

# Bugged

FROM  
MSU DEPARTMENT  
OF ENTOMOLOGY

Spring 2014



Image: Dave Cappaert, MSU

## FROM THE CHAIR

While a few snow piles still linger, there are unmistakable signs that spring has finally arrived on the MSU campus. The undergraduates are wearing shorts and sandals anytime it gets above 40 degrees, and graduate students are scrambling to complete classes and spring committee meetings or defenses. Many of us are wishing for just a few more days of cool weather to allow us to fully prepare for the upcoming field season. Other exciting changes are occurring as well.

I am very pleased to announce that **Dr. F. William Ravlin** has been named the new chairperson of the MSU Department of Entomology! Bill is no stranger to the MSU campus having earned his B.S., M.S. and Ph.D degrees in Entomology from our department. Bill is currently the associate director of The Ohio State University, Ohio Agricultural Research and Development Center (OARDC) where he has led efforts to expand funding opportunities for faculty and enhance interdisciplinary research teams. Please join me in welcoming Bill who will start his MSU duties on Aug. 1, 2014.



Bill Ravlin

In January we also welcomed the arrival of two assistant professors to the Department, Drs. Jared Ali and M. Eric Benbow. In addition, Dr. Peter White will be joining the Department in August. These individuals each bring exciting new programs and skill sets that will greatly enhance our research, teaching and outreach efforts (see profiles on next page).

The Department is in the process of honoring **Dr. Gordon E. Guyer's** remarkable career by remodeling and naming the Department's seminar room in his honor. Plans are for the renovation to occur this summer and we anticipate a fall grand opening celebration. This modernization project will benefit students, staff and faculty alike. Thanks to many of you, our fundraising campaign was highly successful and we exceeded our initial \$80,000 goal. Cost estimates have increased a bit so we are still accepting donations. Funds that exceed the renovation cost will be added to an endowment fund to provide support for Entomology graduate students in perpetuity.

Finally, as interim chairperson, it has been my pleasure to get to know the Department in more depth. As you will see in this issue of *Bugged*, our faculty and students continue to excel in many ways - winning awards, publishing high profile papers, leading interdisciplinary teams, and sharing our excitement and knowledge about insects locally and globally. - **Doug Landis, professor and interim chair.**

## RESEARCH & PROJECTS

**Zachary Huang** and a team of scientists from MSU and Wayne State University have identified how a single gene in honey bees separates the queens from the workers. "This gene is critical in making the hind legs of workers distinct so they have the physical features necessary to carry pollen," said Huang. "Other studies have shed some light on this gene's role in this realm, but our team examined in great detail how the modifications take place." Read more at MSU Today ([msutoday.msu.edu](http://msutoday.msu.edu)).

**Eric Benbow** has been awarded a **National Science Foundation grant to test how riparian plant invasion influences aquatic ecosystems.** In collaboration with University of Dayton's Ryan McEwan, Benbow was awarded a

## NEW FACULTY PROFILES

**Jared Ali** (nematology and chemical ecology) comes to us most recently from Cornell University where he was a post-doc with Dr. Anurag Agrawal. Jared's research focus is on the behavior and chemical ecology of multi-trophic interactions. This includes plant responses to belowground herbivory, nematode and insect community ecology, chemical ecology and coevolution. His research projects include trophic cascades, above-belowground interactions, chemotaxis of soil nematodes, and the evolution of plant defense strategies. Jared's position is funded by the MSU College of Agriculture and Natural Resources and MSU AgBioResearch.

**Mark Eric Benbow** (aquatic systems ecology) was previously at the University of Dayton where he was an assistant professor of biology from 2008-13. Eric's research uses ecological theory to explore interactions between entire microbial communities and individual insects, populations or entire communities of insects. His lab is combining

insect community and ecosystem ecology with next-generation high throughput sequencing technologies to better understand the insect microbiome and how this community of microbes mediates insect fitness and community dynamics. By harnessing a deeper understanding of this traditional "black box" of insect ecology, Eric's lab is uncovering new insights into aquatic and semi-aquatic insect population biology and community ecology that has substantial ecosystem level effects important to disease ecology theory and human and environmental health. Eric's position is funded by the MSU College of Agriculture and Natural Resources and the MSU College of Osteopathic Medicine.

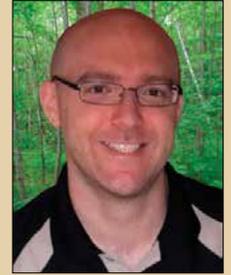
**Peter White** (Lepidoptera ecology and evolution education) comes to us from Michigan State University where he was a post-doc with Dr. Jim Smith.



