



# IOWA STATE UNIVERSITY Department of Entomology

January 2011 Newsletter  
For Alumni and Friends

## Les Lewis Retires



Donald Lewis presents Les Lewis with a retirement gift from the department at the holiday party in December.

At this writing my retirement is fast approaching. I always thought I would retire from my job as Research Leader and Scientist with the USDA-ARS. But things changed when Dean Wintersteen gave me the opportunity to be Chair of Entomology in the Fall of 2008 for a two-year appointment. As I review my career, the common thread that runs throughout is the privilege of always being surrounded by persons that enjoyed their jobs and wanted to succeed. It has made my career enjoyable and rewarding. As I finish this appointment and decide what to do next, like many who have retired before me, I have a few things to finish from the laboratory. One scientific matter that I will pursue is the description of a microsporidium isolated from the western bean cutworm, *Striacosta albicosta*, an insect

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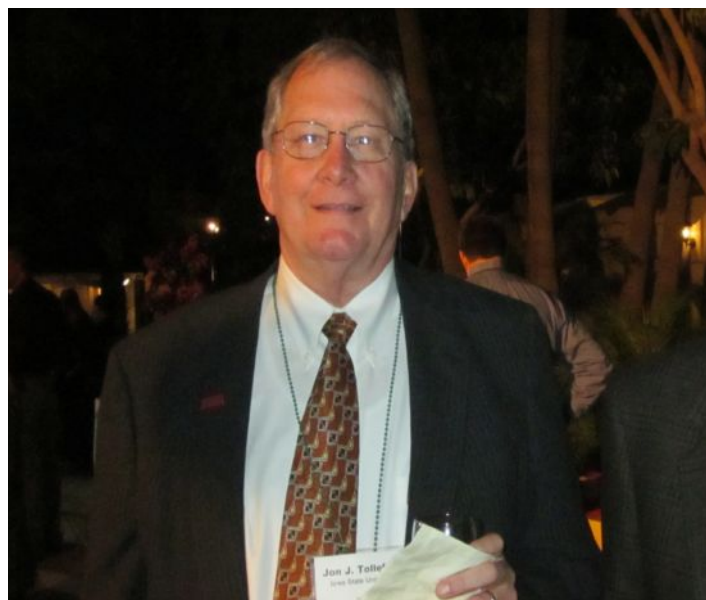
## Symposium Held in Honor of Tollefson

Jon Tollefson's career and accomplishments were celebrated at the 58th Annual Entomological Society of America (ESA) meeting in San Diego, CA. On December 14, a Plant-Insect Ecosystems Section Symposium was held entitled *Jon Tollefson vs. Corn Rootworms – Celebrating the Legacy of an Exemplary Land Grant Scientist*. The well-attended symposium was partitioned into three segments.

The first segment, "Tollefson, the early years (1975-1984): you gave this guy a job?!" focused on Tollefson's early days at ISU as described through presentations and stories by Jim Oleson (ISU), Kevin Steffey (Dow AgroSciences), Rick Foster (Purdue), Mike Gray (University of Illinois) and Gary Hein (University of Nebraska).

The second segment, entitled "Tollefson, the late instars (1985-1994): can we say "mid-career crisis?!" was presented by Robyn Rose (USDA-

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Jon Tollefson at his outdoor reception.



## Bartholomay and Hellmich publish in *Science*

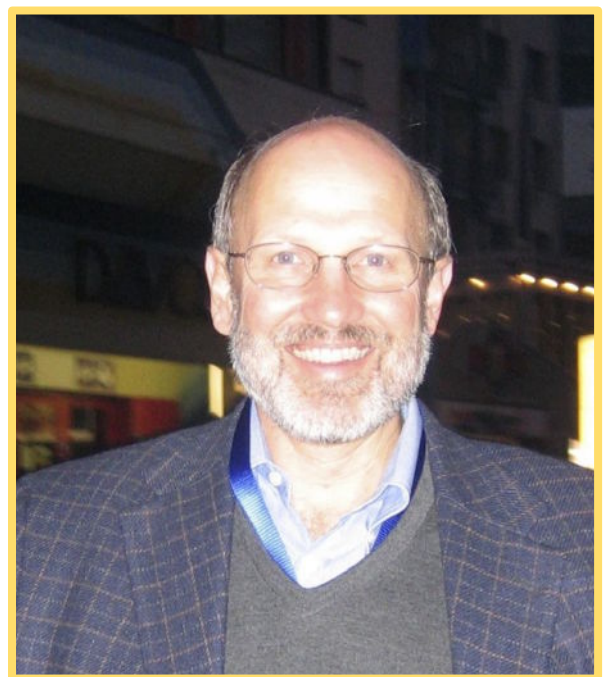
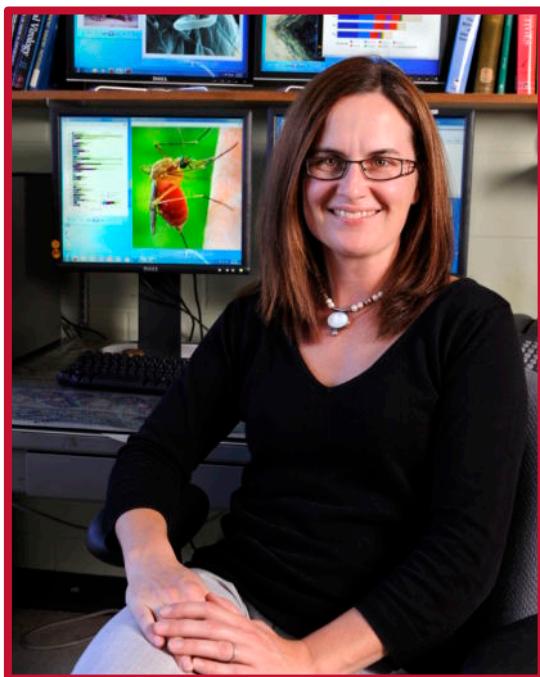
Lyric Bartholomay, along with collaborators from institutions around the world, published a paper on *Pathogenomics of Culex quinquefasciatus and meta-analysis of infection responses to diverse pathogens*, in the October 1, 2010 issue of *Science*. The southern house mosquito is the third of the three most important mosquito disease carriers to have its genome sequenced, as described in a companion paper in the same issue of *Science*. *Culex quinquefasciatus* is a pest species in addition to being an epidemiologically significant vector of a variety of pathogens that impact human and animal health. The manuscript details the infection-response genes and changes in the transcription of these genes when the mosquito is infected with viruses, nematodes, or bacteria.

Bartholomay, L.C., et al., 2010. Pathogenomics of *Culex quinquefasciatus* and meta-analysis of infection responses to diverse pathogens. *Science* 330: 88-90.

Arensburger, P., Megy, K., Waterhouse, R.M., Abrudan, J., Amedeo, P., Antelo, B., Bartholomay, L., et al., 2010. Sequencing of *Culex quinquefasciatus* establishes a platform for mosquito comparative genomics. *Science* 330: 86-88.

Richard Hellmich, USDA-ARS and ISU, co-authored a paper entitled *Areawide suppression of European corn borer with Bt maize reaps savings to non-Bt maize growers* that was published in the October 8, 2010 edition of *Science*. This research was conducted in collaboration with Bill Hutchison (University MN) and ISU alumni Mike Gray, Von Kaster, Earl Raun and Kevin Steffey, as well as Kenneth Pecinovsky, agronomist and farm manager for ISU's northeast research farm. The authors showed that cumulative benefits of the use of transgenic Bt maize are an estimated \$3.6 billion for maize growers in Iowa and Nebraska, with more than \$1.9 billion of this benefiting non-Bt maize growers. Their results support the theoretical predictions of pest population suppression and highlight economic incentives for growers to maintain non-Bt maize refugia for sustainable insect resistance management.

Hutchison, W. D., E. C. Burkness, P. D. Mitchell, R. D. Moon, T. W. Leslie, S. J. Fleischer, M. Abrahamson, K. L. Hamilton, K. L. Steffey, M. E. Gray, **R. L. Hellmich**, L. V. Kaster, T. E. Hunt, R. J. Wright, K. Pecinovsky, T. L. Rabaey, B. R. Flood, E. S. Raun. 2010. Areawide suppression of European corn borer with Bt maize reaps savings to non-Bt maize growers. *Science* 330: 222-25.





## From the Chair's Perspective

As many of you know ISU was directed by the Governor to take a 10% cut in budget along with all other state departments and agencies. When the cuts made it through the ISU colleges, the Department of Entomology received a >25% cut which jeopardized our existence as an independent unit of study. We have now made it through a year of downsizing, hanging on and I'm pleased to report we were able to maintain our identity as a department. Thanks to the efforts and open-minded thinking of many, we made difficult decisions and found a way to retain the identity of entomology. Structurally we had to make a change, combining the academic Chair of Entomology position with that of Natural Resource Ecology and Management (NREM), and move to a business center model for administrative oversight; however, Entomology was not eliminated. **Our research, extension, and education will remain intact for the foreseeable future.**

To navigate the best possible outcome for the department, its students, faculty, and staff, several meetings were held with deans and faculty to determine our options and develop short- and long-term plans. One option considered was combining Entomology with another Department in the College of Agriculture and Life Sciences, essentially eliminating the department. In the end, two critical outcomes of the budget cuts were the loss of the undergraduate major in Insect Science and the loss of all of the Graduate



*Les Lewis*

Research Assistantships provided by the College of Agriculture and Life Sciences. For the short-term, Central Administration has provided bridging funds to cover the budget reductions including the loss of Graduate Research Assistantships as we transition to having all graduate students supported by funding from their major professor. For the long-term, Dean Wintersteen has appointed a search committee to seek applications for the new Chair. The process commenced in November with a candidate identified to begin the Chair duties by July 1, 2011. Steven Jungst, Chair of NREM assumed the duties of Chair of both Departments beginning January 1, 2011.

