

Entomology

Newsletter 2017-2018



Department of Entomology
University of Illinois at Urbana-Champaign
(Illini *Trogus pennator* courtesy of Susan Gabay Laughnan)

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MESSAGE FROM THE HEAD



August 2017 marked the beginning of my 25th year as Head of the Department of Entomology, making me the second-longest-serving Head in our history--for the seventh year in a row. I won't be the longest-serving Head until August 2019, when, barring any unforeseen developments, I'll surpass Clell Metcalf, who served as Head from 1921 to 1946. As to the condition of the department shortly after he retired, in 1948, amidst "considerable talk of a complete reorganization of the Biology Division," Metcalf's successor William Hayes asked faculty member Clyde Kearns to write to Dean Henning Larsen concerning his "personal opinion relative to the future of our department." Kearns wrote, "I believe that our department, as small as it is, is generally recognized as ranking about 3rd among perhaps 40 major institutions which grant degrees in Entomology. At present only Cornell and the University of California are considered better institutions for obtaining graduate and undergraduate training. We rate lower than Cornell and California primarily because we do not provide adequate training and opportunities for students interested in insect physiology. The addition of an outstanding physiologist to our staff would I am sure place Illinois in the foremost position in Entomology in this country." That year, the department hired Gottfried Fraenkel as the first of many outstanding physiologists who, in the intervening 70 years, succeeded in establishing our international reputation as leaders in insect physiology and contributing to our national preeminence in general. Our most recent physiologist, undergraduate alumnus Adam Dolezal, came back to UIUC to join the faculty in Fall 2017. Any doubt that he is superbly qualified to take up the insect physiology mantle should be dispelled by the fact that, immediately before his arrival here, he served as co-editor of an entire issue of *Current Opinions in Insect Science* on social insect physiology, coauthoring with (alumna) Amy Toth the introductory *Editorial overview: Social insects: Integrative approaches to understanding insect sociality: why physiology is still highly relevant*.

As for contemporary planning for the future of the department, in 2013-2014, the Provost's Office instituted an Academic Program Review program on a five-year cycle, whereby program self-study is followed by an external peer review for all departments. Our turn came up in Fall 2017, a less than propitious moment given that 2017 was the second of two consecutive years with absolutely no financial support from Illinois's dysfunctional government (comprising a supermajority Democratic legislature and a billionaire Republican governor unwilling to compromise on his "turnaround agenda" for managing the state's \$9 billion deficit). Thus, our external review team was puzzled by its charge to make only recommendations for improving the department that could be implemented with no financial implications, which realistically would limit the possibilities to "work



harder." That said, we had a stellar external review team—Susan Brown of Kansas State, Tom Baker of Penn State, and Ring Cardé of UC-Irvine. After their thoroughly enjoyable campus visit, we were delighted to hear that they found "*The record of accomplishments and research productivity of faculty in the Department has been exceptional to this point, with Number 1 rankings nationally among all entomology departments in several recent surveys. Two faculty members have achieved National Academy of Sciences membership, and other faculty has garnered numerous meritorious awards.*

UIUC entomology faculty publish at an admirably high rate in high-quality journals, and their peers nationally and internationally recognize most as experts in their respective research areas...The student experience in the department of Entomology had been and remains excellent."

The team's top recommendation was for us to fill our Endowed Kearns, Metcalf and Flint Chair in Insect Toxicology (vacated by Barry Pittendrigh, who left in 2016 for an endowed chair in Michigan State), linking the position with the forthcoming needs in Insect Genomics. The need for genomics expertise is particularly acute, given the 2018 retirements of Charlie Whitfield and Hugh Robertson, along with the 2018 departure of Allison Hansen for UC-Riverside. We're optimistic that, given the centrality of genomics to our identity and our research (e.g., UIUC is one of only three campuses to host the annual Arthropod Genomics Symposium, which we did most recently in 2018), we'll receive permission to fill the chair soon. By the way, true to form, Hugh leaves on a high note; according to Web of Science, of 9,673 papers published in 2018 with "insect" as a topic, Hugh was a coauthor on the 8th most frequently cited: Harrison et al. (2018) Hemimetabolous genomes reveal molecular basis of termite eusociality. *Nature Ecology & Evolution* 2: 557-566. Independent of the hiring cycle, however, we were fortunate to be able to bring Esther Ngumbi to campus as a Diversity Realized at Illinois by Visioning Excellence (DRIVE) Ethnic Studies postdoctoral associate, shared with African American studies. Her expertise in

international food security represents an area of research that, given its global importance, is woefully underrepresented in our department and across the campus. She also has amassed an astonishing record in science communication and in social change for women and underrepresented minorities within science. Within six months of her arrival in March 2018, she succeeded in publishing science-based articles in *Newsweek*, *Scientific American*, NPR, and the *New York Times*, in addition to winning an international award--the 2018 President's Medal from the Society for Experimental Biology. For perspective, I can mention it took me 12 years as a faculty member (after promotion to Full Professor *and* Head) to publish an op-ed in the *New York Times*...

Entomology-related personnel changes have happened across the campus as well. At the Natural History Survey, the past two years have seen a dynamic equilibrium at work; affiliate Juma Muturi departed for the USDA in Peoria, affiliate (and alumna) Lee Solter retired, and affiliate Steve Taylor retired and left for the mountains of Colorado. Arriving at INHS and newly affiliated with Entomology are Tommy McElrath, Insect Collections Manager, Chris Stone, Director of the Medical Entomology Laboratory, and Mark Davis, Coordinator of the Collaborative Ecological Genetics Laboratory. Another new INHS arrival was Director Eric Schaubert, who just happens to have a distinguished record in arthropod research; although his main focus is on vertebrates, among his most highly cited papers are those based on his earlier work on ticks and zoonotic disease transmission. Also newly affiliated is Eric Larson, an aquatic ecologist in the Department of Natural Resources and Environmental Sciences since 2015, whose expertise on invasive crayfish is a great addition to our program (ever since multiple molecular studies a decade ago determined that hexapods are basically just terrestrial crustaceans).

I've had many delightful interactions with alumni over the past two years. Many came back to campus in Fall 2018, to attend a celebration of the life and career of Stanley Friedman, past Head of Entomology from 1976 to 1992; as Head and as emeritus professor, he was a wise mentor and good friend to multiple generations of students and faculty. As it often does, our annual Insect Fear Film Festivals brought several alumni back to campus, including festival stalwarts Nathan Schiff and Ellen Green, from the USDA Forest Service and Delta State University, respectively, Keith Hunter, from Abbott Laboratories in Lake Bluff, IL, and Allen Lawrance of the Peggy Notebaert Museum in Chicago. In May 2018, Dr. Dan Strickman (PhD Entomology 1978), formerly military medical entomologist/USDA program director, now a program director at the Gates Foundation, returned to campus to serve as Integrative Biology commencement speaker. Our departmental Distinguished Alumnus in 2017 was Alan Schroeder (PhD, 1989), CEO of E-Noe-Tec Consulting, who traveled from Belgium to talk about how his UIUC Entomology program formed the basis for a long career as an international environmental consultant. Our 2018 Distinguished Alumnus, Joel Siegel, however, ended up visiting a week after his scheduled colloquium date due to issues keeping him onsite in the Commodity Protection & Quality Research Unit at the USDA-ARS Lab in Parlier, CA, where he has been Research Entomologist for 21 years protecting the nation's postharvest dried fruit and tree nuts from insect pests. Several far-flung alumni were kind enough to invite me to visit them over the past two years as well. Randy Cohen (PhD 1987) invited me to give a seminar to the Biology Department at Cal State Northridge, where he served as Department Head, introducing me to California bagels in the process (they're



not bad, but Brooklyn is better). Farthest-flung was Rachel Galun (PhD 1955); I was deeply honored, at her invitation, to participate in the Israeli's Entomological Society's symposium celebrating her 60+ year-career as a groundbreaking entomologist and passionate advocate for international science in service to humanity. Over the course her career, she has advanced the understanding of vector nutrition more than any other scientist, creating a subdiscipline in the process. You can read about her many accomplishments in her autobiography (which I plan to do, as soon as I learn enough Hebrew to read it!).

Many of our alumni have generously supported us through gifts, for which we're very grateful. Every gift, irrespective of size, is enabling, particularly in view of the aforementioned continuing budget woes of our state. We try to be entrepreneurial in our fund-raising efforts—in 2018, e.g., our Pollinator Bee-zaar served the dual purpose of raising funds for the Pollinatarium and clearing out almost 40 years of entomological tchotchkes I've accumulated over the years. I've also been working on another honey cookbook to support the Pollinatarium, a sequel to *Honey I'm Homemade—Sweet Treats from the Beehive Across the Centuries and Around the World*. While the first cookbook focused on desserts, the new one is focused on beverages, with the tentative title, *Honey I'm Buzzed—the Amazing History and Current Status of Bees, Booze and Other Beverages*. So—keep in touch, and, if you have any to share, send me your recipes for honey-based mead, lagers, ales, cocktails, teas, punch, and smoothies—I'chaim!

FACULTY AWARDS AND RECOGNITION

Entomologist honored for work in science and society

May Berenbaum awarded by British Ecological Society

"Prominent entomologist May Berenbaum at the University of Illinois has been recognized by the British Ecological Society for her work benefiting the scientific community and society in general. Berenbaum received the Honorary Membership award from the head of the British Ecological Society (BES). It's the society's highest honor, given for exceptional contributions at the international level to the generation, communication, and promotion of ecological knowledge and solutions. She was cited by the BES for her research focusing on chemical interactions between insects and plants, including the detoxification of natural and synthetic chemicals. "I was completely surprised by the news," Berenbaum said. "It's such an honor to be recognized for contributing to the science of ecology by the world's first ecological society, which dates back more than a century ago to the founding of the field itself.""

[Dave Evensen/Diana Yates, U. of I. News Bureau, 08/29/2017, <https://bit.ly/2RFvLkN>]



May R. Berenbaum of the University of Illinois at Urbana-Champaign Named PNAS Editor-in-Chief

"The National Academy of Sciences (NAS) announces the appointment of May R. Berenbaum as Editor-in-Chief of the *Proceedings of the National Academy of Sciences* (PNAS), the official journal of the Academy. Berenbaum will begin the editorship on January 1, 2019. Berenbaum is Professor and Swanlund Chair of Entomology at the University of Illinois at Urbana-Champaign. She was elected to the National Academy of Sciences in 1994 and has served on the PNAS Editorial Board since 1998. "The National Academy is so fortunate to have recruited a new Editor-in-Chief with the international reputation, leadership experience and excellence, and commitment to quality communication demonstrated by Professor May Berenbaum. Her dedication to the journal and to the Academy is legendary. I look forward to working with her in the coming years," says NAS President Marcia McNutt."

[Prashant Nair, PNAS Communications Manager, 10/26/2018, <https://bit.ly/2qRkdMr>]

IGB Director Awarded 2018 Wolf Prize in Agriculture

"IGB Director Gene Robinson has been awarded the 2018 Wolf Prize in Agriculture for "leading the genomics revolution in the organismal and population biology of the honey bee." Awarded each year since 1978 by the Wolf Foundation in the fields of agriculture, chemistry, mathematics, medicine, physics, and rotated among disciplines in the arts, recipients are considered outstanding members in their field. Laureates receive their awards from the President of the State of Israel, with a special ceremony held at the parliamentary building in Jerusalem. "I am deeply honored to receive this award," said Robinson. "The new science of genomics has truly revolutionized how we study all organisms, including honey bees, whose intricate social life enables them to play a vital but often overlooked role in world agriculture as the premier pollinator on the planet." Employing genomics and systems biology to study the mechanisms and evolution of social life using the Western honey bee as a model organism, Robinson's lab has made significant advances in the understanding of the role of genes, hormones, and neurochemicals in the mechanisms and evolution of social behavior, as well as discovering the first gene in regulating the division of labor within honey bee colonies."

[02/12/2018, <https://www.igb.illinois.edu/article/igb-director-awarded-2018-wolf-prize-agriculture>]



Honey bee researcher Gene Robinson elected to National Academy of Medicine

Illinois entomology professor Gene Robinson was elected to the National Academy of Medicine "for pioneering contributions to understanding the roles of genes in social behavior."

"CHAMPAIGN, Ill. — Entomology professor Gene Robinson, an international leader in honey bee research, has been elected to the National Academy of Medicine "for pioneering contributions to understanding the roles of genes in social behavior." Robinson directs the Carl R. Woese Institute for Genomic Biology at the University of Illinois at Urbana-Champaign. Election to the NAM "is considered one of the highest honors in the fields of health and medicine and recognizes individuals who have demonstrated outstanding professional achievement and commitment to service," the Academy writes. This honor follows Robinson's receipt of the 2018 Wolf Prize in Agriculture earlier this year. "It is unusual for a scientist to be recognized for contributions both to agriculture and medicine, but Robinson's work with honey bees has real relevance to our understanding of the brain and behavior," said Robert Jones, the chancellor of the Urbana-Champaign campus. "These two honors – in a single year – show how basic research can lead to all kinds of unexpected benefits. Thanks to Robinson's work, we now have a better understanding of honey bee behavior and its genetic underpinnings – and we see compelling parallels to human brain plasticity and function.""

[Diana Yates, U. of I. News Bureau, Photo by L. Brian Stauffer, 10/15/2018, <https://news.illinois.edu/view/6367/705813>]

Study Finds Potential Benefits of Wildlife-Livestock Coexistence in East Africa

Bard News · 2 months ago



Potential benefits of wildlife-livestock coexistence in East Africa

Science Daily · 2 months ago



As more ticks spread to Illinois from north and south, experts warn of severe season

Chicago Tribune



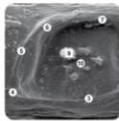
Home on the range: Integrating wildlife and livestock

Stanford University News · 2 months ago



An Up-Close Look at the Tiny Sensory Pits That Ticks Use to Smell

Entomology Today · 11 months ago



Fighting Tick-borne Disease with Predictive Models | Research

BU Today



marianne Alleyne

Beetles make way for robotic self-correction advancements

Daily Illini



Cicada wings may inspire new surface technologies

Science Daily



A Post-Election Washington DC: The ESA Science Policy Fellows' Perspective

Entomology Today



Click beetles inspire design of self-righting robots

Phys.org



High-jumping beetle inspires agile robots

Nature.com



Study looks at ecological traps to minimize human risk of mosquito-borne pathogens

Phys.org · 24 days ago



Barbecue-Crashing Mosquitoes Beware: New Weapons Are in the Works

USDA.gov



Spraying for mosquitoes bugging some

Champaign/Urbana News-Gazette



The Rise Of Bloodsucking Insects You Can't Just Swat Away

NPR



Mowing dry detention basins makes mosquito problems worse, team finds

Science Daily



What's in your landscape? Plants can alter West Nile virus risk

Phys.Org



Andy Suarez UIUC

How these insects bite 700 times faster than you can blink

Washington Post



Illinois' vanishing bugs and why it matters to Earth

Chicago Tribune



Andrew Suarez UIUC

Blood-Sucking 'Dracula Ant' Sets Animal Speed Record with 200-Mph Bite

Live Science



Blood-Sucking 'Dracula Ant' Units Animal Pace Document with 200-Mph Chunk

Infosurhoy · 11 days ago

Professor Gene Robinson studies the genes and social behavior of honey bees

Daily Illini · 10 days ago



New laboratory system allows researchers to probe the secret lives of queen bees

Science Daily · 12 days ago



Honey bee researcher Gene Robinson elected to National Academy of Medicine

EurekAlert · 2 months ago



Dr. Gene Robinson Awarded 2018 Wolf Prize in Agriculture

EurekAlert · 10 months ago



Science: New laboratory system permits researchers to probe the key lives of queen bees [Report]

Infosurhoy · 5 days ago

How Insulin Helped Create Ant Societies

Quanta Magazine · 4 months ago



What turns bees into killer bees?

Science Magazine · 6 months ago



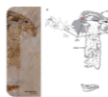
Earth BioGenome Project Builds off Researcher's Idea of 'Genomical' Datasets

GenomeWeb · 3 months ago

Sam Heads INHS

World's Oldest Fossilized Mushroom Sprouted 115 Million Years Ago

Live Science · 1



New cricket discovered in forgotten prehistoric amber

UPI.com

Scientists find world's oldest mushroom fossil in Brazil

Daily Mail



Stick Insects Have Mimicked Plants Since Age of Dinosaurs

National Geographic



Feeling old? Well, we're older than that: Newly found Homo sapiens jaw dates back 350k years

The Register



Decades-old amber collection offers new views of a lost world: Tiny grasshopper encased in amber

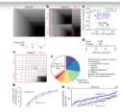
Science Daily



hugh robertson genome

Improved reference genome of *Aedes aegypti* informs arbovirus vector control

Nature.com · last month



Mosquito genome opens new avenues for reducing insect-borne disease

Science Daily · last month



Mosquito genome opens new avenues for reducing bug-borne disease - News

The Rockefeller University Newswire · last month



Genomic study ties insect evolution to the ability to detect airborne odors

Phys.org · 4 months ago



Colorado potato beetle genome gives insight into major agricultural pest

Science Daily · 10 months ago



Groundbreaking Research From UC Davis Doctoral Candidate

Davis, CA Patch · 4 months ago



The social evolution of termites: Similar genes involved in the evolution of insect societies as in bees and ants

Science Daily · 10 months ago

chris dietrich INHS

New leafhopper species named after University of Illinois entomologist

Phys.Org · 1



NSF Awards Grants to Advance Digitization of Biological Collections | NSF

National Science Foundation



Hornets a danger to birds?

The Southern



Stick Insects Have Mimicked Plants Since Age of Dinosaurs

National Geographic



ALUMNI AWARDS FROM THE ENTOMOLOGICAL SOCIETY OF AMERICA

Fellows (2018)



Christina M. Grozinger, Ph.D.

“**Dr. Christina M. Grozinger**, distinguished professor of entomology and director for the Center of Pollinator Research at Pennsylvania State University, was elected as an ESA Fellow in 2018. Grozinger is internationally recognized for her integrative studies on the proximate and ultimate mechanisms underpinning social behavior and health in bees and for her advocacy for research, education, and conservation of pollinators...Grozinger obtained her B.Sc. from McGill University in 1997, with a dual degree in chemistry and biology. She was awarded a National Science Foundation Predoctoral Fellowship for her studies on histone deacetylases in the Department of Chemistry and Chemical Biology at Harvard University with Stuart Schreiber, obtaining her M.A. (1999) and Ph.D. (2001). Subsequently, Grozinger was awarded a Beckman Institute Fellowship to join Gene Robinson's group at the University of Illinois, Urbana-Champaign, to examine the neurogenomic basis of pheromone-mediated behavior. In 2004, she joined the faculty at North Carolina State University as an assistant professor of insect genomics. In 2008, she joined the Department of Entomology at Penn State as an associate professor, became the Director for the Center for Pollinator Research in 2009, and was named a Distinguished Professor of Entomology in 2015. Grozinger uses a trans-disciplinary approach encompassing genomics, physiology, neurobiology, behavior, chemical ecology, and ecological modeling...Her studies on pollinator health evaluate the impacts of biotic and abiotic stressors at the molecular, physiological, and behavioral level to design strategies to mitigate and improve resilience to these stressors. She has published more than 100 peer-reviewed articles with more than 10,000 citations and served as the principal or co-principal investigator on grants totaling \$16.5 million, with \$7.5 million directly supporting her program. Grozinger actively promotes entomology to the public, stakeholders, policymakers, and international scientific community. She has organized multiple workshops, symposia, and conferences; obtained funding for undergraduate and graduate training programs; facilitated collaborative networks; and disseminated her research broadly...She has taken leadership roles in the Entomological Society of America and the International Union for the Study of Social Insects.” [<https://www.entsoc.org/fellows/grozinger>]



Bruce A. McPheron, Ph.D.

“**Dr. Bruce A. McPheron**, professor of entomology and executive vice president and provost of Ohio State University (OSU), was elected as an ESA Fellow in 2018. He is internationally known for the development of molecular diagnostic tools to understand and manage the spread of invasive fruit fly species and work on the process of speciation, using native fruit fly species as model systems...he earned a bachelor's degree with honors in entomology from OSU and a master's degree in biology and a doctorate in entomology from the University of Illinois. His academic career at land-grant institutions began as an Ohio State county extension educator, followed by a position as a postdoctoral researcher at Louisiana State University. In 1988, he joined the faculty at Pennsylvania State University's College of Agricultural Sciences and later served as associate dean and director of the Pennsylvania Agricultural Experiment Station and as the college's dean. He returned to Ohio State in 2012 as vice president for agricultural administration and dean of the College of Food, Agricultural, and Environmental Sciences. In 2015, he served as interim executive vice president and provost during a national search and, in 2016, was appointed to the permanent position. In this role, he oversees 15 colleges, five campuses, and more than 7,000 tenure-, clinical-, research-track and associated faculty. In addition, he has oversight of academic programs for 66,046 undergraduate, graduate, and professional students; more than 200 majors; and almost 13,000 courses...A longtime national leader in higher education administration, he has focused on the vital contributions of land-grant institutions to society. He served in national leadership within the Association of Public and Land-Grant Universities (APLU), chairing the agricultural research leadership organization, then the dean and administrative heads of agriculture and, finally, the Policy Board of Directors of the Board on Agriculture Assembly. As provost, he is active in the Big Ten Academic Alliance, the Association of American Universities, and APLU in advancing the land-grant mission in higher education. He is a Fellow of the American Association for the Advancement of Science and has testified on the Farm Bill before the U. S. House of Representatives. In addition, as a food-security advocate, he serves on Feeding America's board of directors.” [<https://www.entsoc.org/fellows/mcpferon>]

UIUC entomology student and faculty alumni earn ESA Honorary Member Status

Honor bestowed upon members demonstrating extraordinary service to ESA

“Annapolis, MD; August 21, 2017—In recognition of their long-term dedication and significant contributions to the Entomological Society of America (ESA), three entomologists have been selected as Honorary Members of the Society in 2017. Honorary Membership acknowledges those who have served ESA for at least 20 years through significant involvement in the affairs of the Society that has reached an extraordinary level. Candidates for this honor are selected by the ESA Governing Board and then voted on by the ESA membership.



Dr. Gene Kritsky, a 41-year member of the Entomological Society of America, received his B.A. in Biology (1974) from Indiana University and his M.S. (1976) and Ph.D. (1977) in Entomology from the University of Illinois. He joined the Biology Department at Tri-State University (now Trine University) in 1977 and was awarded a Fulbright Scholarship to Minya University in Egypt from 1981 to 1982. In 1983, he joined the Biology faculty at Mount St. Joseph University, serving as Chair (1985–1999 and 2011–2016), Director of Health Sciences (1999–2002), Professor (1987–present), and Dean of the School of Behavioral and Natural Sciences (2017). He has served ESA as Interim Editor-in-Chief (2002–2003) and Editor-in-Chief (2003–2017) of *American Entomologist*, making him the longest-serving Editor-in-Chief in the history of the publication. Gene has also served ESA on the Standing Committee on Public Information (1985–1986), the Membership Committee of the ESA North Central Branch (1985), and the Publications Council (2003–2017). He was Co-Convener of the International Congress of Entomology (2016), Co-Chair of the Local Arrangements Committee for the ESA National Meeting (2003), Contributing Editor to *American Entomologist* (1998–2003), and Chair of the Film Advisory Committee (1986). He produced an ESA public service radio series (1984) and presented the Founders' Memorial Award Lecture (2012). He is a Fellow of the American Association for the Advancement of Science and a recipient of the Indiana Academy of Science's Distinguished Scholar Award, and he has published more than 160 papers and 10 books.



