

Entomology

Newsletter 2021-2022



(Elderberry Borer, *Desmocerus palliatus* (Forster, 1771), courtesy of Phillip Hogan)



Department of Entomology
University of Illinois Urbana-Champaign

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MESSAGE FROM THE HEAD



It's a joy to celebrate the arrival of 2023, at least in part because it's no longer 2021 or 2022. First, to address the elephant louse in the room (*Haematomyzus elephantis*), yes, 2021 and 2022 were challenging, with a COVID-19 pandemic wrapped in an infodemic of science denial and tied up with a ribbon of global political unrest and climate irregularities. Beginning in Spring 2021, unrelenting uncertainty set in due to COVID-related whip-lashing changes in campus policies regarding just about every aspect of academic life at UIUC and made planning ahead for more than about a week and a half essentially impossible. Fortunately, strict campus policies about testing reduced to some degree the impact of the virus and in 2021 the major challenge was finding creative alternative ways to carry out our regular research and social activities, taking into account social distancing, reliance on Zoom, and supply chain unpredictability. To welcome new students in Fall 2021, we had a face-to-face outdoor reception and mixer (catered by the local company Just Bee Acai, bringing along a ready-made apian tie-in); for the virtual mixer held in association with the hybrid 2021 Entomological Society of America, we had to skip the chocolate fountain, a perennial favorite at face-to-face mixers, but we did have an interactive virtual international Insect Apocalypse quiz bowl (which included at least a few of the dozen or so insect species named that year after the virus, the pandemic, or the quarantine—e.g., the staphylinids *Achilia pandemica*, *A. covidia*, and *A. quarantena*, Kurbatov et al. 2021). The indoor fall holiday party featured a "collecting trip" organized around wrapped insect-themed candies identified to order, and in the second half of Spring 2021 face-to-face weekly colloquia returned. February 2021 also featured our first virtual insect fear film festival, organized around the theme of fleas, covering 100 years of short films about members of the Siphonaptera, along with regular guest ventriloquist Hannah Leskosky, who appeared virtually with her talking dog and his talking flea as well special guest Dr. Tim Cockerill from Falmouth University in England, flea circus impresario and natural historian par excellence.

A definite highlight of 2021-2022 was receiving permission to recruit two new faculty members, one to replace the systematics expertise of the retiring Sydney Cameron and Jim Whitfield, and the other to fill the Kearns Metcalf and Flint Endowed Chair of Insect Toxicology, vacated by Barry Pittendrigh in 2016. We garnered the support of LAS to continue several unsuccessful efforts to fill our Endowed Chair in Insect Toxicology. We were wildly successful in bringing Dominic Evangelista to campus in January 2023, fresh from Adelphi University and arranging to bring in Dr. Xuguo "Joe" Zhou, from University of Kentucky, as our new Endowed Chair-holder in December 2023. Both bring genomic and molecular expertise and both coincidentally work on Blattodea—cockroaches for Dominic and termites for Joe. In February 2022, having mastered the virtual world, we held our second online IFFF, this time focused on venomous arthropods, a theme better suited for online than for face-to-face; virtual delivery spared us the necessity of figuring out just how to run an in-person venomous arthropod petting zoo. Special guest Justin Schmidt, creator of the famed Schmidt pain index, visited virtually and gave a fascinating presentation recounting his personal experiences with being stung by 150 species of insects.

The beginning of Fall 2022 marked my 42nd year at UIUC and my 30th year as Department Head, having broken the campus record (for endurance?) set by Clell Metcalf (26 years as Head) back in 2018. I was a little unsettled when I inadvertently learned last year that Edith Patch logged 33 years (1904 to 1937) as head of the Department of Entomology at the University of Maine. I would have loved to have had the chance to talk to her about her endurance (given the fact that in 1904 women in entomology were so little-valued that she was offered no salary to take the job), but she died in 1954, a year after I was born. I'm guessing, though, that she stayed in the job because she enjoyed her colleagues and students so much—if so, that's certainly a sentiment I can relate to!

FACULTY AWARDS AND RECOGNITION

External Recognition – 2020-2022

Our junior faculty were very successful by objective criteria in beginning their independent careers. In 2019-20, Esther Ngumbi transitioned from Ethnic Studies postdoctoral associate to tenure-track faculty as did Marianne Alleyne, a non-tenure track research scientist on a longtime nontraditional career path. In AY2021-22, both received national attention, with Ngumbi winning the Mani Bhaumik Award for Public Engagement from the American Association for the Advancement of Science (the largest scientific society in the world) and, in November 2021, the Campus Award for Excellence in Public Engagement. Alleyne was elected as 2022 President of the Entomological Society of America (the largest entomological society in the world and served as Vice-President during AY2021-22 and President beginning November 2022, very likely the first Assistant Professor to serve in that capacity). Both have also moved into mentorship roles themselves already; Ngumbi, e.g., was named College of LAS James Scholar Honors Faculty Mentor of the Year and Alleyne served as an instructor for the Mentoring Matters@Illinois Workshop Series offered by the Office of the Provost in Spring 2021. Moreover, as Entomological Society of America Vice President (and part of that society's first all-female leadership team), she created a video Q&A on leadership opportunities for women in insect science and attended the annual meeting of the Association of 1890 Research Directors (the federation of the 19 autonomous 1890 land grant universities) in an effort to make students and faculty at MRI and HBCUs (Historically Black Colleges and Universities) aware of the opportunities provided by ESA. Due to her leadership experiences through ESA, she was invited to join the Illinois Global Institute on campus and participated in several forums organized by the group.

Other faculty continue to earn recognition and to assume leadership positions within the scientific enterprise. Gene Robinson was elected to serve on the Council of the National Academy of Sciences and, as well, was selected to represent the NAS Council on the Governing Board Executive Committee of NASEM (National Academies of Science, Engineering, and Medicine). In 2018, Assistant Professor Adam Dolezal developed the “Illinois Pollinator Friendly Solar Scorecard” for use by solar developers around the state to mandate minimum requirements for pollinator habitat in ‘pollinator friendly’ solar arrays (advising on language for SB3214, which was passed). This continuing work involves collaboration with Fresh Energy, an independent non-profit working toward solar implementation, and the Environmental Law and Policy Center. He also advises the Illinois Monarch Project as part of its Science Committee, helping organize best practices for mowing and other management practices in rights of way to conserve habitat. May Berenbaum received two honorary degrees—one from University of Ottawa in Canada in 2021 and the other from the University of Liège in Belgium in 2022.

Books Published – 2020-2022

May Berenbaum coedited and contributed three chapters, a prologue, and epilogue to Ridsdill-Smith, J., M.

Whitten, P. Weintraub, M.R. Berenbaum 2022. *An Important and Victorious Science: the International Congresses of Entomology*. Washington (DC): Thomas Say. July 1, 2022.

On February 23, 2021, with coauthor Alexander Purcell, Professor Jim Whitfield published the fourth edition of *Daly and Doyen's Introduction to Insect Biology and Diversity* (Oxford University Press).

On July 9, 2021, Emeritus Professor Fred Delcomyn, with coauthor Jamie Ellis, published *A Backyard Prairie: The Hidden Beauty of Tallgrass and Wildflowers* (Southern Illinois University Press).

James Nardi published his sixth book, *The Hidden Company That Trees Keep; Life from Treetops to Root Tips*, on February 7, 2023 (Princeton University Press).



Brian Allan's Bookplate Reception

Bookplate Receptions celebrate awarding of tenure and/or promotion of UIUC faculty by inviting them to elect a book for the University Library; the book is then book-plated in their honor and remains in the Library as a reminder of the outstanding achievements of UIUC faculty. Brian selected *Stream Ecology: Structure and Function of Running Waters*, written by his father J. David Allan and two coauthors, now (2022) in its third edition (Springer).

ALUMNI AWARDS AND RECOGNITION

Dr. Carol M. Anelli, professor in the Department of Entomology and the Honors & Scholars Program at the Ohio State University (OSU), was elected ESA Fellow in 2020. Anelli is known for her leadership in teaching and pedagogy and her contributions to the history of entomology. She has been extensively recognized for her teaching excellence.



Anelli grew up in Waterbury, Connecticut, spending many childhood days in the woods and meadows around her home. The natural environs sparked her interest in insects, as did the caterpillars she found nearby and in her father's garden, which she reared to adulthood in her mother's canning jars. Anelli earned her B.A. degree in biology from Southern Connecticut State University. After four years as a research technician at Yale University Medical School, she entered graduate school at the University of Illinois at Urbana-Champaign (UIUC), earning her M.S. and Ph.D. degrees under the patient tutelage of Dr. Stanley Friedman. As a teaching assistant at UIUC, Anelli was frequently named on the List of Teachers Rated Excellent by Their Students. After two postdoctoral positions at USDA-ARS in Beltsville, Maryland, and another at NIH in Bethesda, Maryland, she accepted a position as assistant professor in the Biology Department at the University of Scranton, but soon joined the entomology faculty at Washington State University (WSU), Pullman, where she advanced to full professor. As inaugural chair of WSU President's Teaching Academy, she worked with Academy members, upper administration, and Faculty Senate leadership to elevate the professionalism of teaching and transform WSU's general education program. She presented the 2009 WSU convocation keynote address and was honored with the Faculty Library Excellence Award, the Marian E. Smith Achievement Award for meritorious teaching, and the Sahlin Award for instruction, WSU's highest teaching award. She served as Faculty Fellow in the Office of Assessment of Teaching and Learning, Honors College thesis director, and Honors College associate dean. In 2013, Anelli became professor and associate chair of entomology at OSU and subsequently served as interim chair of the department for more than three years.

Anelli received ESA's Distinguished Achievement Award in Teaching in 2009 and, having been nominated by ESA's Early Career Professional Committee, presented the 2017 ESA Founders' Memorial Lecture honoring Anna Botsford Comstock, making ESA history as both parties were female. She has served ESA as a two-term member of the Governing Board, Governing Board Executive Committee member, chair of Section B, program co-chair, and in various committee assignments. <https://entsoc.org/fellows/anelli>

Hoogstraal Award

The Harry Hoogstraal Medal for Outstanding Achievement in Medical Entomology was established in 1987 to recognize the most influential medical entomologists for their contributions to their field. This award is named in honor of Dr. Harry Hoogstraal whose contributions to systematics of medically important arthropods and the diseases they carry are vast. He was described as "the greatest authority on ticks and tickborne diseases who ever lived," and his scientific curiosity and passion for increasing the description of arthropods from remote areas (Philippines, Dutch New Guinea, Mexico, Madagascar, Egypt) led him to describe a mind-blowing number of novel mosquito and tick species. During his lifetime he authored or co-authored more than 500 publications and directed the translation of over 1,800 scientific papers and books (German, Japanese, Chinese, Russian). More than 200 species of organisms have been named in honor of Harry Hoogstraal.

Recipient, Year

Ed Cupp, 2022
Auburn University

From Ed Cupp on receiving the American Society of Tropical Medicine and Hygiene. "Recipients are selected by the American Committee of Medical Entomology for their "having made a major impact on advancing the field of medical entomology". Aside from the professional recognition (this is an international award), the Hoogstraal award has special meaning for me. Dr. Hoogstraal was a UIUC graduate (B.A., M.A.) and two other professionals associated with UIUC - Dr. William Horsfall and Dr. George B. Craig - were recipients."

Grozinger receives National Academy's Prize in Food and Agriculture Sciences



Penn State entomologist Christina Grozinger, who studies the factors causing global population declines in honey bees and other pollinators, was named recipient of the 2021 National Academy of Sciences Prize in Food and Agriculture Sciences. **Credit: Courtesy of Christina Grozinger. All Rights Reserved.**

University Park, Pa. – January 21, 2021 Christina Grozinger, Publius Vergilius Maro Professor of Entomology in Penn State's [College of Agricultural Sciences](#), will be honored by the National Academy of Sciences for helping the world understand how to address the crisis of global declines in pollinator populations. The recipient of the Prize in Food and Agriculture Sciences is awarded a medal and a \$100,000 prize. The prize is endowed through gifts from the Foundation for Food and Agriculture Research and the Bill & Melinda Gates Foundation.

<https://www.psu.edu/news/research/story/grozinger-receives-national-academy-prize-food-and-agriculture-sciences/>



FOUNDATION FOR
THE PRESERVATION
OF HONEY BEES, INC.

Researcher of the Year Award is presented to **Dr. Diana Cox-Foster** in recognition of profound contribution and dedication to the field of Apiculture, 2023.

Diana Cox-Foster is an entomologist whose love of insects and especially bees began as a kid in Colorado. With family roots in agriculture and with a love of the outdoors, she began studying insects through the 4H program. She was encouraged to pursue science by her family, with a path forward established by her grandmother who majored in food science and chemistry at Colorado State University.

Diana's education began at CSU, as well. She received a B. S. in Entomology and Zoology at Colorado State University. From CSU, Diana continued a path eastward, getting a M.S. and Ph.D. in Entomology at University of Illinois at

Urbana-Champaign. In Nashville, Diana gained skills in molecular biology as a post-doc at Vanderbilt University. In 1987, Diana joined Penn State University as a faculty member and served as a full professor in entomology and several other degree programs. "I am interested in the co-evolution of insects with their pathogens and parasites and the role the insect immune systems play in this interaction," she once said being interviewed for Beeconomy. In the late 1990's, Diana was able to focus on her love of bees and was one of the first researchers to examine the interactions of honey bees, varroa mites, and viruses. She was quoted: "It was the interplay of the three that fascinated me." It was this research that led to Diana being one of the initial scientists responding to colony collapse disorder in honey bees and becoming co-director of the Colony Collapse Disorder (CCD) working team. She led the efforts to understand what microbes and pathogens were associated with healthy colonies and colonies experiencing CCD and how other factors like varroa, pesticides, and poor nutrition interacted. She saw this research as being critical to understanding the causes of colony loss.

Diana's love of bees has even longer roots in her family. As a kid, she knew that two of her great uncles were beekeepers. For the great-uncle who lived outside of Denver, she had the pleasure of visiting his operation and helping him capture a swarm. For her other great uncle who was in Kenya with USAID and working with farmers, she learned about his efforts to teach bee keeping to the farmers to restore pollination services. It was not until her work on CCD that she learned that her great-great grandfather and grandmother were founding members of the Colorado Honey Producers. Her great grandmother inherited these colonies and became a beekeeper of high regard. Maybe this love of bees is a genetic trait that Diana inherited?