Being Chair for over two years working with outstanding faculty and staff has been a privilege. Even though we have suffered a severe budget cut, we still have dedicated scientists conducting cutting edge research in the areas of insect vectors, insect/plant interactions, environmental quality, and corn and soybean insects. The Department is positioned to move forward with excellence.

### ***Keep in touch!***

Please let us know if you have information to share with friends and alumni of the ISU Department of Entomology. Items could include job changes, honors and awards, and personal notes. Please direct information to Bryony Bonning, Iowa State University, Department of Entomology, 418 Science II, Ames, IA 50011-3222; Fax: (515) 294-5957; E-mail: [bbonning@iastate.edu](mailto:bbonning@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](http://www.ent.iastate.edu/alumni).



# Jerry DeWitt retires from ISU, Leopold Center

Jerry DeWitt began his ISU career as an extension entomologist in 1972. He served in many capacities, including agriculture and natural resources extension program director; state liaison for Sustainable Agriculture, USDA-CSREES; extension IPM and pesticide applicator training program director; extension pest management and the environment program coordinator; and interim director/national program leader for Sustainable Agriculture, USDA CSREES-SARE.

*Jerry writes:* Over the last 37 years as an adopted "Iowa native" pursuing my ISU Extension work in Entomology and later as Director for the Leopold Center, I have driven literally thousands of miles across all of Iowa into every county and have left my footprints on many farms. It has been my goal to visit 25 farms each year to walk the ground and allow the serenity of the land and its people to fill me. I have taken much with me as I left each farm and my life has changed. I have touched the soil, been inspired by the fabric of the landscape and have been nourished by the richness of the deep roots of Iowa agriculture and its people. Each farm, each family has given me the gifts of knowledge, appreciation and friendship. To me, each farm family has been like a neighbor and their home place and landscape have left an indelible impression on me. And I am grateful.

But, all of us with rural roots know that over time our neighbors change, farms evolve, and new visions and opportunities come to the land and our neighbors. I have seen this on my own family farm in Illinois. Things change. And this is all normal, good and healthy.

And now I start one more journey. I, too, want to be a neighbor again and I start that part of my life in the coming weeks. I retired from ISU and as Director of the Leopold Center at the end of June. My new steps in life will put me back in touch with the land and its potential. I will grow as will the plants I intend to cultivate in my new greenhouse. The soil will nurture us both. I will miss the people of Iowa. I will miss the excitement of creating a potential new page in the story of Iowa agriculture.



Jerry DeWitt

## STRIPs research now on the web

In the last newsletter we announced the award of a USDA-AFRI grant "Biocomplexity of integrated perennial-annual agroecosystems" that included two ISU entomologists (**Matt O'Neal** and **Mary Harris**). This project was given the title STRIPs for Science-based Trials of Row-crops Integrated with Prairies. The STRIPs site is located at the Neal Smith Wildlife Refuge in Jasper County, Iowa, one of the largest reconstructed prairies in North America. Embedded in three locations on the refuge is a series of replicated, experimental watersheds in which varying amounts of prairie are incorporated into a corn-soybean rotation. These watersheds allow a team of ISU researchers to quantify the influence of prairie in different proportions and configurations on nutrients, carbon, and water. This

last issue is of great interest, given the remarkably wet summers and subsequent flooding that Iowa has experienced in the last few years. One of the many hypotheses being tested at STRIPs is whether small increases in perennial plant cover in watersheds dominated by annual crops results in disproportionately large increases in species richness and diversity. Assisting in this research is **Rene Hessel**, an M.S. candidate in the ISU Department of Entomology.

A web site was created to document our progress ([www.nrem.iastate.edu/research/STRIPs/research](http://www.nrem.iastate.edu/research/STRIPs/research)). At this site a more complete description of the research can be found along with photos showing the various treatments and watersheds as the prairie develops since its initial planting in 2007.

## Faculty Awards

**Sharron Quisenberry**, ISU vice president for research and economic development, and ISU entomology faculty (1980-1982, 2009-present) was elected as an honorary member of ESA. Honorary Membership acknowledges those who have served ESA for at least 20 years through significant involvement that has reached an extraordinary level. Quisenberry is recognized nationally and internationally for her work in insect-plant interactions, having received her Ph.D. from the University of Missouri and having been designated an ESA Fellow (2002).

She has co-authored a seminal book on conservation of germplasm for insect resistance in addition to 95 refereed journal articles, books, book chapters, and over 150 other technical publications. Quisenberry has been a leader within numerous professional societies as well as many international, national, regional, state, and university committees and boards, but her service and contribution to the ESA has been beyond compare since she became a member in 1975.

She has contributed to over 30 committees within ESA and taken numerous leadership roles. When Quisenberry became ESA President in 2000, there were extreme organizational and financial challenges affecting the very solvency of ESA. She provided leadership to the Governing Board and membership to re-focus on core components and services (e.g., free online journals, new editorial structure, meeting inclusiveness/innovation) and to create a "member friendly" organization, while balancing the budget for the first time in years through decisive action and management practices. Her leadership served the Society well by creating the foundation for subsequent changes to ensure sustained growth of the ESA.

**Bryony Bonning** was elected Fellow of the American Association for the Advancement of Science in 2010. AAAS Fellows are recognized for meritorious efforts to advance science or its applications.



Following on from the success of her video "Chloe's Monarch Adventure" which won in the Open category in the 2009 ESA YouTube Your Entomology Stinger Awards, **Erin Hodgson** won in the Extension category at the 2010 ESA Meeting with a video about sweep netting. In addition, **Matt O'Neal**, **Steve Longwell** (in the lead role), **Kelly Seman**, **Rene Hessel**, and **Adam Varenhorst** won in the Teaching category with a video entitled "I am an entomologist" that spoofs the "I am a Canadian" commercial by the Molson Brewing Company. Both winning videos can be found online at [www.youtube.com/entsoc](http://www.youtube.com/entsoc).



Matt O'Neal and Erin Hodgson

## Photo Competitions

### Entomological Photography Competition

Bob Elbert, the official ISU photographer along with intern Leah Hansen, served as judges for the department's fall 2010 entomological photograph competition. The three winners were **Jon Oliver**, **Erick Hernandez**, and **Erica Hellmich**. See page 27 for the winning photos.

### Dead Bug Art Competition

Continuing with the tradition of insect themed competitions, this year's task was to create and photograph a scene that included one or more dead insects. The inspiration for the competition was a series of humorous dead fly photos by Swedish photographer Magnus Muhr that received international attention last year. Bob Elbert assisted with photography of the artwork, and Heather Davis from the Octagon Center for the Arts selected the three winning photos. See page 27 for photos and an *Inside ISU* article at [www.iastate.edu/Inside/2010/1209/ent.php](http://www.iastate.edu/Inside/2010/1209/ent.php).





# Growers have aphid resistant soybean

The soybean aphid is almost exclusively managed with insecticides. Now aphid-resistant soybeans are available in Iowa. Walter Fehr, soybean breeder at ISU, has been instrumental in providing this tool to organic growers. Although commercial sources of aphid resistance (i.e., the *Rag1* gene) exist, most of the sources are genetically modified with herbicide tolerance and cannot be grown by USDA organic certified farms.

Recently, Fehr introgressed the *Rag1* gene into a conventional soybean variety, allowing organic growers in Iowa to use this tool to prevent soybean aphid outbreaks. **Matt O’Neal** worked with Fehr to evaluate this aphid-resistant soybean line (see *Crop Science* 50: 1891-1895). The *Rag1*

gene did not affect the performance of soybeans in the absence of the aphid. When an aphid outbreak occurred, the aphid resistant line had a 46% higher yield than the aphid susceptible line. With help from Practical Farmers of Iowa, both Fehr and O’Neal tested an aphid-resistant variety with organic farmers as part of an on-farm experiment during the 2010 growing season. Although the experiment was challenged by a lack of soybean aphids during 2010, farmers that participated in the project expressed a strong desire to repeat the experiment in 2011. Fehr and O’Neal plan to assess whether multiple aphid resistant genes can prevent soybean aphid outbreaks.

### Tollefson, continued from front page

APHIS) and Wendy Wintersteen who highlighted Tollefson’s contributions to administration, extension and public service. Additional contributions and stories were provided by Barbara Ogg (University of Nebraska) and Robin Pruisner (Iowa Department of Agriculture).

The final segment, “Tollefson, the transformation (1995-present): all grown up and lots of places to go!” was highlighted by Yong-Lak Park (West Virginia University) and Marija Ivezic, a Croatian Scientist, both covering Tollefson’s significant contributions to corn rootworm research in the U.S. and internationally. Additional stories and comments were provided by Laura Higgins (Pioneer Hi-Bred), Tim Nowatzki (Pioneer Hi-Bred) and Patti Prasilfka (Dow AgroSciences).

At each intermission, a multi-media presentation featuring photographs of Jon and audio stories from many of his friends, colleagues and students was shown. Tollefson was presented with



William Showers and Kelly Kyle

a “Book of Letters” which contained personal letters, photographs and copies of the video presentations at the conclusion of the session.

An outdoor reception was held for Jon, his wife Carla and their daughter Kirsten immediately following the symposium where friends and colleagues were able to greet and spend time with the Tollefson family.

