



**72nd Annual Meeting
of the North Central Branch
of the Entomological Society of America**

Crowne Plaza Indianapolis Downtown-Union Station
Indianapolis, Indiana

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Meeting Logistics

Registration

All participants must register for the meeting. Name tags are required for all conference functions. Meeting registration is located in the Grand Hall Foyer of the Crowne Plaza Indianapolis Downtown-Union Station. Registration will be open for check-in (pre-registered attendees) and for on-site registration at the following times:

Sunday, June 4 11:00 AM – 6:00 PM

Monday, June 5 7:30 AM – 5:00 PM

Tuesday, June 6 7:30 AM – 5:00 PM

Wednesday, June 7 . 7:30 AM – 10:00 AM

Guidelines for Speakers and Moderators

Speakers and moderators will follow standard procedures and practices for ESA meetings. Moderators are responsible for 1) maintaining the program schedule by not starting presentations prior to its time, and 2) not allowing a speaker to exceed the allotted time. If a presentation is cancelled, the moderator must wait to begin the next talk until the scheduled time. If there are problems with the computer or projector, please ask for assistance in the A/V Room (New York Central).

Student Competition Judge and Moderator Training

A meeting for moderators and student competition judges is scheduled on Sunday from 5:00 to 6:00 pm in Edison North. Judging packets will be distributed at that time.

Employment Opportunity Center

Employers are invited to post job announcements and job seekers are encouraged to post their CVs in the New York Central. Please bring copies of your documents for distribution.

Poster Presentations

Poster Size: 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.

Set Up: Posters will be displayed in the Grand Hall Foyer. Student competition posters should be setup Sunday, June 5 between 4:00 PM and 8:00 PM and should remain posted until takedown on Monday, June 6 from 5:00 PM to 6:00 PM. Regular submission posters should be setup Monday, June 6 between 6:00 PM and 8:00 PM and should remain posted until takedown on Tuesday, June 6 from 6:00 PM to 9:00 PM. Posters will be mounted according to the signage provided. Bring your own tacks to secure your display to the poster board.

Author Presence: Presenters in the Student Competition should stand by their poster on Monday, June 7 between 2:00 – 2:30 PM (odd numbers) and 2:30 – 3:00 PM (even numbers). Submitted poster presenters should be present on Tuesday, June 8 from 10:00 – 10:30 AM (odd numbers) and 10:30 – 11:00 AM (even numbers).

Audiovisual & Upload of Presentations:

For All Presenters: All meeting rooms will be equipped with an LCD projector, projector screen, computer and microphone. The A/V room (New York Central) will have computer for presenters to load and preview presentations. Please upload your presentation no less than 2 hours before the start of your session. Open the folder that is labeled with the session that you are presenting, and copy your presentation to that folder. Please name your presentation with your Last Name, First Name.

For Moderators: 20 minutes before the start of your session, you must come to the A/V 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.

Code of Conduct:

By attending the 2017 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.

Refreshments:

Coffee breaks are scheduled during mid-morning breaks (Monday, Tuesday, and Wednesday). 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.

Messages, Program Changes, and Lost & Found:

A message board will be displayed in the AV and Employment Opportunity room (New York Central). Notices concerning program changes should be submitted to the Meeting Registration Desk. Lost and found items may be turned in and retrieved at the Registration Desk (Grand Hall Foyer)

No Photographs Please:

Please do 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.

Special Events:

Triplehorn Challenge: An insect pinning competition will take place as part of the Welcome Reception in the Grand Hall starting at 8:00 pm. Registration is limited to the first 20 sign-ups.

Dow AgroSciences Site Tour: The Dow AgroSciences site tour will be on Tuesday, June 6, from 2:00 to 6:00 pm. Tour will kick off with a bus ride around the campus to provide participants a general overview of its size and scale. The bus will then drop participants off at the Employee Development Center's main lobby area where they will see some of the spaces that positively impact Dow employees' day-to-day work environment. From there, participants will be taken to the main Research and Development buildings for an overview of the innovation and product development for the Seeds and Crop Protection platforms. Transportation will be provided. All tour visitors must wear long pants or skirts/dresses with hosiery and closed-toe and heeled shoes. Pre-registration is required.

Indianapolis Indians Baseball game: Reserved a block of tickets for Sunday afternoon game (1:35 pm). Field is just a bit over a block from hotel. No need to pay in advance – just let Linda Mason (lmason@purdue.edu) know you are interested so she can keep a running total. Event that day: Kids Eat Free Sundays, PNC Grow Up Great Day and Yoga in the Outfield – Children 14 and under receive a voucher good for a hot dog, bag of chips and bottle of water with price of admission. Enjoy yoga on the field before the game.

Other outside activities: Circle Centre Mall and the Indianapolis Artsgarden is just up the street with lots of entertainment features. Canal Walk and Monument Circle are nearby and offer outdoor entertainment options. There are several brewery and wine tours easily reached as well as a variety of museums, including one of the top Children's Museum in the country, the Museum of Art, the NCAA Hall of Champions, and the Kurt Vonnegut Memorial Library.

2017 NCB Meeting Organizers



LINDA MASON
(PRESIDENT)



JEFF BRADSHAW
(SECRETARY/TREASURER)



JIM CAMPBELL
(CO-PROGRAM CHAIR)



GENE WHITE
(CO-PROGRAM CHAIR)



RONDA HAMM
(LOCAL ARRANGEMENTS CHAIR)



KAYLA PERRY
**(STUDENT REP – EXECUTIVE
COMMITTEE)**

2017 NCB Special Acknowledgements

Additional Meeting Organizers:

Student Competition Judging
and Moderator Coordinator:
Clint Pilcher

Meeting Sponsorship Coordinators:
Jeff Bradshaw and Laura Campbell

Triplehorn Challenge Chair:
Timothy Gibb

Photo Salon Chair:
Tom Myers

Linnaean Games:
**Dan Young (Chair) and Deane Jorgenson
(Games-Master)**

Special Thanks

ESA Central Staff:

... especially Becky Anthony, Rosina Romano, and Neil Wil-
loughby at ESA Central for website, online registration and
other support.

Confex Staff:

... especially Amy Coli for program assistance
and Karen Morrissey for program book assembly.

Visit Indy

... especially Susan Dickey

ConferenceDirect

Crowne Plaza Indianapolis Downtown Union Station staff

All of the Moderators, Judges, and Student Volunteers

All the meeting sponsors

ESA-NCB Committee Information

Executive Committee

2017 CHAIR

Linda Mason, President
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2018 CHAIR

John Ruberson, President-Elect
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Tammy Luck

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Nominations

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Rep to ESA Awards and Honors Committee

Deirdre Prischmann

Rep to ESA Membership

Xuguo Zhou

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Rep to ESA Science Policy Committee

Marianne Alleyne

Rep to ESA Early Career Professionals Committee

Amy Morey

Rep to ESA Diversity and Inclusion Committee

Susan Moser

2017 NCB Award Organizers



JENNIFER WHITE

2017 NCB AWARDS CZAR



CLINT PILCHER

NCB STUDENT AWARDS CHAIR

2017 Award Winners

Award for Excellence in Integrated Pest Management Award



DR. RUFUS ISAACS

Dr. Isaacs studied Applied Biology at Imperial College in London for his undergraduate degree. After a year working in the private sector, he returned to academia and earned a Ph.D at The University of London studying pest insect ecology and management. He moved to the University of Arizona in 1994 to study whitefly pests of desert agriculture, then to Michigan State University where he joined the faculty in 1999. As a professor of entomology, he leads a group studying insects in berry crops. This includes pests that threaten the yields and quality of blueberries, grapes, raspberries, and strawberries as well as their natural enemies. His program has expanded over the past decade to also address pollination of fruit crops with a particular emphasis on the contribution of wild bees and strategies for their conservation. Recent studies have focused on the behavior, ecology, and control of spotted wing *Drosophila* in berry farms, and control of pests in vineyards including invasive and native pests. Dr. Isaacs is currently the director of the Integrated Crop Pollination Project (www.projecticp.org). Learn more about his research and extension program at www.isaacslab.msu.edu.

Distinguished Achievement Award in Extension



DR. KELLEY TILMON

Dr. Kelley Tilmon is an Associate Professor in the Department of Entomology at The Ohio State University (OARDC). Her primary responsibilities are field crop entomology extension and research. Prior to joining the faculty of Ohio State in 2016, she was on the faculty at South Dakota State University for ten years, specializing in soybean entomology. She earned her Ph.D. in Entomology from Cornell University, and an M.S. in Entomology from the University of Delaware, and a B.A. majoring in Biology and English at the University of Delaware. Dr. Tilmon's extension and research program emphasizes integrated pest management of agronomic crop pests. She is the director of a multi-state project funded by the North Central Soybean Research Program, which provides research and award-winning outreach for soybean producers in the region. She is also the editor of the book *Specialization, Speciation, and Radiation: The Evolutionary Biology of Herbivorous Insects*.

Distinguished Achievement Award in Horticultural Entomology



DR. DAVID SMITLEY

As a full professor and MSU Extension Specialist David Smitley works closely with the turfgrass, nursery, and floriculture industries to identify and solve insect pest problems, including best management practices for growers and landscapers. In 1991, Dr. Smitley worked with Forest Service colleagues to introduce *Entomophaga maimaiga*, a natural fungal pathogen of gypsy moth, into Michigan. In the last 16 years, he conducted research on emerald ash borer that led to the development of the most widely used treatment for landscape trees; trunk injection with emamectin benzoate (TREEäge). During the same time period a series of field trials led to publications that explain how imidacloprid can provide a consistently high level of protection against emerald ash borer when applied as a basal soil drench. This gives homeowners a much-needed tool to protect valuable urban trees using products available at local garden centers.

In 2014, Dr. Smitley began an intensive research and extension effort to develop pest management programs for nursery and greenhouse growers that allows them to produce high quality plants that are safe for pollinators after the plants are purchased and planted in the yard and garden. This led to a joint-effort with Steve Frank in 2016 to organize the first national conference on “Protecting Pollinators in Ornamental Landscapes”. This conference was highly successful and a second conference is planned for October 2017. He is primary author of “Protecting and Enhancing Pollinators in Managed Urban Landscapes” for the North Central and North East U.S. regions. In its first year of publication (2016), this 30 page bulletin was accessed more than any other MSU Extension publication with 9,000+ page views and 5,200+ downloads. Dr. Smitley is continuing this work as one of the co-PIs on the \$7.2 M USDA, Specialty Crops Research Initiative grant entitled, “Protecting Pollinators with Economically Feasible and Environmentally Sound Ornamental Horticulture”.

In 1999 and 2000 Smitley introduced the microsporidean pathogen, *Ovavesicula popilliae*, into Michigan. With a long-term research project and several publications the Smitley lab has documented a high correlation between the build-up of *O. popilliae* and a 75% decline in Japanese beetle populations in the 15-year period following introduction of the pathogen.

Dr. Smitley has been recognized by his colleagues with: the Michigan Outstanding Extension Specialist Award, the John Hannah Award for Program Excellence in Extension, All-University Excellence in Diversity Recognition, and the National Learning Module Winner of Communication Award from the National Association of County Agriculture Agents.

Excellence in Early Career Award



DR. MAHSA FARDISI

Mahsa Fardisi is a Postdoctoral Research Associate working with Dr. Michael E. Scharf and Dr. Ameya D. Gondhalekar in the Department of Entomology at Purdue University. She earned her Ph.D. (2015) and M.S. (2011) degree with Dr. Linda J. Mason focusing on post-harvest insect pest management at Purdue University. Currently, she is investigating toxicology and insect resistance management in German cockroaches (*Blattella germanica* (L.)) in low-income multi-family housing. This study is funded by the U.S. Department of Housing and Urban Development (HUD) and was being coordinated closely with two public housing sites in Danville, IL and Indianapolis, IN. The ultimate goal of her research is to identify the best insecticide deployment strategies for long-term sustainable cockroach control and insecticide resistance management for researchers and pest management professionals, who are dealing with resistance-associated cockroach control failures worldwide. For her Ph.D., she looked at susceptibility of animal feed containing Dried Distillers Grains with Solubles (DDGS) to red flour beetle (*Tribolium castaneum*) infestation. For her Master's, she determined environmental and physiological factors affecting flight behavior of cigarette beetles (*Lasioderma serricorne*) to improve the monitoring for insect pests in large-scale food production facilities and storages. She is pursuing a career that would combine research, extension, and teaching. Her research interests include studying insect pest management in urban environments, investigating insecticide resistance, and studying insect biology and behavior. She would like to establish a research program that merges her knowledge about urban structural pests and insect pest of stored-products for cutting-edge genetic/chemical technologies for insect pest management.

Recognition Award in Urban Entomology



DR. MARY M. GARDINER

Dr. Mary M. Gardiner received her Ph.D. in 2008 from Michigan State University and is currently an Associate Professor in the Department of Entomology at The Ohio State University. Her research program focuses on the ecological value of urban vacant land. This work is funded by the NSF and USDA NIFA and concentrated in Cleveland, Ohio – a city that has experienced significant economic and population decline. Cleveland currently contains 27,000 vacant lots encompassing approximately 4,000 acres of land. The Gardiner Lab examines how alternative vegetation designs and management regimes influence the value of vacant land for the conservation of biodiversity and the provision of ecosystem services. Mary is also a State Specialist in Extension and works with several stakeholder groups including home gardeners, Master Gardeners, Master Naturalists, and urban farmers. Her extension programming focuses on identifying and attracting beneficial insects to gardens and farms to promote conservation and ecosystem services. In 2015, she released a book focused on natural enemies and their role in biological control in home gardens titled: *Good Garden Bugs: Everything You Need to Know about Beneficial Predatory Insects*. She has also embraced the use of citizen science in her research with the statewide program, *Pollination Investigators*, which engages volunteers in the study of pollination services.