After working on disease and colony losses in honey bees, Diana also began to work on other bee species. All the 4,000 plus species of bees in North America are keystone species in our agricultural and natural ecosystems. To aide in understanding the impact of abiotic and biotic factors on all the bees, Diana transitioned to USDA-ARS in October 2015. Currently, Diana is the research leader at the USDA-ARS-PWA Pollinating Insect-Biology, Management, Systematic Research Unit in Logan, Utah. In that role, she has been involved with studies looking at the interactions of native bees and honey bees in their pollination of plants. In addition, she has been investigating impacts of adjuvants and other agrochemicals on disease and health of bee species. Diana has been active with the North American Pollinator Protection Campaign as co-chair of the Pesticide Education Task Force for many years. This group has helped to develop many materials (available for free online) to help educate applicators, growers, home owners, and others on how to safely use pesticides while protecting the health of bees.

It is an understatement to say that Diana Cox-Foster has continued her family's legacy of exploring the world as a scientist and illuminating a path into the mysteries of honey bees with the hope of providing better management of hives in the future. Her calm reflective approach to research, i.e., what the data tells us as well as what it does not, is a great model for beekeepers and researchers of all ages.

[*The Foundation for the Preservation of Honey Bees is a charitable research and education foundation organized with a mission of preserving and protecting honey bees to ensure a quality food supply and environment. Founder's Award was first awarded in 2014.]

The recipient of the 2022 Outstanding Recent Alumni Award is Dr. Allison Gardner!



Assistant Professor | School of Biology and Ecology, University of Maine

2012 - M.S. Pathobiology, University of Illinois Urbana-Champaign

2015 - M.S. Statistics, University of Illinois Urbana-Champaign

2016 - PhD Entomology, University of Illinois Urbana-Champaign

Dr. Allison Gardner is an assistant professor at the University of Maine, Orono. She earned her PhD in Entomology in 2016, the last of three advanced degrees (MS in Pathobiology, MS in Statistics, and PhD in Entomology) over six years at the University of Illinois Urbana-Champaign. Dr. Gardner has a longstanding interest in the ecology of arthropod (insects, arachnids, and crustaceans) vectors of human diseases. Her research into source reduction has enormous potential to improve environmental quality without compromising vector control.

At the University of Illinois, she studied the effects of multiple interacting environmental factors, including invasive species, changing land use patterns, and water chemistry, on larval stages and their potential impact on risk of disease transmission.

At the University of Maine, she has built on her doctoral work showing the possible use of leaves from terrestrial shrub species for the control of mosquito larvae in stormwater habitats – an "organic" solution to a perennial challenge in pest management. Allison is also the lead PI on an NSF grant to study the invasion of Zika viruses in the Americas, and how mobility and contact networks influence disease spread.

In addition to her research success, Allison has also displayed her versatility as an instructor, teaching in subject areas as broad as general biology for non-majors and as specific as emerging infectious diseases, across formats including lecture-based courses, field courses and online courses. Beyond her ability to integrate within the scientific community, Allison has demonstrated an extraordinary willingness to share her formidable skills to advance public welfare. This willingness is enhanced by her remarkable communication skills. As a graduate student she was a superb teaching assistant and excelled in making statistics comprehensible and useful even for students who are not mathematically inclined.

Allison's combination of research excellence, teaching ability, creative and multidisciplinary approach, and commitment to public health make her an ideal candidate for this year's Outstanding Recent Young Alumni Award. As her nominators shared, "she has applied the skills mastered within these fields (pathobiology, statistics, and entomology) in complementary ways throughout her professional career, achieving notable successes in the multidisciplinary scholarship that characterizes the cutting edge of 21st century science."

Congratulations Allison!

STUDENT NEWS

List of Outstanding Teachers in Entomology Department at UIUC

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

Spring 2021

Nicholas Anderson, Daniel Bush, Kaitlyn (Kat) Coburn*, Charles Dean, Adam Dolezal (202, 432), J. Matthew Flenniken, Edward Hsieh, Esther Ngumbi (496), Kylee Noel*, Andy Suarez (329), Daniel Swanson

Fall 2021

Brian Allan* (230), Miles Arceneaux*, May Berenbaum (546), Carla Cáceres* (362), Kaitlyn (Kat) Coburn*, J. Matthew Flenniken, Anna Grommes-Yeager, Aaron Mleziva, S. Magdalena (Maggie) Murphree, Andy Suarez (430), Sreelakshmi Suresh, Daniel Swanson*, Lincoln Taylor, James Whitfield (468)

Spring 2022

Brian Allan* (361), Miles Arceneaux*, Tristan Barley*, May Berenbaum (526), Carla Cáceres* (199), Kaitlyn (Kat) Coburn, Adam Dolezal (202, 432), Edward Hsieh, Aaron Mleziva, Esther Ngumbi (496), Kylee Noel, Andy Suarez (329), Daniel Swanson

Fall 2022

Miles Arceneaux, Carla Cáceres* (362), Benjamin Chiavini, Erinn Dady, Adam Dolezal (546), Aaron Mleziva, Vincent Prayugo, Andy Suarez* (430), Dan Swanson, Lincoln Taylor, Jonathan Tetlie*

Campus awards

Undergraduate Entomology Research Award – Erinn Dady (2021); Yutao Chen, Bridget Dwyer, and Jacob Tamarri (2022)

Ellis MacLeod/DuPont Award for Outstanding Teaching – Rachel Skinner (2021); Edward Hsieh (2022)

Sharon Gray Memorial Award (Teaching/Mentoring) – Jonathan Tetlie (2022)

John G. & Evelyn Hartman Heiligenstein Outstanding Teaching Assistants – Edward Hsieh (2022)

Herbert Holdsworth Ross Memorial Award – Phillip Hogan, Daniel Swanson, Jacob Tamarri, Jared Thomas, Cariad Williams (2022)

Isabel Norton Award – Nicholas Anderson (2021)

Lebus Graduate Scholar Award – Lincoln Taylor (2021)

Harley J. Van Cleave Research Award – Elizabeth Bello (2021); Sreelakshmi Suresh and Jonathan Tetlie (2022)

William H. Luckmann Award – Emily Struckhoff (2021); Siti Fauziyah (2022)

Francis M. & Harlie M. Clark Summer Fellowship – Edward Hsieh (2022)

Francis M. & Harlie M. Clark Research Support Grants – Kaitlyn (Kat) Coburn, Luke Hearon, and Edward Hsieh (2021); Tristan Barley, Siti Fauziyah, and Lincoln Taylor (2022)

Fred H. Schmidt Summer Scholars Award – Tristan Barley, Charles Dean, Phillip Hogan, Joshua Gibson (2021); Miles Arceneaux, Siti Fauziyah, Sreelakshmi Suresh (2022)

Entomology Summer Stipend Award – Elizabeth Bello, Kaitlyn (Kat) Coburn, Charles Dean, J. Matthew Flenniken, Edward Hsieh (2021); Elizabeth Bello, Kaitlyn (Kat) Coburn, Aaron Mleziva, Sreelakshmi Suresh, Daniel Swanson, (2022)

Graduate College Conference Travel Award – Anna Grommes-Yeager, Phillip Hogan, S. Magdalena (Maggie) Murphree (2021); Miles Arceneaux, Elizabeth Bello, Siti Fauziyah, Edward Hsieh, Jonathan Tetlie (2022)

Graduate College Dissertation Travel Grant – Siti Fauziyah (2021); Elizabeth Bello (2022)

Illinois Distinguished Fellowship – Samantha Mowery (2022)

Graduate College Master's (Diversity) Fellowship – Xavier Alexander (2022)

Beckman Institute Graduate Research Assistantship Fellowship – Elizabeth Bello (2021)

National/international awards for students

Entomological Society of America Annual Meeting

2021 – Scott Clem (1st place–10-minute paper competition), Emily Struckhoff (1st place–student poster competition)

2022 – Tristan Barley (2nd place–student poster competition), Erinn Dady (2nd place–student infographic competition),

Luke Hearon (2nd place–student poster competition), Kylee Noel (2nd place–student poster competition)

Annual Meeting of the Illinois Mosquito and Vector Control Association – Emily Struckhoff (1st place–student presentation competition) (2021)

CDC Southeastern Center of Excellence in Vector Borne Diseases Training Fellowship – Sara Wilson (2021)

AMCA Young Professionals Industry Shadowing Travel Support Program Stipend – Sara Wilson (2022)

POLLINARIUM NEWS 2021 and 2022

By Lesley Deem



After the 2020 pandemic closure, we did not go back to having two full classes at a time at the Pollinarium for elementary school field trips. We have visits for one class at a time and I have been doing outdoor programs at the Pollinarium. I have also been travelling to group meetings around the state and even one in Indiana.

I have been missing the large class groups, but I have also been missing the two main volunteer groups that helped the Pollinarium offer its programs before COVID, the master naturalists and the entomology graduate students.

First, I would like to thank all the master naturalist volunteers over the years for their service. They have helped with grounds upkeep, taking out invasive weeds, planting more native plants and wrangling students during field trips while teaching them about plants and insects. I want to give special thanks to Tess MacNeil who continued to help through COVID until she moved to Texas at the beginning of June 2022. Tess is a lover of native plants and true friend to the bees and other pollinators.

Many of the graduate students that have helped teach the elementary students during class field trips have graduated--thank you for your enthusiasm and help! I am looking forward to some of the new graduate students coming out to catch insects with future school groups. Things started picking up with the warm weather in the spring of 2022. We had an outdoor beekeeping meeting with CEIBA (Central Eastern Illinois Beekeepers Association). Everyone was eager to visit and kick off the beekeeping season. In June, we held several bee blitzes including the annual one during national pollinator week, in conjunction with the Urbana Park district. We found four species of bumble bees at the Pollinarium prairie and three species at Meadowbrook Park near the herb garden.



Tess MacNeil weeding the bee bed at the Pollinarium.



Cope Cumpston attacking the weeds at the front of the Pollinarium.



Bumble bee on thistle at Pollinarium prairie.



Bumble bee on lamb's ear at Meadowbrook Park.



May Berenbaum at BeeBlitz 2022 at Pollinarium.



Sydney Cameron and Michael McKelvey at BeeBlitz 2022 at Pollinarium.



Jackson-Schnyder Nature Preserve
West Terra Haute, IN.

I have been traveling to other sites to talk about pollinators and planting habitat for pollinators. The Ouabache Land Conservancy is managing land in western Indiana that includes patches of prairie they are trying to improve and planting old crop fields back to native habitat, including prairie. I went there to identify bees and butterflies on the prairie walks. I also found some chiggers at one site. I talked about pollinators with several of the Natural Resources Conservation Service (NRCS) Conservation Planners Plant ID training sessions, one near Mt. Vernon, Illinois, and one here at Meadowbrook Park in Urbana. It is encouraging to see people planning and planting conservation acres that includes pollinator habitat.

Planning and planting for pollinators also continues here on campus. I did a presentation on native plants for pollinators to Pam Leiter’s Sustainability Living Learning Community class at Lincoln Avenue Residence Halls to give them ideas of plants to include in the gardens around their residence hall.

I was invited to participate in programs and events the Sierra Club set up to promote monarch conservation and plant habitat for pollinators. Monarch Day was held at the Channing Murray Foundation on campus and included families, school-aged children and UIUC undergraduates. Hands-on projects included making monarch butterfly puppets. Participants could choose to make either a male or female butterfly.



Undergraduate students who preferred a little more colorful monarch.



Elementary students making monarch puppets.

Sugar Grove Nature Center hosted a Nature Trail’s day for the public in September. I was fortunate to share the table with Dr. Ben Sadd (Illinois State University) and a colony of bumble bees for show-and-tell. The kids loved making beaded bees and seeing the live bees.

In early summer there was a storm that tore the rubber sheeting on the roof. A tarp was placed on the roof, but after more storms the roof leaked into the drywall and the Pollinarium was closed for repairs. The roof has now been replaced and the drywall is up. We will reopen once repairs are complete and everything has been put back together.

I finished out 2022 by traveling to classrooms, including one at Parkland College for coffee and conversation with an environmental science course. I look forward to hosting more visitors, planting more plants, and feeding more pollinators in 2023.

INSECTS AND INFLUENCE: ADVANCING ENTOMOLOGY'S IMPACT ON PEOPLE AND POLICY

(by Marianne Alleyne, 2023 President of the Entomological Society of America)

Do you remember your first Entomological Society of America (ESA) Meeting? I sure do. As a UC Riverside graduate student, I traveled to Dallas, TX, for the 1994 Annual Meeting, where birds pooped on my head when I visited the grassy knoll (this is probably the main reason why I remember the location). At the meeting, I shared my research on insect parasitoids, met lots of cool colleagues and made life-long friends (most memorable on that front was the “If it ain’t Dutch, it ain’t much” gathering).

It was also the meeting where I was first introduced to the running of a scientific society, leaderships’ missed opportunities, and the power of membership. The meeting opened with a plenary that was basically a slideshow of pretty Texan churches, while ignoring the biggest news in entomology that year in my (biased) opinion, the election of an entomologist to the National Academy of Sciences – Dr. May Berenbaum. To say that both these things did not go over well among some of the membership was an understatement. My own Masters’ advisor, the late Nancy Beckage, was livid. She encouraged me to attend talks and posters, to socialize, but to also attend the business and impromptu meetings where a plan to hold leadership accountable was hatched. By the end of the Annual Meeting a motion was passed that officially acknowledged how proud we as members were of May for representing the field of entomology so well. And a message was sent somewhat less officially that women entomologists did not think that it was a coincidence that the original oversight involved a female scientist.

Fast-forward almost 30 years. After attending many more annual and branch meetings, after serving the Society in many different capacities at different stages of my career, often side-by-side with the people I met during those gatherings in the 1990s, here I am...as the 2023 President of the Entomological Society of America. Continuing a tradition of Illinois(-adjacent) leadership at various leadership positions (e.g., Berenbaum, Wiedenmann, Kampmeier, Gray, Steffey, etc.). I am proud to lead this scientific society which has changed so much thanks to those who served before me. The changes sometimes seemed to proceed at a glacial speed and at other times seemed to occur too quickly.

The Society is far more inclusive than in the past – but still so much work has to be done – we are definitely leaders among scientific societies when dealing with our past and we are trying to innovate to ensure a future for all entomologists globally. That I am the fifth female president in 10 years can still make me feel verklempt since such a line-up was almost unimaginable 30 years ago. The Society is financially stable, even though current times are scary for everyone, as publication and meeting attendance models change from year to year.

ESA is also a leader in science advocacy—a mission that will be highlighted during “my” annual meeting this November in National Harbor, MD, just outside Washington, DC. Over the past 10 years, ESA has become a more vigorous advocate of entomological science in policy discussion, has educated policy makers on insect science, and has given entomologists a voice in science policy debates at the local, state, or federal level. With the support of the University of Illinois and the Department, I hope to get more of our colleagues, including students, involved in science advocacy through local events but also Capitol Hill visits. To me this is one of the most important issues that face entomologists today, when it comes to securing funding for research on biodiversity loss due to climate change, vector-borne diseases, invasive species, pollinator health, establishment of a leading biotechnology economy, or ensuring that our findings are made visible and are used in a responsible manner to inform new policies. ESA can help its members make this happen.

