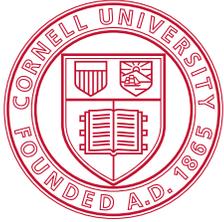


CORNELL ENTOMOLOGY

NEWSLETTER 2013. Vol 4, Issue 1.

GENEVA & ITHACA, DEPARTMENT NEWSLETTER



Cornell University College of Agriculture and Life Sciences Department of Entomology

Greetings From Cornell Entomology Department!

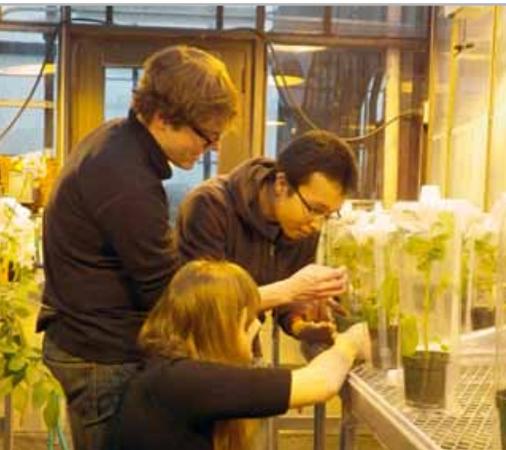
After 6 ½ years I am stepping down as department Chair. I have accomplished what I set out to do, and look forward to getting back to my research and teaching program. It has been my distinct honor to work with the fantastic faculty, staff, students and alumni of our great department and university. With your help we have had several success stories (many of them captured in this newsletter), survived significant challenges and made notable improvements. In 2012 we hired two new assistant professors (Katja Poveda and Nicolas Buchon) and we anticipate hiring another assistant professor in 2013. This revitalization of our faculty is critical to insuring that we remain a world class department well into the future.

In 2012 Dave Soderlund stepped down as Associate Chair and is now off on a well-deserved sabbatical. Greg Loeb was tapped to be the next Associate Chair and he has done a great job in this capacity. Effective July 1, 2013 Laura Harrington will be the new Chair of our department. Laura is an incredibly accomplished researcher and teacher and we look forward to her guidance and leadership. I have every confidence that with Laura and Greg leading the department we will accomplish great things. I hope that you will give them the same tremendous support that I have been blessed with for the last 6.5 years. Thank you one and all!!!

Jeff Scott, Department Chair

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New Course: Story PG 2



Taking it on the Road: Story PG 5



CUIC: Story PG 3

Undergraduate Club

Snodgrass & Wigglesworth, Cornell's undergraduate entomology club, serves as an outlet for students to network with peers with similar interests, and provides exposure to much of the entomological research going on at Cornell. Events in the past year have included an entomophagy potluck, winter camping, taco ice cream movie night, and volunteering at outreach events such as Insectapalooza.

Over the 2013 spring break, five members went on a trip to College Station, Texas. They toured Texas A&M University and met with 8 faculty members in the entomology department to learn about their research programs. They also toured the Texas A&M insect collection, and learned about the graduate school application process. The week culminated in an overnight camping and collecting trip at Bouton Lake in Angelina National Forest. Ordom Huot, a graduate entomology student at Texas A&M and Cornell alumnus, provided a great amount of assistance with planning the trip. The club would like to thank the Cornell Entomology Department, Cornell University Insect Collection, and the Student Assembly Finance Commission (SAFC) for their financial support.

The club holds weekly meetings and regularly invites faculty members and graduate students to give short presentations on their research. Although they are the undergraduate club, anyone is welcome to attend. If you are interested in joining the club listserv, send your request to kad259@cornell.edu.

Author: Brett Morgan

New Course ENTOM 3030 Experimental Design

The new course, ENTOM 3030, Experimental Design and Statistical Analysis in Practice, provides hands-on experience in the design and analysis of basic biological experiments. Students learn how to develop a scientific question, formulate biological and statistical hypotheses, derive testable predictions, use different types of rigorous experimental designs, collect their own data, test the proposed hypotheses using appropriate statistical methods and, finally, interpret the statistical results within a broader conceptual framework. Although these skills are essential to a successful research career, they are seldom taught, and highlight the most important contribution of this course. The tools introduced in the course are generally applicable to multiple disciplines in biology, reflected by the diverse academic backgrounds of students enrolled for the first time this class has been offered; we have students from the College of Veterinary Medicine and the College of Agriculture and Life Sciences, representing the Department of Entomology, Ecology and Evolutionary Biology, as well

as Viticulture and Enology. The course currently (Spring 2013) teaches 6 undergraduate and 6 graduate students, creating an ideal mix for developing small group projects. Students enjoy the hands-on approach of this class and find it an effective way to learn, as they put lecture material into practice and gain exposure to real problems associated with conducting experiments, such as loss of replicates, non-normality of data and non-significant results. How to cope with these "problems" is an important instructional component of the class that has led to insights on how to perform experiments and analyze data properly. Professor Katja Poveda and Mia Park, the TA, have enjoyed working with this initial group of highly motivated students and are looking forward to teaching this course again.



Students collecting data to investigate the consumptive and non-consumptive effects of the predator *Podisus maculiventris* on the most important insect potato pest, the Colorado Potato Beetle.



Students gathering initial data and brainstorming to develop questions and scientific hypotheses for their first projects.

