

# Bugged

FROM  
MSU DEPARTMENT  
OF ENTOMOLOGY

Fall 2015



Image: Bill Ravlin, MSU

## FROM THE CHAIR

Since the last issue of *Bugged*, we went through the annual review process for people, programs and the Department. The inherent question asked throughout this process is, "How are things going with MSU Entomology?" As chairperson, my short answer without hesitation is, "We're doing great!" Of course, that's what you'd hope I would say, but I can back it up with data. We have great people, great numbers and great impacts. Of course, the hope is these data generate resources that allow us to do even better and that is in fact, what's happening.

For example, we have a critical mass of people and expertise in pollinators and in my opinion, qualify at least as a (small "c") "center of excellence." During a recent conference, "Protecting Pollinators in Ornamental Landscapes," organized by **Dave Smitley, Tom Dudek** and others, our significant expertise was clear, from the exceptional involvement of other MSU entomologists (**Rufus Isaacs** and **Meghan Milbrath**) and by comments from participants. On the resource side, AgBioResearch and MSU Extension recognized this group by funding the formation of the "Michigan Pollinator Initiative" for three years.



K. Stepmitz, MSU Photography

Another example is the work done by **Karim Maredia** and his team in Africa with funding (\$10+ million) from the Bill and Melinda Gates Foundation. **Ke Dong's** lab was successful in securing new funding (\$1.2 million) from the National Institutes of Health to support their work on mosquito olfaction and how it relates to repellents and ultimately malaria. We have impact locally as demonstrated by **Juliana Wilson's** article on the brown marmorated stink bug that generated almost 26,000 page views in one day! We are teaching large, non-traditional audiences with online summer 2015 courses taught by **Walt Pett, Amanda Lorenz** and **Gabe Ording**. These courses reached 264 students in the United States, China, South Korea, Taiwan and India. Our on-campus courses also reach large numbers with approximately 1,400 students taking entomology courses annually. Our entomology student programs are doing well but we can improve. We have 40 masters and doctoral students and

Dave Smitley's collaborations with Michigan's \$600 million nursery and greenhouse industry is one of the efforts making MSU a key player in the quest for better conditions for pollinators.

24 bachelor's degree majors and minors for this fall semester. We have many other stories like these, some of which are highlighted in this issue of *Bugged*.

These and other examples are resulting in investment by the College of Agriculture and Natural Resources and MSU upper administration to fund four Entomology positions with searches beginning as we speak. Stay tuned for the details! From what I can tell, this is unprecedented in the annals of MSU Entomology and it clearly answers the question "How are things going with MSU Entomology?"

As usual, enjoy being *Bugged*!



Bill Ravlin,  
Chairperson

## RESEARCH & PROJECTS

**A team of scientists that includes entomologist Jim Smith has found that recent evolutionary changes have an almost domino effect on a number of species.**

The research, published in the Proceedings of the National Academy of Sciences, follows up work done by the team several years ago that found changes in mating habits resulted not only in a new species of fruit fly, but also led to a new species of

the parasitic wasps that prey on them. According to Smith, “The new study extends the earlier work by showing that new fruit fly species provide suitable habitat not just for one new parasitoid species, but for multiple new species.” Read more at [MSU Today: Speedy evolution affects more than just one species.](#)



## AWARD-WINNING DEPARTMENT

**Post-doc Christie Bahlai has been selected as an inaugural Mozilla Fellow for Science.**

More than 130 researchers applied for the four 10-month paid fellowships that will engage local communities to advance open data and open source software, and teach colleagues skills to do the same. Mozilla will train the fellows aiming to sharpen their expertise (continued on page 4)

## Going “viral” with entomology news

On a quiet, September Friday, Tree Fruit IPM Integrator [Julianna Wilson](#) wrote [an article for MSU Extension's online news](#) asking readers to report locations where they see the new invasive species, the brown marmorated stink bug (BMSB). After the first confirmed Michigan detection of this pest in 2010, sporadic reports came in to MSU from various parts of the state. In 2013, the MSU Fruit Team set up a monitoring network of traps, but few of the stink bugs were caught. In other states, the stink bug first collects on houses annoying homeowners and then a couple years later becomes a problem for farmers and gardeners. If people would report now where they are seeing BMSB, Extension teams can better prepare Michigan farmers for the coming pest problem. Wilson hoped she might reach the general public with her article and convince them to report BMSB locations using the Midwest Invasive Species Information Network ([misin.msu.edu](#)) launched by Entomology's Amos Ziegler.

