



2012 Department of Entomology Newsletter

Coats Awarded Distinguished Professor

In 2011, Joel Coats was named one of five ISU Distinguished University Professors. Joel is described as the “godfather of toxicology” at ISU. He is the primary organizer of the interdepartmental Toxicology Graduate Program, which has risen to national stature. His scientific publications include seven review articles, eight books, nine patents, 36 book chapters, and 128 refereed journal articles. He has served as major professor for 43 graduate students, including three current students, and has mentored 13 postdocs. Joel’s students and postdocs have all obtained positions in the area of agrochemicals, environmental toxicology/chemistry, or entomology - in industry, academia, and federal, state or local government. His influence continues through

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Joel and Becky Coats

Blodgett Begins as Department Chair



I was thrilled to be offered the position of Entomology Chair at ISU this past summer, and have spent the fall getting acquainted with ISU faculty, staff, and students, and the Ames community. As a new Department Chair and being new to many of you, I thought I would take the opportunity to introduce myself and update you on departmental activities.

Most recently I was the Department Head of Plant Science at South Dakota State University in Brookings (2006-2011) and before that I spent most of my career as a Research and Extension Entomologist at Montana State University, first in the Department of Entomology, and after that was eliminated, in the Animal Science Department. I received my training at Kansas State University as a field crop entomologist trained by Randy Higgins, an ISU graduate trained by Larry Pedigo.

ISU Entomology has a well-earned tradition of excellence and is nationally regarded for its outstanding research, extension and instruction programs; the result of dedicated generations of entomologists. I am deeply honored to have been selected as Department Chair and plan to continue the excellent traditions that you have come to associate with ISU.

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Toth Joins Entomology Faculty

I am delighted to be the newest member of the faculty of the Department of Entomology here at ISU. Unlike most of the general populace, I have a special fondness for critters that can fly and sting - I study the biology of bees and paper wasps. My research uses an integrative approach, combining genomics, physiology, behavior, and evolutionary biology, to study the fascinating biology of social insects. In August 2010, I joined the Department of Ecology, Evolution, and Organismal Biology as an Adjunct Assistant Professor, and in August 2011, I was promoted to Assistant Professor, and took a joint appointment in the Department of Entomology. I have greatly enjoyed interacting with colleagues all over the ISU campus, and look forward to even more entomological interactions as I strengthen ties to entomology.

I am originally from the Northeast U.S., where I grew up in a small town in Connecticut, and first discovered a love of all things “creepy and crawly.” I studied biology and graduated with a B.A. from Bard College in 2000. I then made my first foray into the midwest, and I completed my Ph.D. (2006) with Gene Robinson at the University of Illinois (Urbana-Champaign), a place reminiscent of ISU and Ames in many ways. After a short postdoc in Illinois (2007-2008), I went

back east for a short time, where I was a USDA postdoctoral fellow in the laboratory of Christina Grozinger at Pennsylvania State University from 2008-2010.

My husband, Fernando Miguez (ISU Assistant Professor in Agronomy), my son Felix, and I moved to Ames in early 2010, and we love it here! Ames and ISU have exceeded our expectations in almost every way. We have already grown to love the Ames community and enjoy the rural setting of the surrounding area. ISU has been a remarkably friendly and collegial place to work, and we have been very pleased to find excellent collaborators on campus, both within and outside of entomology.

My **laboratory** now consists of a postdoc, two graduate students, a research associate, several undergraduates, a high school volunteer, and we keep growing! I have been lucky enough to receive NSF and USDA funding for some exciting new projects (see page 5), and will be researching the evolutionary genomics of social behavior in wasps and exploring the importance of nutritional stress and viruses on honey bee health. I am greatly looking forward to continuing to build my laboratory, educate students, and interact with the Entomology Department and ISU community in the years that come.



Beekeeping is “in the genes” for the Toth family. Amy Toth (left), father Greg Toth (center), and great-grandfather, Mathias Toth (right, ca. 1920), share a love of bees.

Gassmann Named DuPont Young Professor



Aaron Gassmann was one of 18 scientists from around the world to receive a 2011 DuPont Young Professor Award. The DuPont Young Professor program began in 1967 to provide start-up assistance to promising young tenure-track research faculty working in areas of interest to the company. The DuPont Young

Professor program is sponsored by the DuPont Fellows Forum, which represents top scientists from throughout the company. The class of 2011 Young Professors has 12 scientists from U.S.

universities and six scientists from outside the U.S. in areas of research including animal biology, biochemical sciences, chemical engineering, chemistry, entomology, nanotechnology, polymer science, solar energy, and statistics. As part of the award, Aaron will receive \$75,000 in research funding over three years, and will present research seminars at Pioneer headquarters in Johnston, Iowa and DuPont headquarters in Wilmington, Delaware. Funding from this award will support his research on western corn root-worm resistance management for Bt corn.

Aaron joined the Department of Entomology at ISU in 2008, after completing postdoctoral appointments at the University of Arizona and the University of California-Riverside. He earned a bachelor's degree in biology from the University of St. Thomas in 1997 and a doctorate in ecology and evolution from the State University of New York at Stony Brook in 2003.

Courtney Publishes in PNAS

Greg Courtney, along with collaborators from institutions around the world, published a paper on the evolutionary history of true flies (Diptera), in the 5 April 2011 issue of the Proceedings of the National Academy of Sciences (see Wiegmann et al. 2011, page 21).

Flies are one of four megadiverse insect orders, along with beetles, wasps, and butterflies/moths. Nearly 160,000 species of flies have been described and named, but at least that many more remain undescribed. Diptera are diverse not only in the number of species but in their structure, habitats, habits, and interactions with humankind. The order includes species known for their ubiquity (e.g., the house fly *Musca domestica*), role as pests (e.g., the malaria mosquito, *Anopheles gambiae*), and value as model organisms in the biological sciences (e.g., the fruit fly, *Drosophila melanogaster*). A resolved phylogeny for flies can provide a framework for genomic, developmental, and evolutionary studies by facilitating comparisons across model organisms, yet deciphering dipteran phylogeny has remained elusive.

Greg Courtney was part of a collaborative team attempting to reveal details of fly relationships and diversity, with the ultimate goal of providing

a resolved phylogeny for Diptera. Their "FLY-TREE" project, a study funded by the National Science Foundation's "Assembling the Tree of Life" Program, was headed by Brian Wiegmann of North Carolina State University, and involved researchers from around the U.S., as well as Canada, Australia, Denmark, Singapore, and the United Kingdom.

The FLYTREE study provided a phylogenomic estimate of relationships based on molecules and morphology, including data from 14 nuclear loci and complete mitochondrial genomes combined with nearly 400 morphological characters. Multiple analyses showed support for several traditional fly subgroups (e.g., Brachycera and Cyclo-rrhapha) but also suggested some contentious findings, such as the enigmatic Deuterophlebiidae as sister group to all remaining Diptera. The study also demonstrated that fly relationships have been obscured by multiple episodes of rapid diversification and a number of life history transitions to hematophagy, phytophagy, and parasitism in the history of fly evolution over 260 million years. The latter may explain some of the difficulty in resolving relationships of different types of flies.