Author: Katja Poveda

Activities in the Cornell University Insect Collection (CUIC)

Recently Professor Emerita Lois Cronholm Neff surprised her husband, Professor Emeritus Stuart Neff (Cornell Entomology Ph.D., 1960) with a present on his 86th birthday: the Stuart Neff Fund of the CUIC. Lois presented Stuart with an announcement of the fund's initiation at his party attended by friends and family. The fund will be used to support student employees that are working in the Cornell University Insect Collection to improve the curational status of our various holdings. As Dr. Neff is an authority on sciomyzid flies, their larvae and ecology, we will be able to support continuing improvement of the Clifford Berg collection of Sciomyzidae, among other projects. As Dr. Cronholm wrote, "Now that I know about all of this you can count on me to continue to contribute to the Collection as a regular way of honoring Stuart on birthdays, anniversaries, holidays – sure beats cuff links and shirts!" And we say a big "thank you" to Dr. Cronholm and her husband, Dr. Neff, for their loyal support of the CUIC!

Expansion of the CUIC

Recently CALS accepted a proposal from the Cornell Department of Entomology that would allow expansion of the Cornell University Insect Collection into the stacks area of the space formerly occupied by the Comstock Memorial Entomology Library. The Comstock Library is now housed in the recently renovated Albert R. Mann Library. In addition, the Department would partner with the College to develop a new seminar room and outreach center that would serve both the Department and the Public.

CUIC personnel will develop a proposal that will support the installation of new compactorized cabinetry that will house the Hymenoptera and Diptera collections. The new collection room will also include work areas for faculty and students, and will be adjacent to a new walk-in freezer room that will allow the CUIC to rotationally freeze specimens, and thereby become naphthalene-free.

We in the CUIC are very pleased to acknowledge the cooperative efforts of CALS administration, Departmental Chair Professor Jeff Scott, and the rest of the Entomology Faculty and Staff.

Undergraduates in the CUIC

We are fortunate to have one volunteer and eleven students in the CUIC over the past year working on a variety of projects. About half of them are funded on the J. Chester and Ruth Bradley Fund for the Advancement of Insect Taxonomy, while the other half are funded on a multi-institution NSF grant to database our cicada and aphid specimens along with associated parasitoids. So far we have databased all of our cicadas and over half of our aphids. Every student has a side project as well, working on a variety of tasks from preparing the Franclemont photographic slide collection of caterpillars for digital scanning, to curating our mite collection. To see some of the work that has been accomplished, please see our website (<http://cuic.entomology.cornell.edu/>).

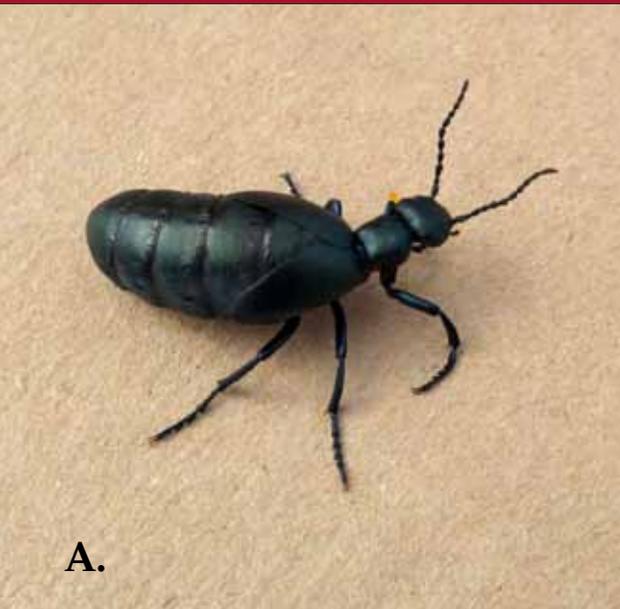
One of the major student projects involved the amalgamation of Professor Tom Wood's (Cornell Entomology Ph.D. 1968) research collection of tree hoppers (Membracidae) into our previous CUIC holdings. Tom's widow, Barbara Wood, donated the collection at Tom's behest, and Prof. Rob Snyder (U. of Delaware Ph.D., currently Dept. of Biology, S.U.N.Y. Potsdam) undertook the move of this considerable collection to Ithaca. The collection includes the extensive holdings of *Enchenopa* treehopper experimental specimens from Tom's numerous sympatric speciation papers. It also includes substantial Neotropical diversity that add a new dimension to our treehopper holdings. Fortunately for us, Mr. Brendan Morris (U. of Illinois Ph.D. Entomology student) identified and rough sorted all of the Wood material. Mr. Brett Morgan (Cornell '14, Entomology and Horticulture dual major) completed the curation process, putting material into new trays, making species header labels, and compiling a taxon list now on our website: http://cuic.entomology.cornell.edu/files/all/cuic_membracidae.pdf. Through Mrs. Wood's and Tom's generosity, and Brendan and Brett's hard work, we have a world-class treehopper collection accessible to the scientific community.

Web Presence

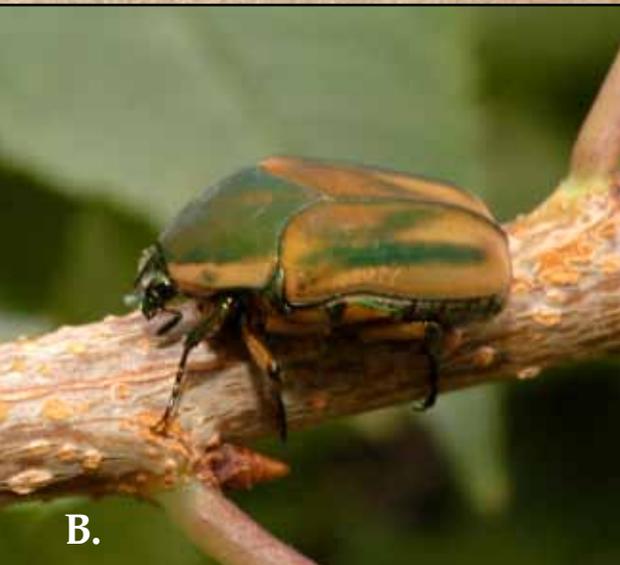
In addition to our traditional website that has current news and information about the CUIC, we now have a Facebook page (<https://www.facebook.com/CornellUniversityInsectCollection>). If you are a Facebook user, please "like" our page to get regular news about our collection and entomology in general. The Insect Diagnostic Lab (IDL) has also re-vamped its website (<http://entomology.cornell.edu/IDL>) with updated fact sheets, featured insects, and instructions on how to submit specimens for identification.