J.H. Comstock Award



DR. KAYLA PERRY

Kayla recently graduated with her Ph.D. in Entomology from Ohio State University where she was advised by Dr. Dan Herms. Kayla's research focused on elucidating mechanisms that explain the role of disturbance in maintaining ground-dwelling arthropod diversity, structure, and function in forest ecosystems. She tested predictions of the intermediate disturbance hypothesis and developed a novel method to quantify the movement of arthropods to understand recolonization potential following disturbance. She investigated the indirect effects of emerald ash borer-induced ash mortality on arthropods. This research will be used to inform sustainable management of forests for their conservation and economic value in the face of major challenges such as climate change and invasive species. Kayla is a post-doctoral researcher with Dr. Mary Gardiner investigating mechanisms of ground-dwelling arthropod community assembly in urban landscapes.

Graduate Student Scholarship Winner



KATIE TODD

Katie is a National Science Foundation (NSF) Graduate Research Fellow (2016) and is currently working on her PhD at the Ag-Urban Landscape Ecology (ALE) Lab at The Ohio State University. She graduated summa cum laude from Messiah College in May, 2013 with a B.S. in Environmental Science and a B.A. in English. Katie is broadly interested in human dominated systems, both urban and agricultural, and the effects of biodiversity on insect interactions and ecosystem services. At the ALE Lab, Katie's current work is focused on how urban landscape structure and local habitat design influence bee and wasp communities, population growth of cavity nesting bees/wasps, and niche partitioning of food resources.

Student Travel Scholarship Winners

PRIYANKA MITTAPELLY

The Ohio State University

KABITA KHAREL

Purdue University

TODD DAVID JOHNSON

University of Illinois at Urbana-Champaign

CATHERINE DANA

University of Illinois

THORSTEN HANSEN

University of Kentucky

TANYA JOSEK

University of Illinois Urbana-Champaign

DEBORA GOULART MONTEZANO

University of Nebraska - Lincoln

HENRY VU

University of Notre Dame

DANIEL BUSH

University of Illinois at Urbana-Champaign

JACOB DIXON

University of Illinois at Urbana-Champaign

ADAM KRANZ

University of Illinois Urbana Champaign

SURESH VARSANI

University of Nebraska-Lincoln

NATHAN MERCER

University of Kentucky

SANJAY T BASNET

University of Nebraska

DARIANE J. SAGASETA DE OLIVEIRA SOUZA

University of Nebraska-Lincoln

MARGARET LUND

Michigan State University

JOSHUA CALEB GIBSON

University of Illinois at Urbana-Champaign

SARAH GIERS

University of Illinois at Urbana-Champaign

JORDAN J. REINDERS

University of Nebraska-Lincoln

DANIELA TAMARA PEZZINI

University of Minnesota

JACOB PECENKA

South Dakota State University

ALLISON THERESE PARKER

University of Illinois Urbana-Champaign

AMANDA SKIDMORE

University of Kentucky

Program Summary

SUNDAY, JUNE 4, 2017

Program	Time	Room
The Professional ACE: Practice and Application	8:00 AM - 5:00 PM	Illinois Street Ballroom West
Registration	11:00 AM - 6:00 PM	Grand Hall Foyer
NCB Executive Committee Meeting	12:30 PM - 3:00 PM	B&O
Recent Advances in the Integrated Pest Management of Wheat and Associated Field Crops by Young and Early Career Scientists	1:00 PM - 5:00 PM	Edison South
Avoiding Pitfalls In Early Graduate School: Preparing Early On For The Job Market	2:00 PM - 4:00 PM	Edison North
AV and Employment Opportunity	3:00 PM - 7:00 PM	New York Central
Judges and Moderators Training	5:00 PM - 6:00 PM	Edison North
Linnaean Games - Preliminary Rounds	5:00 PM - 7:00 PM	Grand Hall
Welcome Reception	7:30 PM - 10:00 PM	Grand Hall
Triplehorn Pinning Challenge	8:00 PM - 9:00 PM	Grand Hall

MONDAY, JUNE 5, 2017

Program	Time	Room
NCAC-15 Meeting	7:00 AM - 10:00 AM	Executive Boardroom
Registration	7:30 AM - 5:00 PM	Grand Hall Foyer
AV and Employment Opportunity	8:00 AM - 5:00 PM	New York Central
Ph.D. Student Poster Competition - I	8:00 AM - 5:00 PM	Grand Hall Foyer
Ph.D. Student Poster Competition - II	8:00 AM - 5:00 PM	Grand Hall Foyer
Undergraduate and M. S. Student Poster Competition - I	8:00 AM - 5:00 PM	Grand Hall Foyer
Undergraduate and M. S. Student Poster Competition - II	8:00 AM - 5:00 PM	Grand Hall Foyer
Ph.D. Student Ten-Minute Paper Competition - I	8:30 AM - 10:30 AM	Edison South
Ph.D. Student Ten-Minute Paper Competition - II	8:30 AM - 10:30 AM	Edison North
Ph.D. Student Ten-Minute Paper Competition - III	8:30 AM - 10:30 AM	C&O
Undergraduate and M.S. Student Ten-Minute Paper Competition - I	8:30 AM - 10:30 AM	Illinois Street Ballroom West
Undergraduate and M.S. Student Ten-Minute Paper Competition - II	8:30 AM - 10:30 AM	Milwaukee
Student Luncheon: Effective Communication of Scientific Research to Stakeholder Audiences	12:00 PM - 1:30 PM	Grand Hall

Program Summary

MONDAY, JUNE 5, 2017, CONTINUED

New Insights in Insect Immunity	1:30 PM - 3:30 PM	Edison North
Medical Entomology in a Changing World	1:30 PM - 3:40 PM	Edison South
Plant-Insect Interactions in the Face of a Changing Climate	1:55 PM - 4:55 PM	Illinois Street Ballroom West
Photo Salon	4:00 PM - 5:00 PM	C&O
Linnaean Games - Final Round	5:00 PM - 7:30 PM	Grand Hall
Student Mixer	8:00 PM - 10:30 PM	Slippery Noodle Inn

TUESDAY, JUNE 6, 2017

Program	Time	Room
Registration	7:30 AM - 5:00 PM	Grand Hall Foyer
Forest Entomology	8:00 AM - 10:50 AM	Edison North
Recent Advances in Stored Product Insect Pest Management	8:00 AM - 11:45 AM	Illinois Street Ballroom West
Insecticide/Trait Resistance of Agronomic Crop Pests in the North Central Region	8:00 AM - 11:50 AM	Edison South
AV and Employment Opportunity	8:00 AM - 5:00 PM	New York Central
Regular Submitted Posters	8:00 AM - 5:00 PM	Grand Hall Foyer
Awards Luncheon	12:00 PM - 2:00 PM	Grand Hall
Submitted Ten-Minute Papers - Session 1	2:00 PM - 4:45 PM	Edison North
Dow AgroSciences Site Tour	2:00 PM - 5:00 PM	Dow AgroSciences
Submitted Ten-Minute Papers - Session 2	2:30 PM - 4:10 PM	Edison South

WEDNESDAY, JUNE 7, 2017

Program	Time	Room
Registration	7:30 AM - 10:00 AM	Grand Hall Foyer
Final Business Meeting	8:00 AM - 9:00 AM	Edison North
AV and Employment Opportunity	8:00 AM - 12:00 PM	New York Central
The Interplay of Host Plant Resistance and Biological Control in Pest Management	9:00 AM - 12:00 PM	Edison South
Submitted Ten-Minute Papers - Session 3	9:10 AM - 10:55 AM	Edison North
NCB Executive Committee Final Meeting	11:30 AM - 1:30 PM	B&O

Oral & Poster Presentation Schedule

SUNDAY, JUNE 4, 2017, MORNING

The Professional ACE: Practice and Application

Illinois Street Ballroom West (Crowne Plaza Indianapolis Downtown Union Station)

Moderators and Organizers: Gene White, Rentokil - Steritech, White Lake, MI

8:00 AM Introduction

8:15 AM 1 **Field Inspection Tools for the Associate Certified Entomologist.**
Jeffrey McGovern (jeffreymcgovern@mindspring.com), *The Resource Shop, Inc.*, Palatka, FL

9:00 AM 2 **Stored Product Technology: Aerosol Characteristics and Insect Pest Management.**
Frank Arthur (frank.arthur@ars.usda.gov), *USDA - ARS, Manhattan, KS*

10:00 AM Break

10:30 AM 3 **Insecticide Resistance Monitoring and Management of German Cockroaches in the Field.**
Mahsa Fardisi (mfardisi@purdue.edu), *Ameya Gondhalekar and Michael Scharf, Purdue Univ., West Lafayette, IN*

11:30 AM ACE Round Table – Questions & Open Topic Session

12:00 PM Lunch

1:00 PM 4 **How to Structure a Professional Pest Management IPM Facility Audit and Write the Corresponding Report.**
Gene White (gene.white@rentokil.com), *Rentokil - Steritech, White Lake, MI*

2:00 PM 5 **Invasive Insects / Invasive Ants – Impacts on the Structural Pest Management Industry.**
Grzegorz Buczkowski (gbuczkow@purdue.edu) and **John Stephen Yaninek**, *Purdue Univ., West Lafayette, IN*

3:00 PM Break

3:30 PM 6 **What's in a Picture: Digital ID's – The Blessing & The Curse....**
Gene White (gene.white@rentokil.com), *Rentokil - Steritech, White Lake, MI*

4:30 PM ACE Round Table – Questions & Open Topic Session

5:00 PM Adjourn

SUNDAY, JUNE 4, 2017, AFTERNOON

Recent Advances in the Integrated Pest Management of Wheat and Associated Field Crops by Young and Early Career Scientists

Edison South (Crowne Plaza Indianapolis Downtown Union Station)

Moderators and Organizers: William Morrison III¹ and Jessica Kansman², ¹USDA - ARS, Manhattan, KS, ²Univ. of Missouri, Columbia, MO

- 1:00 PM 7** **Landscape Factors to Consider When Managing Vector-Borne Pathogens.**
Laura Ingwell (laura.ingwell@gmail.com)¹ and **Nilsa Bosque-Perez**², ¹Purdue Univ., West Lafayette, IN, ²Univ. of Idaho, Moscow, ID
- 1:20 PM 8** **Understanding Hessian Fly Behavior to Improve Monitoring in Wheat.**
Ryan Schmid (rbschmid@ksu.edu)¹, **Darren Snyder**², **Lee Cohnstaedt**³ and **Brian McCornack**¹, ¹Kansas State Univ., Manhattan, KS, ²USDA - ARS, Manhattan, KS, ³Yale Univ., New Haven, CT
- 1:40 PM 9** **Aphids Induce Divergent Defense Responses in Switchgrass.**
Kyle G. Koch (kylegkoch@gmail.com)¹, **Nathan Palmer**², **Tiffany Heng-Moss**¹, **Jeffrey Bradshaw**³ and **Gautam Sarath**², ¹Univ. of Nebraska, Lincoln, NE, ²USDA-ARS Wheat, Sorghum and Forage Research Unit, Lincoln, NE, ³Univ. of Nebraska, Scottsbluff, NE
- 2:00 PM 10** **Aerosol Dispersal Patterns and How They Affect Susceptibility of *Tribolium confusum* Adults.**
Deanna Scheff (Deanna.Scheff@ars.usda.gov), **Frank Arthur**, **James Campbell** and **Dan Brabec**, USDA - ARS, Manhattan, KS
- 2:20 PM 11** **Managing Predators, Pests, and Vector-Borne Pathogens for Improved Plant Protection.**
Elizabeth Long (long.1541@osu.edu), The Ohio State Univ., Wooster, OH
- 2:40 PM** **Break**
- 2:55 PM 12** **Impact of Chemical and Transgenic Management on Survival and Development of Western Bean Cutworm.**
Debora Goulart Montezano (deiagm@gmail.com)¹, **Thomas Hunt**² and **Julie Peterson**¹, ¹Univ. of Nebraska, North Platte, NE, ²Univ. of Nebraska, Concord, NE

- 3:15 PM 13** **Over-Summering Ecology of the Wheat Curl Mite: A Multi-Disciplinary Approach.**
Anthony J. McMechan (justin.mcmechan@gmail.com) and **Gary Hein**, Univ. of Nebraska, Lincoln, NE
- 3:35 PM 14** **Susceptibility of Food and Feed to Infestation: Implications for Management of Insect-Pests of Stored-Products.**
Mahsa Fardisi (mfardisi@purdue.edu) and **Linda J. Mason**, Purdue Univ., West Lafayette, IN
- 3:55 PM 15** **Managing the Sugarcane Aphid in Sorghum: Lessons From the Northern Range.**
Sarah Zukoff (snzukoff@ksu.edu)¹, **Brian McCornack**² and **J.P. Michaud**³, ¹Kansas State Univ., Garden City, KS, ²Kansas State Univ., Manhattan, KS, ³Kansas State Univ., Hays, KS
- 4:15 PM 16** **Ninja-Level IPM: Leveraging Business Partnerships to Make Pest Management Information More Accessible.**
Wendy Johnson (wendyann@k-state.edu), Kansas State Univ., Manhattan, KS
- 4:35 PM 17** **Managing Pests in South Dakota's Major Crops.**
Adam Varenhorst (adam.varenhorst@sdstate.edu)¹, **Brady Hauswedell**¹, **Philip Rozeboom**¹, **Patrick Wagner**² and **Amanda Bachmann**³, ¹South Dakota State Univ., Brookings, SD, ²South Dakota State Univ., Rapid City, SD, ³South Dakota State Univ., Pierre, SD