Bartholomay Embraces a Work-Life Balance

Lyric Bartholomay writes: I feel very fortunate to work for ISU, where faculty members are encouraged to find a work-life balance. In 2011, with my tenure packet making its way through the review channels, I reflected on my accomplishments that never make it to the lines on a CV. It was clear that I needed to seek out some adventure beyond building a research and teaching program in Medical Entomology.

In January, without a goal in mind, I decided to sign up for voice lessons with an emerita professor in the ISU Music Department. A couple of weeks later, I mentioned this to Raj Raman (ISU Ag Biosystems Engineering), and he persuaded me to join him at band practice with members of a local blues/rock band called Echo 18. The band also includes Ken Moore (ISU Agronomy), and a couple from Jewell, Iowa. After three practices, I was terrified to be standing in front of a crowd, singing at my first gig. I even told the audience that “it’s much easier to stand in front of a room full of students and talk about the biology of pubic lice than it is to do this.” It’s getting easier, and I am amazed by how therapeutic and fun it is to engage in making music.

In the same spirit of adventure, I said ‘why not?’ when a friend from Veterinary Pathology asked if I wanted to take on a half marathon in Fort Collins, CO. The fact that I hadn’t run since I whined my way through high school P.E., that we had 2.5 months to train, and that we were



Echo 18 band members: Raj Raman, Ken Moore, Deb O’Brien, Lyric Bartholomay, and Brad Engleby

going to run at an altitude of 5,000 feet might have been reasonable deterrents. But we did it. In the process, I decided that what I REALLY love to do is ride my bicycle. So I signed up for RAGBRAI, and conquered 454 miles from the Missouri to the Mississippi during a very hot Iowa July.

This reads as though my work-life balance was skewed to ‘life’ in 2011, but balance prevailed and the [Medical Entomology lab](#) had some great successes in funding (see page 5) and publication in 2011 as well! Most importantly, the legacy continues through four students who graduated and have moved on, two with Ph.D.s (Grishma Parikh and Jon Oliver), and two with master’s degrees (Patrick Jennings and Jeff Alfred).

Wintersteen First ISU Endowed Deanship



Wendy Wintersteen is Dean of the College of Agriculture and Life Sciences at ISU and Director of the Iowa Agriculture and Home Economics Experiment Station. Dr. Wintersteen is the tenth dean of agriculture in Iowa State’s 153-year history. She also is the holder of the first endowed deanship established at ISU. Wendy became the dean in 2006. Prior to joining the dean’s office, Wintersteen served as Director of Agriculture and Natural Resources Extension, 1995-2000. She became a faculty member in entomology at ISU in 1988 and was promoted to full professor in 1996. Dr. Wintersteen earned a B.S. in agriculture from Kansas State University and her Ph.D. in entomology from ISU (1988). In 2007, she was honored as a Kansas State University Alumni Fellow for professional accomplishments and distinguished service.

Faculty Awards

Bryony Bonning received the Iowa Technology Association 2011 Women of Innovation Award for Research Innovation and Leadership. The purpose of these awards is to encourage women to enter careers in science, engineering, technology and management by recognizing the successes of Iowa women in those research fields.



Sue Blodgett was named 2011 Distinguished Alumna by the Department of Entomology at Kansas State University. She earned her masters and doctoral degrees in entomology from KSU.

Erin Hodgson was one of two recipients of the 2011 ISU Extension Service New Professional award. In addition, continuing her now 3-year streak, Erin won the ESA Stinger Award (that was initiated by Marlin Rice) for best YouTube video in the Extension category. She was also a co-member of the winning Open Category submission for a soon to be classic YouTube video regarding the benefits of a new paperless Speed Scouting method called [SoyPod DSS](#).



Vice President of ISU Extension and Outreach, Cathann Kress, and Erin Hodgson

\$20 Million CAP Grant to Study Corn and Climate Change

The USDA's National Institute of Food and Agriculture awarded a \$20 million grant to ISU for regional research on keeping midwest cornfields resilient in the face of future climate uncertainties. Team members from ISU entomology include **Matt O'Neal**, **Aaron Gassmann**, **Bryony Bonning**, and **Mike Dunbar**. ISU researchers will work collaboratively with 42 scientists from 10 land-grant universities and two USDA-ARS institutions in 9 states in the north central region. The team will collect and analyze data over the next 5 years that tests how extended rotations and cover crops affect the abundance and diversity of pests and beneficial insects across a range of climatic conditions. For further information, please see the website <http://sustainablecorn.org>.

Other Notable Grants

"Epigenetic, transcriptomic, and behavioral impacts of a maternal signal during wasp caste development," \$431,000; 2012-2014. PI: **Amy Toth**, co-PI: Bob Jeanne, University of Wisconsin-Madison. National Science Foundation, Integrative Organismal Systems - Behavioral Systems Program.

"Interactions between honey bee nutrition and viral infection: An integrative approach to Colony Collapse Disorder," \$493,000; 2012-2015. PI: **Amy Toth**, co-PIs: **Bryony Bonning** and Allen Miller. USDA-NIFA, Insects and Nematodes Foundational Program.

"DNA methylation and the evolution of social insect castes," \$325,000; 2011-2013. PI: **Amy Toth**. National Science Foundation, Integrative Organismal Systems - Developmental Systems Program.

"PFI: A platform-based approach to developing and delivering nanoparticle antivirals for disease control in farmed shrimp," \$599,907; 2011-2013. PI: **Lytic Bartholomay**, co-PI: **Sharron Quisenberry**. National Science Foundation, Partnerships for Innovation Program.

Alumni Awards

Bill Hendrix (Ph.D. 1990), Dow AgroSciences' biology team leader for insect traits and seed treatments, was named the 2011 Scientist of the Year by the National Organization of Gay and Lesbian Scientists and Technical Professionals (NOGLSTP) for his outstanding achievements in agricultural sciences with a goal of improving food production worldwide. He received the award at the NOGLSTP reception during the American Association for the Advancement of Science Conference on February 20 in Washington, DC.

Kevin Steffey (Ph.D. 1979), leader of technology transfer in insect management for Dow AgroSciences, was elected as Honorary member of the ESA at the 2011 National Meeting in Reno, Nevada.



2011 ESA President, Ernest Delfosse (top left), with Kevin Steffey (top right) and Mike Gray (bottom right)

Mike Gray (M.S. 1982; Ph.D. 1986) was awarded the Distinguished Achievement Award in Extension at the 2011 National ESA Meeting in Reno, Nevada. He is currently a professor and Assistant Dean for Agriculture and Natural Resources Extension at the University of Illinois at Urbana-Champaign.

Marlin Rice, currently a senior research scientist with Pioneer Hi-Bred International in Johnston, IA, was nominated Fellow of the ESA at the 2011 National Meeting in Reno, Nevada. Marlin is nationally recognized for his work in extension entomology.