Identify these Insects



A.



B.



C.

A. Oil beetle (*Meloe proscarabaeus*)
B. Green June Beetle (*Cotinis nitida*)
C. Eastern tent caterpillar (*Malacosoma americanum*)

Comings and Goings



The Department of Entomology is delighted to announce the appointment of **Dr. Nicolas Buchon** as Assistant Professor in Insect Immunology. Nicolas joined the department on November 1, 2012.

Nicolas hails from Dijon in France. He conducted his medical training and M.S. in Cellular and Molecular Biology at the Faculty of Medicine, Université d'Auvergne Clermont I in France and obtained there a Ph.D. in Molecular Genetics. Nicolas then took up a position as post-doctoral fellow in the laboratory of Dr. Bruno Lemaître, first at CNRS Gif sur Yvette, France, and then at École Polytechnique Federale de Lausanne, Switzerland.

Insect immunology is a rapidly growing field, with increasing recognition of its importance in understanding how insects vector disease agents, from the *Liberobacter* bacteria that causes citrus greening to the *Plasmodium* agent of malaria, and as a biomedical model for innate immunity. Nicolas' core research concerns the mechanisms underpinning interactions between bacteria and the insect gut, using *Drosophila* as his principal experimental system. Nicolas has an inclusive appreciation of immune responses, recognizing that the host repair mechanisms and stem cell dynamics can play crucial roles in insect response to pathogens and resident microbes, and that these processes intersect with other pathologies, including cancer. He applies a variety of experimental approaches to his research, including functional genetics, cell biology and systems level computational methods. In his postdoctoral research, Nicolas has made key discoveries about the roles of cell signaling and the dynamics of cell proliferation in shaping the immune responses of the insect gut, generating highly-cited publications.

Nicolas has come to a refurbished laboratory in Comstock Hall, where he has promptly set up his research and already developed collaborations within the department and across campus. Nicolas is also building on his previous experience of teaching and mentoring of students. He is training several undergraduate research assistants, and a graduate student will be joining the laboratory next year. In addition, Nicolas will be teaching an undergraduate course on Comparative Immunology in 2014.

A very warm welcome to Nicolas! You can find out more about Nicolas' program at <http://buchonlab.com/research.html>.

Carolyn Klass, who ran the Insect Diagnostic Lab since it was established in 1971, retired in January, 2012. For some 40 years, Carolyn passed judgement on thousands of insect specimens sent in from around the country, including things people submitted that they thought might be insects and often weren't; her activities were even spotlighted in a New Yorker article ("The Bedbug Decider", Feb. 1, 2010). She also served as a valuable resource person for Master Gardeners programs, 4-H projects and competitions, as well as many departmental faculty who often needed help identifying an insect or problem infestation that was beyond their much narrower scope of expertise. Then, she came back part-time to help out Jason Dombroskie as he took over the Insect Diagnostic Lab in 2012. With the IDL now smoothly transitioned to Jason's care, Carolyn was able to really retire. We all owe Carolyn a tremendous Thank You for all her help over the years, and especially for coming back part-time to assist with the IDL.



Undergraduate Publications - 2012

(Undergraduate co-authors are indicated in bold)

Agrawal, A.A., **Kearney, E.E.**, Hastings, A.P., and **Ramsey, T.E.** 2012. Attenuation of the jasmonate burst, plant defensive traits, and resistance to specialist monarch caterpillars on shaded common milkweed (*Asclepias syriaca*). *Journal of Chemical Ecology* 38:893–901.

Debevec, A.H., Cardinal, S., and Danforth, B.N. 2012. Identifying the sister group to the bees: a molecular phylogeny of aculeata with an emphasis on the superfamily Apoidea. *Zoologica Scripta* 41:527-535.

Droney, D., Musto, C., **Mancuso, K.**, Roelofs, W., and Linn Jr., C. 2012. The response to selection for broad male response to female sex pheromone and its implications for divergence in close-range mating behavior in the European corn borer moth, *Ostrinia nubilalis*. *J. Chem. Ecol.* 38:1504-1512.

Griffin, S.R., Smith, M.L., and Seeley, T.D. 2012. Do honeybees use the directional information in round dances to find nearby food sources? *Animal Behaviour* 83:1319-1324.

Huang, T., **Rehak, L.**, and Jander, G. 2012. *meta*-Tyrosine in *Festuca rubra* ssp. *commutata* (Chewings fescue) is synthesized by hydroxylation of phenylalanine. *Phytochemistry*, 75:60-66.

Kaczorowski, R.L., **Seliger, A.R.**, Gaskett, A.C., Wigsten, S.K., and Raguso, R.A. 2012. Corolla shape vs. size in flower choice by a nocturnal hawkmoth pollinator. *Functional Ecology* 26: 577-587.

Losey, J., **Perlman, J.**, **Kopco, J.**, **Ramsey, S.**, Hesler, L., Evans, E., Allee, L., and Smyth, R. 2012. Potential causes and consequences of decreased body size in field populations of *Coccinella novemnotata*. *Biological Control*. 61:98-103.

Menda, G., **Uhr, J.H.**, Wyttenbach, R.A., Vermeylen, F.M., Smith, D.M., Harrington, L.C., and Hoy, R.R. 2012. Associative learning in the dengue vector mosquito, *Aedes aegypti*: Avoidance of a previously attractive odor or surface color that is paired with an aversive stimulus. *Journal of Experimental Biology* 216(2):218-223.

