzman3@wisc.edu)¹, Hannah Gaines-Day¹, Abby Lois¹ and Shawn Steffan², ¹Univ. of Wisconsin, Madison, WI, ²USDA - ARS, Madison, WI
- 2:55 PM 164** **Bees are omnivores: Elevated trophic positions observed among all major, extant bee families.**
Shawn Steffan (steffan@entomology.wisc.edu)¹, Prarthana Dharampal², Bryan N. Danforth³, Yuko Takizawa⁴ and Yoshito Chikaraishi⁵, ¹USDA - ARS, Madison, WI, ²Univ. of Wisconsin, Madison, WI, ³Cornell Univ., Ithaca, NY, ⁴Hokkaido Univ., Sapporo, Japan, ⁵JAMSTEC, Yokosuka, Japan

- 3:10 PM 165** **Microbes keep the bees buzzing.**
Prarthana Dharampal (prarthana.1120@gmail.com)¹, Luis Diaz-Garcia¹, Caitlin Carlson¹, Cameron Currie¹, Juan Zalapa² and Shawn Steffan², ¹Univ. of Wisconsin, Madison, WI, ²USDA - ARS, Madison, WI
- 3:25** **Break 2**
- 3:35 PM 166** **Evaluating the abundance and diversity of bee pollinator communities in enhanced and natural turfgrass habitats.**
James Wolfen (wolfi009@umn.edu), Eric Watkins and Marla Spivak, Univ. of Minnesota, St. Paul, MN
- 3:50 PM 167** **Building a bigger, better bee: Insights from developmental studies and implications for pollination.**
Bryan Helm (bryan.r.helm@ndsu.edu), North Dakota State Univ., Fargo, ND
- 4:05 PM 168** **Linking the foraging behavior of three bee species to pollen dispersal and gene flow.**
Johanne Brunet (johanne.brunet@ars.usda.gov)¹, Y. Zhao² and Murray Clayton³, ¹USDA - ARS, Madison, WI, ²Gilead Sciences Inc., Foster City, CA, ³Univ. of Wisconsin, Madison, WI
- 4:20** **Break 3**
- 4:30 PM 169** **Monarch butterflies: Flagship species for pollinator conservation.**
Karen Oberhauser (koberhauser@wisc.edu), Univ. of Wisconsin, Madison, WI
- 4:45 PM 170** **Are pesticides contributing to the long-term decline of monarch butterflies?**
Ian Kaplan (ikaplan@purdue.edu), Kayleigh Hauri and Paola Olaya-Arenas, Purdue Univ., West Lafayette, IN
- 5:00 PM 171** **Monarch butterfly population decline in North America: identifying the threatening processes.**
Wayne Thogmartin (wthogmartin@usgs.gov)¹, Ruscena Wiederholt², Karen Oberhauser³, Ryan Drum⁴, Jay Diffendorfer⁵, Sonia Altizer⁶, Orley R. Taylor⁷, John Pleasants⁸, Darius Semmens⁵, Brice Semmens⁹, Richard Erickson¹⁰, Kaitlin Libby¹¹ and Laura López-Hoffman¹¹, ¹U.S. Geological Survey, La Crosse, WI, ²Everglades Foundation, Palmetto Bay, FL, ³Univ. of Wisconsin, Madison, WI, ⁴US Fish and Wildlife Service, Bloomington, MN, ⁵US Geological Survey, Denver, CO, ⁶Univ. of Georgia, Athens, GA, ⁷Univ. of Kansas, Lawrence, KS, ⁸Iowa State Univ., Ames, IA, ⁹Univ. of California, La Jolla, CA, ¹⁰US Geological Survey, La Crosse, WI, ¹¹Univ. of Arizona, Tucson, AZ

Growing entomology literacy and science understanding through innovative extension, outreach, and teaching programs

Salon A (Madison Marriott West)