J. Ali



E. Benbow



P. White

Peter's research blends GIS applications with traditional insect ecology as he investigates the biotic and abiotic drivers of Lepidoptera assemblage dynamics over moderate temporal and spatial scales. By exploring how species move across urban landscapes, his research is focused on how urbanization is impacting the richness, diversity and abundance of remnant habitat insect species. Peter is also invested in science education research where he is developing, implementing and testing new ways to teach evolution in higher education. Peter's position is funded by MSU's Lyman Briggs College and the College of Natural Science.

three-year, half-million dollar grant for the support of the project "A mechanistic framework for bottom-up biodiversity effects: riparian forest invasion impacts on headwater stream microbial and macroinvertebrate communities." This project tests a conceptually unique, but widely applicable, framework for how riparian plant invasion influences aquatic systems. The researchers hypothesize that riparian invasion by Amur honeysuckle (*Lonicera maackii*) results in alterations of terrestrial-aquatic subsidies that results in bottom-up species sorting in microbial communities and alters life history traits and the

community structure of aquatic macroinvertebrates. Research within this system will contribute to basic understanding of how terrestrial and aquatic systems are ecologically connected.

**Brett Blaauw, former doctoral student of Rufus Isaacs, published some of his Ph.D. research in the Journal of Applied Ecology.** Blaauw's paper, titled "Flower plantings increase wild bee abundance and the pollination services provided to a pollination-dependent crop," is one of the first to test the hypothesis that enhancing wild bee populations with wildflowers leads to changes

in crop yield. His research showed significant yield increases in the Michigan blueberry fields where he worked after three seasons of the wildflowers establishing, and the value of this increase was sufficient to pay for the initial cost of the plantings after four years. Linking biology, horticulture and economics, this study helps inform the discussion about the benefits of habitat enhancement for pollinators in agricultural systems. Brett is currently a post-doctoral researcher at Rutgers University working with Anne Nielsen.

**Anthony Cognato** and **Jiri Hulcr**, a former doctoral student, recently

published **“Xyleborini of New Guinea, a Taxonomic Monograph (Coleoptera: Curculionidae: Scolytinae).”** The book is a comprehensive revision of the genera and species of Xyleborini recorded from New Guinea and neighboring islands. New species, genera and combinations are made, and 59 species are synonymized. Because all of the genera and many species that occur in New Guinea also occur throughout the Eastern Palearctic region, the presented reclassification of the Xyleborini is applicable to a larger geographical scale. The hardcover, 176-page book can be ordered from the [Entomological Society of America’s Bookstore](#). Hulcr is an assistant professor in Forest Resources and Conservation at the University of Florida.

**A researcher team reported on benefits of alternative biofuel crops in a recent issue of the Proceedings for the National Academy of Sciences.** When it comes to biofuels, corn leads the all-important category of biomass yield. However, focusing solely on yield comes at a high price. Several MSU entomologists are part of the team showing that perennial grass biomass crops increase biodiversity and multiple ecosystem services including pollination and pest suppression. Doug Landis, one of the paper’s

lead authors, reports the team’s findings have major implications for bioenergy research and policy. “Biomass yield is obviously a key goal, but it appears to come at the expense of many other environmental benefits that society may desire from rural landscapes.” Other MSU entomology contributors include Ben Werling, Rufus Isaacs and Julianna Wilson. Read more at MSU Today.

## PEOPLE

**Matt Grieshop** was appointed faculty coordinator of the Clarksville Research Center beginning April 1, 2014. The Center’s research focuses on small and tree fruits, wheat and weed control in a variety of crops.

**Walt Pett** has a new appointment as apiculture and pollination Extension specialist for MSU. This strengthens the Department’s current focus on honey bee health and physiology ([Zachary Huang](#)) and native pollinators ([Rufus Isaacs](#)). Since 2008, Pett has taught undergraduate courses, including the popular course in apiculture and pollination, and he will continue to combine undergraduate teaching with his apiculture Extension program.

**David Mota-Sanchez** has been selected as an Embassy

Science fellow by the U.S. State Department and USDA FSA. The Embassy Science Fellows Program offers U.S. Embassies an opportunity to host a working scientist for one to three months. Mota-Sanchez will be working in Mexico with stakeholders to help increase awareness and an understanding about GE crops and provide a scientific basis that illustrates the economic benefits and social importance for the production of such crops in Mexico.

**Bob Hollingworth** is serving on a National Academy of Sciences’ National Research Council panel that will review the risk assessment procedures of the California pesticide regulatory system. The panel’s work begins in April 2014.

**Eric Benbow** has been appointed to the National Academy of Sciences’ National Research Council Committee on the Edwards Aquifer Conservation Program in Texas.