Møldrup, M., Geu-Flores, F., De Vos, M., Olsen, C.E., **Sun, J.Y.**, Jander, G. and Halkier, B.A. 2012. Engineering of benzylglucosinolate in tobacco provides proof-of-concept for dead-end trap crops genetically modified to attract *Plutella xylostella* (diamondback moth). *Plant Biotechnology Journal*, doi: 10.1111/j.1467-7652.2011.00680.x

Pimentel, D., **Cerasale, D.**, **Stanley, R.C.**, **Perlman, R.**, **Newman, E.M.**, **Brent, L.C.**, **Mullan, A.**, and **Tai-I Chang, D.** 2012. Annual vs. perennial grain production. *Agriculture, Ecosystems and Environment* 161:1-9.

Ramsey, S. and Losey, J. 2012. Why is *Harmonia axyridis* the culprit in coccinellid biting incidents? An analysis of means, motive and opportunity. *American Entomologist*. 58:166-170.

Rasmann, S., De Vos, M., Casteel, C.L., Tian, D., Halitschke, R., **Sun, J.Y.**, Agrawal, A.A., Felton, G.W., and Jander, G. 2012. Herbivory in the previous generation primes plants for enhanced insect resistance. *Plant Physiology*, 158:158-163.

Rinkevich, F.D., Hedtke, S.M., Leichter, C.A., **Harris, S.A.**, **Su, C.**, Brady, S.G., Taskin, V., Qiu, X., and Scott, J.G. 2012. Multiple origins of *kdr*-type resistance in the house fly, *Musca domestica*. *PLoS One* 7:e52761

Rinkevich, F.D., **Su, C.**, **Lazo, T.A.**, Hawthorne, D.J., Tingey, W.M., Naimov, S., and Scott, J.G. 2012. Multiple evolutionary origins of knockdown resistance (*kdr*) in pyrethroid-resistant Colorado potato beetle, *Leptinotarsa decemlineata*. *Pesticides Biochemistry and Physiology* 104:192-200.

Woods, E.C., Hastings, A.P., Turley, N.E., Heard, S.B., and Agrawal, A.A. 2012. Adaptive geographical clines in the growth and defense of a native plant. *Ecological Monographs* 82:149–168.

Jugatae Update

Jugatae is the graduate student organization in the Department of Entomology. Jugatae has seen an increase in both student participation and funding provided by Graduate and Professional Student Assembly (GPSA) this academic year, which are notable achievements. How to improve the organization and better facilitate a sense of community within the department have been the major topics of discussion at monthly meetings. Specifically, the organization has developed a weekly graduate student lunch hour where students can engage in stimulating conversation. Additionally, a fantastic webpage for the organization has been developed by Dan Olmstead: blogs.cornell.edu/jugatae. A desire to improve upon outreach efforts was achieved this year, most notably at Insectapalooza 2012, where Jugatae participation was arguably at its highest. The organization also participated in the 2nd Annual Entomology Symposium. Members of the organization continue to be involved in the weekly seminar series and this year the organization selected Dr. Kirsten Pelz-Stelinski (University of Florida) as the 2013 Student-Selected Seminar Series Speaker. The members of Jugatae are continuing to strive for strong participation and look forward to finding new and improved ways to share their zeal for insects!

Author: Rakim Turnipseed

Taking It On The Road

An increasing amount of our departmental effort involves showing non-entomologists why insects are an important part of the natural world and why insect study can illustrate so many areas of biology. Here are a few highlights from the past year's efforts by several department members.

Linda Rayor:

Just by the numbers, science outreach is playing an ever larger role in the Department of Entomology. Insectapalooza, our yearly open house event, attracted over 2,100 visitors in October 2012, involved 143 volunteers, including the highest participation by Jugatae students, and had 36 different entomological displays. The Naturalist Outreach program interacted with over 4000 students last fall, including bringing in huge audiences to the Sciencenter every Saturday all year round. Additionally, 12 entomologists spent 2 days at the New York State Fair interacting with 1800 people. Drs. Linda Rayor, Cole Gilbert, and Jason Dombroskie starred in the National Geographic Wild channel shows 'World's Weirdest Body Parts' and 'World's Weirdest Farms', which will air in June 2013. The shows have excellent macrophotography of cool insects and other arthropods from David Attenborough's documentaries and footage. Stalk-eyed flies, trap-jaw ants, amblypygids, spiders, and insects as food are all covered. Finally, Linda Rayor and her Naturalist Outreach students have been at work on a series of STEM (Science, Technology, Engineering and Math) videos in conjunction with NYS 4H programs and Dr. Carol Jennings, Park Media Productions/ Ithaca College. The goal of the YouTube videos is to introduce children to ecology and biodiversity through lively presentations by college students. Each of the videos uses beautiful images, which help illustrate these appealing introductions to biological diversity. Videos starring Cornell Entomologists include 'Avoiding Predators' with Heather Connelly and Jacob Hurst, 'Insect Detectives' with Rakim Turnipseed and Heather Connelly, 'Biodiversity' with Martin Zorrilla, 'Insect Sound' with Susan Villarreal and Mariah Slone, and 'Bee Diversity' with Margarita Lopez. Other topics include whales, seed dispersal, reptiles, deer, bird feeding adaptations, fungus, and beavers. The videos are linked with guides to the topics and curricular ideas. Search for 'naturalistoutreach' on YouTube.



Enya Shen, of Geneva, tests the responses of a hissing cockroach at "Geneva Reads" in March, 2012.