Avoiding Pitfalls in Early Graduate School: Preparing Early on for the Job Market

Edison North (Crowne Plaza Indianapolis Downtown Union Station)

Moderators: Harit K. Bal¹, Swapna Priya Rajarapu², Ameya Gondhalekar³, Nandi Nagaraj⁴ and Priyanka Mittapelly², ¹Association of Indian Entomologists in North America, East Lansing, MI, ²The Ohio State University, Ohio Agricultural Research and Development Center, Wooster, OH, ³Purdue University, West Lafayette, IN, ⁴Dow AgroSciences, Indianapolis, IN

Panelists:

Linda J. Mason, Purdue University, West Lafayette, IN
Matt Grieshop, Michigan State University, East Lansing, MI
Bradley Hopkins, Dow AgroSciences, Indianapolis, IN
Ronald Flannagan, Monsanto Company, Chesterfield, MO
Swapna Priya Rajarapu, The Ohio State University, Wooster, OH

2:00 PM - 4:00 PM Panel Discussion

MONDAY, JUNE 5, 2017, POSTERS

Ph.D. Student Poster Competition - I

Grand Hall Foyer (Crowne Plaza Indianapolis Downtown Union Station)

- D1 ATP-Sensitive Inwardly Rectifying Potassium Channel Modulators Alter Cardiac Function in Honey Bees.**
Scott O'Neal (onealst@vt.edu)¹, Daniel R. Swale², Jeffrey Bloomquist³ and Troy Anderson⁴, ¹Virginia Tech, Blacksburg, VA, ²Louisiana State Univ., Baton Rouge, LA, ³Univ. of Florida, Gainesville, FL, ⁴Univ. of Nebraska, Lincoln, NE
- D2 Molecular Mechanisms of Soybean Aphid Adaptation to Aphid-Resistant Soybean.**
Ashley Yates (yates.229@buckeyemail.osu.edu)¹, Josquin Daron², Raman Bansal¹, Vitor Pavinato¹, Keith Slotkin² and Andy Michel¹, ¹The Ohio State Univ., Wooster, OH, ²The Ohio State Univ., Columbus, OH
- D3 Tissue-Specific Expression Analysis of the Cytochrome P450 Gene Family in Brown Marmorated Stink Bug, *Halyomorpha halys*.**
Priyanka Mittapelly (mittapelly.1@buckeyemail.osu.edu), Raman Bansal and Andrew Michel, The Ohio State Univ., Wooster, OH
- D4 Distribution and Conservation of Cicadas in Illinois.**
Catherine Dana (cdana2@illinois.edu), Univ. of Illinois at Urbana-Champaign, Urbana, IL
- D5 Enzyme Activity of Pyrethroid Resistant Western Corn Rootworms (*Diabrotica virgifera virgifera* LeConte).**
Darlane Souza (dariane_lyra@hotmail.com)¹, Sarath Gautam², Blair Siegfried³ and Lance J. Meinke¹, ¹Univ. of Nebraska, Lincoln, NE, ²USDA-ARS, Univ. of Nebraska-Lincoln, Lincoln, NE, ³Univ. of Florida, Gainesville, FL
- D6 Molecular Evolution of Gustation in *Ceratitis capitata*.**
Sarah Giers (sgiers2@illinois.edu), Univ. of Illinois at Urbana-Champaign, Urbana, IL
- D7 Maize Defense Responses to Insect Herbivory.**
Suresh Varsani (ssvarsani@gmail.com), Saumik Basu, Kyle G. Koch, Tiffany Heng-Moss and Joe Louis, Univ. of Nebraska, Lincoln, NE

Ph.D. Student Poster Competition - II

Grand Hall Foyer (Crowne Plaza Indianapolis Downtown Union Station)

- D8 Yield Effects of Hessian Fly in Tolerant Wheat.**
Kirsten Roe (roek@purdue.edu) and Brandon Schermerhorn, Purdue Univ., West Lafayette, IN
- D9 Effects of Soybean Aphid Resistance Genes on Non-Aphid Soybean Herbivores in Minnesota.**
Anthony Hanson (hans4022@umn.edu)¹ and Robert Koch², ¹Univ. of Minnesota, Saint Paul, MN, ²Univ. of Minnesota, St. Paul, MN
- D10 Susceptibility of European Corn Borer (*Ostrinia nubilalis*) and Western Bean Cutworm (*Striacosta albicosta*) Populations to the Pyrethroid Bifenthrin in the Midwestern United States.**
Debora Goulart Montezano (deiagm@gmail.com)¹, Ana Vélez², Adriano Pereira³, Thomas Hunt⁴ and Julie Peterson⁵, ¹Univ. of Nebraska, North Platte, NE, ²Univ. of Nebraska, Lincoln, NE, ³Univ. of Missouri, Columbia, MO, ⁴Univ. of Nebraska, Concord, NE, ⁵Univ. of Nebraska-Lincoln, North Platte, NE
- D11 Estimation of Daily and Total Oxygen Used By *Tribolium castaneum* to Complete Its Life Cycle.**
Kabita Kharel (kkharel@purdue.edu), Linda J. Mason, Larry Murdock, Michael Scharf and Dieudonne Baributsa, Purdue Univ., West Lafayette, IN
- D12 Herbivore Responses to Drought Stressed Host Plants.**
Jessica Kansman (jtkp8b@missouri.edu) and Debbie Finke, Univ. of Missouri, Columbia, MO
- D13 The Impact of Tillage on Squash Bee (*Peponapis pruinosa*) Nesting Site Selection.**
Amanda Skidmore (amanda.skidmore@gmail.com) and Ric Bessin, Univ. of Kentucky, Lexington, KY

Undergraduate and M. S. Student Poster Competition - I

Grand Hall Foyer (Crowne Plaza Indianapolis Downtown Union Station)

- D14 Effects of Day and Night Cycles on Oviposition Behavior of *Culex* Mosquitoes.**
Meagan Berwanger (*m_xboxlive_2013@hotmail.com*), Amanda Skidmore, Caitlin Stamper, Deepak Joshi and Stephen Dobson, Univ. of Kentucky, Lexington, KY
- D15 Males Matter: How Males Affect Female Reproductive Phenotype in *Culex pipiens*.**
Robin Bautista Jimenez (*bautista-jimenez.1@osu.edu*) and Megan E. Meuti, The Ohio State Univ., Columbus, OH
- D16 Taxonomic History of the Subfamily Carpophilinae Erichson, 1843 (Cucujoidea: Nitidulidae).**
Gareth Powell (*powellg@purdue.edu*) and Jennifer Zaspel, Purdue Univ., West Lafayette, IN
- D17 Cumulative Oxygen Consumption during Development of Two Postharvest Pests: Cowpea Bruchid (*Callosobruchus maculatus* Fabricius) and Indian Meal Moth (*Plodia interpunctella* Hübner).**
Hannah Quellhorst (*hquellho@purdue.edu*)¹, Scott Williams², Larry Murdock¹ and Dieudonne Baributsa¹, ¹Purdue Univ., West Lafayette, IN, ²Spena Technologies, West Lafayette, IN
- D18 Milkweed Distribution and Effects on Monarch Butterfly (*Danaus plexippus*) Oviposition Along Iowa Roadsides Utilizing GPS and GIS.**
Teresa Blader (*teresa.blader@gmail.com*)¹, Richard Hellmich² and Sue Blodgett¹, ¹Iowa State Univ., Ames, IA, ²USDA - ARS, Ames, IA
- D19 DNA Barcoding Enhances Investigations of Parasitoid Functional Diversity.**
Sarah Meierotto (*s.meierotto@uky.edu*) and Michael J. Sharkey, Univ. of Kentucky, Lexington, KY

Undergraduate and M. S. Student Poster Competition - II

Grand Hall Foyer (Crowne Plaza Indianapolis Downtown Union Station)

- D20 No-Choice but to Find Plant Resistance to Soybean Aphid Biotype 4.**
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
- D21 Do Native Plants Attract More Bees Than Non-Natives? a Comparative Study of Native and Non-Native Ornamental Plants**
Carter Westerhold (*westerhold.carter@gmail.com*), Kim Todd, Sam Wortman and Douglas Golick, Univ. of Nebraska, Lincoln, NE
- D22 Evaluation of Edamame (Vegetable Soybean) Varieties for Susceptibility to Insect Pests in Minnesota.**
James Menger (*meng0025@umn.edu*)¹, Anthony Hanson¹ and Robert Koch², ¹Univ. of Minnesota, Saint Paul, MN, ²Univ. of Minnesota, St. Paul, MN
- D23 Identification of Resistance to Mite-Transmitted Viruses in Winter Wheat through Field Screening.**
Lindsay Overmyer (*overmyerlindsay@gmail.com*), Elliot Knoell, Anthony J. McMechan and Gary Hein, Univ. of Nebraska, Lincoln, NE
- D24 Effect of Crop Rotation on the Population Growth Rate of Soybean Aphids (*Aphis glycines*).**
Erika Rodbell (*erodbell@iastate.edu*), Erin Hodgson, Matthew Liebman and Matthew O'Neal, Iowa State Univ., Ames, IA

MONDAY, JUNE 5, 2017, MORNING

Ph.D. Student Ten-Minute Paper Competition - I

Edison South (Crowne Plaza Indianapolis Downtown Union Station)

Moderators: John Stephen Yaninek, Purdue Univ., West Lafayette, IN

8:30 AM Introductory Remarks

8:35 AM 18 ATP-Sensitive Inwardly Rectifying Potassium Channel Regulation of Viral Infections in Honey Bees.

Scott O'Neal (onealst@vt.edu)¹, Daniel R. Swale², Jeffrey Bloomquist³ and Troy Anderson⁴,
¹Virginia Tech, Blacksburg, VA, ²Louisiana State Univ., Baton Rouge, LA, ³Univ. of Florida, Gainesville, FL, ⁴Univ. of Nebraska, Lincoln, NE

8:47 AM 19 Using Eggs and Pheromones of the Cerambycid Beetle *Xylotrechus colonus* (Fabricius) to Study Interactions with Natural Enemies in the Field.

Todd D. Johnson (tdjohns2@illinois.edu) and Lawrence M. Hanks, Univ. of Illinois at Urbana-Champaign, Urbana, IL

8:59 AM 20 Parasitism Rate and Percent Parasitism in Stage-Classified Matrix Models: An Example of Soybean Aphid and *Aphelinus certus* (Hymenoptera: Aphelinidae).

James Miksanek (miks0007@umn.edu), Univ. of Minnesota, Saint Paul, MN

9:11 AM 21 Sulcatone and Sulcatol As Pheromone Components of Cerambycid Beetles in the Subfamily Lamiinae.

Linnea R. Meier (linrmeier@gmail.com)¹, Judy A. Mongold-Diers¹, Yunfan Zou², Jocelyn G. Millar² and Lawrence M. Hanks³, ¹Univ. of Illinois, Champaign, IL, ²Univ. of California, Riverside, CA, ³Univ. of Illinois at Urbana-Champaign, Urbana, IL

9:23 AM Break

9:35 AM 22 Can Interactions between Native and Non-Native Ornamental Trees Influence Caterpillar Abundance and Diversity?

Carl Clem (carlc2@illinois.edu)¹ and David Held², ¹Univ. of Illinois, Urbana, IL, ²Auburn Univ., Auburn, AL

9:47 AM 23 Chemically-Mediated Host Colonization Behavior of the Peach Bark Beetle, *Phloeotribus liminaris* (Coleoptera: Scolytinae).

Matthew W. Ethington (methingt@purdue.edu)¹, Gabriel Hughes² and Matthew Ginzal³,
¹Purdue Univ., West Lafayette, IN, ²Univ. of California, Riverside, CA, ³Purdue Univ., West Lafayette, IN

9:59 AM 24 Does Landscape Complexity Affect Honey Bee Pollen Forage?

Ge Zhang (gezhang@iastate.edu), Ashley St. Clair, Adam Dolezal, Amy Toth and Matt O'Neal, Iowa State Univ., Ames, IA

Ph.D. Student Ten-Minute Paper Competition - II

Edison North (Crowne Plaza Indianapolis Downtown Union Station)

Moderators: Elane Fishilevich, Dow AgroSciences, Indianapolis, IN

8:30 AM Introductory Remarks

8:35 AM 25 Effects of Pyrethroid Resistance on the Relationship between the Navel Orangeworm (*Amyelois transitella*) and *Aspergillus flavus*.

Daniel Bush (dsbush2@illinois.edu)¹, Mark Demkovich¹, Joel Siegel² and May Berenbaum¹,
¹Univ. of Illinois, Urbana, IL, ²USDA - ARS, Parlier, CA

8:47 AM 26 Efficacy of Horticultural Oil and Insecticidal Soap on Soft and Armored Scale Insects.

Carlos Quesada (cquesand@purdue.edu) and Clifford Sadof, Purdue Univ., West Lafayette, IN

8:59 AM 27 Age-Specific Susceptibility of Soybean Aphid to Thiamethoxam Using a Detached-Leaf Bioassay Method.