The following Monday, Wilson learned the article had over 25,000 pageviews. Two days later, it had reached 76,000 pageviews and had been shared or liked on Facebook over 15,000 times. At one point, numbers of pageviews were growing by 100 pageviews every four seconds. As of Oct. 19, the impact has been:

- Over **113,000** pageviews and shared or liked on Facebook over 21,000 times.
- People are not only reading the article, but taking action to help farmers by identifying hotspots. Prior to the article, there were six sightings of brown marmorated stink bug recorded at the MISIN website. Now, over 2,200 sightings are mapped.

Some articles grow readership more slowly, gathering their significance over time. Research Assistant [Terry Davis](#) and Professor [Dave Smitley](#) annually update their MSUE News article on [how to choose and when to apply grub control products](#). Spring-summer of 2013, the article had about eight pageviews per day. Summer 2014, it received approximately 85 pageviews per day. This past growing season it averaged 375 pageviews per day, peaking with 813 on April 26. With the addition of pageviews accumulated during fall and winter, the article has now been viewed a total of 106,000 times. Wilson's stink bug article ranks third in highest all-time traffic among MSUE's articles and Davis/Smitley's is fifth. What is MSUE's

number one article with over 200,000 pageviews? How to convert grams of sugars into teaspoons. Read these and all of MSUE News' wide-range of articles at [msue.msu.edu](#). Sign up for topical newsletters at [bit.ly/MSUEdigest](#).





# FEATURED STUDENTS

## UNDERGRADUATE STUDENT

**Name:** Jessica Kalin  
**Hometown:** Onsted, Michigan



**Future study or career plans:** Either working with Monarchs at the Kalamazoo Nature Center or go to graduate school to work with invasive species.

**What is your major?** Fisheries and Wildlife, with a concentration in wildlife biology and management. I'm earning a minor in entomology.

**Why add a minor in entomology to your major?** Honestly, it was a little late to change my major. But I thought it would be a good addition to my skill set.

**Why study entomology?** Why not? They're the most diverse group of animals on the planet! It's a very interdisciplinary field, so there's a lot to offer to prospective students.

**What or who inspired your interest in entomology?** My parents often encouraged me to be interested in nature and science. My earliest memory of being interested in entomology is getting a toy microscope for my birthday and pulling the wings off of flies to look at them!

**What has been your best experience with entomology?** My position in the [Landis Lab](#) has been one of the best opportunities of my undergraduate career. I've met so many wonderful people and been part of a lot of cool projects over the last few years. I actually look forward to going to work!

**What is your opinion on entomophagy (eating insects)?** I love it! I wish it was a more accepted practice in Western culture because it's a lot more sustainable than other farmed animals. Given the chance, I would definitely try it.

**What is your favorite way to spend your time outside of your studies?** I try to go camping or hiking as much as possible. I chose my field of study mostly because I love being outside. So even after a long week in the field, I'm probably spending my weekend lost in the woods.

## GRADUATE STUDENT

**Name:** Charles Coslor  
**Hometown:** Sedro-Woolley, Washington  
**Major professor:** John Wise



**What are you researching?** My research is expanding trunk injection methods for control of foliar pests in Michigan apple orchards. I am injecting mature apple trees as well as nursery trees, and taking residue samples of nectar and pollen to assess the potential impact on pollinators.

**Future career plans:** I will seek a position in the agricultural industry.

**What do you wish other people understood about entomology?** How interdisciplinary it really is. Entomologists work in a wide range of fields including genetics, ecology, agriculture, behavior modeling, molecular biology, chemistry and more. When I was first getting seriously interested in entomology, people asked me what I would do with a degree, and I didn't really know how broad the field was at the time.

**Was there ever a time when you didn't like insects?** No! I've been bitten and stung but keep coming back for more.

**Although you work with insects, is there any particular insect or arthropod you do not like and why?** I have a healthy respect for giant centipedes. I think it's because they remind me of venomous snakes, like it's an invertebrate mimicking a vertebrate. Despite that, the centipede in the [Bug House](#) is fascinating.

**What is your opinion on entomophagy (eating insects), as practiced in other world cultures?** In many parts of the world it is culturally normalized and also makes economic sense. I think it will take several steps before entomophagy switches from being a novelty to commonplace in the United States. There's already a lot of good products if you look around though! I have eaten insects on many occasions, and they can really be quite tasty. Especially the giant water bugs in chili paste.

**What is your favorite activity outside of your studies and entomology?** I like working on DIY/maker crafts such as small electronics projects. I am also really interested in 3D printing and I've been incrementally building one of my own.