The symposium organizers, Kevin Steffey, Mike Gray, Patti Praskifa and Laura Higgins would like to thank everyone who attended and/or contributed to Dr. Tollefson’s symposium – especially his colleagues and students from ISU who were a core part of his career. Special thanks to Steve Lefko (IronBloom) for creating the multi-media presentations, and the many symposium sponsors for their financial contributions: Bayer, Dow AgroSciences, ESA, Monsanto, Pioneer Hi-Bred, and Syngenta.

Laura Higgins



Todd DeGooyer, Tim Nowatzki, and Laura Higgins

## Coates hired as a USDA-ARS Geneticist

Although I started as a permanent scientist in the USDA-ARS in November 2010, I likely am familiar to many within the Department of Entomology. It is probably a little known fact that my association with Entomology dates back to 1994 when I was a student worker for Richard Hellmich at USDA while studying for my B.S. in Genetics at ISU. After graduation in 1996, I left Ames and went to work at the Garst Research and Development Center in Slater, IA, where I was involved in cell tissue culture and transformation projects that resulted in creation of transgenic corn plants expressing *Bacillus thuringiensis* (Bt) Cry9C toxin and soybean plants with glyphosate resistance. Even though the experience at Garst was rewarding, I knew that my place was back at ISU. So, when Hellmich was looking for a Biological Science Research Technician at USDA, I jumped at the opportunity. Since then I have learned a lot through working and studying with some really great people in the Genetics Laboratory and in the Department of Entomology.

While working as a USDA Technician, I started my graduate work at ISU in 1999 under the supervision of Les Lewis and Daniel Voytas (Genetics, Development and Cell Biology), where I developed methods to genotype and detect horizontal gene transfer within the entomopathogenic and endophytic fungus *Beauveria bassiana*. This culminated in my receipt of a M.S. in Entomology (Genetics Minor) in 2001, but thankfully, I decided to continue on to get a Ph.D. at ISU. Even though I had the opportunity to move to

another department, I was pleased to keep Entomology as my home as I worked on my Doctorate in Genetics though the interdepartmental program. After getting my Ph.D. in 2005, I stayed on as a Post-doctoral Research Geneticist to work on determining the mechanisms by which European corn borer become resistant

to Bt toxins under Douglas Sumerford, and was grateful for Tom Sappington's help in my branching out into corn rootworm research. My research plans are to investigate how changes in gene regulatory pathways modify the expression of Bt resistance traits in lepidopteran and coleopteran larvae, and to detect mutations within corn pest insects that influence the inheritance of traits that compromise effective control measures.

Through the past 9 years my wife, Beth Harris, and son TJ have been my greatest support, and we have enjoyed being able to make Ames our home. I am happy to call USDA and the Department of Entomology my home away from home, and look forward to many more gratifying years.

*Brad Coates*



### Yes, we're on Facebook!

In September 2009, ISU Entomology established a presence on the social networking site Facebook. The page contains upcoming events such as seminars and a steady stream of entomology-related news. Lyric Bartholomay, Bryony Bonning, Erin Hodgson, Matt O'Neal and John VanDyk contribute to the page. A steadily growing "Facebook fan" base views and occasionally comments on the posts.

To view our Facebook page (and become a fan!) visit [www.ent.iastate.edu](http://www.ent.iastate.edu) and click on the Facebook icon.





## Quisenberry Named ISU VPRED

It has been a privilege to return to ISU in 2009 as Vice President for Research and Economic Development after starting a career here in 1980. Prior to rejoining ISU, I served as Dean of the College of Agriculture and Life Sciences at Virginia Tech. Since returning to ISU, I have been very impressed with the quality of our faculty, staff, and students. Many of our research programs are cutting-edge and provide information and technologies for Iowa and beyond.

In 2009, ISU experienced a record funding year with over \$388 million in grants and contracts received. The faculty have done an excellent job in growing and supporting their research programs. As a land grant university, the role of the university is to educate, build a knowledge base through research, and extend that knowledge for the benefit of society. The land grant mandate is even greater today than in the past because of the many challenges that we face as a society. Entomology as a discipline is also evolving and its importance growing because of impending global climate and environmental changes, food and nutrition deficiencies, and transmittable diseases. Insects will continue to have a major impact on how society manages these.

Entomology has been and continues to be a focus in my career and, since becoming a mem-

ber of ESA as a graduate student, I have actively participated in over 30 Branch and Society committees and served in numerous leadership roles, including ESA President. I have been fortunate in being elected Fellow of the Society and received an Honorary Membership for service to the Society during the Annual Meeting in December. I have actively promoted entomology throughout my career and contributed to sustaining departments, which has been one of my most satisfying activities.

*Sharron Quisenberry*



## Giles, Johnson establish graduate fellowships

Alum **Kristopher Giles** and his wife **Christine Johnson**, both faculty members at Oklahoma State University, were acknowledged by **Wendy Wintersteen**, endowed dean of the College of Agriculture and Life Sciences and others at a college event in September. Giles and Johnson have established graduate fellowships at ISU. Both earned M.S. and Ph.D. degrees from ISU in 1992 and 1996, respectively. Giles with degrees in entomology and Johnson with degrees in sociology. The \$1 million deferred commitment will establish graduate fellowships in entomology and sociology at ISU. Giles is a professor of entomology, while Johnson is an associate dean at OSU.



*Kris Giles and Christine Johnson were acknowledged by Dean Wintersteen at a reception held in September at Reiman Gardens.*





**John Lyell Clarke** (Ph.D. 1988), entomology alum and president of Clarke Mosquito in Roselle, IL, received the U.S. EPA Presidential Green Chemistry Challenge Award for Natular™ their new reduced risk, natural mosquito larvicide. Natular™ uses spinosad for management of mosquito larvae with a novel plaster matrix that releases optimal levels of product. This is the 15th year that the Environmental Protection Agency (EPA) has recognized pioneering chemical technologies developed by leading researchers and industrial innovators who are making significant contributions to pollution prevention in the U.S. (See associated article, page 10).

**George G. Kennedy**, who was an undergraduate at ISU in 1966-1967 on a scholarship to the gymnastics team (rings and trampoline), was elected as an honorary member of ESA. Kennedy is currently William Neal Reynolds Distinguished Professor of Agriculture and head of the Department of Entomology at North Carolina State University. He holds B.S. and Ph.D. degrees in entomology from Oregon State University and Cornell University, respectively. He served as assistant professor of entomology at University of California, Riverside, from 1974 to 1976 before joining the faculty at N.C. State as assistant professor in 1976, where he has conducted research and taught in the area of insect management. Kennedy conducts research in insect management, insect-plant interactions, arthropod-resistance management, and epidemiology of insect-vectorized plant viruses.



**Kevin L. Steffey** (Ph.D. 1979), a technology transfer specialist at Dow AgroSciences, won the ESA North Central Branch's C. V. Riley Award in recognition of outstanding contributions to the science of entomology. Steffey was an extension specialist at the University of Illinois for over 25 years.



In 2010, the ESA awarded **Marlin Rice** the Distinguished Achievement Award in Extension. This award is given to an individual who has demonstrated outstanding contributions to extension entomology with demonstrated excellent performance through program creativity, impact, achievement, and delivery. Rice is a senior research scientist with Pioneer Hi-Bred International in the Trait Characterization and Development group. He previously spent 20 years as an extension entomologist and professor at ISU and is currently a collaborator in the department.



**F. Tom Turpin**, a professor of entomology at Purdue University, West Lafayette, Indiana, was elected as an honorary member of ESA. He received his B.S. degree in biology from Washburn University, and a Ph.D. in entomology (1971) from ISU, where he worked on soil insects of corn. He began his career at Purdue in 1971 as a researcher in the area of biology and management of insects associated with corn. His research resulted in a better understanding of the biology of corn rootworms, economic injury levels for insect pests of corn, and management decision processes of growers. Turpin has taught a variety of courses at Purdue, including insect pest management, introductory entomology, beekeeping, insects in prose and poetry, and honors courses on insects in literature and art and insects in theatre. He has won several teaching awards, including the ESA Distinguished Achievement Award in Teaching, the Purdue Award for Outstanding Undergraduate Teaching, and the CASE professor of the year award for Indiana. He started the Bug Bowl at Purdue University and the Linnaean Games for ESA. He writes a regular popular column on insects for newspapers entitled "On 6 Legs" and is the author of two popular books on insects.



# John Lyell Clarke Wins Green Chemistry Award

**John Lyell Clarke** (Ph.D. 1988) is President and CEO of Clarke, a global environmental products and services company based in Roselle, Illinois, focused on pioneering, developing and delivering environmental mosquito control and aquatic services. In June 2010, he was honored with the U.S. EPA Presidential Green Chemistry Challenge Award for Natular™, a new organic mosquito larvicide made with spinosad.

Since moving into a leadership role in his family's company in the mid-1990s, John has directed the company on a journey toward greener, more sustainable products and practices.

In recent years, Clarke has introduced water-based adulticides (replacing petroleum-based products), engineered electric applicators (in place of gas), utilized bicycles in service operations and is voluntarily withdrawing registrations for products with outdated environmental profiles. The pinnacle of this dedication to new actives and technology is a new mosquito larvicide, Natular™, which features a novel, patent-pending plaster matrix that releases optimal levels of spinosad during times when mosquitoes breed. Natular™ has been categorized as a "reduced risk" larvicide by the U.S. EPA. Four formulations are listed in the Organic Materials Review Institute (OMRI) Products List and can be used in organic production.

"New biopesticides for mosquito control are really opening our eyes to possibilities for our industry that are less toxic, better for the environment and still provide excellent control. We hope to be part of a significant shift in the mosquito control industry with the introduction of this product," said Clarke. "The net benefit is reducing the overall synthetic load in the environment while contributing to public health and quality of life in treated areas."