Dr. Robert N. Wiedenmann is a Professor in the Department of Entomology at the University of Arkansas. He received a B.S. in Ecology and Evolutionary Biology (1985) and Ph.D. in Entomology (1990), both from Purdue University. After a postdoctoral position in the biological control labs at Texas A&M University, he worked for more than a decade at the Illinois Natural History Survey. In 2005, he became Head of the Department of Entomology at Arkansas, serving until 2014, when he stepped down to return to faculty. He currently teaches the large-enrollment class "Insects, Science and Society" and a hybrid live/distance class, "Advanced Applied Entomology," taught collaboratively with the University of Kentucky and Kansas State University. He has been a member of the Entomological Society of America since 1985 and has served ESA in many capacities, including Program Chair (2003) and President (2004) of the North Central Branch, President of the Plant-Insect Ecosystems Section (2008), Local Arrangements Chair for the Southeastern Branch meeting (2012), and ESA President (2013). Highlights of his service include leading efforts to develop a Science Policy Initiative, placing ESA in the policy arena and increasing the Society's visibility. He also strengthened the Student Transition and Early Professional Committee and furthered ESA's efforts at globalization and diversity. He led the effort to hold the first joint Branch meeting, uniting Southeastern and Southwestern Branches (2012). He has conducted research and outreach on biological control of insects and weeds and has been a critic of the potential invasiveness of bioenergy crops." [<https://www.entsoc.org/three-entomologists-earn-esa-honorary-member-status>]

UIUC PhD Alumna Carol Anelli to Deliver 2017 ESA Founders' Memorial Lecture

Lecture to honor Anna Botsford Comstock, first woman professor at Cornell University



“Annapolis, MD; January 30, 2017—**Carol M. Anelli**, Ph.D., a professor and Interim Chair of the Department of Entomology at the Ohio State University, has been selected to deliver the Founders' Memorial Award lecture at [Entomology 2017](#), the annual meeting of the Entomological Society of America (ESA), November 5-8 in Denver.

The Founders' Memorial Award was established in 1958 to honor the memory of scientists who made outstanding contributions to entomology. Each year at the ESA Annual Meeting, the recipient of the award delivers the Founders' Memorial Lecture, the topic of which is always a deceased entomologist. At Entomology 2017, the subject of Dr. Anelli's lecture will be Anna Botsford Comstock (1854-1930), the first woman professor at Cornell University, known for her books on nature and conservation and for her wood-engraved illustrations of insects. She was the wife of John H. Comstock, a professor of entomology at Cornell and chief entomologist for the U.S. Department of Agriculture from 1879 to 1881. Her art gained recognition as it appeared in textbooks and publications written by her husband, and later she illustrated several of her own books, such as *How to Keep Bees*, *Insect Life*, and *The Handbook of Nature Study*. Anna Comstock was also a pioneer in designing nature study curricula that brought teachers and students outdoors. Dr. Anelli is the fourth woman to be awarded the Founders' Memorial Award, and Comstock is the third woman honoree. This will be the first time in the award's 60-year history that both lecturer and honoree are female. Dr. Anelli's career in entomology spans more than four decades, during which she has become renowned as both a researcher and an educator. Her research achievements include the publication of 36 refereed articles and one book chapter, spanning both insect physiology and science education methods. She has received multiple awards for her teaching, including ESA's Distinguished Achievement Award in Teaching in 2009. Prior to joining Ohio State, Dr. Anelli served on the faculty for 17 years at Washington State University, first as a professor of entomology and later as Faculty Fellow in the Office of Assessment of Teaching and Learning." [<https://bit.ly/2yCG4Mn>]

STUDENT NEWS

List of Outstanding Teachers in Entomology Department at UIUC

*(faculty underlined; * - The instructor ratings were outstanding.)*

Spring 2017

Brian Allan* (361), May Berenbaum (526), Mark Davis (464), Natalie Diesel, Sarah Giers, Alexander Hazel, Dohyup Kim, Allison Parker*, Kyle Parks, Andy Suarez (329), Michael Wong*

Fall 2017

Rafael Achury Morales, Catherine Dana*, Charles Dean, Larry Hanks (482), Alexandra Harmon-Threatt (105), Elijah Juma, Linnea Meier*, Christian Millan-Hernandez, Allison Parker*, Hugh Robertson (546), Andy Suarez* (430), Jonathan Tetlie, Erin Updyke, Michael Wong*

Spring 2018

Rafael Achury Morales, Brian Allan* (361, 481), May Berenbaum (435), Daniel Bush, Sydney Cameron (492), Catherine Dana, Charles Dean*, Sarah Giers, Allison Parker*, Andy Suarez (329), Daniel Swanson, Michael Wong*

Fall 2018

Rafael Achury Morales, Nicolas Anderson, Daniel Bush, Sarah Giers, Edward Hsieh, Jacob Torres

Campus awards

Undergraduate Entomology Research Award – Isabel Skidmore (2017), Elizabeth Dabek (2018)

Ellis MacLeod/DuPont Award for Outstanding Teaching – Tanya Josek (2017), Allison Parker (2018)

John G. & Evelyn Hartman Heiligenstein Outstanding Teaching Assistant – Charles Dean (2017), Brenna Decker (2017), Kyle Parks (2017), Nicholas Anderson (2018), Michael Wong (2018)

2018 Sharon Gray Memorial Award (Teaching/Mentoring) – Allison Parker

U.S. Dept. of Education's Graduate Assistance in Areas of National Need (GAANN) fellows – Nicholas Anderson (SP17, SU17, AY17-18), Tanya Josek (SP17, SU17, AY17-18, AY18-19), Margaret Thairu (SP17, SU17),

C. Scott Clem (AY17-18, AY18-19), Joshua Gibson (AY18-19), Jacob Torres (AY18-19)

2017 Herbert Holdsworth Ross Memorial Award – Nathalie Baena Bejarano, Charles Dean, Joshua Gibson, Christian Millan-Hernandez, Rachel Skinner, Daniel Swanson

2018 Herbert Holdsworth Ross Memorial Award – Catherine Dana

William H. Luckmann award – Daniel Bush (2017), Allison Parker (2018)

Harley J. Van Cleave Research Award – Tanya Josek (2017), Nicholas Anderson (2018)

Francis M. & Harlie M. Clark Summer Fellowship – Dohyup Kim (2017)

2017 Francis M. & Harlie M. Clark Research Support Grants – Nicholas Anderson, Nathalie Baena Bejarano, C. Scott Clem, Joshua Gibson, Margaret Thairu

2018 Francis M. & Harlie M. Clark Research Support Grants – Kristen Reiter, Eric South, Jonathan Tetlie

2017 Lebus Fund Award – Joshua Gibson

2017 Philip W. Smith Memorial Award – Tanya Josek

2017 Entomology Block Grant – Edward Hsieh

2017 Schmidt Summer Scholars Award – Kristen Reiter, Jonathan Reiter

2018 Schmidt Summer Scholars Award – Joshua Gibson, Eric South

2017 Entomology Summer Stipend Award – C. Scott Clem, Brenna Decker, Sarah Giers, Elijah Juma, William Montag, Allison Parker, Kyle Parks, Eric South, Erin Updyke

2018 Entomology Summer Stipend Award – Catherine Dana, Teresia Njoroge, Eric South

2017 Graduate College Conference Travel Award – Nicholas Anderson, Todd Johnson, Rachel Skinner, Daniel Swanson

2018 Graduate College Conference Travel Award – Rafael Achury Morales, Christian Millan-Hernandez, Kristen Reiter, Mark Demkovich

Graduate College Dissertation Travel Grant – Nicholas Anderson (2017), Tanya Josek (2017), Joshua Gibson (2018)

Graduate College Master's Project Travel Grant – Evan Newman (2017), Matthew Safford (2017), Jonathan Tetlie (2018)

Graduate College Dissertation Completion Fellowship – Aron Katz (AY17-18), Mark Demkovich (AY18-19), Allison Parker (AY18-19)

Graduate Students in Ecology and Evolutionary Biology Symposium Award for Most Outstanding Talk by an MS Candidate/Pre-Prelim PhD – Rachel Skinner

2017 SIB Biology Photo Competition: Scott Clem (2nd place-artistic category)

National/international awards for students

2017 NSF Doctoral Dissertation Improvement Grant – Kyle Parks

2017 National Speleological Society's Ralph W. Stone Graduate Fellowship in Cave and Karst Studies: Aron Katz

2017 Cave Conservancy Foundation Fellowship in Cave and Karst Studies: Aron Katz

2017 XV International Conference on Ephemeroptera and XIX International Symposium on Plecoptera Scholarship: Eric South
 2017 Ecology and Evolution of Infectious Disease Annual Meeting Popular Vote Poster Competition Award: Erin Updyke
 2017 Society of Systematic Biologists: Mini-ARTS Award: Nathalie Baena Bejarano
 Entomological Society of America 2017: 10-Minute Oral Presentations: Aron Katz and Rachel Skinner each placed 2nd
 North Central Branch Entomological Society of America 2017: Daniel Bush (3rd prize); Todd Johnson (3rd prize)
 Student Travel Award: Daniel Bush, Katie Dana, Jacob Dixon, Joshua Gibson, Sarah Giers, Tanya Josek, Allison Parker
 Triplehorn Insect Pinning Challenge: Joshua Gibson (1st place), Scott Clem (2nd place)
 North Central Branch Entomological Society of America 2018: Student Travel Award: Todd Johnson
 2018 North Central IPM Center Conference Travel Award for 9th international IPM Meeting: Scott Clem
 2018 IPM Inspiration Award: Scott Clem (Honorable Mention for excellent poster presentation)
 2018 North Central Sustainable Agriculture Research and Education (SARE) Conference Travel Award: Scott Clem
 2018 Award for Excellence in Graduate Education for Underrepresented Minority Graduate Students: Tanya Josek
 2018 Friends of Nachusa Grasslands Scientific Research Grant: Nathalie Baena Bejarano
 2018 International Conference on Subterranean Biology Fellowship: Aron Katz
 2018 Society for Freshwater Science Systematics Award: Eric South
 2018 Annual Meeting of the Illinois Mosquito & Vector Control Association: Oral Presentations: Tanya Josek (1st)

Ellis MacLeod/DuPont Award for outstanding teaching in the Department of Entomology



Ellis G. MacLeod, 1928-1987

Ellis G. MacLeod joined the faculty in the Department of Entomology at the University of Illinois at Urbana-Champaign, in 1966, after completing his dissertation research and postdoctoral position at Harvard University. Although his own research interests were focused primarily on systematics and evolution of species in the order Neuroptera, his knowledge of Class Insecta was famously encyclopedic. His greatest contribution to the discipline of entomology was his exemplary teaching, particularly in the core course, required of all graduate students, in insect systematics. In recognition of his classroom teaching, he received the William F. Prokasy Award for Excellence in Undergraduate Teaching in the College of Liberal Arts and Sciences in 1989; his influence, however, exceeded the boundaries of the classroom and he was extraordinarily generous in sharing his wealth of knowledge with anyone who sought him out. The Department accordingly named its award for outstanding teaching by an entomology graduate student in his honor.

Allison Parker



Allison is a PhD student in the Department of Entomology. Allison's record as a teaching assistant has been consistently exceptional at all levels and across a diversity of subjects, including introductory biology courses, core courses for majors in ecology and evolution, and in specialty courses in Entomology, including in her own area of expertise, Biology of Disease Vectors. She has made the list of teachers ranked excellent by their students every time she has taught. Beyond her standard classroom achievements, she has mentored more than a dozen undergraduates in research including several who will co-author publications with her, and developed a new laboratory exercise in forensic entomology for Biology of Disease Vectors.

William H. Luckmann Award



Dr. William H. Luckmann served as a researcher and administrator for applied entomological programs at the Illinois Natural History Survey from 1949 through 1984. His work contributed greatly to advances in integrated pest management in field and vegetable crops. Upon his retirement, an endowment was established to foster and reward research in applied entomology.

Allison Parker



Allison Parker, Entomology PhD student, has received the 2018 William H. Luckmann Award from the Illinois Natural History Survey for her research on container-breeding mosquitoes in residential neighborhoods. Allison is advised by Dr. Brian Allan.

Herbert Holdsworth Ross Memorial Award



Herbert H. Ross, BS University of British Columbia 1927, MS and PhD UIUC 1929 and 1933. He married Jean Alexander in 1932, and she assisted him throughout his life with his research. Ross was at the Natural History Survey from 1931 until he retired in 1969. He was a brilliant systematist who generously shared his passion and wisdom with generations of

students. Funding for this award is possible due to the generous donation of Dr. Charles Alexander Ross and his wife Dr. June Ross, son and daughter-in-law of Herbert and Jean Ross.

Fred H. Schmidt Summer Scholars



Fred as a Student 1957 Fred at Retirement 2012

The Fred H. Schmidt summer award, endowed by his niece and nephew Margaret and Ed Larsen, commemorates alumnus Fred H. Schmidt, who received a BS degree in 1957 and a master's degree in entomology here in 1959 and spent many years at the USDA Forest Service Laboratory in Corvallis, OR. In accordance with his wishes, the Schmidt Summer Award is used to support recruitment and retention of students during the summer months.

Catherine Dana

Katie is examining species of cicada in the genus *Megatibicen*, a group of large-bodied cicadas endemic to North America; these species have specific habitat and hostplant requirements that render them particularly vulnerable to habitat loss and hence potentially in need of conservation efforts. Evidence suggests that current classification schemes obscure cryptic species and potential introgression. Katie will carry out phylogenetic studies of the nine species currently placed in this genus using several new gene regions and additional outgroup taxa to resolve relationships and define the group more precisely; this analysis should also provide tools for investigating the population genetics of the prairie-associated *Megatibicen dorsatus*.



Joshua Gibson and Eric South

Joshua, an Entomology student, studies ant evolution, specifically the evolution of trap-jaw mechanisms in ants. He is advised by Dr. Andy Suarez.



Eric's PhD research is the construction of a molecular phylogeny of the North American stoneflies, the upper hierarchy of which will use transcriptome data. He is advised by Dr. Ed Dewalt.

Entomology Summer Stipend Award



Photo: Buffalo Treehopper with Mohawk by Elizabeth Dabek

The Entomology Summer Stipend Award provides summer support for graduate students in Entomology to enable them to continue to make progress in their thesis research.

Catherine Dana and Teresia Njoroge



Katie is advised by Dr. Sam Heads. She studies the phylogenetic relationships within the newly proposed genus of cicadas, *Megatibicen* (Hemiptera: Cicadidae).



Teresia is advised by Dr. Mary Schuler. She will use the summer award to pursue a collaborative research project with Dr. Chris Stone of the Illinois Natural History Survey on effects of nectar phytochemicals on survival, fecundity, and sugar metabolism of *Aedes albopictus*, the Asian tiger mosquito.

Entomology Research Award



It is a long-standing priority of the Department of Entomology to provide high-quality research experiences to undergraduates. This annual award recognizes outstanding achievement in undergraduate research.

Elizabeth Dabek



Lizzy has worked in Jim Whitfield's lab on projects including annotations of olfactory and gustatory receptor genes in platygastroid wasps and on a taxonomic project on the small cardiochiline braconid wasp genus *Heteropteron*, (a colorful yet poorly known group of wasps parasitizing caterpillars in the Neotropics). She also worked with graduate student Aron Katz on the description of three new species of springtails and with Professor May Berenbaum on greater waxworm behavior and physiology.

ESA Student Debate Team



Congratulations to the U of I's first ESA student debate team! Our debate topic was: "Which technology will revolutionize entomology the most?", and Jon Tetlie, Rachel Skinner, Dan Pearlstein, Tanya Josek, and I successfully argued that high-throughput DNA sequencing was more revolutionary than spatial repellents (as argued by the team from University of Minnesota). This took a decent amount of time and effort but in the end it was worth it! Look for a short publication on our stance in the next issue of American Entomologist.

C. Scott Clem, PhD Candidate, Entomology, UIUC



Rachel Skinner, Scott Clem, Dan Pearlstein, Jon Tetlie, Tanya Josek

POLLINARIUM NEWS 2017 and 2018

(by Lesley Deem)



It is great to have the interest of the community and students continue and increase. I love to have people stop out and visit. Teaching and learning about bees and flowers remains my passion. I had the opportunity Fall 2017 to teach the applied entomology course in the College of ACES. That was a great experience. We have such a diversity of good students here at the University of Illinois.

I like to say we host 3- to 93-year-olds. Every late spring, the Orchard Down's preschool classes come over and each child gets to plant a flower in one of our beds or planters. Pink is the most popular zinnia color for them to plant. They all put on little gardening gloves to dig in the soil and pat their plant in. We want to encourage young students to become gardeners and add habitat, including flowering plants for the pollinators. We hope we are building an appreciation and love of plants and insects.

In June, we hosted Girls Explore Biology (grades 3 to 6) during National Pollinator Week. At the beginning of the week we had another BeeBlitz for BeeSpotter at Meadowbrook and the Pollinarium. Some nice bumble bees were spotted. We had our first Bee-zaar with games and sale items to raise money for the Polli at the end of National Pollinator Week. The next week we had our third Summer Academies (ACES) for 4H students to learn about honey bee biology and beekeeping.



In July we hosted Family Academies (ACES) for parents and grandparents and young children. This year the focus was on houses for bees. We suited up and got into the honey bee hive to investigate and they made native bee houses to take home.

In the second week of August, I joined UI Extension at their Pollinator Celebration in Normal, IL. The kids had fun being bees and playing the "floaty flower game."

Every year, our largest group of student visitors are elementary students; the Champaign Unit 4 field trips for second graders start visiting during the first week of September. The district added several classes in 2018 so that more than 900 students visited with parents and teachers. The last of the second grade classes finished in October, after which we had home school students, Parkland classes and University of Illinois classes come. November saw the observation hive bees being moved outside for winter and four more Parkland classes came for visits.

The Central Eastern Illinois Beekeepers Association (CEIBA) holds fall, winter and spring meetings at the Pollinarium. Please join us if you would like to learn and share information and fun facts about bees.

Other big bee achievements for 2017-2018 at UIUC included the start of an undergraduate beekeeping club and designation of the University of Illinois at Urbana-Champaign as a Bee Campus-certified university.

I wanted to end by thanking Dr. Berenbaum, our volunteers, and our donors. We could not have the Pollinarium and its programs without you. We are grateful to have the Entomology graduate students, Master Gardeners and Master Naturalists dedicate their time and talents in support of our efforts.



We had a great first annual Bee-zaar at the Pollinarium. Thank you to everyone who came out to support us and to the Entomology Graduate Students who helped organized and run the event.

NATIONAL POLLINATOR WEEK 2018



For National Pollinator Week in 2018, the Entomology Graduate Students Association (EGSA) had a booth at the **Urbana Farmers Market** June 23 and June 30 to inform people about the status of pollinators in North America and about the many things they can do to help them. Additionally, an event at the **Orpheum** was held featuring many child-oriented bee-themed games. Graduate students also organized a **Pollinator Week Bee-zaar**, wherein various pollinator- and entomology-themed items were sold to help support the Pollinatorium. This event was advertised on the front page of the News-Gazette, which led to an amazing turnout.

UI BEEKEEPING CLUB

(by Daniel Ferriss)



UIUC now has a student-led beekeeping club, sponsored by Entomology faculty member Adam Dolezal. In 2017, the Beekeeping Club was founded and has flourished since then. With support from the Student Sustainability Committee, the club has established two of its own hives at the Student Sustainable Farm, with plans for another two in Spring 2019. We also run community outreach events, including a solitary beehive-making class, a class on baking with honey, and a DIY lip balm and lip scrub event. Led by President and founder Daniel Ferriss, the club has enjoyed having several speakers, including local beekeepers as well as

entrepreneurs that have developed physical beehive monitors and an apiary management app, respectively. Club members come from a multitude of majors, including computer science, electrical and computer engineering, integrative biology, human nutrition, and more. We welcome people with any beekeeping experience or interest level to come see our hives or attend our meetings at no cost. In the future we are looking forward to growing club membership and involvement, as well as collaborating with other clubs to spread care for environmental issues.



POLLINATOR SCORECARD FOR SOLAR INSTALLATIONS

(by Adam Dolezal)

Recent legal changes in Illinois have resulted in a large projected increase in the development of solar facilities statewide. As these sites are planned to occur mostly on land normally used for corn/soybean agriculture, there has been identified a potential to use these sites to incorporate pollinator habitat into these landscapes without added removal of land from production. As part of this initiative, Illinois, along with several other states, worked to develop a 'scorecard' that can be used to help developers and policymakers include pollinator habitat into new solar installations. This scorecard provides flexible guidelines for incorporating pollinator habitat in a realistic way in and around solar arrays. In May 2018, Illinois passed SB3214, a bill that requires developers to abide by this scorecard to legally call their developments 'pollinator-friendly'. This effort is still a work in progress, as developments are just starting to take shape in Illinois, but the Department of Entomology is using its resources and knowledge base around pollinator health to help guide this initiative.

FACULTY



Brian Allan. The past year has brought exciting transitions to the lab. The Kenya tick project has wrapped up for now and several new projects are starting, including a recently funded NSF grant led by former student Allie Gardner to study the social and ecological processes driving the invasion of mosquito-borne diseases in the Americas. Several members of the lab have moved on to new and exciting opportunities. Former lab postdoc Andrew Mackay has started a position as Associate Scientist in the Medical Entomology Lab at the Illinois Natural History Survey, and former lab postdoc Aiman Soliman has been promoted to Research Scientist in the National Center for Supercomputing Applications. Former PhD students Erin Allmann Updyke and Erin Welsh both successfully defended their dissertations in summer 2018. PhD students Allison Parker and Elijah Juma are on the home stretch as well. Lab manager Page Fredericks now is working full-time on the Strategic Environmental Research and

Development Program-funded project to investigate the impacts of climate change on tick-borne disease in the U.S. Brian is keeping busy with these various projects and more, and looking forward to recruiting a new round of graduate students to the lab in the coming year.



May Berenbaum. When I arrived at UIUC in August 1980, my only publications dealt with insects in just one order—Lepidoptera. One consequence of working in a Department of Entomology, however, is awareness of and appreciation for insect diversity grows rapidly and the vita has since expanded to encompass most of the holometabolous orders. Diversity notwithstanding, a theme does unite the work-- although relatively few of them are individually sticky, phytochemicals are the glue that holds everything together. Work continues on lepidopterans; graduate student Charles Dean is working on furanocoumarins in the apiaceous hostplants of two species of *Depressaria* (although longtime favorite *D. pastinacella* was mystifyingly renamed *D. radiella* on taxonomic grounds that remain opaque to me); graduate students Mark

Demkovich, Daniel Bush, and Jake Dixon, along with postdoctoral associate Esther Ngumbi, have projects aimed at figuring out how navel orangeworms can handle so many phytochemically divergent hostplant families, not to mention pesticides. As for Hymenoptera, graduate students Dan Pearlstein and Ed Hsieh, along with postdoctoral associate (and former student) Ling-Hsiu Liao, are investigating how the health and longevity of honey bees are influenced by nectar and pollen phytochemicals. Within Coleoptera, small hive beetles attracted the attention of graduate student Will Montag, whose plans include determining whether honey phytochemicals affect these honey bee pests and their associated symbiotic yeast. With respect to Diptera, graduate student Teresia Njoroge is focused on figuring out how phytochemicals affect female mosquito oviposition preferences and longevity (as it turns out, quercetin, a ubiquitous nectar phytochemical, extends their lifespan—yes, we’ve inadvertently figured out a way to make disease vectors live longer). And postdoctoral associate Bernarda Calla is working with everyone to help them incorporate genomic dimensions into their research and in addition is singlehandedly deciphering the CYPomes of the greater waxworm as well as other lepidopteran CYPomes. I probably won’t be able to expand future work to include the remaining holometabolous orders because they don’t eat plants (except maybe for Trichoptera—do diatoms, filamentous algae, and dead plants count?)

