NORTH CENTRAL BRANCH
Entomological Society
of America

March 24-27, 2008

Richard Weinzierl, NCB President

Hyatt Regency Columbus
350 North High Street
Columbus, OH 43215

Annual Meeting Sponsors

The North Central Branch ESA sincerely thanks our Annual Meeting sponsors from industry and academic institutions. Your contributions are welcome and essential to our maintaining a high-quality program. A list of contributors to the 2008 meeting is available at the registration desk and is prominently posted at refreshment breaks and in the poster room.

Meeting Logo

The meeting logo was designed by Glené Mynhardt, a graduate student at The Ohio State University. The design features the State Insect of Ohio, the Convergent Lady Beetle (*Hippodamia convergens*), perched on a leaf in the shape of Ohio. The leaf is aphid-free, as it should be.

Contents

Registration

All participants and attendees must be registered and badges are required for admission to all sessions and other functions. The registration area is centrally located in the Hayes Foyer. Registration will be open at the following times:

Monday	12:00 PM – 6:00 PM
Tuesday	8:00 AM – 5:00 PM
Wednesday	8:00 AM – 12:00 PM and 1:30 PM – 5:00 PM
Thursday	8:00 AM – 10:30 AM

Messages, Program Changes, Lost & Found

A message board is available in the poster display room (Harrison). Notices regarding program changes should be submitted to the A/V room (Grant). We will attempt to post last-minute changes on the easels outside each meeting room. Lost and found will be at the registration desk.

Spouses and Guests

There is no organized spouse/guest program. Information about attractions in the Columbus area will be available at a table in the registration area where a person will be available each morning to answer your questions.

Employment Opportunity Center

Folders will be provided on a table in the poster display room for submission of resumes, and a poster board will be available for posting of job opportunities and contact information.

Audio/Visual Equipment

The Grant Room will serve as A/V headquarters. It will be open Monday 5:00 PM – 9:00 PM, Tuesday and Wednesday 8:00 AM – 5:00 PM (except during lunch Wednesday) and Thursday 8:00 AM – noon. All meeting rooms will be equipped with an LCD projector and laptop computer.

All computers will be PCs, and presenters who use Macintosh computers/Operating Systems should pre-test their presentations for compatibility on a PC in advance. PowerPoint presentations should be brought to the meeting on a flash drive or CD-ROM, and should be brought to the A/V room as soon as possible after you arrive, and at least 24 hours before your talk (note open hours of A/V room). Timers and pointers for moderators will be available in the A/V room. Computers for presentations will be handled exclusively by the A/V Committee.

Guidelines for Speakers and Moderators

Speakers and moderators will follow standard practice at professional meetings. Moderators and speakers are both responsible for maintaining the printed schedule for starting and ending presentations. Please be considerate.

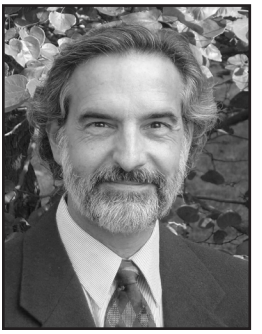
Posters – Setup, Removal, When Authors Should Be Present

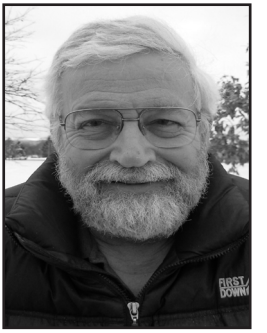
Posters will be displayed in the Harrison Room. Posters may be set up Monday 4:00 PM - 8 :00 PM and Tuesday 7:00 -9:00 PM. Posters should be removed by 7:00 PM Tuesday and 6:00 PM Wednesday. Posters remaining after 6:00 PM Wednesday might be discarded as we need to vacate the Harrison Room. Presenters are requested to be at their posters Tuesday 4:00 PM – 5:00 PM and Wednesday 3:00 PM – 4:00 PM. Presenters should bring push pins. Our poster boards are not Velcro-compatible. (We apologize for the unusual size (5 ft x 3 ft) of the poster boards and the fact that your poster may droop down a bit as a result. Very recently our intended vendor pulled out of what we had understood to be an agreement.)

2007-2008 ESA NCB
Officers and Committees

President: Richard Weinzierl
President-Elect: Steve Yaninek
Past President: Gary Hein
Secretary-Treasurer: David Ragsdale
Governing Board Representative: Larry Charlet
Executive Committee Members-at-Large: Mark Boetel, Shripat Kamble, Matthew O'Neal
Program Planning Committee: Kelly Estes and Celeste Welty, Co-Chairs, and John VanDyk
Local Arrangements Committee: David Horn (Chair), Roz Horn (hospitality), Claudia Kuniyoshi, Glené Mynhardt, Phil Otienoburu, Christopher Ranger, Celeste Welty
Nominating Committee: Paula Davis (Chair), Robert O'Neil, Kenneth Haynes
Auditing Committee: Ed King (Chair), Robert Wright, Thomas Phillips
Student Awards Committee: Luis Cañas and Janet Knodel (Co-Chairs), Jon Babcock, Lyric Bartholomay, Laura Campbell, Tom Clark, Catherine Hill, Elizabeth Owens, Doug Richmond.
NCB Honorary Awards Committee (for the C. V. Riley Award and the NCB Award of Merit): Kevin Steffey and Michelle Smith (Co-Chairs), James Bing, Casey Burks, Marion Harris, Lance Meinke, Tederson Galvan
National ESA Awards Committee: Christian Krupke and Rick Foster (Co-Chairs), Mike Brewer, Sharon Dobesh, Christopher Ranger, Neil Spomer, Kelly Tilmon,
Membership Committee: Larry Olsen (Chair), Bill Hutchison, Daniel Pavuk, Nicholas Storer
Photo Salon Committee: Tom Myers (Chair), Ric Bessin, Gary Hein, Jim Mertins, Phil Sloderbeck, David Voegtlin
Student Affairs Committee: David Coyle (Chair), Laura Campbell, Tederson Campbell, Alana Jacobsen, Ann Ray
Linnaean Games: Wyatt Hoback (Chair), Michael Culy, Jay Mcpherson, Blair Siegfried
NCB-ESA Website: (http://esa.ent.iastate.edu) John VanDyk, Webmaster

2007-2008 ESA NCB
Meeting Organizers





Richard Weinzierl, President, and David Horn, Local Arrangements Chair

Kelly Estes and Celeste Welty, Program Co-Chairs

Special Events

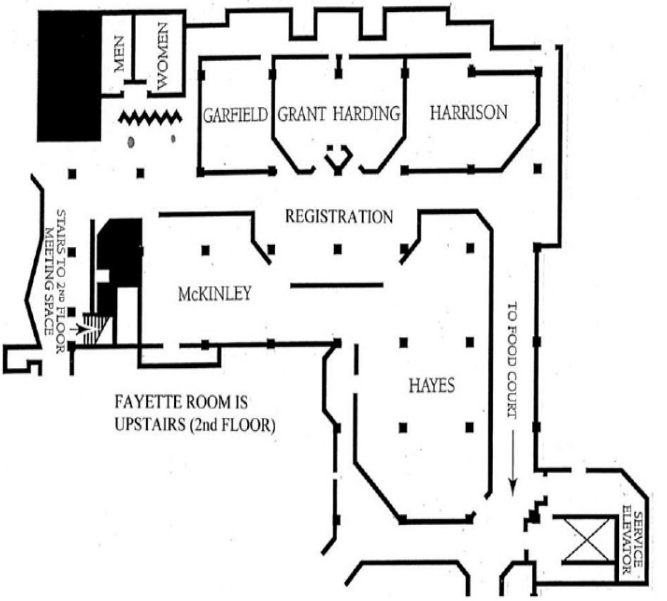
Awards Luncheon
Wednesday 12:00 PM – 1:30 PM
Hayes

In 2008 the NCB-ESA will return to our traditional Awards Luncheon. Admission is included in your registration. A vegetarian option will be available; please ask your server. The Branch will recognize award winners, the championship Linnaean Games team, and the many people who serve the North Central Branch and the ESA.

Two Mixers
Tuesday 8:30 PM – 10:00 PM
McKinley
Wednesday 6:30 PM – 8:30 PM
Hayes

The traditional "Branch Mixer" will be held following the Linnaean Games on Tuesday. Light snacks and a cash bar will be available as we mingle with new and old colleagues. On Wednesday evening there will again be a chance to mix and visit while joining in another NCB tradition, the annual Linnaean Games Challenge Match between the champions and the old-timers. To be sure, today's students know a lot, but do not discount the wisdom and craftiness of the geezer! Once again, a cash bar and light refreshments will be available.

Hyatt Regency Hotel



2008 North Central Branch C.V. Riley Award

Richard Merritt
Michigan State University

The C.V. Riley Award recognizes outstanding contributions to the science of entomology. This year's award winner is Dr. Richard Merritt.

During his 34-year career at Michigan State University, Dr. Richard Merritt has developed an outstanding, internationally-known research program focusing on aquatic entomology, medical entomology, and forensic science. In addition to conducting research, Dr. Merritt has trained 32 graduate students, and he annually teaches courses focusing on aquatic insects, insect ecology, bio-monitoring of streams, and forensic entomology. His classic textbook, 'An Introduction to the Aquatic Insects of North America', coauthored with Dr. Ken Cummins, continues to be used as a reference by thousands of students and researchers.