**Professor emeritus Mark Scriber** recently published a review and a historical research paper in “Open Access insects.” The titles are [“Climate-Driven Reshuffling of Species and Genes: Potential Conservation Roles for Species Translocations and Recombinant Hybrid Genotypes”](#) and [“Adaptations to the ‘Thermal Time’ Constraints in \*Papilio\*: Latitudinal and Local Size Clines Differ in Response to Regional Climate Change.”](#)

**Several of MSU’s Department of Entomology soon-to-be graduates are starting new adventures this year.** Here are some of their successes:

- **Mike Cornelius** (B.S. Environmental Science, Entomology minor). Traveling to Washington, D.C., this summer for an internship with the American Forest and Hardwood Foundations.



Zachary Huang teaching his photography course. See his photos at [bees.msu.edu](#).

- **Steve Ireland** (B.S. Entomology). Begins lab rotations this summer as a Ph.D. student in the Molecular, Cellular, and Developmental Biology Department at the University of Michigan.
- **Mike McFarland** (B.S. Horticulture, Entomology minor). Starts an M.S. program this summer in The Ohio State University Entomology Department where he will work on vegetable pest management with Celeste Welty.
- **Ryan Paul** (B.S. Entomology). Accepted into the graduate program in the Bioagricultural Sciences and Pest Management Department at Colorado State University.
- **Ginger Thurston** (B.S. Entomology/B.S. Environmental Biology/Plant Biology). Accepted a position with Smith Tree and Landscape in Lansing as a plant health care technician.
- **Chelsea Rawe** (B.S. Entomology/B.S. Human Nutrition, Spanish minor). Her unique academic background will come in use beginning September 2014 when she will be stationed with the Peace Corps in Nepal in a position focusing on public health and agriculture.



Heather Lenartson-Kluge, Gary Parsons, George Bird and Matt Grieshop at Parsons' award celebration.

Academic specialist **Gary Parsons** was awarded a Distinguished Academic Staff Award by MSU President Lou Anna K. Simon on Feb. 11, 2014, at the annual Awards Convocation. Parsons was acknowledged for his dedication in managing the [Cook Arthropod Research Collection](#) along with his outstanding teaching and outreach efforts including extensive support of the MSU Bug House. [Read more at MSU Today.](#)

Award winners at the 2013 Entomological Society of America (ESA) meeting in Austin, Texas:

- **Chris Adams, Krista Buehrer, Dan Hulbert, Keith Mason, Shahlo Safarzoda and Rob Morrison** won the YouTube Your Entomology Award in the Instruction Category for their video "Tri-tropic Interactions."
- **Megan Woltz** (Ph.D. 2013 Landis Lab) was the recipient of the 2013 International Organization for Biological Control-Nearctic Regional Section (IOBC-NRS) Robert J. O'Neil Outstanding PhD in Biological Control Award.
- **John Pote** (M.S. 2013 Grieshop Lab) won an award for "Biology of the reemergent pest apple flea weevil, *Orchestes pallicornis* Say, and methods for its organic control" in the graduate student 10-minute talk competition.
- **Brett Blaauw** (Ph.D. 2013 Isaacs Lab) was a recipient in the poster competition with "Size does matter: larger patches of diverse floral resources increase

insect pollinator density, diversity, and their pollination of native wildflowers."

- **Rob McCann** (Ph.D. 2013 Walker Lab) placed in the poster competition with "Effects of larval habitat density and ITN/LLIN use on the spatial distribution of malaria vectors."

Department winners at the 2014 North Central Branch ESA meeting included: **Deb McCullough**

with the Achievement Award in Extension, **John Wise** for the Excellence in IPM Award and the **MSU Bug House** received the BCE Educational Project Award.

Undergraduates **Chelsea Rawe** and **Heather Leach** were finalists for the CANR Outstanding Student Leadership Award, which honors leadership in and service to the college. Students were nominated by advisors or other faculty, then candidates turned in additional materials and interviewed with a faculty panel. The six candidates were introduced at the CANR Honors Banquet. Chelsea won the award – congratulations to both for outstanding careers at MSU.

**Rebecca Blundell** was awarded both the Denny Grinold and Anglers of the AuSable Undergraduate Scholarships at the CANR Honors Banquet in March. Becca is a Fisheries and Wildlife major and Entomology minor.

**Courtney Weatherbee** (B.S. Dec. 2013) won the student paper



CANR Dean Poston with Chelsea Rawe.

## AWARD-WINNING DEPARTMENT

**Gabe Ording** is the recipient of a 2013 Faculty Teaching Prize from the MSU College of Natural Science. The CNS Teaching Prize recognizes excellence in teaching based on student and peer evaluations, and leadership in curriculum development or mentoring. Gabe is director of the Center for Integrative Studies in General Science and associate professor in the Department of Entomology.



CANR associate dean Kelly Millenbah with Katie Demeuse.

competition at the Michigan Mosquito Control Association.

**Rob Morrison** (Szendrei Lab) won third place for his oral presentation at the Plant Science Graduate Student Research Symposium.

