

Bugged

FROM
MSU DEPARTMENT
OF ENTOMOLOGY

2011 Review



Photo: Brett Blaauw, MSU

RESEARCH & PROJECTS

Ke Dong is studying the effects of scorpion venom with hopes of finding new ways to protect plants from insect pests. The

work, a collaboration with researchers from Tel Aviv University and the University of California at Irvine, was published

in a recent issue of the *Journal of Biological Chemistry*. The results have revealed new ways in which the venom works. Dong notes that some scorpion toxins selectively affect one type of sodium channels, but not others. The goal of the scorpion toxin project is to understand why certain scorpion toxins act on insect sodium channels, but not their mammalian counterparts.



Matthew Grieshop is leading a team that received \$2.5 million from a USDA Specialty Crop Research Initiative grant to develop a novel delivery system for pesticide, nutrient, and frost protection inputs to apples and cherries. The three-state project brings together horticulturists,

entomologists, plant pathologists, economists, and engineers from MSU, Washington State University, and Cornell University. The major expected output of the project will be a specialized "irrigation" system that can deliver aqueous inputs throughout the tree canopy. The system is expected to greatly increase spray timing efficiency and efficacy. It is also anticipated to reduce input wastage, spray drift, and worker exposure to pesticides along with decreasing the need for tractors in orchards.

Mark Scriber is among the authors of a September 2011 publication in PLoS Genetics entitled *Sex Chromosome Mosaicism and Hybrid Speciation among Tiger Swallowtail Butterflies*. The authors note, "Hybridization between two species may sometimes lead to the formation of a third species. While this phenomenon is of interest because it can generate new species from existing variation, it is rare in animals. Therefore, the factors responsible for the origin and maintenance of hybrid species are largely unknown. Here we show that the butterfly *Papilio appalachiensis* appears to be a hybrid species, which received nearly equal contributions to its genome from *P. glaucus* and *P. canadensis*.

Historical climate change may have facilitated the origin of *P. appalachiensis*, which our data suggest coincided with the last interglacial period in North America. This example shows the importance of sex-linked traits and a potential role for natural selection in the origin and maintenance of hybrid species."

Deborah McCullough is one of the researchers who led a comprehensive study

published in the December issue of [BioScience](#) entitled "Historical Accumulation of Nonindigenous Forest Pests in the Continental United States." The publication suggests that without improved means to block the transport of exotic forest insects into the United States, the country's forests, woodlands and urban trees could suffer economic losses projected to be in the billions of dollars.



Doug Landis and post-doc Ben Werling are co-authors on a June 2011 paper in the Proceedings of the National Academy of Sciences entitled *Landscape Change Leads to Increased Insecticide Use in the U.S.*

Midwest. Their work found agricultural landscapes of the Midwest have increasing amounts of cropland and decreasing amounts of non-crop habitat. This “landscape simplification” is associated with increased pest abundance and increased insecticide use. Each year, landscape simplification results in application of insecticides to an extra 3.5 million acres, with direct costs between \$34 and \$104 million.

The authors note, “If we can create agricultural landscapes with increased crop diversity, then perhaps we can increase beneficial insects, reduce pest pressure and the need for chemical inputs into the environment.”

MSU’s Central Asia IPM CRSP Project welcomed Abdujabbor Shirinov, Tajikistan’s ambassador to the United States, to the MSU campus in May 2011. [Karim Maredia](#), lead investigator of the [Central Asia IPM CRSP](#), invited Ambassador Shirinov to meet with the project’s team, learn about its food security work and share his ideas about enriching the collaboration in his country. The project encompasses IPM research and extension in tomatoes, potatoes and wheat. Others from the Department on the team include George Bird, Doug Landis, Walter Pett and Joy Landis. The project is funded in part by USAID through the Virginia Tech University.



Karim Maredia with Tajikistan’s ambassador to the United States, Abdujabbor Shirinov.

PEOPLE

Department chair Ernest Delfosse became president of The Entomological Society of America (ESA) at its 2010 annual meeting. ESA is the largest organization in the world serving entomologists with more than 6,000 members affiliated with educational institutions, health agencies, private industry, and government. Members are researchers, teachers, extension service personnel, administrators, marketing representatives, research technicians, consultants, students, and hobbyists.



2011 ESA President Del Delfosse with 2010 President Dave Hogg. Visit ESA on the Internet at: www.entsoc.org/

Doug Landis started a 2-year term as president of the International Organization of Biological Control - Nearctic Regional Section (IOBC-NRS) in 2011. The IOBC

is a global organization promoting environmentally safe methods of insect, weed and disease control. It serves members in North

America (US and Canada) through its primary mission of biological control education and research coordination.

Gabe Ording has been appointed director of MSU’s Center for Integrative Studies in General Science. [CISGS](#) is responsible for



developing and administering courses in physical and biological sciences. The Center cooperates with the MSU Office of Integrative Studies in the development of transcollegiate courses.

The Graduate and Undergraduate Entomology Student Society (GUESS) 2011 leaders were:

- President: Amanda Lorenz
- Vice President: Rachel Olson
- Treasurer: Matt Lundquist
- Graduate Committee: Rachel Olson
- Seminar Committee: Pete McGhee and Chris Hamm
- Faculty Rep: Sarah Smith
- Non-student faculty Rep: Anthony Cognato
- Curriculum Committee: Alex Bryant and Rob Morris
- Curriculum Committee undergrad: Matt Quenadon
- Awards committee: Bernice DeMarco
- COGS rep: Pete Nelson

In 2011 GUESS donated \$350 to the [Department’s Bug Camp](#). A special thanks to our students for giving back to the department! Find GUESS on-line by searching in Facebook for GUESS Entomology.