Dr. Merritt is one of nine original Board Certified Forensic Entomologists in the United States. He is frequently consulted in criminal cases across the U.S. and Canada, and several of his cases have been featured in documentaries. In 2002, Dr. Merritt was elected Chair of the Entomology Department at MSU. In addition to serving as chair, he has maintained a full research and teaching program with five graduate students and projects in Michigan, California, and Alaska, as well as a study elucidating insect transmission of *Buruli ulcer* in Africa.

2008 North Central Branch Award of Merit

Larry Charlet
USDA-ARS

The North Central Branch Award of Merit recognizes outstanding contributions to the Branch based on continued superior service.

Dr. Larry Charlet has been a research entomologist with the USDA-ARS in Fargo, ND, for 29 years, and he has been a member of ESA since 1972. His service within the branch and to ESA overall has indeed been exemplary.

Dr. Charlet has served in numerous roles, including Vice President and President, for the Nearctic Section of the International Organization for Biological Control; he also is a member of the North Central Regional Committee on the Biological Control of Arthropods and Weeds. He has served as the North Central Branch representative for ESA's Standing Committee on Membership, Section C representative on the Editorial Board for Arthropod Management Tests and Thomas Say Publications, and member, Chair, and Governing Board Liaison for the Publications Council. He has served as Chair of Subsection Ca and is currently the Governing Board Liaison for the ESA Awards and Recognition Committee. He has served on the NCB Meeting Time and Location Selection Committee, Local Arrangements Committee, Program Committee, Award of Merit Committee, and Membership Committee and was Program Chair for the 2004 meeting in Kansas City. He is serving a second term as the North Central Branch representative to the ESA Governing Board and is a member of the Presidential Committee on ESA Publications.

2008 North Central Branch Graduate Student Scholarship Award

Ann Marie Ray
University of Illinois

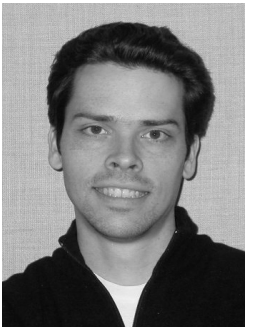
The 2008 NCB Graduate Student Scholarship Award winner is Ann Marie Ray, a Ph.D. candidate at the University of Illinois. She is advised by Dr. Lawrence Hanks. Annie is currently working on the evolution of volatile pheromone use in cerambycine longhorned beetles. Her PhD research is providing critical support for the proposed association between pheromone production and cuticular gland pores present on pheromone-producing species. She is also working on the molecular phylogeny of the group.

In addition to being an excellent researcher with several peer-reviewed publications that are highly cited by those doing research on cerambycid pheromones, Annie is an excellent teaching assistant. As recognition for her teaching abilities, she has earned a place on the List of Teachers Rated Excellent by Their Students at the University of Illinois. Her leadership has also been recognized by her peers, as she has served as president of the Entomology Department Graduate Student Association. Her volunteer work is highly regarded and includes participation in the University of Illinois Insect Fear Festival and public service with groups such as the Girl Scouts. Annie is singlehandedly responsible for the University of Illinois Entomology Department's involvement in "Bugscope", a project run by the Beckman Institute's Imaging Technology Group that allows free interactive access for the general public to a scanning electron microscope.

Annie Ray is demonstrating that she is becoming not only a well regarded scientist but also an outstanding teacher, leader, and citizen.

2008 North Central Branch J.H. Comstock Award

Jeffrey Bradshaw



The 2008 NCB Comstock Award winner is Dr. Jeff Bradshaw. Jeff recently received his Ph.D. from Iowa State University in Entomology and Plant Pathology. He was co-advised by Dr. Marlin Rice and Dr. John Hill.

Jeff's research involved work on the bean leaf beetle, *Cerotoma trifurcata* (Chrysomelidae), and Bean pod mottle virus (BPMV) biology and management. He also used various molecular tools to identify and sequence a novel partial-diploid strain of BPMV from *Desmodium illinoense* (Fabaceae), a potential reservoir host for BPMV. This work has resulted in peer reviewed and extension publications that have received numerous awards and recognitions. Jeff has been presenting the recommendations derived from his research, and he has been author/co-author of 41 scientific presentations (17 invited) at branch and national meetings of the ESA, the National IPM Symposium, and American Phytopathological Society, as well as two international symposia. In addition, he has authored or co-authored 27 extension publications.

Jeff also has shown excellence as a teaching assistant in a study-abroad class titled "Natural History of the Serengeti," a 2½-week course in which students observed and recorded mammal, bird, and insect behavior in northern Tanzania. Jeff incorporated several arthropod experiences into the course, including blacklighting for scorpions, close encounters with safari ants, and termite mound observations.

Because of his excellence in research, teaching, and extension, we acknowledge Jeff's overall effort with the 2008 NCB Comstock Award.

ESA-NCB Award of Excellence in Integrated Pest Management

James Miller
Michigan
State University

The 2008 ESA-NCB Award of Excellence in Integrated Pest Management goes to Dr. James Miller of Michigan State University.

Dr. Miller grew up on a farm in Lancaster, Pennsylvania. He earned a B.A. in Biology from Millersville University in 1970 and a Ph.D. in Entomology from Penn State University in 1975. After a 2 yr. post-doctoral position at Cornell University's Geneva Agricultural Experiment Station, he joined the Entomology faculty at Michigan State University in 1977, where he recently became a Distinguished Professor.

Dr. Miler's wide-ranging research has focused on insect-plant interactions, insect chemical ecology, and malaria mosquito management. He teaches Insect Behavior, Insect Physiology, and Nature and Practice of Science. Dr. Miller is a subject editor (Behavior) for Environmental Entomology.

ESA-NCB Recognition Award in Entomology

Douglas Landis
Michigan
State University

Dr. Doug Landis received his B.A. in Biology from Goshen College in 1981 and his M.S. and Ph.D. in Entomology from North Carolina State University in 1984 and 1987. He joined the Department of Entomology at Michigan State University in 1988, and he is now a Professor there, with research and teaching responsibilities in insect ecology and biological control of invasive species.

Much of Dr. Landis' work focuses on the role of landscape structure in shaping insect-insect and insect-plant plant interactions. His current research projects include biological control of soybean aphid and garlic mustard, the use of native plants to enhance beneficial insects, and conservation of insects in fire-dependent ecosystems.

Dr. Landis is co-director of MSU's Invasive Species Initiative. In this role he advises state and federal agencies on invasive species management.

ESA-NCB Distinguished Achievement Award in Extension

Fred Baxendale
University of Nebraska

Dr. Frederick P. Baxendale is a Professor and Extension Specialist in the Department of Entomology at the University of Nebraska-Lincoln. He completed his Ph.D. and M.S. degrees in entomology at Texas A&M University, and earned his B.S. degree in entomology at Cornell. His extension responsibilities include programming for turfgrass and horticultural entomology, urban pest management, 4-H and youth entomology, and forensic entomology. He also has served as a panelist on the popular, long-running Backyard Farmer television program (now entering its 55th season) since 1985.

Dr. Baxendale is widely recognized for his expertise in the environmentally responsible management of turfgrass insect pests, and he is a leading authority on the insects and mites on buffalograss. His research focuses on the development of IPM strategies for insects affecting turfgrasses, native grasses, and horticultural plantings. He has authored over 300 extension and research publications and has secured more than $2.75 million in competitive and grant-in-aid funding to help support his extension and applied research programs.

Dr. Baxendale has been the recipient of numerous awards for excellence in extension programming, including the Nebraska Cooperative Extension Association's Outstanding New Specialist Award, Nebraska Cooperative Extension Team Awards for Backyard Farmer and Urban Pest Management, ESA Recognition Award in Urban Entomology, and the Excellence in Extension Award presented by the National Association of State Universities and Land-Grant Colleges.

ESA-NCB Distinguished Achievement Award in Teaching

Tiffany Heng-Moss
University of Nebraska

Dr. Tiffany Heng-Moss, an associate professor at the University of Nebraska-Lincoln, has developed seven undergraduate and graduate courses while providing leadership for development of a new undergraduate major in Insect Science. Her introductory Insect Biology course was the first distance-delivered concurrent credit course offered as part of the University of Nebraska Advanced Scholars Program. She is also a member of the plant protection science, professional golf course management, and forensic science curriculum committees. She serves as an advisor to several university student organizations and mentors undergraduate students conducting research in entomology. She is the department's undergraduate research coordinator and chair of the departmental curriculum committee.

Dr. Heng-Moss provides program leadership for outreach activities such as "Our Zoo to YOU," which has been presented to more than 2,500 students in 85 Nebraska classrooms over the past 5 years, and has secured over $250,000 in competitive grant support. She is a major contributor and organizer for an annual Bug Bash educational program at the Lincoln Children's Zoo with the Lincoln Public Schools Science Focus Program.

Dr. Heng-Moss has received several awards, including the USDA Regional Award for Excellence in College and University Teaching in the Food and Agricultural Sciences. She has received Certificates of Recognition from the UNL Parents Association and Teaching Council, the Holling Family Junior Faculty Award for Teaching Excellence, and the Omtvedt Innovation Award from the UNL Institute of Agriculture and Natural Resources. She is a Fellow of the Center for Great Plains Studies at UNL.