Alumni Updates

Joel Gibson: Following my M.S. with the ISU Department of Entomology in 2002, I completed a B.Ed. degree at the University of Toronto. I then taught high school for four years, got married to my lovely wife, Gina, and had two beautiful daughters, Anabel and Elsa. I started my Ph.D. studies at Carleton University in Ottawa. I graduated in November 2011 with a thesis titled, "The evolutionary biology of Conopidae (Diptera): a life history, molecular, morphological, systematic, and taxonomic approach." I have recently started a postdoctoral research and project management position at one of my alma maters, the University of Guelph.

Steven Bradbury: I am the director of the Office of Pesticide Programs at the Environmental Protection Agency. We hosted an informal information session with college faculty, staff and administrators in February 2011. I toured the nation for a series of listening sessions with stakeholders. Regional EPA officials joined in the

discussion. Among the issues discussed were integrated crop management programs, and air and water quality. I earned an M.S. and Ph.D. in entomology and toxicology in 1981 and 1985 from ISU.

Vincent Smith: B.S. in entomology (1992), studied under Woody Hart. I worked on rootworms for Monsanto for 12 years, and recently returned to Slater, Iowa, to work at Syngenta.

David Coyle: After receiving my M.S. from ISU in 2000 with Woody Hart, and working for the USDA Forest Service in South Carolina for 4.5 years, I began a Ph.D. at the University of Wisconsin in fall 2004. I finished my dissertation in January, and graduated from UW in May 2011. My dissertation was titled, "Ecology and impact of a complex of invasive root-feeding weevils in a northern hardwood forest." I am now working on the southern pine beetle as a postdoc at the University of Georgia with Kamal Gandhi.

Matsumura Presents 2011 Dahm Lecture

The 20th annual Paul A. Dahm Memorial Lecture was presented by Dr. Fumio Matsumura, who is a Distinguished Professor of Entomology and Environmental Toxicology, at the University of California-Davis and one of the “grand masters” of insect toxicology. We were honored that he could come to remember Paul and some of his achievements.

Dr. Matsumura received his B.S. from University of Tokyo, his M.Sc. from University of Alberta, and his Ph.D. from University of Western Ontario with Professor A.W.A. Brown. He conducted his research in the Laboratory for Insecticide Research in Wageningen, the Netherlands, and at Cornell University with Richard O’Brien. In 1964, he joined the Department of Entomology at the University of Wisconsin, Madison, and in 1977 he was appointed to be Director of the Pesticide Research Center at Michigan State University. In 1987, Matsumura became Associate Director of the Toxic Substances Program at University of California-Davis. Matsumura has served as Director of the Center for Environmen-



Joel Coats and Fumio Matsumura

tal Health Sciences, and as the editor-in-chief of *Pesticide Biochemistry and Physiology*. He wrote the book “*Toxicology of Insecticides*” that was used by a whole generation of students in this field, and he has received numerous prestigious international and national awards. Fumio is not only an outstanding scientist and scholar, but also great mentor, role-model and gentleman.

Moran Gives ISU Advance Lecture

Nancy Moran, William H. Fleming Professor in Biology, Department of Ecology and Evolutionary Biology, Yale University, presented “*Genomics and Evolution of Symbiosis in Insects*” as an ISU ADVANCE lecturer in the Spring 2011 Entomology seminar series, and as part of the Genetics



workshop. The ISU ADVANCE program is supported by the National Science Foundation through an ADVANCE Institutional Transformation Award, toward full participation of women faculty in science, technology, engineering and math.

Dr. Moran obtained a B.A. from the University of Texas in 1976 and a Ph.D. in Zoology from the University of Michigan in 1982. From 1986-2010, she served on the faculty of the University of Arizona, where she was a Regents’ Professor. She was awarded a MacArthur fellowship in 1997, and was elected to the National Academy of Sciences in 2004, the American Academy of Arts and Sciences in 2004, the American Academy of Microbiology in 2004, and the American Association for the Advancement of Science in 2007. She won the International Prize for Biology in 2010. She has published over 170 scientific papers.

Dr. Moran’s research involves the evolution of bacterial genomes and of symbiotic associations. She has shown that intimate symbiotic associations date to the origins of major groups of organisms, and she has used genomic and experimental work to show that these associations provide hosts with essential molecules and defenses. She also works on general principles involving the evolution of genomes in bacteria.

E. F. Knipling

Elliot Krafsur, ISU Professor Emeritus, writes: Edward Fred Knipling (Ph.D. 1947, Iowa State College) is the most recognized and one of entomology's most distinguished and honored graduates in its 133-year departmental history. "Knip," as he was known to his colleagues and friends, was the Director of the Entomology Research Division of the Agriculture Research Service from 1953 to 1970 and a USDA Collaborator until 2000.

Dr. Knipling and his colleague Raymond Bushland are credited with inventing the sterile insect technique (SIT). It was Dr. Knipling whose imagination and leadership led to the highly successful screwworm, med fly, and boll weevil area-wide control and eradication programs. Knipling used intuitively simple and convincing population models to demonstrate the chief principle of SIT, that of pest "birth control." Among his national and international awards are the King's Medal for Service in the Cause of Freedom (GB, 1948), National Medal of Science (1967), the World Food Prize (1992), FAO Medal for Agricultural Science (1991), and honorary doctorates from Clemson, Florida, North Dakota and Texas A&M universities. Knipling was elected a member of the National Academy of Sciences in 1966.

A comprehensive review of the work in practical, environmentally benign pest management practices is provided by Knipling's "The Basic Principles of Insect Population Suppression and Management" (USDA Handbook No. 512, 1979). His last magnum opus was "Principles of Insect Parasitism Analyzed from New Perspectives" (USDA Handbook No. 693, 1992). Knipling's most recent journal article was published in 1998, capping a 66-year career of contributions to the scientific literature.

E. F. Knipling (20 March 1909 – 17 March 2000) was born on a 150-acre farm in Port Lavaca, Texas. He earned his B.S. (1930) and M.S. (1932) from Texas A&M College. Knipling's time at Iowa State College (ISC) began in 1930, first as a temporary worker, and later as a Ph.D. student with interests in medical/veterinary entomology. He met his wife Phoebe at ISC where she was a successful Ph.D. candidate.

Knipling's M.S. thesis was "Studies of the immature stages of certain fly larvae (Diptera: Muscoidea)." He also published a series of papers on the phenology and relative abun-



dances of barnyard flies at various sites at ISU livestock facilities. It was at ISC during his first residence that Knipling met E.W. Lockey who convinced him to undertake research on screwworms for the USDA at Menard, Texas. Later, Knipling submitted his Ph.D. dissertation "Evaluation of certain insecticides and drugs as chemotherapeutic agents for external blood sucking parasites." The work was principally based on his studies in Florida in support of the war effort.

If the writer may be allowed a personal note, he served with Dr. Knipling on several committees and consultancies and found him to be intellectually keen. He was, above all, a very modest and personable man utterly without pretension. My USDA colleagues from an earlier time who worked for Dr. Knipling often remarked on his leadership skills and helpful interest in their researches. Knipling was not a micromanager but followed up scientifically promising ideas by encouraging staff through perceptive questioning and timely support.