Retired Entomology professor Art Muka entertains visitors to Entomology's exhibit at Empire Farm Days in Seneca Falls, August 2012.

Charlie Linn:

August 6-10, Empire Farm Days: Empire Farm Days, located on the Rodman Lott and Son Farm in Seneca Falls NY, is the largest agricultural outdoor farm show in the Northeast and typically draws 50,000-70,000 visitors. The Entomology Department presents a large display on insect diversity, invasive species, and insects that are of importance to local agriculture. The display is in the building housing a number of other Cornell University exhibits and over the 3-day event draws many hundreds to thousands of visitors. Many of the visitors bring specimens or photos

for discussion and identification. Over the years the display has been organized by Charlie Linn (Geneva), with help from other faculty and graduate students (including last year Art Muka, Masanori Seto, Erik Smith, Heather Connelly, and Aloy Gu).



Mentoring a High School Student:

Over the course of 2011 through May 2012 I mentored Lindsay Joyner, a student at Greenwich High School, Greenwich, NY on a project titled "Locomotor activity synchronized to the circadian cycle of *Armadillidium vulgare* (Pill Bugs)". Her advisor at the school was Mrs. Nicole Dixon. I made four trips to the school to advise on experimental design, data analysis, and presentation for several local and regional science competitions. In May 2012, I attended the 15th Annual Greenwich Science Symposium, where all of the students in the program (>50) presented their research. I was the invited speaker for the event; "How to find your mate in the dark: A story about chemical communication in insects". Lindsay graduated in May 2012 and is attending Rutgers University.

Aloy Gu:

Going on an outreach event is a good opportunity for me to take a break from the lab. Each time, I pack my presentation with photos and videos, customized visual aids, live insect buddies (in most cases, the Madagascar hissing cockroaches) and show-and-tell boxes, and hit the road. This year I travelled to quite a few local schools in the Geneva area, such as Seneca Falls; additionally, I presented in Ithaca, Canandaigua, Prattsburgh and Sodus. The hundreds of students I have entertained range from pre-school kids to seniors in high school. In order to better deliver the message to different age groups, and sometimes at the request of the teachers, I have tailored my presentations to cover various topics, including "Our Backyard Friends and Enemies", "IPM and Biological control", "Life Cycles of Insects", etc. Every visit and talk has been very well received and I could always tell that the students really liked me. Perhaps I can also give some credit to the fact that I am a student myself, and Chinese, a type of guest speaker they do not usually have. It always makes me feel happy to be able to open their horizons to the insect world and to feel their energy and curiosity. I also participated in several themed local events on behalf of our department, such as "Geneva Reads" Book Fest and GFSA's 3rd Annual Science Night, both held in Geneva (thanks to Xiangping Wang and Masa Seto for volunteering us), Empire Farm Days in Seneca Falls (with Charlie Linn, Dr. Art Muka and other volunteers) and Ag Career Expo in Vestal High School. At each event we welcomed hundreds or even thousands of visitors at our table displays. It is never boring to watch people screaming happily at our cockroaches.

Mike Wolfin:

As an Extension-Outreach Assistantship (EOA) recipient, I find the most enjoyable part of my assistantship to be going into the classrooms and giving outreach talks to young elementary school and middle school students. I have given 28 outreach presentations in 8 different locations, speaking to over 1000 children. Most recently I spoke at the Ithaca Sciencenter in front of an audience of 118 people, one of the largest crowds ever. I've got another presentation scheduled at the Sciencenter on May 25th where we will explore the world of immature insects, and their adverse journey to pupation. I never go into a classroom alone: often I'm armed with live specimens such as a stick insect, a hissing cockroach, some apple maggots, or some termites to take the attention away from me and put it onto these amazing creatures. I really enjoy the look on a student's face when they are excited by science. Outreach has quickly become an integral part of my graduate student experience, and I hope to remain this active for the entirety of my academic career.



Charlie Linn demonstrates the proper way to hold a hissing cockroach at Empire Farm Days.



Masa Seto was part of a team of Entomology graduate students exhibiting at Geneva's "Science Night", March, 2012.

Awards and Honors

Students

Kristen Brochu and Philip Houtz, two incoming (Fall 2013) graduate students, were selected to receive Presidential Life Science Fellowships.

Suzi Clafin received a Towards Sustainability Foundation Graduate Research Grant, "Landscape effects on disease control in organic agroecosystems". Additionally, she received a Northeast Sustainable Agriculture and Education Graduate Research Grant, "Developing and disseminating potato virus management strategies for Northeast growers". Finally, she has received a financial award for 3 years of graduate support from the NSF predoctoral fellowship program. Phil Houtz and Robin Schwenke both received Honorable Mentions for their applications to the NSF program.

Heather Connelly received a graduate student grant from NE SARE for her Ph.D. research, "Influence of landscape complexity on biological control of tarnished plant bug in strawberry." In addition, she and Erin Morris are recipients of Griswold Awards for the Spring 2013 semester.

The CALS Academic Excellence Award in Entomology for highest GPA in the major went to Christopher Donovan.

Elaine Fok received the ESA Eastern Branch Asa Fitch Memorial Award for an outstanding Masters level graduate student, awarded March 2013. Additionally, she was the President's Prize (first place) Winner in the Graduate Student Ten Minute Paper Competition, Plant-Insect Ecosystems Session, at the 2012 ESA Annual Meeting. The title of her presentation was "Natural enemies of Thrips tabaci in New York onion agroecosystems".

The CALS Academic Award for Excellence in a double major went to Eric Gordon, in Entomology and Bio-Microbiology.

Rebecca Johnson received the Paul Schreurs Memorial Award, presented by Ho-Nun-De-Kah Honor Society.