The Society that has given me and my colleagues so much value continues to grow. I hope you also have good memories and can serve as a volunteer member, no matter the stage of your career. It is worth it. And I hope to see you all in National Harbor, November 5-8, 2023.



New ESA President Marianne Alleyne at the #EntSoc22 Closing Plenary inviting all to attend #EntSoc23

FACULTY



Brian at the Promotion & Tenure Bookplate Reception with the author of the book he selected, stream ecologist (and Brian's father) J. David Allan [Photo Credit: L. Brian Stauffer]

Brian Allan. It's been a busy couple of years for the Allan Lab! We bid a fond farewell to long-time lab manager Page Fredericks, who returned to working in the College of Veterinary Medicine. Several students have graduated in the last couple of years, including Elijah Juma (PhD, Entomology) and Matt Flenniken (MS, Entomology). Elijah completed an outstanding PhD thesis in 2020 entitled "Comparative studies of the microbial composition and diversity of container-dwelling mosquitoes," which resulted in two publications in the journal *Scientific Reports* and one in *Parasites & Vectors*. Elijah currently works as a Program Manager at the Pan-African Mosquito Control Association. Matt completed an excellent Master's thesis on the expanding distribution of the Gulf Coast tick (*Amblyomma maculatum*), published in the *Journal of Medical Entomology* in 2022 under the title "Environmental drivers of Gulf Coast tick (Acari: Ixodidae) range expansion in the United States". Matt is now an Associate Research Scientist for the Florida Fish & Wildlife Conservation Commission. Current graduate students Sulagna Chakraborty (PhD, PEEC), Derek McFarland (PhD, PEEC), Fahren Zackery (MS, PEEC), Maria Munoz

(PhD, PEEC), and Becky Cloud (PhD, PEEC) all are making excellent progress on their theses. Sulagna is set to defend her PhD thesis on "The effects of cattle on tick-borne disease risk to humans" in summer 2023, and then hopefully will be staying on campus as a postdoctoral fellow. Brian is now very busy in his new role as the Associate Director for the School of Integrative Biology and working to establish new long-term tick-borne disease research in the Guanacaste Province of Costa Rica.



Marianne Alleyne. Some big changes professionally and personally have happened over the past few years. My lab, the Alleyne Bioinspiration Collaborative (ABCLab) is growing and the work done is excellent and exciting. I now advise three entomology graduate students (Elizabeth Bello, Siti Fauziyah, and Xavier Carroll), one PEEC graduate student (Yutao Chen), one MechSE graduate student (Liyuan Zhang), and many wonderful undergraduate students. We study bioinspired design of multi-functional materials and the biomechanics involving cicadas, dragonflies, flies, click beetles, and leafhoppers, focusing on wettability, antimicrobial properties, friction characteristics, reflectivity, and iridescence.

I now also serve as the President of the Entomological Society of America. I hope to see many of you at the 2023 Annual Meeting to be held in National Harbor, MD (near Washington, DC) in November 2023. I am excited to be able to help lead a Society of which I am incredibly proud.

I am still involved in online education. I teach a popular online 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, even though the pandemic made teaching challenging.

On the personal front A LOT has changed. Andrew, Mr. Illinois, is now the Dean of the College of Science and Engineering at the University of Minnesota. I decided to stay at Illinois – “Oranje” just looks better on me than maroon. So, we are trying to make a long-distance relationship work. It has its challenges, but since we are now empty nesters we have fewer constraints. So far, so good. Our son Harmen is now an Integrative Biology major at Illinois with a penchant for herps, not insects. Willem is a freshman at a small college in New Jersey, just so he could remain an orange and black Tiger. Please keep in touch, and come visit us in Urbana, Chicago, Minneapolis, or wherever in this world.



May Berenbaum. In January 1849, Jean-Baptiste Alphonse Karr, editor of the journal *Les Guêpes* (“The Wasps”), coined the familiar epigram, *Plus ça change, plus c'est la même chose*—the more things change, the more they remain the same. That phrase is an apt characterization of 2021-2022. Despite unprecedented challenges, research proceeded, papers were published, resident students graduated, and new students arrived. Among the students-turned alumni, Charles Dean and Daniel Bush graduated with PhD degrees. Postdoc/research associate Bernarda Calla left not so much for greener pastures but for saltier water (switching from moths, mosquitoes, and *Apis mellifera* in Illinois to molluscs in the USDA ARS laboratory in Corvallis, OR). Arriving in Fall 2022 to join third-year graduate student Wen-Yen Wu and Kirk Green (coadvised with Matthew Hudson in Crop Sciences) were new graduate student Sam Mowery and two new post-docs, Razak Hussain and Shengyun Li. Much of the biodiversity under study is now conveniently located within beehives.

Among the non-bee insects in beehives, Ling-Hsiu Liao wrapped up the project with MS student Will Montag on the small hive beetle *Aethina tumida*, Kirk is working on genomic diversity in the greater waxworm *Galleria mellonella*, and Shengyun is investigating P450-mediated detoxification of pesticides encountered in beehives by the aforementioned *G. mellonella*. Then there are the bee-associated fungi--Razak is working with computer simulations to identify honey bee cytochrome P450s involved in mycotoxin metabolism in bees, Sam is studying constituents of propolis and tolerance mechanisms in the possibly mutualistic beebread strain of *Aspergillus flavus* discovered by Daniel Bush. Another new focus are myco- and micro-biomes of the bees, a focus of work by Ling-Hsiu and Wen-Yen, aimed at determining their contribution to food processing and detoxification.

Among the many meetings I didn't go to in 2021-2022 was the 26th International Congress of Entomology in Helsinki, Finland (despite the fact that at the time I was Chair of the Council of the International Congress of Entomology). Factoring into my decision not to attend, beyond COVID, was its location—uncomfortably close to Russia, which during ICE was busy ramping up a war with Ukraine, carrying out airstrikes on the Black Sea port of Odessa the day after ICE ended. I did manage to travel internationally to Vancouver, BC, Canada to give a symposium talk titled “Insect knowledge in the Middle Ages,” in which I attempted to cover a thousand years in 15 minutes; unsurprisingly, I ran about a century over. A special culinary treat, beyond Tim Horton's, was the British Columbia coffee franchise Blenz, which among other pastries offers Nanaimo bars, a personal favorite of mine since the 1988 International Congress/honeymoon with Richard in Vancouver.

On the family front, Richard, still a retired UIUC Cinema Studies faculty member, spent part of the pandemic catching up on writing. For one paper, his writing caught up with him; accepted for publication in 2016 for a volume on Japanese cinema, his chapter on shape-shifting in anime didn't appear in print for six years. Hannah is still performing (intermittently) as a ventriloquist in Hollywood, teaching on the side for steadier work. Among her pandemic projects while comedy clubs were still closed was creating new puppets, so now that clubs are opening back up, she and her faithful unicorn Marzipan Lavender Sparkles (aka Marty) share the stage with Roy G. Biv, a depressed rainbow who works as a happiness coach, and Michelangelo, a delusional sloth with career ambitions as a sleight of hand magician and juggler. Roy and Michelangelo aren't on social media, but you can follow Marty on Instagram @marty.unicorn and the whole crew on TikTok (until the government shuts down the app).



Adam Dolezal. It is hard to believe that I started my lab here over 5 years ago now, and in that time my work and home lab have grown a lot. I feel extremely lucky to have attracted an amazing group of smart, hard-working, and kind people to work with me. Looking back at the 2020 newsletter, we have had many changes to the lab, with some happy departures and many new additions. We now have 2 postdocs (Ashley St. Clair and Alex Payne) and 6 (!) graduate students (Ed Hsieh, Tristan Barley, Lincoln Taylor, Sreelakshmi Suresh, Ben Chiavini, and Vincent Prayugo) working in the lab. The lab's first postdoc, Gyan Harwood, also happily moved on earlier this year – after a productive (though obviously challenging!) 3 years, he joined Corteva Agriscience as an ecotoxicologist, moving just down the road to Indianapolis.

Since the last newsletter, the lab has been pretty productive, continuing our work on bee health and pollinator sustainability, which has resulted in 12 new publications and several new funded projects. Though work with bee

viruses and pesticide exposure continues to drive many projects, we've expanded more into work on microbiomes (through the NSF GEMS Institute), queen physiology (with USDA postdoctoral fellow Ashley St. Clair), new methods of control for small hive beetles (funding from USDA), and pollinator habitat co-located at large solar energy facilities (funding from Dept. of Energy). Check out individual lab member sections to hear about them and what they are up to! The lab has also started working more directly with UIUC Extension through our new extension specialist Brodie Dunn, who helps us communicate more effectively with the public about pollinators and other beneficial insects. In 2022, we also saw the return of the UIUC Bees and Beekeeping Short course after a four-year hiatus, celebrating its 25th anniversary.

In addition to research lab growth, I've also had growth at home, with our daughter Helen (7) and son Fred (4) being joined by a new brother (Bert) in spring 2022. My wife, Kelly, continues to work as an independent contractor in the scientific and regulatory writing business. Unsurprisingly, we haven't done a lot of fun (or even not fun) travel in the last few years, but I did break an almost 3-year period without flying by attending the 2022 Entomological Society Meeting. It was a lot of fun to see so many alums at the mixer and I look forward to keeping in touch in future years. Needless to say, it has been a hectic and busy year, but I have been surrounded by great people at home and at UIUC, and I have a lot to be thankful for.



Dolezal home "lab" growth, 2017 - 2022



Larry Hanks. At the time of this writing, I am nearly done teaching the Intro to Ento class, finally in person and unmasked. A few of the students came down with COVID during the semester, but somehow I have dodged that bullet. It's been nice to be able to see the students' faces and tell whether they are smiling or merely squinting. On the home front, Jean is now assistant to the Vice Provost for Undergraduate Education. She is looking forward to retirement... Rebecca is living up in Chicago, working for a non-profit that promotes physical fitness in school kids, Chicago Run. She loves the work and has an apartment with two good friends in the Lakeview neighborhood. Jean and I get up there regularly, and it's nice to have a guide for finding the best restaurants and bars. Mason is living near campus with a friend and plans to return to school in spring via the Parkland Pathways program. I still intend to retire soonish, and already have started honing my skills in carving and painting duck decoys which I hope to sell at the Farmer's Market.



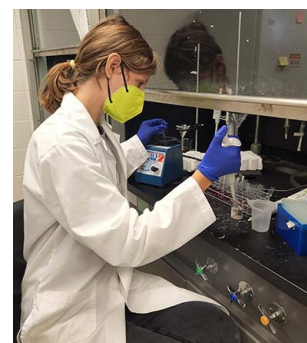
2022 field crew

Alex Harmon-Threatt. The 2021-2022 years have been extremely good to the Harmon-Threatt lab including graduations, grants, papers, and a lot of data collected. We welcomed Annaliese Wargin as a MS student from UC Davis, Jon Tetlie deposited his MS thesis and started his PhD program, and the first two PhD students-Nick Anderson and Scott Clem-completed their degrees and are both currently in postdoctoral positions. Scott Clem was awarded a USDA postdoctoral fellowship to the University of Georgia and Nick Anderson has continued on in the Harmon-

Threatt lab teaching and researching. We were also awarded another USDA-NIFA Pollinator Health Grant to continue our project examining the effects of pesticide contamination on ground-nesting bees. Despite the setbacks of the pandemic, we were able to continue research and include six undergraduate and high school students. Many papers were published and continue to be accepted, including several by undergraduate students. Dr. Harmon-Threatt was also awarded a Fulbright Fellowship and is spending her sabbatical in Prague working with the Straka Lab at Charles University.



Nick's graduation



High School student doing lipid assays

We are fortunate to have had an excellent last two years and even welcomed two tiny lab members with the birth of a daughter for Dr. Nick Anderson and a son for Dr. Harmon-Threatt. We hope to have them field-ready by the end of the next biennial report!



2021-field work



field site at Phillips Tract

Esther Ngumbi. 2022 was a year for bonding at the Ngumbi Lab. I still have fond memories – when three of my hardworking and amazing graduate students (Aaron Mleziva, Erinn Dady, and Miles Arceneaux), and our two wonderful undergraduate students (Raelin Mamaril and Mackenzie Larsen) took a trip together to Minnesota to attend the 2022 North Central Branch Meeting. We enjoyed the 8 hours’ drive. We stopped for lunch at Wisconsin. In Minnesota, we presented our research and carved in time to hike, eat dinners together and visit a few places, including George Floyd Square. Throughout the year, the Ngumbi Lab celebrated several milestones. At the North Central Branch meeting, Raelin won second prize for her poster presentation. At the National meeting in Vancouver, Canada, Erinn, a founding member of my lab, won second prize for her infographic.



Raelin wins

Our lab's bonding continued through the year as we rolled out many experiments. Our research seeks to understand the impacts of abiotic and biotic stressors, including flooding and herbivory, on microbe-driven and chemical-mediated plant-insect interactions. We published articles for the wider public and the scientific community and celebrated Erinn as she became a first-time published author. We celebrated failed experiments, talked about failures and successes, and enjoyed the fact that we would meet in person every week. We expect to celebrate Aaron and Miles's manuscripts in the coming year.



Over the summer and in the fall, our lab worked with several outstanding undergraduate students (Alexander Lozano, Olivia Barrett, Michael Somerville, Aakash Shah, Emma Cartelli, and Minxing Zhu). Witnessing their growth as scientists was fulfilling.



As winter sets in, we carry along fond memories of summer and fall. Our lab particularly enjoyed outreach days at Fowler Farm/Hendricks Farm. We led several workshops, and, time and time again, seeing the young students' faces light up as they learned about insects and petted the cockroaches we brought along with us was gratifying. There is something about being on the farm and sharing with students what Entomology is and what entomologists do.

Here's to a productive and prosperous 2023!



Gene Robinson. Greetings to all our alums, I'm glad to be able to connect again with you. After serving as the interim Dean of the College of Liberal Arts & Sciences (LAS) for one year, I'm delighted to be back, as planned, as director of the Carl R. Woese Institute for Genomic Biology (IGB). I enjoyed my time in the Dean's office immensely, especially engaging with interesting and often pressing issues related to undergraduate education and working closely with the dedicated and talented group of associate deans and staff that form the Dean's office. But I missed science, so I'm very happy to be immersed again in the amazing programs of research here at the IGB. There also are exciting developments in my own research group, including excellent progress on our DARPA-funded "bee factory" project, headed by research scientist Dr. Adam Hamilton, which is developing automated methods to rear bees in the laboratory. One goal of this project is to establish a new platform for research on bee health, and it's great that we already have several "early adopters" in academia, government, and industry who are encouraged with the performance of the system. This includes our own bee health specialist and colleague Professor Adam Dolezal, with whom I'm delighted to now share the Illinois Bee Research Facility. We also celebrated Entomology graduate student Maggie Murphree's successful defense of her Master's thesis and we wish her well in her next endeavors!