Determined to change the mosquito control industry, John has put forth a corporate directive to embed sustainability within core activities. In addition, Clarke is committed to achieving a number of strategic goals by 2014 that will further the company's sustainability initiatives. Some of these goals include reducing Clarke's carbon footprint by 25%, utilizing 20% of energy from renewable sources, incorporating a "cradle-to-cradle" design philosophy and volunteering 2,080 employee hours to assist the communities Clarke serves.



In 2009, John Lyell Clarke established the Clarke Cares Foundation. This non-profit was designed to provide relief from mosquito-borne disease to areas of need worldwide. Its most recent project raised funds and donated 38,000 mosquito bednets to The Carter Center for people in Kanke, Nigeria. "For me, entomology has never been just about insects – it's the impact these insects have on the environments and the community," said Clarke.

**Lewis, continued from front page**  
that has the potential to be a serious pest of corn in the greater corn belt.

Sarah and I have two daughters, Kate, in Milwaukee, and Maggie, in Chicago. Both make for a fun visit and their locations have led me to root for both the Cubs and Brewers. Travel will be in the picture with a visit to Boston in May of 2011, when the Cubs play the Red Sox at Fenway – a must see for a life-long Red Sox fan. In 1978 our family had the opportunity to visit Prague while attending the meetings of the Society for Invertebrate Pathology. At that time Prague was governed by the Communist party. It would be exciting to visit again now that they are a free people.

Learning to sit still, Sarah and I look forward to a trip south in early January to watch the ocean. And of course a trip to the Old Country is a must. We know Sarah's ancestors came from southwest England but we're not sure about mine – maybe England, maybe Scotland. We'd like to find out.



ISU Entomology alum **Norman Penny**, collections manager of the Entomology Department at the California Academy of Sciences, provided a video clip to look at the academy's vast butterfly collection [www.kqed.org/quest/television/cal-academy-butterfly-collection](http://www.kqed.org/quest/television/cal-academy-butterfly-collection).

**Phillip G. Mulder** accepted the position of Department Head of Entomology and Plant Pathology, Oklahoma State University. Dr. Mulder received his M.S. (1981) and Ph.D. (1984) in Entomology from ISU where he was a student of William (Bill) Showers. He had served as Interim Department Head since October 2007 and has been with the OSU Department of Entomology and Plant Pathology for the past 23 years, previously serving as Area Extension Entomology Specialist and Professor.

**Jeffrey D. Bradshaw** (Ph.D. 2007) completed his postdoctoral research at the University of Illinois at Urbana-Champaign, and is now an assistant professor of entomology at the University of Nebraska-Lincoln, where he will focus on integrated pest management of insects in wheat, sugarbeets, dry edible beans, and sunflower.

**Celso E. Mendoza**, who obtained his M.S. (1961) and Ph.D. (1964) under the late Don Peters, writes: I was particularly happy to read in the last newsletter and relate to the paths my colleague Doug Dahlman pursued after retirement. I am also retired and now helping provide for the homeless in the Philippines through Gawad Kalinga (GK: literally in Filipino: gawad = to give, to offer; kalinga = care, act of looking after someone). During the last four months, I visited GK villages and worked with villagers in the Philippines. I was also invited to attend a forum and a symposium held at the National University of Singapore (NUS), Architecture Department.

After graduating from ISU, I worked at Cornell University as a Research Associate with B. V. Travis (an ISU entomology alumnus) on documenting research on Veterinary and Medical Arthropods of the world. We published a two volume book for the U.S. Army. From Cornell, I was awarded a Postdoctoral Grant from the National Research Council of Canada in the capital city of Ottawa. Under the NRC grant, I did research on the development of enzymatic and gas liquid



*Celso at the Roman amphitheater in Hierapolis, Pamukkale, Denizli, Anatolia, Turkey.*

chromatographic methods to detect pesticide contaminants in foods at the Food Directorate, Health Protection Branch, Health Canada. I also did research on biochemical toxicology of pesticide and environmental contaminants on small experimental animals. While at Food Directorate, I did research as a Visiting Scientist on biochemical toxicology at the Arrhenius Laboriet, Biochemistry Dept., Stockholm University with K. B. Augustinsson. I also worked as a member of special Canada Federal Task Force, in collaboration with the U.S. FDA and EPA to investigate by auditing and validating data submitted for approval of pesticides for used in food crops.

Later, I joined National Defense Canada and did research on the toxicology of chemical warfare agents (CWA) and prophylactic drugs against CWA. In collaboration with colleagues, we developed and patented reactive skin decontamination lotion. It is to be used on skin like sun screen and destroys chemical warfare agents and thus, protects the users from lethal effects of the agents. It has potential as a protective cream for pesticide applicators, including aerial spraying of pesticides in agriculture and forestry.

In 2008, my undergraduate alma mater the University of the Philippines Los Baños Campus recognized me along with other alumni with a "Distinguished Alumnus Award" in recognition of my accomplishments as a scientist. I now have the travel bug and have visited 17 countries so far. Take care and greetings to all.

*Celso Mendoza*



## “Pioneer”ing Careers in Entomology

On a recent trip to the annual ESA meeting in San Diego, a group of entomologists (yes, it is easy to pick each other out in public places!) struck up a conversation about how many entomologists had come through ISU and gone on to work for Pioneer. The more I thought about this, the more intrigued I was with the story and the number of scientists who would be included on the list. Through Dr. Bonning’s encouragement, I offer the following abridged version of the history of Pioneer’s entomology research program and the many ISU-trained entomologists that have been a part of its long history.

Pioneer was founded in 1926 by ISU alum, Henry A. Wallace. Wallace was not an entomologist, but came from a well-established family of political and agricultural movers-and-shakers. His grandfather was founder and publisher of *Wallace’s Farmer*, a progressive farm journal self described as encouraging “Good farming. Clear thinking. Right living.”

Henry’s father served as Secretary of Agriculture (1921-1924) under the Harding and Coolidge administrations. The Hi-Bred Corn Company (later known as Pioneer Hi-Bred; the name changed in 1935 to avoid confusion with the word “hybrid” and to distinguish it from competitors (Culver and Hyde 2000)) was established to pursue commercialization of hybrid corn from inbred lines. Up to that point, U.S. farmers were planting open pollinated populations – selecting the best ears for planting the following season. Pioneer was and continues to be a major plant breeding company.

The history of entomology research at Pioneer was shared with me recently by Dan Wilkinson (ret.) who led the entomology research program

in its early years and the pathology research program at Pioneer for 35 years. Pioneer’s foray into bug research was first led by plant breeder Karl Jarvis. Jarvis hired Pioneer’s first entomologist, Ferd Dicke who had just retired from a 37 year career in research, much of it with ISU and USDA in Ames, IA. The impetus for hiring Dicke was the emergence of corn rootworms as a serious problem in the U.S. Corn Belt. Jarvis and Dicke set up a rootworm screening plot in Johnston, IA in 1966 because they predicted, correctly, that corn rootworms would spread across the Corn Belt and they wanted pressure to select for tolerance or resistance.

When Jarvis died suddenly in 1968, Dan Wilkinson inherited the entomology and pathology projects. Initially rather laborious methods were used for collection of European corn borer (ECB) adults on plant material, and acquisition of egg masses. Bud Guthrie at the USDA in Ankeny,

IA, was starting to use artificial diet to rear ECB which would allow for producing a greater number of eggs needed for research and allow for improved timing. The entomologists at Pioneer decided this was a better alternative so they took an old corn crib on the Johnston farm and cleaned it out as best they could and also started a rearing facility. Sue Blair, Dicke and Wilkinson went to garage sales, used furniture stores, etc. to get a stove, refrigerator, mixers and other equipment. They had no ceiling over their operation; just a tin roof, yet they had few problems with contamination. Blair did an excellent job with sanitation and

made many good suggestions for improvements in the operation. Bud Guthrie had stainless steel rooms and a more state-of-the-art set up but



Henry A. Wallace, Founder of Pioneer Hi-Bred



was plagued with contamination some years. He would come over and look at the Pioneer operation and just shake his head. There was a lot of cooperation between Pioneer and USDA, sharing surplus eggs, supplies, etc. Needless to say the artificial rearing allowed for more second generation screening and ensured the research stations would be supplied with ECB eggs before the season began; whereas before it was “we will supply you what we can.”

John Campbell, who earned his Ph.D. in entomology at ISU, was hired at Pioneer’s Union City, Tennessee, research station on Nov. 1, 1971. Campbell was the first Pioneer entomologist to develop southwestern corn borer and fall armyworm rearing programs. A few years later John Owens was hired at Johnston. When Owens left, Campbell was moved to Johnston where he managed entomology research for 28 years.

**Good farming.  
Clear thinking.  
Right living.**

Dicke was the founding entomological expert at Pioneer – and many entomologists have come and gone over the past 50 years. Through it all, the strong tie to the ISU Entomology remains. A short list of past and present entomologists and students that worked in ISU Entomology that have a shared history between the two organizations is provided (see Table), along with the program they worked with while at ISU.

The strong Cyclone alumni presence in the entomology group at Pioneer is likely influenced by the close proximity of the ISU campus to Pioneer’s corporate headquarters in Johnston. However, the long history, common research interests, and collaborations between the two organizations continue to cultivate common ties between the departments.