Moderator and Organizer: Douglas Golick, Univ. of Nebraska, Lincoln, NE

- 1:30 Welcoming Remarks**
- 1:35 PM 172 Eight legged encounters.**
Eileen Hebets (ehbets2@unl.edu), Univ. of Nebraska, Lincoln, NE
- 1:55 PM 173 What can an insect zoo do for you?**
Amanda Skidmore (amanda.skidmore@gmail.com), Caitlin Stamper and Blake L. Newton, Univ. of Kentucky, Lexington, KY
- 2:15 PM 174 Weaving the stories of ‘the little things that run the world’ (E.O. Wilson) into science museum displays.**
Susan J. Weller (susan.weller@unl.edu), Univ. of Nebraska, Lincoln, NE
- 2:35 PM 175 The challenges and successes of advancing entomological literacy at a small liberal arts college.**
Kirk Larsen (larsenkj@luther.edu), Luther College, Decorah, IA
- 2:55 PM 176 Oklahoma and 38 nations: Recruiting Native American students to learn entomology and serve their communities.**
W. Wyatt Hoback (whoback@okstate.edu), Oklahoma State Univ., Stillwater, OK
- 3:15 PM 177 Promoting science literacy through student-led outreach in Nebraska.**
Kaitlin Chapman (Karmit.chapman@gmail.com), Leslie Rault and Elliot Knoell, Univ. of Nebraska, Lincoln, NE
- 3:35 Break**
- 3:50 PM 178 The six-legged subject: Exploring the ‘why’ of insect incorporation in high school science classrooms.**
Erin Ingram (erin.michelle.ingram@gmail.com), Univ. of Nebraska, Lincoln, NE
- 4:10 PM 179 Empowering students, engaging communities: Dow Agrosiences science ambassadors elevate STEM awareness through outreach and activities.**
Ronda Hamm (rlhamm@dow.com), Dow AgroSciences, Indianapolis, IN
- 4:30 PM 180 Infographics and time-lapse for extension and teaching programs.**
Justin McMechan (justin.mcmehan@unl.edu), Univ. of Nebraska, Lincoln, NE

- 4:50 PM 181 Integrating measurements of behavior change and lessons from beekeepers in El Salvador.**
Randall Cass (randall@iastate.edu), Iowa State Univ., Ames, IA

- 5:10 PM 182 Course redesign focused on entomological systems thinking.**
Douglas Golick (dgolick2@unl.edu)¹, *W. Wyatt Hoback*² and *Hartmut Doebe*³, ¹Univ. of Nebraska, Lincoln, NE, ²Oklahoma State Univ., Stillwater, OK, ³George Washington Univ., Washington, DC

- 5:30 Concluding Remarks**

Workshop: North Central Region Extension Entomologists Share Fair

Green Bay and Milwaukee (Madison Marriott West)

Organizers: Erin Hodgson, Iowa State University, Ames, IA and Brian McCornack, Kansas State University, Manhattan, KS

4:00 PM - 6:00 PM

Topics and Leaders:

- Smartphone photography (Brian McCornack)
- Prezi (Matt Grieshop)
- World Cafe (Jeff Bradshaw)
- Using social media and podcasting (Jody Green and Jonathan Larson)
- Green screen depot (McCornack Lab)
- myFields (Sarah Zukoff)
- Qualtrics and immediate feedback cards (Erin Hodgson)
- Registration and swag bags (Erin Hodgson)
- Video (Brandon Kleinke, Iowa State University)
- Graphic recording

Submitted Ten-Minute Presentations: MUVE Session

Salon C (Madison Marriott West)

Moderator: Shripat Kamble, Univ. of Nebraska, Lincoln, NE

- 4:10 PM 183 The Urban Ecosystems Project: Teaching and learning mosquito biology and public health with young scientists in historically excluded communities.**
Stephanie Schneider (sms2@iastate.edu)¹, *Paul Airs*², *Katherine Bruna*¹ and *Lyric Bartholomay*², ¹Iowa State Univ., Ames, IA, ²Univ. of Wisconsin, Madison, WI
- 4:20 PM 184 Insect-specific flavivirus infection and antiviral immunity in *Aedes aegypti* mosquitoes.**
Stephen Peinado (speinado07@gmail.com), *Matthew Aliota* and *Lyric Bartholomay*, Univ. of Wisconsin, Madison, WI