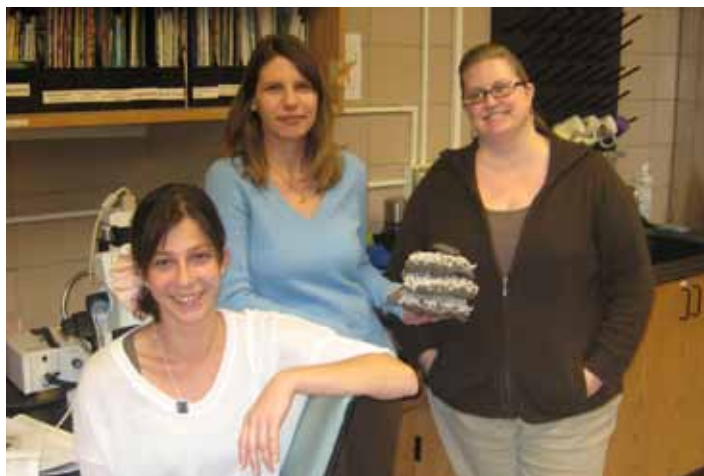
Diagnostic Lab is Growing

The ISU Plant and Insect Diagnostic Clinic (PIDC) identifies insects and diagnoses plant problems for homeowners, pest management companies, farmers, agribusinesses and many others in the state of Iowa. **Laura Jesse** (1998 B.S., 2001 M.S., and 2006 Ph.D.), Erika Saalau-Rojas and Rashelle Matthiesen staff the clinic; Erika and Rashelle were both hired this past year. Erika is a plant pathologist and is working full time in the clinic while finishing her Ph.D. on bacterial wilt of cucurbit. Rashelle works half time for the clinic helping process samples.

This year, the PIDC processed over 1,700 samples – primarily for insects and disease in corn and soybean, but also for a wide variety of trees and ornamental plants. We also received many bed bugs for identification and lots of other insects that randomly find their way into beds.

As part of the National Plant Diagnostic Network, the PIDC remains watchful for new and emerging pests entering Iowa. We kept our eye out for thousand cankers disease, a new insect-vectored fungal disease of black walnut. Luckily thousand cankers disease was not confirmed in submitted walnut samples.

This year we made the first detection in Iowa of the brown marmorated stink bug, an invasive insect that is a pest of fruit, vegetable, ornamental plants, soybean, and corn. To make matters worse it is a household invader in the fall. We detected the brown marmorated stink bug arriving in boxes shipped from infested states, and



The PIDC team: Erika Saalau-Rojas, Laura Jesse and Rashelle Matthiesen

do not yet believe it has established in Iowa. As part of our ongoing efforts to educate the public and to detect this new pest, the PIDC helped produce a midwest stink bug identification guide in 2011 (PM 3012 – available from the ISU Extension Store at <https://store.extension.iastate.edu>).

The PIDC staff continues to provide timely updates on insects and diseases through the ISU Horticulture and Home Pest Newsletter (HHPN) with 35 contributed articles this past year. For seasonal updates or more information on insect and disease problems, please see the HHPN at www.ipm.iastate.edu/ipm/hortnews/. Also visit our website www.ent.iastate.edu/pidc/ and see us on Facebook.

Keep in touch!

Please let us know if you have information to share with Department of Entomology friends and alumni. Items could include job changes, honors and awards, and personal notes. Kindly direct information to Erin Hodgson, Iowa State University, Department of Entomology, 103 Insectary, Ames, IA 50011-3140 or via e-mail: ewh@iastate.edu.

The ISU Department of Entomology Newsletter is for Alumni and Friends, and is produced by ISU entomology faculty and staff. This newsletter and previous issues are available online at www.ent.iastate.edu/alumni.

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those many former students and postdocs who are making important contributions to the science of insect toxicology.

Joel's major research contributions have come in two areas: 1) insect toxicology, with a focus on insect control chemistry and natural products as insecticides and repellents, and 2) environmental toxicology and chemistry of agrochemicals, including study of the environmental fate of insecticides, herbicides, Bt toxins from transgenic crops, and veterinary antibiotics. During 33 years at ISU, his research has spanned the spectrum from very applied to very basic topics.

BugGuide Gathering

BugGuide (<http://bugguide.net>) is a virtual community of naturalists interested in arthropod identification and macro-photography. But at least once a year, members of the community meet in real life. **John VanDyk**, the webmaster of BugGuide, organized the 2011 event and led field trips to prairie areas in and around Ames.

The gathering was hosted by ISU Entomology 29-31 July, and was attended by approximately 40 people. Days were filled with field trips to different Iowa insect habitats and evenings with identification work or blacklighting. **Greg Courtney** led field trips to nearby aquatic habitats and

ran a hands-on aquatic insect photography workshop. **Matt O'Neal** led a group to the Neal Smith National Wildlife Refuge and visited a research project that attempts to increase insect biodiversity and ecosystem services to crop land through the inclusion of prairie. John Pearson (Iowa DNR) identified interesting ecological areas and led numerous field trips around Ames.

The more than 600 insect photographs that were taken and posted to the BugGuide website during and after the 2011 event can be viewed at <http://bugguide.net/iowa2011>.



John Pearson and Lloyd Crim photograph walking sticks, spiders and leaf miners in Ledges State Park



Greg Courtney, Jackie Gautsch (Iowa DNR) and Troy Bartlett (BugGuide founder)

2011 Day of Insects

The latest edition of Day of Insects (DOI), on 5 March 2011, was another huge success. For two years, the conference has drawn a full house (100 participants) from Iowa and bordering states. The event was organized by MJ Hatfield and Nathan Brockman, and hosted at Reiman Gardens. ISU and Reiman Gardens have been integral to the success of DOI, providing a wonderful venue and friendly staff.

There were 14 presenters with additional discussions over breaks, viewing of displays, and visiting the Christina Reiman Butterfly Wing. Speakers covered a diversity of topics, ranging from ticks to bees, and life histories to evolutionary relationships. ISU speakers included **Royce Bitzer** (Project potpourri: Insect populations changing in space and time), **Greg Courtney** (What on earth is this? Discovery and description of a new species), and **Amy Toth** (Superorganisms: How insect societies rule the Earth).

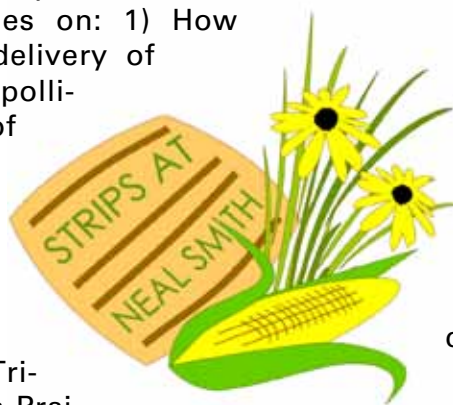
The 2012 conference will be held on 24 March and is open to anyone interested in insects. The annual meeting has four major goals: 1) provide a venue for enthusiasts and amateurs to present their work; 2) provide a forum for professionals to present to the public; 3) encourage interaction among insect enthusiasts from different disciplines and organizations; and 4) inspire more individuals to develop an interest in arthropods. Another goal of the organizers is to include new presenters each year, with half of the presenters being amateurs/enthusiasts, and the other half professionals.