SCHEDULE

Monday, March 24, 2008

NCB Executive Committee Meeting
2:00 PM – 5:00 PM
Grant

Registration
12:00 PM – 6:00 PM
Hayes Foyer

Upload Presentations
5:00 PM – 9:00 PM
Grant

Poster Setup
4:00 PM – 8:00 PM
Harrison

Acarology Workshop
2:00 PM – 6:00 PM
OSU Campus

OSU Entomology Tour
3:00 PM – 5:00 PM
OSU Campus

Photo Salon
6:00 PM – 7:00 PM
McKinley

Preliminary Linnaean Games
7:00 PM – 9:00 PM
Gamemaster: W. Wyatt Hoback
University of Nebraska at Kearney
Hayes

SCHEDULE

Tuesday, March 25, 2008

Registration
8:00 AM – 5:00 PM
Hayes Foyer

Upload Presentations
8:00 AM – 5:00 PM
Grant

Opening Session
8:00 AM – 10:00 AM
Hayes

B.S./M.S. Student Competition Papers
10:15 AM – 12:00 PM
Garfield
Harding

Ph.D. Student Paper Competition
10:15 AM – 12:00 PM
Madison
Fayette

Student Competition Poster Session
7:00 AM – 5:00 PM
authors present 4:00 PM – 5:00 PM
Harrison

Program Symposium
At the Forefronts of Entomology
1:15 PM – 5:00 PM
Hayes

BCE Symposium
Urban IPM Thrills
1:15 PM – 5:15 PM
McKinley

Technology Transfer in the 21st Century: Challenges & Opportunities
Tuesday, March 25, 2008
1:15 PM – 5:00 PM
Garfield

Photo Salon
6:00 PM – 7:00 PM
McKinley

Submitted Poster Setup
7:00 PM – 8:00 PM
Harrison

Linnaean Games Final
7:00 PM – 9:00 PM
Gamemaster: W. Wyatt Hoback
University of Nebraska at Kearney
Hayes

Branch Mixer
(to follow Linnaean Games)
McKinley

❖ ❖ ❖ ❖ ❖ ❖

PROGRAM

Tuesday, March 25, 2008

Opening Session

Tuesday, March 25, 2008
8:00 AM – 10:00 AM
Hayes

Call to Order
Richard Weinzierl, President
North Central Branch
Entomological Society of America

Local Arrangements Update
David Horn

Program Update
Kelly Estes and Celeste Welty

Messages from ESA Central
Michael Gray, ESA President
Robin Kriegel, ESA Executive Director
Larry Charlet, ESA Governing Board Representative

Putting ESA's New Sections to Work -- A View for Plant Insect Ecosystems
Robert Wiedenmann

Updates from the Entomological Foundation
Michelle Smith

BCE-ACE Message
Mitch Meehan

NCB President's Address
Richard Weinzierl

Preliminary Business Meeting

B.S./M.S. Student Competition Papers

Tuesday, March 25, 2008
10:15 AM – 12:00 PM
Garfield

Moderator:
Steve Yaninek
Purdue University
West Lafayette, IN

10:15 001 Laboratory Investigations of Ladybird Beetle Behavior: Experiments to Develop Teaching Exercises
Jason M. Gfeller and W. Wyatt Hoback, University of Nebraska, Department of Biology, Kearney, NE

10:27 002 The Diversity and Activity Patterns of Carabid Beetles and Slugs in Strawberry Agroecosystems
Michael J. Eskelson, John J. Obrycki, Doug D. Archbold, and James D. Harwood, University of Kentucky, Department of Entomology, Lexington, KY

10:39 003 Aphid Pests and their Natural Enemies in Organic and Conventional Soybean and Alfalfa Fields
Rachel E. Mallinger and David B. Hogg, University of Wisconsin, Department of Entomology, Madison, WI

10:51 004 The Interaction of Soybean Aphid and Soybean Cyst Nematode: Response of Several Resistant and Susceptible Soybean Varieties
Joshua R. Heeren, Nicholas A. Tinsley, Ronald E. Estes, Michael E. Gray, Terry L. Niblack, Kevin L. Steffey, and Jared B. Schroeder, University of Illinois, Department of Crop Sciences, Urbana, IL; Matthew O'Neal, Gregory Tylka, and M. Felicitas Avendano, Iowa State Univeristy, Ames, IA

11:03 005 PCR Analysis to Quantify a Mechanism by which a Beetle Species Vectors a Bacterial Plant Pathogen
Robert F. Mitchell and Lawrence M. Hanks, University of Illinois, Department of Entomology, Urbana, IL

11:15 006 Chemically-Mediated Mate Recognition in the Primitive Longhorned Beetle *Mallodon dasystomus* (Say)
Annie E. Spikes, Purdue University, West Lafayette, IN, Nathan M. Schiff, USDA-Forest Service, Southern Hardwoods Laboratory, Stoneville, MS, and Matthew D. Ginzel, Purdue University, West Lafayette, IN

❖❖❖❖❖❖

M.S. Student Competition Papers

Tuesday, March 25, 2008
10:15 AM –12:00PM
Harding

Moderator:
Richard Weinzierl
University of Illinois
Urbana, IL

10:15 007 The Behavior of Flour Beetles in Flour Mills and in Laboratory Settings
Karen J. Hawkin, University of Manitoba, Department of Entomology, Manitoba, Canada, Paul G. Fields, Agriculture and Agri-Food Canada, Cereal Research Centre, Winnipeg, Canada, and Dean Stanbridge, The Steritech Group Corp., Milton, Ontario, Canada

10:27 008 Comparative Residual Efficacies of Aerosol Insecticides Against Two *Tribolium* Species
April E. Sutton, Kansas State University, Department of Entomology, Manhattan, KS, Frank H. Arthur, and James F. Campbell, Grain Marketing and Production Research Center, USDA/ARS, Manhattan, KS, and Kun Yan Zhu, Kansas State University, Department of Entomology, Manhattan, KS

10:39 009 New State Records for *Lutzomyia shannon*i (Dyar) and Lu. vexator (Coquillett)
Logan M. Minter, University of Kentucky, Lexington, KY, Brian W. Kovacic, Lexington, KY, David C. Claborn, Uniformed Services University, Bethesda, MD, David A. Florin, US Naval Medical Research Center Detachment, NMRCD, Lima, Peru, Phillip G. Lawyar, NIAID, National Institutes of Health, Bethesda, MD, and Grayson C. Brown, University of Kentucky, Lexington, KY

10:51 010 Revision of the African Genus *Oreiscelio* (Hymenoptera: Scelionidae)
Elijah J. Talamas and Norman F. Johnson, The Ohio State University, Columbus, OH

11:03 011 Combining an Artificial Break in Brood Rearing with Oxalic Acid Treatment to Reduce *Varroa destructor* Populations
Jeremy J. Wagnitz and Marion Ellis, University of Nebraska, Department of Entomology, Lincoln, NE

11:15 012 Role of Calcium and Calmodulin in the Cold Tolerance of the Antarctic Midge, *Belgica antarctica*
Nicholas M. Teets, Miami University (currently at the Ohio State University, Department of Entomology, Columbus, OH), Michael A. Elnitsky, Miami University, Department of Zoology, Oxford, OH, Joshua B. Benoit, Giancarlo Lopez-Martinez, and David L. Denlinger, The Ohio State University, Department of Entomology, Columbus, OH, and Richard E. Lee, Jr., Miami University, Department of Zoology, Oxford, OH

11:27 013 Lure and Kill – A Novel Approach to Controlling Japanese Beetles
Elizabeth E. Morris and Parwinder S. Grewal, The Ohio State University, OARDC, Wooster OH

❖❖❖❖❖❖

Ph.D. Student Competition Papers

Tuesday, March 25, 2008
10:15 AM –12:00 PM
Madison

Moderator:
Larry Charlet
USDA-ARS
Fargo, ND

10:15 014 Densities of Common Nebraska Rangeland Grasshoppers (Orthoptera: Acrididae) Differ Between Ecoregions
Mathew L. Brust, University of Nebraska, Lincoln, NE, W. Wyatt Hoback, University of Nebraska, Kearney, NE, and Robert J. Wright, University of Nebraska, Lincoln, NE

10:27 015 Soybean Aphid (*Aphis glycines*) Management; The Importance of Insecticide Coverage
Kevin D. Johnson and Matthew E. O'Neal, Iowa State University, Department of Entomology, Ames, IA

10:39 016 Quantifying Exposure Pathways in Carabid Food Webs: Uptake of Bt-Endotoxins from Multiple Transgenic Events
Julie A. Peterson, John J. Obrycki, and James D. Harwood, University of Kentucky, Lexington, KY

10:51 017 Insect-Host Phenological Synchrony: Foliar Terpenes and Free Amino Acids in Relation to European Pine Sawfly Life Cycle
Rodrigo A. Chorbadjian and Daniel A. Herms, The Ohio State University, Ohio Agricultural Research and Development Center, Wooster, OH

11:03 018 Resistance Mechanisms of Paper Birch Against Bronze Birch Borer
Vanessa L. Muilenburg, The Ohio State University, OARDC-Dept. of Entomology, Wooster, OH, Pierluigi Bonello, The Ohio State University, Columbus, OH, Daniel A. Herms, The Ohio State University, OARDC-Dept. of Entomology, Wooster, OH