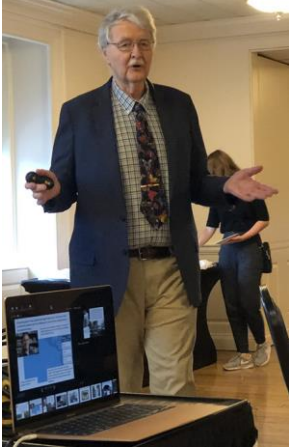


Andy with the Barbie entomologist set

Andy Suarez. I am writing with one foot out the door for a sabbatical in Australia. Since my last sabbatical in Australia 8 years ago, my lab has completely turned over, I had a son (who is now 7), and I served as head of the Department of Evolution, Ecology and Behavior. I am now down to a single co-advised student (Kevin Neumann) and have no administrative responsibilities - perfect timing to leave the country for five months! Having such a clean slate was not easy though and it required hard work on behalf of my students. This past year, three students in my lab defended and deposited their PhD theses. Josh Gibson (Entomology) is now a postdoc at the Okinawa Institute for Technology in Japan but is returning to UIUC in December (or has returned depending on when you read this) to start a job at the Beckman Institute. Kim Drager (EEB) is working at the Illinois Natural History Survey. Michael Rivera (PEEC) who just defended in 2022 will stay in the lab for the Spring as he awaits results from his recent interviews. I could not be prouder of these students and their accomplishments over the years.

In Australia, I will be starting some new projects looking at the relationship between ant foraging ecology and functional traits with Heloise Gibb's lab at La Trobe University in Melbourne. There are amazing ants in Australia, and I hope that this work will lead to some long-term projects (and funding). I hope everyone here is able to stay out of the cold as much as possible, and I will send warm thoughts from the beach...

EMERITUS FACULTY



Stewart Berlocher. The last few years have not been like I expected. But then, they have not been like anyone expected. COVID changed all of our lives.

The biggest change in my life in particular has been retiring from the University (on January 1, 2020) after teaching some 43 years. Which is sort of a mixed bag - it's nice not having to lecture on a regular schedule, and it's nice not having to slog through dreary committee meetings while one's mind is far, far away. But I miss the students, and I miss the day-to-day interactions with my wonderful colleagues. All those hallway conversations while on the way to the library. Of course, no one goes to the library anymore. One used to know the days of the week when particular journals showed up on the special rack in the Biology Library for the week's journals. And that odd rattle of the loose metal racks that held the single issues of each journal as they were awaiting being bundled with the year's accumulation and sent to the binder. Where you couldn't get to them for a few weeks. But they did eventually come back, in new binding that smelled nice. If only there was some

way that colleagues who have passed on could return after some time away (but unbound, I think).

After a three-year delay (because of COVID, of course), I finally got to have a retirement party, on June 4, 2022. It was lovely. Some really nice science talks, some personal comments from former students and colleagues, and a bit of personal history and reflection from me. A lot of talking about the old and the new days. I thank all who helped out, especially May, Kim, and Jeff Haas, and all those who travelled such long distances to be there, for a wonderful time.



Sam Beshers. I retired in June of 2020 with the intention of thinking and writing a few papers. That turned into a book on the theory of division of labor in social insects, of which I have a complete first draft and which I am now in the process of revising so that someone besides me can actually read it. It's been a lot of work and a lot of fun, and I am very much looking forward to having it finished so I can move on to working on some of the questions that came up in the writing. I am trying to spend some regular time in Morrill and at department seminars, as our puppy (Booker) grows up and can be left alone for a few hours. My wife Lynn is doing well and the kids are all right. For the month of December, I was a substitute teacher at Uni High, filling in for subbie science.



Sydney Cameron. I retired at the end of 2021.



Fred Delcomyn. My book with Jamie Ellis, *A Backyard Prairie, the Hidden Beauty of Tallgrass and Wildflowers*, was published by Southern Illinois University Press in July, 2021. It has been doing quite well and has been featured on podcasts and other outlets. The book had a long gestation so I'm especially glad that it has finally seen the light of day.

Like many people, I have been able to travel more this year. The highlight was a trip to Patagonia in Southern Chile and Antarctica. People often describe trips to the

southern ends of the world with superlatives like amazing, stupendous, and awesome. These terms are not exaggerations. The physical environment is overwhelming and the wildlife, mostly people-friendly (especially the penguins), is exotic. If you like adventure and out-of-the-way places, Antarctica should definitely be on your bucket list.

Nancy and I were also able (finally! After two years of COVID-related delays) to travel to Belize on a trip organized by Illinois Public Media (WILL), our local PBS station. For us, the highlight of the trip was an excursion to Tikal, one of the premier Mayan sites in Central America. It is actually in Guatemala, so we had to cross another border, but the tour we were on was well organized so that was no problem. The excavated or partly excavated area is about 4 km square, so quite large. It boggles the mind to think that estimates are that the excavated area comprises only about 20% of the entire site. And finally, in December it's on to New Zealand to visit our daughter and her two fast-growing girls.

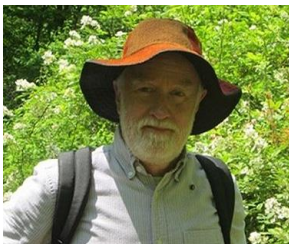
Stay tuned for more adventures in the next newsletter. We haven't scheduled anything yet, but we've got several destinations in mind.



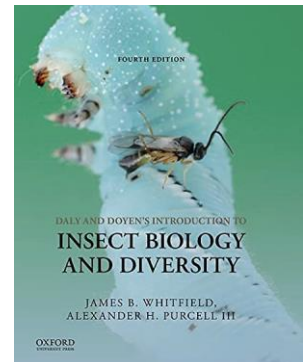
Bettina Francis. I retired at the end of January 2020.



Hugh Robertson. I retired at the end of 2018 and redirected my efforts to a lifelong goal of going ocean sailing (see next page to read about my adventures or you can view videos clips from my trip last summer, with some pics and narration, at <https://www.youtube.com/@SVSeaChange>).



Jim Whitfield. Since the last newsletter, Sydney Cameron and I retired in December 2021 after a very busy last year winding up projects and teaching our last courses. We managed to time our Co-Editor-in Chief tenures at *Insect Systematics and Diversity* to end at retirement, and miraculously the Fourth Edition of my textbook appeared during 2021 as well.



Pomona Carrington-Hoekstra presents her work from the Whitfield lab at the Undergraduate Research Symposium on campus

2022 has brought into focus the challenge of downsizing: the many aspects of cleaning out our labs while making sure scientific specimens and records are properly re-situated and preserved. At the same time, research collaborations continue at a more manageable level. I still have a project or two finishing up with undergrads; this year's undergrad taxonomic project was with Pomona Carrington-Hoekstra (see photo).

We have also spent part of the year hunting for an old cottage to buy on the coast of Cornwall in the UK, an area we have been visiting for many years; as 2022 ends, we are in the final stages of a purchase!

THE SAILING ADVENTURES OF EMERITUS PROFESSOR, HUGH ROBERTSON



Hugh Robertson. On Friday April 1, I quietly slipped the lines that held my 34 ft. sailboat to a slip in the La Playita marina on the Pacific side of Panama and motored out across the Panama Canal shipping lanes to sail into Panama Bay on my way to French Polynesia, almost 4,000 miles away. I had bought my sailboat, a sturdy and capable ocean-sailing boat known as a Pacific Seacraft Crealock 34 built in 1989 and suitably already named Sea Change, in October 2019 after retiring at the end of 2018 and having spent much of the



year looking for a suitable boat in the US to attempt a circumnavigation. It was in Panamarina, a small marina on the Caribbean side of Panama. In March 2020 daughter Erica and I went down to move Sea Change to the Shelter Bay marina near the entrance to the canal, but it was the start of the pandemic, the country shut down around us, and we had to flee after just two days, which was lucky as two days later Panama closed their airport for nine months and had an unusually stringent lockdown. Nevertheless, Christina and I had two short test cruises of a few days each to the nearby lovely islands of the San Blas in November 2019 and 2021. And so, in March, Christina, Gabriel, and two kitesurfing friends came down and helped me take Sea Change through the canal, a once-in-a-lifetime experience, marveling at the spectacular engineering and contemplating its extraordinary history. On Wednesday March 30 only Christina remained, and we spent the day purchasing bulk quantities of food for what I hoped would be a 40-day passage, but prepared for up to 60 days, with emergency freeze-dried food for another 20 days. The next morning, I took her to the airport (Christina is an avid dinghy sailor, but was not keen on crossing oceans), did some final provisioning including purchasing all the Cadbury's chocolate a large store had, and got Sea Change ready to go. I felt that April Fool's Day, especially being a Friday (a sailing superstition abhors leaving on a Friday), was appropriate for an ocean-sailing novice like me but felt confident that my lifetime of sailing smaller boats, our two short test cruises, and the repairs of the diesel engine and improvements to the solar and battery system I had made to Sea Change over the previous month, was enough preparation.

The first few days in the Bay of Panama and beyond to the Galapagos islands was a steep learning curve as I made my way across the notorious doldrums just north of the equator, surviving roasting days of no wind followed by massive electric storms and strong winds. The Ecuadorians have made visiting the Galapagos by private yacht prohibitively complicated and expensive, so despite an obvious interest in visiting them I sailed around the north of the archipelago where I found the consistent SE trade winds that would take us all the way to French Polynesia. Apart from a broken windvane self-steering system that was essential to this voyage and which I managed to MacGyver, I had a wonderful passage. Once past the Galapagos I did not see a single ship or yacht for the next 3300 miles. I thoroughly enjoyed the sailing, from gentle breezes to strong winds requiring me to reduce sail, but all steadily from the SE allowing a straight-line course for the last 3 weeks between latitude 9 and 10S. I spent my days enjoying watching the ocean waves, identifying all the novel oceanic birds I saw, delighting at a few mammal encounters, and successfully catching several small tuna and mahimahi that provided excellent sashimi and subsequent meals. It was everything I had dreamed and read about doing for the past 50 years. Once a week I would drop all sails, trail a long rope behind for safety, and jump into the Pacific Ocean for a swim and wash in crystal-clear water over 10,000 ft deep. I had spent much of my life preparing for this adventure and now it was successful. I also enjoyed posting to a blog and reactions from family and friends, all communication via an Iridium satellite device. The passage took 37 days to the harbor of Taiohae Bay on the island of Nuku-Hiva in the Marquesas group of islands of French Polynesia, the required check-in port during COVID. I was very pleased with our performance and even had a few eggs left over from the 72 I started with (eggs that have never been refrigerated keep well for a month or more if they are turned upside down every day to prevent the yolk from attaching to the chorion and shell).

The Marquesas are a set of five spectacular relatively young but highly eroded volcanic islands and Nuku-Hiva is the largest. Some might know them as the final resting place of the French painter Paul Gauguin. I spent three weeks there, marred by losing my phone to exposure to sea water, which cost me all my passage photos and videos, but made enjoyable by meeting many other cruisers who had also just made the passage from the Americas, from a fellow solo sailor on an even older 30-ft boat to two families on a massive recently-built million-dollar catamaran (up to 300 boats with an average of 3 people on board make the passage each year, typically during the Southern Hemisphere winter to avoid cyclone season). I attended local festivals and cultural events, ate something other than fish including steaks,

pizza, local fruit, and fresh baguettes and croissants, and spent a week in a nearby bay with about ten other boats doing all the things I had imagined for the cruising life (long walks ashore, barbecues on the beach, gatherings on my and other boats in the evenings, snorkeling the gorgeous coral and tropical fish near the shore, and even swimming with manta rays, along with various boat repairs). I had hoped to visit at least one of the other four islands in the group, but they are all upwind from Nuku-Hiva and the SEasterly trade winds were blowing hard, so, after a long day of bashing our way tediously upwind into large swells, I abandoned that plan and bore off for a glorious five-day sail to the fabulous second group of French Polynesian islands, the Tuamotu atolls.

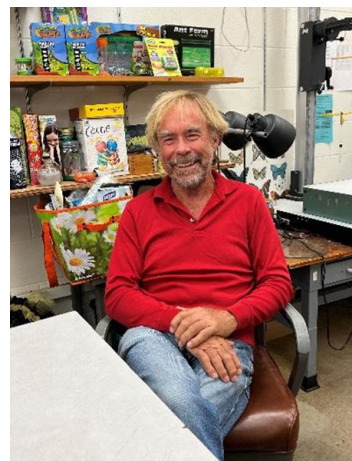
These ~80 atolls are amazing places. They are the end result of complete erosion of the volcano that originated them and now consist of a wide fringing reef surrounding an internal lagoon of placid water. Some have a closed reef but most have one or two passes through the reef allowing water to flow in and out with the tides, and hence boats to enter, even small cruise ships on the biggest two. Typically, the southern and western edges of the fringing reefs are bare because they are exposed to the SEasterly trades as well as swells generated by southern ocean storms, but the eastern and northern sides have accumulated sand over the millennia and support pan-tropical vegetation that has been largely replaced by massive coconut palm plantations. These “islands” are called motus. I had a traumatic time entering the first atoll I visited, called Makemo, struggling to get through the pass and then getting my anchor stuck in coral heads, but eventually escaped to sail to the largest atoll, called Fakarava, where Christina and Erica joined me for a delightful week. We sailed across the lagoon to a motu at the SE corner where Erica and I kitesurfed, enjoyed a large group beach barbecue with new cruising friends, and had a guided snorkel adventure in the pass drifting through it on the incoming tide that brought unimaginably clear water to wonder at the spectacular colorful coral and tropical fish while keeping a watchful eye on the ever-present, black-tipped reef sharks that circled us. Walks on the fringing reef yielded a wonderful assortment of seashells and I began what turned into a near obsession of collecting cone snail shells for Stewart Berlocher. After they left, I did two solo drift snorkels of the pass, a deep scuba dive outside the pass and reef that was simply amazing, and lots of kitesurfing with new friends. Eventually it was time to move on after a month in Fakarava and I spent a couple days each in two more gorgeous nearby atolls, Tahanea and Taou, before once again heading out to sea for the three-day passage to Tahiti and the Society Islands.