The development and commercialization of plant-incorporated protectants such as Bt corn over the past two decades continues to be a focal point for entomological research at Pioneer. Understanding target insect biology, rearing, and plant-insect interactions are critical components of product development. However, entomologists serve in a variety of roles throughout the company including plant breeding, trait discovery, trait characterization and development,

project and program management, regulatory, global trait strategy, supply management, marketing and sales. For more information about job opportunities at Pioneer, visit our website at [www.pioneer.com](http://www.pioneer.com). Please let us know if anyone is missing from this list. **Go Cyclones!**

*Laura S. Higgins, M.S., BCE, Program Lead, Pioneer Hi-Bred, a DuPont Business*

Culver J. C. and J. Hyde. 2000. American Dreamer, A Life of Henry A. Wallace. W. W. Norton and Co. New York, NY.

Jennifer Anderson	Ph.D. (post-doc, Coats)
Nick Behrens	M.S. (Coats)
Marlin Bergman	Ph.D. (Tollefson)
Rachel Binning	M.S. (Rice), Ph.D. candidate (Hellmich)
Tom Bockhaus	B.S.
Casey June Burks	M.S. (B.S.)
Kara Califf	B.S.
John E. Campbell	Ph.D. (Brindley)
Keri Carstens	Ph.D. (M.S., Ph.D. Coats)
Don Cerwick	B.S. (worked in Peters, Owens and Tollefson labs)
Sharon Cerwick	B.S. (worked in Tollefson lab)
Paula Davis	Ph.D. (Pedigo)
Dave Dorhout	M.S. (Rice)
Jessica (Smith) Ghrist	B.S.
Dianna Gillespie	M.S. (B.S.)
Laura Higgins	M.S. (Tollefson)
Stephanie Kadlicko-Stare	M.S. (Tollefson)
Steve Lefko	Ph.D. (Pedigo)
Erica (Simbro) Luna	B.S.
Susan Moser	Ph.D. (M.S. Obrycki, post-doc, Hellmich)
Tim Nowatzki	Ph.D. (Tollefson)
Meghan (Smith) Oneal	B.S.
Jared Ostrem	B.S.
Elizabeth Owens	Ph.D. (M.S. Hart)
Kelsey Prihoda	M.S. (Coats)
Marlin E. Rice	Ph.D. (ISU faculty, 20 years)
Lindsey Schacherer	M.S. (Coats)
Nick Schmidt	Ph.D. (O’Neal)
Nina (Richtman) Schmidt	M.S. (Tollefson, Bonning)
Steve Thompson	B.S. (M.S. candidate, Gassmann)
Matt Wihlm	M.S. (Courtney)

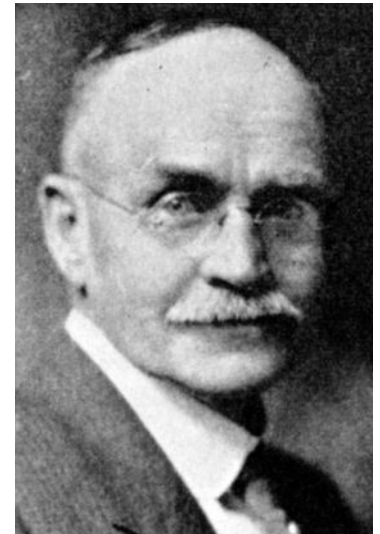


## A Collection of Presidents

In previous issues of the newsletter, we highlighted ISU Entomology affiliates that had risen to the office of president of the Entomological Society of America (ESA). We had not included a rather recent alumnus, **Douglas Dahlman**, who served as president during 1997. This omission forced us to look a little deeper to see if there were others that had become president and had passed through ISU, which we might claim as part of our departmental heritage.

The ESA is a blended professional society, joining with the American Association of Economic Entomologists in 1952. The history of these two societies is considered inseparable and both were included in the centennial issue of the *Bulletin of the Entomological Society of America*. An article written by Spilman (1989) in that publication revealed that ISU had not produced nine presidents—as we previously thought—but 22!

**Clarence P. Gillette** was “our” first president in 1901. He was on the faculty as an entomologist with the ISU College Experiment Station during 1888-1891. Gillette was an excellent and popular teacher of entomology, genetics, and eugenics. He later moved to Colorado State College as department head. One of his most important works was on the Aphididae of Colorado, which described and illustrated over 300 species. Probably few men were better posted



Clarence P. Gillette

on western economic insect problems. His careful evaluation of new problems and his sane judgment on their solution kept him in demand as a writer and speaker. As a teacher, researcher, and administrator he stood for progressive, constructive work, and his sterling character and devotion to duties were admired by all. An avid collector, he provided the nucleus of the insect collection at Colorado State College. He was Colorado’s first state entomologist. He worked at Colorado State College for 30 years, and during the last several years of his active service he also was vice-president of Colorado State College. Gillette was a fellow (1907) of ESA.

More recent presidents include **Sharron Quisenberry** (2000), who rejoined the ISU faculty in 2009 (see related article, page 8).

*Marlin Rice*

Spilman, T. J. 1989. Vignettes of the presidents of the Entomological Society of America, 1889-1989. *Bulletin of the Entomological Society of America* 35: 33-65.

1	Clarence P. Gillette	1901	Faculty 1888-1891
2	Herbert Osborn	1911	B.S. 1879, M.S. 1880, D.S.(hon.) 1916, faculty 1880-1898
3	Walter D. Hunter	1912	Assistant entomologist 1900-1901
4	Elmer D. Ball	1918	B.S. 1885, M.S. 1898, assistant entomologist 1895-1897, faculty 1918-1920
5	Wilmon Newell	1920	B.S. 1897, M.S. 1898, D.S. (hon.) 1920, faculty 1897-1899
6	Harry A. Gossard	1925	B.S. 1889, M.S. 1892
7	Clay Lyle	1946	Ph.D. 1947
8	Harry H. Knight	1948	Faculty 1924-1976
9	Edward F. Knipling	1952	Ph.D. 1947
10	George C. Decker	1955	B.S. 1924, M.S. 1927, Ph.D. 1930, faculty 1926-1944
11	Frank S. Arant	1961	Ph.D. 1937
12	Robert H. Nelson	1971	Graduate student 1930-1931
13	Kenneth L. Knight	1975	Faculty 1962-1966
14	Frank “Tom” Turpin	1992	Ph.D. 1971
15	Manya Stoetzel	1996	Undergraduate student 1961-1962
16	Douglas Dahlman	1997	M.S. 1963, Ph.D. 1965
17	George G. Kennedy	1998	Undergraduate student 1966-1967
18	Sharron S. Quisenberry	2000	Faculty 1980-1982; VPRED 2009-present
19	Kevin L. Steffey	2004	Ph.D. 1979
20	Scott H. Hutchins	2007	Ph.D. 1987
21	Michael E. Gray	2008	M.S. 1982, Ph.D. 1986
22	Marlin E. Rice	2009	Faculty 1988-2009



## Faculty of Distinction: Harry Knight

**Harry H. Knight** was an entomology faculty member at ISU from 1924 until his death in 1976, a total of 52 years! The longevity was most likely due to his personality. "Dr. Knight was an excellent teacher, a devoted scientist, and a dedicated conservationist. His life was one of uncompromising excellence in everything he did. He was a man of great modesty so that everything he did was also done in a quiet, unassuming manner." said Tom Brindley who worked in the European corn borer lab.

Harry was born in 1889 at Koshkonong, MO, a very small rural town near the border with Arkansas. After receiving a degree from Southwest Missouri in 1910 he attended Cornell University where he obtained a B.S. in 1914 and a Ph.D. in 1920. During this time he also served in the Air Force during WWI as a commander of the 20th Aerial Photo Squadron, including duty overseas in France. In 1916 Harry published one of his first papers in the Bulletin of the Cornell Experiment Station which was on "The Army-Worm in New York in 1914." The byline reads "Mr. Knight is an industrial fellow carrying on his work in cooperation with the Genesee County Fruit Growers Association under the direction of the Department of Entomology of Cornell University."

Knight continued his research on pests of fruit, publishing his Ph.D. in 1920 on "Studies on insects affecting the fruit of the apple: with particular reference to the characteristics of the resulting scars." After Cornell, Knight spent 4 years

at the University of Minnesota before moving to Ames in 1924. He had already started to establish his systematic work on the Miridae for which he became an international authority. During the next 52 years Knight published 180 scientific papers and described

1,300 species of insects. He also pioneered the use of genitalia in systematic research. In addition to teaching Entomology courses, Knight also taught a History of Science course. Other notable achievements include election to President of the ESA in 1948. He also liked growing and breeding gladioli for which he won a Gold Medal award from the Gladiolus Council of America in 1956.



*Harry Knight*

## Brief History of the ISU Entomology Undergraduate Program

The ISU Department of Zoology and Entomology was established in 1885 and it wasn't until January 1, 1975 that the Department of Entomology separated as a distinct unit. The first undergraduates to major in Zoology and Entomology graduated in 1948, while only Zoology degrees were granted before that time. The first students to major with degrees in Entomology graduated in 1960. Since then, over a 51 year period, 165 students graduated with ISU under-

graduate degrees in Entomology. Many of these students went on to conduct graduate research in entomology, while others went directly into entomology-related jobs with the government or with industry (see related article, "Pioneer"ing Careers in Entomology, pages 12-13). Based on the continued high rate of employment of our students, the need for undergraduates trained in entomology is clearly ongoing.



# Graduations

**Joe Ballenger, Ross Bausman, Amanda Hoffmann, Meagan Hennessy, Laura Winkler and Ross Isley** received B.S. degrees in Entomology. Joe Ballenger is now a graduate student at University of Georgia with Mike Strand, conducting research on polydnavirus-host interactions. Ross Bausman is planning to attend nursing school. Amanda Hoffmann remained with ISU Entomology and is now a graduate student with Aaron Gassmann.