(continued from page 2)

around open source, participatory learning and data sharing. Bahlai will develop a training program for graduate students to start their own programs with an open source framework. She will interact with the other fellows and Mozilla's resources throughout the year, including the Mozilla Festival in London. Read more at [MSU Today](#).

**The American Association of Pesticide Safety Educators Program** (AAPSE) has recognized **Larry Olsen** with its AAPSE Fellow award. This is the highest honor presented for a member's career accomplishments and contributions to pesticide safety education. It was noted during the award ceremony that Olsen has led the [MSU Pesticide Safety and Education Program](#) to become a model program while serving as an administrative leader at the state, region and federal levels.

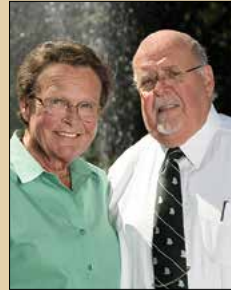
**Adjunct Curator Sarah Smith is a recipient of the Jean Theodore Lacordaire Prize for best publication derived from a dissertation concerning beetles.** Her 182-page book, "A taxonomic monograph of Nearctic *Scolytus* Geoffroy (Coleoptera, Curculionidae, Scolytinae)" (Zookeys 450), redefines 29 species based on a multiple gene phylogeny and morphology.

(Awards continued on back page)

## PROFILES in GIVING

### Sniders make \$1 million planned gift to museum collection.

Dick and Renate Snider have announced their intent to contribute \$1 million to the Drs. Richard J. and Renate M. Snider Endowment for the A.J. Cook Arthropod Research Collection. Dick's first campus job was working in the museum pinning insects while Renate was a lab technician rearing Collembola. Today, both have distinguished careers at MSU, Dick as a professor of integrative biology, and Renate as an assistant professor in the College of Natural Science. Dick also curates Collembola, isopods, spiders and related arachnids in the collection and guest lectures for Entomology.



The Sniders believe the collection is an important global resource and want to be a part of ensuring money is there to preserve it over time. The collection contains specimens from the Northwest Territory, as well as specimens donated by the long-defunct Detroit Naturalist Society. The museum also houses the Snider-Christiansen Collembola Collection. The Department is grateful for the enthusiastic support and expertise it has received from the Sniders throughout their careers and heartily appreciates the designation of this gift.



### Latest Hoopingartner gift enhances Department daily interactions.

MSU Entomology now has a first rate break room specifically designed for small, informal gatherings. Thanks Roger!

## Make a year-end gift to MSU Entomology

Gifts of any size can make a difference through the Entomology Department. Thanks for considering this opportunity. Contributions are tax deductible and can be mailed with this form to:

**Michigan State University**  
Natural Sciences Building  
288 Farm Lane Room 243  
East Lansing, MI 48824

You can also give online at:  
[bit.ly/entGive2015](http://bit.ly/entGive2015)

**Questions**, call: 517-355-4663  
**4 MSU ENTOMOLOGY BUGGED**

**Name** \_\_\_\_\_

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I would like to show my support with a gift of:

\_\_\_ \$1,000 \_\_\_ \$500 \_\_\_ \$100 \_\_\_ \$50 \_\_\_ Other \$: \_\_\_\_\_

### Payment method

\_\_\_ My check payable to Michigan State University is enclosed.

Please charge my credit card:

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Card #: \_\_\_\_\_ Expiration: \_\_\_\_\_

3-digit security code on back of card: \_\_\_\_\_



## ALUMNI PROFILES: Gloria DeGrandi-Hoffman

**Gloria DeGrandi-Hoffman** is the research leader and center director for the USDA-ARS Carl Hayden Bee Research Center in Tucson, AZ. The Center conducts research to optimize honey bee colony health through improved nutrition to maximize production of honey bee-pollinated crops.

**When did you graduate from MSU?** I earned a PhD in Entomology in 1983 with Roger Hoopinger as my lead professor.

### **How did MSU prepare you for your career's success?**

MSU taught me how to be a mathematical modeler and look at things in a systems format. I worked with Roger to build the first interactive pollination and fruit-set model ever as part of my dissertation. Learning the tools of simulation modeling was extremely helpful. It's a unique way of thinking, especially when studying apiculture and bees. It's also an effective way to run research programs. Other influences were Jim Miller, who had a great impact on my thinking as a scientist and how you build a research program, Stuart Gage as a modeler himself and Frank Dennis in horticulture taught me a lot about apples.