The Society Islands are probably more familiar to most people, from famed Tahiti to beautiful Moorea and spectacular Borabora, as well as Huahine, Raitea, and Tahaa. They are intermediate in age between the Marquesas and the Tuamotus, retaining their steep highly-eroded volcanic remnant hills but now partially surrounded by fringing reefs with numerous passes that are generally easy to negotiate. I thoroughly enjoyed each one as I sailed slowly NW. Papeete, the capital city on Tahiti, has a bakery called Dreams of Lucie which quickly became my favorite while staying in their modern downtown marina and I enjoyed some events of the annual month-long Heiva festival. A rental-car trip around the double island allowed visits to Venus Point where Captain James Cook’s expedition observed a transit of the sun by Venus in 1769, and the famed Teahupoo surf spot on the SW shore, sadly two days after a massive swell had yielded spectacular surfing (YouTube has many videos). Between Tahiti and Moorea I sailed to tiny Tetiaroa island, better known as Marlon Brando’s island, where moorings outside the reef allowed an overnight visit to this otherwise inaccessible spot, but the welcoming committee of six black-tipped reef sharks made jumping into the sea for a snorkel visit to the nearby reef a little nerve-wracking, although this species is generally considered harmless and they were only hoping for handouts. I anchored in Cook’s Bay on Moorea, surrounded by steep remnants of its volcano, and cycled around the entire island. A rented 50cc scooter allowed me to circumnavigate Huahine and kitesurf in the lagoon at its southern tip in turquoise water above sandy shelves just inside the reef. On Raitea I canoed up a river to a botanical garden and anchored in a delightful little cove surrounded by coral heads, some of which had massive anemones on them sporting Nemo-like clown fish. Tahaa has a passage between two motus that is choked with coral heads, known as a coral garden, where one can drift gently on the current while enjoying the fish and I watched an octopus perform its amazing near-instant color and skin morphology changes on each substrate it visited. And Borabora was simply spectacular, only slightly marred by the numerous now-iconic huts-on-stilts resorts and their attendant tourists and jet skis. I checked out of French Polynesia there but visited two more isolated islands before leaving. Maupiti has a treacherous pass that had me heave-to outside for the night before daring to enter the next morning, but its tall central hill provided a panoramic view and there was a “cleaning station” for manta rays they visit each morning. Finally, Maupihaa is an atoll so isolated the two small families living there depend on occasional passing cruisers for all their external provisions and reward these visitors, including me, with an amazing feast of fish, coconut crabs, raw tuna in coconut milk, scalloped breadfruit, and an upside-down cake, all washed down with a freshly opened coconut. I could not have asked for a more amazing parting experience from French Polynesia.

The next two large sets of islands, the Cook Islands and Tonga, as well as the isolated limestone “rock” of Nuie and other islands, remained closed to yachts during the pandemic, Tonga in particular still recovering from the devastating Hunga-Haapai volcanic eruption and resultant tsunami in January that severely damaged their main islands and the coronavirus had been recently introduced there by Australian relief ships after two years of complete isolation.

I nevertheless decided to visit the isolated Beveridge Reef which has a single pass and is nominally controlled by Niue, as I reasoned that they would not be bothering to patrol this “atoll sans motus” over 100 miles from any land. I had a rough seven-day passage however, getting caught in a “maramu”, an exceptionally strong SE trade wind belt reinforced by the anti-clockwise flow around a high-pressure center further south, followed by a strong northern front generated by an unpredicted transient low that formed briefly in front of us. Both required reducing sail to only my tiny staysail jib and running off before the waves to avoid being smashed by them, each time for 36 hours, during which I mostly hunkered down in my bunk. But we made it to this amazing spot which I had entirely to myself, where the fish were so naive I could easily shoot them with a speargun, but a grey reef shark, which is far more menacing than the black-tipped ones, gave me a real scare by repeatedly approaching far too close, requiring a prod from my spear to leave me alone. There I also made the heart-stopping discovery that some of the 19 wire strands making up the cables that hold the mast up, known as shrouds and stays, had broken at their bottom swage. I had hoped that the 22 years Sea Change had spent in cold fresh water on Lake Superior and Lake Michigan under three previous owners, before being bought by an Australian family in 2011 who sailed her to Panama before deciding she was too small to cross the Pacific to their home in Cairns, would mean that this so-called “standing rigging” that is usually replaced every 10-15 years on ocean-going sailboats would be fine. But I was clearly mistaken, and so set to work rigging every spare halyard and sheet (ropes that control the sails) I had on board to prevent the mast falling if any shroud or stay should part completely.

Thus, preliminarily fortified I sailed NW to Niue itself, arriving at midnight and appealed to the local “harbor” authority by radio for an exception to their “no yachts” rule to take a mooring for 24 hours to reinforce the rigging further. This was granted and in the pitch dark my flashlight picked out a mooring ball near the shore, from which I had to evict a sleeping banded sea snake before attaching my mooring lines. The next day was spent adding additional layers of wires and lines to my backup rigging, while watching numerous humpback whales that gather there and elsewhere in this region for the winter to calve. From there I sailed across the top of the Tonga archipelago, briefly hanging out near a tiny island called Toku where there were numerous humpback whales and I hopped into the sea to listen to their “singing”. Finally, we sailed to Fiji, maneuvering through the outer small islands to one of three Covid-era entry ports, Savusavu on the ancient volcanic island of Vanua Levu. Here I added additional support for the mast using ratcheting truck tie-downs as well as short sections of chain secured across the offending lower swages. I had a month in Fiji and explored the eastern band of islands, specifically the Lau group, which like Niue are low-lying limestone islands that once were atolls but now have been pushed up out of the sea. Along the way eastwards fighting upwind against the SE trade winds, I did a 90-ft-deep scuba dive near Viani Bay to see a world-famous spot called the White Wall, which is the edge of a fringing reef falling off to thousands of feet and covered with soft white corals, enjoyed a pod of ten pilot whales that swam around our bow wave for half an hour, visited the spectacular Bouma national park on Taveuni island with its three lovely Tavoro falls and pools, and had a short stay in an atoll called Wailagilala. From there I sailed down the Lau Group of islands, visiting the Bay of Islands in the large complex of Vanua Balavu, anchoring outside the reef at Lakeba Island in a sandy patch 60 ft deep which is very unusual, enjoying some great kitesurfing in Falanga, and finally anchored in the idyllic turquoise waters of Ogea. I completed my circuit of eastern Fiji by returning west via the volcanic island of Matuku, where I anchored inside the ancient flooded caldera, to the capital of Suva on the largest volcanic island of Viti Levu. And after a brief stop for a “shark dive” where numerous lemon and bull sharks are attracted to fish remains in a trash can that is eventually opened to a melee while we divers hunkered down nearby at 60 ft, I sailed around to the western side of Viti Levu to Vuda Point Marina. This marina is unique in being “cyclone-resistant” so I left Sea Change there in October and plan to return in April to attempt to sail back upwind to Tonga, then cruise the western side of Fiji, New Caledonia, and Vanuatu, before sailing to the east coast of Australia next season.



Hugh Robertson back at UIUC
November 2022

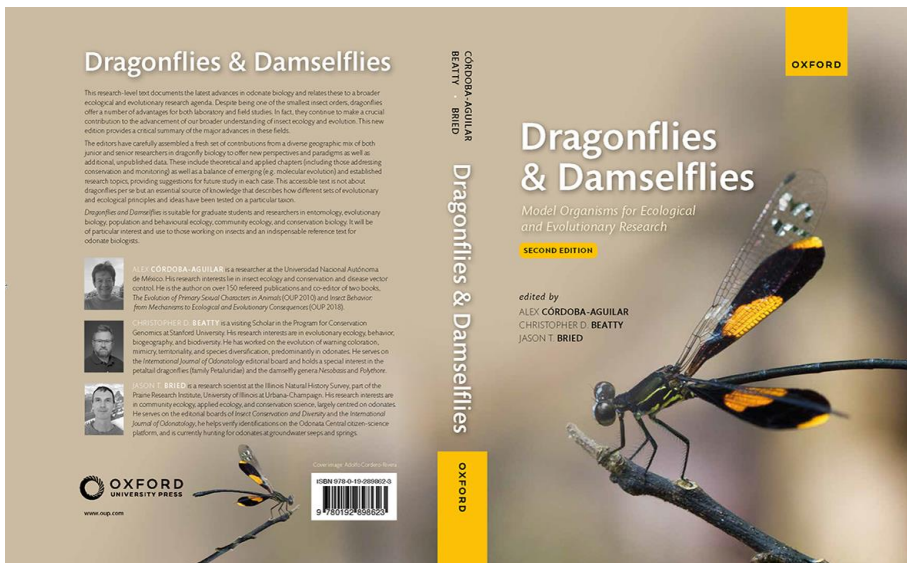
AFFILIATES AND ASSOCIATES



Jason Bried. I'm an ecologist and odonatologist who joined the department in early 2022 from INHS. Some new things emerged on my insect conservation and odonate fronts these past two years. Very excited about the November 2022 release of *Dragonflies & Damselflies: Model Organisms for Ecological and Evolutionary Research, 2e* (Oxford University Press). We started this “pandemic book” back in summer 2020.

I also coauthored chapters for *Imperiled: The Encyclopedia of Conservation* (2022, Elsevier) and the forthcoming *Routledge Handbook of Insect Conservation* (2023, Routledge and CRC Press). Other highlights were joining the editorial boards of the Royal Entomological Society's *Insect Conservation and Diversity* (currently ranks 10/100 in Entomology) and the Worldwide Dragonfly Association's *International Journal of Odonatology*.

A pair of NRES grad students, Matt Finzel and Rohini Vembar, joined the lab in summer 2022 and I'm looking to recruit that first Ento grad student!



In summer 2022, Jason collected a rare exuvia of North America's smallest dragonfly, the state-endangered elfin skimmer (*Nannothemis bella*)

Córdoba-Aguilar, A., Beatty, C.D., Bried, J.T. (Eds.) (2023) *Dragonflies & Damselflies: Model Organisms for Ecological and Evolutionary Research, 2e*. Oxford University Press, New York. 496 pages



Carla Cáceres. The Cáceres lab is continuing our work on the population, community, and evolutionary ecology of freshwater invertebrates. There are two main projects in the lab, led by both graduate and undergraduate students. The first project seeks to understand the colonization dynamics of the microbiome of larval *Aedes* and *Culex* and how that microbiome influences the outcome of ecological interactions. The second project involves various aspects of disease ecology in aquatic systems by focusing on the interaction between *Daphnia* (host), *Metschnikowia bicuspidata* (fungal pathogen), and *Chaoborus* (predator) and anthropogenic stressors such as changing temperature, Artificial Light at Night (ALAN), and fungicide runoff.



Edward DeWalt. The DeWalt laboratory studies many aspects of the taxonomy, phylogeny, ecology, and conservation of aquatic insects, concentrating most efforts on stoneflies (Plecoptera). Currently, graduate student Phillip Hogan is building historical distribution models for stoneflies in the Midwest region and asking questions such as "What is the effect of historical museum data on model development?" and "How do the models change under predicted climate change scenarios?"

A recent project "Conservation Status of Watch-list Ephemeroptera, Plecoptera, and Trichoptera species in Illinois" searched four years for 72 species of rare and declining Illinois Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies) under a State Wildlife Grant. Monthly sampling captured >100,000 specimens of these EPT species, finding 60 of the 72 species. Seventy species could be rated for NatureServe subnational (S categories) conservation ranks: S1=34 (endangered), S2=15 (threatened), S3=12 (vulnerable), S4=1 (apparently secure), S5=0 (secure), SX= 8 (extirpated). Two species were rated as data deficient. This broad sampling program recollected 73% of all EPT species ever reported from the state (416 species) and found 22 new state records for a new total of 438 species. Many other rare species were found, including two species of stoneflies thought extirpated from large Illinois rivers.

New work begins January 2023 through December 2026 to find 33 stonefly species categorized as Regional Species in Greatest Conservation Need in the northeastern USA states of CT, DE, NH, NJ, NY, MA, MD, ME, PA, RI, VA, WV, VT. This work will involve fieldwork in remote locations, museum visits, distribution modeling, and conservation ranking at subnational, national, and global levels.



Chris Dietrich. With pandemic restrictions on travel easing, the Illinois Leafhopper Lab hosted visiting PhD students Victor Quintas from Brazil (systematics of sharpshooter genus *Erythrogonia*), Guy Sinaiko from Israel (integrative taxonomy, phylogeny and acoustics of the beet leafhopper genus *Neotaliturus*), Edith Blanco-Rodriguez from Mexico (systematics of sharpshooter genus *Graphocephala*) and Saad El-Sonbati from Saudi Arabia (phylogenomics of tribe Scaphoideini). We bid farewell to PhD graduate Rachel Skinner, who took a postdoctoral fellowship at Purdue, postdoc Yanghui Cao, who took a faculty position at Northwest A&F University, Shaanxi, China, and postdoc Adilson Pinedo-Escatel, who began another postdoc at UNAM, Mexico City. Postdoc Valeria Trivellone is teaching at Purdue Northwest while continuing to screen leafhoppers from our freezer for the presence of new strains of

phytoplasmas (bacterial plant pathogens) and identify their potential host plants and vectors. New grad student Morgan Brown is re-sampling historic localities in Illinois prairies to document change in leafhopper species composition and abundance over the past 25 years.



Sam Heads. This past two years have seen many changes in our group. Despite the challenges posed by the COVID pandemic, renovations of the new Center for Paleontology in the Forbes Natural History Building have been completed and we now have two brand-new labs: a dedicated fossil preparation lab and a microscope and imaging lab. These labs allow for the preparation of all kinds of fossil material and the imaging of everything from the tiniest arthropods to the largest dinosaur bones. All our personnel are now moved into the center and fully ensconced in their new offices. The herculean task of moving the collections is still underway and the stratigraphic and paleobotany collections (together numbering about 3 million specimens!) will soon join the rest of the collections, housed in new custom steel cabinets thanks to funding from PRI. **Jared Thomas** was promoted to curator and we welcomed **Nichole Samson** as our new administrative and curatorial assistant.

The last two years also gifted me many proud advisor moments! **Dan Swanson** published his Master's work on a remarkable new fossil assassin bug from the Eocene of Colorado, which was covered extensively in the media (including the *New York Times* and the *Guardian*). **Jake Tamarri** transitioned from undergraduate to grad student, and **Katie Dana** successfully defended her PhD thesis on Illinois cicadas. In addition, **Cariad Williams**, **Jake Tamarri**, **Jared Thomas**, and **Dan Swanson** all received Ross Awards.

Last but not least, we launched the center's new open access journal, *Kentiana*, which is intended to disseminate paleontological research carried out at or in collaboration with scientists at U of I. The first paper was

published in October 2022 describing two new species of the elcanid orthopteran genus *Archelcana* from the Lower Jurassic of Luxembourg.