Five Entomology students received degrees at the 2011 Spring Commencement. Doctor of Philosophy: **Ryan Kimbirauskas**
Master of Science: **Danielle Donovan** and **Loren Wernette**
Bachelor of Science: **Casey Rowley** and **Shawna Ryan**.

AWARD-WINNING DEPARTMENT

Rufus Isaacs received the Entomological Foundation Award for Excellence in Integrated Pest Management from the 2011 [ESA North Central Branch](#) for his work in the [berry crop entomology program](#). His group studies biology and management of blueberry and grape pest insects,

as well as pest phenology, biological control, mating disruption, and chemical control.

Rich Merritt has been named a University Distinguished Professor. This is among the highest honors that can be bestowed on a faculty member by the university. Those selected for the title have been recognized nationally and internationally for their teaching, research and outreach achievements.



Keith Mason, technician for Rufus Isaac's [Berry Crops Entomology lab](#), was awarded MSU's Jack Breslin Distinguished Staff Award for 2011. Selections for the award are determined by an employee's overall excellence, supportive attitude, contributions and service to the unit or the university.

Doctoral student **Krista Buehrer** has been awarded a Mott Doctoral Fellowship for outstanding students in sustainable agriculture.

Three graduate students – **Krista Buehrer**, **Nate Walton**, and **John Pote** – have been awarded Ceres Trust Graduate Student Grants. All three are students in Matt Grieshop's [Organic Pest Management Lab](#).

Anthony VanWoerkom has been awarded a fruit industry scholarship by the Michigan State Horticultural Society.

BECOME A FRIEND OF THE BUG HOUSE!

The Department's Bug House participated in Lansing's "Be a Tourist in your Own Town" on June 4. Coordinator Barb Stinnett reports that 650 people visited during the event.

Visit the Bug House section of the Department's website (www.ent.msu.edu) for details on events and to contribute to this great outreach for introducing children and their parents to the fascinating world of insects.



Three from the Department received 2011 MSU College of Natural Sciences Awards. Congratulations to **Gabe Ording** (Lorena V. Blinn Endowed Teaching Award); **Suzanne Thiem** (Ronald W. Wilson Endowed Teaching Award); and graduate student **Rachel Olson** (CISGS TA Excellence in Teaching Award).

Our students received many accolades at the December 2010 annual meeting of the Entomological Society of America in San Diego:

- **Megan Woltz**, Pioneer Hi-Bred International Graduate Student Fellowship.
- **Emily Pochubay**, Joseph H. Camin Fellowship.
- **Anna Fiedler**, John Henry Comstock Graduate Student Award, ESA North Central Branch.
- **Danielle Donovan**, first place, Medical, Urban & Veterinary Entomology Section Student Poster Contest Group.
- **Brett Blaauw**, first place, Plant-Insect Ecosystems Section, Biological Control Student Poster Contest Group.

- **Brett Blaauw**, open video category [Flight of the Bumble and Other Bees ...](#) in Slow Motion.

The Department honored these students at the 2011 annual GUESS-hosted picnic at Lake Lansing. Congratulations to:

- **Megan Fritz**, Robert Dreisbach Award
- **Emily Campbell**, Eugeneia McDaniel Award
- **Megan Woltz**, Outstanding Bug House Volunteer
- **Amanda Lorenz**, Outstanding Bug House Volunteer
- **Ryan Paul**, Undergraduate Scholarship Winner
- **Matthew Aardema**, Paul Wooley Award
- **Courtney Weatherbee**, Undergraduate Scholarship Winner.

Two Department staff were also recognized with James Bath awards: **Carolyn Lewis** and **Ryan VanderPoppen**.

David Epstein is now the entomologist for the USDA Office of Pest Management Policy in Washington, DC.



M. Woltz



E. Pochubay



A. Fiedler



D. Donovan



B. Blaauw

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ALUMNI NEWS

Luis Teixeira has become the Indoxacarb and Rynaxypyr Global research coordinator for DuPont Crop Protection

Alejandro Costamagna is an assistant professor of entomology at the University of Manitoba. His field is ecology and management of crop pest insects.

Tom Dudek, a senior MSU Extension educator for floriculture and nursery production, was awarded a 2011 MSU All-University Academic Specialist award by the President and Provost.

Rodrigo Mercader has joined the faculty in the Department of Biology at Washburn University in Topeka, Kansas.

Anna Fiedler is executive director of the Sheepscot Wellspring Land Alliance in Maine.

Loren Wernette completed his Masters program at MSU and has returned to his position with AgriBusiness Consultants.

Brittany Sonkek, former lab manager for Mark Scriber, manages the Karner Blue Butterfly Conservation Program at the Detroit Zoo.

Matthew Aardema was awarded one of two Climate Change Research Fellowships at Princeton University for his doctoral research program.

This issue of *Bugged* is our review of 2011. Our collection of news for 2012 will follow.

Chenin Limback is a doctoral student at the University of Vermont in the Rubenstein School of environment and Natural Resources.

WE'D LIKE TO HEAR FROM YOU...

How to contact the Department.

Send us an email (entnews@msu.edu), or call the Department's business office 517-355-4663. We're interested in hearing about the successes of our alumni and former department members. Also, please consider sending us your email address so we can email you a link to future newsletters and save print and mailing costs. Finally, donate to the Department or stay current with the Department's activities through our website: www.ent.msu.edu