11:15 019 The Amino Acid Composition of Poinsettia Cultivars: Effects on Silverleaf Whitefly Life History
Karla J. Medina-Ortega and Luis A. Cañas, The Ohio State University, Wooster, OH

11:27 020 Characterizing Effectiveness of Structural Heat Treatments Against Insects in Three Commercial Facilities
Fernanda N. Lazzari, Bhadriraju Subramanyam, and Xingwei Hou, Kansas State University, Manhattan, KS

11:39 021 Termite Mediated Alteration of Food Items.
Nicola T. Gallagher and Susan C. Jones, The Ohio State University, Columbus, OH

❖❖❖❖❖❖

Ph.D. Student Competition Papers

Tuesday, March 25, 2008
10:15 AM –12:00 PM
Fayette

Moderator:
Fred Baxendale
University of Nebraska-Lincoln
Lincoln, NE

10:15 022 Elucidating Problematic Hymenopteran Relationships using Novel Genes
Kacie J. Johansen, Barb Sharanowski, and Michael Sharkey, University of Kentucky, Department of Entomology, Lexington, KY

10:27 023 Founding Stage of *Lasius* (*Acanthomyops*)
Joseph M. Raczkowski, The Ohio State University, Columbus, OH

10:39 024 Identification and Expression Profiles of Thirteen Glutathione S-transferase Genes from the European Corn Borer
Chitvan Khajuria, Kansas State University, Department of Entomology, Manhattan, KS, Yu-Cheng Zhu, USDA-ARS-JWDSRC, Stoneville, MS, and Lawrent L. Buschman, Ming-Shun Chen, and Kun Yan Zhu, Kansas State University, Manhattan, KS

10:51 025 Mineralization of [14C] Indoxacarb in Soils Around Urban Structures
Neil A. Spomer and Shripat T. Kamble, University of Nebraska, Lincoln, NE, and Clay W. Scherer and Mark A. Coffelt, DuPont Corp., Wilmington, DE

11:03 026 Moisture Requirements of Three Species of Antarctic Mites and the Seabird Tick
Joshua B. Benoit, The Ohio State University, Columbus, OH, Jay A. Yoder, Wittenberg University, Springfield, OH, Giancarlo Lopez-Martinez, The Ohio State University, Columbus, OH, Michael A.

Elnitsky and Richard E. Lee, Jr., Miami University, Oxford, OH, and David L. Denlinger, The Ohio State University, Columbus, OH

11:15 027 Overhydration and Dehydration of the Antarctic Midge, *Belgica antarctica*, Leads to Upregulation Stress Reduction Genes **Giancarlo Lopez-Martinez** and Joshua B. Benoit, The Ohio State University, Columbus, OH, Michael A. Elnitsky and Richard E. Lee, Jr., Miami University, Oxford, OH, and David L. Denlinger, The Ohio State University, Columbus, OH

11:27 028 Rapid Cold Hardening Elicits Changes in Brain Protein Profiles of the Flesh Fly **Aiqing Li** and David L. Denlinger, The Ohio State University, Columbus, OH

11:39 029 Use of Thermal Response to Evaluate Parasitic Recognition in Honeybees **Suresh Desai**, Digvir Jayas, and Robert Currie, University of Manitoba, Department of Entomology, Winnipeg, Manitoba, Canada

❖❖❖❖❖❖

Program Symposium
At the Forefronts of Entomology

Tuesday, March 25, 2008
1:15 PM –5:00 PM
Hayes

Moderators:
Richard Weinzierl
University of Illinois
Department of Crop Sciences
Urbana, IL
and
Susan Weller
University of Minnesota
Department of Entomology
St. Paul, MN

1:15	030	Welcome **Richard Weinzierl**, University of Illinois, Department of Crop Sciences, Urbana, IL
1:20	031	The Role of Systematics and Taxonomy in Dealing with Invasive Mites **Hans Klompen**, Museum of Biological Diversity, The Ohio State University, Columbus, OH
1:45	032	Systematics and Bioinformatics in the 21st Century **Susan Weller**, University of Minnesota, Department of Entomology, St. Paul, MN
2:10	033	The Emerald Ash Borer Invasion: the Beginning of the End of Ash in North America **Daniel Herms**, The Ohio State University, OARDC, Wooster, OH
2:35	034	Periodical Cicadas: New Discoveries and New Predictions **Gene Kritsky**, College of Mount St. Joseph, Department of Biology, Cinncinati, OH

3:00		**BREAK**
3:15	035	Mating Disruption for Fruit Insect Management in Eastern North America **Larry Gut**, Michigan State University, Department of Entomology, East Lansing, MI
3:40	036	Using Evolutionary and Ecological Functional Genomics to Understand Adaptation in Agronomic Crop Pests **Andrew Michel**, The Ohio State University, Department of Entomology, Wooster, OH
4:05	037	Is There a Limit to What IPM Can Contribute to Increasing Pest Pressure in North Central U.S. Field Crop Production? **Matthew O'Neal**, Iowa State University, Department of Entomology, Ames, IA
4:30	038	Complementarity: The Missing Link in Web and Print Delivery of IPM Course Content **Edward B. Radcliffe**, University of Minnesota, Department of Entomology, St. Paul, MN, William D. Hutchison, University of Minnesota, Department of Entomology, St. Paul, MN, and Rafael E. Cancelado, Bogotá, Colombia
4:55		Discussion

❖❖❖❖❖❖

BCE Symposium: Urban IPM Thrills

Tuesday, March 25, 2008
1:15 PM –5:15 PM
McKinley

Organizers and Moderators:
Changlu Wang
Purdue University
Department of Entomology
West Lafayette, IN
and
Shripat T. Kamble
University of Nebraska
Department of Entomology
Lincoln, NE

1:15	039	Introduction **Shripat T. Kamble**, University of Nebraska, Department of Entomology, Lincoln, NE
1:20	040	Bed Bug Resistance: Updates on the Lethal and Sublethal Effects of Insecticides on the Bed Bug, *Cimex lectularius* L. **Alvaro Romero**, Michael F. Potter, and Kenneth F. Haynes, University of Kentucky, Department of Entomology, Lexington, KY
1:45	041	Integrated Pest Management Approaches for Subterranean Termites **Susan Jones**, The Ohio State University, Department of Entomology, Columbus, OH
2:10	042	Residential IPM: Why We Should Adopt It? **Changlu Wang**, Purdue University, Department of Entomology, West Lafayette, IN

2:35 043 Pest Private Eye: An Interactive Video Game About Pests and IPM
Clyde Ogg, Erin Bauer, Melanie Eirich, Vishal Singh, Nino Kapetanovic, and Heather Dahm, University of Nebraska, Lincoln, NE

3:00 044 Future of Going Green in Urban IPM
Pari Pachamuthu, Western Exterminator Company, Sacramento, CA

3:25 **BREAK**

3:35 045 Bringing IPM into Stored Product Pest Management
Linda Mason, Purdue University, Department of Entomology, West Lafayette, IN

4:00 046 Itchin' for Answers: *Pyemotes* Mites in the Midwest
Frederick P. Baxendale and James A. Kalisch, University of Nebraska, Department of Entomology, Lincoln, NE

4:25 047 New Label Directions for Use and Efficacy Data for Termidor Termiticide-Insecticide for Subterranean Termite and Perimeter Pest Control in the United States and Use Within the Principles of Integrated Pest
Robert W. Davis, BASF Specialty Products, Pflugerville, TX

4:50 048 Nuisance Ant Management - A Thrilling Story
Shripat T. Kamble, Timothy Husen, and Neil Spomer, University of Nebraska, Department of Entomology, Lincoln, NE

❖❖❖❖❖❖

Technology Transfer in the 21st Century: Challenges and Opportunities

Tuesday, March 25, 2008
1:15 PM – 5:00 PM
Garfield

Organizers:
Ayanava Majumdar
North Dakota State University
Extension Service
Finley, ND
and
Janet Knodel
North Dakota State University
Department of Entomology
Fargo, ND
and
Patrick Beauzay
North Dakota State University
Department of Entomology
Fargo, ND

Moderator:
Janet Knodel
North Dakota State University
Department of Entomology
Fargo, ND

1:15	049	Opening Remarks, Historical Perspectives of Technology Transfer **Janet Knodel**, North Dakota State University, Department of Entomology, Fargo, ND
1:45	050	Role of Extension Entomology in Technology Transfer **Kevin Steffey**, University of Illinois, Department of Crop Sciences, Urbana, IL
2:15	051	Grower Preference for Accessing Information: Results of an IPM Survey **Ayanava Majumdar**, North Dakota State University, Finley, ND

2:45	052	Electronic Resources in Extension Entomology **Patrick Beauzay**, North Dakota State University, Department of Entomology, Fargo, ND
3:15		**BREAK**
3:30	053	Role of Extension Entomology in Sustainable Agriculture **Rick Foster**, Purdue University, Department of Entomology, West Lafayette, IN
4:00	054	Role of Extension Entomology in Agroindustry **Mike Culy**, Dow Agroscienes LLC, Indianapolis, IN
4:30		Panel Discussion

❖❖❖❖❖❖

Student Competition Posters

Tuesday, March 25, 2008
D055 – D080
7:00 AM – 5:00 PM
authors present 4:00 PM – 5:00 PM
Harrison