Jorge Doña and Kevin Johnson celebrating the publication on the origins of mammal lice from “Study explores coevolution of mammals and their lice” Illinois News Bureau Research News

Kevin Johnson. In the past two years, I have been fortunate to recruit two new students to the lab, Ember Clodfelter (Entomology) and Juliana Soto Patino (PEEC). They are both starting exciting new projects on louse systematics. Continuing students Stephany Virrueta Herrera (PEEC) and Lorenzo D’Alessio (PEEC) are both in the process of defending their theses soon. I have also been excited to have hosted Dr. Jorge Doña from Spain on a Marie Curie Postdoctoral Fellowship. He has been exploring the frequency of introgression and hybridization between louse species using genomic data sets generated from ongoing NSF research grants. Although most of the research focus has been on bird lice, the past two years have seen exciting publications on the lice of mammals, showing high levels of inbreeding and infrapopulation structure in seal lice (*Molecular Ecology*, Stephany Virrueta Herrera lead author) and on the origins of mammal lice

out of Afrotheria (elephants, elephant shrews, and hyraxes; *Nature Ecology and Evolution*, with Jorge Doña). Even my most recent birding tour to Borneo was as memorable for the mammals I was able to observe in the wild (orangutan, proboscis monkey, leopard cat, civet, colugo, giant flying squirrel), as for the birds (many amazing woodpeckers and hornbills). The tour also featured a variety of spectacular and bizarre insects, such as Rajah Brooke’s Birdwing (*Trogonoptera brookiana*) and Trilobite Beetle (*Platerodrilus*).



Tommy McElrath. The INHS Insect Collection recently passed over 2.5 million databased objects in the collection, all of which you can now search and use here: [GBIF Dataset](https://www.gbif.org/dataset/68513375-3aa5-4f6f-9975-d97d56c21d61) (<https://www.gbif.org/dataset/68513375-3aa5-4f6f-9975-d97d56c21d61>).

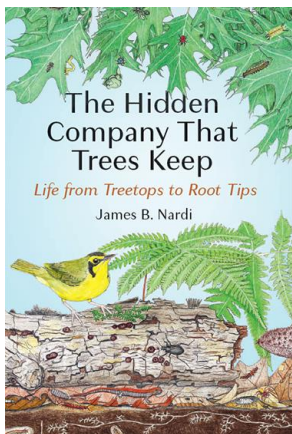
Our Terrestrial Parasite Tracker project is wrapping up, and we’ve databased over 70,000 arthropod vertebrate parasites. My personal favorites are the beaver louse beetles, but it turns out we have amazing collections of mosquitoes, ticks, fleas, lice, black flies, and more! Feel free to ask me about any of the weird terrestrial parasites we’ve databased so far.

In 2021, I got to go on a research collecting trip the USA Southwest, collecting little brown monotomids for molecular work. It was tons of fun, even if the weather only partially cooperated.



On the research side, progress continues on a world catalogue project of the (now massively split) Cucujoidea, alongside revisionary work and some other interesting potential new projects. Progress there has been slow though (see below).

On a personal note, my partner and I welcomed two amazingly beautiful twin girls, Fern Alena Louise and Tavish Anne McElrath, on January 15th, 2022. They are our most important and wonderful project together.



Jim Nardi. After 46 years of laboratory research in Morrill Hall, I’ll begin research in the outdoor laboratory and classroom of rural Indiana working with members of Ouabache Land Conservancy on restoration and preservation of woodlands. Before setting off for the woods of Indiana in the spring of 2023, I published one last manuscript this year on *Manduca* physiology in the journal *Developmental Biology* and completed a manuscript on *The Hidden Company that Trees Keep* that was published in February by Princeton University Press.



Joe Spencer. The 2021-2022 period was a busy one, made all the more enjoyable by increasing relaxation of most pandemic constraints on personal, laboratory and field activities. My research program is focused on western corn rootworm behavior, ecology and resistance. I'm broadly interested in the

mechanisms behind insect-plant interactions; working with species of *Diabrotica* rootworm beetles continue to provide many avenues to study the topic in a hugely impactful pest complex. I'm investing significant effort each year into studies of western (and northern) corn rootworm resistance to *Bt* traits as well as collaborative projects aimed at improving rootworm monitoring and management. One objective of a new project includes the application of aerial drones as an IPM tool. In addition to offering a new perspective on monitoring and data collection, the drone has expanded my opportunities for photography in the field and elsewhere. When not chasing corn rootworms or running bioassays, I can be found enjoying and photographing plants and insects in my prairie gardens and in a variety of natural areas around the state and elsewhere. A passion for creating compelling images of insects and other arthropods engaged in interesting behavior keeps me busy for as long as the weather permits.



INHS Medical Entomology Lab members at the recent Illinois Mosquito & Vector Control Association meeting, from left to right: Andrew Mackay, Raymond Kim, Holly Tuten, Kylee Noel, Jamie Mangan, Joe Spina, Dana Thompson, Katie Dana, Gabriel Yan, Chris Stone.

Chris Stone. The INHS Medical Entomology Lab has continued two large projects with the Illinois Department of Public Health on statewide surveillance for ticks and tick-borne pathogens and to assess mosquito and arboviral diversity throughout the state. Sophie Uwamahoro worked as an AAP Summer Research Fellow on a project under the guidance of Kylee Noel to characterize insecticide resistance levels in *Culex restuans* in Champaign-Urbana. Emily Struckhoff, Erica Cimo-Dean, and Sara Wilson successfully defended their Master's theses. Emily has joined Penn State Extension as Education Program Specialist in Vector-borne Disease, Erica has joined the Naval Medical Research Center in Maryland, and Sara will be continuing with her

PhD in the Department of Entomology. New additions to the group are Dana Thompson, Katie Dana, and Jamie Mangan. Joe Spina joined as a Master's student and will be assessing vector competence of several locally established mosquito species for Mayaro and Ross River virus. I served as President of the Illinois Mosquito & Vector Control Association this past year, which recently hosted a successful Annual Meeting that was attended by a good portion of our lab (see picture).



Holly Tuten. The past two years have flown by. I continue to lead the Illinois Statewide Tick Surveillance Program conducted in coordination with and funded by IDPH and CDC and provide identifications for all arthropods of public health concern submitted to IDPH.

I have also continued enthusiastically being a mom of two fantastic kids, Eliot (5 years old) and Mirian (9 years old).

For information on ticks of Illinois, please see my 4/11/2022 webinar for the Illinois Extension Forestry Webinar Series on YouTube.

For a recent snapshot of my work and interests, please see my 11/21/2022 interview for the UIUC Microbial Systems Initiative "Researcher Spotlight".

ACADEMICS / POSTDOCTORAL SCHOLARS / STAFF



Nick Anderson. Since the last newsletter, I've finished my Ph.D., started as a postdoc, served as the instructor of record for two IB courses, and welcomed my first child. It's been a busy two years! I continue to work with Dr. Alex Harmon-Threatt on projects related to various aspects of native bee ecology. My projects focus on top-down forces on bee communities, but I also help with larger projects related to soil contaminants with Alex's large field experiments at Philips Tract (a University-owned natural area east of Urbana). I've supervised several undergraduate research projects during this time, including IB alum Gabe Harmon's work which was recently accepted by *Insect Conservation and Diversity*. My teaching has expanded to leading courses to cover sabbatical and other leaves. I had a blast teaching Ecology and Human Health (IB361) and Genetics (IB204)!

On the personal front, my wife Lindsey and I welcomed our daughter Mina in May 2022. She's been a blast and is very alert and observant. We might have a scientist on our hands!



Lesley Deem. We were not back to two-classes-at-once field trips at the Pollinarium in 2021-2022. I held meetings outside and went to groups for education and outreach about pollinators. I have also continued writing articles for the News-Gazette. People were most interested in what to plant for pollinators. My favorite plant list includes anise hyssop, milkweeds, penstemons, purple coneflower, liatris (I can't plant because voles eat it), monarda, pedicularis, mountain mint, and, for fall, asters and stiff goldenrod. My favorite bee is the one I spent the most time with—my dog, Honey Bea (Honey Beatrice). It will be nice to see more people and bees in the coming year.



Brodie Dunn. I work for Illinois Extension coordinating pollinator programming and have been working to improve Extension's capacity to address beneficial insect and pollinator issues. I'm also running the day-to-day operations of I-Pollinate for the Harmon-Threatt lab and assist the Dolezal lab with solar pollinator habitat research. I'm delighted to be here and I'm so very thankful that I get to work with so many brilliant folks every day. In my free time I enjoy writing, crafts, birding with friends, and cooking with my partner. Though I already have too many houseplants, I just bought a small aquarium so I can have a couple aquatic plants too. Wish me luck!



Ling-Hsiu Liao. Pollinator decline has been associated with pesticides, pathogens, parasites, and poor nutrition. My work involves investigating the effects of pesticides on bees, and my ultimate goal is to find ways to protect these essential pollinators. I have focused on understanding how pesticides affect honey bee physiology, colony health, and social function. I also study the impacts of phytochemical diversity and functional phytochemicals in honey bee foods and their environment that might interact with environmental pesticides. In addition, I collaborated with graduate students and undergraduates on a few exciting side projects, including investigating the self-medication behaviors of bees, the functions of the beehive mycobiome, and symbiotic yeasts and behaviors of small hive beetles, pests of beehives. I firmly believe that we can make a difference by working hard to find possible solutions to honey bee challenges and create a balance between pollinators and human agriculture.



Razak Hussain. This is my first year as a postdoc in the Berenbaum Lab (joined in Fall 2022) and this is a transitional phase for me to work in Entomology from a Plant Biology background. I set up computational infrastructure for my work and I'm doing in silico analysis on honey bee P450s to explore catalytic and mechanistic perspectives on aflatoxin detoxification. Looking forward to some productive outcomes in the year ahead at UIUC.



Shengyun Li. I am a new postdoc in Dr. May Berenbaum's lab. I came here in August and I like this quiet and peaceful place. All the people here are cool and always helpful. My PhD project studied insect resistance and adaptation to allelochemicals. My current study focuses on food processing in honey bees and the potential resistance of the greater waxworm, a beehive pest, to insecticides. I'm expecting to find some new things and solutions about my research. I enjoy driving and cooking in my spare time.



Ashley St. Clair. I'm a postdoctoral research fellow in Dr. Adam Dolezal's lab in the Department of Entomology. My research is part of a USDA postdoctoral workforce development grant where I am investigating the interactive effects of insecticide and nutritional stress on honey bee queens and their attendants. By studying how these stressors interact to affect worker bees, worker-queen care interactions, and queen health, I hope to elucidate the mechanism by which queens are exposed to environmental stressors, which can inform conservation decisions for honey bee management in agricultural systems as well as support stress-tolerant bee strains. I received my Ph.D. from Iowa State University, where I studied wild bee and honey bee responses to crop production, farm diversity, and native habitat in an agricultural landscape. I received my bachelor's in biology from Murray State University. I recently accepted a job at Corteva, where I will continue my interest in ecotox working as a Global Ecotoxicology Project Lead.

STAFF



Todd Fulton. Throughout my 30 -plus years operating the Insectary, I continue to enjoy the challenge. I'm not sure when I'll be "done" with my time in Entomology, but I've certainly enjoyed myself... Thanks to all that make time here so satisfying.



Kim Leigh. As of the printing of this newsletter, I just completed 10 full years working in the Department of Entomology. I've seen many people—students, faculty, and academics—come and go. I've loved meeting everyone and miss them when they leave to continue on their paths in life. This newsletter is a wonderful opportunity to reconnect with those people, and, although it is a lot of work (and nagging people to get me their blurbs and photos—sigh!), I actually look forward to helping gather everything needed and organizing it. I enjoy reading what everyone in the department is doing, especially since the pandemic changed our working environment such that I don't see very many people in the office anymore and get to talk with them one-on-one and learn what's happening in their lives. I often don't find out someone got married or had a baby until I read their newsletter blurb! Now that some of the restrictions have lifted

and the office is open again, please feel free to stop by anytime, even if it's just to say "Hi" and to chat. I'd love to see you!

ENTOMOLOGICAL SOCIETY OF AMERICA MIXERS

2021



Sydney Cameron and Jim Whitfield at ESA meeting



At Loveland Pass Continental Divide
Back Row: Sara Wilson Kylee Noel
Middle Row: Sydney Cameron, Emily Struckhoff
Front Row: Elizabeth Bello, Jim Whitfield



Walking away in the snow



Snow fly (wingless tipulid) walking on the snow



Joe Zhou, Kenny O'Dell, Jr.



Lisa Knolhoff



Todd Johnson, Scott Clem



David Onstad, Emma Onstad



John Acorn, May Berenbaum



Harland Patch, Evelyn Patch, Christina Grozinger



Joel Coats, David Denlinger



Marianne Alleyne, Rob Wiedemann



Allison Gardner, Marianne Alleyne



Edward Hsieh, Scott Clem, Emily Althoff



David Denlinger, Carol Anelli, Diana Cox-Foster



Edward Hsieh, Adam Dolezal



Fred Larabee, Ian Swift



Paul Ode, Charles Dean, May Berenbaum

COLLOQUIUM SPEAKERS

Spring 2021

Feb 1	Coy St. Clair Genective, UIUC Research Park	<i>Lessons from western corn rootworm: Understanding management strategies and relevant spatial scales</i>
Feb 8	Nick Haddad Michigan State University	<i>Reconnecting landscapes for nature and people</i>
Feb 15	Christine Miller University of Florida, Gainesville	<i>Biomechanics, trade-offs, and the evolutionary diversification of animal weapons</i>
Feb 22	Julian Resasco University of Colorado, Boulder	<i>Biodiversity under environmental change in large-scale and long-term studies</i>
Mar 1	Aaron Smith Purdue University	<i>The evolution and innovations of desert darkling beetles (Coleoptera: Tenebrionidae)</i>
Mar 8	Ariane Cease Arizona State University	<i>Locusts: Working across boundaries, sectors, and disciplines to study and address outbreaks</i>
Mar 15	Paul Ode Colorado State University	<i>Causes and consequences of competitive displacement of <i>Cotesia glomerata</i> by <i>C. rubecula</i></i>
Mar 22	William Snyder University of Georgia	<i>Drivers of recent insect declines (and increases) across North America</i>
Mar 29	Sarah Short Ohio State University	<i>Mosquito-microbe interactions: Formation and structure of the microbiota in <i>Aedes aegypti</i> mosquitoes</i>
Apr 5	Rachel Mallinger University of Florida, Gainesville	<i>Plant-pollinator interactions in changing communities, landscapes, and climates</i>
Apr 12	Gillian Eastwood Virginia Tech University	<i>Determining the potential role of vector species in arbovirus transmission</i>
Apr 19	Brock Harpur Purdue University	<i>Can we connect genotype to phenotype in honey bees?</i>
Apr 26	Nick Anderson Grad Student Exit Seminar	<i>Death by a thousand cuts: The roles of pesticides, predators, and habitat patch characteristics on wild bee and insect communities</i>
May 3	Jose Luis Ramirez USDA Peoria	<i>Unraveling multipartite interactions to control mosquitoes and the pathogens they transmit</i>