Matheus Ribeiro (matheusgpmr@gmail.com)¹, Blair Siegfried² and Thomas Hunt³, ¹Univ. of Nebraska, Lincoln, NE, ²Univ. of Florida, Gainesville, FL, ³Univ. of Nebraska, Concord, NE

9:11 AM 28 A Universal Diet for Resistance Monitoring Programs Associated with Western Corn Rootworm.

Dalton Ludwick (dclmrd@mail.missouri.edu)¹, Man Huynh², Adriano Pereira¹, Lisa Meihls³, Thomas Coudron⁴, Bryan French⁵ and Bruce Hibbard⁴, ¹Univ. of Missouri, Columbia, MO, ²Can Tho Univ., Can Tho, Vietnam, ³Evogene, Saint Louis, MO, ⁴USDA - ARS, Columbia, MO, ⁵USDA - ARS, Brookings, SD

9:23 AM Break

9:38 AM 29 Insect Exclusion and Yield in Organic Muskmelon and Squash.

Kacie J. Athey (kacie.johansen@uky.edu) and Mark A. Williams, Univ. of Kentucky, Lexington, KY

9:50 AM 30 Control of Soybean Aphid By Thiamethoxam Seed Treatment, and Tri-Tropic Movement of Thiamethoxam to Predatory Lady Beetles through Two Aphid Species.

Carlos Esquivel (esquivelpalma.1@buckeyemail.osu.edu), Luis A. Cañas and Andrew Michel, The Ohio State Univ., Wooster, OH

- 10:02 AM 31 **Western Corn Rootworm Abundance, Injury to Corn, and Bt Resistance in Landscapes Near Previous Problem Fields.**
Coy St. Clair (cstclair@iastate.edu)¹, Graham P. Head² and Aaron J. Gassmann¹, ¹Iowa State Univ., Ames, IA, ²Monsanto Company, St. Louis, MO

Ph.D. Student Ten-Minute Paper Competition - III

C&O (Crowne Plaza Indianapolis Downtown Union Station)

Moderators: Amit Sethi, DuPont Pioneer, Johnston, IA

8:30 AM **Introductory Remarks**

- 8:35 AM 32 **Micro-Computed Tomography of *Ixodes scapularis* Embryos.**
Tanya Josek (tanyajosek@gmail.com)¹ and Marianne Alleyne², ¹Univ. of Illinois, Champaign, IL, ²Univ. of Illinois at Urbana-Champaign, Urbana, IL

- 8:47 AM 33 **Phylogenomics of Auchenorrhyncha using Transcriptomes.**
Rachel Skinner (rskinn2@illinois.edu)¹, Christopher H. Dietrich¹, Kimberly K. O. Walden¹, Lars Podsiadlowski², Malte Petersen³, Hugh M. Robertson¹ and Kevin P. Johnson¹, ¹Univ. of Illinois, Champaign, IL, ²Univ. of Bonn, Bonn, Germany, ³Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany

- 8:59 AM 34 **Kinematics, Scaling and Fatigue of Mandible Strike Performance in the Polymorphic Trap-Jaw Ant *Daceton armigerum*.**
Josh Gibson (jcgibso2@illinois.edu)¹, Dajia Ye² and Andrew Suarez³, ¹Univ. of Illinois, Champaign, IL, ²Univ. of Illinois at Urbana-Champaign, Urbana, IL, ³Univ. of Illinois, Urbana, IL

- 9:11 AM 35 **Wildflower Plantings in Agroecosystems: The Effects on Beneficial Insect Communities and Biological Control of Colorado Potato Beetle.**
Eric Middleton (middl145@umn.edu)¹ and Christopher R. Philips², ¹Univ. of Minnesota, Minneapolis, MN, ²Univ. of Minnesota, St. Paul, MN

9:23 AM **Break**

- 9:38 AM 36 **Relative Productivity of Container Habitats for Juvenile Mosquitoes in Central Illinois.**
Allison Parker (aparker9@illinois.edu) and Brian F. Allan, Univ. of Illinois, Champaign, IL

- 9:50 AM 37 **Impact of Winter Feeding on Overwintering *Hippodamia convergens* (Coccinellidae) Survival and Spring Reproduction.**
Nathan Mercer (nhmercerc13@gmail.com), Nicholas Teets, Ric Bessin and John Obrycki, Univ. of Kentucky, Lexington, KY

Undergraduate and M.S. Student Ten-Minute Paper Competition - I

Illinois Street Ballroom West (Crowne Plaza Indianapolis Downtown Union Station)

Moderators: Andrew Stoehr, Butler Univ., Indianapolis, IN

8:30 AM **Introductory Remarks**

- 8:35 AM 38 **Billbug (Coleoptera: Dryophthoridae: *Sphenophorus* spp.) Seasonal Biology and DNA-Based Life Stage Association in Indiana Turfgrass.**
Alexandra Duffy (duffy14@purdue.edu), Gareth Powell and Douglas Richmond, Purdue Univ., West Lafayette, IN

- 8:47 AM 39 **Spatial Pattern and Sequential Sampling Plan for Stink Bugs (Hemiptera: Pentatomidae) for Soybean in the North Central Region.**
Daniela Pezzini (pezzi004@umn.edu)¹, Debbie Finke², Thomas Hunt³, Janet Knodel⁴, Christian Krupke⁵, Brian McCornack⁶, Andrew Michel⁷, Christopher R. Philips⁸, Adam Varenhorst⁹, Robert Wright¹⁰ and Robert Koch⁸, ¹Univ. of Minnesota, Saint Paul, MN, ²Univ. of Missouri, Columbia, MO, ³Univ. of Nebraska, Concord, NE, ⁴North Dakota State Univ., Fargo, ND, ⁵Purdue Univ., West Lafayette, IN, ⁶Plant Biosecurity Cooperative Research Centre, Bruce, Australia, ⁷The Ohio State Univ., Wooster, OH, ⁸Univ. of Minnesota, St. Paul, MN, ⁹South Dakota State Univ., Brookings, SD, ¹⁰Univ. of Nebraska-Lincoln, Lincoln, NE

- 8:59 AM 40 **Spider Communities in Nebraska Agroecosystems and Their Trophic Interactions with Key Corn Pests.**
Samantha Daniel (sdaniel403@gmail.com)¹, Gavin Owen² and Julie Peterson³, ¹Univ. of Nebraska-Lincoln, Lincoln, NE, ²Univ. of Nebraska, North Platte, NE, ³Univ. of Nebraska-Lincoln, North Platte, NE

- 9:11 AM 41 **Ecological, Molecular, and Morphological Data: A Synergistic Approach to Resolve Species Limits of *Lytopylus* from the Area de Conservación Guanacaste, Costa Rica (Hymenoptera: Braconidae: Agathidinae).**
Ilgoo Kang (ilgoo.kang@uky.edu)¹, Michael J. Sharkey¹ and Daniel H. Janzen², ¹Univ. of Kentucky, Lexington, KY, ²Univ. of Pennsylvania, Philadelphia, PA

9:23 AM		Break	8:59 AM	48	Evaluating Where and When Minnesota Non-Crop Hosts Are Used By Spotted-Wing <i>Drosophila</i> , <i>Drosophila suzukii</i> . Grace Sward (sward023@umn.edu) ¹ and Christopher R. Phillips ² , ¹ Univ. of Minnesota, Saint Paul, MN, ² Univ. of Minnesota, St. Paul, MN
9:35 AM	42	Size, Sex, and Season: Preliminary Study of Seasonal Variation in Morphological Features between the Sexes for the Small Hive Beetle, <i>Aethina tumida</i> Murray (Coleoptera: Nitidulidae). William Montag (montag2@illinois.edu) ¹ and May Berenbaum ² , ¹ Univ. of Illinois, Champaign, IL, ² Univ. of Illinois, Urbana, IL	9:11 AM	49	Response of Adult <i>Anoplophora glabripennis</i> (Coleoptera: Cerambycidae) to Isothiocyanates. Scott Gula (sgula@purdue.edu) ¹ , Leslie Kuhn ² , Ann M. Ray ³ and Matthew Ginzel ⁴ , ¹ Purdue Univ., West Lafayette, IN, ² Michigan State Univ., East Lansing, MI, ³ Xavier Univ., Cincinnati, OH, ⁴ Purdue Univ., West Lafayette, IN
9:47 AM	43	Identifying Mechanisms of Host Plant Specialization in <i>Aphis craccivora</i> and Its Bacterial Symbionts. Thorsten Hansen (teha237@g.uky.edu) and Jennifer A. White, Univ. of Kentucky, Lexington, KY	9:23 AM		Break
9:59 AM	44	Effects of Burn Timing on Bee and Floral Communities. Brenna Decker (bldecke2@illinois.edu), Univ. of Illinois at Urbana-Champaign, Urbana, IL	9:38 AM	50	Identification of Arthropod Predators of <i>Striacosta albicosta</i> and Feeding Trials with Key Predators. Westen Archibald (Westen.archibald@gmail.com) ¹ , Robert Wright ² and Julie Peterson ³ , ¹ Univ. of Nebraska, Lincoln, NE, ² Univ. of Nebraska-Lincoln, Lincoln, NE, ³ Univ. of Nebraska-Lincoln, North Platte, NE
10:11 AM	45	Degradation of Cattle Dung Pats in Eastern South Dakota and Importance of Dung Beetles (Scarabaeidae) to Additional Arthropod Colonization.. Jacob Pecenka (jacob.pecenka@gmail.com) ¹ and Jonathan Lundgren ² , ¹ South Dakota State Univ., Brookings, SD, ² Ecdysis Foundation, Estelline, SD	9:50 AM	51	Determining Acquisition and Retention Periods of Triticum Mosaic Virus By the Wheat Curl Mite. Elliot Knoell (elliottknoell@yahoo.com) and Gary Hein, Univ. of Nebraska, Lincoln, NE

Undergraduate and M.S. Student Ten-Minute Paper Competition - II

Milwaukee (Crowne Plaza Indianapolis Downtown Union Station)

Moderators: Paul W. Borth, Dow AgroSciences, LLC, Indianapolis, IN

8:30 AM Introductory Remarks

8:35 AM 46 Developing Management Recommendations for Soybean Seed Treatments in South Dakota. Brady Hauswedell (brady.hauswedell@sdstate.edu), Philip Rozeboom, Febina Mathew, Jonathan Kleinjan and Adam Varenhorst, South Dakota State Univ., Brookings, SD

8:47 AM 47 Thousand Cankers Disease: Curculionid Beetles Associated with Symptomatic Eastern Black Walnut (*Juglans nigra*). Tyler Stewart (stewar23@purdue.edu)¹, Margaret McDermott², Matthew Ginzel³ and Jennifer Juzwik⁴, ¹Purdue Univ., West Lafayette, IN, ²Univ. of Minnesota, Saint Paul, MN, ³Purdue Univ., West Lafayette, IN, ⁴USDA - Forest Service, St. Paul, MN

10:02 AM 52 Landscape Variation in Western Corn Rootworm Susceptibility to Cry3Bb1 in Nebraska. Jordan Reinders (jordan.reinders3@gmail.com) and Lance J. Meinke, Univ. of Nebraska, Lincoln, NE

MONDAY, JUNE 5, 2017, AFTERNOON

STUDENT LUNCHEON:

Effective Communication of Scientific Research to Stakeholder Audiences

Grand Hall (Crowne Plaza Indianapolis Downtown Union Station)

Moderator: Rachael Sitz, Colorado State University, Fort Collins, CO

Panelists:

Gwen Pearson, Purdue University, West Lafayette, IN

Douglas Golick, University of Nebraska, Lincoln, NE

Marianne Alleyne, University of Illinois at Urbana-Champaign, Urbana, IL

12:00 PM - 1:30 PM

Panel Discussion

New Insights in Insect Immunity

Edison North (Crowne Plaza Indianapolis Downtown Union Station)

Moderators and Organizers: Bindiya Sachdev and Michael Kanost, Kansas State Univ., Manhattan, KS

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| 1:30 PM | 53 | Fabulous Signaling – the Toll Pathway in Mosquito-Entomopathogen Interactions.
<i>Victoria Davidson and Kristin Michel (kmichel@ksu.edu), Kansas State Univ., Manhattan, KS</i> |
| 1:50 PM | 54 | Antifungal Peptides from <i>Manduca sexta</i>.
<i>Michael Kanost (kanost@ksu.edu), Qasim Al Souhail and Bindiya Sachdev, Kansas State Univ., Manhattan, KS</i> |
| 2:10 PM | 55 | Adaptation of Nucleopolyhedroviruses in <i>Drosophila</i> and Other Arthropods.
<i>Robert Unckless (unckless@ku.edu) and Tom Hill, Dept. of Molecular Biosciences, Univ. of Kansas, Lawrence, KS</i> |
| 2:30 PM | 56 | <i>Manduca sexta</i> Hemolymph Protease-1, Activated By an Unconventional non-Proteolytic Mechanism, Mediates Immune Responses.
<i>Yan He, Fan Yang, Yang Wang and Haobo Jiang (haobo.jiang@okstate.edu), Oklahoma State Univ., Stillwater, OK</i> |