**Erica Hellmich** (Jurenka) graduated with a masters degree in December. Her thesis was entitled "Pyrokinin/PBAN peptides in the central nervous system of mosquitoes (Diptera: Culicidae)." Erica will be employed at the USDA-National Animal Disease Laboratory in Ames.

**Wendy Sparks** (Bonning) graduated in May with a doctoral degree in Genetics. The title of her dissertation was "Interaction of the baculovirus occlusion-derived virus envelope proteins ODV-E56 and ODV-E66 with the midgut brush border microvilli of the tobacco budworm, *Heliothis virescens* (Fabricius)." Wendy is now conducting postdoctoral research at USDA-ARS, Beltsville, MD. She is working on a lentivirus delivery system for production of pluripotent stem cells.



**Kevin Johnson** (O'Neal) graduated in May with a Ph.D. His thesis was entitled "Development of integrated pest management techniques: Insect pest management on soybean." He is now a Crop Protection Research and Development field scientist with Dow AgroSciences in Fargo, ND.

**Soi Meng "Samantha" Lei**, (Beetham) graduated in May with a masters degree in Molecular, Cellular, and Development Biology. Her thesis was entitled "Characterization and optimization of animal and culture models of *Leishmania chagasi*." Samantha now works as a laboratory manager within the Department of Animal Science at ISU.

**Jessica Petersen** (Courtney) graduated with a Ph.D. in August. The title of her dissertation was "Revisionary systematics and evolutionary ecology of Neophylidorea (Diptera: Tipuloidea)." Jessica is now conducting postdoctoral research with Brian Nault at the University of Cornell, NY.

**Ashley Jessick** (Coats/Moorman) graduated with a masters degree in May. Her thesis was entitled "Detection, fate, and bioavailability of erythromycin in environmental matrices." She is now working on her doctorate in toxicology at the University of Nebraska.

**Aaron Gross** (Coats) graduated with a masters degree in August. Aaron is continuing his research at ISU toward a Ph.D. with Joel Coats.

**Nicholas Behrens** (Coats) graduated in May with a masters degree. Nick now works for Pioneer Hi-Bred International at their soybean research farm in Dallas County, IA.

**Zachary Regelin** (Bonning/Miller) graduated with a degree in Molecular, Cellular, and Developmental Biology in December. The title of his thesis was "Translation and replication of *Rhopalosiphum padi* virus RNA in a plant cellular environment."

**Melissa (Rynerson) Rudeen** (Gassmann) graduated with a masters degree in December. The title of her thesis was "Tritrophic interactions among larval western corn rootworm, Bt corn and entomopathogens." Missy is now working as a lab manager for Elizabeth Borer and Eric Seabloom in the Department of Ecology, Evolution, and Behavior at the University of Minnesota.

**Nicholas Schmidt** (O'Neal) graduated with a Ph.D. in August. His thesis was entitled "Local and regional approaches to studying the phenology and biological control of the soybean aphid." He now works on the non-target impacts of genetically modified crops at Pioneer Hi-Bred International in Johnston, IA.

**Fan Tong** (Coats) graduated with a Ph.D. in Toxicology in December. His thesis was entitled "Investigation of mechanisms of action of monoterpenoid insecticides on insect-aminobutyric acid receptors and nicotinic acetylcholine receptors." He is now conducting postdoctoral research with Jeff Bloomquist, Department of Entomology, University of Florida, Gainesville.



## Student Awards

Undergraduates **Erick Hernandez** and **Curtis Behrens** won third place in the 2010 Steve Irwin Video Competition for their movie "Khaki It Up!," which features ISU Insect Zoo critters and activities. Erick and Curtis were awarded a \$500 Australia Zoo voucher. The video can be found at [www.youtube.com/watch?v=e5h14mtPI](http://www.youtube.com/watch?v=e5h14mtPI).



*ISU undergraduates and Insect Zoo presenters, Erick Hernandez and Curtis Behrens, created a video about the Insect Zoo.*

The 2010 Wayne A. Rowley Scholarship in Entomology, which provides \$2,000 to students with preference given to applicants concentrating on medical entomology, was awarded to **Patrick Jennings**. Patrick is advised by Lyric Bartholomay.

**Rebekah Ritson** received an Iowa Farm Bureau Scholarship of \$7,000. These scholarships support students attending college or university who expect to contribute to agriculture or agribusiness, with selection criteria including academic achievement, community and extracurricular involvement. Rebekah is working toward a master's degree with Matt O'Neal.

**Missy (Rynerson) Rudeen** received an ISU Research Excellence Award, which recognizes the accomplishments of the top 10% of graduate researchers at ISU. To add to her honors, Missy also received second place in the student competition for her oral presentation entitled "Effects of Bt and non-Bt corn on behavior, survival and development of larval western corn rootworm" at the annual meeting of the Entomological Society of America, held in San Diego, CA.

Two new student scholarships were awarded this year. The Jim Oleson Scholarship in Entomology, which provides \$1,000 to students who demonstrate academic promise and initiative, was awarded to **Mike McCarville**. The Larry Pedigo Graduate Scholarship in Entomology was awarded to **Missy Rudeen**. This scholarship, established to honor the many contributions of Larry Pedigo to the department and college, recognizes scholarly performance. Missy received an award of \$400.

**Mike McCarville, Greg VanNostrand, and Katie Elliott** received awards for their presentations at the North Central Branch meeting of the Entomological Society of America held in Louisville, KY. The titles of their presentations were "Unintended impacts of value added plant breeding: linolenic acid and soybean," "Planting native perennials into organic agro-ecosystem buffer strips to increase beneficial insect diversity," and "Using GIS to predict soybean aphid distributions based on their overwintering supercooling point," respectively.

The Entomology Student Scholarship for Student Excellence, which is funded by the Fred Clute Memorial Fund, was awarded to **Mike McCarville**. This award of \$500 recognizes academic excellence at the undergraduate level, or excellence in research, teaching and / or extension at the graduate level. Mike is supervised by Matt O'Neal.



*Ken Holscher presents the Entomology Student Scholarship for Student Excellence to Mike McCarville.*



# Potter presents 2010 Gunderson Lecture

**Dan Potter**, Bobby C. Pass Professor of Entomology at the University of Kentucky, presented the 11th Harold Gunderson Memorial Lecture in Entomology on "Host selection by plant-feeding scarabs: biological insights suggest new management options." Potter drew on 30 years' research to describe the process by which the Japanese beetle, a highly destructive horticultural pest, locates preferred host plants, and how that knowledge can be applied to pest management. Potter received degrees in entomology from Cornell University (B.S. 1974) and the Ohio State University (Ph.D. 1978) and has been on the faculty at the University of Kentucky since 1979. His research focuses on ecology and management of insects impacting urban landscapes. He teaches courses in Horticultural Entomology and Insect-Plant Relationships, and has supervised 40 graduate students. Potter received the ESA National Distinguished Achievement Awards in Teaching (1999), Urban Entomology (1995) and Horticultural Entomology (2006) and was elected a Fellow of the ESA (2009). He has published some 170 refereed articles, dozens of book chap-



Dan Potter

ters and trade journal articles, and a widely used textbook. His industry recognitions include the National Lawn and Landscape Leadership Award (2008) and the U.S. Golf Association Green Section Award (2010).

# Adams gives 2010 Dahm Memorial Lecture

**Mike Adams**, Professor of the Departments of Entomology and Cell Biology and Neuroscience at University of California, Riverside, presented the 19th Paul A. Dahm Memorial Lecture in Entomology on "Chemical Coding of Innate Behavioral Sequences in Insects." Adams received his B.A. in Biology (1974) and Ph.D. (1978) in entomology in the laboratory of Thomas A. Miller at UC Riverside. He conducted postdoctoral research in neurobiology at the Max Planck Institute for Behavioral Physiology in Seewiesen with Franz Huber and subsequently with Michael O'Shea at the Univer-



Mike Adams

sity of Chicago. In 1982, he joined the Zoecon Corporation in Palo Alto, CA as a senior research biologist and in 1986 returned to UC Riverside to join the faculty in Entomology. In 1992, he was jointly appointed to the Department of Neuroscience and attained the rank of full professor in 1994. Adams became Director of the Neuroscience Program in 2005.

Adams has worked on a number of problems relevant to insect science, including mode of action of pyrethroid insecticides, mechanisms of insecticide resistance, and identification of ion channel-targeted venom toxins from spiders, scorpions, and wasps. Most recently, he has elucidated vital roles for peptide and steroid hormones in the developmental scheduling of innate behaviors in insects. These findings may have implications both for basic understanding of how hormones program developmental sequences as well as for identification of new physiological targets for insect control in the future.



## BugGuide Continues Expansion

BugGuide, a web site at ISU Entomology dedicated to insect identification, classification, and mapping, had an expansive year (*BugGuide.net*). The site now contains over 380,000 images, up from 280,000 a year ago. The number of guide pages describing families, genera, and species is currently 33,552 compared to 27,210 in January 2009. The guide pages are maintained by a small army of 155 volunteer editors, many of whom specialize in one or two areas of the guide. If just the guide pages were printed out, they would make a stack over 11 feet high.

Of the 90,000 estimated species in North America, BugGuide has species guide pages for 20,477 or about 23% coverage. BugGuide received 43,975,533 page views from 3,352,354 unique visitors in 2010. To cope with the increased load, the site moved to a server with twice as many CPU cores.