Fall 2021

Aug 30	Elizabeth Bello, Sam Beshers, Ashley St. Clair, Katie Dana, Jim Whitfield Entomology, UIUC	<i>Failure in research: It happens</i>
Sep 13	Brian Walsh Penn State University	<i>Six years of Spotted Lanternfly in Pennsylvania - what we know, what we don't and what does it mean?</i>
Sep 20	Brittany Peterson Southern IL University, Edwardsville	<i>Termite symbionts as mediators of host protection</i>
Sep 27	Elizabeth Gleim Hollins University, Roanoke, VA	<i>Fire, ticks, and Lyme disease: A fascinating dive into the world of tick-borne disease ecology</i>
Oct 4	Robert Peterson Montana State University	<i>Hot springs, tigers, and bears... Oh my! Adaptations of insects to extreme environments in Yellowstone National Park</i>
Oct 11	Nick Gotelli University of Vermont	<i>Effects of climate warming and species interactions on the dynamics of colonization, extinction, and species replacements: Lessons from the Warm Ants Experiment</i>
Oct 18	Emily Meineke University of California, Davis	<i>Herbivory through the ages: Novel methods to investigate changing plant-insect interactions</i>
Oct 25	Yangui Cao Postdoc, Dietrich lab, UIUC	<i>Phylogenomics and beyond: multiple uses of anchored-hybrid sequence data from sap-sucking herbivores</i>
Nov 1	Kari Segraves Syracuse University	<i>The evolutionary ecology of species interactions</i>

Nov 8	Megan Meuti Ohio State University	<i>Winter is coming: How mosquitoes predict and prepare for the Midwest's most inhospitable season</i>
Nov 15	Kaitlin Baudier Southern Mississippi University	<i>Social thermal adaptation: Using ants to study how climate shapes form and function across spatial scales and levels of biological organization</i>
Nov 29	Jason Bried INHS, UIUC	<i>Local recruitment, dispersal mass effects, and linking aerial odonates to aquatic health</i>

Spring 2022

Jan 24	Scott McArt Cornell University	<i>Pesticides, pathogens, and pollinator declines: What do we know?</i>
Jan 31	Isabelle Vea University of Illinois, Chicago	<i>Atypical insects: hormonal regulation of metamorphosis and reproduction in extremely sexually dimorphic scale insects (Hemiptera: Coccoomorpha)</i>
Feb 7	Margaret Couvillon Virginia Tech University	<i>Bees as bioindicators for a sustainable future</i>
Mar 7	Brittany Buckles , Alvéole Joe Wong , USDA APHIS Sarah Hughson , UI Extension Xander Hazel , Champaign Center	<i>Career Panel: Non-Academic Options</i>
Feb 14	The Bug Chicks Kristie Reddick, M.S. & Jessica Honaker, M.S.	<i>Failing At what you love: A memoir by The Bug Chicks</i>
Mar 28	Konstantin (Kostya) Kornev Clemson University	<i>Inquisitive coupling of blood pressure and cuticle deformation enables insects to bend, twist, lash and curl their muscle-free appendages</i>
Apr 4	Warren Booth University of Tulsa	<i>Bed bugs: A model system for studying urban pest evolutionary biology</i>
Apr 11	Christian Krupke Purdue University	<i>Fifteen years of 'perfect' pest management: neonicotinoid seed treatments in row crops</i>
Apr 25	Ed Vargo Texas A&M University	<i>Bottlenecks, urbanization and intralocus conflict: Insights from two invasive ants</i>
May 2	Scotty Yang Virginia Tech University	<i>Micro- and macroparasites associated with two global invasive crazy ants</i>

Fall 2022

Aug 29	Charles Dean Grad Student Exit Seminar	<i>Comparative chemical ecology of invasive <i>Depressaria</i> species (Lepidoptera: Depressariidae) varying in hostplant specificity</i>
Sep 12	Chelsea Cook Marquette University	<i>Stay cool: The social and ecological components of collective thermoregulation in honey bees</i>
Sep 19	Daniel Bush Grad Student Exit Seminar	<i>The ubiquitous mold: How insect fungus interactions complicate agroecosystems</i>
Oct 3	Kate Ihle USDA-ARS, Baton Rouge, LA	<i>Using behavioral genetics to build a more resilient honey bee</i>
Oct 10	Reed Johnson Ohio State University	<i>Effect of agricultural pesticides and pesticide combinations on honey bees</i>
Oct 17	Andrea Glassmire Louisiana State University	<i>Phytochemical diversity and its ecological role in plant-insect interactions</i>
Oct 24	Alexandria Payne Postdoc in Dolezal Lab, UIUC	<i>Honey bee (<i>Apis mellifera</i>) disease ecology: In-hive pests and nutrition impact host-pathogen interactions</i>
Nov 7	Toby Hammer University of California, Irvine	<i>The rise and fall of insect-microbe symbiosis: a tale of two bees</i>
Nov 28	Kate Dana Grad Student Exit Seminar	<i>Cicada ecology inside and out: A tale of cemeteries, railroads, clifftops, and microbiomes</i>

NEW STUDENT WELCOME AND ALUMNI FALL PICNIC

2021

“Eu-Social” (in lieu of our annual Entomology Alumni/New Student Picnic due to new COVID guidelines)
North Lawn of Natural History Building

Met or got reacquainted with our Entomology students and handed out gift bags and served “Just Bee Acai” bowls



2022

New Student Welcome



Picnic — Guest alumnus speaker, Dr. Reed Johnson, The Ohio State University



CELEBRATIONS

Grad Student Appreciation Week



2022



End-of-Year Candy Insect Collecting Party 2021 (in lieu of of our annual Entomology Holiday Party)



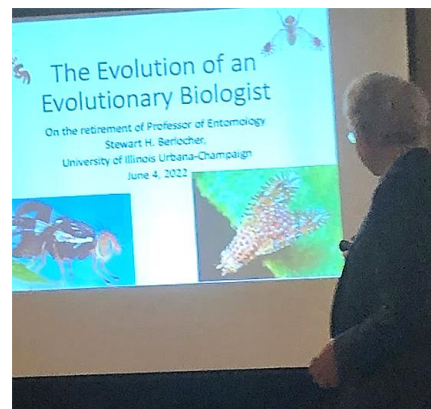
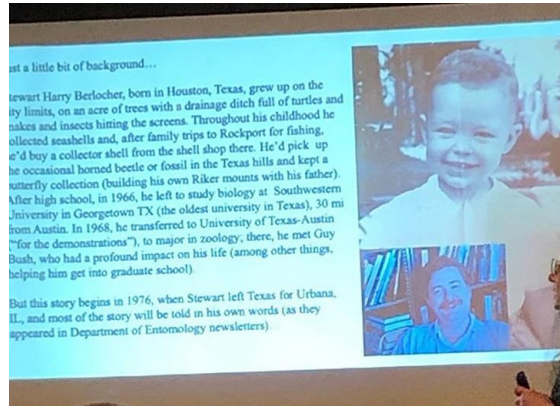


Winter Cookie Exchange Party 2022



StewartFest (AKA Stewart's retirement party) - Saturday June 4, 2022

[Dr. Stewart H. Berlocher Graduate Student Research Support Fund announced.]



GRADUATE STUDENTS



Miles Arceneaux. I am a second-year master's student in the Ngumbi lab. My current research focuses on the large umbrella topic of climate change and zooms in to take a closer look at how climate change has increased the frequency of flooding events around the globe, and how this has an effect on crops. Specifically, I look at tomato plants under flood-stressed conditions and see how the addition of herbivory stress causes a direct effect on the physiology of the tomato plant and what the indirect effect on the herbivore growth and performance is. I am looking forward to wrapping up my thesis and continuing to conduct research as a PhD student in the near future.



Tristan Barley. I am a second-year Ph.D. student in the Dolezal lab with two main research focuses. The first is a collaborative project with UIC and Argonne National Laboratory investigating responses in insect communities to seeding solar facilities with prairie plants. My other research project looks at the effects of competition between honey bees and native bees. I spent most of the summer and fall in the field collecting data, and I was able to present these data, in an organized symposium and a poster session, at the Entomological Society of America's annual meeting in Vancouver in November. My poster placed second in my session (largely thanks to Drs. Adam Dolezal's and Ashley St. Clair's feedback), which made the long hours identifying bees worth it. Outside of my lab work, I enjoy hiking through national parks, playing soccer, and working my way through the many great restaurants in the Urbana-Champaign area.



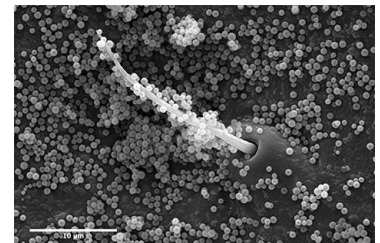
Vinisha Basnet. I am a second-year master's student working in collaboration with Medical Entomology Lab while simultaneously pursuing my PhD in Urban and Regional Planning. My work focuses on the intersection of human–nonhuman (primarily insect) entanglement, participatory design, and social equity in planning. Largely, I situate my work within the framework of epistemological pluralism where scholars believe that there are multiple valuable ways of knowing a given phenomenon or crisis for making informed and sustainable interventions. Hoping that different ways of knowing can help us understand the nuances of the crisis, embedded in the complex networks, I dwell between disciplines and methods. And this hope led me to enroll in a master's program in entomology along with a PhD.

Currently my research work is twofold. My master's research seeks to investigate the efficacy of entomopathogenic fungus on bed bugs in a spatially complex environment, for further understanding of how bed bugs transfer entomopathogenic fungus in a complex environment. My PhD work investigate how pests, particularly bed bugs, in urban spaces are embedded within social-ecological systems and how they alter the practices of various stakeholders. At present, I am in the process of starting the bed bug colonies, which should inspire more research on bed bugs in the future. I use different disciplinary lenses as a kaleidoscope to provide me with the bird's-eye views to understand the issue of bed bugs and its infestation in urban spaces. The larger goal, however, is to come up with a methodological approach to address environmental crisis pertaining to pest, wildlife, or natural resources that are nested within different socio-political systems, which requires breaking the disciplinary silos and by default calls for interdisciplinary and collaborative approaches.



Elizabeth Bello. Working in Dr. Marianne Alleyne's ABC Lab, I completed my master's degree in August 2022 and am now a first year PhD student. My master's work focused on leafhopper brochosome size variation and hydrophobicity within and between different leafhopper species. My doctoral work will be focused on characterizing the adhesion forces and mechanical properties of brochosomes. In the past two years I have been fortunate and so grateful to receive multiple awards, including the 2021 Master's Project Travel Grant, 2021 Beckman Institute Graduate Fellowship, 2021 Harley J. Van Cleave Research Award, first place in the 2022 GEEB Symposium Master's Lightning Talk, the people's choice award (2021) and honorable mention (2021, 2022) for two images I submitted to the Beckman Institute

Research Image Contests, and first place for my brochosome image in the 2022 SIB World of Biology Photo Competition. I was also featured as a Beckman Institute Graduate Visionary in 2021 and just recently joined the Beckman Institute DEI committee, which I'm looking forward to. My graduate career has been fantastic so far, but I couldn't have done it without my incredible advisor, friends, family, and all the support from my now wife, Melissa Bello. We were married on Long Island, NY

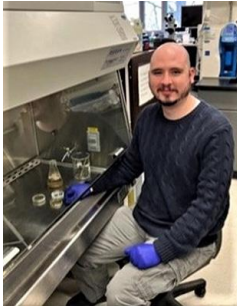


Brochosome image: "On The Wing"

on October 9, 2022. The weather was beautiful, and we couldn't have asked for a more perfect evening. We celebrated our honeymoon hiking and exploring the Catskill Mountains with five of our closest friends.



Morgan Brown. I am a first-year master's student in the Dietrich Leafhopper Lab. My research interests lie in insect decline and conservation, specifically anthropogenic effects on insect communities. My current focus in the Leafhopper Lab is investigating the changes in Auchenorrhyncha communities over time in multiple remnant prairies located throughout Illinois. I started in the lab this past summer and had a successful first field season during which I learned a lot about insects and prairies. Since then, I have been doing plenty of pinning and identification of auchenorrhynchan insects, both of which I have been enjoying thoroughly. I've been loving my time at UIUC so far and have met plenty of amazing people! I'm very excited to continue my research and learn more about the field!



Daniel Bush. 2022 was the last year of my graduate studies with May Berenbaum, as I've finally brought my doctoral work to a close. We've stumbled onto some interesting territory while investigating fungi in honey bee colonies, and it's been fun to see some of the new students in our lab take an interest in the subject as well. This year also marked the first time I have had the opportunity to instruct a course—with Stephen Downie stepping into a new role in LAS, I've inherited IB335 Plant Systematics for the time being, and I had a great experience learning how to manage a class on my own (and how not to!). Now that my dissertation is successfully defended and deposited, I'm looking forward to my new role here at the University next year as a post-doctoral associate of the Department of Entomology. Oddly enough, that job will begin with teaching a pair of Plant Biology courses in the spring!



Xavier Carroll. I am studying the relationships between insects and ambient factors of their physical environment in Marianne Alleyne's lab.



Benjamin Chiavini. I am a current second-year masters student in the Dolezal Lab in the Department of Entomology. I have served as a TA for multiple core Entomology courses for the department, including IB468 and IB444. I currently mentor an undergraduate in her own project focusing on my study organism—the small hive beetle (*Aethina tumida*). Specifically, our joint research investigates modes of reproductive diapause in small hive beetle adult females. In my own research, I study pesticidal control methods for these beetles and have a joint project with the Bonning Lab at the University of Florida. I also am investigating bee virus transmission and replication via small hive beetles in order to test for other routes of viral transmission in honey bee communities.



Ember Clodfelter. I am a first-year master's student based in the Prairie Research Institute working in Dr. Kevin Johnson's lab. My work so far this year has focused on Wolbachia endosymbionts in *Penenirmis* sp. lice. There has been much to learn, lots of new programs, but I almost have some preliminary results. I am also working with Dr. Sam Heads on identifying a potential fossil louse from the paleontology collection. Outside of school, I have been crocheting numerous washcloths and I adopted a precious cat named Aalaya!



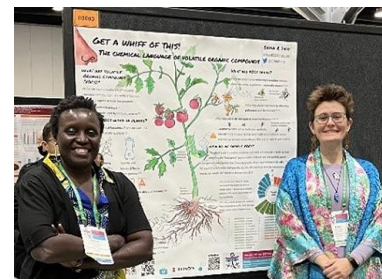
Kat Coburn. Studying under Tommy McElrath and Bekky Darner, I'm finishing up my time at UIUC as a discipline-based education researcher! My thesis investigates the quality of insect natural history collections as materials for Biology instruction by comparing their supportive effects on basic psychological needs required for science identity development and highlighting the diversity and accessibility of insects as instructional taxa. Putting my COVID booster shots and masks to work, I was excited to present results informing the instructional qualities of natural history collections in-person at the Society for Advancement in Biology Education Research annual meeting in Summer 2022! Beyond Insecta, I'm developing a queer theory-informed essay

in collaboration with an LGBTQ+ DBER special interest group on best practices for representing the experiences and data gathered from trans and gender non-conforming folks in human-subject research. I look forward to adding variety to my educational background by joining another biology department as a PhD student and continuing multidisciplinary research regarding the unique interactions between science education, identity, and public science literacy.