Phytochemicals have also featured prominently in teaching; in Spring 2018, I taught a new course, IB435, Critical Evaluation of Herbal Remedies, the goal of which is to provide undergraduates with the analytical tools they need to decide whether health claims for herbal products are legitimate. One particularly entertaining classroom experiment was to determine whether eating the candy-coated fennel seeds (*saunf*) served at Indian restaurants actually does (as claimed) reduce the frequency of eructation (belching) after a meal of spicy samosas.

In terms of travel, one highlight was attending the 2018 Entomological Society of America joint conference with the Entomological Society of Canada in Vancouver, BC, with husband Richard Leskosky. Thirty years ago, we spent our honeymoon in Vancouver, BC, attending the International Congress of Entomology (where I gave three talks). It seemed only fitting to celebrate our 30th anniversary in Vancouver; during the meeting, we returned to many of the same spots we visited in 1988 (including an herbal store in Chinatown, where I once again purchased an assortment of medicinal insects) and went to a few new places as well (including the world’s narrowest freestanding office building, also in Chinatown). I wonder, though, whether time has taken a toll, in that

I gave only two talks this time around. Another trip that was a change of pace was to Austin, TX, to serve on a panel on “Science Fiction vs Science Fact” for the National Academy’s Science and Entertainment Exchange. While I was there, I finagled my way into a screenplay pitch session and pitched a screenplay titled, “The Zom-bee Apocalypse: Flight of the Living Dead.”

That screenplay, of course, was written by daughter Hannah, who moved to Hollywood to be a screenwriter but whose spontaneous career in stand-up ventriloquism has been going unexpectedly well. In the past 24 months, she has appeared on the season finale of ABC’s *Gong Show* (Google “unicorn ventriloquist”) and on a YouTube show *Good Mythical Morning*, a web talk-show with over 14 million subscribers. She also performed in four comedy festivals, ending up earning Best of the Festival honors in three. If you want to see her live (no cover!), come to the Insect Fear Film Festival. At the 2018 tick-themed festival, she created a Lone Star tick puppet (“Tex”), who played Tick-Tac-Toe with the kids. With luck, there will be a talking termite at our 2019 festival—you “woodn’t” want to miss that, would you?

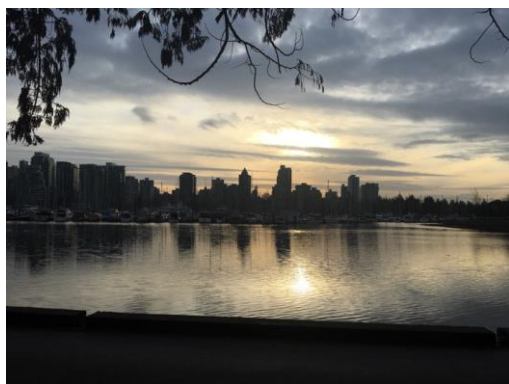


Stewart Berlocher. For biologists one of the great pleasures of life is the great diversity of life, living and extinct. One sometimes sees biodiversity described as “endless” or “limitless”, which is of course not true; if we could somehow halt time, and then had the ability to find and catalog all life forms, and further had the wisdom to unflinchingly parse intraspecific from interspecific variation, we could conceivably enumerate all life. But if there were, somehow, life forms in which infinite diversity did exist, insects would surely be among them. We entomologists are fortunate to be able to spend our lives with this glittering horde of small wonders.



Sydney Cameron. Since the last Newsletter, we’ve been working on the functional genomics of bumble bee immune responses to two putative causes of North American bumble bee decline—the fungal pathogen *Nosema bombi* and neonicotinoid pesticides. A new postdoc, Dr. Ruben Blazquez, recently arrived from Spain to collaborate on this work, and we are also working closely with Dr. Ben Sadd at Illinois State University. Our major goals are to examine immune

system genes that may vary in expression between healthy bumble bee species and those that have undergone significant declines over the last two decades. We are also starting a *Nosema bombi* whole genome sequencing project to search for genetic variation in the *N. bombi* pathogen across declining and healthy populations of host species.



This year the Entomological Society of America met together with the Canadian and British Columbia Societies of Entomology in Vancouver, Canada. This was a spectacular meeting, both in terms of the quality of the symposia and the venue. There is no city in the world with as spectacular a setting as Vancouver—surrounded by sea, mountains, Pacific Coast forest and indigenous totems.

Jim and I just completed our first year as co-Editors in Chief of ESA’s *Insect Systematics and Diversity*, which publishes research in areas of

systematics, evolution, and biodiversity of insects and related arthropods. Check out the papers online [<https://academic.oup.com/isd>]. We are delighted with the excellent quality of the submissions so far. A happy and productive 2019 to all!





Fred Delcomyn. If you've read my entries for the past few newsletters, you may have some expectation as to the content of this one. You wouldn't be entirely wrong since many things are pretty much the same. Writing and photography still take up much of my time. In addition to articles to the News Gazette about my travels, I'm still working on the book on small prairies with Jamie Ellis, a botanist at the Illinois Natural Survey. At present we are revising the manuscript based on readers' comments.

Family matters do continue to delight. Last time it was a trip to New Zealand. This time it was a trip to Australia, where Nancy, I, Michael and his family, and Julia and her family were able to visit this past July and August. Unfortunately, once again Erik, with yet another very young addition to his family, could not go. Those of us who did go had a great time exploring the country.

The new wrinkle for this entry to the Newsletter is that in 2017 I took the University of Illinois-sponsored Master Naturalist class and I am now a certified Master Naturalist. This has not had much impact on my day-to-day activities, but it has meant meeting a new group of fellow nature enthusiasts. Several of us visit new places (or revisit old ones) during the spring and summer, and that's not only enjoyable but educational as well. Another consequence is that with this background I have begun to speak to local groups about natural history topics. Since I enjoyed teaching, this is an opportunity to get back into that game, after a fashion. Talks have been well received so far, so that's all good and means that I will continue to seek speaking engagements.

If the secret to a happy retirement is to keep busy, I've certainly got that covered!

To close, I'll repeat what I wrote last time: for those of you who are now away from campus, I'll mention that I have both a Facebook photography page (<https://www.facebook.com/DelcomynPhotography>) and a photography web site (<http://delcomyn-photo.smugmug.com/>). If you want to remember what central Illinois prairie looks like, or want to see a current picture of the campus or area, visit the links and take a look. Both are open to anyone. If you click like on the Facebook page, you will be notified each week when I post a new image. Enjoy the photos!



Adam Dolezal. As the newest member of the faculty, I'm excited to write this inaugural newsletter entry! I was hired fall 2017, with my lab 'opening' in November. So 2017-18 has been a busy and productive year filled with many changes. Work in my lab focuses on studying the physiological and behavioral repercussions of stressors on bees, focusing mostly on honey bees and their nutrition, pathogens, and interaction with Midwestern agricultural practices. The first half of 2017 was filled with finishing up some of my postoc work at Iowa State University (where I got to work with some great UIUC alums!) working on a project investigating how experimental manipulation of field-level insecticide application and floral resources affects honey bee hive growth

and development. As 2017 was just the first year of this USDA-funded project, I continue to be involved from afar, with some aspects planning to move to my lab at UIUC.

I am also starting a few other projects studying the effects of honey bee viruses, nutrition, and pesticide exposure. In 2018, I began work on a collaborative project (with the STRIPS group at Iowa State), funded by the Foundation for Food and Agriculture Research to study how nutrition derived from small sections of prairies embedded in crop fields might improve managed and native pollinator health through mitigation of pesticide or pathogen effects. I am also working on a project studying how viral infection affects honey bee behavior and virus transmission dynamics. I am also in the process of setting up a project looking at larger-scale trends in landscape use and their effects on honey bee colony development across the state. I have been lucky enough to be joined in this work by graduate students Jacob Torres and Edward Hsieh.



On the teaching front, I jumped right in, teaching physiology for our Integrative Biology undergraduate major in spring 2018. I look forward to working on this class in the future and will be adding Genes and Behavior to my teaching in the next year. I also have been working with a variety of groups to develop a 'scorecard' for the use in making solar developments pollinator-friendly through the incorporation of habitat into the installations. In 2017, I also finalized a collaboration with the Honey Bee Health Coalition to develop best management practices for protecting honey bees and other pollinators during soybean production. This document can be found on their website and was an excellent exercise in integrating my interests in bee biology and agriculture.

The move here has been exciting for my family as well. In August 2017, my wife Kelly and daughter Helen (turning 4 in 2019) packed up and moved to central Illinois from central Iowa – doesn't seem like it was too much of a shock for anyone. Kelly continues her work in pharmaceutical regulatory affairs, working remotely for the company she worked for in Iowa. In March 2018, we were joined by our newborn son Frederick. Fred has been a great addition to the family and so much fun for all three of us. We made a few trips with the kids already, including to a wedding in Phoenix (the stereotypical June wedding was not designed with central Arizona in mind!), but have mostly spent our free time here in the local area. Helen is particularly fond of seeing old movies at the Virginia Theater.



Bettina Francis. I continue to focus on teaching and on campus-level committee work. After 2 years chairing the Senate Committee on Educational Policy, I became chair of the Senate Executive Committee in fall 2018 and was re-elected to a second term in 2018. (This is the closest our Senate comes to a President.) I am in my fifth year on the University Senates Conference, which meets monthly, with the goal of providing faculty advice to the President of the University of Illinois System.

In fall I teach IB 104, an introductory zoology course for non-IB majors; in spring, the upper level “Environmental Toxicology and Health”, with “Pesticide Toxicology” scheduled for spring in odd-numbered years. I find that the students have different strengths (and weaknesses) than when I began teaching Environmental Tox in 1983 – which means teaching (even when it is the officially same course year after year) is never boring.

On the personal level, I continue to grow orchids and to go hiking in the southwestern US. In spring 2017, the whole family met at the Grand Canyon to celebrate our 50th wedding anniversary. My two sons, my older grandson, and I hiked to the bottom – and back up the next day. As the sign says: “Down is optional; up is obligatory”. Of course I was the slowest in the group – but I made it! The picture was taken during spring break 2018, at Capitol Reef Park -- my favorite, for its fantastic views and long, mostly empty trails.



Larry Hanks. The big news around the lab now is that my lab manager of the last 8+ years, Judy Diers, is retiring this semester. This is a blow, of course, because she has diligently and efficiently handled the nitty-gritty details of my research program, ordering supplies, maintaining the GC-MS, and wrangling 11 graduate students over the years. She is now in the process of training her replacement, Jodie Ellis. Yes, the same Jodie Ellis that got her Master's in my lab back in spring 2002 and left town soon after. I'll leave it to Jodie to tell her own backstory, but she offers the perfect segue for me to report family news, because she served as our babysitter for years. She has stayed in contact with Rebecca, who this semester is on an internship with the State Department in DC. In spring, she returns to U. Wisconsin-Madison to complete her second year. Meanwhile, Mason is a senior in high school, if you can believe that. He hopes to go into music production, but his immediate future remains murky. Jean is still managing the Office of the Dean of Engineering, which is pretty action-packed these days. Nothing to complain about.

Alex Harmon-Threatt. What a busy biennial it has been for the Harmon-Threatt Lab! In the last two years we have caught more than 9,000 bees for projects in Illinois and Missouri. These bees' sacrifice will help us learn about habitat preferences, movement, nesting and broad patterns of diversity. In both Missouri and Illinois, these bees have produced new state and county records as well helped us better understand bee distributions. The summer of 2018 also saw us trying new methods to mark and recapture entire bee communities to understand how bees move between patches and how forest management and density affect movement. Fortunately or unfortunately, we won't be slowing down in capturing bees because we recently had three grants funded from the USDA and USFWS for over \$2 million that will keep us busy for the next five years. With collaborators in INHS, Crop Sciences, and Natural Resources, these new grants will help fund projects to look for the endangered *Bombus affinis* throughout Illinois, investigate neonicotinoid contamination in soils and its effects on bee nesting and diversity, and determine bee diversity in perennial cropping systems.



A marked queen *Bombus* for the mark-recapture study



Summer 2017 Lab celebration

With new projects come new students, techs, and postdocs, including Jonathan Tetlie, Katie Barie and Ryan Leonard. Jon is a new MS student working on neonicotinoid contamination and the effects this has on bee nesting and survival. Katie joined us as a technician on the Missouri project in 2017. Ryan is a new postdoc on the neonicotinoid USDA project and will be developing methods to examine the effects of bee nest contamination on bee survival. We have also seen a few students graduate, with Brenna Decker and Matt Safford completing their MS degrees. Brenna is now a PhD student at Utah State and Matt is chasing his dream of being a wildlife heritage biologist in the Northeast.

The other students Nicholas Anderson and Scott Clem have also been incredibly busy with their PhD projects, numerous awards, and presentations. In addition to our grad students we support many undergrads during the semester and summer. During the semester, Paulina Rodriguez, Lorenzo D'Alessio, Eric Gama and Ben Chiavini have helped with sample processing. The summer is always a busy time in the HT lab when we have additional undergrads join the lab. In 2017 Mary Powley and Paul Ruiz-Lopez joined us while in 2018 Eric Gama, Taylor Sparbanie, Paul Ruiz-Lopez, Matt Tryc and Kelcie Brown contributed to our projects. Students are critical to the work we do and we are so grateful to have so many wonderful undergraduate students participate in our work. To more closely follow our lab please follow us on twitter @TheHTlab for regular updates on accomplishments and activities. Please also see our webpage <https://publish.illinois.edu/harmon-threatt/> where you can read more about current projects and donate to support bee research for students.



Robertson family

Hugh Robertson. The past two years have seen a lot of projects published, submitted, or nearly there, several the culmination of many years of effort. I assisted colleagues elsewhere with genome projects by contributing analysis of their odorant and gustatory receptors, including the new *Aedes aegypti* mosquito genome assembly, the stable fly, the Colorado potato beetle, a variety of hemipterans including the soybean aphid, milkweed bug, brown marmorated stinkbug, and a waterstrider, the thrips *Frankliniella occidentalis*, the German cockroach (with a record number of chemoreceptors), the damselfly *Calopteryx splendens* (particularly satisfying as my PhD and early postdoc work concerned damselfly behavioral ecology), a dipluran genome (yet another new record), and an amphipod. We also wrapped up several of our own genome

projects, including the navel orangeworm and parsnip webworm with May Berenbaum's lab, a parasitoid of *Rhagoletis* fruit flies, the wheat stem sawfly with ex-postdoc Kevin Wanner, and at long last the corn rootworm beetle genome with multiple collaborators, as well as an updated honey bee genome assembly with Gene Robinson. And with MS student Tanya Josek we sorted out the deer tick chemoreceptors, helped by Marianne Alleyne and Brian Allan. A particularly satisfying project from this past year was demonstrating that the odorant receptor gene family dates back to the earliest extant apterous insect lineages. Finally, at the kind invitation of May and Gene, I summarized the work of my lab and others on the molecular evolution of the arthropod chemoreceptors in an *Annual Review of Entomology* article.

On the home front, Christina keeps things going while volunteering extensively as a master gardener and enjoying painting in her studio, Gabriel is enjoying life in Seattle and might be recruited to kitesurfing, and Erica is enjoying her biology major and chemistry minor at George Washington in DC. She will spend her spring study-abroad semester in Ecuador and the Galapagos islands (jealous!).

2018 was my 31st and final year in the department. It has been a wonderful ride and I want to thank everyone I've interacted with over these many years for making the department a great place to have spent my faculty career. The support of my faculty colleagues, all the office staff, three postdocs, thirteen graduate students, and forty-five undergrads and especially the unfailing assistance of long-time technician and lab manager Kim Walden, has made all the difference to me. There is no way growing up in East London on the eastern coast of

South Africa I could have imagined this career. On October 29 I gave my “retirement seminar” and it was pleasurable to trace my path from that childhood by the beach to today in the flatlands. With any luck I will now spend more time kitesurfing on beaches and sailing on oceans instead of lakes. Thank you all!



Gene Robinson. Work in the Robinson lab continues to focus on understanding the honey bee’s fascinating and complex social life, and how lessons learned from honey bees can help illuminate our understanding of social behavior in general.

One highlight of the past few years was a large collaborative, multi-investigator project funded by the Simons Foundation on the molecular roots of the social brain. The project was located in the Gene Networks in Neural and Developmental Plasticity Research Theme at the Carl R. Woese Institute for Genomic Biology (IGB), where I continue to serve as director, now in my 8th year. Working with Professors Alison Bell, Saurabh Sinha, Lisa Stubbs, and Dave Zhao, we found that mice, stickleback fish and honey bees respond to social stimuli by activating some of the same sets of genes and gene networks in their brains.

In addition, these experiments led to the discovery of bees that are unresponsive to social stimuli. Socially unresponsive bees have a distinct profile of brain gene activity relative to their more responsive counterparts, and, what’s more, many of these genes are implicated in human autism spectrum disorder (ASD). This is not to say that socially unresponsive bees are autistic—ASD involves a complex and multi-faceted set of conditions including social unresponsiveness. Bees are not little people, and people are not big bees. Rather, the implication of these comparative neurogenomic studies is that nature uses common genetic components to build social brains, repeatedly, with each independent evolutionary lineage of social creatures. Why particular kinds of genes are relied upon in this way is a new frontier for research.

In addition to new discoveries of bee reality, we also have started to delve into bee virtual reality! Last year the IGB partnered with the Field Museum of Chicago to hold the “World of Genomics,” to communicate to the public the present and future impact of genomics on health, technology, agriculture, energy, and the environment. Over 10,000 visitors attended the three-day event, which offered hands-on activities and exhibits for all ages, presented skillfully by graduate students, postdocs and professional outreach staff. The bee exhibit included a glass-walled observation hive and virtual reality goggles that offered “voyages” through a beehive and the bee brain. The long lines of people waiting for these breathtaking glimpses of other worlds attest to the power of bees, and insects in general, to excite and inspire.



Andy Suarez. Where has the year gone? Despite trying to travel less, I attended three great meetings this year, including Entomology in Vancouver, IUSSI in Brazil and an imaging workshop in Japan. My lab also branched out considerably with students also attending meetings for the Ecology Society, Association for Tropical Biology and Conservation, Society of Integrative and Comparative Biology, and Geology.

It was also a productive year for research as I finally secured an NSF grant for my trap-jaw ant work (with Phil Anderson). Lab members travelled to Florida, San Diego, Peru, Panama, Australia and Argentina for research. The lab also published a number of cool papers on ant body size variation, ant community ecology, Argentine ant behavior in native and introduced populations, and, of course, trap-jaw ants.



Check out Adrian Smith’s “Explained by the Author” series on his YouTube site (Ant Lab) for new videos as well. Finally, we again took advantage of having diverse ants in the lab and went to Argonne National Labs to film them at the Advanced Photon Source. We were particularly excited to capture footage of *Pseudoneoponera* ants foaming!



Collecting parasitoids in the Languedoc region, southern France, 2018

James Whitfield. The last two years have been highlighted by trips to France for research, each for two months, first to Tours to work with the polydnavirus research team led by Jean-Michel Drezen at IRBI (Institute for Research on the Biology of Insects), and then in 2018 at the University of Montpellier with Anne-Nathalie Volkoff’s research group. Both were fantastic experiences, scientifically, culturally and personally, and will likely lead to some further trips in the near future. Not to mention some research output...



Field team from IRBI with Jim and Sydney outside Tours, France, summer 2017

But meanwhile, in Illinois the lab has experienced the usual turnover in personnel that comes with successful student careers. Kyle Parks finished his Ph.D. and is now in Pennsylvania with Michelle Duennes (from Sydney’s lab), and undergrads Sigrid Jin and Lizzy Dabek finished in 2017 and 2018, respectively, and are off in grad school at Duke and University of Maryland, respectively. All three are finishing manuscripts for publication with my lab, and they are already much missed.

In the meantime, undergrads Tyler Blackwell and Joseph Spina have joined the lab and started projects. Tyler is working with descriptive taxonomy of neotropical cardiochiline wasps, and Joseph with combining phylogenomic datasets for ichneumonoid wasps.

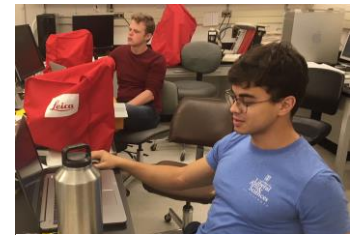
On a personal level, Sydney and I celebrated our 30th wedding anniversary this year in Montpellier and have had a lively and healthy 2018, for which I am most grateful!



Kyle Parks and Michelle Duennes visit Illinois again in 2018 (Ruben Blazquez and Sydney Cameron also in photo)



Lizzy Dabek goes through a shipment of *Heteropteron* wasps for her project



Tyler Blackwell (left, in back) and Joseph Spina work in the Whitfield lab Fall 2018

AFFILIATES AND ASSOCIATES



Marianne Alleyne. The past few years my activities, and those of my lab, have continued to diversify. I am still involved in online education. I teach quite a few courses in this format. I am most proud of the online Masters of Science Teaching of Biology program for which I am the Graduate Director, and a popular course on Bioinspiration (=using biology as inspiration for new technological innovations). I still teach the core Insect Physiology course, which is my favorite course to teach. Another fun course I have developed with a colleague in MechSE is the Bioinspired Design course that teams up engineering and biology undergrads and encourages them to design bioinspired products, even prototype those ideas.

My graduate student Tanya Josek is studying tick Haller's organs in detail and we hope it will give us some interesting insights into how to build better sensors and how to create better tick management strategies. My graduate student Kristen Reiter and I are also involved in collaborative projects with the Army Corps of Engineers, the MechSE Department and INHS, studying insect wing multifunctionality; wettability, antimicrobial properties, friction characteristics, and iridescence.

I currently serve on the Governing Board of the Entomological Society of America. I am still active on social media in an effort to promote science in general and insects in particular. Please engage with me on Twitter @Cotesia1 or via my blog <https://insectsdiditfirst.com/>.



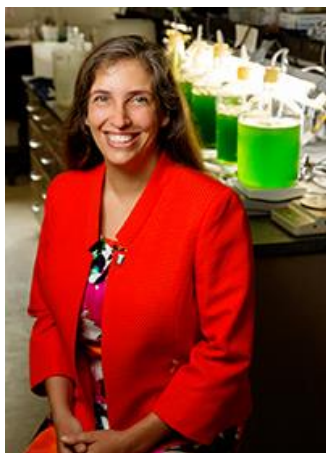
Alleyne family



Sam Beshers. I have enjoyed being part of GSAC for the last year and a half; this is a great way for me to get to know the students, contribute something to the department, and hang with Alex Harmon-Threatt.

Although progress has been slow, I finally have two computer simulations of ant behavior up and running, for two different projects, and I expect data collection and programming advances to be rapid over the next two months, and soon actual writing will happen. It's kind of amazing when things work....

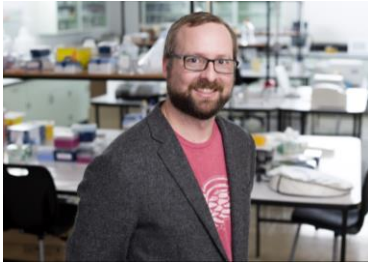
On a personal note, my son Max turned 30 and is an established therapist in Chicago, my daughter Caroline is working for the National Health Corps in Chicago for the next year while planning her applications to medical school, my wife Lynn is a month away from retiring from her position as Head of Acquisitions at the University Library, and my father turned 90 and moved with his wife Barbara to Urbana, after leaving Urbana in 1955 with a PhD and an infant son. And Illinois volleyball may be headed for the Final Four! Go Illini!!