Monica Kersch-Becker received a Towards Sustainability Foundation Graduate Research Grant, "Consequences of plant defense in reducing herbivore density, disease incidence and structuring species interactions".

In May 2013, the CALS Outstanding Graduate TA award was given to Sarah Jandricic for her contributions to Alien Empire and Applied Entomology and Ryan Reynolds for his work in Insect Biology and Alien Empire. Mike Garvey received the Outstanding Undergraduate Student TA Award in the Department of Entomology.

Mia Park was selected as the recipient of the 2013-2014 Chapman Fellowship, based on the criteria of scientific quality of research work, publications and presentations, and involvement in professional activities.

Erik Smith was the 2012 recipient of the Mike Villani Award, awarded in support of graduate research and activities as determined by the Geneva staff and academic staff.

Faculty

Anurag Agrawal was selected for the ESA Founder's Award in honor of Dame Miriam Rothschild at the next National ESA meeting.

Angela Douglas and her co-editor Stephen Simpson recently published the 5th Edition of "The Insects: Structure and Function (ISBN: 9780521113892)"

Laura Harrington received the ESA Eastern Branch Distinguished Achievement Award in Teaching for the second year in a row, awarded in March 2013.

Laura Harrington and Brian Nault were promoted to Professor in December 2012 and April 2013, respectively.

Brian Lazzaro was the 2012 recipient of the CALS Early Career Achievement Award.

Brian Nault and Andrew Landers were selected to receive 2012 Excellence in IPM Awards, presented by the NYS IPM Program.

Don Rutz was awarded the ESA National Distinguished Achievement Award in Extension, awarded in November, 2012.

Jeff Scott received the ESA National Distinguished Achievement Award in Insect Physiology, Biochemistry, and Toxicology, awarded in November, 2012.

Elson Shields was awarded the Entomological Foundation Award for Excellence in IPM, awarded at the ESA Eastern Branch meeting in March, 2013.

Ping Wang became the Director of the Tang Cornell-China Scholars Program in 2012.

Alumni Updates

Marissa Cardillo and Jacob Hurst, graduating seniors and Honors students in Entomology, will give oral

Obituaries

We are deeply saddened to report the passing of the following alumni

Dr. Anthony Bellotti (Tony),

of Naples, Fla., a native Staten Islander whose pioneering work as a research entomologist resulted in agricultural breakthroughs in the developing world, died March 5, 2013 in Naples, Fla. Tony was a pre-eminent authority on the entomology of cassava. In a major contribution that led to billions of dollars in economic benefits, he introduced a parasitic wasp from Paraguay to sub-Saharan Africa, in order to control the mealybug insect that was devastating the cassava. In 1962, Tony joined the first group of Peace Corps volunteers in El Salvador, supervising projects dealing with the growth of vegetables, tropical fruits and small livestock. He earned a master of science degree from New Mexico State University, and returned to the Peace Corps in 1967, serving as an assistant director in Paraguay and then as a training officer in California until 1970. He received a doctoral degree in entomology in 1974, with a minor in plant breeding, from Cornell University. Tony then joined the International Center for Tropical Agriculture (CIAT), in Cali, Colombia, initially as a Rockefeller Foundation post-doctoral student. He would spend 40 years there, including an 18-month sabbatical in Brazil. A cassava program entomologist, Dr. Bellotti also served as acting program leader, and his work resulted in more than 300 scientific publications.



entomology, and authored about 100 articles based on his research. By the means of well-calibrated eyeballs, he elucidated the series of events that led to fatal microsporidial infections in insects. He also characterized fungi that cause fatal infections in pest flies and mosquitoes, and demonstrated their potential usefulness in control practices. In collaboration with colleagues in Brazil, he characterized a protozoan new to science associated with the causative agent of Chagas' disease. He served on the Study Section for Tropical Medicine and Parasitology at NIH and as a traveling consultant for WHO. His professional memberships included the Society for Invertebrate Pathology and the NY Entomological Society.

Ronald John Kuhr,

died on October 21, 2012 at the age of 72. In 1968 he accepted a position as Assistant Professor of Entomology at Cornell University's Agricultural Experiment Station in Geneva, NY. He and his family moved to Ithaca in 1977 when he was named Associate Director of Research in the College of Agriculture. During his 12 years at Cornell, Ron conducted research toward producing safer and more effective insecticide chemicals, becoming an international authority on the carbamate group of compounds. In 1980, the family moved to Raleigh, NC where Ron became head of the Department of Entomology at NC State University and, later, Associate Dean and Director of Research in the College of Agriculture and Life Sciences. His undergraduate course, "Insects and People" at NC State became one of the students' favorite courses on campus. Outside the formal classroom, he spoke to elementary schools, neighborhood children, his grandchildren, and anyone who would listen. He was determined to teach people that "bugs are our friends."



George Daniel Butler, Jr. (Bugsy),

of Chandler, AZ, passed away on May 16, 2012. After receiving his Ph.D. at Cornell University in January 1951, George, better known as "Bugsy", moved to Tucson, AZ where he spent 16 years in the Entomology Department at the University of Arizona. In 1972 he moved to Tempe, AZ where he was a Research Entomologist at the Western Cotton Research Laboratory until he retired in 1986.