According to the meeting co-organizers, DOI is "a cobblestone bridge providing access to the amazing world of invertebrates" and about "enthusiasm and passion for insects, amateur and professional, and even folks who had forgotten how much fun insects were back when they were kids."

Workshop Promotes Insect Conservation

The middle of Iowa, surrounded by corn and soybean, may not be considered bustling with beneficial insects. But on 4 August 2011, a one-day workshop was held at the ISU Field Extension Education Laboratory in which over 40 participants learned about the ongoing research by ISU faculty on the topic of "Conserving beneficial insects with native plants." This workshop was supported by the Leopold Center for Sustainable Agriculture and the Midwest Biological Control Institute (sponsored by NCERA 125).

Lisa Schulte-Moore, Mary Harris and **Matt O'Neal**, as well as graduate students **Kelly Gill** and Meghan Jarchow (Agronomy), conducted lectures and hands-on activities on: 1) How Iowa's landscape affects the delivery of ecosystem services; 2) Insect pollinators; 3) What conservation of beneficial insects with native plants looks like; and 4) Growing native: how do we do it? Many of the presenters are involved in a multi-disciplinary project at the Neal Smith Wildlife Refuge (Science-based Trials of Rowcrops Integrated with Prai-



ries, or 'STRIPs'), that explores this topic in more detail (www.nrem.iastate.edu/research/STRIPs/).

A subset of the participants were graduate students from land-grant universities in Kansas, Minnesota and Indiana. These students stayed an extra day to participate in a second workshop on the use of the anthrone-test for determining the use of extra-floral resources by beneficial insects, conducted by George Heimpel from the University of Minnesota.

Participants traveled from Iowa, Kansas, Illinois and Indiana, and included farmers (both organic and conventional), extension agents and 20 from Master Gardener programs from 6 Iowa counties (Blackhawk, Boone, Branch, Marion, Polk, Story).

Evaluations of the workshop indicated an overwhelmingly positive response from all participants and requests for more information on bees, pollinators and their conservation. Given the on-going decline of wild and domesticated bees in North America, this response is encouraging.

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As you have probably heard, the Departments of Entomology and Natural Resource Ecology and Management (NREM) are being administratively combined; they will share the leadership of a single Chair. We are in the process of developing a business model to more efficiently coordinate the staff of both departments. There should be no effect on the academic, research or extension programs other than the normal changes made as we constantly strive to improve our programs. While funding streams will be separately managed, the business model will help us to run both departments more efficiently, save some money and provide better service.

For example, we have started with our Internet Technology or 'IT' group. Two separate IT groups are now combined and co-located on the fourth floor of Science II. **John VanDyk** will head up the group, ably assisted by Christian Charbonneau (Charby) and several undergraduate work study students. This group has already taken leadership on converting the Science II building

to a faster internet speed. There is a substantial savings in converting the entire building rather than a piecemeal approach and we have John to thank for providing that leadership. John and Charby are reorganizing the IT office, including a workshop for computer rebuilds and have identified a new location to house the servers of Entomology, NREM, and Plant Pathology and Microbiology.

Another joint ENT-NREM committee will be taking on the management of the greenhouses of both departments, again so that we can operate this important resource efficiently.

Congratulations to faculty, students, and alumni who were recognized this year for continuing the tradition of excellent and outstanding achievement. I welcome you to stop in for a visit if you travel to Ames. I would love the opportunity to get acquainted and catch up with alumni and friends. The whole department joins me in wishing you a very productive year.

Student Awards

This year, the deadline for nominations for some of the student awards was changed. Hence awardees for 2011 and 2012 are listed below.

The Wayne A. Rowley Scholarship in Entomology, which provides \$1,800 to students with preference given to applicants concentrating on medical entomology, was awarded to **Adam Varenhorst** (2011) and **Jeff Alfred** (2012). Adam is supervised by Matt O'Neal and Jeff is supervised by Lyric Bartholomay.

The Larry Pedigo Graduate Scholarship in Entomology was awarded to **Mike McCarville** for both 2011 and 2012. This scholarship of \$1,000, established to honor the many contributions of



Sue Blodgett and Mike McCarville

Larry Pedigo to the department and college, recognizes scholarly performance. Mike is supervised by Matt O'Neal.

The Entomology Alumni Scholarship for undergraduates or graduates in entomology was awarded to **Mike McCarville** (2011) and **Mike Rausch** (2012). This \$1,000 scholarship was awarded based on promise for a career in entomology. Mike Rausch is supervised by Rick Hellmich and Aaron Gassmann.

The Jim Oleson Scholarship in Entomology, which provides \$1,000 to students who demonstrate academic promise and initiative, was awarded to **Kelly (Seman) Gill** for 2011 and **Jing "Jessie" Sun** for 2012. Kelly is supervised by Matt O'Neal. Jing is supervised by Tom Sappington and Aaron Gassmann.



Kelly Gill

Luke Linz received an award for Outstanding graduate student poster presentation, titled "Putative Gut Receptor for Pea enation mosaic virus in the Pea Aphid, *Acyrtosiphon pisum*" at the 2011 North Central American Society for Microbiology Branch meeting in Des Moines, Iowa. Luke is supervised by Bryony Bonning.



Luke Linz

The Entomology Student Scholarship for Student Excellence, funded by the Fred Clute Memorial Fund, was awarded to **Kelly (Seman) Gill**. This award of \$500 recognizes academic excellence at the undergraduate level, or excellence in research, teaching and/or extension at the graduate level.

At the 2011 ESA North Central Branch meeting (Minneapolis, Minnesota), the following students received competition prizes: **Mike McCarville**, first place for "Interactions among a nematode, fungus and aphid: Implications for soybean management." **Adam Varenhorst**, third place for "The natural enemy community of the soybean aphid and the effects that selective insecticides have on its populations." **Patrick Jennings**, first place for "Investigating transcriptional regulation of mosquito egg development by RNA-seq." Patrick is advised by Lyric Bartholomay.

At the 2011 National ESA Meeting (Reno, Nevada), the following students received competition prizes: **Mike McCarville**, first place for "Interactions between a nematode, fungus and aphid: Implications for soybean management." **Mike Dunbar**, second place for "Comparing block and blended refuge strategies for managing resistance of western corn rootworm to Bt corn." Mike Dunbar is supervised by Aaron Gassmann. **Eric Clifton**, first place for "Effects of organic and conventional agriculture on entomopathogenic fungi." Eric is co-advised by Aaron Gassmann and Erin Hodgson. **Luke Linz**, second place for "Putative gut receptors for Pea enation mosaic virus in the pea aphid, *Acyrtosiphon pisum*."

ISU Grads Continue High Placement Rates

Undergraduate Students

Caleb Robb (Insect Science and Biology) is now attending veterinary school at ISU.

Steven Longwell (Insect Science) is employed by Pioneer Hi-Bred International in Johnston, Iowa.

Maegan (Oelmann) Sonksen (Entomology and Animal Ecology) graduated in 2011.

Trief Henze (Insect Science and Biology) is currently an M.S. candidate in the department of entomology at ISU working with Matt O'Neal.