B.S. Posters

Systematics, Evolution, and Biodiversity

D055 A Test of Parasitism Suitable for a Teaching Exercise
Lacey M. Keeten and W. Wyatt Hoback, University of Nebraska, Department of Biology, Kearney, NE

Plant-Insect Ecosystems

D056 Host Plant Selection Experiment Suggests a New Gall Wasp Species (Hymenoptera Cynipidae)
Tyler D. Sapp and Zhiwei Liu, Eastern Illinois University, Charleston, IL

D057 Ecological Effects of the Installation of an Underground Oil Pipeline on Millipede Communities in Hocking County, Ohio
Monica A. Farfan and David J. Horn, The Ohio State University, Columbus, OH

M.S. Posters

Systematics, Evolution, and Biodiversity

D058 A Biodiversity Study of Arctic Diptera: Muscidae and Fanniidae of Churchill (MB)
Anaïs Renaud, University of Manitoba, Entomology Department, Winnipeg, MB, Jade Savage, Bishop's University, Biological Sciences, Sherbrooke, QC, and Rob Roughley, University of Manitoba, Entomology Department, Winnipeg, MB

D059 Insect Survey in Giant Cane (*Arundinaria gigantea*) Stands of Southeast Missouri
M. Anthony Maupin and Diane L. Wood, Southeast Missouri State University, Biology Department, Cape Girardeau, MO

D060 Is Big Brown Bat Predation Further Endangering the American Burying Beetle?
Roger W. Yerdon, W. Wyatt Hoback, and Keith Geluso, University of Nebraska, Kearney, NE, and Patricia W. Freeman, University of Nebraska, School of Natural Resources, Lincoln, NE

D061 Population Status and Potential Threats to the Platte River Caddisfly (*Ironoquia plattensis*)
John R. Riens and W. Wyatt Hoback, University of Nebraska, Department of Biology, Kearney, NE

Integrative Physiological and Molecular Insect Systems

D062 Status of Pyrethroid Resistance in Indiana and Illinois populations of *Helicoverpa zea*
Alana L. Jacobson and Rick E. Foster, Purdue University, West Lafayette, IN

Plant-Insect Ecosystems

D063 Survival and Seasonal Phenology of the Soybean Aphid in Indiana
Diana Castillo and Robert J. O'Neil, Purdue University, Biological Control, West Lafayette, IN

D064 Effects of Current and Future Soybean Aphid Management
Nicholas A. Tinsley, Kevin L. Steffey, Ronald E. Estes, Joshua R. Heeren, and Michael E. Gray, University of Illinois, Department of Crop Sciences, Urbana, IL

D065 Are Soybean Aphids (Hemiptera: Aphididae) Resistant to Insecticides in Michigan?
Desmi I. Chandrasena and Christina D. DiFonzo, Michigan State University, Department of Entomology, East Lansing, MI

D066 Effect of Monsanto Corn Event 88017 and Adult Diet on Selected Western Corn Rootworm Life History Traits
Stephen T. Young and Lance J. Meinke, University of Nebraska, Lincoln, NE

D067 The Flight Characteristics, Soil Distribution, and Seasonal Occurrence of *Curculio sayi* (Coleoptera: Curculionidae)
Ian W. Keesey and Bruce A. Barrett, University of Missouri, Columbia, MO

D068 A Survey of Over Wintering Insects in Pitch Pine
Sarah M. Colvin, University of Kentucky, Lexington, KY

D069 Insemination Capacity of Male *Anopheles gambiae*
Adrea C. Rodriguez and Woodbridge A. Foster, The Ohio State University, Columbus, OH

Ph.D. Posters

Systematics, Evolution, and Biodiversity

D070 Living with Stress: Web Architecture in the Cave Spider *Meta ovalis* (Gertsch 1933)
Meghan A. Rector and J. Andrew Roberts, The Ohio State University, Newark, OH

D071 Mouthpart Morphology of Larval Net-Winged Midges (Blephariceridae): Intergeneric Comparisons and Phylogenetic Implications
Rebecca B. Brown and Gregory W. Courtney, Iowa State University, Ames, IA

D072 The Handsome Fungus Beetles (Coleoptera: Endomychidae) of Wisconsin
Michele B. Price, Theresa Cira, and Daniel K. Young, University of Wisconsin, Madison, WI

Integrative Physiological and Molecular Insect Systems

D073 Fitness Costs of Cry1Ab Resistance in Field-Derived Strain of European Corn Borer (Lepidoptera: Crambidae)
Andre B. Crespo and Terence A. Spencer, University of Nebraska, Lincoln, NE, Tederson L. Galvan, University of Minnesota, Saint Paul, MN, and Blair D. Siegfried, University of Nebraska, Lincoln, NE

Plant-Insect Ecosystems

D074 The Impact of *Beauveria bassiana*, Bt Spray, Spinosad and *Trichogramma* on the Lepidoptera (Crambidae)
Rostern N. Tembo and Daniel M. Pavuk, Bowling Green State University, Biological Sciences Department, Bowling Green, OH

D075 Hessian Fly Free Dates in Kansas: Is it Still Valid After 70+ Years
Erik Echegaray, Aqeel Ahmad, and Jeff Whitworth, Kansas State University, Manhattan, KS, Gary Cramer, Kansas State University, Wichita, KS, Phil Sloderbeck, and Ming-Shun Chen, Kansas State University, Manhattan, KS

D076 Utilizing Remote Sensing Images to Track Virus-Vector Spread in Wheat
Abby R. Stilwell, University of Nebraska, Lincoln, NE, Gary L. Hein, University of Nebraska, Scottsbluff, NE, and Don C. Rundquist, University of Nebraska, Lincoln, NE

D077 Interaction Among Planting Dates, Transgenic Corn and Seed Treatment on Corn Rootworm Damage and Corn Grain Yield
Motshwari Obopile and Ronald B. Hammond, The Ohio State University, Department of Entomology, Wooster, OH, and Peter R. Thomison, The Ohio State University, Department of Horticulture and Crop Science, Columbus, OH

D078 Time of Removal of Newly-Diseased Elm Trees May Reduce Transmission of Dutch Elm Disease Spores by *Hylurgopinus rufipes*
Sunday Oghiakhe and Neil J. Holliday, University of Manitoba, Winnipeg, Manitoba, Canada

Structural, Veterinary, and Public Health Systems

D079 DNA Genotyping for Distinguishing Colony and Intra-Specific Genetic Variation in Eastern Subterranean Termites
Timothy J. Husen, Shripat T. Kamble, and Julie M. Stone, University of Nebraska, Lincoln, NE

D080 Effects of Sugar Availability on the Mating Capability of *Anopheles gambiae*
Chris M. Stone, Robin M. Taylor, and Woodbridge A. Foster, The Ohio State University, Columbus, OH

❖❖❖❖❖❖

SCHEDULE

Wednesday, March 26, 2008

Registration
8:00 AM – 12:00 PM
1:30 PM – 5:00 PM
Hayes Foyer

Genetics and Genomics of Agronomic Pests: From Populations to Individuals to Genes
8:00 AM – 11:45 AM
Garfield

Emerging and Invasive Pests of Urban Landscapes
8:00 AM – 11:45 AM
McKinley

Advances in Fruit & Vegetable IPM
8:00 AM – 11:30 AM
Madison

Submitted Papers
9:00 AM – 11:00 AM
Harding

Awards Luncheon
12:00 PM – 1:15 PM
Hayes

Student Affairs Symposium: Walking the Entomological Line: Making the Transition from Student to Professional
1:30 PM – 5:00 PM
McKinley

Exploring Plant-Mediated Outcomes in Arthropod Biological Control
1:30 PM – 5:35 PM
Garfield

Submitted Papers
2:30 PM – 3:30 PM
Harding

Submitted Posters
D143 – D162
7:00 AM – 5:00 PM
authors present 3:00 PM – 4:00 PM
Harrison

Remove Posters
5:00 PM – 6:00 PM
Harrison

Linnaean Games Winners vs. "Old-Timers"
6:30 PM – 7:00 PM
Hayes

Reception
6:30 PM – 8:30 PM
Hayes

❖❖❖❖❖❖

PROGRAM

Wednesday, March 26, 2008

Genetics and Genomics of Agronomic Pests: From Populations to Individuals to Genes

Wednesday, March 26, 2008
8:00 AM – 11:45 AM
Garfield

Organizerand Moderator:
Andy Michel
The Ohio State University
Department of Entomology
Wooster, OH

8:10	081	Introduction. **Andy Michel**, The Ohio State University, Department of Entomology, Wooster, OH
8:15	082	Development of Genomic Tools to Study European Corn Borer (*Ostrinia nubilalis*) **Brad Coates**, USDA-ARS, Ames, IA
8:45	083	Analysis and Annotation of Gut-Specific Transcriptomes from the European Corn Borer (*Ostrinia nubilalis* Hubner) **Chitvan Khajuria**, Kansas State University, Department of Entomology, Manhattan, KS
9:15	084	Candidate Markers for Rotation Resistance in the Western Corn Rootworm **Lisa M. Knolhoff**, University of Illinois, Department of Entomology, Urbana, IL, Kimberly K. O. Walden, Susan T. Ratcliffe, David W. Onstad, and Hugh M. Robertson, University of Illinois, Urbana, IL
9:45		**BREAK**