Carla Cáceres. Recent research in the Cáceres lab has expanded beyond freshwater plankton (including the larval stage of *Chaoborus*) to include several species of local mosquitoes. Animal Biology PhD student Chris Holmes defended his dissertation in December 2018 in which he explored several factors influencing the distribution of larval mosquitoes in stormwater habitats in Champaign-Urbana. His work is part of a collaborative project with Brian Allan, Allison Hansen, Juma Muturi, and Zoi Rapti (Department of Mathematics) exploring community assembly across hierarchical scales. With funding recently received from NSF our goal is to quantify the feedbacks that govern how communities assemble simultaneously across hierarchical scales from the repeated assembly of food webs in temporary aquatic habitats to the simultaneous assembly of the gut microbiome of individual mosquitoes colonizing those food webs. This research will examine how a complex set of interactions between the free-living microbes, the gut microbiome, the host mosquito, and other members of the aquatic food web can result in variation in mosquito growth and

survival to adulthood, which ultimately affects human disease risk. We also continue to offer a summer camp each year, in partnership with the Champaign Park District, for girls in 3-6th grade. Katy Heath (Plant Biology), Alex

Harmon-Threatt and I co-lead the camp, which introduces the girls to several biology-related activities at the Pollinatarium, Meadowbrook Park, and the Natural History Building.



Mark Davis. The past two years have seen the rapid expansion of my research program, becoming affiliated with the departments of Entomology, Animal Biology, and NRES, and the graduation of my first doctoral student in Entomology, Dr. Aron Katz. The first chapter of his dissertation, titled “At the confluence of vicariance and dispersal: Phylogeography of cavernicolous springtails (Collembola: Arrhopalitidae, Tomoceridae) codistributed across a geologically complex karst landscape in Illinois and Missouri” was published in *Ecology and Evolution*. Congratulations, Aron! The lab continues to conduct a number of molecular genetics studies, ranging from phylogeography, to population genetics, to metabarcoding, to environmental DNA. The latter is a particular point of emphasis, as we are leveraging eDNA to detect myriad species in multiple contexts, including an exciting Department of Defense-funded project to leverage eDNA for detecting pollinators. We’re also assessing bat diets via guano metabarcoding, developing single-species detection assays for Endangered Species Act-listed mussels and crayfish, and testing for impacts of landscape management on invertebrate communities. The emergence of eDNA as a viable methodology has opened the door to a number of interesting projects, but, more importantly, great collaborations. It’s certainly been an exciting period of collaboration with many of the excellent Entomology graduate students. Among the cicadas, stoneflies, springtails, scorpions, and crickets, the students are quickly reforming this former vertebrate ecologist!

Edward DeWalt.



Chris Dietrich. Our lab continued its long-term focus on basic systematics of Membracoidea (leafhoppers and treehoppers) but we are beginning to generate genome-scale datasets to address longstanding questions in the evolution of the group. This year we published the first phylogenomic analysis of Membracoidea in the inaugural issue of *Insect Systematics and Diversity* with support from our joint Hemipteroid Tree of Life project with Kevin Johnson's and Hugh Robertson's labs. As part of the same project, PhD student Rachel Skinner is completing a broader phylogeny of Auchenorrhyncha (leafhoppers, treehoppers, planthoppers, cicadas and

spittlebugs) with a dataset of >2000 genes and is analyzing an even larger transcriptome-based dataset for all major lineages of hemipteroid insects. In another multi-year NSF-funded project, postdoctoral fellows Yanghui Cao and Valleria Trivellone are using comparative genomics to identify gene regions and mutations associated with the ability of leafhoppers to transmit plant pathogens. This, combined with a large-scale phylogeny of deltocephaline leafhoppers, may enable us to identify vectors of the >200 known plant diseases thought to require a leafhopper vector but for which no vector has yet been identified. Graduate student Brendan Morris finished his MS and began his PhD, continuing his focus on the phylogeny and biogeography of the largest treehopper subfamily, Centrotinae. Our lab continues to be a hub for international collaboration. During the past year we hosted eight visiting scholars from six countries (Brazil, China, Colombia, Pakistan, South Korea, Switzerland) and I visited China twice, with collecting trips to Zhejiang and Guangxi (see photo) provinces.

Sam Heads.



Kevin Johnson. The past two years have seen the graduation of Drew Sweet (PEEC) with a Ph.D. from my lab. Congratulations, Drew! I have also been fortunate to recruit two new Ph.D. students, Robert de Moya (Entomology) and Stephany Virrueta Herrera (PEEC). They have both hit the ground running, each already with a paper in review. The NSF Assembling the Tree of Life project with Chris Dietrich and Hugh Robertson is now in the final stages. The culmination of efforts to analyze

transcriptomes of almost 200 species has given us a publication in *PNAS*, which we are very excited about. This study was a giant team effort. I’ve also gotten the opportunity to speak about our results at a variety of smaller, insect-focused conferences around the world: Dresden Meeting on Insect Phylogeny (Germany), International

Auchenorrhyncha Congress (Brazil), and the International Conference on Phthiraptera (Czech Republic). I enjoy these smaller-scale meetings, because they promote a sense of community. I also enjoyed speaking at the Arthropod Genomics Symposium here at the University of Illinois, and it is exciting to see Illinois on the forefront of much of the work on insect genomics. On the more relaxing side, I have also enjoyed some bird-watching tours to South India, the Andaman Islands, and Paraguay, although these can certainly be rigorous as well, with sometimes late nights looking for owls and 4 am starts!

Eric Larson.



Tommy McElrath. After joining INHS as the collection manager of insects in summer 2017 and getting my entomology affiliate status early in 2018, I've been ramping up a number of projects. While managing loans, melting vial stoppers, visiting researchers, and undergraduate hourlies, I managed to publish one paper from my doctoral dissertation work.

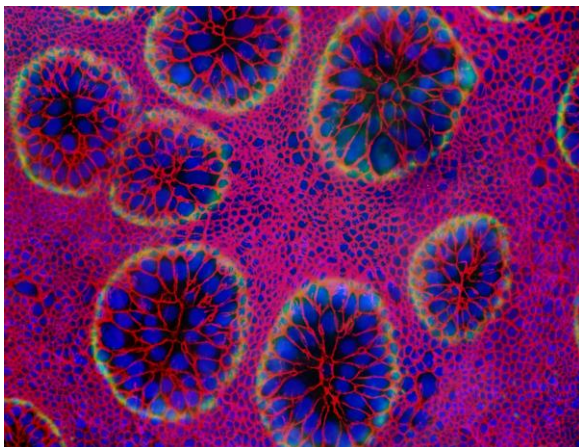
In June 2018, I went on a collecting and professional development trip to attend the StaphMeeting (Staphylinidae identification course) at Clemson University, SC, where I also collected numerous little brown beetles for the INHS-IC. Upon returning, I helped sample and ID bumble bees in northern IL for IDOT and Tollway-funded projects.

Toward the end of August, as the INHS representative to the Society for the Preservation of Natural History Collections (SPNHC), I traveled to Dunedin, New Zealand to present about projects at INHS, then spent three days looking for *Lenax mirandus*, a strange endemic and monotypic monotomid beetle, which became a story unto itself. Then my wife Karen and I took the chance to travel around New Zealand for two weeks, which I can wholeheartedly recommend. I also got a travel grant to start a new research collaboration on beetles in Cambodia in partnership with Sophany Phauk of Cambodia Entomology Initiatives. As a result, October was full of field work and teaching about beetles in Phnom Penh and local field areas and was my first international tropical collecting trip. We now have dozens of new records and many new species from Cambodia with which to start publishing about the incredible biodiversity in Cambodia.

Follow @inhsinsects on Instagram or Facebook, or me on Twitter @monotomidae, for lots of arthropod pictures and more.

Brenda Molano-Flores.

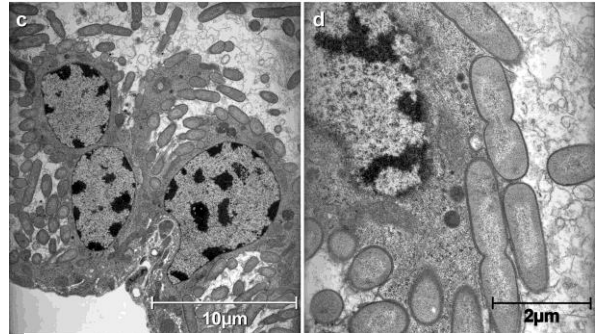
Jim Nardi. The end of 2018 marks the culmination of several laboratory discoveries with Hemiptera and Lepidoptera. At the beginning of 2019, I'll head outdoors and begin a new woodland restoration project with a land conservancy in western Indiana. I shall also complete three educational posters showing the great diversity of hidden life on trees – on tree trunks, in leaf canopies, and around the roots.



Here is a view of the segregated pupal cells (blue nuclei, red cell membranes) that segregate in circular patches and secrete pock-marked cuticle (Green marks borders of pock marks.) Cells in these circular patches are destined to die at metamorphosis and be replaced by surrounding presumptive adult cells.

One of the questions about insect metamorphosis that has intrigued me for many years is how do the abdominal epithelial cells that produce smooth larval cuticle transform in a matter of days into the tanned, highly sculpted pupal cuticle before they terminate their differentiation into scale-covered adult abdomens? In the well-studied fruit fly, this transformation involves the complete replacement of polyploid larval cells by diploid histoblast cells destined to form only adult structures. However, in other holometabolous insects, histoblasts have never been observed. The comparable process in Lepidoptera, by contrast, involves segregation of larval polyploid cells between the larval and pupal stages (at larva-pupa apolysis). These cells produce a special pock-marked cuticle at larva-pupa ecdysis and then undergo massive cell death two days later at pupa-adult apolysis. The surrounding diploid cells then move in to replace the dying cell before initiating adult development.

A recent manuscript surveys hemipteran families that have established symbiotic partnerships with microbes in their midgut epithelia, detailing how the interaction of microbe surfaces with midgut plasma membranes influences the immune responses of hemipteran hosts to these foreign microbes. Interestingly, the earliest research on these hemipterans and their microbes began here at the University of Illinois with the 1882 collaboration and observations of Stephen Forbes and Thomas Burrill on the microbes that inhabit the midguts of chinch bugs (*Blissus leucopterus*). We compare the midgut epithelia of these hemipterans with gut symbionts and endosymbionts with one of the most common and easily collected hemipterans on campus - the lace bug (*Corythucha ciliata*) on sycamore leaves. In a recently published manuscript in *Cell and Tissue Research*, we point out how the digestive tracts of these bugs that feed on both sap and cytoplasm function without microbial symbionts or peritrophic membranes found in most other insects.



Here is a view of the midgut –microbe interface in the midgut lumen of the lygaeid bug Mydocha.

Susan Ratcliffe.

David Soucek.

Daniel Schneider.

Mary Schuler.

Saurabh Sinha.



Joe Spencer. Studies of western corn rootworm (*Diabrotica virgifera virgifera* LeConte, WCR) behavior and biology continue to be the major research focus of my laboratory in the Illinois Natural History Survey. The WCR is the most significant pest of maize, our most valuable U.S.A. agricultural crop. For years, I and my students have studied how WCR beetles disperse across the Illinois agricultural landscape. Since the introduction of *Bt* corn hybrids for rootworm management in 2003, we’ve studied how WCR move between *Bt* and non-*Bt* plants in cornfields. We learned that many accepted “facts” about WCR movement and behavior are incorrect for WCR beetles under field conditions. Developing an accurate understanding of WCR behavior will improve the effectiveness of insect resistance management plans for WCR in *Bt* cornfields and slow the evolution of field-evolved resistance to *Bt* corn.

Since 2012, I have also studied Illinois WCR populations with suspected (and confirmed) resistance to a number of *Bt* toxins expressed in *Bt* corn. With colleagues, I have documented the presence of *Bt* resistance to multiple *Bt* toxins in WCR populations across Illinois. On-farm studies have revealed intriguing details about variation in the level of *Bt* resistance among populations. Poor adoption of IPM-based approaches to rootworm management are at the root of resistance to *Bt* technology. I am also studying patterns of WCR long-distance dispersal from corn (and soybean) fields. WCR movement is important topic in relation to field-evolved WCR resistance to *Bt* corn and all management techniques. Using collection methods deployed within, between, and *high above* cornfields, we are learning that the majority of WCR that engage in long-distance dispersal from cornfields are young, newly-mated females.

In addition to my WCR studies, I am involved in work on other pests of field crops, and I am very interested in the biology and movement of prairie insects and what their ecology may reveal about the health of prairies. I enjoy macro-photography and videography of insects. I enjoy sharing my fascination for insects as objects of aesthetic value and scientific interest on social media platforms.



Chris Stone. The Medical Entomology Program at the Illinois Natural History Survey has had a successful first year since coming under new leadership, with a number of exciting collaborations with researchers at the Department of Entomology and UIUC starting to take form. The lab has expanded by attracting two postdoctoral researchers, Jiayue (Gabriel) Yan and Loyal Hall, who are developing projects on how mosquito energetic reserves influence vector-dengue interactions, and mosquito behavioral and olfactory responses to volatile organic compounds associated with nectar sources and blood hosts, respectively. We also welcomed Andrew Mackay and Holly Tuten as vector ecologists and have had the fortune of working with a number of Entomology graduate students in our lab.

The lab continues to contribute to mosquito surveillance capacity in the State of Illinois through, for instance, surveys aiming to document the occurrence and abundance of the Asian tiger mosquito and insecticide resistance monitoring in the northern house mosquito. With support from the Illinois Department of Public Health, the lab has also taken initial steps into tick and tick-borne pathogen surveillance.

Other initial research projects have focused on the community ecology of mosquitoes and their microbes; population genetics and seasonal and spatial variation in biting exposure and demography of the Asian tiger mosquito; the effect of nectar phytochemicals on mosquito life history traits; and how interactions between environmental factors such as temperature and larval nutrition shape life history traits.

ACADEMICS/POSTDOCTORAL SCHOLARS



Bernarda Calla. Lots of work done these last years but a still a lot to do!. Together with the Schuler lab at the school of Molecular and Cellular Biology, we are still working in expressing and testing the latest P450s from parsnip webworms. In the plant side, we now have a full high-coverage transcriptome for the wild parsnip (*Pastinaca sativa*) and after a quick annotation, I can already see many interesting things to come for the “parsnip webworm-parsnip interaction” theme. Among other projects, I am also working together with my colleague Dr. Ling-Hsiu Liao in identifying honey-bee transcripts and pathways that might be changing in response to feeding on different honeys. On the pesticide resistance front, we are about to complete our manuscript on the population genomics of the

navel orangeworm, this is taking most of my time nowadays as we have gone scanning all the genome and annotating the “detoxome” with the help of Ph.D. student Mark Demkovich. Thanks to the support of several labs including Dr. Christina Grozinger (Pennsylvania State), Dr. Reed Johnson (Ohio State) Dr. Gene Robinson, Dr. Hugh Robertson, and Dr. Adam Dolezal, we now have the full sequence of the wax moth genome (*Galleria mellonella*), and the work is now focused on refining the sequence. We are also preparing a book chapter on P450s based on my talk at the Denver ESA in 2016, and a full P450 review is also shaping-up where we are inviting several experts to talk about different aspects of P450s in the context of detoxification of phytochemicals and evolution.



Lesley Deem. The highlight for the start of 2017 for me was the arrival of the native bee posters from IDNR (Illinois Department of Natural Resources). I worked with Valerie Keener, the head of education there, gathering images and information for the poster. If you would like one for your classroom room, they are available from their Springfield office. I am standing in front of it in my picture here. My favorite times at work these last two years have been working with the 4H kids teaching them about honey bees and beekeeping. I’ve been getting away from work and Champaign-Urbana with Jim and Joy Nardi and their dog pack (two Chihuahuas, a Terrier and a Bichon). I take my dog Honey Bea along (a Lab-Collie mix). She weighs more

than the four other dogs put together. We check out the insects and plants in the wooded hills and streams near the Wabash River in Indiana. It’s nice to get out and play and enjoy a natural area. This fall bobcats even showed up on the wildlife cams. Yes, we’ll keep the small dogs close.





Jodi Ellis. In a move that surprised even me, I am happy to be back at the Hanks Lab after an 18-year absence. This October, Larry hired me as his lab manager to replace Judy Mongold-Diers, who is retiring from the position.

In the time I have been gone, I have worked at Purdue as the invasive species outreach and education coordinator; in Boise, Idaho as an entomologist for the state; also in Boise as the executive director of the Idaho Board of Veterinary Medicine (!!!); in Madison, WI as a communications specialist for the WI DNR Forestry division; and now back here. I have had a lot of fun over the years and never been bored.

It is nice to be back in Illinois. I grew up 30 miles from here and still have a lot of friends and family around, plus I have a real appreciation for the flatlands. It is especially nice to be back in the lab with Larry - I always missed his sense of humor, which I think you all know is unique. Oh, yes - I am also intrigued by how the lab's direction has evolved since I was here and happy to be part of it. Who says you can't teach an old dog new tricks?



Page Fredericks. I am a broadly trained biologist with a doctorate in innate immunity and two postdocs in the molecular biology of innate immunity and host-pathogen interactions. I am currently the lab manager and molecular biologist in the vector-borne disease ecology lab of Dr. Brian Allan. The lab focuses on the effects of global change and wildlife conservation on the dynamics of vector-borne diseases. I use and develop molecular tools primarily to identify the pathogens vectored by ticks in the Midwest (USA) and in Kenya (Africa). I am an author of a *Nature Sustainability* manuscript on the consequences of integrating livestock and wildlife in an African savanna. I am also an artist, primarily

featuring natural-based surrealism.



Ryan Leonard. I recently joined the Harmon-Threatt Lab as a post-doc. Alongside the work of PI, Alex Harmon-Threatt and her lab, my research will shed light on the ecology of ground-nesting bees, and, in particular, how commonly used pesticides including neonicotinoids influence the behavior of these important pollinators in agricultural landscapes. Originally from Sydney, Australia, I completed my undergraduate (BSc Hons 2014) and graduate (PhD, 2018) studies at the University of Sydney. My PhD thesis used the European honey bee, *Apis mellifera*, as a model to explore the ecological effects of roads

and, more specifically, traffic-related air pollutants.



Ling-Hsiu Liao. As always, I am involved with several diverse bee projects. By collaborating with Reed Jonson's lab at Ohio State University, Wen-Yen and I are working on determining the effects of pesticide/ phytochemical interactions on honey bees. We have found effects on some behaviors of nurse bees and on queen qualities. By working with Bernarda Calla in the Berenbaum lab, we are also interested in finding the genes and molecular changes affected by the phytochemicals. We have also built a new electroantennography system to measure the responses to brood pheromones in bees. By collaborating with the Cameron Lab, we also made some exciting new observations about bumble bees and their honey. Moreover, we re-discovered the nests of the American bumble bee, *Bombus pensylvanicus*, near Champaign-Urbana, where they have not been found for years.



Ruben Martin Blazquez. I'm a postdoc in the Sydney Cameron lab, where I'm studying how declining and non-declining bumble bee species respond to neonicotinoid pesticides and to *Nosema bombi* infections. I'm from Granada (Spain), where I did my PhD on genetics studying how swarming formation in locusts affected their genetic expression. It's my first postdoc and it's also my first time in the USA, so I've been through quite an adaptation process, and I'm enjoying it. I'm looking forward to advancing in my current research, given the importance of understanding the actual mechanisms of stress response in such an important group of pollinators.



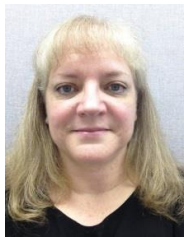
Esther Ngumbi. I assumed my position in March 2018 and for the last 8 months I have enjoyed settling in and getting my research up to speed. I am investigating the mechanisms behind insecticide resistance in the navel orangeworm, specifically, determining the role of cuticular hydrocarbons. It has been a pleasure meeting all our AMAZING faculty members, staff and students. I also started teaching a course on Science Communication in Applied Entomology—something I have enjoyed doing. (Thanks, May, for making this happen and for putting my skills and passion for writing and science communication to work). I have also been privileged to travel internationally—to Edinburgh-Scotland, Florence-Italy (where I received the 2018 Society of Experimental Biology Presidents Award), and very soon to Johannesburg-South Africa.

I have broad interests. I have continued to use all the scholarly knowledge I have gained over the years to contribute to the discourse and public conversations on the challenges our world faces, including food insecurity, and climate change, while contributing ideas on the solutions that stand to be most beneficial and impactful in helping address these challenges. 2018 proved to be my lucky year. I was able to get some of my writings posted at well-known outlets, including The New York Times, Newsweek, NPR and USA Today. At the same time, I was honored to have been appointed by Entomological Society of America President to serve as a Co-Chair in the committee that helped to draft Climate Change Position Statement.

As my first year at UIUC concludes, I find myself getting very excited about what my second year will bring. I am particularly excited about research. I will also be teaching a Race and Food Security course in the Spring of 2019. Above all, knowing that I have broad interests, I look forward to seeing what other exciting surprises 2019 will bring along.

STAFF

Todd Fulton. After 30 years the Insectary continues to keep me occupied both physically and mentally. This “part- time job” while in school turned into an adult lifelong adventure. My wife, children (who are all adults) and grandchildren just don’t get it.....



Kim Leigh. As always, I’m very thankful to be working in a department with such wonderful people. I look forward to coming to work every day and that is due in large part to everyone in the department and the school. Thank you to May Berenbaum for nominating me for the 2018-2019 LAS Staff Award and to everyone who wrote letters supporting that nomination. I’m extremely honored to receive this award and look forward to the award reception in March 2019.