- 4:30 PM 185** Reduced insecticide susceptibility in *Aedes vexans* (Diptera: Culicidae) where agricultural pest management overlaps with mosquito abatement.
Mike Dunbar (dunbar17@gmail.com)¹, *Amanda Bachmann*² and *Adam Varenhorst*³, ¹Emory Univ., Atlanta, GA, ²South Dakota State Univ., Pierre, SD, ³South Dakota State Univ., Brookings, SD
- 4:40 PM 186** Plant-derived edible oils as emerging larvicides for yellow fever mosquito (*Aedes aegypti*) control.
Teresia Njoroge (tnjorog2@illinois.edu), Univ. of Illinois, Champaign, IL
- 4:50 PM 187** Sublethal effects of insecticides on bed bug host finding.
Kacie J. Athey (kacie.johansen@uky.edu), *Michael F. Potter* and *Kenneth F. Haynes*, Univ. of Kentucky, Lexington, KY
- 5:00 PM 188** Contributions of phagocytic granulocytes to anti-Plasmodium immunity in *Anopheles gambiae*.
Hyeogsun Kwon (hskwon@iastate.edu) and *Ryan Smith*, Iowa State Univ., Ames, IA
- 5:10 PM 189** Do-It-Yourself integrated tick management for homeowners.
Gebbienna Bron (gbron@wisc.edu)¹, *Thomas Saltsman*², *Jean Tsao*³, *Lyric Bartholomay*¹ and *Susan Paskewitz*¹, ¹Univ. of Wisconsin, Madison, WI, ²Independent, Grand Haven, MI, ³Michigan State Univ., East Lansing, MI
- 5:20 PM 190** 20-hydroxyecdysone (20E) induces priming of mosquito immunity and limits malaria parasite infection in *Anopheles gambiae*.
Rebekah Reynolds (rebekahr@iastate.edu), *Hyeogsun Kwon* and *Ryan Smith*, Iowa State Univ., Ames, IA
- 5:30 PM 191** Successes of integrated *Ixodes scapularis* tick management in the Upper Midwest.
Jordan Mandli (mandli@wisc.edu), *Xia Lee* and *Susan Paskewitz*, Univ. of Wisconsin, Madison, WI
- 5:40 PM 192** Rapidity of knockdown to assess residual effectiveness of contact insecticides.
Frank Arthur (Frank.Arthur@ars.usda.gov), USDA - ARS, Manhattan, KS

WEDNESDAY, MARCH 21, 2018, MORNING

Submitted Ten-Minute Presentations: P-IE Session II

Salon F (Madison Marriott West)

Moderator: Louis Hesler, USDA - ARS, Brookings, SD

- 8:00 AM 193** Building the skill set for a successful career in entomology.
Boris Castro (bacastro@dow.com), DowDuPont, Indianapolis, IN
- 8:10 AM 194** Non-ash tree responses to emerald ash borer-induced ash mortality.
Wendy Klooster (klooster.2@osu.edu)¹, *P. Charles Goebel*² and *Daniel Herms*², ¹The Ohio State Univ., Columbus, OH, ²The Ohio State Univ., Wooster, OH
- 8:20 AM 195** Susceptibility of *Aphelinus* parasitoids to neonicotinoid seed treatments in Minnesota soybean fields.
Jonathan Dregni (dreg0005@umn.edu) and *George Heimpel*, Univ. of Minnesota, St. Paul, MN
- 8:30 AM 196** PQZ™ a new insecticide for control of piercing sucking insects in fruits and vegetables.
Scott Ludwig (SLudwig@nichino.net)¹, *Pedro Hernandez*² and *James Adams*², ¹Nichino America, Arp, TX, ²Nichino America, Inc, Wilmington, DE
- 8:40 AM 197** "Refuge-in-a-bag" approach for sustainable management of virulent soybean aphids (*Aphis glycines*, Hemiptera: Aphididae) in the field.
Jessica Hohenstein (jdhoven@iastate.edu)¹, *Matthew Kaiser*¹, *Kelley Tilmon*², *Adam Varenhorst*³, *Erin Hodgson*¹ and *Matthew O'Neal*¹, ¹Iowa State Univ., Ames, IA, ²The Ohio State Univ., Wooster, OH, ³South Dakota State Univ., Brookings, SD
- 8:50 AM 198** Sefina™ insecticide: A new insecticide for soybean aphid (Hemiptera: Aphidae) management.
Christa Eilers-Kirk (christa.kirk@basf.com)¹, *Teresia Nyoike*² and *Joe Stout*², ¹BASF, Research Triangle Park, NC, ²BASF Corporation, Research Triangle Park, NC
- 9:00** Break