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|---------|----|--|
| 2:50 PM | 57 | Activation of Antimicrobial Peptides By Forkhead Factors.
<i>Xue Zhong¹, Munmun Chowdhury², Chunfeng Li³ and Xiao-Qiang Yu (yux@umkc.edu)⁴, ¹Univ. of Missouri, Kansas City, Kansas City, MO, ²Univ. of Missouri - Kansas City, Kansas City, MO, ³Southwest Univ., Chongqing, China, ⁴Univ. of Missouri, Kansas City, MO</i> |
| 3:10 PM | 58 | Regulation and Function of Thioester-Containing Proteins in the <i>Drosophila</i> Immune Response Against the Pathogen <i>Photobacterium</i>.
<i>Upasana Shokal¹ and Ioannis Eleftherianos (ioannise@gwu.edu)², ¹George Washington Univ., Washington, DC, ²The George Washington Univ., Washington, DC</i> |
| 3:30 PM | 59 | Sickness and Feeding in the Tobacco Hornworm, <i>Manduca sexta</i>.
<i>Lizette Cambron, Kimberly Booth and Kendra Greenlee (kendra.greenlee@ndsu.edu), North Dakota State Univ., Fargo, ND</i> |

Medical Entomology in a Changing World

Edison South (Crowne Plaza Indianapolis Downtown Union Station)

Moderators and Organizers: Tanya Josek and Allison Parker, Univ. of Illinois, Champaign, IL

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|---------|-----------------------------|--|
| 1:30 PM | Introductory Remarks | |
| 1:35 PM | 60 | Ecology of Ticks, Tick-Borne Pathogens and Related Endosymbionts.
<i>Keith Clay (clay@indiana.edu)¹ and Evelyn Rynkiewicz², ¹Indiana Univ., Bloomington, IN, ²Dept. of Ecology, Evolution and Environmental Biology, Columbia Univ., New York, NY</i> |
| 1:52 PM | 61 | Differences in Vector Competence during <i>Francisella tularensis</i> subsp. <i>novicida</i> Infection of Cell Lines from Vector and Non-Vector Tick Species.
<i>Kathryn Reif (kreif@vet.k-state.edu)¹, Jessica Ujcz², Deb Alperin² and Susan Noh², ¹Center for Excellence in Vector-Borne Diseases, Dept. of Diagnostic Medicine/Pathobiology, College of Veterinary Medicine, Kansas State Univ., Manhattan, KS, ²Animal Disease Research Unit, Agriculture Research Service, US Dept. of Agriculture, Pullman, WA</i> |
| 2:09 PM | 62 | Environmental Stress in Ticks (Ixodidae): Physiological and Molecular Mechanisms of Survival.
<i>Andrew Rosendale (rosendaw@ucmail.uc.edu), Alicia Fieler, David Farrow, Benjamin Davies and Joshua Benoit, Univ. of Cincinnati, Cincinnati, OH</i> |

2:26 PM		Break			
2:46 PM	63	Dehydration Increases Mosquito Blood Feeding by Altering Carbohydrate Metabolism to Enhance Activity. Christopher Holmes (<i>holmescp@mail.uc.edu</i>) ¹ , <i>Elise Szuter</i> ² , <i>Andrew Rosselet</i> ¹ , <i>Samantha Siler</i> ¹ , <i>Andrew Rosendale</i> ² , <i>Jacob Hendershot</i> ² , <i>Kiaira Elliott</i> ¹ , <i>Emily C. Jennings</i> ² , <i>Alex Rizlallah</i> ¹ , <i>Yanyu Xiao</i> ³ , <i>Jason Rasgon</i> ⁴ , <i>Miki Watanbe</i> ⁵ , <i>Lindsey Romick-Rosendale</i> ⁵ and <i>Joshua Benoit</i> ² , ¹ Dept. of Biological Sciences, Cincinnati, OH, ² Univ. of Cincinnati, Cincinnati, OH, ³ Dept. of Mathematical Sciences, Cincinnati, OH, ⁴ Pennsylvania State Univ., Univ. Park, PA, ⁵ Division of Pathology, Cincinnati, OH	2:15 PM	67	Understanding the Photosynthetic Mechanism Driving Changes in Insect Herbivory Under Rising Atmospheric CO₂. Linus Gog (<i>linusgog@illinois.edu</i>) ¹ , <i>May Berenbaum</i> ² and <i>Evan DeLucia</i> ¹ , ¹ Univ. of Illinois at Urbana-Champaign, Urbana, IL, ² Univ. of Illinois, Urbana, IL
3:03 PM	64	Effects of Management, Landscape and Local Vegetation on Mosquito Abundance, Richness and Diversity in Urban Vacant Land. Liu Yang (<i>yang.554@osu.edu</i>) ¹ , <i>Peter Piermarini</i> ¹ and <i>Mary Gardiner</i> ² , ¹ The Ohio State Univ., Wooster, OH, ² The Ohio State Univ., Columbus, OH	2:35 PM	68	How an Important Pollinator, <i>Megachile rotundata</i> Keeps Time in a Changing World. Meghan Bennett (<i>meghan.bennett@ndsu.edu</i>) ¹ , <i>Kendra Greenlee</i> ¹ , <i>Joseph P. Rinehart</i> ² and <i>George Yocum</i> ² , ¹ North Dakota State Univ., Fargo, ND, ² USDA - ARS, Fargo, ND
3:20 PM	65	A Framework for Estimating the Potential Effects of Climate Change on Tick-Borne Disease Risk in Panama. Erin Welsh (<i>ecwels2@gmail.com</i>) ¹ and Brian F. Allan ² , ¹ Univ. of Illinois, Urbana, IL, ² Univ. of Illinois, Champaign, IL	2:55 PM	69	Does the Magnitude of Plant-Soil Feedbacks Correlate with Phylogenetic Relatedness? Kathryn Ingerslew (<i>kingersl@purdue.edu</i>) and <i>Ian Kaplan</i> , <i>Purdue Univ., West Lafayette, IN</i>
			3:15 PM	70	Climate, Microclimate, Phenology, and the Karner Blue Butterfly. Ralph Grundel (<i>rgrundel@usgs.gov</i>) ¹ , <i>Noel Pavlovic</i> ¹ , <i>Lainey Bristow</i> ² , <i>Tamatha Patterson</i> ¹ and <i>Jessica Hellmann</i> ³ , ¹ U.S. Geological Survey, Chesterton, IN, ² Univ. of Notre Dame, South Bend, IN, ³ Univ. of Minnesota, Saint Paul, MN
			3:35 PM	71	Changes in Host Tolerance and Parasite Virulence Under Elevated Atmospheric CO₂. Leslie Decker (<i>lesldeck@umich.edu</i>) ¹ , <i>Jacobus C. De Roode</i> ² and <i>Mark D. Hunter</i> ¹ , ¹ Univ. of Michigan, Ann Arbor, MI, ² Emory Univ., Atlanta, GA
			3:55 PM	72	Upper Lethal Temperatures in Insects Are Higher in the Winter Compared to Summer. Henry Vu (<i>Henry.Vu.16@nd.edu</i>) and <i>John Duman</i> , <i>Univ. of Notre Dame, Notre Dame, IN</i>
			4:15 PM	73	Lessons Learned in High Tunnel Vegetable Production: The Good, the Bad and the Wilty. Laura Ingwell (<i>laura.ingwell@gmail.com</i>), <i>Rick Foster</i> and <i>Ian Kaplan</i> , <i>Purdue Univ., West Lafayette, IN</i>

Plant-Insect Interactions in the Face of a Changing Climate

Illinois Street Ballroom West (Crowne Plaza Indianapolis Downtown Union Station)

Moderators and Organizers: Rachael Sitz¹ and Todd D. Johnson², ¹Colorado State Univ., Fort Collins, CO, ²Univ. of Illinois at Urbana-Champaign, Urbana, IL

1:55 PM	66	Does Climate Change Alter Slug Herbivory in Fescue Pastures? <i>Daniel Weber</i> ¹ , <i>Elizabeth Carlisle</i> ¹ , <i>James Harwood</i> ² and Rebecca L. McCulley (<i>rebecca.mcculley@uky.edu</i>) ¹ , ¹ Dept. of Plant & Soil Sciences, Lexington, KY, ² Dept. of Entomology, Lexington, KY
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TUESDAY, JUNE 6, 2017, MORNING

Forest Entomology

Edison North (Crowne Plaza Indianapolis Downtown Union Station)

Moderators and Organizers: Todd D. Johnson¹ and Kayla I Perry², ¹Univ. of Illinois at Urbana-Champaign, Urbana, IL, ²The Ohio State Univ., Wooster, OH

- 8:00 AM** Welcoming Remarks
- 8:05 AM 74** Using Dendrochronology to Reconstruct the Time of Introduction and Spread of the Invasive Asian Longhorned Beetle (*Anoplophora glabripennis* Motschulsky). Emily Franzen (franzen2@xavier.edu)¹, Ann M. Ray¹, Scott Gula², William Panagakos³ and Stephen Todd¹, ¹Xavier Univ., Cincinnati, OH, ²Purdue Univ., West Lafayette, IN, ³USDA APHIS, Buzzards Bay, MA
- 8:25 AM 75** Interactions of Emerald Ash Borer with White Fringetree: Where, When, and Why? Don Cipollini (don.cipollini@wright.edu), Chad M. Rigsby and Donnie Peterson, Wright State Univ., Dayton, OH
- 8:45 AM 76** Tools for Staging and Managing Emerald Ash Borer in the Urban Forest. Matthew Ginzel (mginzel@purdue.edu)¹, Gabriel Hughes², Adam Witte², Donnie Peterson² and Clifford Sadoj², ¹Purdue Univ., West Lafayette, IN, ²Purdue Univ., West Lafayette, IN
- 9:05 AM** Break
- 9:15 AM 77** Insect Dissemination of a Bacterial Pathogen of Oak Trees. Rachael Sitz (rachael.fithian@colostate.edu)¹ and Whitney Cranshaw², ¹Colorado State Univ., Fort Collins, CO, ²Colorado State Univ., Fort Collins, CO
- 9:35 AM 78** Urban Forest Fragments Serve As Tree Refugia from Abiotic Stress and Insect Pests. Lawrence Long (lclong2@ncsu.edu) and Steven D. Frank, North Carolina State Univ., Raleigh, NC

- 9:55 AM 79** Does Plant Community Composition Affect Biotic and Abiotic Problems in Residential Landscapes? Christopher B. Riley (riley.595@osu.edu)¹, Michael J. Raupp², Kelby L. Fite³ and Mary Gardiner¹, ¹The Ohio State Univ., Columbus, OH, ²Univ. of Maryland, College Park, MD, ³Bartlett Tree Research Laboratories, Charlotte, NC

10:15 AM Concluding Remarks

Recent Advances in Stored Product Insect Pest Management

Illinois Street Ballroom West (Crowne Plaza Indianapolis Downtown Union Station)

Moderators and Organizers: Frank Arthur, USDA - ARS, Manhattan, KS

- 8:00 AM** Introductory Remarks
- 8:10 AM 80** Using Novel, Low-Cost Sequencing Technologies to Increase Genomic Resources for Stored Product Pests. Erin Scully (erin.scully@ars.usda.gov)¹, Scott Geib² and Sheina Sim², ¹USDA - ARS, Manhattan, KS, ²USDA - ARS, Hilo, HI
- 8:30 AM 81** Methods for Detecting Internal Insects in Wheat Samples. Dan Brabec (dan.brabec@ars.usda.gov), USDA - ARS, Manhattan, KS
- 8:50 AM 82** Chilling Aeration to Control Pests and Maintain Grain Quality during in-Bin Storage of Wheat in Kansas. Alejandro Morales-Quiros (amorales29@ksu.edu)¹, Carlos Campabadal¹ and Dirk Maier², ¹Kansas State Univ., Manhattan, KS, ²Iowa State Univ., Ames, IA
- 9:10 AM 83** Control of Stored Product Insects with Chlorine Dioxide Gas. Xinyi E (xinyi608@gmail.com), Bhadriraju Subramanyam and Beibei Li, Kansas State Univ., Manhattan, KS

- 9:30 AM 84 **Investigation of *Stegobium paniceum* Olfactory Response.**
James Feston (j.feston@insectslimited.com)¹, Patrick Kelley¹ and Pascal Querner², ¹Insects Limited, Inc, Westfield, IN, ²University of Natural Resources and Life Sciences, Vienna, Austria
- 9:50 AM 85 **Management of Mite Infestations in Dry-Cured Ham Facilities with Chemical and Non-Chemical Alternatives to Methyl Bromide.**
Salehe Abbar (abbar@k-state.edu)¹, Thomas Phillips¹ and M. Wes Schilling², ¹Kansas State Univ., Manhattan, KS, ²Mississippi State Univ., Mississippi State, MS
- 10:10 AM Break
- 10:25 AM 86 **Mating Delay Influences Life History Characteristics: Applying Laboratory Data to Model Population Success in *Trogoderma variabile* and *T. inclusum*.**
Alison Gerken (alison.gerken@ars.usda.gov) and James Campbell, USDA - ARS, Manhattan, KS
- 10:45 AM 87 **Progeny Production Suppression and Inhibition of Egg-to-Adult Emergence of Five Species of Stored-Product Insects on Zeolite-Treated Corn.**
Kouame Yao (kdyao@ksu.edu) and Bhadriraju Subramanyam, Kansas State Univ., Manhattan, KS
- 11:05 AM 88 **Effects of Hypoxia on Reproductive Behavior and Progeny Development of *Callosobruchus maculatus* Females.**
Scott Williams (scott.williams@spensatech.com)¹ and Kabita Kharel², ¹Spensa Technologies, West Lafayette, IN, ²Purdue Univ., West Lafayette, IN
- 11:25 AM 89 **Acoustic Monitoring of *Sitophilus oryzae* L. (Coleoptera: Curculionidae) during Hermetic Storage.**
Anastasia Njoroge (annwanjiru608@gmail.com)¹, Richard Mankin² and Dieudonne Baributsa³, ¹Purdue Univ., West Lafayette, IN, ²USDA - ARS, Gainesville, FL, ³Purdue Univ., West Lafayette, IN