10:00 085 E Chromosomes in the Hessian Fly (*Mayetiola destructor*)
Brandi J. Schemerhorn, USDA-ARS, West Lafayette, IN

10:30 086 Southeastern U.S. Populations of Hessian Fly, a Lesson in Genetic Variation
Phillip K. Morton, Purdue University, Department of Entomology, West Lafayette, IN

11:15 087 Genetic Variation and Range Expansion of Western Bean Cutworm
Nicholas Miller, USDA-ARS, Ames, IA

❖❖❖❖❖❖

Emerging and Invasive Pests of Urban Landscapes

Wednesday, March 26, 2008
8:15 AM – 11:45 AM
McKinley

Organizers and Moderators:
Christopher Ranger
USDA-ARS
Horticultural Insects Research Lab
Wooster, OH
and
Dave Shetlar
The Ohio State University
Department of Entomology
Columbus, OH

8:00 088 Introduction
Dave Shetlar, The Ohio State University, Department of Entomology, Columbus, OH

8:05 089 Activity of Subcortical Insects in Northeastern Ohio Nurseries
Kamal Ghandi, The Ohio State University, Department of Entomology, Wooster, OH, Michael E. Reding and Christopher M. Ranger, USDA-ARS, Horticultural Insects Research Lab, Wooster, OH, Danielle M. Lightle, Bryson J. Mosley, David G. Nielsen, and Dan Herms, The Ohio State University, Department of Entomology, Wooster, OH

8:25 090 Research on Exotic Scarabs in Ornamental Nurseries in Ohio
Michael E. Reding, USDA-ARS, Horticultural Insects Research Lab, Wooster, OH

8:45 091 Distribution, Horticultural Impacts and Biocontrol of the Japanese Beetle in Kansas
Bill Hilbert, Kansas Department of Agriculture, Plant Protection and Weed Control Program, Topeka, KS

9:05 092 Lure & Kill: A Novel Approach to Controlling Japanese Beetles
Elizabeth E. Morris and Parwinder S. Grewal, The Ohio State University, Wooster, OH

9:25 093 Developing Management Tools for the Emerald Ash Borer: Trapping and Detection, Insecticides, and Biological Control
Therese M. Poland, USDA Forest Service, East Lansing, MI, Deborah G. McCullough, Michigan State University, Department of Entomology and Department of Forestry, East Lansing, MI, and Leah S. Bauer, USDA Forest Service, East Lansing, MI

9:45		**BREAK**
10:00	094	European Crane Flies: Status and Impact of Two Invasive Species on Northeast Turf **Dan Olmstead** and Dan Peck, Cornell University, Department of Entomology, Geneva, NY
10:20	095	The Rise and Fall of Mimosa Webworms **Dave Shetlar**, The Ohio State University, Department of Entomology, Columbus, OH
10:40	096	Comparison of Bagworm (Lepidoptera: Psychidae) Management on Evergreen and Deciduous Plant Hosts **Anand B. Persad**, Bal Rao, Greg Mazur, Brian Jeffers, John Siefer, and Holli Stebner, The Davey Institute, Kent, OH
11:00	097	Viburnum Leaf Beetle: The Ins and Outs of a Nasty New Landscape Pest **Paul Weston**, Cornell University, Department of Entomology, Ithaca, NY
11:20	098	Sustainable Management of Soft Scale Outbreaks: Host Plant Resistance and Ant-Exclusion **Sarah Mack** and Daniel A. Potter, University of Kentucky, Department of Entomology, Lexington, KY

❖❖❖❖❖❖

Advances in Fruit & Vegetable IPM

Wednesday, March 26, 2008
8:00 AM – 11:30 AM
Madison

Organizers and Moderators:
Dave Epstein
Michigan State University
Department of Entomology
East Lansing, MI
and
Jim Jasinki
The Ohio State University
Integrated Pest Management Program
Urbana, OH

8:00	099	Influence of Methoxyfenozide on the Reproductive Behavior of Adult Tortricid Apple Pests **Bruce Barrett**, University of Missouri, Department of Plant Sciences, Columbia, MO
8:25	100	Whole Farm Pheromone Mating Disruption for Control of Tortricid Moths in Tree Fruit **David Epstein**, Michigan State University, Department of Entomology, East Lansing, MI
8:50	101	Specialty Crop Reregistration Woes: Are IPM-based Functional Ecology Measures an Answer to Environmental "Incident Reports"? **Mark Whalon**, Michigan State University, Department of Entomology, East Lansing, MI
9:15	102	IPM in a Polyculture System Designed for the Urban Farmer **Joe Kovach**, Ohio State University, IPM Program, Wooster, OH

9:40 **BREAK**

9:55 103 *Trichogramma ostrinae* for European Corn Borer Control in Bell Peppers
Ric Bessin and Katie Russell, University of Kentucky, Lexington, KY, and Karen Friley, Kentucky State University, Frankfurt, KY

10:20 104 New Tools for Corn Earworm Migration Forecasts, Mapping, and IPM in Sweet Corn: Expanding the Extension-Private Sector Network
Bill Hutchison, University of Minnesota, St. Paul, MN, Shelby Fleischer, Penn State University, , Eric Burkness, University of Minnesota, Mike Sandstrom and Dave Changnon, Northern Illinois University, Rick Weinzierl, University of Illinois, Rick Foster, Purdue University, Bryan Jensen, University of Wisconsin, Celeste Welty and Jim Jasinski, The Ohio State University, Beth Bishop, Michigan State University, Roger Leonard and Joshua Temple, Louisiana State University, Greg Payne, State University of West Georgia, Len Dobbins, FMC Corp., Brian Flood, Del Monte Corp., and Tom Rabaey, General Mills

10:45 105 The Evolving Dynamics of Virus/Vector Ecology in Relation to Seed Potato Production
Edward B. Radcliffe, University of Minnesota, Department of Entomology, St. Paul, MN, Jeffrey A. Davis, Louisiana State University, Department of Entomology, Baton Rouge, LA, and Matthew W. Carroll, U.S. EPA, Cincinnati, OH

11:10 106 Sources of Non-Persistent Viruses in Snap Bean Production in Wisconsin
R. L. Groves, University of Wisconsin, Department of Entomology, Madison, WI, S. H. Nouri, University of Wisconsin, Department of Plant Pathology, Madison, WI, and T. L. German, University of Wisconsin, Department of Entomology, Madison, WI

Submitted Papers

Wednesday, March 26, 2008
9:00 AM – 11:00 AM
Harding

Moderators:
Evan Lampert
University of Colorado
Department of Ecology and Evolutionary Biology
Boulder, CO
and
Ian McRae
University of Minnesota
Department of Entomology
St. Paul, MN

9:00 107 Something Suspended - Out of Place: The Artematopodidae of Eastern North America (Insecta: Coleoptera).
Daniel K. Young, University of Wisconsin, Madison, WI

9:12 108 A Fossil Braconid from the Green River Formation (Eocene)
Ray Fisher and Michael J. Sharkey, University of Kentucky, Lexington, KY

9:24	109	Plant Species Alters Quality of a Generalist Herbivore as a Host for a Polyembryonic Parasitoid **Evan Lampert** and Deane Bowers, Department of Ecology and Evolutionary Biology, University of Colorado, Boulder, CO
9:36	110	Site Specific Management Resulting in Conservation of Natural Enemies **Ian V. MacRae**, University of Minnesota, UMN-NWROC, Crookston, MN, Edward B. Radcliffe and David W. Ragsdale, University of Minnesota, St. Paul, MN
9:48	111	Baseline Susceptibility of Oriental Fruit Moth Larvae to Chlorantraniliprole (Rynaxypyr) and other Reduced-Risk Insecticides **Moneen M. Jones** and Richard Weinzierl, University of Illinois, Department of Crop Sciences, Urbana, IL
10:00	112	*Bacillus thuringiensis*: Potential for Management of Emerald Ash Borer **Diana K. Londoño**, Michigan State University, East Lansing, MI, and Leah S. Bauer, USDA Forest Service, North Central Research Station, East Lansing, MI
10:12	113	Structure of Bean Extrafloral Nectaries and their Insect Visitors **Mark E. Headings**, The Ohio State University, Wooster, OH, and Leslie Morris, USDA-ARS, OARDC, Wooster, OH
10:24	114	Terrestrial Invertebrate Casualties in Monsoon Flash Floods in the Southwestern United States **Grant D. De Jong** and Steven P. Canton, GEI Consultants, Inc., Littleton, CO

10:36 115 The Effects of Dietary Nitrogen on Symbiotic Nitrogen Fixation in the Eastern Subterranean Termite, *Reticulitermes flavipes*
Megan E. Meuti, Susan C. Jones, and Peter S. Curtis, The Ohio State University, Columbus, OH

❖❖❖❖❖❖

Student Affairs Symposium: Walking the Entomological Line: Making the Transition from Student to Professional

Wednesday, March 26, 2008
1:30 PM - 5:00 PM
McKinley

Organizers and Moderators:
Laura Campbell, University of Nebraska Lincoln
David Coyle, University of Wisconsin
Ted Galvan, University of Minnesota
Alana Jacobson, Purdue University
Glené Mynhardt, The Ohio State University
Ann M. Ray, University of Illinois at Urbana-Champaign
Neil Spomer, University of Nebraska-Lincoln