- 9:10 AM 199** An oasis in the desert: Evaluating contour buffer strips within agricultural fields as habitat for native bees.
Morgan Mackert (mmackert@iastate.edu) and Mary Harris, Iowa State Univ., Ames, IA
- 9:20 AM 200** Exploring the foraging effort of honey bees and bumble bees through time in a shared landscape.
Danny Minahan (dfminahan@wisc.edu)¹ and Johanne Brunet², ¹Univ. of Wisconsin, Madison, WI, ²USDA - ARS, Madison, WI
- 9:30 AM 201** Newly discovered Wisconsin nematodes represent bio-control agents for cranberry pests.
Shane Foye (foye@wisc.edu)¹ and Shawn Steffan², ¹Univ. of Wisconsin, Madison, WI, ²USDA - ARS, Madison, WI
- 9:40 AM 202** Evaluating native bee communities and nutrition in managed grasslands.
David Stein (dsstein@iastate.edu)¹, Diane Debinski², John Pleasants¹ and Amy Toth¹, ¹Iowa State Univ., Ames, IA, ²Montana State Univ., Bozeman, MT
- 9:50 AM 203** Using Geographical Information Systems (GIS) to study monarch butterfly (*Danaus plexippus*) oviposition on roadsides in Iowa.
Teresa Blader (teresablader@gmail.com), Iowa State Univ., Ames, IA
- 10:00 AM 204** Nestmate rejection by guards increases during kleptobiotic events in the honey bee *Apis mellifera*.
M Grayson McWhorter (mcwhorter@uky.edu) and Clare Rittschof, Univ. of Kentucky, Lexington, KY
- 8:30 AM 207** Restoring monarch butterfly habitat in the Midwestern US: 'all hands on deck'.
Wayne Thogmartin (wthogmartin@usgs.gov)¹, Laura López-Hoffman², Jason Rohweder³, Jay Diffendorfer⁴, Ryan Drum⁵, Darius Semmens⁴, Scott Black⁶, Iris Caldwell⁷, Donita Cotter⁸, Pauline Drobney⁹, Laura Jackson¹⁰, Michael Gale⁹, Doug Helmers⁹, Steve Hilburger¹¹, Elizabeth Howard¹², Karen Oberhauser¹³, John Pleasants¹⁴, Brice Semmens¹⁵, Orley R. Taylor¹⁶, Patrick Ward¹⁷, Jake Weltzin¹⁸ and Ruscena Wiederholt², ¹U.S. Geological Survey, La Crosse, WI, ²Univ. of Arizona, Tucson, AZ, ³US Geological Survey, La Crosse, WI, ⁴US Geological Survey, Denver, CO, ⁵US Fish and Wildlife Service, Bloomington, MN, ⁶The Xerces Society for Invertebrate Conservation, Portland, OR, ⁷Univ. of Illinois at Chicago, Chicago, IL, ⁸USFWS, Falls Church, VA, ⁹US Fish and Wildlife Service, Prairie City, IA, ¹⁰Univ. of Northern Iowa, Cedar Falls, IA, ¹¹US Geological Survey, Reston, VA, ¹²Journey North, Wayzata, MN, ¹³Univ. of Minnesota, St. Paul, MN, ¹⁴Iowa State Univ., Ames, IA, ¹⁵Univ. of California, La Jolla, CA, ¹⁶Univ. of Kansas, Lawrence, KS, ¹⁷US Fish and Wildlife Service, Fort Collins, CO, ¹⁸US Geological Survey, Tucson, AZ
- 8:50 AM 208** Update on developing a mid-america monarch conservation strategy.
Edward Boggess (ed.boggess@state.mn.us), Minnesota Dept. of Natural Resources, St. Paul, MN
- 9:10 AM 209** Monarch habitat establishment: Best management practices.
Seth Applegate (sethapp@iastate.edu), Iowa State Univ., Ames, IA
- 9:30 AM 210** Optimizing monarch conservation plantings in the urban landscape.
Adam Baker (heresadamb@uky.edu) and Daniel Potter, Univ. of Kentucky, Lexington, KY
- 9:50** Break
- 10:05 AM 211** Working with energy and transportation sectors to promote pollinator habitat.
Iris Caldwell (iriscald@uic.edu), Univ. of Illinois at Chicago, Chicago, IL
- 10:25 AM 212** Monarch monitoring conservation efforts in Kansas.
Sarah Zukoff (snzukoff@ksu.edu)¹, Anthony Zukoff¹ and Shelly Wiggam², ¹Kansas State Univ., Garden City, KS, ²Kansas State Univ., Manhattan, KS

Monarch butterfly (*Danaus plexippus*) conservation in the north central states: Challenges and opportunities

Salons G and H (Madison Marriott West)

Moderators and Organizers: Douglas A. Landis, Michigan State Univ., East Lansing, MI and Steven Bradbury, Iowa State Univ., Ames, IA

- 8:00 AM 205** Key challenges and opportunities.
Steven Bradbury (spbrad@iastate.edu), Iowa State Univ., Ames, IA
- 8:10 AM 206** Species status assessment for the monarch butterfly.
Sarah Warner (Sarah_Warner@fws.gov), US Fish and Wildlife Service, Madison, WI