ENTOMOLOGICAL SOCIETY OF AMERICA MIXERS

2017



Berenbaum Lab



Carol Anelli 2017 Founders' Memorial Award



ICE Council 2017



Phil Lewis, M. Alleyne



Michelle Elekonich, Brian Allan, Jeff Heilveil



Gene Kristsky, Michelle Duennes



Gene Kristsky, Joel Coats, David Denlinger



Guodong Niu



Amy Tosh,



Emerson Lacey



Lisa Knolhoff, Michelle Duennes



Kyle Parks, Hugh Robertson



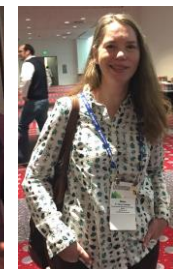
Diana Cox-Foster, Joel Siegel



Ellen Heining Yerger



Brian Allan, Allison Gardner, Ephantus Muturi



Claire Rutledge



Robert Orpet, Alan Yanahan



Duane McKenna, David Furth, Felix Sperling



Thor Hansen, Haolin Zeng



Tania Jogesh, May Berenbaum



Matt Ginzel Duane McKenna



Lizzy Dabek Luke Zehr



Paul Ode, Charles Dean



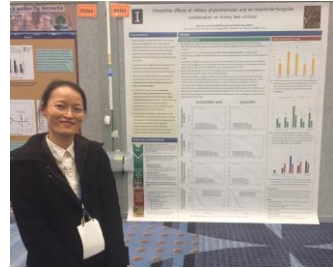
May Berenbaum, Steve Sheppard



K. Ye, S. Ruzi, J. Gibson, C. Millan, B. Decker, T. Josek,



Michael Wong, Matt Safford, Nick Anderson



Ling-Hsiu Liao

2018



2018 ESA, ESC and ESBC Joint Annual Meeting
Crossing Borders: Entomology in a Changing World
11-14 November | Vancouver, BC, Canada

Réunion annuelle conjointe ESA, SEC et SECB 2018
Au-delà des frontières: l'entomologie dans un monde en changement
11-14 novembre | Vancouver, Colombie-Britannique, Canada



May Berenbaum, Haolin Zeng



Matt Ginzel, Yuda Ben-Shahar, Harland Patch



Allison Gardner, Allison Parker, Claire Dust



Ring Carde, Anja Carde



Berenbaum Lab



Carol Anelli, Diana Cox-Foster, Gail Kampmeier



Tugrul Giray



Joel Coats, Ling-Hsiu Liao



Linus Gog, Mark Demkovich



Yehuda Ben-Shahar



Christina Grozinger, Sydney Cameron



Michelle Elekonich



Tanya Josek, Sarah Hughson



Heather Hines, Ann Ray



Gene Kritsky, J. Smith, Michelle Duennes, Allen Lawrance



Alan Yanahan, R. de Moya



R. Skinner, N. Baena, M. Demkovich, D. Pearlstein, J. Tettie



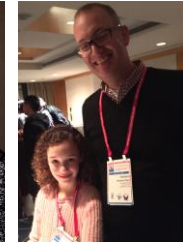
Jay McPherson, James Appleby



Paul Ode, Charles Dean



Bridget O'Neill



Harland Patch



Rich Lindroth, Paul Ode



Margaret Thairu



Nick Tzovolos



Susan Fahrback



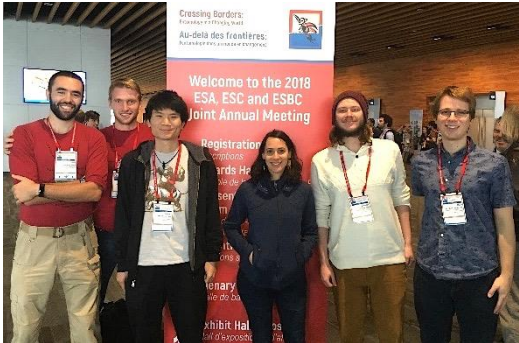
Nick Tzovolos, Peter Reagel



Krisa Ye



Luke Zehr, Linus Gog



D. Pearlstein, J. Tettie, E. Hsieh, N. Baena, C. Dean, M. Demkovich



C. Dean, R. Skinner, T. Josek, D. Pearlstein, A. Parker, E. Hsieh, N. Baena, J. Tettie, M. Demkovich



Entomology Grad Students

Colloquium Speakers

Spring 2017

Jan 23	Robert Mitchell , U of WI, Oshkosh	<i>Leading beetles by the nose: the ecology, evolution, and neuroanatomy of olfaction</i>
Jan 30	Jonathan Shik , U of Copenhagen	<i>Eco-physiological tradeoffs and the rise of fungus-farming ant societies</i>
Feb 6	Laurel Symes , Dartmouth College	<i>Physiology of communication in crickets and katydids</i>
Feb 13	Kevin Vogel , U of GA	<i>Investigating mosquito reproduction and larval development</i>
Feb 20	Joshua Benoit , U of Cincinnati	<i>Dehydration, mosquitoes, and blood feeding: how water availability may alter disease transmission</i>
Feb 27	Matthew Lehnert , Kent State U	<i>Capillary action and cibarial pumps: convergent evolution of liquid uptake mechanisms among fluid-feeding insects with porous proboscises</i>
Mar 6	Jim Whitfield , Entomology, UIUC	<i>From biodiversity inventory to large-scale descriptive taxonomy and phylogenomics: Challenges with hyperdiverse parasitoid wasps</i>
Mar 13	Sean Menke , Lake Forest Coll, Chicago	<i>The importance of biological collections as a historical lens to understand the present</i>
Mar 27	Sarah Hughson , Student Exit Seminar	<i>The movement behavior and reproductive ecology of western corn rootworm beetles and implications for the high-dose refuge strategy in Bt cornfields</i>
Apr 3	Jonathan Lundgren , Blue Dasher Farms	<i>Ecologically intensive food production systems: implications for pest management and the future of entomology</i>
Apr 10	Derek Rosenberger , Olivet Nazarene U	<i>Once a killer...? Novel hosts and the eastward range expansion of mountain pine beetle, a predator of pines from western North America</i>
Apr 17	Dan Cariveau , U of MN	<i>Pollination, biodiversity and native bee conservation</i>
Apr 24	Keon Mook Seong , Student Exit Seminar	<i>Molecular implications of prolonged DDT selection in <i>Drosophila melanogaster</i></i>
May 1	Rodrigo Almeida , U of CA, Berkeley	<i>Blocking the transmission of a vector-borne plant pathogen</i>

Fall 2017

Sep 11	Mark Davis , INHS, UIUC	<i>Perceiving the imperceptible: Environmental DNA as a tool for assaying difficult to detect biodiversity</i>
Sep 25	Kelli Trei , UIUC Library Research Data Service	<i>Library and data services for research in Entomology</i>
Oct 2	Alan Schroeder , E-NoeTec Consulting	<i>IPM around the world: A tribute to Bob Metcalf</i>
Oct 16	Sarah Kocher , Princeton U	<i>Harnessing natural variation to study the evolution of social behavior</i>
Oct 23	Greg Spyreas , INHS, UIUC	<i>Are Monarch declines explained by trends in Midwestern Milkweeds?</i>
Nov 13	Diana Six , U of MT	<i>A major symbiont shift supports a major niche shift and specialization in a clade of tree-killing bark beetles</i>
Nov 27	Rachelle Adams , OH State U	<i>Trait evolution in symbiotic networks: Parasites use chemical weaponry to dominate ant farmers</i>
Dec 4	Frederick Prete , Northeastern IL U	<i>How I figured out that mantises are as smart as you are: From psychology to cells</i>
Dec 11	Marianne Alleyne , Entomology/OMST, UIUC	<i>Bioinspired Design: in the Entomology laboratory and the Engineering classroom</i>

Spring 2018

Jan 22	Thomas McElrath , INHS, UIUC	<i>Frontier taxonomy of little brown beetles (Coleoptera: Cucujoidea & Coccinelloidea)</i>
Jan 29	Chris Stone , INHS, UIUC	<i>Mosquito behavioral ecology: individual traits to population- and community-level effects</i>
Feb 5	Kim Medley , Washington U, St. Louis	<i>Ecology and evolution of disease vectors: combining basic and applied approaches</i>
Feb 12	Viktor Gruev , ECE, UIUC	<i>Bio-Inspired sensors: From the ocean to the operating room</i>
Feb 19	Leonard Foster , U of British Columbia	<i>Discovering, applying and understanding biomarkers for hygienic behavior in honey bees</i>
Feb 26	Rachel Dentinger , U of UT	<i>Pursuing Gottfried Fraenkel's "Raison d'Être": Plant compounds, ultimate causation, and the uses of practical research</i>
Mar 5	Stephen Cameron , Purdue U	<i>Misbehaving mantids, loose lice and foreign fruit-flies: Adventures in Australian insect phylogenomics</i>
Mar 12	Martin Beye , U of Dusseldorf	<i>From genes to societies: what can we learn from honeybees?</i>
Mar 26	Ellie Heckscher , U of Chicago	<i>Time, stem cells and motor circuits</i>
Apr 2	Alexander Raikhel , U of CA, Riverside	<i>The role of hormone receptors and microRNAs in mosquito reproduction and metabolism</i>
Apr 9	Philip Barden , NJ Institute of Technology	<i>One hundred million years on forty sextillion legs: fossil amber insights into the evolution of ants</i>
Apr 16	William Wetzel , MI State U	<i>Plant variability and the ecology of plant-insect interactions</i>
Apr 23	Nicholas Ogden , Public Health Agency of Canada, Ottawa	<i>The emergence of Lyme disease in Canada - predictions and observations</i>
Apr 30	Laura Burkle , MT State U	<i>Implications of climate change for native bees: overwintering, phenology, and floral scents</i>

Fall 2018

Sep 24	Eric Larson , INHS, UIUC	<i>Understanding and managing species invasions across stages: Crayfish case studies from inland lakes</i>
Oct 1	Kun Yan Zhu , Kansas State University	<i>Developing molecular strategies for insect pest management</i>
Oct 8	Donald Windsor , Smithsonian Tropical Research Institute	<i>Tortoise beetles: Novel adaptations and dietary patterns in South America</i>
Oct 15	Spencer Behmer , Texas A & M University	<i>Insect nutrition: balance matters</i>
Oct 22	Richard Karban , University of California, Davis	<i>Plant communication and induced resistance</i>
Oct 29	Hugh Robertson , Entomology, UIUC	<i>Retirement seminar, or how two classes in Entomology and Genetics in 1975 led to a 40-year career studying the genetics of insects</i>
Nov 26	Michael Scharf , Purdue University	<i>Integrative toxicology research in urban pest insects</i>
Dec 3	Nathan Lord , Louisiana State University	<i>From chromophores to colors: Evolution of vision in the Coleoptera"</i>
Dec 10	Rafael Achury Morales , Student Exit Seminar	<i>Impacts of fragmentation and invasion on ant communities</i>

ALUMNI / NEW STUDENT FALL PICNICS

2017 Alumnus guest speaker Alan Schroeder, from E-NoeTec Consulting



2018



GRADUATE STUDENTS



Rafael Achury Morales. I am a PhD candidate working in the Suarez lab and currently I'm writing my dissertation with a high probability of graduating next Spring (May 2019). My main interest is how habitat fragmentation affects native ant biodiversity and its relationship with biological invasions. During my PhD I traveled to Colombia for my research on ant community ecology in relation to habitat and to California to understand the long-term impacts of invasion in the same fragments that Andy sampled for his PhD. This last trip was a dream that came true because my interest in the effects of fragmentation and invasion was sparked by his paper in 1998. ;) I'm greatly pleased to be part of this

amazing department and I want to thank all my professors and staff who put so much effort in our formation, not just academically but also personally. Finally, despite the sadness seeing that my experience as a student here is about to finish, I'm sure that once I have returned to Colombia I'm going to remember this experience as the best academic and life-wise opportunity that any person could've had! Un abrazote para todos and cheers!!!



Nick Anderson. The two years since the last newsletter have flown by! I finished my MS on neonicotinoids and ground-nesting bees in spring 2017 and I've been working with native bees and habitat fragmentation for my PhD since then. This research takes me away from campus, and I spent many weeks during the 2017 and 2018 summers in southeastern Missouri (near Mark Twain National Forest) and at WashU's Tyson Research Center outside of St. Louis. I'm pursuing questions about the effects of habitat shape on movement into and out of a habitat patch and tri-trophic effects on the species-area relationship. I've also spent about a month each summer helping Alex Harmon-Threatt, my advisor, with her NSF-EAGER-funded research project that is trying to determine the impact of matrix habitat on bee movement between patches. Between that and my MS work, I've become quite the bee tattoo artist! On the personal front, I got married during the summer of 2017 to my wife, Lindsey.



Nathalie Baena-Bejarano. I am a fifth-year PhD candidate in Dr. Sam Heads' Lab. My research is focused on a small superfamily of crickets known as Tridactyloidea, or pygmy mole crickets, mud crickets, and sandgropers. My research lately has been focused on Cretaceous fossils of this group where I have been reviewing unique Burmese amber specimens and limestone specimens from the Brazil Crato Formation. As part of this research, I had the opportunity to mentor a Colombian high school student, Valeria, in the USA, as well as training two undergraduates in taxonomy, systematics and databases for the group. Some of the highlights from these couple of years are: (1) the opportunity to work at Nachusa Grasslands. I loved meeting the bison, but more importantly the opportunity to find pygmy mole crickets in a restoration area plus the chance to study the population of *Ellipes* across Illinois. (2) I had the honor of participating as a guest lecturer for IB468 and for IB360 (3) Tons of outreach! I got involved in Cena y Ciencia and participated in several of their monthly events, as well as the usual public education and outreach events with the entomology graduate students. (4) I went to the 2018 ESA, ESC, and ESBC Joint Annual Meeting in Vancouver, Canada. At the event, I participated on the Orthopteroid Organized Meeting.



Daniel Bush. I'm in my sixth year in the Berenbaum lab, and I sometimes feel like more of a mycologist than an entomologist. My paper on detoxification services in the mutualism between navel orangeworm and *Aspergillus flavus* was just published in the *Journal of Chemical Ecology*, and I'm steadily learning about fungi in honey bee hives—which is part of the reason I attended my first apicultural meeting this summer. Somehow, I also ended up being the TA for Plant Systematics, so I've really broadened my taxonomic interests lately. Although I didn't get to go to Vancouver this year, I'm looking forward to getting back to my old stomping grounds in St. Louis for next year's ESA meeting. On a personal note, I became a brother-in-law last year and an uncle this year, and I spent several days

with my brother's family in the Dallas area in June. I am hard at work convincing my nephew Luke that insects are more interesting than helicopters and the Dodgers are superior to the Braves.

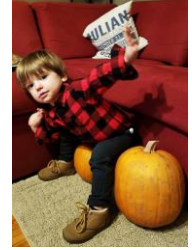


C. Scott Clem. Hello! I just started my third year as a PhD student here in the Harmon-Threatt lab. A lot has happened since the last newsletter. For one thing, I have become known to many as a "fly guy" but only partially because I now study hover flies (Syrphidae). I spent many days these past two years patrolling various Urbana prairies with an aerial net, searching for these critters. I was able to obtain a Sustainable Agriculture Research and Education (SARE) grant to research these insects and their winter survival strategies. Questions I am trying to answer include: Do hover flies migrate? Where do they overwinter within agricultural landscapes? What is their cold tolerance? As side projects I am also investigating whether they can detect insecticides in nectar, and (through a collaborator) whether they can carry bee pathogens such as deformed wing virus. This past spring was quite eventful because I

completed my preliminary exams, published the main component of my master's research, and attended both the IPM and SARE conferences. I hope that this next year will be just as prosperous as the last two!



Catherine Dana. I am a PhD student in the lab of Dr. Sam Heads at the Illinois Natural History Survey. Over the next year I will be finishing up my dissertation on the population genetics and life history of *Megatibicen dorsatus*, a large cicada associated with Illinois prairies. This year our lab was awarded a 3-year State Wildlife Grant to study the distribution of cicadas in Illinois, which will fund the rest of my degree and beyond! When I'm not out chasing cicadas, I'm home chasing our two-year-old son, Julian.



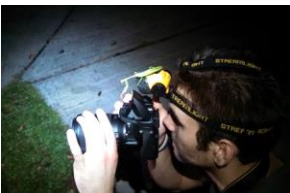
Robert de Moya. My research is focused on the phylogenomics of Paraneoptera insects with an emphasis on Psocodea. Many of the questions we examine concern higher level classification within the order, but we also perform low-level analyses such as the cophylogenetics of parasitic lice and their hosts.



Charles Dean. I am a PhD student in Dr. May Berenbaum's laboratory and I study the coevolutionary relationship between apiaceous plants and web-building caterpillars. I am interested in understanding the genetic components underlying cytochrome P450-mediated chemical defenses in plants such as wild parsnip, *Pastinaca sativa*, and cow parsnip, *Heracleum maximum*, as well as the genetic and physiological role of P450s in detoxification in caterpillars such as the parsnip webworm, *Depressaria pastinacella*, and the purple carrot-seed moth, *Depressaria depressana*. Additionally, I am interested in constructing a molecular phylogeny of the genus *Depressaria*. I passed my preliminary examination this semester. I also wrapped up my second year as President of the Entomology Graduate Student Association.



Mark Demkovich. I am a PhD student in Dr. May Berenbaum's laboratory. My research focuses on navel orangeworm, the primary insect pest of almonds and pistachios in California orchards. I am interested in determining how populations are evolving resistance to pyrethroid insecticides. We have located a region of the genome in this insect and found that multiple populations share a point mutation associated with pyrethroid resistance. Currently, my research is focused on examining cuticular differences in populations of navel orangeworm that may also confer resistance to pyrethroids via reduced penetration of the insecticide.



Jacob Dixon. I am a third-year graduate student in the lab of May Berenbaum finishing up my Master's thesis on the effects of resveratrol on three lepidopteran species. Resveratrol is a polyphenolic stilbene with antioxidant properties found in many plant species but the molecule first gained publicity in 1992 when Siemann and Creasy first suggested that it may help prevent coronary heart disease for those with diets high in saturated fats. I am looking at how resveratrol affects certain moth species. This past year has been one of my most productive years. I was able to focus on a thesis topic, collect data, analyze data, and begin the writing process. I have a

Master's committee in November and I plan on graduating with my Master's in December of this year. After graduation I plan on taking a year off from being a student to focus on what I want to do in life and possibly plan a PhD project I have been dreaming up since my time in Panama. As for my home life, I still live in the same co-op I have been in since I got here in 2015 and it's only gotten better! I live with some great people, including some people that work in the same building as me. My time at UIUC has been quite a journey but it is almost over. When I leave I will miss the department and the people I lived with and will cherish the memories and friendships I made here.



Joshua Gibson. I am a second-year PhD candidate in the Suarez lab studying functional morphology and evolutionary biomechanics of power-amplified mandible mechanisms in ants. Since the 2015-2016 newsletter, I successfully defended my M.S. thesis on ants nesting in bird nests in central Illinois and have conducted two month-long field trips to the Peruvian Amazon and one month-long trip to Queensland, Australia, to collect colonies of myrmicine trap-jaw ants for my PhD dissertation. I also published my first first-author publication (finally!) on the

mandible strike kinematics of the trap-jaw ant genus *Anochetus*, and a third-author publication on the larval morphology of *Odontomachus* trap-jaw ants. Currently I am working on a collaborative paper between our lab and the lab of Evan Economo at Okinawa Institute of Science and Technology showing multiple evolutionary origins of trap-jaw mechanisms in the hyperdiverse ant genus *Strumigenys*, a paper on jumping mechanics in the awesomely named *Gigantiops destructor*, and a paper describing the biomechanics behind the raptorial strikes of mantisflies in collaboration with the Anderson lab at UIUC. Next semester I will be returning to Australia for a second field season and will be making a trip to the Smithsonian in D.C. to start phylogenetic work on the *Daceton* genus group of trap-jaw ants and their relatives using ultra-conserved elements (UCEs). Fun stuff, stay tuned!



Sarah Giers. This summer was a successful field season for my research on climatic effects on prey-predator-competitor interactions. I expanded my research to include my first love in entomology: ants. Working with them as predators of tephritids has been exciting and fulfilling research. Having successfully passed prelim exams, I'm looking forward to finishing my dissertation soon and moving to the next stage of my career. My partner and I have added a corgi dog to our family, which has kept us busy as well as considerably brightened our lives!



Edward Hsieh. I am currently a second-year Master's student co-advised by Dr. May Berenbaum and Dr. Adam Dolezal. I am generally interested in honey bee physiology and landscape ecology, though my recent work has also involved examining the effects of phytochemicals on honey bee viruses. Prior to entering the program at Illinois, I worked as a lab tech in Amy Toth's lab at Iowa State University, where I spent a couple of field seasons learning basic hive management and beekeeping techniques. This past summer, I have been largely occupied with measuring the viral-suppression or inhibitory abilities of certain phytochemical (carvacrol, thymol) on Israeli Acute Paralysis Virus. Soon, I also expect to begin collaboration with members of the Toth and O'Neal labs at ISU examining the effects prairies strips have on pollinator communities.



Todd Johnson. Having recently completed the fifth year of my PhD in the Hanks lab, this will be my last update as a student in the department newsletter. I will be defending my PhD in spring 2019, and I am currently in the process of writing my dissertation. My research program has sought to understand how natural enemies influence the reproductive and defensive behaviors of cerambycid beetles. This work will result in 4-5 publications, one of which has been recently accepted in *Entomologia Experimentalis et Applicata*. You can find more information about my work and pdfs of my papers at my website: www.forestentomology.com.

In addition to working on my PhD, in 2017 I chaired the Entomological Society of America North Central Branch (NCB) Student Affairs Committee (SAC). This committee consists of student representatives from entomology departments throughout the Midwest and has the goal of advocating for student interests within the NCB. During my tenure as chair of the SAC, we sought to increase the accountability of student representatives, as well as the inclusivity, legitimacy, and autonomy of the SAC. We did this by: 1. drafting and passing a constitution and bylaws (there had been none previously), 2. instituting formal elections of student representatives from departments within the NCB (positions were previously acquired through word of mouth; this is ongoing), and 3. passing an amendment to the constitution of the NCB, eliminating the election of the student-at-large member to the executive committee of the NCB, replacing it with the election of the chair-elect of the SAC. After one year, this individual becomes chair of the SAC and sits as a voting member of the executive committee of the NCB. The long-term goal of the SAC is to serve as the primary advocate and resource for students in NCB and to move beyond its previous limited role of developing programs (e.g., the student luncheon, symposium, and mixer) at the NCB meeting. This was an incredibly fulfilling and interesting position. I learned a lot and encourage everyone to become more involved with ESA.

Lastly, after completing my PhD this spring, I will be starting a postdoctoral appointment at the University of New Hampshire in the lab of Jeff Garnas. I will be studying the role of ontogeny of constitutive and induced chemical defenses in ash trees and the role this plays in the establishment and success of the invasive emerald ash borer.



Tanya Josek. I am a Ph.D. candidate in Marianne Alleyne's lab in my final year as a Ph.D. student. My work focuses on understanding the physiological components of the black-legged tick (*Ixodes scapularis*). For my thesis, I have been the first to document the full embryogenesis process of *I. scapularis* through the process of CT-scanning. I developed this novel procedure and overall it allowed me to identify internal and external development points of this tick throughout embryogenesis. Additionally, I



have done extensive work on the Haller's organ, which is the chemosensory structure in ticks. I succeeded in conducting single-unit recordings in *I. scapularis*, which is a process that allows me to determine the odor capabilities of a single sensory hair within the Haller's organ. The final portion of my dissertation work has focused on my interest in education; I developed a high school Lyme disease unit that allows students to learn the ecology of ticks and Lyme disease using Next Gen Science Standards. This project was conducted through PAGES, which has supported me throughout my Ph.D. along with the GAANN and DFI fellowships.



Elijah Juma. I am a PhD student at the Medical Entomology Laboratory, Illinois Natural History Survey (INHS) and I'm co-advised by Dr. Brian Allan and Ephantus Muturi. My research focus is on microbial ecology of container-breeding mosquitoes found locally in Champaign County, IL. I study the biotic and abiotic factors that shape the community structure and diversity of mosquito microbiota, including mosquito host species differences, larval environment, mosquito-borne pathogens, the role of pesticides, and the influence of these factors on mosquito vector competence. I also examine how mosquito microbial communities vary among mosquito tissues, including eggs, ovaries and midgut, tissues that are essential in mosquito pathogen development. The overarching goal of my research is to leverage advances in the understanding of mosquito-microbial symbiont relationships for development of novel microbial-based mosquito control tools.



William Montag. I am currently a fourth-year Master's student in the Berenbaum lab. This past year has been exciting in getting my research organized for my upcoming Master's defense and researching new topics in preparation for transitioning to the PhD program. I am currently studying the morphological adaptations of the small hive beetle involved in parasitism of honey bee hives. Unfortunately for some of the UIUC hives, this was a good year for collecting small hive beetle specimens. As winter approaches, I am trying to build up my captive populations to allow more dissections and imaging of specimens during the cold months.