Graduate Students

Mike Dunbar received his M.S. under the direction of Aaron Gassmann, and is continuing with Gassmann to work toward a Ph.D. The title of his thesis was "Distribution of two rotation-resistant corn pests in eastern Iowa and effects of soybean varieties on the biology of *Diabrotica virgifera virgifera*."



Mike Dunbar

Mike McCarville received his M.S. with Matt O'Neal. His thesis was titled "Exploring soybean integrated pest management in a changing agricultural environment: the impacts of decreasing ecosystem services, invasive species and specialty cultivars." He is continuing to work with Matt for a Ph.D.

Jeff Alfred graduated with an M.S. under the guidance of Lyric Bartholomay. The title of his thesis was "Morphological and molecular techniques for the differentiation of myiasis-causing Sarcophagidae." He is working as a biological sciences technician in the USDA-APHIS National Veterinary Services Laboratory in Ames, Iowa.

Adam Varenhorst received his M.S. with Matt O'Neal with a thesis titled "Selective insecticides and the potential for improved soybean aphid control as a result of a bioresidual." Adam will continue to work with Matt on a Ph.D. in entomology.

Patrick Jennings received his M.S. under the direction of Lyric Bartholomay. His thesis was titled "Transcriptional regulation of mosquito oogenesis." Patrick is now employed by Harris Vaccines in Ames, Iowa, to work on shrimp viruses.

Jon Oliver graduated with a Ph.D. from the Bartholomay lab. The title of his dissertation was "Ecological, organismal, and cellular explorations of three medically significant species of ticks in Iowa." Jon is a postdoc with Tim Kurtii at the University of Minnesota.

Rebecca Sam, graduated with a Ph.D. from Greg Courtney's lab and is currently the interim director of the ISU Insect Zoo. Her dissertation title was "Taxonomy, phylogeny, and biogeography of the net-winged midges of Madagascar (Diptera: Blephariceridae: Paulianina and Eupaulianina)."

Grishma Parikh graduated with a Ph.D. under the direction of Lyric Bartholomay. The title of her dissertation was "Cell biology of pathogen-hemocyte interactions in the mosquito innate immune response." Grishma is now actively looking for a postdoc position.



Lyric Bartholomay and Grishma Parikh

The Seasons of the Insect Zoo

Greg Courtney and Becky Sam write: A new year gives pause to reflect on activities of the past and look forward to the year ahead. In many respects, 2011 was a typical year at the Insect Zoo, characterized by busy travel schedule around Iowa and programs at a variety of venues. In other respects, it was a time of dramatic change.

Spring has always been a busy time for the **Insect Zoo**. As temperatures warm and people venture into a landscape full of insects, many schools request programming to capitalize on student interest in the myriad insects around them. Spring 2011 also saw the Insect Zoo visit the Science Center of Des Moines and participate in several Science Night events at local schools. And, per usual, one of the highlights of our spring was VEISHEA, here at ISU. Over 2,000 visitors were able to experience live animal displays, witness Madagascar hissing cockroach races, and construct origami insects.

Although the onset of summer brings a diminishing number of school programs, the Insect Zoo remains busy at other venues. In 2011 we traveled to several libraries and visited many summer camps and county fairs. We also spent time with Boy Scouts and 4-H programs around the state. And, as always, another of our favorite events was the Iowa State Fair, where we see thousands of visitors in just a few hours.

Early fall is often a time for the Insect Zoo to regroup and plan for the year ahead. Early fall can include a busy slate of activities and our 2011 schedule was no exception, with highlights including an evening engaging people of all ages at the Valley West Mall in Des Moines and participation in Spencer Community Schools "Insect Days" at the Iowa Lakeside Laboratory.



Matt O'Neal and daughter, Marlys, made origami insects during the 2011 VEISHEA festival.

Fall was also a time for change at the Insect Zoo, as we bid farewell to Angela Tague in early September. Angela served as the Educational Coordinator for 6 years and did an outstanding job expanding the reach of the Insect Zoo, working to enhance cooperative programming across campus, and nurturing a passion of insects in thousands of students throughout Iowa. We wish Angela the very best with her future endeavors.

During this period of transition, Rebecca Sam, Curtis Behrens, and Erick Hernandez have served admirably as interim program coordinator, outreach specialist, and rearing room specialist, respectively. They and our student workers have kept a busy schedule of quality programs while we seek a full-time replacement for Angela. We look forward to 2012 with great optimism and are excited by the future possibilities for curriculum development and the Insect Zoo's continued positive impact on people around Iowa.



Many children participated in the Insect Zoo program in 2011.

Did you know?

The ISU entomology faculty has expanded in numbers. Recently, the faculty voted to approve collaborator status for three scientists. **Marlin Rice** is a senior research scientist with Pioneer Hi-Bred International in Johnston, Iowa. **Brad Coates** is a research geneticist at the USDA-ARS, Corn Insects and Crop Genetics Research Unit in Ames, Iowa. **Keri Carstens** is the environmental safety assessment leader for Pioneer Hi-Bred in Johnston, Iowa.

EGSO Active in 2011



2011 Linnaean Games participants: Adam Varenhorst, Eric Clifton, Robert Bruner, Mike Dunbar (coach), Ryan Keweshan, Kelly Gill, Diveena Vijayendran, Aaron Gross, Mike McCarville, and Patrick Jennings.

In 2011, the Entomology Graduate Student Organization (EGSO) hosted several social and educational functions. The First Annual Entomology Bowling Tournament, held in January, pinned entomology faculty and staff against the graduate students. Multiple games were played to determine a winner, which in the end was the student team, of course.

Inspired by the 2010 ESA-NCB meeting, EGSO members reformed a Linnaean Games team. The team met once a week to practice entomological trivia and learn ESA history, with Mike Dunbar creating the practice questions. These sessions were open to all students regardless of whether they will actually compete in future events or not. ISU entered two teams at the 2011 ESA-NCB meeting with one team placing second. The team

earned \$2,500 to sponsor student travel to the 2011 ESA Annual Meeting and also qualifying for the National Linnaean Games Tournament. The EGSO used the award money to sponsor Diveena Vijayendran and Aaron Gross to attend the Annual Meeting and help compete for the Linnaean Games team. The ISU team fell short of points in the first round to UC-Davis (50-70), but was the only first round exiting team to lose by less than 100 points.

In October, the EGSO also hosted the annual Insect Film Festival and Activity Night at Reiman Gardens. The evening featured live insects, games, crafts and the film "A Bee Movie." Over 50 participated in the festivities.



Kelly Kyle's grandchildren, Makayla and Samuel Young, participated in the 2011 Insect Film Festival and Activity Night at Reiman Gardens.



In August, the EGSO hosted the Annual Entomology Softball Game where the faculty and staff again took on the graduate students. The students ultimately prevailed, though the faculty and staff fought valiantly until the final inning. Notice by the picture, it was a hot day!

Opportunities to Donate to Entomology

With the severe budget constraints at Iowa State University, the Department of Entomology is increasingly dependent upon the generosity of alumni and friends. To support the department, please fill out this section and return it with your check or money order (made out to The ISU Foundation) to the Department of Entomology, Iowa State University, 110 Insectary, Ames, IA 50011. Alternatively, donations can be made online at www.foundation.iastate.edu/entomology.