- 10:45 AM 213 A landscape scale spatially-explicit agent-based model of monarch butterfly movement and egg-laying.**
Tyler Grant (tgrant@iastate.edu)¹, Hazel R. Parry², Myron Zalucki³ and Steven Bradbury¹,
¹Iowa State Univ., Ames, IA, ²CSIRO, Brisbane, Australia, ³Univ. of Queensland, Brisbane, Australia
- 11:05 AM 214 Altering disturbance regimes to enhance monarch survival at landscape-scales.**
Douglas A. Landis (landisd@msu.edu) and Andrew Myers, Michigan State Univ., East Lansing, MI
- 11:25 AM 215 Monarch conservation science partnership: Key findings and next steps.**
Karen Oberhauser (oberh001@umn.edu), Univ. of Minnesota, St. Paul, MN
- 11:45 AM 216 Key findings and next steps.**
Douglas A. Landis (landisd@msu.edu), Michigan State Univ., East Lansing, MI

Forest Entomology

Salon E (Madison Marriott West)

Moderators and Organizers: Todd D. Johnson, Univ. of Illinois, Champaign, IL and Kayla Perry, The Ohio State Univ., Wooster, OH

- 8:30 Introductory Remarks**
- 8:35 AM 217 Partnering in forest health to develop seasonal harvesting restrictions.**
Rebecca Gray (rebecca.gray@wisconsin.gov), Wisconsin Dept. of Natural Resources, Fitchburg, WI
- 8:55 AM 218 Red pine regeneration issues in Minnesota.**
Jessica Hartshorn (jessica.hartshorn@state.mn.us)¹, Michael Parisio², Brian Schwingle³ and Val Cervenka⁴, ¹Minnesota Dept. of Natural Resources, Grand Rapids, MN, ²State Univ. of New York, ESF, Syracuse, NY, ³Univ. of Minnesota, St. Paul, MN, ⁴Minnesota Dept. of Natural Resources, na, MN
- 9:15 AM 219 Identifying moderate-severity disturbances in forests around western Lake Superior using a 30-year landsat-based phenoclimatology record.**
Matthew Garcia (megarcia@wisc.edu)¹, Phil Townsend¹ and Brian R Sturtevant², ¹Univ. of Wisconsin, Madison, WI, ²USDA Forest Service, Rhinelander, WI
- 9:35 Break**
- 9:55 AM 220 How are canopy insect communities structured by tree trait and genetic variation?**
Hilary Barker (hlbultman@wisc.edu)¹, Jennifer F. Riehl¹, Liza Holeski², Pär Ingvarsson³ and Richard L. Lindroth¹, ¹Univ. of Wisconsin, Madison, WI, ²Northern Arizona Univ., Flagstaff,

AZ, ³Swedish Univ. of Agricultural Sciences, Uppsala, Sweden

- 10:15 AM 221 Examining the effects of distance from mature forest and succession on beetle community recolonisation using species, functional trait and phylogenetic approaches.**
Nicholas Fountain-Jones (jonesnm@utas.edu.au)^{1,2}, Gregory Jordan¹, Christopher Burridge¹, Timothy Wardlaw³, Thomas Baker¹, Lynette Forster¹, Morgana Petersfield¹ and Susan Baker³, ¹Univ. of Tasmania, Hobart, Australia, ²Univ. of Minnesota, St. Paul, MN, ³Forestry Tasmania, Hobart, Australia
- 10:35 AM 222 Invasive insect dispersal between forest and agricultural landscapes.**
Kevin Rice (ricekevinb@gmail.com)¹, John Cullum², Craig Larcenaire³ and Tracy C. Leskey⁴,
¹Univ. of Missouri, Columbia, MO, ²USDA-ARS, Kearneysville, WV, ³USDA Forest Service, Morgantown, WV, ⁴USDA - ARS, Kearneysville, WV

10:55

Concluding Remarks

Lett-uce get together: Ecological insect management in fruits and vegetables

Salon C (Madison Marriott West)

Moderators and Organizers: Christelle Guédot, Univ. of Wisconsin, Madison, WI; Benjamin Jaffe, Univ. of Wisconsin, Madison, WI and Russell Groves, Univ. of Wisconsin, Madison, WI