**Why did you choose entomology?** I was one of those kids that played with bugs and knew I wanted to be an entomologist at a very young age. In elementary school, I caught an insect and tried unsuccessfully to look it up. I really wanted to identify it. My mom took me to Harrisburg, PA, to the state agriculture department. A very kind entomologist looked at the bug and identified it, and explained what he did in his job. I looked around the room and saw people working with bugs, and I realized 'you could get a job doing that!'

At Penn State, my master's project was with honey bees and pollination in birdsfoot trefoil. I also worked hourly in Zane Smilowitz's lab. Dr. Smilowitz did research in biocontrol of plant pests and he was a modeler. His graduate student happened to be Mark Whalon. I would tell Zane that in my field plots, there would be different numbers of bees and plants each day, everything changing with time and I felt like the variation in the day-to-day was where the interesting information was. He told me to learn simulation modeling so I could capture how systems change with time. I was very excited about learning how to build simulation models, and that the best graduate program for that was at MSU. I applied to the MSU Entomology Department, and Mark Whalon, who was by then on the faculty, probably helped me a lot in getting accepted.

**What are your best memories as an entomology student?** Some of the best are of playing a lot of racquet ball with the guys in the Department. Jim Bath was department chair and really knew how to build community and prepare grad students for careers. The Department is really dedicated to grad student education. Roger taught me a lot about bees and how to conduct yourself as a scientist. He still sends me papers and I continue to learn from him. Being out in the apiary and going through colonies with Roger was terrific. I have so many memories; those were wonderful years.

**Any advice for current students?** Never stop learning, never stop taking chances and never be afraid to fail. If you have an idea, run forward with it. Never be discouraged. Let it continue to evolve and be true to it. It might be a good idea and the world



just hasn't caught up with it yet. Roger and I built the pollination model for apples and published it in the mid-80s. I always dreamed that Washington State, the country's lead apple producer, would be interested and adopt it. Models were on computer mainframes at that time and were not portable. We did work with the model here in Arizona and Michigan, but the model and all the papers sat for almost 30 years. A few months ago I got a call from Washington State saying they have a decision aid system for growers and were looking for apple pollination and fruit set models. The only publications they found were mine and Rogers'. I went to Washington State last week to work on updating the apple pollination model with their team. We talked exactly about what Roger and I talked about in grad school. Hold onto your great ideas!

My husband was in the MSU medical residency program while I was a grad student and we both had a terrific experience at MSU. We look back with great fondness and think what a wonderful university we were lucky enough to attend. I can't say thank you enough for all that was done for us at MSU.

## MSU Department of Entomology

Michigan State University  
Natural Sciences Building  
288 Farm Lane Room 243  
East Lansing, MI 48824



**Three entomology professors were honored by MSU Extension this fall.** [Larry Olsen](#) was awarded the Epsilon Sigma Phi Michigan chapter's International Service Award for work to improve the livelihood of communities in the Peruvian highlands through improved potato growing practices. [John Wise](#) and [Zsofia Szendrei](#) were selected by the MSUE Specialists and State Staff Association to receive outstanding specialist awards for their exceptional efforts in delivering information to their respective grower audiences.

### ALUMNI NEWS

**Chad Pastor** (MS 2004, Gut) is a business development manager with Michigan Biotechnology Institute (MBI), a non-profit company committed to accelerating biobased and sustainable technologies to commercialization. Pastor directs the corporate services group to provide process

development and scale-up services to researchers, governmental agencies and companies in the areas of biopesticides, specialty chemicals, polymers, nutraceuticals, biorefineries and other drop-in chemicals via fermentation.

**Lingxin Wang** (PhD 2013, Dong) has joined the Neuroscience Therapeutic Research and Development Center of GlaxoSmithKline, a British pharmaceutical company based in Shanghai, China. As an electro-

physiologist, Lingxin will conduct research and development of therapeutics for human chronic pain diseases and epilepsy.

**Emily May** (MS 2015, Isaacs) works from Vermont for the [Xerces Society](#) as a member of its Project Integrated Crop Pollination. She supports outreach and farm education for a multidisciplinary group of university research partners, farmers and federal agencies developing science-based systems for ensuring crop pollination.

### NEW: Buy a Bug House T-shirt

Flaunt your MSU Entomology spirit with [MSU Bug House's](#) new T-shirt. The shirts sell for \$15 and are available in youth and adult sizes. They can be purchased at Bug House open houses or in the Entomology business office (Room 243 Natural Science Building) during regular business hours.