My support this year is in the amount of _____

Please designate my gift to the area(s) in the amount(s) shown below:

- _____ Biosystematics Travel Fund for travel costs associated with biosystematics research
- _____ Bug Guide – an online resource for insect identification
- _____ Entomology Alumni Scholarship for undergraduate scholarships
- _____ Entomology General Account
- _____ Entomology Memorial Fund for various expenses, including graduate student travel and merit awards
- _____ Fred Clute Memorial Entomology Fund for general support for the Department of Entomology including The Entomology Student Scholarship for Student Excellence
- _____ Henry and Sylvia Richardson Research Incentive Grant provides funding for graduate research experiences beyond their degree program (see associated article on page 17)
- _____ Iowa State University Insect Zoo
- _____ Jim Oleson Scholarship in Entomology for students who demonstrate academic promise
- _____ Larry Pedigo Graduate Scholarship in Entomology for scholarly performance
- _____ Wayne A. Rowley Scholarship in Entomology for graduate and undergraduate scholarships with preference given to those with an interest in medical entomology

For more information about these funds, please contact us at the departmental address above or call (515) 294-7400. For more information about other gift designations, please contact Nicholas Dolce via phone: (515) 294-9328 or e-mail: njdolce@iastate.edu.



Petersen Benefits from Richardson Grant

Jessica Petersen writes: Worldwide, crane fly (Diptera: Tipuloidea) species diversity is high, accounting for roughly 10% of all Diptera, but little is known about the ecological and evolutionary processes that have led to such diversity. Historically, phylogenetics, or the study of the evolutionary history of a particular group of organisms, has involved identifying morphological similarities and differences within the group. Today, molecular tools are available to enhance our understanding of evolution and systematics.

In 2009, I received the Henry and Sylvia Richardson Research Incentive Grant to extend my dissertation research to include a molecular component. My research focused on reconstructing the evolutionary history of the crane fly genus *Euphyllidorea Alexander* (Diptera: Tipulidae), a project aimed at furthering our understanding on the processes that have led to such great faunal crane fly diversity. During 2007-2009 I had collected hundreds of new field collected specimens of *Euphyllidorea* from work conducted across the United States and Canada. Through this grant I was able to travel to Ithaca, New York and the Cornell Lab of Ornithology to work with Dr. Irby Lovette and the Fuller Evolutionary Biology Lab. Ultimately, with their help, I sequenced



two mitochondrial genes, COI and COII from over 57 populations and 81 individuals and a nuclear gene CAD from a subset of the populations.

The Richardson Research Incentive Grant not only allowed me to collect the molecular data, but also to travel to seek training from professionals in the field of molecular sequencing. The tools that I learned to use and the connections made through this work allowed me to further my research career beyond what was available to me without this funding opportunity.

I graduated in 2010 and am currently conducting postdoctoral research with Brian Nault at the University of Cornell.

New Look and Feel for Department

In 2011, the entomology newsletter committee (**Bryony Bonning, Matt O'Neal, Russ Jurenka, John VanDyk, and Erin Hodgson**) decided our department needed a new "look and feel" to represent ourselves. So Erin worked with ISU graphic design students to create a few different design elements. Ultimately, three series that

ranged from realistic to abstract were developed and the department and alumni voted on a favorite design set in the fall/winter (see page 1 and 16 for examples). We intend for these graphics to be used on clothing, in our newsletter, Facebook (www.facebook.com/ISU.Entomology), and website (www.ent.iastate.edu/).



The department also got new group photos at the Big Bugs Exhibit in Reiman Gardens. For a close-up view, visit www.ent.iastate.edu/about, and mouseover faces to get names. Photos by Bob Elbert.

Featured Entomologist: MJ Hatfield

Note: Modified from an article published in the Des Moines Register, 31 July 2011 entitled "Discovering bugs and her passion."

MJ Hatfield, 61, retired UPS driver and insect enthusiast, discovered insects by way of native plants. In 1996, she began establishing prairie on her former crop land along the Upper Iowa River near Kendallville in northeast Iowa. After 15 years there were four prairie fields on the 35 acres. At first, she just let it grow. But prairie needs tending, like a garden. She planted seeds and pulled invasive weeds. She burned and hoped. And soon the prairie attracted insects, which attracted birds, and she found herself paying attention. She got rid of her television.

She took early retirement in 2004, joined AmeriCorp, and took an entomology class. The light went on and Hatfield's zeal quickly caught on. She led students on field trips for Danielle Wirth, an assistant professor at Drake University in environmental science. Wirth's class helped her collect larvae for a kind of moth she had never seen before, a moth that came from it had never been named. MJ subsequently took several undergraduate and graduate level entomology courses at ISU. Her curiosity has led to the discovery of a unnamed moth species.



Hatfield manages the Iowa Insects Mailing List, a forum for insect enthusiasts. She also is an organizer of the Day of Insects, an annual meeting for insect-enthusiasts held at the Reiman Gardens in Ames, Iowa (see page 10 for more details). "Life is about passion," she says. "There is a fine line between passion and obsession. I toe that line every day."

First Report of Rootworm Resistance to Bt

Aaron Gassmann writes: Transgenic crops that produce insecticidal toxins derived from the bacterium *Bacillus thuringiensis* (Bt) have been rapidly adopted by farmers and were planted on more than 140 million acres worldwide in 2010. The vast majority of these acres were planted to Bt corn and Bt cotton. Benefits of Bt crops include reductions in the use of broad-spectrum insecticides and the suppression of key insect pests, both within fields and at a landscape level. The evolution of Bt resistance by insects is a threat to the benefits of this technology.

Beginning in 2009, I was notified by ISU Extension of complaints by farmers and farm managers of severe root injury to Bt corn from western corn rootworm. My research group sampled these populations and conducted laboratory bioassays. We found that western corn rootworm populations in these problem fields had devel-

oped resistance to Bt corn. A common feature among problem fields was the continuous cultivation of Bt corn, with fields planted to the same type of Bt corn for at least three consecutive years and as many as six consecutive years.

This research represents the first case of western corn rootworm developing resistance to Bt corn in the field. My research group and I published this work in the journal PLoS ONE (see [Gassmann et al. 2011](#), page 20). A central message of the article is the need to use integrated pest management in addition to resistance management when managing pests with Bt crops. The first case of field-evolved resistance to Bt corn by western corn rootworm represents a small number of fields and provides an early warning for the need to use a greater diversity of management practices, in addition to Bt corn, for management of western corn rootworm.

Featured Graduate Student: Mike McCarville

Mike McCarville writes: After completing my B.S. in biology (2008) from Briar Cliff University in Sioux City, Iowa, I started my master's degree at ISU. In the four years since then I have enjoyed my time here immensely. I have been able to take advantage of a myriad of opportunities to be involved in the department and the Entomological Society of America (ESA).