- 8:30 AM 223 Fruit fly or garbage fly? Exploring the importance and feasibility of field sanitation for spotted-wing drosophila management**
Matt Grieshop (grieshop@msu.edu), Holly Hooper, Christopher Adams and Harit K. Bal, Michigan State Univ., East Lansing, MI
- 8:50 AM 224 Quantifying health risks to honey bees in pickling cucumber agroecosystems in Michigan.**
Zsofia Szendrei (szendrei@msu.edu)¹, Thomas Wood¹, Yajun Zhang¹, Laura Ingwell² and Ian Kaplan², ¹Michigan State Univ., East Lansing, MI, ²Purdue Univ., West Lafayette, IN
- 9:10 AM 225 Mapping out pesticide exposure risk for beneficial insects in crop production: current trends and future directions.**
Elizabeth Long (long.1541@osu.edu), The Ohio State Univ., Wooster, OH
- 9:30 AM 226 Alternative management methods for brown marmorated stink bug in fruit trees.**
Greg Krawczyk (gxxk13@psu.edu)¹, Hillary Morin² and Claire Hirt³, ¹Pennsylvania State Univ., Biglerville, PA, ²Pennsylvania State Univ., Univ. Park, PA, ³Univ. of Maryland, College Park, MD
- 9:50 Break**

- 10:10 AM 227 **New faces of bio-control in cranberries.**
Shawn Steffan (steffan@entomology.wisc.edu)¹, *Shane Foye*², *Maria Chavez*² and *Elissa M. Chasen*², ¹USDA - ARS, Madison, WI, ²Univ. of Wisconsin, Madison, WI
- 10:30 AM 228 **Evidence for Delayed Emergence in Colorado Potato Beetle – Management Implications.**
Russell Groves (groves@entomology.wisc.edu) and *Benjamin Bradford*, Univ. of Wisconsin, Madison, WI
- 10:50 AM 229 **Remote scouting for insects in potato.**
Ian MacRae (imacrae@umn.edu), Univ. of Minnesota, Crookston, MN
- 11:10 AM 230 **Knowing your enemy to reduce damage and improve management of spotted-wing drosophila (*Drosophila suzukii*).**
Benjamin Jaffe (bjaffe2@wisc.edu) and *Christelle Guédot*, Univ. of Wisconsin, Madison, WI

Submitted Ten-Minute Presentations: PBT, SysEB Session

Salon F (Madison Marriott West)

Moderator: Susan J. Weller, Univ. of Nebraska, Lincoln, NE

- 10:20 AM 231 **A model system for assessing the impact of environmental stressors on viral infections in honey bees.**
Scott O'Neal (soneal3@unl.edu) and *Troy Anderson*, Univ. of Nebraska, Lincoln, NE
- 10:30 AM 232 **RNAi in a *Diabrotica* cell line.**
Kristopher Silver (ksilver@ksu.edu), Kansas State Univ., Manhattan, KS
- 10:40 AM 233 **Dynamic dewpoint isotherms of hard red winter wheat (HRW) and a synthetic amorphous zeolite intended for grain protection.**
Kouame Yao (kdyao@ksu.edu), Jennifer Anthony, David Hagstrum, Ronaldo Maghirang, Kun Yan Zhu and Bhadriraju Subramanyam, Kansas State Univ., Manhattan, KS
- 10:50 AM 234 **Whole genome sequencing sheds light on the evolutionary history and rapid evolution of a superpest, the Colorado potato beetle, *Leptinotarsa decemlineata*.**
Benjamin Pelissie (benjamin.pelissie@icloud.com)¹, *Yolanda Chen*², *Michael S. Crossley*¹, *David J. Hawthorne*³, *Zachary Cohen*¹ and *Sean Schoville*¹, ¹Univ. of Wisconsin, Madison, WI, ²Univ. of Vermont, Burlington, VT, ³Univ. of Maryland, College Park, MD
- 11:00 AM 235 **Using an integrative taxonomic approach to delimit a sibling species, *Trachymyrmex fovouros* sp. n. (Formicidae, Attini).**
Cody Cardenas (cardenas.61@osu.edu)¹, *Rachelle Adams*¹ and *Ted Schultz*², ¹The Ohio State Univ., Columbus, OH, ²Smithsonian Institution, Washington, DC
- 11:10 AM 236 **Exploration of dryinidae (Hymenoptera) host associations.**
Christian Millan-Hernandez (millanh2@illinois.edu), Univ. of Illinois, Champaign, IL
- 11:20 AM 237 **Context dependent mutualist warn its host of its lethal venom.**
Mazie Davis (davis.5047@buckeyemail.osu.edu)¹, *Stefanie Neupert*², *Tappey H. Jones*³ and *Rachelle Adams*⁴, ¹Ohio State Univ., Dublin, OH, ²Univ. of Konstanz, Konstanz, Germany, ³Virginia Military Institute, Lexington, VA, ⁴Univ. of Copenhagen, Copenhagen, Denmark
- 11:30 AM 238 **The protease network that regulates mosquito immunity.**
Kristin Michel (kmichel@ksu.edu)¹, *Caterina Scoglio*¹, *Mike Osta*², *Sifat Moon*¹ and *Patil Tawidian*¹, ¹Kansas State Univ., Manhattan, KS, ²American Univ., Beirut, Lebanon
- 11:40 AM 239 **Comparative phylogenetics and genome evolution of the global agricultural pest Colorado potato beetle, *Leptinotarsa decemlineata*.**
Zachary Cohen (zcohen3@wisc.edu)¹, *Yolanda Chen*² and *Sean Schoville*¹, ¹Univ. of Wisconsin, Madison, WI, ²Univ. of Vermont, Burlington, VT