Brendan Morris. I am a Ph. D. student under Dr. Chris Dietrich at the Illinois Natural History Survey studying the systematics and taxonomy of a cosmopolitan subfamily of treehoppers (Homoptera: Membracidae: Centrotinae). In fall of 2017, I successfully defended my M.S. thesis on the systematics and biogeography of Caribbean centrotine treehoppers. My proposed Ph. D. research will largely expand upon my M.S. work to investigate the evolution and biogeography of centrotine treehoppers worldwide using a phylogenomic approach. Outside of the world of treehoppers, my interests are generally naturalistic, ranging from aquarium and terrarium husbandry to creating treehopper-inspired art and fashion. During warmer months, I can usually be found swinging a sweep net or scouring tree branches for bugs.



Evan Newman. I am a master's student under the direction of R. Edward DeWalt at the Illinois Natural History Survey. I am studying Plecoptera distribution patterns in the state of Indiana and how those patterns are affected by landscape and species traits.



Teresia Njoroge. I am a PhD student in Berenbaum and Stone (Medical Entomology) Labs. The primary focus of my research is exploring the role of plant-derived chemicals on mosquito ecology and control. As such, I'm interested in examining plant-derived edible oils as potential botanical products for controlling container-dwelling mosquitoes in peridomestic environments, a topic that I have since concluded. Additionally, I'm currently exploiting ecology and molecular biology tools to assess the role of nectar phytochemicals on mosquito ecology, with special reference to the invasive Asian tiger mosquito, *Aedes albopictus*. Specifically, I'm interested in determination of the effects of nectar phytochemicals on life history traits of mosquitoes and also using a transcriptome-based approach to identify mosquito-nectar phytochemicals interactions at the genetic level.



Allison Parker. I am a third-year PhD student in Dr. Brian Allan's lab. My research interests center on the ecology of container-breeding mosquitoes and mosquito population dynamics across anthropogenic land use gradients. My dissertation research examines ecological and social factors that contribute to mosquito production in residential neighborhoods of varying socioeconomic status. I have found that this is a great research area for working with undergraduates interested in gaining research experience. I love working with undergraduates in the lab and field, and my favorite

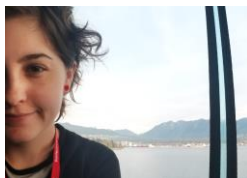


Two of my undergrads and me at one of our field sites (aka a backyard in Champaign)

moment of my grad school experience (so far) has been watching one of my undergraduate mentees give a talk on her independent research project at the ESA, ESC, and ESBC Joint Annual Meeting in Nov. 2018. In my spare time, I enjoy reading, playing board games, and playing soccer (Go Purple Parrots!).



Daniel Pearlstein. I am a second-year master's student in the Berenbaum lab studying the interactions between pesticides and phytochemicals on honey bee behavior and physiology. Outside of research, this year I was on the student debate team at the ESA national meeting in Vancouver, B.C. and I currently serve as EGSA treasurer, and for the second year as the T.A. for the Applied Entomology course in the Department of Crop Sciences. Outside of graduate school, I enjoy running, swimming, cycling, climbing, and backpacking, and am working toward my EMT-B license, which I hope to earn this December.



Kristen Reiter. I am a second-year Master's student in M Alleyne's lab studying insect surfaces and their bioinspired applications. I am beginning to write my thesis to prepare for graduation in May 2019. My current projects involve investigating the wettability of fly wings and the structures that impart superhydrophobicity as well as determining the effect of diffraction gratings on friction forces in carabid, scarab, and staphylinid beetles. I've also spent some time wrapping up publications from my undergraduate work on fluid dynamics in the mouthparts of Lepidoptera and Diptera. (photo: the mountains at ESA in Vancouver)



Rachel Skinner. I am a fourth-year student in Chris Dietrich's lab studying the phylogenomics of Auchenorrhyncha and Paraneoptera. I have been using transcriptome sequencing to reconstruct the evolutionary history of these groups and to investigate potential sources of phylogenetic conflict in the resulting trees. Day to day, this means I spend a lot of time writing scripts and wishing programs would run faster. I have also been learning different methods to assemble transcriptomes and mitogenomes. I was fortunate to be able to present my work on the Paraneoptera at the 2018 national ESA meeting in Vancouver, British Columbia. I also participated on the University of Illinois' first ESA debate team. We won our debate!

On a personal level, I was happy to marry my husband Matt on July 25, 2017. We were married at Black Powder Pass, a mountain pass at an elevation of about 12,000 feet between Bald and Boreas Mountains near Breckenridge, Colorado. We spent our honeymoon traveling through Grand Teton and Yellowstone National Parks. This summer, we traveled to Glacier National Park where we experienced hiking through spectacular scenery, eating huckleberry pie for the first time, and seeing lots of incredible wildlife, including bighorn sheep, mountain goats, marmots, and black and grizzly bears.



Eric South. I am a sixth-year PhD student researching a molecular phylogeny of the North American stoneflies.



Dan Swanson. Salvête! I am now in my sixth year as an Entomology graduate student at UIUC, three post-Master's, and now solely advised by Sam Heads after Steve Taylor's retirement. I enjoyed a semester TAing Evolution, although now and future semesters I will continue as an aquatic entomologist for INHS for my support. I successfully completed my preliminary exam in October. My dissertation focuses on a taxonomic revision of a cluster of visually striking extant assassin bug genera and using them to explore levels of phylogenetic signal in cuticular armature. I'm also taking a very enjoyable and educational side trip through introductory Latin and Ancient Greek. I've had lots of excitement and changes outside of academic work in the last couple years: Christina (now an academic professional with SIB) and I married in June 2017, bought a house in Urbana in December 2017, and had twin daughters, Riley and Emily, in November 2018.



Jonathan Tetlie. I am starting my second year as a master's student in Alex Harmon-Threatt's lab. This past summer I completed my first field season sampling restored prairies in Champaign and Vermilion counties, IL. The goal of my thesis project is to understand how bee communities are affected by agricultural chemicals (specifically the neonicotinoid clothianidin), by characterizing how these chemicals are distributed in the environment, quantifying the nesting rates of ground bees, and

sampling active foragers. Outside of my studies, I play on multiple soccer teams, make baked goods, and spend time with the wonderful people in the department that make UIUC such a great place.



M. Jared Thomas. My primary area of study is paleoentomology, with a focus on fossil orthopterans. My MS thesis will center around studying the diversity, paleoecology and taphonomy of fossil insects from the Oligocene Renova Formation of southwestern Montana. Fossil insects and plants are abundant in the paper shales and volcanic ash horizons at this locality, which represent many millennia of deposition in an ancient lake. This fossil assemblage tells the story of a long vanished ecosystem that existed some 30 million years ago during a period of great climate change. My work will shed light on the composition of this ancient ecosystem and tease out the paleoenvironmental and paleoclimatic signal preserved in this unique deposit.



Jacob Torres. I am a new Ph.D. Student in Adam Dolezal's lab. I recently got married to Kendall, my amazing wife, who is also a bee biologist. We both met at Augustana during our undergrad and got our master's at WIU. My research includes nutrition, ecology, and conservation as they relate to pollinator health. During my free time I enjoy cooking, playing music, and playing with my two puppies Delilah and Opal. I look forward to continuing my Ph.D. and starting some more research in the field season!

RECENT GRADUATES

Graduation Term	Student	Degree	Thesis Title
May 2017	Nicholas Anderson	MS	Chronic Contact Exposure to Realistic Soil Concentrations of a Neonicotinoid Insecticide Represents a Potentially Important and Unexplored Route of Exposure for Ground Nesting Bees (A. Harmon-Threatt)
	Natalie Diesel	MS	1-(1h-Pyrrol-2-Yl)-1,2-Propanedione is a Crucial Pheromone Component of the Rare North American Cerambycid Beetle <i>Dryobius sexnotatus</i> (L. Hanks)
	Joshua Gibson	MS	Prevalence and Impacts of Ants Colonizing Active Bird Nests in Illinois (A. Suarez)
	Alexander Hazel	MS	Identifying Floral Hosts of Cerambycid Beetles Using Palynology (L. Hanks / M. Berenbaum)
	Kari Jackson	MS	Exploring Winner Effects in Queens of the Western Honey Bee (G. Robinson)
	Keon Mook Seong	PhD	Molecular Implications of Prolonged DDT Selection in <i>Drosophila melanogaster</i> (B. Pittendrigh)
Aug. 2017	Laura Steele	PhD	Dichlorodiphenyltrichloroethane (DDT) Resistance Mechanisms in <i>Drosophila melanogaster</i> and Applications for the Cowpea Pest <i>Clavigralla tomentosicollis</i> (B. Pittendrigh)
	Sarah Hughson	PhD	The Movement Behavior and Reproductive Ecology of Western Corn Rootworm Beetles (Coleoptera: Chrysomelidae) in Bt Cornfields with Structured and Seed Blend Refuges (J. Spencer)
Dec. 2017	Luke Zehr	MS	Diel Patterns of Insect Herbivory and Plant Secondary Metabolites in Understory Shrubs on Barro Colorado Island (M. Berenbaum)
	Brenna Decker	MS	Effects of Burn Season on Bee and Floral Community in Tallgrass Prairies, and the Use of Museum Collections Data (A. Harmon-Threatt)
May 2018	Brendan Morris	MS	Studies of New World Treehoppers of the Subfamily Centrotinae with Emphasis on the Caribbean Fauna (Hemiptera: Membracidae) (C. Dietrich)
	Linnea Meier	PhD	Pheromone Chemistry and Reproductive Isolation in the Subfamily Lamiinae (Coleoptera: Cerambycidae) (L. Hanks)
	Christian Millan-Hernandez	MS	Identifying Dryinidae (Hymenoptera) - Auchenorrhyncha (Hemiptera) Host Associations Using Phylogenetics (C. Dietrich)
	Matthew Safford	MS	Influence of Habitat and Bat Activity on Moth Community Composition and Seasonal Phenology Across Habitat Types (A. Harmon-Threatt)
Aug. 2018	Michael Wong	MS	Amelioration of Acute and Chronic Toxicity of Imidacloprid by Dietary Phytochemicals in Honey Bees (<i>Apis Mellifera</i>) (M. Berenbaum)
	Aron Katz	PhD	The Influence of Vicariance and Dispersal on the Diversification and Evolution of Springtails (Collembola) (F. Soto-Adames, S. Taylor, M. Davis)
	Kyle Parks	PhD	Phylogenetics of <i>Parapanteles</i> (Braconidae: Microgastrinae) Wasps, an Underused Tool for their Identification, and an Exploration of the Evolution of their Symbiotic Viruses (J. Whitfield)
Dec. 2018	Erin Updyke	PhD	The Eco-Epidemiology of Chagas Disease Risk in Panama (B. Allan)
	Jacob Dixon	MS	Effects of Resveratrol on Development of Three Lepidopteran Species Varying in Diet Breadth (M. Berenbaum)

SIB CONVOCATION – May 2018



Dan Strickman and May Berenbaum

Entomology alumnus, Dan Strickman (class of 1978), gave the convocation speech at UIUC's School of Integrative Biology's Convocation on May 11, 2018. With Dan's permission, we're including his speech here:

First of all, let me say what an honor it is to share this important day with graduates and their families. Today I'd like to talk about some things that we usually don't discuss during the day-to-day hubbub. I'd like to talk about science and career, pride and privilege, and humility.

I've been told over the past couple of days how unusual my career path has been. I suppose it hasn't followed a straight line and perhaps been more varied than others. It certainly wasn't what I had planned. My wife and I went into Peace Corps in Paraguay right after I got my degrees here at the University of Illinois. My wife wanted some adventure and I wanted to see medical entomology up close. We accomplished both things, but we got a lot more out of it than that. We learned first hand how most of the world lives and we learned that we could live that way too. I went into the military because I needed a job, but I found that I liked it a lot. I did many different things in the Air Force and Army, retiring to three years at a mosquito abatement district doing very practical pest management. That was followed by eight years at the U.S. Department of Agriculture's Agricultural Research Service, where it was a fun job being exposed to many different aspects of science and agriculture. Now I am at the Bill & Melinda Gates Foundation working on the eradication of malaria and the control of a number of neglected tropical diseases transmitted by insects. I feel like I've had some breadth and little depth and I have certainly enjoyed the 40 years since I got my Ph.D. here.

You should be very proud today. Proud of yourselves, proud of the families who believed in you, and proud of your university. It is a citizens' university, created to advance the capabilities of the state, but it has come to do much more than that. The presence graduates with so many origins demonstrate how the University of Illinois has succeeded in becoming a world resource. No matter where you are from, you, as students, made this university great by your curiosity, your motivation, and your insights. The world is a better place because of you.

There's got to be an element of relief today, as well. It's a brave thing to enter the long process of getting a degree. It's braver still to face the unknown with only your mind, your eyes, and your hands. I hope there were times when you were scared, when you recognized an intellectual challenge and overcame it. Learning that you can do something that you hadn't imagined, or thought impossible, is growth that really matters.

My adviser, William Horsfall, was my guide through the jungle of becoming a scientist. He would say that only choosing a spouse was a bigger decision than choosing an adviser – that was how much importance he placed on the individual in academics. There are many kinds of teachers, but it was fortunate for me to get one with a lifetime of experience and firm ideas on the work. "Think like a bug," "Technique is all," and "Rework!" were constant refrains that I carry today. Regardless of the relationship you had with your teachers, I'm sure there were guides you will never forget and family who helped you through the rough patches.

Another thing to think about as you leave for further accomplishment, inside or outside this university, is your rare position. Every human life has equal value, but some of us end up with greater opportunity. You have all taken advantage through your education, energy, and resolve. I'm sure there have been barriers for many. You'll see other barriers, too, but you still represent a small percentage with so many chances to create, contribute, and help. It's a privilege and a responsibility. Despite whatever social or environmental challenges we face, we should take a moment to appreciate where we are in science today. It is a rare moment in science, bristling with technique and the ability to find answers that were impossible to find when this university was started 150 years ago.

My current position at the Bill & Melinda Gates Foundation brings sharp focus to a challenge as old as human intellect. How and when do we apply the fruits of human curiosity to the benefits of human well-being? Innovation to impact. Academic to practical. Is it really a spectrum? Is one pitted against the other? Applying invention to products is notoriously difficult and inefficient, a colleague of mine having described product development as a contact sport. Academic institutions give robust support to product development, but behind it all at a place like the University of Illinois is a layer of pure academics fueled by experiment, scholarship, and that rarest of qualities, creativity. Viewed this way, academics is the battleground of facts and ideas, littered with outmoded fashions, foolish new ones, but constantly evolving toward the organization of knowledge we know as science. There is beauty there, and fear, and accomplishment, which is the positive side of human ego. It seems like one of the most human of activities and, ironically, we seem to be very inefficient at it. Science really does have inherent value. It contributes to our humanity as well as to our well-being.

I started my remarks with pride and I want to end them with humility. My own humility in front of the next generation of scientists and their teachers. But also a collective humility in consideration of biology. There have been so many moments when I realized that a basic generalization was inaccurate or that nature was doing things I couldn't summarize or understand. Clearly, biological processes have been at all this much longer than us humans. We have a lot to learn. I think we would be well advised to reach our own conclusions carefully, questioning nature, our colleagues, and, especially, ourselves.

The University of Illinois has prepared you for a bright future. My sincerest wishes for good luck. I have no doubt that you and your families will make a difference.

ENTOMOLOGY GRADUATE STUDENT ASSOCIATION

2018-2019 Officers

President: Tanya Josek

Secretary: William Montag

Treasurer: Daniel Pearlstein

Webmaster: Nick Anderson

Outreach Officers: Scott Clem and Jacob Dixon (Fall 2018) / Edward Hsieh (Spring 2019)

Faculty Liaison: Allison Parker

GSAC Rep: Jonathan Tetlie

Social Chair: Josh Gibson

So far this year, EGSA has worked toward continuing and expanding our outreach activities. One of our newer outreach events has been focusing on entomophagy and normalization of eating insects at the Chillicothe Public Library near Peoria. In addition to the usual outreach events, such as our work at local schools and the Pollinarium, we have also expanded our media presence and thanks to Nick Anderson we now have a Twitter handle @uiucEGSA – Please follow us and tweet at us! Looking forward toward the future, EGSA will be working on internal collaborations to help graduate students create posters and talks for meetings and improving our general inner workings. Finally, as usual, we are all looking forward to this IFFF this spring semester as well as meeting potential new ESGA members!



2017-2018 Officers

President: Charles Dean

Vice President: Matt Safford

Secretary: Edward Hsieh

Treasurer: Rachel Skinner

Outreach Officers: Josh Gibson & Jacob Dixon

Faculty Liaison: Jonathan Tetlie

GSAC Rep: Nick Anderson

Social Chair: Scott Clem

2017-2018 was a very successful year for EGSA. The 35th Annual Insect Fear Film Festival theme was Ticks! It featured horror movies, live insects at our petting zoo, and t-shirts, stickers, balloon insects, and face painting. The turnout was very high! National Pollinator Week was also very productive. We continued our tradition of tending a booth at the Urbana Farmer's Market. EGSA also held a sale to support the Pollinarium. Finally, we also continued our outreach in an effort to bring insects to the general public at schools, libraries, and other events.



34TH ANNUAL INSECT FEAR FILM FESTIVAL Foellinger Auditorium, February 25, 2017



For the 34th Insect Fear Film Festival, Hollywood was in the house! IFFF34 honored UI alumnus Paul Hertzberg. As always, before the movies, the IFFF art awards were presented; the theme was a bit of a challenge—because we honored a UIUC alumnus, the theme was Illini insects and the K-12 community rose magnificently to the challenge. I’m particularly fond of the arthropodization of the Alma Mater.

Our honoree, Paul Hertzberg came from Hollywood to the festival but he hails from West Rogers Park in Chicago. He attended UIUC, majored in business, graduated in 1971. Now he’s President and CEO of Cinetel, one of America’s top independent production and distribution companies, with more than 150-200 films to his credit. We honored him because a nontrivial number of those movies involve arthropods. Over the past 28 years, he and/or his production company produced films with — spiders and daddylonglegs in *976-Evil* (1988), cockroaches in *They Crawl* (2001), wasps in *Deadly Swarm* (2003), rhinoceros beetles in *Caved In* (2006), and possibly firefly or syrphid larvae in *Mongolian Death Worm* (2010) (is it an annelid? A character in the film thinks so, but one can’t count on film characters for taxonomy). Most recently and famously, he produced *Lavalantula* (2015) and *2 Lava 2 Lantula* (2016).

At our festival, our mission is to contrast the Hollywood version with the mundane reality. Tarantulas are large hairy spiders in the family Theraphosidae; technically, they’re not spiders, they’re mygalomorphs, with mouthpart that are oriented downward and parallel to each other (vs sideways and crossing). There are about 860 species, found in both the Old and New World. They’re not all large—*Aphonopelma paloma*, the Paloma dwarf tarantula in Arizona, is only 1/3 inch as a mature adult—but when they’re big they’re very big, with leg spans up to a foot or more. The heaviest, the Goliath birdeater *Theraphosa blondi*, weighs in at 6 ounces. The Brazilian salmon pink birdeater *Lasiodora parahybana* clocks in at 11 inches, possibly the greatest legspan.

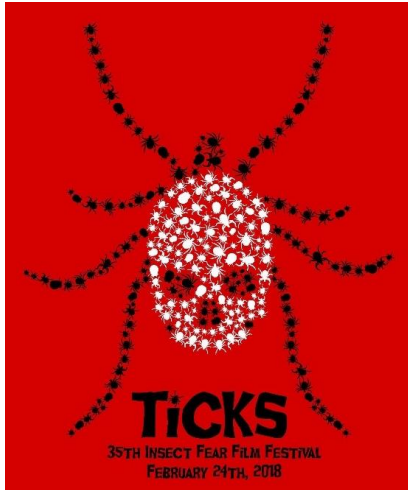
So, are they scary? They’re big but they’re not particularly dangerous in the grand scheme of things. Like all spiders, tarantulas produce venom, which in the case of tarantulas contain nucleotides, salts, neurotransmitters, polyamines, enzymes and a lot of neurotoxic peptides (voltage-gated cation channel inhibitors). Many tarantula toxins contain a characteristic motif with three disulfide bridges between cystine residues called the Inhibitory Cystine Knot (ICK) motif—yes, it’s called the ICK factor. Among tarantula peptides are grammatoxin, hainantoxin, hanatoxin, huweintoxin, psalmotoxin and, my favorite flavor, vanillotoxin. Venoms of Old World tarantulas seem to be more toxic than venoms of New World tarantulas; Old World tarantulas are also more inclined to bite. In addition to local pain, swelling and joint stiffness, in at least one account (Ahmed et al. 2009), “Two men bitten on their index fingers by pet Old World tarantula spiders...developed intense local pain, swelling and episodic, agonising, generalized muscle cramps.” And there’s at least one report that the venom of the African king baboon spider, *Pelinobius muticus* is hallucinogenic. But the scientific community concurs that “envenoming by New World tarantula bites appears to be clinically trivial” (Ahmed et al. 2009); there is “no properly documented case of human death following a tarantula bite” (Escoubas and Rash, 2004). Beyond biting, tarantulas can cause problems in other ways. American tarantulas defend themselves by flicking special urticating hairs, present in densities up to 12,000 per square millimeter and capable in some cases of sinking up to 2 mm into human skin to cause inflammation and itching.

Despite their relatively innocuous nature, tarantulas have inspired a lot of movies. In fact, there are two distinct genres of tarantula movies. Early on, movies featured one enormously enlarged tarantula, as in *Mesa of Lost Women* (1953) and *Tarantula* (1955), but later movies came out with lot of little angry tarantulas, as in *Kingdom of the Spiders* (1977)—they weren’t large, they were just numerous and ticked off because DDT had killed off their food supply. But the biggest of the big Tarantula movies, the Gargantulantula of Tarantula movies if you will, is the convention-buster that combines the two genres into one movie, so humanity has to deal with large numbers of enormous tarantulas—*2 Lava 2 Lantula*.

So, let’s compare the lavalantula with actual tarantulas. Real tarantulas inject venom; lavalantulas spit fire and spew volcanic lava. Real tarantulas bite you and you get muscle cramps; lavalantulas, to quote the movie character TJ, “if you got bit, you become host to baby spiders.” Real tarantulas brush bristles off their backs and flick them at you; lavalantulas hurl solidified lava spears that pierce human abdomens. Real tarantula eggs hatch after one or two months and tarantulas may take 2-5 years to reach adulthood; lavalantulas appear to complete development over spring break weekend. So, clearly, movie tarantulas are far more dangerous than real tarantulas. But—à propos of our festival—there is one force of nature that affects human health and well-being that bears discussion—people who produce movies about giant tarantulas. Why do I say this? There have been a number of studies demonstrating that scary movies have physiological impacts on human health.



35TH ANNUAL INSECT FEAR FILM FESTIVAL Foellinger Auditorium, February 24, 2018



The 35th annual Insect Fear Film Festival was our first all-tick festival and the crowd was not just enthusiasTiCK, they were ecstaTiCK—and if the terrible puns surprise you then you probably haven't been to any of the previous 34 festivals. We garnered some national attention—a spread in *Pest Control Technology* magazine—as well as local media—e.g., in the Bloomington Pantograph's *Looking for Something To Do This Weekend* calendar between Kiwanis Pancake Days & Book Fair at the Center for Performing Arts and Winter Guided Hikes at Starved Rock Park Lodge. For our 35th festival we welcomed back UIUC alumnus Keith Hunter, who was the projectionist at the first IFFF in 1984, along with festival stalwarts Nathan Schiff and Ellen Green, all the way from Stoneville, Georgia. Here from North Hollywood, ventriloquist Hannah Leskosky brought along Tex the Lone Star Tick, who played Tick Tac Toe with kids (fantas-TiCK!). Also visiting from other states were a group of students from Purdue and alumnus Matt Ginzel as well as Joe Ballenger, aka Ask An Entomologist on Twitter, from St. Louis, MO.