**John VanDyk** is hard at work developing improvements to the site which will allow better searching and mapping capabilities. In December several individuals put up \$4,000 for a matching grant fundraiser. The BugGuide community responded in kind, raising an additional \$4,700. The funds will be used to improve BugGuide's infrastructure and capabilities. If you would like

### Did you Know?

BugGuide is an online community of naturalists who enjoy learning about and sharing observations of insects, spiders, and other related creatures. They capture never before seen behaviors and post photos of species that aren't found anywhere else on the web.

**Mission:** use the best resources and create a knowledgebase to help each other and the online community with insect identification, biology, and behavior.

**Method:** collect photographs of bugs from the United States and Canada for identification and research.

to contribute to this effort, see the contribution options on page 22 or visit <http://bugguide.net/donate>. The BugGuide community is planning to have a gathering in Ames during July 29-31, 2011. Past gatherings have been in Washington, Tennessee and Minnesota. More information can be found on the BugGuide web site.

The screenshot shows the BugGuide website interface. At the top left is the "BugGuide" logo. To the right is the site's purpose: "Identification, Images, & Information For Insects, Spiders & Their Kin For the United States & Canada". A search bar and "Search" button are on the right. Below the logo is a navigation menu with links: Home, Guide, ID Request, Recent, Frass, Forums, Donate, Help. On the right side of the menu are links for "Register" and "Log In".

The main content area is titled "Clickable Guide" and "ID Request". Under "ID Request", there is a text box for users to describe their insect images and a "recent images" section displaying a grid of various insect photos. The grid includes images of butterflies, moths, beetles, and other insects. A "Calendar" section at the bottom left lists events like "Lepidoptera ID Course SE Arizona August 14-22" and "2011 gathering in Iowa July 29-31".





## Departures

**Douglas Sumerford**, who joined the USDA-ARS corn insects group as a population geneticist in 2002, resigned in 2010. His research focused on the population genetic and ecological factors that influence how insects evolve resistance to transgenic varieties of corn engineered to express Bt proteins.

**Jim Robbins**, who worked as an entomologist for USDA-ARS, retired after 44 years. Having left the army in 1965, Jim worked part time in 1966 in the Insectary for Tom Hibbs and Tom Brind-

ley while taking entomology courses at ISU. After the first quarter at ISU, he was accepted as a graduate student and worked with *Empoasca fabae* under Hibbs and a graduate student, Oscar V. Carlson. It was because of their research that he gained an interest in leafhoppers. Jim joined the USDA Soybean Insect Laboratory in Columbia, MO, in 1966 where he worked with Dave Dougherty, Bob Jackson and Jimmy Hatchett. He completed his M.S. degree on leafhoppers in Missouri soybean fields in 1971. In 1972, he transferred with Hatchett to Stoneville, MS. He

moved to the Corn Borer Lab in Ankeny, IA, in 1976, transferring to the Ames facility in 1993, and worked for Bud Guthrie, Les Lewis, Doug Sumerford, and Craig Abel. Jim was elevated to the professional position of Entomologist by Lewis in 1993. During his retirement, Jim plans to spend more time fishing but will continue to work on a part time basis with Craig Abel.



*Jim Robbins' retirement lunch: From left to right: Jessie Sun, Keith Bidne, Brad Coates, Bob Gunnarson, Royce Bitzer, Les Lewis, Rick Hellmich, Janet Erb, Jim Robbins, Tom Sappington, Mariam Robbins, Craig Abel, Miriam Lopez, Jean Dyer, Judy Shoen, Cindy Backus, Nick Schmidt, and Randy Ritland.*

## In Memorium

**Manya B. Stoetzel**, who began her formal study of entomology here at ISU in 1961-1962, passed away September 13, 2010 in her Florida home. Stoetzel had a lifetime of interest in insects and spent many years studying the biosystematics and identification of agricultural pests. Her early fascination with ants gave way to mosquitoes when she worked for two years (1966-1968) at the 1st Army Medical Laboratory, Ft. Meade, Maryland. Her graduate research (1968-1972) at the University of Maryland, Col-



*Manya B. Stoetzel, 1940-2010*

lege Park, addressed the biological development and systematics of immature armored scale insects. After 1974 she became a specialist on aphids, adelgids, and phylloxerans with the Systematic Entomology Laboratory (SEL), USDA-ARS, Beltsville, Maryland. She became the research leader of SEL in 1993 and served as president of the ESA in 1996. Stoetzel believed that "entomology is basic to any program addressing preservation of biodiversity and protection of our environment."

## Featured Undergraduate: Steve Longwell

For many students, the path to college is a short one straight out of high school. Others may take a year or two off only to realize that an education is what is needed to open the doors to success. The path **Steve Longwell** took was even longer than those, and included many stops along the way.

Steve, a senior in the Entomology Department, came to ISU in 2009 as a transfer student from a nearby community college. He did not begin his college education after finishing high school, instead opted to enlist in the U.S. Navy. After numerous port visits, a couple of new duty stations, and two six-month deployments



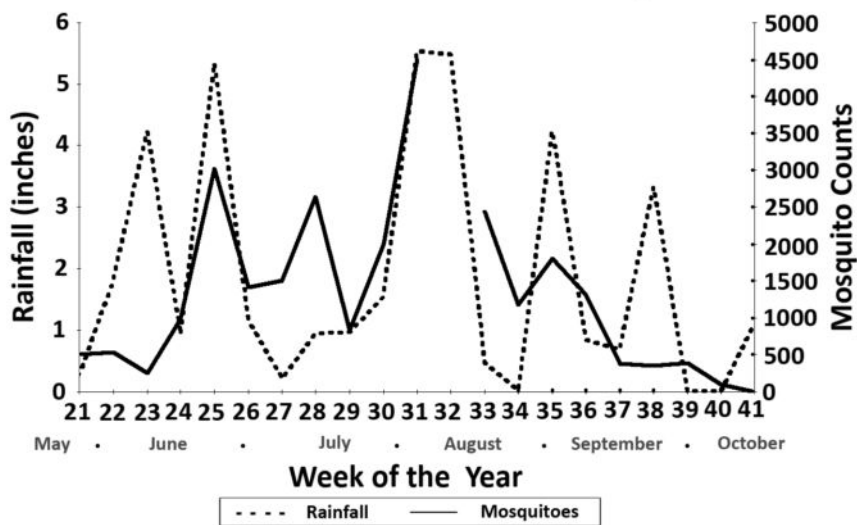
on board aircraft carriers in the Persian Gulf throughout a little over eight years, he decided that it was time for a new challenge. He found success working in the pest control industry, which reinvigorated an interest in insects that had lay mostly dormant since middle school.

Since arriving at ISU, Steve has participated in programs on behalf of the Insect Zoo and VEISHEA, and has worked in the soybean entomology lab run by Matt O’Neal. He also was a teaching assistant in Russ Jurenka’s Insect Biology course, and is looking forward to seeing what else he might encounter on his path.

## An Abundance of Rain and Mosquitoes

Public complaints about mosquitoes in Iowa were rampant in 2010, and it’s no wonder. They were certainly out in numbers. In the 40-year history of the ISU Medical Entomology Laboratory’s surveillance of mosquitoes in Iowa, and 2010 ranked as the 4th greatest in mosquito abundance. Mosquitoes in Ames were seven times more abundant this year (26,970 mosquitoes) than in 2009 (3,735 mosquitoes), based on trap collections from Ames’ North River Valley Park. Last summer’s extreme mosquito activity can be attributed to the “perfect storm” of precipitation and temperature patterns this summer – continual bouts of heavy rainfall and consistently warm weather. Central Iowa received an average of 27.09” of rain from June through August (up 10.16” from normal and up 84% from last year). In fact, rainfall all over Iowa resulted in the second (to 1993) wettest summer in the state’s 138 years of climate records. Although temperatures around the state were rather moderate in the summer, averaging 74.0°F, their consistency made for

**AMES WEEKLY PRECIPITATION AND MOSQUITO COUNTS**



Ames rainfall is a Story County average provided by Daryl Herzmann of the ISU Iowa Environmental Mesonet. Mosquito count data are based on yields from the New Jersey light trap, which operated seven days a week, at Ames’ North River Valley Park. Lack of a mosquito count datum for week 32 is due to flooding in Ames.

Iowa’s hottest summer since 1988; by contrast, 2009 was Iowa’s third coolest summer on record. These extraordinary conditions in 2010 made for a mosquito year to remember.

*Brendan Dunphy*



## **Opportunities to Give: Entomology Donations**

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 Iowa State University, Department of Entomology, 110 Insectary, Ames, IA 50011. Alternatively, donations can be made online at [www.foundation.iastate.edu/entomology](http://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
- \_\_\_\_\_ **BugGuide.net** – 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 awards
- \_\_\_\_\_ **Fred Clute Memorial Entomology Fund** for general support for the Department of Entomology, including The Entomology Student Scholarship for Student Excellence
- \_\_\_\_\_ **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 Ray Klein Phone: 515.294.9332 E-mail: [rklein@iastate.edu](mailto:rklein@iastate.edu)

**THANK YOU!!!**



**IOWA STATE UNIVERSITY**  
**Department of Entomology**





## Day of Insects

Day of Insects (DOI) began as a small informal gathering of insect enthusiasts which met one day during the winter for a little “show and tell,” conversation, and lunch. We knew there had to be more interest in insects and decided to try a public insect day; formal but still casual and inviting. Nathan Brockman, entomologist, offered Reiman Gardens as the hosting facility.