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Restaurants near to Madison Marriott West

Nearby Restaurants

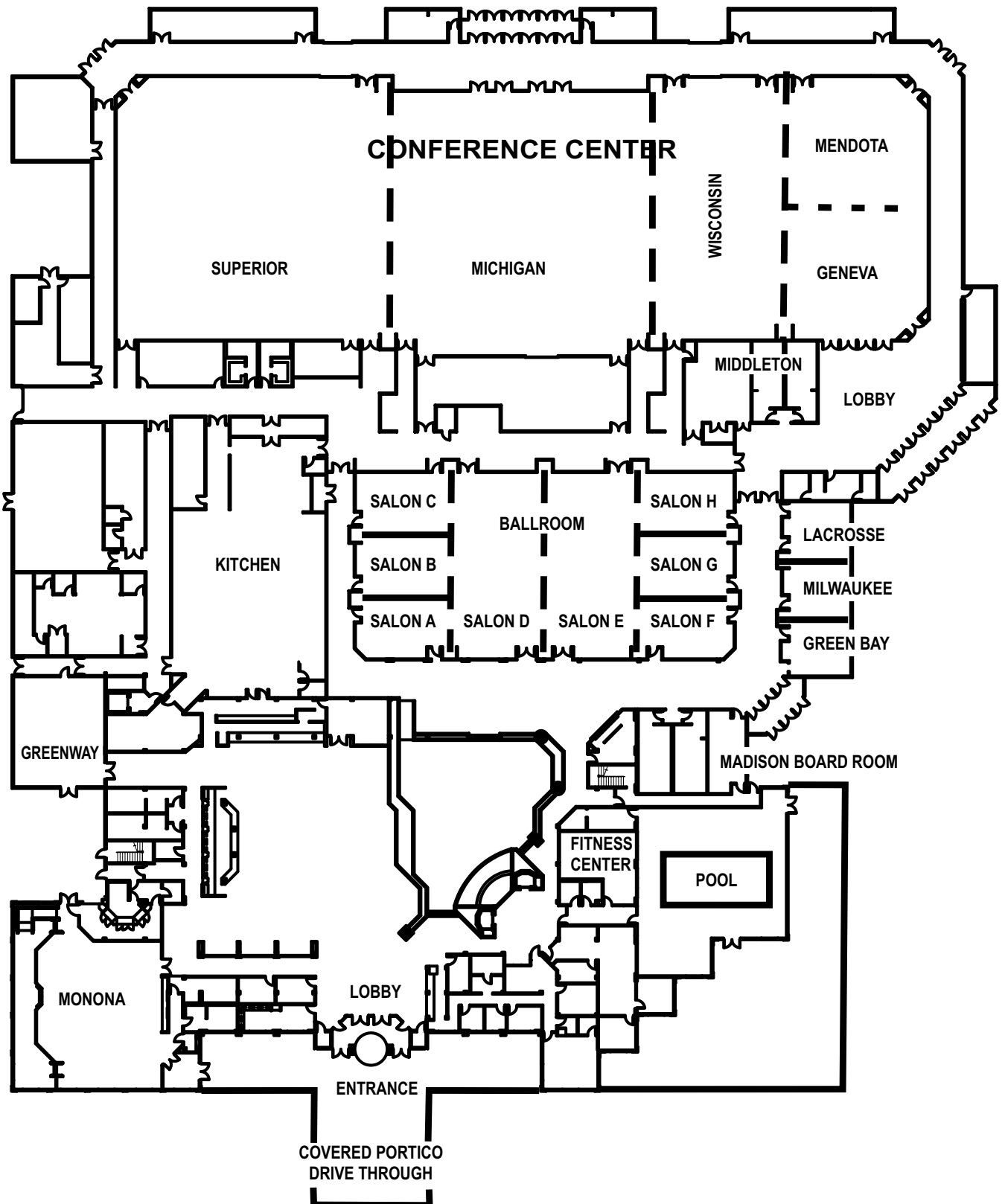


<https://www.google.com/maps/search/restaurants/@43.0891416,-89.5297139,17z>

Name	Address	Phone Number	Type of Food
Dhaba Indian Bistro	8333 Greenway Blvd, Middleton	(608) 203-8822	Indian
Freska Mediterranean Grill	8310 Greenway Blvd, Middleton	(608) 203-5034	Mediterranean
World Of Beer	8225 Greenway Blvd, Middleton	(608) 827-9000	Pubs
Dickey's Barbecue Pit	8225 Greenway Blvd, Middleton	(608) 827-9000	Barbeque, Sandwiches
Novanta	8452 Old Sauk Rd, Madison	(608) 831-7740	Pizza, Italian, Mediterranean
Johnny's Italian Steakhouse	8390 Market St, Middleton	(608) 831-3705	Italian, Steakhouse
Five Guys Burgers and Fries	8234 Greenway Blvd, Middleton	(608) 829-0800	Burgers
Biaggi's Ristorante Italiano	1611 Aspen Commons, Middleton	(608) 833-5070	Italian
The Village Green	7508 Hubbard Ave, Middleton	(608) 831-9962	Pub
Cosi	8310 Greenway Blvd, Middleton	(608) 836-3180	Sandwiches
Eno Vino Wine Bar & Bistro	601 Junction Rd, Madison	(608) 664-9565	Wine Bar, Hors d'oeuvres
The Free House Pub	1902 Parmenter St, Middleton	(608) 831-5000	Pub
Louisianne's	7464 Hubbard Ave, Middleton	(608) 831-1929	Cajun/Creole, Seafood
Sofra Family Bistro	7457 Elmwood Ave, Middleton	(608) 836-6614	Breakfast & Brunch
Abuelo's	2229 Deming Way, Middleton	(608) 831-0739	Mexican, Tex-Mex
Vin Santo	7462 Hubbard Ave, Middleton	(608) 836-1880	Italian
Hubbard Avenue Diner	7445 Hubbard Ave, Middleton	(608) 831-6800	Diner
Pho Nam Noodle House	610 Junction Rd, Madison	(608) 836-7040	Vietnamese