1:30 116 Introduction.
Neil Spomer, University of Nebraska, Lincoln, NE

1:35 117 Opportunities in the Urban Pest Management Industry for Entomology Students
Kathy Heinsohn, National Pest Mangagement Association, Fairfax, VA

1:55 118 From Bug School to the Office: Leveraging Entomological Talent in the Private Sector
Mike Culy, Dow Agroscienes LLC, Indianapolis, IN

2:15	119	Science Positions - The Nature Conservancy **John Shuey**, Nature Conservancy, Indianapolis, IN
2:35	120	I Want to be an Entomologist When I Grow Up **Therese Poland**, United States Forest Service NRS, East Lansing, MI
2:55	121	Crossing Over: How to Get and Keep a Job in the Federal Sector **Ernest Delfosse**, USDA-ARS-National Program Staff, Beltsville, MD
3:15		**BREAK**
3:30	122	Preparing for an Academic Job: From Graduate Student to Assistant Professor **Matthew Ginzel**, Purdue University, Department of Entomology, West Lafayette, IN
3:50	123	Teaching at a Liberal Arts College: Another Option for Your Entomology Degree **Chris Stanton**, Baldwin-Wallace College, Berea, Ohio
4:10	124	Forging the Extension Link **Lee Townsend**, University of Kentucky, Lexington, KY
4:30	125	If I Only Knew Then What I Know Now: An Applied Entomologist on the Tenure Track **Matthew O'Neal**, Iowa State University, Department of Entomology, Ames, IA
4:50		Discussion

Exploring Plant-Mediated Outcomes in Arthropod Biological Control

Wednesday, March 26, 2008
1:30 PM - 5:35 PM
Garfield

Organizers and Moderators:
J.P. Michaud
Kansas State University
Agricultural Research Center - Hays
Hays, KS
and
Daniel Pavuk
Bowling Green State University
Department of Biological Sciences
Bowling Green, OH

This NCERA-125 Biological Control Symposium is dedicated to the memory of Dr. Robert J. O'Neil and all of his contributions to the area of biological control in the North Central Region. Bob was an enthusiastic researcher and provided many papers and great directions for research on biological control of field crop arthropod pests. His most recent projects provided additional inspiration to us in our battles against invasive pest species. Bob will be missed, but he will always be remembered as a valued colleague and staunch supporter of biological control research and its applications.

1:30	126	Introduction **J.P. Michaud**, Kansas State University, Agricultural Research Center-Hays, Hays, KS
1:35	127	Use of Crop Data Layer Information for Exploring Landscape-Mediated Outcomes in Arthropod Biological Control **Mike Brewer**, Michigan State University, IPM Program, East Lansing, MI

2:00	128	Potential Application of Entomopathogens in Resistance Management for Bt Crops **Aaron J. Gassmann**, Iowa State University, Department of Entomology, Ames, IA, Patricia Stock, University of Arizona, Department of Entomology, Tucson, AZ, Mark S. Sisterson, USDA, Parlier, CA, Yves Carrière, and Bruce E. Tabashnik, University of Arizona, Department of Entomology, Tucson, AZ
2:25	129	Rye Cover Crops in Soybeans Aid in Soybean Aphid Suppression **Z. Sezen**, University of Minnesota, Department of Entomology, St. Paul, MN, R. L. Koch, Minnesota Department of Agriculture, St. Paul, MN, George E. Heimpel, P. Porter, B. Potter, David Ragsdale, and K. Koch, University of Minnesota, St. Paul, MN
2:50	130	Sunflower as a Resource for Beneficial Insects on the High Plains **J. P. Michaud**, Kansas State University, Agricultural Research Center, Hays, KS
3:15	131	Plant-Mediated Interactions Among Arthropods in Weed Biological Control **Jim Nechols**, Kansas State University, Department of Entomology, Manhattan, KS
3:40		**BREAK**
3:55	132	Interactions Among Natural Enemies, Aphids, and Resistant Plants **John J. Obrycki**, University of Kentucky, Department of Entomology, Lexington, KY

4:20 133 Prairies as a Source for Soybean Aphid (*Aphis glycines*) Predators
Wayne Ohnesorg, Iowa State University, Department of Entomology, Ames, IA

4:45 134 Influences of Noncrop Vegetation Adjacent to Row Crop Agroecosystems on Natural Enemy Communities
Daniel M. Pavuk, Bowling Green State University, Department of Biological Sciences, Bowling Green, OH

5:10 135 Multitrophic Interactions Between Bagworms and Their Natural Enemies on Host Plants of Variable Quality
Marc Rhainds, Purdue University, Department of Entomology, West Lafayette, IN

❖❖❖❖❖❖

Submitted Papers

Wednesday, March 26, 2008
2:30 - 4:00 pm
Harding

Moderators:
Joshua Heeren
and
Nicholas Tinsley
University of Illinois
Department of Crop Sciences
Urbana, IL

2:30 136 Comparison of Adult Corn Rootworm Trapping Methodologies
Paul A. Neese, Randy M. Huckaba, Bruce E. Maddy, Samuel M. Ferguson, Michael D. Culy, Dow AgroSciences LLC, Indianapolis, IN, and Christian Krupke, Purdue University, Department of Entomology, West Lafayette, IN

2:45 137 Genetic Mapping of Traits Impacting the Control of Lepidoptera Pests of Corn: Where are the Bt-Resistance Genes?
Douglas V. Sumerford, Brad Coates and Leslie C. Lewis, USDA-ARS, Ames, IA

2:57 138 Field Trial Performance of SmartStaxTM Against Western Corn Rootworm and Above-Ground Insect Pests
Bruce E. Maddy, Paul A. Neese, Randy M. Huckaba, Melissa W. Siebert, David C. Ruen, Samuel M. Ferguson, and Michael D. Culy, Dow AgroSciences LLC, Indianapolis, IN

3:09 139 Lepidopteran Control with Bt11 x MIR162 Field Corn
Ryan Kurtz, Syngenta Biotechnology, Inc., Research Triangle Park, NC, Von Kaster, Syngenta Seeds, Slater, IA, Wayne Fithian, Jeff Krumm, and **Rick Smelser**, Syngenta Seeds, Waterloo, NE

3:21 140 Optimum® AcreMax™ Systems: Taking "Management" Out of Refuge Management
Paula M. Davis and William A. Belzer, Pioneer, Johnston, IA

3:33 141 Optimum® AcreMax™ 1 Insect Protection: Unique Trait Characteristics Compatible with Seed-Blended Refuge
Steve Lefko, Pioneer, Wilmington, DE, Rachel Binning, Tim Nowatzki, and Steve Thompson, Pioneer, Johnston, IA

3:45 142 Optimum® AcreMax™ 1 Insect Protection: Field Measures of Adult Corn Rootworm Production from Seed Blends
Timothy Nowatzki, Steve Thompson, and Mel Peters, Pioneer, Johnston, IA

❖❖❖❖❖❖

Submitted Posters

D143 – D162
7:00 AM – 5:00 PM
authors present 3:00 PM – 4:00 PM
Harrison

Systematics, Evolution, and Biodiversity

D143 Genetic Analyses of the *Melanoplus packardii* Group (Orthoptera: Acrididae) in the Great Plains
Erica J. Lindroth and Mathew L. Brust, University of Nebraska, Lincoln, NE, W. Wyatt Hoback, University of Nebraska, Kearney, NE, Robert J. Wright, Thomas E. Hunt, and John E. Foster, University of Nebraska

D144 Burying Beetles Prefer Moist Soil During Periods of Inactivity
W. Wyatt Hoback and Rachel M. Anschutz, University of Nebraska, Department of Biology, Kearney, NE

D145 Effects of Pitfall Trap Preservative on Collections of Forest Ground Beetles (Coleoptera: Carabidae)
Kenneth W. McCravy, Western Illinois University, Department of Biological Sciences, Macomb, IL, and Jason E. Willand, U. S. Geological Survey, Henderson, NV

D146 Rediscovery of the Nine-spotted Lady Beetle, *Coccinella novemnotata* Herbst in Western Nebraska
Mathew L. Brust and William W. Hoback, University of Nebraska, Kearney, NE

Plant-Insect Ecosystems

D147 Grower Perception and Practice of Integrated Pest Management (IPM)
Ayanava Majumdar, North Dakota State University, Finley, ND, Al Ulmer, Jeremiah Lien, Lesley Lubenow, Lionel Olson, Mike Rose,, and Nels Peterson, North Dakota State University

D148 Abundance of Minute Pirate Bug (Heteroptera: Anthocoridae) in Insecticide-Treated Soybeans
Bradley L. McManus, Billy W. Fuller, and Kelley J. Tilmon, South Dakota State University, Brookings, SD

D149 The Soybean Aphid Economic Threshold is Revised in South Dakota
Kelley J. Tilmon and Billy W. Fuller, South Dakota State University, Brookings, SD, and Martin W. Draper, USDA-CSREES, Washington, DC

D150 Field Testing of Experimental Soybean Lines and Insecticidal Seed Treatments to Control Soybean Aphid
Ronald E. Estes, Nicholas A. Tinsley, Kevin L. Steffey, Joshua R. Heeren, and Michael E. Gray, University of Illinois, Department of Crop Sciences, Urbana, IL

D151 Differential Responses of Chinch Bugs to Neonicotinyl Insecticides
Mitchell D. Stamm, Frederick P. Baxendale, and Tiffany M. Heng-Moss, University of Nebraska, Lincoln, NE