Insecticide/Trait Resistance of Agronomic Crop Pests in the North Central Region

Edison South (Crowne Plaza Indianapolis Downtown Union Station)

Moderators and Organizers: Robert Wright¹ and Erin Hodgson², ¹Univ. of Nebraska-Lincoln, Lincoln, NE, ²Iowa State Univ., Ames, IA

8:00 AM Introductory Remarks

8:05 AM 90 **Grower Perceptions of Insect Resistance Issues.**
Robert Wright (rwright2@unl.edu)¹ and Erin Hodgson², ¹Univ. of Nebraska-Lincoln, Lincoln, NE, ²Iowa State Univ., Ames, IA

8:35 AM 91 **Status of Soybean Aphid Insecticide Resistance.**
Robert Koch (koch0125@umn.edu), Univ. of Minnesota, St. Paul, MN

8:55 AM 92 **Status of Western Bean Cutworm Resistance to Cry1F.**
Kelley Tilmon (tilmon.1@osu.edu)¹, Chris DiFonzo², Christian Krupke³, Andy Michel¹, Julie Peterson⁴, Elson J. Shields⁵ and John Tooker⁶, ¹The Ohio State Univ., Wooster, OH, ²Michigan State Univ., East Lansing, MI, ³Purdue Univ., West Lafayette, IN, ⁴Univ. of Nebraska, North Platte, NE, ⁵Cornell Univ., Ithaca, NY, ⁶The Pennsylvania State Univ., Univ. Park, PA

9:25 AM 93 **Status of Spider Mite Pesticide Resistance.**
Sarah Zukoff (snzukoff@ksu.edu), Kansas State Univ., Garden City, KS

9:55 AM Break

10:10 AM 94 **Online Education for Corn Rootworm IRM.**
Douglas Golick (dgolick2@unl.edu), Univ. of Nebraska, Lincoln, NE

10:40 AM 95 **IRM Educational Resources from Insecticide Resistance Action Committee (IRAC).**
Bradley Hopkins (bwhopkins@dow.com), Dow AgroSciences, Indianapolis, IN

11:10 AM 96 **Certified Crop Advisor's Resistance Management Specialty Certificate Program.**
Dawn Gibas (dgibas@sciencesocieties.org), American Society of Agronomy, Madison, WI

TUESDAY, JUNE 6, 2017, POSTERS

Regular Submitted Posters

Grand Hall Foyer (Crowne Plaza Indianapolis Downtown Union Station)

- D25** **Wooded Field Margins Increase Potential for Soybean Pest Control.**
Hannah J. Penn (hannahjpenn@gmail.com), Miami Univ., Oxford, OH
- D26** **Evaluation of Aztec® Granular Insecticide Applied to Bt Corn Rootworm Hybrids for Efficacy, Standability, and Yields.**
Joseph Argentine (joea@amvac-chemical.com)¹, Richard Porter², Peter Porpiglia³ and Thomas Larsen⁴, ¹AMVAC Chemical Corp., Tabernacle, NJ, ²AMVAC Chemical Corp., Arkeny, IA, ³AMVAC Chemical Corp., Newport Beach, CA, ⁴AMVAC Chemical Corp., South Jordan, UT
- D27** **Distribution & Species Richness Modeling of the Water Scavenger Beetle Genus *Tropisternus* in Northeastern South America (Coleoptera: Hydrophilidae).**
Jacob Dixon (jdixon2@illinois.edu)¹ and Andrew Short², ¹UIUC, Urbana, IL, ²Univ. of Kansas, Lawrence, KS
- D28** **Comparative Susceptibility of Western Corn Rootworm, *Diabrotica virgifera virgifera* Leconte Neonates to Bifenthrin and Thiamethoxam in the Presence and Absence of Feeding Stimulant.**
Adriano Pereira (aalias374@yahoo.com.br)¹, Elisa Bernklau², Kent S. Shelby³, Thomas Coudron³ and Bruce Hibbard³, ¹Univ. of Missouri, Columbia, MO, ²Colorado State Univ., Fort Collins, CO, ³USDA - ARS, Columbia, MO

- D29** **Diversity and Phenology of Ambrosia Beetles in Western Kentucky.**
Zenaida Viloria¹, Winston Dunwell¹, Ginny Travis¹, Paul O'Neal² and Raul T. Villanueva (raul.villanueva@uky.edu)¹, ¹Univ. of Kentucky, Princeton, KY, ²Tennessee State Univ., McMinnville, TN
- D30** **Inert Dusts Water Activity: The Overlooked Critical Factor in Efficacy Assessment.**
Kouame Yao (kdyao@ksu.edu) and Bhadriraju Subramanyam, Kansas State Univ., Manhattan, KS
- D31** **Laboratory Methods to Produce and Assay Common Green Stink Bug, *Acrosternum hilare* (Say).**
Amanda Sorgatz (Amanda.Sorgatz@dmcropresearch.com) and Dan Moellenbeck, DM Crop Research Group, Inc., Polk City, IA
- D32** **Efficacy of Insecticide Seed Treatments for Sunflowers in South Dakota.**
Brady Hauswedell (brady.hauswedell@sdstate.edu), Philip Rozeboom and Adam Varenhorst, South Dakota State Univ., Brookings, SD
- D33** **Newly Identified Resistance to Soybean Aphid (*Aphis glycines*) in Soybean Plant Introduction Lines.**
Louis Hesler (Louis.Hesler@ars.usda.gov)¹, Nicole Schultz², Brian Van De Stroet², Eric Beckendorf³ and Kelley Tilmon⁴, ¹USDA - ARS, Brookings, SD, ²South Dakota State Univ., Brookings, SD, ³USDA, Brookings, SD, ⁴The Ohio State Univ., Wooster, OH
- D34** **The Evolutionary Dynamic between *Manduca sexta* and *Nicotiana attenuata*.**
Aaron Rodriques (arodriqu@purdue.edu), Purdue Univ., Lafayette, IN

TUESDAY, JUNE 6, 2017, AFTERNOON

Submitted Ten-Minute Papers - Session 1

Edison North (Crowne Plaza Indianapolis Downtown Union Station)

Moderators: Erin Scully, USDA - ARS, Manhattan, KS

2:00 PM **Introductory Remarks**

2:05 PM **97** **Conservation Biological Control in a Multi-Strata Agroforestry System.**
Adam Kranz (akrnz@illinois.edu), Kevin Wolz and James Miller, Univ. of Illinois at Urbana-Champaign, Urbana, IL

2:17 PM **98** **Feeding Preference of European Elm Flea Weevil (*Orchestes alni*) for New Elm Cultivars.**
James Radl (Radl.3@osu.edu) and David Shetlar, The Ohio State Univ., Columbus, OH

2:29 PM **99** **Effects of Forest Canopy and Understory Disturbance on the Movement of Ground-Dwelling Arthropods.**
Kayla I Perry (perry.1864@osu.edu)¹, Kimberly Wallin², John Wenzel³ and Daniel Herms¹,
¹The Ohio State Univ., Wooster, OH, ²Univ. of Vermont, Burlington, VT, ³Carnegie Museum of Natural History, Rector, PA

2:41 PM **100** **Cellular Uptake and Endosome Escape of dsRNA in Insects.**
Kun Yan Zhu (kzhu@ksu.edu)¹, Young Ho Kim¹, Xiao Da^{1,2}, Anastasia Cooper¹ and Kristopher Silver¹, ¹Kansas State Univ., Manhattan, KS, ²China Agricultural Univ., Beijing, China

2:53 PM **Break**

3:08 PM **101** **RNA Interference of ATP-Dependent Helicase *Brahma* reduces Female Fecundity and Longevity in Bed Bugs (*Cimex lectularius*).**
Sanjay Basnet (sbasnet2@unl.edu) and Shripat Kamble, Univ. of Nebraska, Lincoln, NE

3:20 PM **102** **Fitness Costs Associated with Downregulation of RNAi Pathway Genes in Western Corn Rootworm..**
Carolina Camargo¹, Ke Wu¹, Elane Fishilevich (EFishilevich@dow.com)², Kenneth Narva² and Blair Siegfried³, ¹Univ. of Florida, Gainesville, FL, ²Dow AgroSciences, Indianapolis, IN, ³Univ. of Florida, Gainesville, FL

3:32 PM **103** **Sequencing and Characterization of a Maternal Effect Sex-Determining Autosomal Inversion in the Hessian Fly (*Mayetiola destructor*).**
Karen Vellacott-Ford (kvellaco@purdue.edu) and Jeffrey J. Stuart, Purdue Univ., West Lafayette, IN

Submitted Ten-Minute Papers - Session 2

Edison South (Crowne Plaza Indianapolis Downtown Union Station)

Moderators: Deanna Scheff, USDA - ARS, Manhattan, KS

2:30 PM **Introductory Remarks**

2:35 PM **104** **Field-Evolved Resistance to Multiple Bt Traits By Western Corn Rootworm: Understanding the Problem and Developing Solutions.**
Ram B. Shrestha (shrestrb@iastate.edu) and Aaron J. Gassmann, Iowa State Univ., Ames, IA

2:47 PM **105** **Factors Affecting the Distribution and Abundance of Barley Yellow Dwarf Virus Vectors in the Great Plains.**
Laramy Enders (lenders@purdue.edu)¹, John Girvin², Jeff Whitworth², Trevor Hefly² and C. Michael Smith², ¹Purdue Univ., Lafayette, IN, ²Kansas State Univ., Manhattan, KS

2:59 PM **106** **Options to Manage the Sugarcane Aphid (*Melanaphis sacchari*) in Sweet Sorghum in Kentucky.**
Raul T. Villanueva (raul.villanueva@uky.edu)¹, Ric Bessin² and John Obrycki², ¹Univ. of Kentucky, Princeton, KY, ²Univ. of Kentucky, Lexington, KY

3:11 PM **Break**

3:26 PM **107** **Agricultural Pest Management in South Dakota: Does It Affect Mosquito Insecticide Resistance?**
Adam Varenhorst (adam.varenhorst@sdstate.edu)¹, Mike W. Dunbar¹ and Amanda Bachmann², ¹South Dakota State Univ., Brookings, SD, ²South Dakota State Univ., Pierre, SD

3:38 PM **108** **Spectral Phenotyping of Hessian Fly-Wheat Interactions.**
Veronica Campos-Medina (vcampasm@purdue.edu)¹, Suraj Amatya¹, Jian Jin¹, Jeffrey J. Stuart¹ and John J. Couture², ¹Purdue Univ., West Lafayette, IN, ²Purdue Univ., West Lafayette, IN

3:50 PM **109** **Investigation of Southwestern Corn Borer (*Diatraea grandiosella*) Resistance to Cry1F in Cochise, Arizona.**
Amit Sethi (amit.sethi@pioneer.com), Andre Crespo, Jean Dyer, Dianna Gillespie, Carl Walker and Emily Huang, DuPont Pioneer, Johnston, IA

WEDNESDAY, JUNE 7, 2017, MORNING

Submitted Ten-Minute Papers - Session 3

Edison North (Crowne Plaza Indianapolis Downtown Union Station)

Moderators: Frank Arthur, USDA - ARS, Manhattan, KS

9:10 AM Introductory Remarks

9:15 AM 110 **Stored Grains, IGRs, and Insect Pest Management.**
Frank Arthur (frank.arthur@ars.usda.gov),
USDA - ARS, Manhattan, KS

9:27 AM 111 **Using Pheromone-Based Technology to Manage the Invasive Brown Marmorated Stink Bug in Commercial Apple Orchards in an Attract-and-Kill Approach.**
Rob Morrison (william.morrison@ars.usda.gov)¹, Brent Short², Brett Blaauw³, Christopher Bergh⁴, Anne Nielsen⁵, Greg Krawczyk⁶, Yong-Lak Park⁷, Bryan Butler⁸ and Tracy C. Leskey²,
¹USDA - ARS, Manhattan, KS, ²USDA - ARS, Kearneysville, WV, ³Univ. of Georgia, Athens, GA, ⁴Virginia Tech, Winchester, VA, ⁵Rutgers, The State Univ. of New Jersey, Bridgeton, NJ, ⁶Pennsylvania State Univ., Biglerville, PA, ⁷West Virginia Univ., Morgantown, WV, ⁸Univ. of Maryland, Westminster, MD

9:39 AM 112 **Assessment of Insecticide Resistance in Field-Collected German Cockroaches (*Blattella germanica* (L.)).**
Mahsa Fardisi (mfardisi@purdue.edu), Ameya Gondhalekar and Michael Scharf, Purdue Univ., West Lafayette, IN

9:51 AM Break

10:06 AM 113 ***Trissolcus Japonicus* Survival and Reproduction after Varying Exposure to Constant Low Temperature: Implications for Mass Rearing of This Potential Biological Control Agent.**
Erica C. Nystrom Santacruz (nyst0065@umn.edu)¹, Robert Venette² and Robert Koch³, ¹Univ. of Minnesota, Saint Paul, MN, ²USDA - Forest Service, Saint Paul, MN, ³Univ. of Minnesota, St. Paul, MN

10:18 AM 114 **Revision of Diagnostic Morphological Traits in Three Puerto Rican Species of *Heterotermes* (Dictyoptera: Rhinotermitidae).**
Zachary Griebenow (griebenow.1@osu.edu), Susan Jones and Tyler D. Eaton, The Ohio State Univ., Columbus, OH