I conducted the research for my M.S. degree in the Soybean Entomology lab with Matt O'Neal working on a multi-disciplinary project focused on host-plant mediated interactions between the soybean aphid, soybean cyst nematode, and brown stem rot fungus. The results of this research earned me a Research Excellence Award from ISU and were also used to obtain a multi-year grant from the Iowa Soybean Association to fund research as part of my Ph.D. dissertation.

At National and North Central Branch ESA meetings, I have been able to present research results to peers. I have earned student presentation awards at the 2010 and 2011 meeting and the 2011 National meeting. I also participated in our society as the representative to the NCB student affairs committee. I also enjoyed participating on the ISU Linnaean Games team at NCB and National ESA meetings.

At ISU, I had the opportunity to assist in field crops extension. I helped write three articles for the online Integrated Crop Management Newsletter. In these articles, we alerted Iowa farmers to potential soybean pests, providing farmers with scouting instructions and management recommendations. As part of these articles, we provided updated economic thresholds for green cloverworm and bean leaf beetle. With the help of Erin Hodgson, we created an interactive spreadsheet for farmers to download and input current soybean prices and insecticide costs to provide personalized economic thresholds for bean leaf beetle. This spreadsheet pulls together previous research from multiple people at ISU, providing thresholds for two sampling methods (drop-cloth and sweep net) and two generations of bean leaf beetle.

I am now pursuing my Ph.D. in the Soybean Entomology lab. My research will focus on soybean aphid host plant resistance and host plant mediated interactions between the soybean aphid and soybean cyst nematode.



Julia and Mike McCarville

Despite being busy with graduate school over the past four years, I have also been busy with my personal life. I married my best friend, Julia (Robinson) McCarville, in April 2011 in Omaha. Julia and I have kept busy over the past two years with our favorite hobby - running. We try and mix in about a dozen races ranging from 5K's to marathons over the course of the year. We have now run marathons in Iowa, Nebraska, Minnesota, Illinois, and Louisiana. When we are not running, Julia and I spend our time camping on the weekends with friends or traveling back to Omaha to visit family and friends.

See more photos

We have too many photos to include in our newsletter! Visit the ISU Entomology website, www.ent.iastate.edu/alumni/2011, to see our departmental photo, more social events, close ups of featured cover art, and Kelly Gill's paintings. Remember to "like" us on Facebook (www.facebook.com/ISU.Entomology) to hear about events and awards throughout the year.

Patents and Selected Publications

Patents

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Insect Haiku Contest

This year's competition with an insect theme was to write a haiku or short poem relating to entomology. Sarah Passoneau, ISU Assistant Professor (Library), and daughter of entomologist, Janet V. Passonneau who worked with Carroll Williams, served as judge for the competition. The winning entries were:

First Place:

Case of Acari-tis, by Greg VanNostrand
Trombiculidae
Always seem to eat and run
It's irritating

Second Place:

Mantis, by Cody Kuntz
I sit still and quiet, the leaves at my back
Concealed, I just wait for my next attack,
Don't walk by where I pray,
Or my friend I just may,
Grab you and have a nice snack.

Third Place:

A Monogamous Nature, by Greg Courtney
wafted on the breeze
nymph flies couple and descend
to their mossy tomb

Note: Adult nymph flies (Diptera: Nymphomyiidae) fly briefly (and feebly), find a mate and couple. The pair then crawls beneath the water, losing their wings as they descend, and search for a moss-covered rock where the female places a rosette of eggs around the coupled bodies. In this state the pair then dies.

Honorable mention:

Cicada, by Tom Sappington
three years' dark silence;
all over but the singing
in blinding twilight

Honorable mention:

Mimicry, by Cody Kuntz
I could be called Viceroy, Monarch, or Queen
I hope that you know what my colors mean,
We look the same for a reason,
Müllerian or Batesian?
If consumed, you may find I taste quite obscene.

Journal Cover Art



Photo cover for *Virology* (2011) by Bryony Bonning

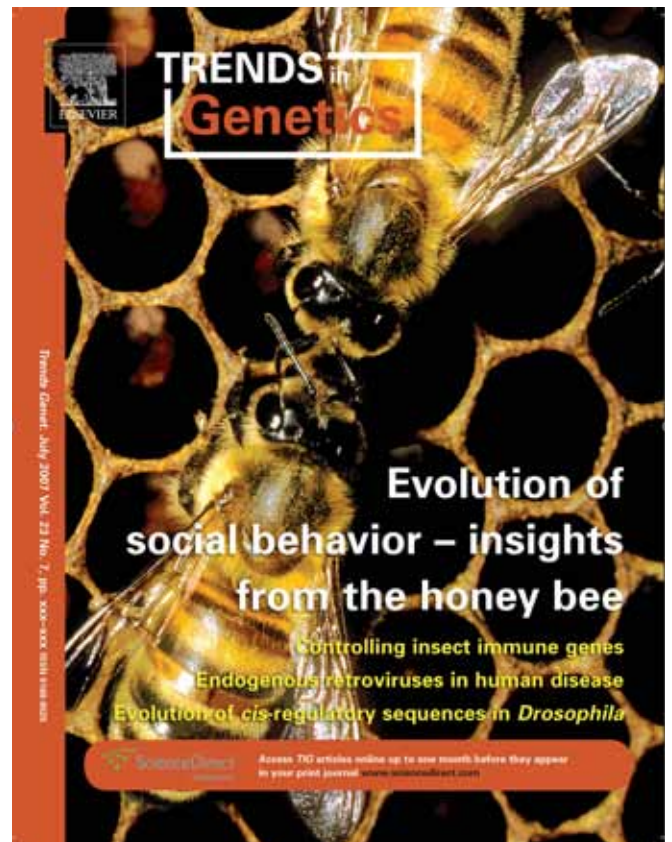


Photo cover for *Trends in Genetics* (2007) by Amy Toth

Gill - Entomologist by Day and Artist at Night

Kelly (Seman) Gill writes: Most of my working and artistic interests explore connections between art and science and the structure and growth of organic shapes. I am interested in fluid movement as it occurs in nature in the form of clouds, plants, waves, microbes, and bones and how these elements interact with man-made structures.

Recently, I have been working with acrylic paint and mixed media on heavy weight, cotton paper (Rag paper). Much of my time is devoted to my graduate studies and research, but I manage to create a few paintings each year and I have sketchbooks filled with ideas for future works.

From 1998-2002 I studied fine art at Kutztown University of Pennsylvania where I received a Bachelor's degree in Fine Arts with a concentration in drawing and painting. After graduating I received an honorary artist-in-residence position at Kutztown University where I focused on print-making using Intaglio and copper plate etching techniques and some of these prints reside in the University Collection. Here are some of my favorite pieces.



Photos from the 2011 ESA Meeting in Reno



Sue Blodgett, Gary Hein, Wanda Hein, and David Buntin



Steve Thompson, Rachel Binning, Jared Ostrem, and Susan Moser



Wai-Ki Frankie Lam, Laura Weiser, and Kris Giles



Matt Petersen, Joel Coats, and Kirk Larsen



Jeff Bradshaw, Patti Prasifka, and Jarrad Prasifka



Paula Davis and Todd DeGooyer



Tom Baker, Jim McNutt, and Clint Pilcher



Luis Gomez and Agenor Mafra-Neto