In 2009, DOI was a blowing snow day with horrid roads, and yet attendance was almost full-to-capacity with 80 people from three states. The event was a huge success. During the 2010 DOI, there were 14 presenters each speaking for 15 minutes with 5 minutes for questions. Lunch and breaks provided time for further interaction, viewing of displays, and visiting the Christina Reiman Butterfly Wing. Speakers presented on a wide range of topics ([www.event.iastate.edu/event/21022/](http://www.event.iastate.edu/event/21022/)). The presentation parameters are simple: invertebrates with an emphasis on insects, Iowa or Midwest related, and presented in a form that the audience can understand. Enthusiasm counts! Our aim is to include new presenters each year, with half of the presenters being amateurs / enthusiasts, and the other half professionals.

ISU is integral to the success of DOI providing the wonderful, central Iowa facility, staff,

and some of the academic presenters. The DOI has four goals: 1. To provide a forum for enthusiasts and amateurs to present their work; 2. To provide a forum for professionals to present to the public; 3. To bring together individuals interested in insects from different disciplines and organizations; and 4. To encourage interaction and to get more folks involved with insects. As Stephan A. Marshall has said, the digital revolution made this possible on a much larger scale. BugGuide is the prime example. BugGuide is to insects what Audubon was to birds.

The 2011 DOI will be held on March 5. Meeting information can be found on the Reiman Gardens website [www.ReimanGardens.com](http://www.ReimanGardens.com).

*M.J. Hatfield and Nathan Brockman*



## Not Just Your Kids’ Insect Zoo

Each year the Department of Entomology’s Insect Zoo fulfills its mission of educating Iowa citizens about the important role insects and their relatives play in our daily lives, the environment, and the economy. This past year was no different. Even with the economic downturn, the Insect Zoo was still an educational staple for many schools who have incorporated the Insect Zoo’s programming into their curriculum.

But it’s not just Iowa’s youth who get to experience the hands-on, minds-on educational programming that the Insect Zoo has to offer. We are often asked to present to adult groups as well. In the past, collaboration has occurred with both Polk County Conservation and Story County Conservation to provide programming for their Older Wiser Learning Seniors (O.W.L.S.) learning luncheons as well as many other opportunities throughout the state.

This fall the Insect Zoo was welcomed by the Green Hills Retirement Community in Ames, the Marshall County Career Development Center, The Iowa School for the Blind, and the Field Ecology Class at the Des Moines Area Community College in Des Moines. Of course that is not to mention the number of adults that see the Insect Zoo when it is out at public venues such as the Iowa State Fair.

The Insect Zoo’s student presenters often find providing programming to adults to be both challenging and exciting. “Adults challenge your knowledge base in a different way than younger students,” said one Insect Zoo presenter, “but it’s a blast because it turns out to be more of a large group conversation.” Over the last decade, the Insect Zoo has conducted more than 250 programs annually. It is certain that 2011 will also keep the Insect Zoo’s residents busy as ever.

*Angela Tague*



**Greg Courtney** and partner Barb Wheelock continued in their pursuit of the best marathon experience and had a particularly good year. Barb ran five marathons in 2010, and placed in both the Mesa Falls (ID) and American Discovery Trail (CO) marathons (which were only nine days apart!). Greg ran only three races, but managed to log >10,000 km on his bike in 2010.

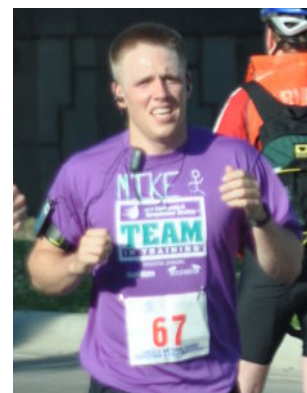


**The Hurricanes.** A few entomology faculty and students keep busy playing soccer in Ames. **Mike Dunbar, Matt O'Neal** and **Aaron Gassmann** are all members of the Hurricanes soccer team. The team is led by Kenny Kyle, husband of **Kelly Kyle**. In further pursuit of his soccer passion, Dunbar traveled to South Africa and attended all of the U.S. World Cup matches.



**Live Healthy Iowa!** The Department of Entomology faculty team, 6LGSRUS comprised of **Lyric Bartholomay, Bryony Bonning, Greg Courtney** and **Aaron Gassmann** ranked ninth among the ISU teams, with an average activity of 116 hr 23 min over the 100 day challenge period due in large part to Courtney's comprehensive training schedule. For reference, the winning ISU team had an average activity of 197 hr!

**Mike McCarville** completed his first marathon in May of 2010. He ran the Lincoln National Guard Marathon finishing the race in 3:22:31. While training, Mike raised over \$5,000 for the Leukemia and Lymphoma Society's Team in Training program. Mike and his fiancée Julia finished their second marathon, the Chicago Marathon, in October. They discovered their love of marathons through the "Team in Training" program.



**Donkey Whisperer? Adam Varenhorst**, is a native from northwest Iowa, graduate of Briar Cliff University, and an M.S. candidate. There were rumors circulating that Adam either had a small herd of large donkeys or a large herd of small donkeys at his parents' farm. When asked if he could confirm this rumor, Adam came clean. "My first miniature donkey was given to me by my aunt and uncle. A few years later I purchased a few more donkeys and began raising them due to their unique personalities. They behave in a manner that is similar to a dog, but weigh around 300 pounds and have long pointy ears. After I began raising them, I found out that they have a life span of around 40 years, which means they are a long-term commitment for me. I currently have four miniature donkeys."



*Adam Varenhorst with his miniature donkeys Trixie and Coco.*





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# Photos from the 2010 ESA Meeting in San Diego



*Carla Tollefson and Jim Garner*



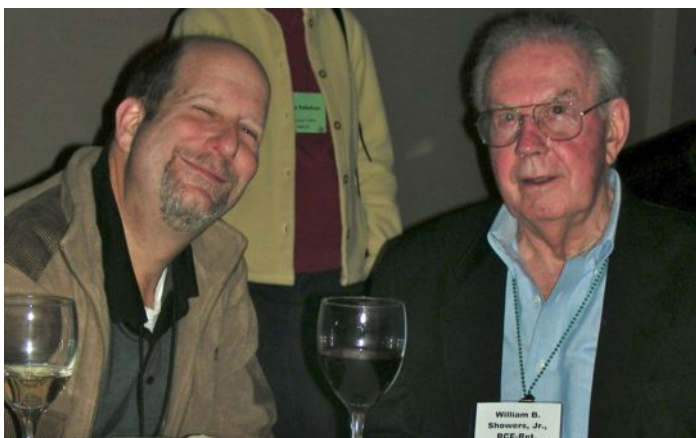
*Carol Pilcher and Wendy Wintersteen*



*Barb Ogg, Phil Mulder, and Clyde Ogg*



*Bob Harrison, Denny Bruck, Jared Ostrem, Rayda Krell, and Luis Gomez*



*Bill Hendrix and William Showers*



*Jeremy Kroemer, Rachel Bottjen, Mike McCarville, Adam Varenhorst, Erica Hellmich, and Ryan Keweshan*



# Photo and Dead Bug Art Competition Winners



First place photograph went to Jon Oliver for "Ventral view of *Carios kelleyi*, the soft bat tick, a fairly common soft tick in Iowa."



First place of Dead Bug Art was awarded to Aislinn Bartholomay for "Cruzin Main."



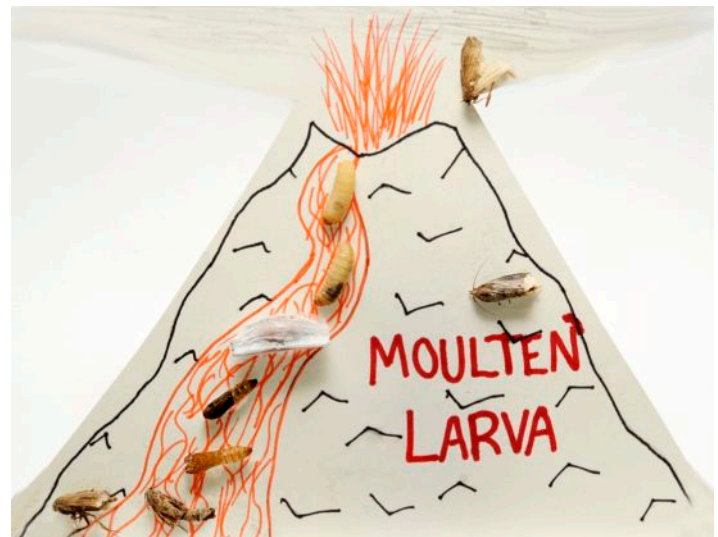
Second place photograph was awarded to Erick Hernandez for "Arizona dune scorpion under UV light."



Second place of Dead Bug Art was awarded to Missy Rudeen for "Joust."



Third place was awarded to Erica Hellmich for "Weevil (*Curculionidae*)" taken in the Boundary Waters, MN.



Third place of Dead Bug Art was awarded to Missy Rudeen for "Moulten Larva."





# Photos from the 2010 ESA Meeting in San Diego



Heather Johnson, Kevin Johnson, Jarrad Prasifka, and Jeff Bradshaw



Marlin Rice, Phil Mulder, and Mike Gray



Jon Tollefson, Gary Hein, Laura Karr, Jim Garner, and Jim Oleson



Yong-Lak Park and Gretchen Paluch



Carol Pilcher, Paula Davis, Brad Coates, and Wai-Ki Frankie Lam

**Important note about future newsletters**  
To reduce financial and environmental costs associated with production of this annual newsletter, future newsletters will only be available online at [www.ent.iastate.edu/alumni](http://www.ent.iastate.edu/alumni). Please update your contact information, including e-mail address at the ISU Foundation website [www.foundation.iastate.edu](http://www.foundation.iastate.edu) (Click on "Update Your Records" at the top of the screen). We expect that future newsletters will be posted online in February.