Edward Holman Smith,

Professor Emeritus at Cornell University, died on June 23, 2012, at the age of 96. Ed graduated from Clemson Agricultural College in 1938 with a Bachelor of Science degree in Agriculture-Entomology and a commission in the U.S. Army. He went on to receive Masters and Doctorate degrees in Entomology from Cornell University. During World War II he served as an officer in the European Theater and retired from the U.S. Army Reserve as a colonel. Ed's entomological career began as an agricultural extension agent working with fruit growers in New York State's Finger Lakes Region. In 1964 he was named Chairman of the Entomology Department at North Carolina State University, in Raleigh, NC. He was an early advocate for the writings of Rachel Carson, and testified against the excessive use of DDT at U.S. Senate hearings in the 1960s. He returned to Cornell University in 1967 to become Director of Cooperative Extension for New York State, shepherding that agency through the financial trials following New York City's declaration of bankruptcy during the 1970s. He ended his career where it began, at Cornell's Comstock Hall as Chairman of the Entomology Department. His knowledge and expertise took him to Afghanistan, China, Kenya, Thailand, Peru, and Malawi where he worked to improve the quality and quantity of food production in those countries.



Alexander Cochran Davis (Sandy),

died April 15th, 2012, at his home in Geneva, N.Y. He was 91 years old. Sandy was the son of Dr. Malcolm Bancroft Davis, the former Dominion horticulturist of Canada. An alumnus of the University of Guelph, Kemptville, he was also a graduate of Toronto University. After receiving his Ph.D. in entomology from Cornell University, Sandy worked as a professor of Entomology for Cornell University at the New York State Agricultural Experiment Station in Geneva. His primary focus of work involved vegetable pest management. During the 1970s, he worked with a team of scientists in the preparation of a report on toxaphene for the USDA. In his later years he served as Assistant Director, and from 1982 until his retirement in 1983, he served as Acting Director of the Geneva Experiment Station.



John Paul Kramer,

died on July 26, 2012. He joined the Entomology faculty at Cornell in 1965 and was advanced to Professor in 1970. His research centered on microbial diseases of insects with emphasis on protozoal and fungal pathogens. He served as major advisor for 14 doctoral students in



Graduating Student Activities and Plans

Undergraduate

Emily Bick

Emily is a Hunter R. Rawlings III Presidential Research Scholar residing for the last four years in Dr. Judy Appleton's immunology laboratory as well as working for three months as an intern at Marrone Bio Innovations located in Davis, CA. At Cornell, Emily served as president of Haven: Cornell's LGBT Student Union. In her free time, Emily enjoys running and volunteering as an Emergency Medical Technician.



Micah Freedman

I am a double major in Entomology and Plant Sciences from Clemson, South Carolina. I am currently working on an honors thesis that examines how herbivores and pollinators might interact via volatile organic compounds to impact plant mating strategies. While at Cornell, I have focused mostly on insect-plant interactions and ecology in general, and I studied abroad during my junior year in the Kruger National Park, South Africa. Outside of school, I am an avid traveler, hiker, and runner, and I recently completed my first marathon in 2:58:30. After graduation, I plan to take a year off from school and then begin a Ph.D. program in the Fall of 2014.



Ryan Reynolds

Over the past four years I've been an active member of the Snodwiggs in addition to being president junior year. As a freshman I quickly got into the core entomology classes and nearly completed them all before junior year. This gave me some time later on to TA the intro ento class and Alien Empire. Outside of entomology I played sprint football and I have played oboe in the school's Wind Ensemble. Spring of freshman year the Wind Ensemble took a service trip to Costa Rica where we taught music to children and performed several concerts across the country. Over the years I have worked in the Thaler lab and have been able to run several experiments on ants. Summers have been packed with entomology, starting with a summer in the Calderone honeybee lab followed by a summer in Florida working on ant architecture with Walter Tschinkel. My final summer was spent recording ant antennation patterns for my own science project. I've enjoyed every non-test related moment with this department and I'll miss the Snodwiggs, Insectapalooza, and all you insect enthusiasts.



Graduate

Prasit Deewatthanawong

I am originally from Bangkok, Thailand. Before joining Laura Harrington's lab in 2009, I worked at Boyce Thompson Institute for Plant Research (BTI) for six years. At the Harrington lab, my research focuses on mosquito mating behavior. I am also involved in a project on male accessory gland proteins (Acps) of dengue vectors. As a graduate student, I helped a Jugatae seminar as a student coordinator in the Spring and Fall of 2011 and was a volunteer at Insectapalooza from 2009 to 2011. I also enjoyed working as a manager of the grad student event "Tell Graduate Students It's Friday (TGIF)" and as a grad student assistant manager at the Big Red Barn Graduate and Professional Student Center (BRB).



Sarah Jandricic

After earning a M.S. in Environmental Biology / Toxicology at the University of Guelph in Canada, and then working in industry for 2 years, Sarah returned to academia in 2007 to begin her Ph.D. at Cornell with Dr. John Sanderson (Floriculture Entomology). Her project investigates the oviposition behavior and biocontrol efficacy of the aphidophagous predator *Aphidoletes aphidimyza* (Diptera: Cecidomyiidae) in multi-aphid species environments, as well as aspects of the biology and ecology of the emerging greenhouse pest, foxglove aphid (*Aulacorthum solani*). Sarah has been active in the department over the years, serving as a student representative to Cornell's student government and the Entomological Society of America (ESA), and as the student committee member on the Rawlins Endowment Board and departmental newsletter, among other things. Sarah has also received a number of prestigious awards during her time at Cornell, including a North Eastern Sustainable Agriculture and Education (SARE) Award and was the 2012 John Henry Comstock Award winner for the Eastern Branch of the ESA. Sarah will be graduating in August 2013, and hopes to continue in the field Applied Entomology throughout her career.



Xiaozhao Song

I am planning to graduate in August 2013. My research interest is focused on understanding the mechanisms of insect resistance to genetically modified crops with insecticidal proteins from the soil bacterium, *Bacillus thuringiensis* (Bt). For my dissertation research, I use a combination of biological, biochemical, molecular genetic, and genomic approaches to study the biology, and more importantly, the molecular genetic basis, of resistance evolved in cabbage looper, *Trichoplusia ni*, to Bt toxin Cry2Ab, a significant insecticidal protein employed in the second generation transgenic *Bacillus thuringiensis* crops.