D152 DuPont Rynaxypyr™ Insecticide; Biological Attributes of a Novel Anthranilic Diamide Insecticide
Paula G. Marcon, DuPont Crop Protection, Newark, DE, Dan W. Sherrod, DuPont Crop Protection, Memphis, TN, Marsha Martin, DuPont Crop Protection, Columbus, OH, and **Mick Holm,** DuPont Crop Protection, Waunakee, WI

D153 Agronomic Performance of Multiple-Stacked Insect Protection Traits in Corn
Ed King, Dow AgroSciences, Indianapolis, IN, Paul Neese, Dow AgroSciences, Brownsburg, IN, Mike Culy, Dow AgroSciences, Indianapolis, IN, and Jim Bing, Dow AgroSciences, Huxley, IA

D154 Corn Earworm and Southwestern Corn Borer Efficacy of New Stacked Event Corn Hybrids in 2007
Larry Buschman, Kansas State University, Department of Entomology, Garden City, KS, Holly Davis, Kansas State University, Department of Entomology, Manhattan, KS, and Phil Sloderbeck, Kansas State University, Department of Entomology, Garden City, KS

D155 Optimum® AcreMax™ 1 Insect Protection: Field Performance of Seed Blends for Rootworm Resistance Management
Murdick J. McLeod, Pioneer, Windfall, IN, Steve Paszkiewicz, Pioneer, Johnston, IA, Paul Gaspar, Pioneer, Mankato, MN, Tom Doerge, Pioneer, Johnston, IA, Jim Trybom, Pioneer, Ivesdale, IL, Chad Brewer, Pioneer, Proctor, AR, and Jeremy Groeteke, Pioneer, York, NE

D156 Validation of a Novel Resistance Monitoring Technique for Corn Rootworm (Coleoptera: Chyrsomelidae) and Event DAS-59122-7 Maize
Rachel Binning and Tim Nowatzki, Pioneer, Johnston, IA, Steve Lefko, Pioneer, Wilmington, DE, Steve Thompson, Pioneer, Johnston, IA, and Terence Spencer, and Blair Siegfried, University of Nebraska, Lincoln, NE

D157 Western Corn Rootworm Beetle Populations in Transgenic Corn
A. Michael Roberts, Amanda Rettele, and Jeff Whitworth, Kansas State University, Department of Entomology, Manhattan, KS

D158 Toxicity of Botanical Formulations to Nursery-Infesting White Grubs (Coleoptera: Scarabaeidae)
Christopher M. Ranger and Michael E. Reding, USDA-ARS, Horticultural Insects Research Lab, Wooster, OH, Jason B. Oliver, Tennessee State University, James J. Moyseenko, USDA-ARS, Wooster, OH, and Nadeer N. Youssef, Tennessee State University

D159 Making Entomological Greeting Cards
Joseph L. Spencer, Illinois Natural History Survey, Center for Ecological Entomology, Champaign, IL

D160 Behavioral Responses of *Tribolium castaneum* (Coleoptera: Tenebrionidae) to Patch Boundaries: Role of Perceptual Range
Susan A. Romero, Kansas State University, Department of Entomology, Manhattan, KS, James F. Campbell, USDA/ARS Grain Marketing and Production Research Center, Manhattan, KS, James R. Nechols, Kansas State University, Department of Entomology, Manhattan, KS, and Kimberly A. With, Kansas State University, Division of Biology, Manhattan, KS

Structural, Veterinary, and Public Health Systems

D161 Size Matters: Factors Affecting Pinworm Parasitism in the Australian Cockroach
Krista L. Winters, Shawn A. Meagher, and Kenneth W. McCravy, Western Illinois University, Department of Biological Sciences, Macomb, IL

D162 Infection and Co-infection Rates of Four Microbes in *Ixodes scapularis* from IN, ME, PA, and WI
Fresia E. Steiner and Robert R. Pinger, Ball State University, Physiology and Health Science, Muncie, IN, Carolyn N. Vann, Ball State University, Department of Biology, Muncie, IN, Nate Grindle, David Civitello, Keith Clay, and Clay Fuqua, Indiana University, Department of Biology, Bloomington, IN

SCHEDULE

Thursday, March 27, 2008

Business Meeting
8:00 AM – 9:00 AM
Garfield

Registration
8:00 AM – 10:30 AM
Hayes Foyer

Changing Face of Field Crop Insect Management
9:00 AM – 12:15 AM
Garfield

Citizen Science in the Study of Insect Biodiversity
9:00 AM – 12:15 PM
Harding

Executive Committee Meeting
1:00 PM – 4:00 PM
Garfield

❖❖❖❖❖❖

PROGRAM

Thursday, March 27, 2008

Changing Face of Field Crop Insect Management

Thursday, March 27, 2008
9:00 AM – 12:15 PM
Garfield

Moderators:
Matt O'Neal
Iowa State University
Department of Entomology
Ames, IA
and
Matthew Carroll
U.S. Environmental Protection Agency
Cincinnati, OH

9:00	163	Welcome
9:05	164	Learning to Manage the Soybean Aphid: Assessing Biological Control and Establishing Economic Thresholds **David W. Ragsdale**, University of Minnesota, Department of Entomology, St. Paul, MN
9:30	164	The Rise and Fall of Lepidopteran Pests of Corn: Perspectives on the European Corn Borer and Western Bean Cutworm in a Bt World **Marlin E. Rice**, Iowa State University, Department of Entomology, Ames, IA
9:55	166	Western Corn Rootworm Resistance Management: From Insecticides to Rootworm-Protected Traits **Lance J. Meinke**, University of Nebraska, Department of Entomology, Lincoln, NE

10:20 167 This is Not Your Father's Corn Rootworm Beetle
Joseph L. Spencer, Illinois Natural History Survey, Center for Ecological Entomology, Champaign, IL

10:45 **BREAK**

11:00 168 Nonindigenous Plants and Insects: Interrelated Challenges in Managed Systems
Robert G. Ahern and Douglas A. Landis, Michigan State University, Department of Entomology, East Lansing, MI, Doug W. Schemske, Michigan State University, Department of Plant Biology, East Lansing, MI

11:25 169 Use of Spectral Vegetation Indices for Detection of European Corn Borer Infestation in Iowa Corn Plots
Matthew W. Carroll, Oak Ridge Institute for Science and Education, U.S. Environmental Protection Agency, Cincinnati, OH, John A. Glaser, U.S. EPA, Cincinnati, OH, Richard L. Hellmich, USDA–ARS, Ames, IA, Thomas E. Hunt, University of Nebraska, Concord, NE, Dennis Calvin, The Pennsylvania State University, University Park, PA, Thomas W. Sappington, USDA–ARS, Ames, IA, Ken Copenhaver and John Fridgen, Institute for Technology Development, Savoy, IL

11:50 170 Resistance Management Research for PIP Crops
John A. Glaser, US Environmental Protection Agency, Cincinnati, OH

Citizen Science in the Study of Insect Biodiversity

Thursday, March 27, 2008
9:00 AM – 12:15 PM
Harding

Organizers and Moderators:
David Horn
The Ohio State University
Department of Entomology
Columbus, OH
and
Barb Bloetscher
The Ohio State University
C. Wayne Ellet Plant and Pest Diagnostic Clinic
Columbus, OH

9:00	173	Welcome **Barb Bloetscher**, The Ohio State University, C. Wayne Ellet Plant and Pest Diagnostic Clinic, Columbus, OH
9:05	172	Encouraging Effective Citizen Science: an Example of a Success Story from the Ohio Longterm Butterfly Monitoring Program **Joe Keiper**, Cleveland Museum of Natural History, Department of Invertebrate Zoology, Cleveland, OH
9:30	173	The Impact of Citizen Science on Ornithology in Ohio **Aaron Boone**, The Ohio State University, School of Environment and Natural Resources, Columbus, OH
9:55	174	Is There a Middle Ground on Spiders? The Ohio Spider Survey 14 Years On **Richard Bradley**, The Ohio State University, Department of Evolution, Ecology, and Organismal Biology, Marion, OH

10:20		**BREAK**
10:35	175	Beespotter: a Web-based Partnership Between Professional and Citizen-Scientists to Census and Appreciate Pollinators **Liz Graham**, University of Illinois, Department of Entomology, Urbana, IL
11:00	176	Dragonflies and Citizen Science **Robert Glotzhober**, The Ohio Historical Society, Columbus, OH
11:25	177	Using the Insectary as a Means of Public Outreach and Engagement at The Ohio State University **George Keeney**, The Ohio State University, Department of Entomology, Columbus, OH
11:50		Summary **Dave Horn**, The Ohio State University, Department of Entomology, Columbus, OH

❖❖❖❖❖❖

Author Index

D

E

F

M

N

O

P

R

Taxonomic Index

Keyword Index

D

E

F

N

0

P

Q

R

S

T

U

V

W

NCB-ESA Meeting, March 15-18, 2009

St. Louis, Missouri

Next year's North Central Branch meeting will be held in downtown St. Louis (hotel information will be forthcoming), March 15-18, 2009. These dates were selected to avoid conflict with the IPM Symposium being held in Portland, Oregon, the following week. Please plan on joining us next year in the "Gateway City."

Steve Yaninek
NCB President-Elect