10:30 AM 115 **Wing Pattern Plasticity in the Cabbage White Butterfly (*Pieris rapae* L.).**
Andrew Stoehr (astoehr@butler.edu), Butler Univ., Indianapolis, IN

The Interplay of Host Plant Resistance and Biological Control in Pest Management

Edison South (Crowne Plaza Indianapolis Downtown Union Station)

Moderators and Organizers: Jason Harmon¹, George Heimpel², Matthew O'Neal³ and Jennifer A. White⁴, ¹North Dakota State Univ., Fargo, ND, ²Univ. of Minnesota, Saint Paul, MN, ³Iowa State Univ., Ames, IA, ⁴Univ. of Kentucky, Lexington, KY

9:00 AM Introductory Remarks

9:05 AM 116 **Integrated Management of Diamondback Moth with Natural Enemies and Bt Broccoli.**
David Onstad (david.onstad@pioneer.com)¹ and Anthony M. Shelton², ¹DuPont Pioneer, Johnston, IA, ²Cornell Univ., Geneva, NY

9:30 AM 117 **Can Aphid-Resistant Soybean Enhance Early-Season Suppression of Soybean Aphids by *Aphelinus* Wasps?**
Kelton Welch (keltondouglasswelch@gmail.com)¹, George Heimpel¹, Keith Hopper², Matthew Kaiser³ and Matthew O'Neal³, ¹Univ. of Minnesota, Saint Paul, MN, ²USDA - ARS, Newark, DE, ³Iowa State Univ., Ames, IA

9:55 AM 118 **Interspersed Refuges: How Do They Impact Soybean Aphid Natural Enemies?**
Adam Varenhorst¹ and Matthew O'Neal (oneal@iastate.edu)², ¹South Dakota State Univ., Brookings, SD, ²Iowa State Univ., Ames, IA

10:20 AM Break

10:40 AM 119 **Effects of Predation on a within-Plant Refuge for Soybean Aphids.**
Matthew Kaiser (mckaiser@iastate.edu)¹, Andrew Michel² and Matthew O'Neal¹, ¹Iowa State Univ., Ames, IA, ²The Ohio State Univ., Wooster, OH

11:05 AM 120 **Connecting Host-Plant Resistance and Biological Control through Time and Space.**
Jason Harmon (Jason.Harmon@ndsu.edu), North Dakota State Univ., Fargo, ND

11:30 AM 121 **Do Cucurbitacins Protect Herbivores from Natural Enemies? Results from a Meta-Analysis**
Teresa Blader (teresa.blader@gmail.com), Xiaoyi Dou, Rebekah Reynolds, Erika Rodbell, Eric Yu, Ge Zhang and Matthew O'Neal, Iowa State Univ., Ames, IA

11:55 AM Concluding Remarks

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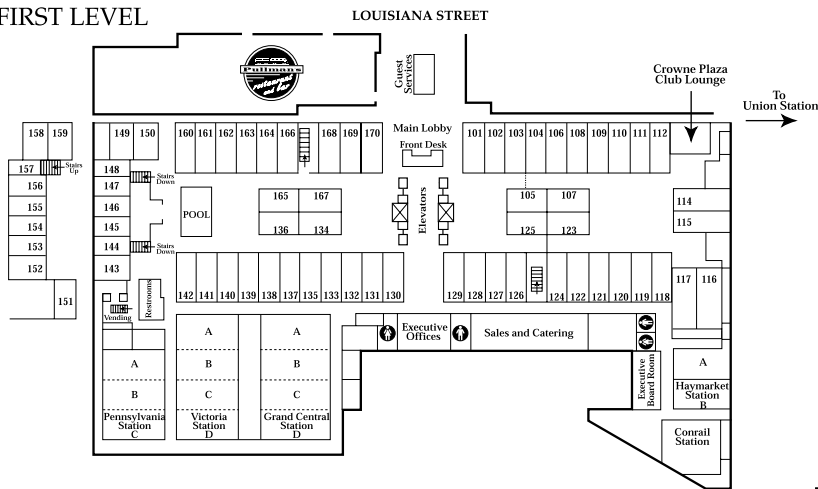
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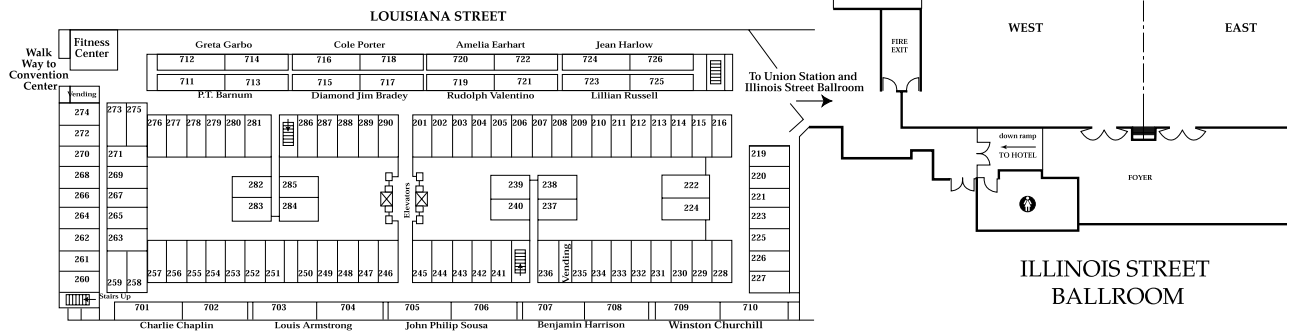
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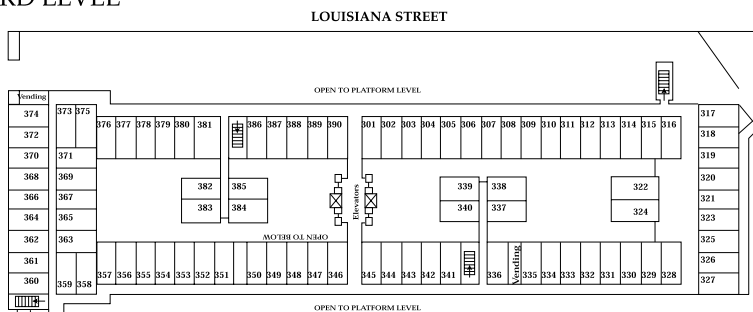
FIRST LEVEL

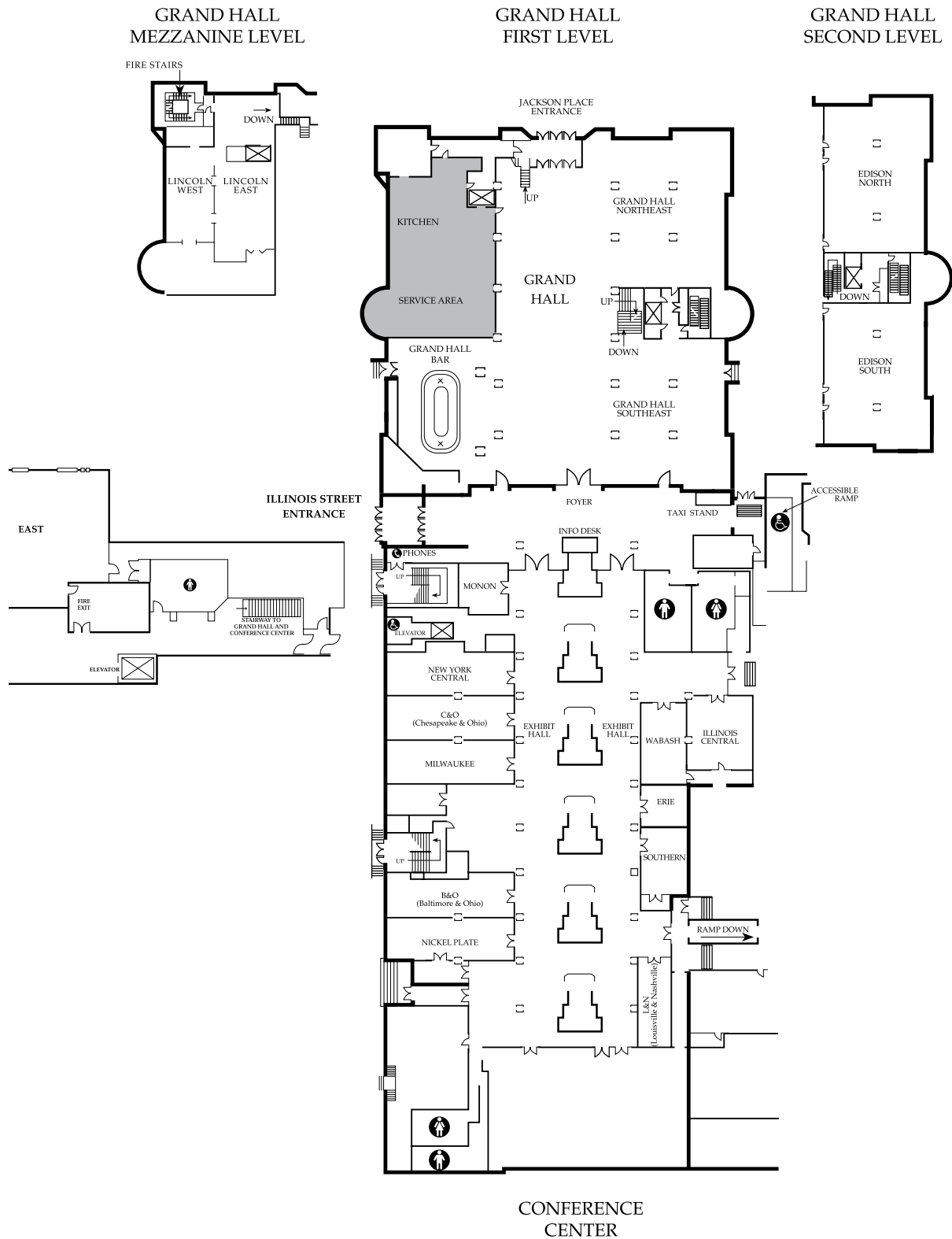


SECOND LEVEL



THIRD LEVEL







DOWNTOWN INDIANAPOLIS RESTAURANTS

AMERICAN:

- 1 120 West Market Fresh Grill at Hilton Indpls. Hotel & Suites \$\$ 317.972.0600
- 2 123 West Restaurant at Crowne Plaza at Historic Union Station \$\$ 317.236.7470
- 3 Alexander's Bar and Grille at Sheraton Indpls. City Centre Hotel \$\$ 317.635.2000
- 3 Circle Cafe at Sheraton Indpls. City Centre Hotel \$\$ 317.635.2000
- 4 Circle City Bar & Grille at Indianapolis Marriott Downtown \$\$ 317.405.6100
- 5 Claypool Grille at Embassy Suites Hotel Downtown \$\$ 317.236.1901
- 6 The Comfort Cafe* at Comfort Suites Indianapolis City Centre 317.631.9000
- 7 Dick's Last Resort* \$ 317.608.2456
- 8 Eagle's Nest Restaurant at Hyatt Regency Indianapolis \$\$\$ 317.616.6170
- 9 Granite City Food & Brewery* 317.803.2025
- 10 Great American Grill at Hilton Garden Inn Downtown \$ 317.955.9700
- 11 Hard Rock Cafe* \$ 317.636.2550
- 12 Indianapolis Colts Grille* \$ 317.631.2007
- 13 Market Table at The Alexander 317.624.8200
- 14 Noodles & Company* \$ 317.638.1300
- 8 One South at Hyatt Regency Indianapolis \$ 317.632.1234
- 15 Ram Restaurant & Big Horn Brewery* \$ 317.955.9900
- 16 Rock Bottom Brewery* \$\$ 317.681.8180
- 17 Sahn's Tavern & Cafe* \$ 317.822.9903
- 18 Skyline Club \$\$\$ 317.263.5000
- 19 TGI Friday's at JW Marriott \$ 317.685.8443
- 20 Tin Roof* \$ 317.951.2220
- 21 Weber Grill Restaurant* \$ 317.636.7600
- 9 Yard House \$ 317.917.4408

ASIAN/SUSHI:

- 22 Bangkok Restaurant & Jazz Bar \$\$ 317.632.9000
- 23 Mikado Japanese Restaurant \$ 317.972.4180
- 9 P.F. Chang's \$ 317.974.5747

BAKERY/BREAKFAST/CAFE/COFFEE:

- 24 Bee Coffee Roasters* \$ 317.426.2504
- 25 First Watch* \$ 317.423.2212
- 26 General American Donut Co.* \$ 317.964.0744
- 27 Einstein Bros. Bagels \$ 317.917.9888
- 28 Le Peep Restaurant \$ 317.237.3447
- 21 Panera Bread - Downtown* \$ 317.822.8385
- 29 Patachou on the Park* \$ 317.632.0765
- 30 Yolk \$ 317.632.9655

BARBECUE:

- 31 Dick's Bodacious Bar-B-Q* \$ 317.916.9600
- 32 Smokehouse on Shelby at Fountain Square Theatre Building \$ 317.685.1959

BURGERS:

- 33 BRU Burger Bar* \$ 317.635.4278
- 34 Burgerhaus Restaurant* \$ 317.434.4287
- 9 Johnny Rockets \$ 317.238.0444
- 35 Punch Burger* \$ 317.426.5280
- 36 Steak 'n Shake \$ 317.634.8703