Rakim Turnipseed

Rakim is graduating in 2013 with an M.S. in entomology. He studies competitive interactions between a native, *Coccinella novemnotata*, and an exotic, *C. septempunctata*, lady beetle (Coleoptera: Coccinellidae) and the implications these interactions have in biological control. Rakim has been very involved in the department, serving as the Graduate Director of the Naturalist Outreach Program and the President of Jugatae, the entomology graduate student organization. He played a pivotal role in the execution of Insectapalooza 2012 for which he recruited and coordinated a schedule for over 120 volunteers. Rakim has also been involved with his lab's signature Lost Ladybug Project, a nationally recognized citizen science program funded by the NSF. Rakim, his wife, and daughter-on-the-way will be headed to California in Fall 2013 where Rakim will pursue his PhD in Environmental Science, Policy, and Management at UC Berkeley on a Chancellor's Fellowship. There, he will continue his studies on invasive species biology.



Susan Villarreal

Susan graduated in January, earning her doctorate degree by studying the acoustic communication of a local katydid species. During her time at Cornell Susan served on the Rawlins committee, held multiple positions in Jugatae, including President for two years, and has been heavily involved in the planning committee for Insectapalooza. Most notably, Susan has provided the designs for Insectapalooza t-shirts for the past six events. For her postdoctorate work, Susan plans to continue to study acoustic behavior in other systems.



Adam Wong

Adam is a Ph.D. candidate of Entomology and Microbiology (2009 - 2013). His research focuses on how the gut microbiota impact animal physiology across nutritional space. He has pioneered high-throughput pyrosequencing methods to characterize bacterial communities across *Drosophila* species and in the whitefly *Bemisia tabaci*. He has also developed a bioinformatics software for bacterial species delineation, and served as ad hoc reviewer for Molecular Ecology. Prior to his Cornell studies, Adam conducted research in the Medical School in Hong Kong, investigating influenza pathogenesis in humans.



presentations on their research at the International Congress of Arachnology in Taiwan in June 2013. Marissa is studying the link between sociality and metabolic rate in huntsman and eresid spiders; she will remain in Entomology to do a Master's degree with Dr. Linda Rayor. Jake will be talking about how changes in allometry at sexual maturity affect running speed in huntsman spiders.

Torsten Dikow has started a new, permanent position as a Smithsonian Research Entomologist and Curator of Diptera at the National Museum of Natural History, Smithsonian Institution in Washington, DC, and is very excited to work as a curator in the largest Diptera collection and in one of the most famous natural history museums in the world.

Melissa Hardstone (Ph.D. '09) has accepted a position as an Associate Public Health Biologist with the California Department of Public Health in Richmond, CA .

George Lin (Ph.D. '10) has accepted a position with Dow AgroSciences in Taiwan.

Nannan Liu (Ph.D. '95), Faculty Endowed Professor in Entomology and Plant Pathology at Auburn University, received the 2012 Director's Research Award from the College of Agriculture, Auburn University.

International

Catherine and Maurice Tauber were recently named Honorary Members of the International Organization for Biological Control at the 16th General Assembly of IOBC Global. Maurice is a former Professor and Department Chair, and Kady served as a Senior Research Associate. Together they have represented one of the most successful collaborative teams in entomology, exhibiting expertise in insect seasonality, behavior, evolutionary biology, systematics and biological control, gaining international recognition for their joint and individual efforts. The Taubers are currently in "active retirement" at the University of California - Davis, where they are Visting Professors.

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Lisa Westcott
Cornell University
College of Agriculture and Life Sciences
Department of Entomology
2130 Comstock Hall
Ithaca, NY 14853

<p>Editorial Board Art Agnello Cheryl Gombas Charlie Linn Brian Nault Lisa Westcott</p>	 <p>Hickory horned devil (<i>Citheronia regalis</i>)</p>	<p>Art Agnello presented an invited paper on a novel pesticide application system for apples at the International Congress of Entomology, Daegu, South Korea in August.</p> <p>Tony Shelton was an invited speaker at the Biotechnology Summit in Merida, Mexico in March to discuss Bt plants for insect control; additionally, he presented two invited papers on Bt plants at the International Congress of Entomology, Daegu, South Korea in August.</p>
<p><i>International Awards and Honors, Continued from Page 11</i></p>		
<p>May 26, 2013 Commencement Cornell University, Ithaca, NY</p> <p>June 6-9, 2013 Reunion Cornell University, Ithaca, NY</p> <p>October 19, 2013 Insectapalooza Cornell University, Ithaca, NY</p> <p>November 11, 2013 Cornell Mixer at the ESA meetings Austin, TX (November 10-13, 2013)</p>	<p>CAN YOU HEAR ME NOW? - Purchase audiovisual system for new departmental seminar and conference room - \$20,000</p> <p>ROAD TRIP! - Sponsor the Snodgrass and Wiglesworth Undergraduate Club Collection trip - \$1,200</p> <p>HOW I SPENT MY SUMMER VACATION - Support an Undergraduate Summer Intern with a gift of \$6,000.</p> <p>PAY THE RENT - Gifts of any size to the Entomology Excellence Fund to help us support graduate students are welcome.</p> <p>BUGS-R-US - Sponsor Insectapalooza 2013. The department's one day open house is the premier science outreach event for the College of Agriculture and Life Sciences - \$4,000.</p> <p>PINNED! - Purchase new collection equipment for that infamous Introductory Entomology Lab Collection and help launch the career of Cornell's next famous alumnus - \$1,000.</p> <p>Please contact Laura Harrington (lch27@cornell.edu) if you would like more information or to discuss other giving opportunities.</p>	