As for logisTiCKS, our local school art competition received 340 entries this year; nine energeTiCK graduate students served as judges. Speaking of artisTiCK (make it stop!), Tanya Josek designed this year's t-shirt, along with making the

engraved tumblers raffled off after the first short; Jared Thomas embedded beetles in resin for another prize. EGSA took over the campus Snapchat channel with a tick filter so you can take a fantasTiCK if unrealisTiCK selfie.

A lot of people may share the sentiment that ticks suck—and they'd be right, both literally and figuratively. Moreover, they've been sucking for a very long time. In September 2017, scientists announced the discovery of three 99-million-year-old fossil ticks (Peñalver et al. 2017); one was “entangled in a pennaceous feather” and two belonged to a species new to science. The new species was given the name *Deinocroton draculi*, or “Dracula's terrible tick” and one was “engorged with blood” and 8 times the size of its conspecific; 99 million years is a long time to suck, and they've really perfected the art. Today, there are three families of ticks: 700 species of Ixodidae (called hard ticks, equipped with a shield-like scutum), about 200 species of Argasidae (soft ticks), and one species in the smallest family, Nuttalliellidae, named in the (dubious) honor of bacteriologist George Nuttall (*Nuttalliella namaqua*). Their closest relatives are the mites, which look good only by comparison (although there are bloodsucking mite parasites of humans, including chiggers and scabies, there are other species that feed on plants, stored grain, fungi, lichen, and dead animal carcasses). There are almost 50,000 species of them, but they're easily overlooked because most are less than 1 mm long. The largest known tick is an engorged female *Amblyomma varium*, sloth's giant tick, collected from a Venezuelan sloth, which, fully engorged, is about the size of a golf ball (Sanchez et al. 2014) and weighs nearly 8 g (as much as two average hummingbirds together). By contrast, the smallest are male *Ixodes soricis*, which feed on a British Columbian shrew species (Easton and Goulding 1973), the vagrant shrew, 2.3 inches, not including the tail. The first specimen of this species, which is less than 1 mm long, 0.6 mm wide (Gregson et al. 1949, 1952), was found with its mouthparts “fully inserted into the lateral body wall of a partially engorged female of the same species”. Its discoverer wasn't exactly sure what it was doing—either an unsuccessful attempt at parasitism or a really unsuccessful attempt at mating.

One thing to get straight—despite what characters in just about any movie ever made about ticks might call them, ticks are not insects. They're members of the Class Arachnida, along with the aforementioned mites, as well as spiders, daddylonglegs, scorpions, pseudoscorpions, windscorpions, whipscorpions, microwhisporscorpions, split-middle whipscorpions, hooded tickspiders, and a few too obscure to have common names. Ticks have a number of attributes no self-respecting insect would ever possess: 1) their mouthparts, the business parts of which include a pair of barbed, slicing chelicerae or fangs, which dig into the skin of the host and pry it open, and the hypostome, variously described as sword-, rod-, spear- or harpoon-like structure, that's plunged deeply into the skin to anchor the tick in place; 2) their legs (8, except for when they hatch out of their eggs, as larvae, with six); 3) their body segments, with no discernible waist or neck to separate cephalothorax or abdomen; 4) their lack of antennae and compound eyes; 5) their lifespan (some live for years); 6) their ability to suck up enormous quantities of blood (up to 8 ml, 1.5 teaspoons vs less than 1 ml, .2 tsp, for insects) and increase their size up to 100-fold in the process; 7) their astonishing fecundity (some can lay more than 20,000 eggs); 8) their ability to digest blood slowly, not all at once (inside cells, not inside the gut).

Some of these features—long-lived, remaining attached to a host for a long time, keeping undigested blood meals lying around inside their guts—make ticks excellent vectors of disease. You'd be hard-pressed to find a disease-causing organism that some tick or other doesn't transmit: the list includes viruses, bacteria, protozoa, spirochaetes, even nematodes (Mather et al. 1993). Sometimes, they can carry multiple pathogens. And there's hardly a place where they haven't transmitted some disease or other: you don't have to travel to tropical climes to get sick and die from a tick bite. Lyme disease (CT), Bourbon virus (Bourbon, KY), the Heartland virus (discovered in Missouri), Colorado tick fever virus, Rocky Mountain spotted fever, Texas cattle fever. Unlike most insect vectors, ticks don't necessarily have to feed on the blood of an infected host to become vectors; eggs inside ovaries that haven't hatched yet can pick up pathogens from their mother and hatch, fully

infected, as larvae, even before their first meal (Aeschlimann & Freyvogel, 1995). For that matter, ticks don't even need a pathogen to mess you up. Like their spider relatives, some ticks produce venom and can induce paralysis when they bite you (e.g., the aptly named Australian paralysis tick). Recently, and maybe even more horrifyingly, it has been discovered that being bitten by a lone star tick can induce an allergy to meat (by injecting alpha-gal from a previous blood meal), manifested by shortness of breath, hives, vomiting, and diarrhea. The absence of wings doesn't seem to limit their ability to travel; by attaching to migratory birds, they can travel literally thousands of miles, along with whatever pathogens they're carrying.

Given what might be considered an utter lack of charisma, ticks have not been conspicuous in the movies over the years. Mites made their debut long before ticks did, appearing in the world's first science documentary, in 1901, directed and starring Francis Martin-Duncan. "The Cheese Mites" featured a man eating bread and cheese, reading a newspaper with a magnifying glass when he happens to notice his cheese is teeming with (animated) mites. Remarkably, the film created a demand for microscopes (often sold with mites on slides for viewing). The first tick-related movie didn't appear until 1937; *Green Light* revolved around Dr. Newell Paige, an unjustly disgraced physician forced to resign, who takes a position at a Montana hospital to test a new treatment for Rocky Mountain Spotted fever on himself. Since then, a significant proportion of tick movies seem to be on the pornographic side. *7 seX 7* (2011), e.g., is a Croatian anthology of seven erotic stories, one of which involves a girl collecting mushrooms in the forest who is persuaded by a man that she has a tick in her private parts, which he'd like to help her remove by offering up his own private parts for luring the tick away from her. We ultimately chose to show **Ticks**, a 1993 almost-direct-to-video feature film with a screenplay by Brent V Friedman (who also penned *Hollywood Hot Tubs 2: Educating Crystal*), a budget of \$2 million and a five-week shooting schedule in and around Los Angeles. One real tick appears in the movie, fleetingly—an *Ixodes* species?—and no tick wrangler appears in the credits. Why show a tick movie in an insect fear film festival?" Since the small biological fact that ticks aren't insects seems unknown to the filmmakers or anyone else associated with the movie, it seemed fair for us to overlook it as well. In fact, at one point, Tyler, one of the adolescents in the film, remarks that ticks are the "vampires of the insect world." Tyler, along with five other inner city kids, is on a wilderness adventure with Charles Danson, a sociologist, and his girlfriend, social worker Holly Lambert. Unbeknownst to them, the wilderness camp is just up the road from a massive marijuana-growing operation run by unscrupulous cash croppers who have polluted the neighborhood with growth-enhancing chemicals. In any case, Brutus the dog dies a mysterious death, complete with hallucinations, soon after arriving. The vet solves the mystery "Ixodes dammini--judging from the mandibles, a wood tick." The herbal steroid apparently strengthened its neurotoxin. Meanwhile, Kelly and Melissa go fishing and pull up the murdered sheriff. Lots of things happen—the marijuana catches fire, ticks feed on the blood of a teen who is tanked up on steroids, there's some shooting, ticks converge on the cabin, and the group bonds, which presumably was the point of the exercise in the first place.

Many misconceptions are worth correcting—ticks do not pupate and emerge from a mucus-like goopy cocoon—in fact, a larval tick looks pretty much like an adult tick except that it has only six legs. Ticks lead a perfectly dry mucus-free existence, as a matter of fact. There is an *Ixodes dammini*, ("judging by its mandibles") or at least there was—it's the deer tick (not wood tick), although its name has been changed to *Ixodes scapularis* (probably from embarrassment after this film was released). Interestingly, none of the campers seem concerned with possibly contracting the world's biggest case of Lyme disease as a result of bites from these ticks. Finally, even considering steroid-induced enhanced growth, it's not clear that any tick could grow to the size of a German shepherd in an afternoon...



We also showed two other films; the short *Ben 10: The Big Tick*, with a plot involving an extraterrestrial tick invasion, and an episode of the 1955 television show *Soldiers of Fortune*, titled "Bite of the Ruby Red," about international adventurers who are hired by a professor who wants to travel to the jungles of Central America to find a lost Indian tribe immune from the poisonous bite of a wood tick, known as "The Ruby Red." Standing in for the jungles were locations in North Hollywood and standing in for real arthropods were plastic ticks and scorpions. By the way, I found this show in the Internet Movie Database with the plot keywords "poisonous insects."

ALUMNI NEWS



Harry Bottenberg, PhD 1990. After graduating from the U of I in 1990 I've had a varied career with international organizations and the United States Agency for International Development (USAID), mostly in Africa. Since 2012, I serve as the Mission Environmental Officer for USAID Afghanistan. Before 2012, I managed agriculture projects for USAID in South Sudan and West Africa and have worked in the horticulture private sector in Florida, with an IPM consulting firm and an international biocontrol company. I live with my family in Rockville, Maryland.



Robert (Bert) Clegern, PhD 1972. My wife Linda and I have been enjoying the retired life for some time now. We are active in our Charlestown Retirement Community here outside Baltimore. In fact, I was selected for a Maryland Senior Citizens Hall of Fame Volunteer Award last year. I recently completed a short publication called "Eco-Charlestown", which documents all the environmental aspects of our community and includes species lists of our trees (70), birds (105), and mammals (15). The document is fairly substantial, since we are a community of 3000+ people on 110 acres, interestingly located on the eastern fall line. Seasonal gardening, softball, tennis, year-round walking and time at the gym round out our activities. The attached pic is from a 2016 trip to Oregon's beautiful Silver Falls State Park. Best wishes to everyone.



Ed Cupp, PhD 1969. I continue to work as a hobby farmer to bring our farm (35 acres) back to a more ecologically sustainable state. Current efforts have included removing invasive plants (lots of them!), developing silvopastures, and eliminating large algal mats in our pond by using grass carp instead of chemicals. My wife (Mary) continues her efforts to grow grapes with me cheering her on from the sideline. I do cut the grass and help with the vines when requested. Overall, it continues to be a great experience.

Professional activities haven't slowed down since the last Newsletter. I remain a consultant on an NIH-sponsored project in Uganda, developing alternative methods to control the black fly vectors of *Onchocerca volvulus*, the causative agent of "river blindness." We have made remarkable progress in several areas and the future looks very promising. Since my last report, our group has published four papers and we are looking to expand our work into Nigeria and West Africa. I am attaching a picture (myself and Patrick, a team leader) taken this summer in the field near Gulu where we are evaluating interceptor traps to protect workers in their gardens (tomatoes, cassava). I was also invited by the Carter Center (Atlanta, GA) and the Ugandan Ministry of Health in 2017 to become a member of the Ugandan Onchocerciasis Expert Elimination Advisory Committee and have attended two annual meetings in Kampala in that capacity.

Mary and I were also awarded two patents last year for the protein composition of a horn fly vaccine we developed at Auburn University where we both still hold emeritus professor status. The vaccine is in the late stage of evaluation at the AU Veterinary College and the work is being funded by a start-up company in Louisville.

Not much else. Best wishes to all and congratulations on the wonderful work and service the Department and all its members continue to do.



Eric Day, MS 1986. Hi, everyone. I am still at Virginia Tech in the same position as Manager of the Insect Identification Lab. Also still conducting surveys for invasive species, which has left me with my hands full as 2018 has become the year of living dangerously. Nice easy start with just a few new Red Imported Fire Ant counties, then the Virginia arrival of Spotted Lanternfly, and then the Asian Longhorned Tick decided to attach itself to Virginia. I still work with the Christmas tree growers and enjoy getting out into the field and work on IPM programs for arthropod pests. Attached is a picture of me with a Christmas tree grower, Ron Clouse, taken at his farm near Winchester, Virginia. Family-wise, all is good. Nan is still running her soil consulting business, Gordon is in Germany working on an MBA, and Graham is married and working in Nashville.



David Denlinger, PhD 1971. I formally retired from Ohio State a couple years ago, and in August, 2018, Judy and I moved from Columbus to our old family farm in southeastern Pennsylvania (near the little towns of Bird-in-Hand and Ronks). Only now does it feel like I have retired, but I still have a couple active grants, a graduate student, and postdoc, so I still run back and forth to Ohio State every few months. We converted a corn barn on our farm into the dwelling we now occupy. Our son and his family live across the lawn in the old farmhouse (circa 1730), so we enjoy helping them wrangle their three little ones and help maintain things around the farm. We fenced the cattle out of the stream area and planted 1000 trees along a buffer zone. It's been fun to see the stream recover its gravel bottom and watch the fish and insects return! I'm also busy writing a book on insect diapause, a task that I can hopefully do as well from our barn as

from my office at Ohio State. I started this project many years ago, but had to shelve it when I became department chair.

Over the past 10 years we've been working in Antarctica, examining how a tiny midge survives in that hostile environment. I personally went to Antarctica five times during this interval and sent other members from my lab there on years that I did not go myself. It's been fun and, although we have no more field trips to Antarctica planned, we still have quite a bit of data to analyze and papers to write!



Mohammed Farooqui, PhD 1979. I graduated from the Department of Entomology at the University of Illinois in 1979. My Ph.D. thesis supervisor was Dr. Robert L. Metcalf. After a postdoctoral fellowship at the University of Texas Medical Branch at Galveston, I am currently at the University of Texas Rio Grande Valley as Interim Dean of the College of Sciences and a Professor of Biology. I served at many teaching, research, and service positions at this university for 39 years. With three children and six grandchildren I am enjoying my life here in South Texas. I enjoy reading the Entomology Newsletters regularly.



Martin Hauser with Daniel Takiya, Steve Gaimari, and Rin'ha Rasolondalao

Martin Hauser, MS 2002 / PhD 2005. I just looked at what I wrote when I started at the UIUC in the 1999 newsletter, and “my two major passions: flies and traveling” turns out to be still a true statement. After leaving the UIUC in 2005, I drove all the way to Sacramento, CA, for a postdoc with Tephritidae flies at the California Department of Food and Agriculture (CDFA). After not even two years, I moved to South Carolina to be a Research Assistant Professor in Columbia, SC, between 2007 and 2008, teaching entomology and evolution. Soon I got the offer for a permanent position as Entomologist at the CDFA, so I crossed the country again and gave up teaching, which I still miss. All the decades of traveling and collecting insects suddenly came in very handy because my responsibility is to identify Diptera collected by farmers, border

personnel and private citizens in California, and determine if they are harmful or not. Every day is different and a new challenge, like finding the first records of *Drosophila suzukii*, which was devastating the cherries in California. At the same time, I have the opportunity to conduct research and to travel while working together with nine other taxonomists, which is a rare privilege. To make my life complete, I was very fortunate that my beautiful wife Darolyn Striley agreed to marry me in 2011. Looking back, I would never have thought that one day I would live in California, be paid to identify flies, have (for a few years only) Arnold Schwarzenegger as my boss, and have more flies than I will ever be able to describe. This all started by a chance encounter between Mike Irwin and me in the Negev desert in Israel in 1996, who later took me in as a PhD student. And thanks to the great education, outstanding professors, May's leadership and amazing network from the UIUC, my dreams came through. The picture is from our Madagascar 2014 trip, including **Daniel Takiya [PhD 2007]**, **Steve Gaimari [PhD 1998]** (both graduates of the Entomology Department) and Rin'ha Rasolondalao, who visited the UIUC nearly 20 years ago and guided me safely through three amazing trips to Madagascar.



Xander Hazel, MS 2017. Since graduating in 2017, I was hired as the Events & Engagement Coordinator at the Orpheum Children's Science Museum in Champaign, IL. My responsibilities include, among other things, planning fun and educational events and programs for families, marketing and graphic design, volunteer recruitment and supervision, community outreach, media relations, and operations and management. In 2018, I created and ran new insect-themed lessons for camp kids called "Backyard Bugs" and celebrated National Pollinator Week for the first time with fun, family-friendly activities at the museum.

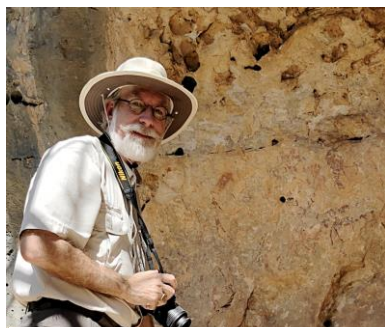
I also serve as co-chair for the local chapter of the Emerging Museum Professionals, which is tasked with providing resources and networking opportunities for individuals interested in the museum field. In addition, I was elected to the board of the Champaign Center Partnership, a 501(c)(6) non-profit that supports independent retailers and local businesses in downtown Champaign, midtown, and Campustown. Finally, I am collaborating with Dr. Alleyne in Entomology to collect and identify click beetles (Coleoptera: Elateridae) for an interdisciplinary research project with students and faculty in Mechanical Science and Engineering at UIUC.



Gail with David Yeates, CSIRO Australian National Insect Collection, ESA 2017

Gail Kampmeier, MS 1984. Although retired since 2010 from the Illinois Natural History Survey, which is part of the Prairie Research Institute at the University of Illinois, I remain involved with the Entomological Society of America, co-organizing the Women in Entomology Breakfast, representing SysEB (Systematics, Evolution and Biodiversity) on the Editorial Board of the *Journal of Integrated Pest Management*, and, in 2018, co-organizing and speaking in a member symposium "Leveling the Playing Field: How Entomologists Can Work to Reduce Bias and Create Safe Workplaces." I have also continued to work with Biodiversity Information Standards (TDWG), being co-opted on the TDWG Executive; taking part on the program committees for the 2017 meeting in Ottawa, Canada; the joint SPNHC+TDWG 2018 meeting in Dunedin, NZ (SPNHC is pronounced "spinach" and stands for

Society for the Preservation of Natural History Collections); and for 2019 *biodiversity_next* in Leiden, NL biodiversitynext.org. We also drafted and implemented the first Code of Conduct for both societies for the joint meeting of SPNHC+TDWG. Life is not all professional societies, though. Aside from spending extra days in New Zealand to see the yellow-eyed penguins, Orokonui Ecological Sanctuary, and glow worms, I continue to enjoy home life with my husband, Dan.



Gene at Levantine Rock shelter with the oldest honey bee/human painting

Gene Kritsky, MS 1976 / PhD 1977. The last two years marked considerable changes. After serving as Editor-in-Chief of *American Entomologist* for 15 years, I decided to let someone else have the fun of guiding the magazine. However, my newly found freedom was short-lived, as the Mount appointed me Dean of the School of Behavioral and Natural Sciences within a month after my last issue was published. Now I go to more meetings than I ever thought possible, but it is enjoyable to work with seven departments, great faculty, and hundreds of students. I still maintain an active research and writing program. Jessee and I have been traveling extensively in Europe over the past two years, visiting historical sites of entomological interest. Jessee is the copy editor for *American Entomologist*, in addition to creating insect-inspired jewelry and managing two Etsy shops: SilverspotStudio and SilverspotMetalworks.



Bruce A. McPheron, PhD 1987. I have been back “home” at Ohio State for six years, serving the first three as Vice President for Agricultural Administration and Dean of the College of Food, Agricultural, and Environmental Sciences and the more recent three years in my current role as EVP and Provost. I reference home because OSU is my undergraduate alma mater, and it was through Ohio 4-H at the age of 11 that I first had the inspiration to become an entomologist. My day-to-day focuses on providing leadership to one of the largest and most comprehensive universities in the world. With 68,100 students, about 7,000 faculty, and a combined budget of nearly \$7.5 billion, it takes some looking after! Even so, I still manage to sort some insect specimens from my personal collection and even add a few new taxa, especially when we spend the occasional free weekends in South Carolina. I’m still working on a few manuscripts with former students and postdocs. In 2014, I was elected as a Fellow of AAAS, and this year I had the honor of being elected a Fellow of the ESA, both of which were very humbling. The mentorship and experiences I had at UIUC have certainly been the foundation for any success I’ve had in my career.

My wife, Marilyn, pursues her interests in printmaking and book art at her studio here in Columbus (Phoenix Rising Printmaking Cooperative). Many old-timers will remember our son, Neale, particularly for his questions to the speakers in the weekly department seminar through the mid-80s. He is now a Chief Petty Officer (AWRC) in the US Navy, serving as a tactical helicopter crewman and weapons and tactics instructor. He, his wife, and our two grandchildren live in San Diego – a now-frequent destination for Marilyn and me. Our daughter, Brenna, lives here in Columbus and is adding graphic design skills to her photography training from our quarter century at Penn State. Columbus has been a wonderful place to live. Witness the fact that my department chair (she says, my boss) is UIUC alumna Carol Anelli. When we bring together friends, we can count on UIUC alumni Susan Fisher, David Courtney Smith, and Steven Passoa to join us. Dave Denlinger, with his UIUC connections, still checks in when he’s in town (less frequently since his retirement from Ohio State).



Tom Moore, BS 1951, MS 1952, PhD 1956. My wife, Ellie, passed away in March of 2016. I now live alone except for a long-haired male cat named Bert. We are down to one old, lame gelding at the barn, who is no longer ridden. I no longer bring in hay from our fields, but I do spread manure and plow snow. Last year I went to Syracuse, NY, to check out a population of 17-year cicadas there (Brood VII) with Dave Wohlers. I am looking forward to fieldwork on Brood X of 17-year cicadas in 2021. Brood X includes large populations of all three species of 17-year cicadas, and has the broadest distribution of any 17-year brood, involving at least 16 states and the Province of Quebec in Canada—including areas of Illinois and Michigan. I doubt I’ll be checking all sites. I still maintain a Lake Huron summer vacation home on Manitoulin Island, Ontario, and enjoy power-boating on the Great Lakes.



Lance Peterson, PhD 1968. I remain very active since my retirement in 2000. My wife, Jan, and I love to travel, enjoy ballroom dancing, and are active in our church music program. I sing with two choirs and a Barbershop group and do occasional musical programs with my wife, her flute, and a pianist friend. I currently serve on the Board of Directors for the Tallahassee Symphony Orchestra. Following my retirement, I began wood carving as a hobby, and have expanded that to instructing in two local carving clubs. Jan and I have 10 grandchildren and each one receives a hand-carved ornament every Christmas. All in all, life is good!



Peter Price. The new Newsletter provides an opportunity to correct the 2015-2016 edition, which showed Gene Kritsky against a picture of Maureen and me in the San Francisco Peaks – no doubt puzzling to many readers. But we still hike up there and enjoy the outdoors. This June we also hiked in Denali National Park, enjoying all the lakes, rivers, rain and puddles after leaving a parched Arizona. We celebrated our 50th wedding anniversary and my 80th birthday.

I am spending 8 hours a week volunteering at the Museum of Northern Arizona (MNA) here in Flagstaff, working on curation of the insect collection. There I am also collaborating with Gary Alpert (see Antwiki web site), an ant specialist and expert photographer, to write a semi-popular life history of the arroyo willow shoot-galling sawfly, *Euura lasiolepis*, with images of the sawfly adults, immatures, parasitoids and galls. This is aimed at promoting interests in the study of galls and life histories of insects. We are both research associates at the Museum.