CONTEMPORARY:

- 37 1913 Restaurant at Omni Severin Hotel \$ 317.396.3626
- 38 Bluebeard Restaurant* \$\$ 317.686.1580
- 13 Cerulean Restaurant* \$\$ 317.870.1320
- 39 Ember Urban Eatery* \$ 317.340.1868
- 40 Mesh on Mass* \$ 317.955.9600
- 41 R bistro \$\$\$ 317.423.0312
- 42 Spoke & Steele \$ 317.737.1616
- 43 Tavern on South* \$ 317.602.3115
- 44 Union 50* \$ 317.610.0234

DELI/SANDWICHES:

- 45 B's Po Boy* \$ 317.916.5555
- 46 Canal Cafe & Terrace* at Indiana State Museum \$ 317.232.1637
- 9 Chick-fil-A \$ 317.822.8501
- 47 Eiteljorg Museum Cafe* \$ 317.636.9378
- 48 Indianapolis City Market* \$ 317.634.9266
- 49 The Pita Pit* \$ 317.829.7482
- 50 Shapiro's Delicatessen \$ 317.631.4041
- 51 Stardust Terrace Cafe* at Eugene & Marilyn Glick Indiana History Center \$ 317.234.0095
- 52 Subway Sandwich* \$ 317.267.9960

EUROPEAN:

- 9 Palomino* \$ 317.974.0400

GERMAN:

- 53 Rathskeller Restaurant \$ 317.636.0396

GREEK:

- 54 Greek Islands Restaurant* \$ 317.636.0700

INDIAN:

- 55 Haveli Indian Cuisine \$ 317.280.7648
- 56 India Garden Restaurant \$ 317.634.6060

IRISH:

- 57 Claddagh Irish Pub-Downtown* \$ 317.822.6274

ITALIAN:

- 58 Buca di Beppo* \$\$ 317.632.2822
- 59 Iaria's Italian Restaurant \$ 317.638.7706
- 60 Iozzo's Garden of Italy* \$ 317.974.1100
- 61 Milano Inn* \$ 317.264.3585
- 62 Old Spaghetti Factory* \$ 317.635.6325
- 19 Osteria Pronto at JW Marriott \$ 317.860.5777
- 19 Tavern on the Plaza* at JW Marriott \$ 317.860.5777

LOUNGE/BAR:

- 63 1933 at St. Elmo Steak House \$ 317.635.0636
- 64 Bartini's Premier Martini Lounge \$ 317.636.0963
- 65 Cadillac Ranch Indianapolis \$ 317.636.0100
- 66 Howl at the Moon* \$ 317.955.0300
- 67 Ike & Jonesy's* \$ 317.632.4553
- 8 Level One at Hyatt Regency Indianapolis \$ 317.632.1234
- 68 Nicky Blaine's Cocktail Lounge* \$ 317.638.5588
- 69 No Name Lounge at The Westin Indianapolis \$ 317.262.8100
- 13 Plat 99 at The Alexander \$ 317.855.200.3002
- 37 Severin Bar at Omni Severin Hotel \$ 317.396.3623

- 70 Slippery Noodle Inn* \$ 317.631.6974
- 71 Taps & Dolls \$ 317.638.8277
- 72 Tastings - a wine experience* at Conrad Indianapolis \$ 317.423.2400
- 73 Wild Beaver Saloon \$ 317.423.3080
- 37 Wine Thief at Omni Severin Hotel \$ 317.634.6664

MEXICAN/LATIN/SPANISH:

- 74 Adobo Grill \$ 317.822.9990
- 75 BARcelona Tapas Restaurant* \$ 317.638.8272

PIZZA:

- 76 Bazbeaux* \$ 317.636.7662
- 77 Domino's Pizza \$ 317.635.3030
- 78 HotBox Pizza \$ 317.656.6000
- 79 Napolese Pizzeria* \$ 317.635.0765
- 80 Pearl Street Pizza & Pub \$ 317.638.3110
- 81 Pizzology Craft Pizza & Pub* \$ 317.685.2550

SEAFOOD:

- 82 The Oceanaire Seafood Room \$\$\$ 317.955.2277
- 1 McCormick & Schmick's Seafood Restaurant at Hilton Indpls. Hotel & Suites \$ 317.631.9500

SCOTTISH:

- 83 MacNiven's Restaurant & Bar \$ 317.632.SCOT

SOUTHERN/SOUL FOOD:

- 84 Maxine's Chicken & Waffles \$ 317.423.3300

SPORTS BAR/PUB:

- 85 Buffalo Wild Wings Grill & Bar \$ 317.951.9464
- 4 Champions Sports Bar and Restaurant* at Indpls. Marriott Downtown \$ 317.405.6111
- 9 Champps Americana* \$ 317.951.0033
- 19 High Velocity at JW Marriott \$ 317.860.6500
- 86 Kilroy's Bar and Grill* \$ 317.638.9464
- 87 Loughmiller's Pub & Eatery* \$ 317.638.7380
- 88 The Pub Indianapolis* \$ 317.822.9730
- 89 Winner's Circle Pub, Grille & Race Lounge* \$ 317.656.RACE

STEAK HOUSES:

- 72 The Capital Grille* at Conrad Indianapolis \$\$\$ 317.423.8790
- 90 Fogo de Chao \$\$\$ 317.638.4000
- 9 Harry & Izzy's* \$\$\$ 317.635.9594
- 91 Morton's The Steakhouse \$\$\$ 317.229.4700
- 92 Mo's A Place for Steaks \$\$\$ 317.635.0720
- 93 Prime 47 \$\$\$ 317.624.0720
- 9 Ruth's Chris Steak House \$\$\$ 317.633.1313
- 69 Shula's Steak House at The Westin Indianapolis \$\$\$ 317.231.3900
- 63 St. Elmo Steak House \$\$\$ 317.635.0636

SWEET TREATS:

- 9 Ben's Soft Pretzels \$ 317.492.9141
- 94 Chocolate Cafe* & Indy Swirl* at South Bend Chocolate Company \$ 317.951.4816
- 95 The Flying Cupcake Bakery \$ 317.396.2696
- 96 PEARings Cafe & Frozen Yogurt* \$ 317.608.6457

TURKISH:

- 97 The Bosphorus Istanbul Cafe - Turkish Cuisine* \$ 317.974.1770

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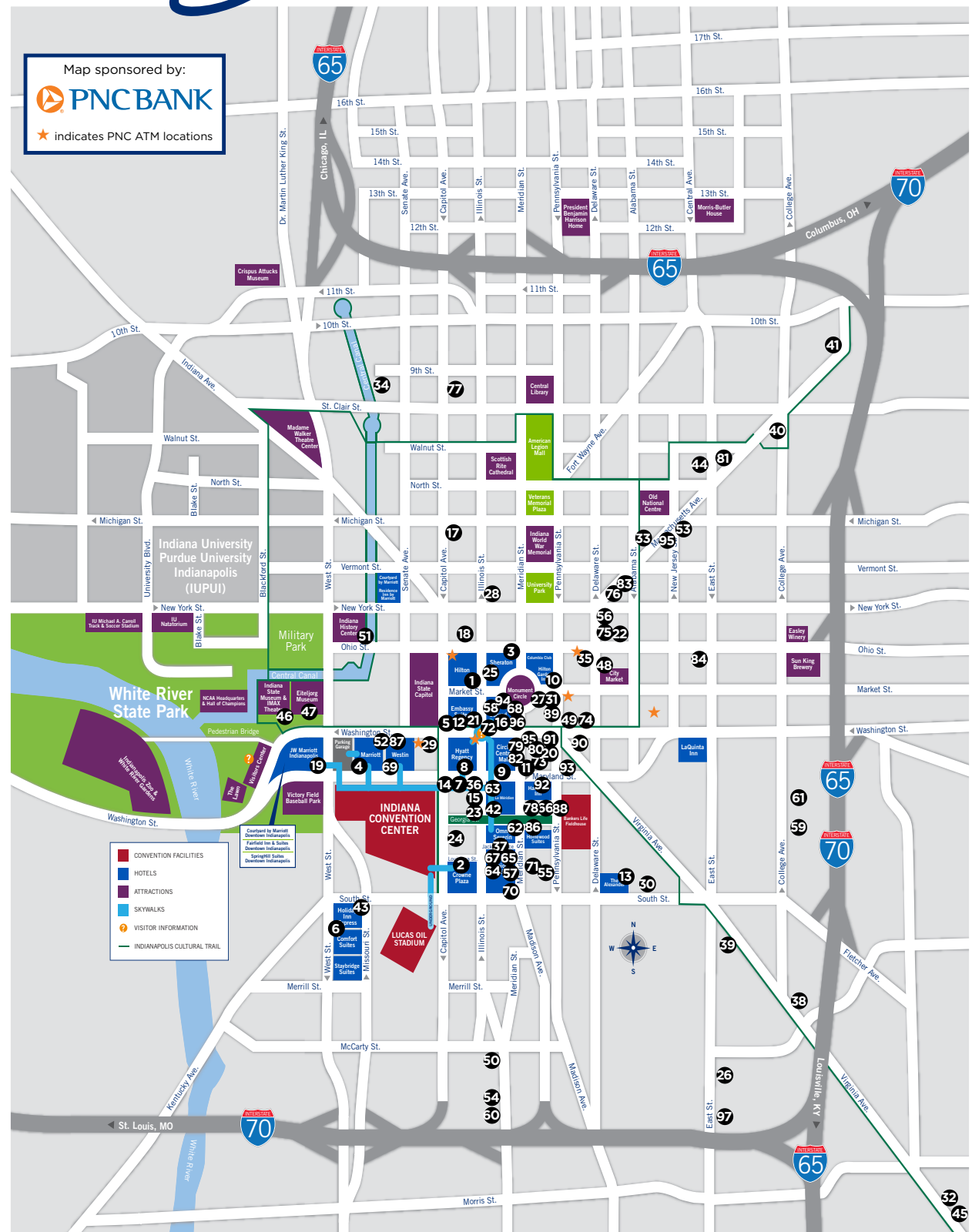
\$ = less than \$12 | \$\$ = \$12-\$24 | \$\$\$ = \$25-\$40 | \$\$\$\$ = more than \$40

* Indicates seasonal outdoor dining. Listings reflect Visit Indy partner establishments. 4/15



DOWNTOWN INDIANAPOLIS RESTAURANTS

Map sponsored by:
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Downtown Indianapolis
Restaurants

For information about things to see and do in Indianapolis, go to visitIndy.com.

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Parking Information

Near Crowne Plaza Indianapolis Downtown Union Station

Valet Parking at the Hotel

Entrance to Crowne Plaza Indianapolis Downtown Union Station is off Capitol Avenue

123 West Louisiana Street, Indianapolis, IN 46225

\$38.00 overnight*

\$30.00 day rate*

Overnight Valet parking includes in and out privileges

Pan Am Plaza Parking Garage

Located directly in front of the hotel – entrances off Capitol Avenue and Illinois Street.

201 South Capitol Avenue, Indianapolis, IN 46225

Overnight Parking * \$24.00
(does not include in and out privileges)

Hourly Rates:*

0-30 min. \$5.00

30 min.-1 hr. \$8.00

1-1½ hrs. \$12.00

1½- 2 hrs. \$16.00

2-4 hrs. \$18.00

4-24 hrs. \$24.00

Union Station Parking Garage

Located 1 block east of Crowne Plaza Hotel and Union Station

301 South Meridian Street, Indianapolis, IN 46225

Hourly Rates:*

½ hr. \$2.00

1 hr. \$3.00

2 hrs. \$5.00

3 hrs. \$7.00

4 hrs. \$9.00

6 hrs. \$12.00

12 hrs. \$14.00

24 hrs. \$18.00

Plaza Park Garage

Located north 2 blocks off Capitol Avenue.

109 South Capitol Avenue, Indianapolis, IN 46225

Hours:

Sun-Thurs 6AM – 12:30AM

Fri & Sat 24 Hours

Hourly Rates:*

Up to 1 hr. \$10.00

1-2 hrs. \$14.00

2-3 hrs. \$18.00

3-4 hrs. \$22.00

4-24 hrs. \$26.00

Moon Garage – Mall Parking

Located 1 block north off Georgia Street.

26 West Georgia Street, Indianapolis, IN 46225

Hours:

Mon-Fri 8AM – 12AM

Sat 8AM – 12AM

Sun 1 0AM – 9PM

Hourly Rates:*

3 hrs. \$2.00

4 hrs. \$5.00

5 hrs. \$10.00

6 hrs. \$14.00

6-12 hrs. \$17.00

12-24 hrs. \$22.00

Parking Lot at Meridian Street and South Street

Located behind the hotel and down a block.

365 South Meridian Street, Indianapolis, IN 46225

Hours:

Mon-Thurs 5AM – 10PM

Fri & Sat 6AM – 2AM

Rates:†

Flat Mon-Fri \$4.00

Sat 2PM – 2AM \$10.00

Sun & Evenings

Mon-Wed \$2.50

Event Parking \$5.00-\$30.00
(depending on event)

†Payment Accepted: Cash only

Standard Special Event Parking Range at all Garages - \$20.00-\$30.00 (could vary, based on event)

Prices are subject to change without notice. Self-parking facilities are not associated with Crowne Plaza Indianapolis Downtown Union Station



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- *Hands-on Workshops and Lunch & Learns*
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Ten-Minute Paper Presentations Deadline*: MAY 15

NEW Three-Minute Lightning Bug Talks Deadline*: MAY 15

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