**Katie Demeuse**, an undergraduate with an Entomology minor working on research in [Zsofia Szendrei's](#) lab, won the poster competition in the University Undergraduate Research and Arts Forum ([UURAF](#)) in the Agriculture and Animal Science Section with her poster titled "Determining the Mechanism of Colorado Potato Beetle (*Leptinotarsa Decemlineata*) Resistance to Neonicotinoid Insecticides by Real Time PCR."

Four Entomology student employees were honored at the University's annual Student Employee of the Year recognition reception:

- **Kyle Redilla** (McCullough lab)
- **Kristin Deroshia** (Grieshop lab)
- **Kayley Grubaugh** (Business office)
- **Jessica Kalin** (Landis lab)
- **Heather Leach** (Delfosse lab)

Entomology was well represented at the annual College of Agriculture and Natural Resources Recognition Reception held March 19, 2014. Among those recognized by **Dean Fred Poston** were **Rufus Isaacs**, who received an Outstanding Extension Specialist Award from Michigan Association of Extension Agents, and **Karim Maredia** for receipt of the

Advancing Global Competency-Excellence in Diversity Award. Also, many of our current and former entomology colleagues were recognized for Service Milestones, including: **Royal Fader** - 35 years (IR-4); **Satoru Miyazaki** - 35 years (IR-4); **Rhonda Acker** - 25 years (Business office); **Janet Eschbach** - 25 years (Administrative staff); **Michael Haas** - 25 years (Trevor Nichols, Gut); **Joy Landis** - 25 years (IPM Program); **Robert Kriegel** - 20 years (CANR-IT); **Zachary Huang** - 15 years; **Ryan Vanderpoppen** - 15 years (Trevor Nichols, Wise); **Yuzhe Du** - 10 years (Dong); **Juan Huang** - 10 years (Gut); **Wayne Jiang** - 10 years (IR-4); **Charles McKeown** - 10 years (former ENT graduate student); **David Mota-Sanchez** - 10 years; **Steve Vantimmeren** - 10 years (TNRC, Isaacs).

## ALUMNI NEWS

**Ashley Leach** (B.S. 2013) recently accepted a graduate position in the Entomology Department at Cornell University.

**Brad Baughman** (M.S. 2014) has accepted a position with MSU Extension as Southwest Michigan grape and small fruit Extension educator. He will be based out of the Southwest Michigan Research and Extension Center in Berrien County.

**Rob McCann** (Ph.D. Walker lab 2013) is the project manager and vector ecologist/medical entomologist for a collaborative project evaluating an integrated approach to malaria control in southern Malawi. This is part of his work as a post-doctoral researcher for Wageningen University and Research Centre in Wageningen, Netherlands. Rob is based at the University of Malawi, College of

Medicine in Blantyre, Malawi. [Read more about the project.](#)

**Megan Chludzinski** (M.S. 2013) was hired as a full-time Agronomy Sales Representative with CHS in Hamilton, Mich.

**Michael Kates** (B.S. 2009, M.S. 2011) is finishing his second year of medical school at Kirksville College of Osteopathic Medicine in Kirksville, Mo. He will return to Michigan this summer to start clinical rotations at Henry Ford Wyandotte Hospital.

**Diana Miller** (B.S. 2012) is currently a graduate student with Dr. Dan Potter at the University of Kentucky. For her M.S. project, she is evaluating an endophytic grass developed for use around airports to reduce invertebrate populations and thus bird strikes.

**Sarah Smith** recently completed curating the world's largest collection of bark and ambrosia beetles housed at the Smithsonian's National Museum of Natural History in Washington, D.C. She single-handedly transferred and aligned specimens, verified identifications, organized species and genera within tribes, and printed and inserted new labels for individual trays, drawers and cabinets. With roughly 180,000 specimens, the collection now spans across 615 drawers grouped within 31 cabinets. Sarah is currently the adjunct curator at the A.J. Cook Arthropod Research Collection at MSU.

**Brendan Carson** (M.S. 2013 Landis Lab) is an environmental educator with Capital NatureBridge, an organization that provides hands-on environmental field science education for children and teens at Yosemite National Park, California.

### Keep in touch with MSU Entomology

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**Investing in tomorrow, MSU BUG HOUSE**



Grad student Emily May bringing the Bug House to Sycamore Elementary School.

On April 5-6, the MSU Science Festival drew over 2,200 children and adults to the Bug House. Whether they are in the Natural Sciences building, at a school or the Ag Expo, our colorful displays and live specimens draw attention to the passion behind the work of entomologists. These fun interactions with entomologists teach a respect for nature and open doors to a possible career. Many thanks to our volunteers.



Bernice DeMarco (left) accepts the educational project award for the Bug House staff and volunteers at the regional ESA meeting.