Villa Dolce	1828 Parmenter St, Middleton	(608) 833-0033	Italian
Swagat Indian Restaurant	8333 Greenway Blvd, Madison	(608) 836-9399	Indian
Minerva Indian Cuisine	515 Junction Rd, Madison	(608) 203-9671	Indian
Quaker Steak & Lube	2259 Deming Way, Middleton	(608) 831-5823	Chicken Wings, Bar
Ruth's Chris Steak House	2137 Deming Way, Middleton	(608) 828-7884	Steakhouse
The Flying Hound Alehouse	6317 McKee Rd, Madison	(608) 310-4422	Pub
K Peppers	1901 Cayuga St, Middleton	(608) 833-3189	Asian Fusion, Korean
Oliva	751 N High Point Rd, Madison	(608) 831-7776	Mediterranean, Italian
Monk's Bar & Grill	8313 Murphy Dr, Middleton	(608) 833-7001	Sports Bar
Roman Candle Pizzeria	1920 Parmenter St, Middleton	(608) 203-6545	Pub
New Seoul Korean	721 N High Point Rd, Madison	(608) 829-3331	Korean
Panera Bread	601 Junction Road, Madison	(608) 826-0808	Sandwiches, Salad, Soup
Tom's Red Pepper	1019 N Gammon Rd, Middleton	(608) 831-1221	Chinese
TnT's Coffee & Cafe	729 N High Point Rd, Madison	(608) 831-2298	Coffee & Tea, Bakery
Which Wich	2177 Deming Way, Middleton	(608) 836-9424	Sandwiches
Chipotle Mexican Grill	8422 Old Sauk Rd, Middleton	(608) 826-0919	Mexican, Tex-Mex
Taigu	7610 Elmwood Ave, Middleton	(608) 831-3458	Chinese
HuHot Mongolian Grill	610 Junction Rd, Madison	(608) 827-7110	Mongolian
P.F. Chang's	2237 Deming Way, Middleton	(608) 831-2488	Chinese
Chin's Asia Fresh	8414 Old Sauk Rd, Middleton	(608) 827-7721	Chinese
Takara	1900 Cayuga St, Middleton	(608) 203-8866	Japanese, Sushi

Floor Plan

Madison Marriott West





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