Nathan Schiff, PhD 1988, & Ellen Green, PhD 2000. Welcome from Mississippi. I calculate it's been 30 years since I left Illinois and probably almost 20 since Ellen graduated. Where does the time go? We have had a busy year. Ellen is now head of STEM at Delta State with about 25 faculty and Nathan is still making house-calls on dead trees for the Forest Service. This summer, we visited Nathan's family in California, where we hugged really big trees in Sequoia, admired rocks in Yosemite (10 days before the fire) and saw how the other half lived at Hearst Castle. It was a wonderful trip but I think the most amazing sight was probably the elephant seals on the beach at Piedras Blancas. If you have never seen them they are worth your time. We also visited Ellen's family in Chicago and Nathan saw a tayra and a couple of rheas while collecting in Paraguay. We still have a spare room so, if you wander down this way, give us a call.



Tom Schmeelk, MS 2015. It feels like it's been a lot longer than 3.5 years since I graduated. Many things have happened since then including publishing my master's thesis in the *Journal of Economic Entomology* in 2016. After moving back to NY in July 2015, I was hired by the NYS Department of Environmental Conservation in their Forest Health division as an Entomological Assistant. Job responsibilities consisted of everything from felling trees for southern pine beetle management to diagnostic work for various trapping surveys and field experiments. This past September I made the difficult decision to move my little life out of NY to take a Forest Entomologist position with the Maine Forest Service based out of Augusta. My projects include browntail moth, winter moth, light trapping for various defoliating Lepidoptera, and curating the Maine state insect collection. The lobster and New England accents are plentiful and everyone is very welcoming. I miss my UIUC family very much and hope everyone is enjoying life as much as I am; my door is always open to you guys.



Bayon Temple near Angkor Wat, Cambodia

Alan Schroeder, PhD 1990. (from an email June 28, 2017, in response to an email invitation to visit as the 2017 Entomology Distinguished Alumni speaker). You got me in Fada-N'gourma, in the southwest of Burkina Faso, on the most auspicious of days—my birthday! Lived in Ouagadougou for 7 months in 1992, so coming back to Burkina Faso is like coming home. And, my French has a nice Burkinabe accent (it is the only French I can hear and understand clearly). Would like to do my talk in honor of Dr. Metcalf, who inspired my unusual career in international IPM. As a note of interest, Hengchen Lin, whose birthday was 3 days ago, was my inspiration to get an Executive

MBA. UI, particularly the people I met there, left me with many inspirations... When not on international travel, I spend time living in Belgium; my fiancée, Dr. Sonia Ortega, is NSF's Science Representative to our Embassy to the EU. So that is where I spend a good part of the year, with Sonia in Brussels, when not dodging Schengen visa rules.



King Timur's Mausoleum in Samarkand, Uzbekistan



Bruce and Diane Stanley and sister-in-law, Joanne, atop Turtle Mound

Bruce Stanley, MS 1982. It's hard to believe that I have now been retired for 5 years. Diane and I sold our farmette in Upstate NY and are now snowbirds alternating between NJ and FL. I have recently donated my insect collections to the "Bug Closet" at my undergraduate alma mater, University of Central Florida. I often reminisce fondly of my time as a student at the UIUC, and I am grateful for the wonderful awakening to the world of entomology that provided me with a profession and an expanded appreciation of nature. Thank you, and I look forward to watching the department continue to blossom in the years to come.



Mark Sturtevant, MS 1988 / PhD 1991. Life and work continue as normal, but one interesting detail is that I have become VERY interested in insect macrophotography. This has met with some success, as evidenced by my recent inclusion in the 2018 World of Insects Calendar from the Entomological Society of America (I am 'October'). The included picture is to show how strange I looked on a recent trip to Maui (the visit was amazing, of course). I am carrying a DSLR camera equipped with a macro lens, dual flash heads, and a really big diffuser. Those who know the hobby will understand. If anyone wishes to see insect pictures, you can find me in Flickr (<https://www.flickr.com/photos/87421607@N04/>) and also at <https://www.oakland.edu/biology/>.



Enjoying the Chateau at Amboise!

John Tooker, MS 1999 / PhD 2003. Hi, all. All is good here in the Dept. of Entomology at Penn State. Work is fun because our department is full of great students and engaging colleagues, including Illinois products like Andy Deans, Harland Patch, Heather Hines, and Christina Grozinger. My lab continues to study plant-insect and tri-trophic interactions in agricultural systems. We are also pursuing some IPM-based projects and even a farming system project, which are great topics for extension talks. Last year I was fortunate enough to receive a Fulbright Fellowship to spend six months in Tours, France, for a sabbatical visit with my family and great colleagues at L'Institut de Recherche sur la Biologie de l'Insecte (IRBI). The pace of life in France is pretty great!

Adam Wallner, MS 2002 / PhD 2010. Working as an entomology identifier at the Miami Port for the past 5 years has been a fun, constantly challenging experience. The latter description is especially true since Miami is one of the busiest ports in the United States, importing everything from cut flowers and fruits to automobile parts from South America, South Africa, and China, to name just a few places. Because of my background in Hemiptera, especially Auchenorrhyncha, I have had bestowed on me the responsibility of curating the collection of this diverse group of insects for the Miami Port Entomology Collection; identifying these insects, many of which are new national pests, usually to species from numerous commodities; keeping up with current literature; and conducting my own research in Auchenorrhyncha taxonomy and systematics with specialists from the United States and South Africa. To add to this workload, I am now a national co-lateral specialist of Heteroptera. Duties for this position include but are not limited to identifying these economically important insects from all United States ports east of the Mississippi River and providing invaluable information of these identifications to other identifiers. Some of this information includes possible host plants, distribution, and diagnostic characters. In addition to these responsibilities, I have been collaborating with other heteropterists both near and abroad. Some of these research projects include publishing taxonomic keys and cladistic analysis of select groups of Heteroptera families, tribes and genera. In short, I have become a poor-man's Linnavuori, so the sky's the limit for me. Cheers!



Phillip Watson, PhD 1979. I received my PhD from the University of Illinois (Entomology). My BS was in Biology and Chemistry and my MS was in Zoology (mosquito ecology).

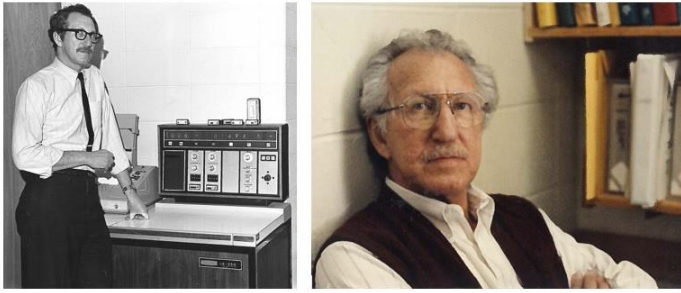
I have been a tenured professor, department head, researcher, teaching abroad leader, forensic science program head and academic advisor to BS, MSc and PhD students in my 40 years of experiences. I hold Professor Emeritus status from Ferris State University, Big Rapids, Michigan, where I taught for 30 years. My last position before Palm Beach State College (PBSC) was Chair of Biological Sciences at Qatar University in Doha, Qatar, where I am still an advisor to PhD students.

I have taught ecological, entomological, forensic and general biology courses. My research interest is ecology and diversity of insects in various biomes of the world and forensic entomology. I have visited and / or conducted research in over 50 foreign countries, have received 2 Senior Fulbright Fellowships, and have also been employed as a professor and researcher at 3 foreign universities for periods of 1 to 4 years (University of Botswana: Gabarone, Botswana; Ang Giang University: Long Xuyen, Vietnam; and Qatar University: Doha, Qatar).

I have recently relocated to Jupiter, Florida, and am now teaching at PBSC.

OBITUARIES 2017-2018

Stanley Friedman [<https://blogs.illinois.edu/view/6367/522525>]



Stanley Friedman, 91, of Urbana, died June 16, 2017. Stanley had a decades-long association with UIUC, graduating with a BA in 1948, returning to work as a research associate in Entomology with Gottfried Fraenkel and then postdoctoral associate in 1952-58, coming back again after six years at Purdue to join the Entomology faculty, where he stayed until he retired in 1992. Beginning in 1976, he served as the head of the entomology department for 17 years, before retiring as an emeritus professor.

May Berenbaum, the current head of the department of entomology, wrote: “The UIUC entomology community lost one of its most cherished members A groundbreaking contributor in the field of insect nutritional physiology, he was appointed head of the Department of Entomology in 1976 and served until he retired in 1992. During his tenure, the department hired Stewart Berlocher, Fred Delcomyn, Barry Miller, Hugh Robertson, Gene Robinson, Susan Fahrback and me – he was enormously influential in making the department what it is today and he was my model and inspiration for serving as head. Whatever you think I might do well in the position, it’s likely the result of Stanley’s influence. For as long as I’d known him (more than 37 years), Stanley was always open to new ideas, invariably fair-minded, scrupulously honest, funny in a smart and understated way and kind, thoughtful and devoted as a friend. ... May his memory be a blessing to all who knew him.”

A Celebration of the Life of Stanley Friedman

Stanley Friedman - A Life in Science

The Department of Entomology, University of Illinois at Urbana-Champaign, hosted a memorial on September 18, 2017, in honor of Stanley Friedman (December 11, 1925–June 16, 2017). Stanley was a research associate here for 3.5 years from 1952–1956. He then returned as a faculty member from 1964–1992 and was an integral part of the Department providing a warm, wise anchor for students, faculty, and staff for some 28 years. During his 17-year tenure as Head, he successfully steered the Department through challenges to the organization and future of the Department, and also served as Acting Director of the School of Life Sciences during difficult times. Stanley regarded the education of students who have gone on to significant careers, and in particular the hiring of a series of faculty who are responsible for the current high ranking of the Department, as the crown jewels of his career. Yet Stanley was also a scientist who did much important work in insect physiology, including work on sugar metabolism, vitamins, and dietary self-selection.

On September 18, 2017, expressions of appreciation of Stanley Friedman from current and past faculty and students as well as family members and others in attendance were portrayed during a memorial service and reception in his honor in the Charles G. Miller Auditorium (B102 Chemical and Life Sciences Building). Remembrances from those who could not attend are written below.

Remembrances:

Gail Kampmeier (UIUC Alumna):

I am very thankful for the advice and candor of Dr. Friedman in steering me towards the Illinois Natural History Survey for a student job in entomology. His support of students, even unconventional ones like me, was much appreciated.

Robert (Bert) Clegern (UIUC Alumnus):

It was my pleasure and honor to attend the U. of I Department of Entomology during 1965-66 for my Masters, and 1969-72 for my Doctorate under Dr. Bob Metcalf. I was truly impressed with Stan Friedman for his knowledge, kindness, directness, and wisdom. Studying Insect Physiology under Drs. Friedman, Willis, and Fraenkel was, I am sure, unequalled anywhere else in the world. We have lost a brilliant mind and kind soul.

Diana Jaher (Friend of Stanley's):

Stan, Fran, and my father, Fred Jaher, were long-time friends. They, along with Diane and Fred Gottheil, Fanny Bryan, and Loretta and Ed Dessen had drinks/dinner every Friday night for years. He and my father shared an endless love of sports. I would attend these dinners occasionally and always loved speaking with Stanley, whose memories of CU from the '40s were fascinating. He had a kind heart, a social conscience, and a sense of humor. Equally important, he and I shared the same large-sized sweet tooth and inevitably split the sugariest, chocolatiest dessert on the menu, while everyone else had something more sensible, like coffee. Sadly, Stan, Fran, Fred, Ed, and my father are gone now. Diane and I, and sometimes Loretta and

Fanny (when she's in town) still go out on Friday nights, but we do -- and will always -- miss those who can no longer be with us.

Mark Sturtevant (UIUC Alumnus):

I will remember Stan's kindness and wisdom.

Bruce Stanley (UIUC Alumnus):

Thank you Professor Friedman. I am a better man for having known you. You taught me how to see an insect as just another being trying to make its way through life. And, I am certain that there has been a part of you in all of the better decisions I have made during my professional career. Your legacy will endure. With thanks and celebration of a life well lived, Bruce H. Stanley, PhD.

Lisa Carloye (Former Student of Dr. Friedman's):

Stanley holds a special place in my life - as his last graduate student, I was lucky to have him as my first introduction to research science. It took me awhile to get used to the long pauses that often preceded his thoughtful answers to my questions but he always made me feel at ease with that twinkle in his eye and warm smile. In Stanley's lab, I had my first introduction to HPLC and, only after discovering that other people actually bought shiny new equipment did I realize that Stanley was a do-it-yourself kind of guy. The machine I learned on was of his own creation, rigged up from parts scavenged from other machines. Who needs autoinjectors? Not us! Just set a timer and run back to the lab to inject the next sample. Stanley was a very special person. When I think of him, I think of a man of integrity, humor, warmth, and creativity. He will be missed.

David L. Denlinger (UIUC Alumnus):

I regret that I am unable to attend the tribute for Stanley Friedman, but let me take a few moments to reflect on his impact on my life. Stanley was a relatively young faculty member when I entered Graduate School at Illinois in 1967, and frankly, I found him a bit intimidating, at least at first. He towered over me, and it was clear that he was really bright and had high expectations of his students. At that time, I did not anticipate going on to a career in insect physiology and biochemistry, so I viewed his field as being a bit tangential to my own interests. I assumed I would be an ecologist or something along those lines. For me, it was great that Illinois did not require incoming students to already have figured out what they wanted to do with their lives! But, with a few years under my graduate student belt, Stanley became a treasured mentor. He listened, he thought deeply, and was most willing to share his valuable insights. And, he cared about students, even those of us who were not working directly under his guidance. By the time I was finishing my degree in 1971, the job market had really shut down and there were few openings for entomologists. In spite of these tough times, I was offered a pretty good job, but, at age 25, I wasn't quite ready to jump into the conventional work force. I really wanted to see the world and especially to spend some time in Africa. When my advisors, Judy Willis and Gottfried Fraenkel, told Stanley that I was possibly going to decline the job offer, he told them that they MUST NOT let me decline that good offer. Judy and Gottfried only told me that story much later, but when I returned to Illinois to give a seminar on my work in Africa, Stanley seemed to approve of my decision to gamble with my life. Although I didn't always take his advice he was consistently a great sounding board for new ideas and dreams.

Craig Reid (UIUC Alumnus):

When Dr. Friedman pushed to hire me to be a TA for Biology 110-111, he shared that he heard I was a funny teacher regardless of the course I was TAing and that students reacted well to it. When he asked me how did I do it, I riffed off a bunch of biology jokes, he couldn't stop laughing. Since that day, we'd chat in his office twice a year and he'd ask me about some touchy subjects, he'd listen intently, nod, look at me with that big mellow smile of his and say, "You're very diplomatic in the way you handle and discuss things, ever thought of getting into school administration?" I answered, "As you know, part of my strength in entomology is pest management...so I am good with kids." He laughed and said, "You're hired."

Peter Price (Former UIUC Faculty):

Stanley was an honorable man: he had my greatest respect - a gentle friend, a sound administrator, softly spoken and a deeply committed scientist.

Art Weis (UIUC Alumnus):

Stanley has been a role model for my academic career. His life demonstrated the power in following a few rules: say it simply; listen carefully; be forthright; be skeptical; be neither stingy nor overboard with praise; be respectful when you disagree; see the humour in the situation. Although I have often fallen short, I have striven to follow his example in the classroom, laboratory and the meeting room. He will be missed.

Ed Cupp (UIUC Alumnus):

Stan Friedman was a calming, erudite figure in the classroom and hallways of Morrill Hall and yes – a “player” on the basketball court where he occasionally joined a pickup game with members of the Entomology grad student intramural team led by clever playmaker Frank Chang. Stan was one of us only on a higher level – a graduate student “whisperer” who inspired while assuring us as Ph.D. wannabes that we would eventually succeed. He emulated “Keep Calm and Carry On” before it crossed the Atlantic and became a commercialized phrase in the USA lexicon. I really didn't know Stan very well until I took Insect Physiology, a course he and Joe Larsen team-taught, but immediately liked both the course content and

particularly Stan's lecture delivery which was calibrated with carefully chosen words and phrases. His favorite opening phrase when answering a question regarding a complex physiological issue was "One would expect" or "One would know." This 3rd person preamble gave the answer clinical credibility and, not surprisingly, instantly became part of the graduate student lingo regarding almost any issue, including Illini sports. Imitation is the sincerest form of flattery. The Insect Physiology labs were based on reports in peer-reviewed journals and each student team had to choose and repeat an experiment and then prepare all the materials for the class and lead them in duplicating the published report. Stan and Joe were always there to help and encourage but allow student independence. I have reflected over the years how well the knowledge and experience gained from that course helped me and can only say, "Thanks Stan, well done and much appreciated. I always wanted to teach as well as you and be part of the learning fellowship you so fully exemplified". Ed Cupp, Ph.D. Class of 1969

Mike Toliver (UIUC Alumni):

Stanley was a great mentor. When I was hired to teach Insect Ecology for a semester, he was a crucial adviser as I dealt with some difficult issues. As a graduate student, I always felt his guiding hand. He was one of the wisest persons I ever knew.

Andrew (Andy) Chen (Former Student of Dr. Friedman's):

Dr. Friedman, as I always addressed him until much later in life, was an outstanding intellect, scientist, mentor and human being. I was very fortunate to have had him as my major professor during my graduate years at Illinois, 1970 - 1976. He was always honest, straight-forward, thorough with high standards and ethics. He had a tremendous impact on my professional career in never compromising quality of research. I wish him peace.

Intan Ahmad (Former Student of Dr. Friedman's):

As a new student from Indonesia in August 1986, I was very lucky to have Dr. Friedman as my academic advisor (at that time he was the Head of Department, and at every end of semester I would see him to discuss my academic situation), and later as my PhD advisor together with Dr. Gil Waldbauer, until my PhD defense on March 1992. He taught me not to give on myself, to work hard-very hard (I did not pass the prelims on my first attempt and had some problems with ENT 302). It is paying off now, I am now a full professor of Entomology at Bandung Institute of Technology, Indonesia, and also since 2015 as Director General of Learning and Students Affairs, Ministry of Research, Technology and Higher Education. Frankly, without Dr. Friedman's constant encouragement and guidance, I would not be where I am now. Thanks, a lot Dr. Friedman, you're my inspiration. Another thing, I do not know why, but actually on 25 or 26 June 2017, I somehow remembered him, and google the internet, and I found out that he passed away on June 16, 2017. RIP Dr. Friedman

Christine Wagener (UIUC Alumni):

Dr Friedman taught me that the essence of graduate study was "to learn how to do good science." Knowing this, I felt I never wavered in my decision to come back to Illinois for graduate work, to study under Gene Robinson, and to learn from the faculty that was present in the 90's. Regretfully (and sincerely), Christine M Wagener

(Memorial contributions may be made to the Josh Gottheil Memorial Fund for Lymphoma Research or to the Department of Entomology in his name [go to <http://sib.illinois.edu/alumni/donations/>, select Entomology Annual Fund under Department of Entomology, and on the payment page, under Additional Instructions, note that the donation is in honor of Stanley Friedman.]

Mary Lou Criss Barker [<http://www.legacy.com/obituaries/tucson/obituary.aspx?pid=186844014>]

"**Mary Lou Criss Barker**, of Tucson, Arizona, passed away on Friday, September 29, 2017. She was born on June 20, 1931, at home in Roanoke, Virginia, to the late Fred Grant Criss and Mary Ruth Bowers Criss. She was preceded in death by her husband of 42 years, Roy Jean Barker and her brother, John Frederick Criss. Mary Lou is survived by a nephew, Ricky Criss (Rhonda); two nieces, Julie Criss Ardis (David) and Amy Criss Longabach (Tucker); a stepson, Jeffrey Scott Barker (Carol); step-grandchildren, Steven Craig Barker and Carolyn Valery Barker; grandnieces and nephews, Nicholas Ardis, Natalie Ardis, Jacob Criss, Holly Criss, Rachael Longabach and Ashley Longabach and cousins, John Bowers, Becky Bowers Lambert, Kathy Pillis Talley, Lewis Pillis, Peggy Marshall Fitzgerald, Pam Davis Bauer and Joe Davis. Her cousin, William Pillis predeceased her. Mary Lou graduated from William Fleming High School (Roanoke, VA) in 1949. Due to her love for Home Economics, she majored in Home Economics, receiving her Bachelor of Science in 1953 from Madison University (now James Madison University) in Harrisonburg, VA. She also received a Master's degree in Deaf Education, signed by Lyndon B. Johnson, from Washington D.C.'s Gallaudet College. After college, she taught at the Virginia School for the Deaf and Blind in Staunton, VA, before moving to California and then to Tucson. To complete her Arizona teaching certificate, she attended University of Arizona in the graduate department. Most of her teaching career was spent working with hearing-impaired students, teaching the academic subjects needed for life skills at Arizona School for the Deaf and Blind in Tucson. She also taught music classes for TUSD (Tucson Unified School District) after receiving training in Orff instruments. She was a

member of Our Savior's Lutheran Church, Tucson, AZ, where she enjoyed playing the organ, quilting, sewing, and Bible studies. Because of her love for music and helping others, she shared her musical talent at various churches for receptions, funerals, association meetings and programs. She also served as Music Chair for Church Women United and was a member of the Southern Arizona chapter American Guild of Organists. Mary Lou helped neighbors in her community by reading to children, taking homemade soup to sick friends, and delivering groceries to shut-ins. She was a member of Tucson Quilters Guild and donated quilts and knitted caps for outreach. She also strongly supported two ELCA charities, World Hunger and World Relief. Mary Lou and her late husband, Roy endowed the Kearns, Metcalf and Flint Chair in Insect Toxicology at the University of Illinois, Roy's alma mater. Other interests included photographing many subjects, making cards out of her photographs. She enjoyed being outdoors, experiencing and observing nature, especially trees. She truly loved life, enjoying new things and exploring the world around her both far and near. Mary Lou was a world traveler and traveled to many places including Europe, Canada, and Mexico. Mary Lou loved the Lord from her time growing up at St. Mark's Lutheran Church in Roanoke, continuing through to her involvement with many ministries at Our Savior's Lutheran Church, and with the ELCA. Her generosity touched many people due to her willingness to help anyone in need. The family would like to thank the caregivers and staff at Sunlife HomeCare and Atria Campana for their love, care, and devotion to Mary Lou during her last years. The family will receive friends from 10:30 a.m. - 11:30 a.m. on Monday, October 9, 2017 at Our Savior's Lutheran Church, Tucson, with the Celebration service of Mary Lou's life immediately following at 11:30 a.m. After the service, the family will continue to receive friends at the church. Arrangements by HUDGEL'S SWAN FUNERAL HOME. In lieu of flowers, donations can be made to the ELCA World Hunger or World Relief Fund or to Our Savior's Lutheran Church Memorial Fund.”



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A heartfelt and emphatic “Thank you!!” to our alumni supporters and friends—we really appreciate your generosity!

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*The Fred H. Schmidt summer award, endowed by his niece and nephew, Margaret and Ed Larsen, commemorates alumnus Fred H. Schmidt, who received a BS degree in 1957 and a master’s degree in entomology here in 1959.

**William H. and Jantorn B. Rufener Endowment Fund for Entomology was established to support students and educational programs in the Department of Entomology.

***Donation to name the Entomology Collections Room in the newly renovated Natural History Building after his father, Dr. Herbert Holdsworth Ross.

(If you gave a donation to the Department of Entomology from 1/1/2017-12/31/2018 and your name is not listed here, please forgive us. Every effort was made to try to obtain a complete list. If you contact us, we will be sure to include your name in the next issue.)

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