Erinn Dady. I am a first-year master’s student in Dr. Esther Ngumbi’s Lab. I am a non-traditional student, working for many years as a chef for locally owned Champaign-Urbana restaurants before returning to school. I am passionate about food and how effectively it can connect people across different backgrounds. I am eager to approach food from a new angle, through the lens of chemical ecology, to tackle food insecurity caused by insect pests. I am grateful to be doing research with local farmers. My work focuses on plant responses to insect herbivory in combination with environmental stressors, using the model crops tomatoes and maize. I am interested in plant chemical defenses, above-belowground interactions, and how the soil microbiome influences insect pressure. The goal of my work is to understand how plant-insect-microbe interactions can improve the sustainability of agroecosystems.

Since 2019, I have been a member of the Entomological Society of America, serving on the Education and Outreach Committee, and presenting at annual meetings in 2020, 2021 and 2022. I was awarded second place on my infographic at the 2022 Entomological Joint Annual Meeting in Vancouver. I used my own artwork, featuring hand-painted watercolors of my study organisms. The opportunity to incorporate my own artwork into science communication and sharing my research with a broad audience is exciting and rewarding. I met Dr. Ngumbi as a 2019 participant in PRECS (<https://precs.igb.illinois.edu>), a National Science Foundation Research Experience for Undergraduates (REU), and I was asked to stay on with her lab during my undergraduate career. Due to this opportunity and guidance from many amazing mentors, I know I belong in science and how transformative REU programs can be. I was asked to serve as an assistant for PRECS over the last two summers, and it has been fulfilling to guide young scientists in research labs across campus. I am committed to bringing others along with me, opening doors for students of all backgrounds, and encouraging the value of their minds and ideas. I believe we will only be able to face the challenges of the future through giving everyone a seat at the table; so pull up a chair, and let’s break bread together!



Katie Dana. These past two years have been busy! In October 2021, I gave birth to my daughter Corinne. Also, I recently deposited my dissertation on Illinois cicadas where I focused on species distributions, microbiomes, population genetics, and conservation. I’m so happy to be finally done and I’m very thankful to everyone who helped me along the way. We finished out our two State Wildlife Grants in the Heads lab this summer, so I’ve been writing those up as well. For the past few years, I’ve been hopping between projects (mostly for funding) but I’ve had a lot of fun doing so. From cicadas to bumble bees to fish to mussels to turtles to trematodes and now to mosquitoes and ticks! To the newer



graduate students -- having lab bench skills can really open some doors. Fortunately, I have landed in an awesome position in the Stone Lab working on medical entomology – testing Illinois mosquitoes and ticks for pathogens.



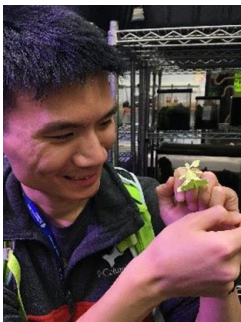
Siti Fauziyah. I am a second-year PhD student in Dr. Marianne Alleyne's group, and I am interested in the Spring 2023 semester! My first year in the United States was fantastic, especially at UIUC. As someone who comes from a very warm country, winter is the season I look forward to the most. My initial study focuses on the outer morphology of the insect wing, especially the corrugation of grasshopper wings and the surface of dragonfly wings. Outside of the lab, I like to go hiking, reading, cooking, and watching movies with my friends.



Luke Hearon. Just about the entirety of my “real” grad school experience has happened since the last newsletter! I’m now in the tail end of my master’s, chugging along with the last of the lab work I need to finish up my thesis. I tried a number of different projects over the last couple of years; the one that yielded promising data investigates the non-consumptive effects of my study organism (*Chaoborus punctipennis*) on the disease dynamics of its prey (*Daphnia dentifera*). I presented my preliminary results at the Entomological Society of America meeting this last November and managed second place in my group in the poster competition. I’m excited to wrap up my master’s, take some time after graduating to figure out my next steps, and find more time for my hobbies once I’m free from the mortal clutches of the thesis.



Phillip Hogan. I am a Ph.D. student in Ed DeWalt’s lab at the Illinois Natural History Survey in which I study the diversity and distribution patterns of Nearctic stoneflies using distribution modeling and phylogeographic techniques. Current research involves identifying recolonization pathways into the midwestern USA following deglaciation of the late-Pleistocene. Additionally, I am interested in finding out how the diversity patterns within the Midwest have been altered within the past two centuries by large-scale land conversion to agriculture. Over the past year, I have presented at two conferences and helped moderate the XVIth International Conference on Ephemeroptera and XXth International Symposium on Plecoptera. I recently published a faunistic paper on the stoneflies of Maryland, with several more papers being prepared for publication in the coming months.



Edward Hsieh. Since my last update, I have successfully passed my preliminary exams and become an official PhD candidate. Additionally, I have made steady progress on my research, completing the majority of my first chapter investigating the tripartite interactions between diet, pesticide, and virus infections in honey bee health. Since then, I have continued this line of research by investigating these same effects across different honey bee life stages and with adjustments to their microbiomes. Although things are not looking so bad now, there definitely was an adjustment period to get through at the beginning—sure wish I had taken more microbiology classes as an undergrad! I have continued to expand my teaching and presentation repertoire and am looking forward to giving my first in-person talk at a national conference in a few short weeks. I am happy to say that I have stuck with my early pandemic hobbies,

improving my abilities as a birdwatcher and photographer, and continuing to allow these pastimes to further drain what little monetary resources I have remaining.



Aaron Mleziva. I am a second-year master's student in Esther Ngumbi's lab. My research focuses on how plant physiology changes in response to combinatorial stresses driven by climate change. In particular, I am interested in how flooding, elevated carbon dioxide, and insect herbivory alters the defensive chemistry of maize. Summer 2022 I had the pleasure to mentor a student, Alex Lozano, in the Phenotypic Plasticity Research Experience for Community College Students (PRECS) program at UIUC. The project we collaborated on explored the combinatorial stress response of modern maize to ancient maize. We hope to publish our findings soon. I also enjoy teaching the discussion sections for IB150.



Sam Mowery. Hello! As a new graduate student in the Berenbaum laboratory, I am beginning to start my research related to *Aspergillus flavus* and the bioactivity of honey bee propolis! I am interested in the general characterization of propolis from central Illinois and understanding how propolis bioactivity changes seasonally. I am also super excited to do further research on an *Aspergillus flavus* strain that Daniel Bush worked with for his dissertation. I look forward to the years ahead!



Kylee Noel. I am a fourth-year PhD candidate in Dr. Chris Stone’s lab studying insecticide resistance in *Culex* mosquitoes. Over the past two years, I’ve had the opportunity to present my work at several conferences, including the National Entomological Society of America meeting in Denver, Colorado (2021) and Vancouver, Canada (2022). Additionally, I’ve loved working as a teaching assistant for a few different courses, including my first entomology-centered course, Vector-Borne Diseases! Furthering my teaching abilities, I’ve had the privilege to mentor

several undergraduate students in the medical entomology lab and the iBio program. Next semester I'm looking forward to acting as a mentor for the Undergraduate Research Assistantship Program.



Vincent Prayugo. I am a first-year graduate student at Dr. Adam Dolezal's lab, focusing on the impact of pesticides and viral pathogens in honey bee populations. Specifically, I am studying the detoxification capabilities of bees that recovered from Israeli Acute Paralysis Virus (IAPV) in response to thiacloprid exposure. I am also looking to expand my work to include honey bee gut microbiome and their role in tackling honey bee environmental stressors.



Joseph Spina. I am a first-year master's student in the Entomology program and am advised by Christopher Stone in the Illinois Natural History Survey Medical Entomology Lab, where I have been a research assistant since 2019. My area of focus is the ecology of arboviruses in mosquito species native to Illinois, specifically as they relate to urban heat effects.



Sreelakshmi Suresh. It's been a great gay year! I say that in that having become very active at the Gender & Sexuality Resource Center. In October 2021, I founded Forging Unity Solidarity and Equity for QTPOC (FUSE). A year later, we're officially an RSO.

It's been so incredible to see queer & transgender students of color come together and have a community at UIUC. Very excited to have received a special recognition in Graduate Student Leadership for my work in establishing FUSE! Other than the GSRC, I've enjoyed teaching/creating IB 110 with Esther & Alex 2021/2022.

On the personal front, I've gotten even more into baking and took Ikebana: Japanese Flower Arrangement this semester. [Photo credit: Courtney McCusker, who is Reed Johnson's wife. The Johnsons came to see my final exhibit at Japan House!]



Daniel Swanson. After some delays and difficulties, I am very happy to be finishing up my doctoral dissertation soon. My research 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. In the last year-and-a-half, I have enjoyed TAing three of the Core Entomology courses, two of which were co-taught with Ben Chiavini. Outside of academic life, I've kept the dissertation blues away playing indoor soccer in the evenings. In further evidence of time flying, our girls, Riley and Emma, are now four years old and in preschool!



Jacob Tamarri. I am a first-year master's student working on hymenopterans from a fossil basin known as the Renova Formation, located in southwest Montana. The fossils from this deposit are from the Eocene-Oligocene (50-23 million years ago) which has yielded undescribed insect species as well as new information on known species. Given that during the transition from the Eocene to the Oligocene temperatures were cooling globally, the Renova Formation has provided a unique look into how fluctuations in climate have impacted insect species. My research focuses primarily on the comparative morphology between contemporary and fossilized ichneumonids, a taxonomic revision of Ichneumonidae, and an analysis of how climatic shifts have impacted the Renova Formation's hymenopteran diversity.



Lincoln Taylor. After 24 years, I am at last in my final year at UIUC. That joke is that I am originally from the C-U area and also earned my undergraduate degree here before starting a master's in entomology. As for what's next? Eh, I'll figure it out. I'm currently applying for PhD positions away from the Midwest to study wild bee disease ecology and maybe will have heard back by the time this newsletter gets published.



Jonathan Tetlie. I am a second-year PhD Candidate in the Harmon-Threatt lab studying the environmental fates and effects of neonicotinoid insecticides on prairie restoration ecosystems. Expanding upon my master's thesis, which examined native bee nesting rates and beetle community assemblages in neonicotinoid-contaminated soil, my dissertation examines physiological alterations in plants caused by neonicotinoid contamination and the subsequent influence that these chemical changes have on insect trophic structures and native bee survival. Since the 2019-2020 newsletter, I have successfully passed my preliminary examinations, completed my first season of fieldwork for my dissertation, and concluded work on a State

Wildlife Grant addressing bumble bee distribution in Illinois. Outside of academic life, I look forward to marrying my wonderful fiancé this fall!



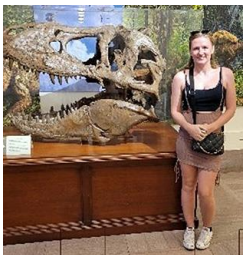
M. Jared Thomas. My Master's research is focused on fossil insects from the Early Oligocene Renova Formation of southwest Montana, notably the Upper Ruby River Basin. I'm particularly focused on the Orthoptera (grasshoppers, crickets, and katydids), a comprehensive taxonomic treatment of which will form the bulk of my thesis. Over the past two years I've been working on obtaining, cataloging, and imaging Orthoptera and have now completed photographing all specimens from the University of Michigan Museum of Paleontology, the Peabody Museum of Natural History at Yale, and the National Museum of Natural History at the Smithsonian. Now begins the work of describing all the new taxa! In other news, my daughter was born in October 2021 and our house has been crazy busy while my wife, Katie Dana, finished up her PhD in the department. I also accepted a position with the Illinois State Geological Survey as Curator of Geological Collections. This sees me caring for the huge collection of cores in the Geological Samples Library in addition to my duties as a curator in the PRI Center for Paleontology.



Anupama Udayakumar. I am a first-year master's student in the Hanks Lab. Over the summer, I had a chance to learn techniques in the lab and the field, enabling me to do an independent study as an undergrad. I fortunately got the opportunity to continue my work this fall with Dr. Hanks and hope to develop my project into my thesis.



Annaliese Wargin. Over the last two years, I have continued my work on my master's degree, working with the GEMS Biological Institute to study the legume-rhizobium mutualism and its connections to plant-insect interactions. My research specifically focuses on how nitrogen-fixing rhizobia bacteria of varying mutualist quality can affect plant traits important to insect pollinators and herbivores. I'm looking forward to 2023, when I hope to complete my master's degree in spring and start work on my PhD.



Cariad Williams. I am a fourth-year PhD student in the Entomology department, specifically palaeoentomology in Sam Heads' lab. My research focuses on Early Miocene Dominican and Mexican amber, with side projects in Baltic amber. My research entails completing a comprehensive taxonomic and systematic review of Orthoptera in Dominican and Mexican amber. Additionally, I am studying the taphonomic processes occurring in Dominican amber, as well as determining the palaeoecology of Dominican amber using insects. I am also describing Hymenoptera in Baltic amber. Furthermore, I am exploring the diversity of singing Orthoptera at Nachusa Grasslands using non-destructive acoustic surveying techniques.



Wen-Yen Wu. I enjoyed the fruitful studying from the core courses over the last two years and further going to obtain training as an Environmental Toxicology Scholar in the Interdisciplinary Environmental Toxicology Program. I am excited to apply knowledge to investigate the interactions among honey bee health, functional dietary phytochemicals, mycobiome composition, and environmental fungicide contamination. With lots of warm help, I collected paired bee pollen and beebread samples from our local beehives to examine changes in

phytochemical content and their dietary effects on honey bees.

RECENT GRADUATES

Graduation Term	Student	Degree	Thesis Title
May 2021	Robert de Moya	PhD	Phylogenomics of Psocodea (K. Johnson)
Aug 2021	Nicholas Anderson	PhD	Death by a Thousand Cuts: The Role of Pesticides, Predators, and Habitat Patch Characteristics on Wild Bee and Insect Communities (A. Harmon-Threatt)
	C. Scott Clem	PhD	Assessing Adaptive Winter Behaviors of Beneficial Arthropods, with a Focus on the Long-Distance Migratory Ecology of Nearctic Hover Flies (Diptera: Syrphidae) (A. Harmon-Threatt)
	Joshua Gibson	PhD	Comparative Biomechanics and Functional Morphology of Latch-Mediated Spring Actuated Mandibles in Ants (A. Suarez)
	Rachel Skinner	PhD	Phylogenomic Analysis of Hemimetabolan Insects with Emphasis on the Hemipteran Suborder Auchenorrhyncha and the Superorder Paraneoptera (C. Dietrich)
Dec 2021	Erica Cimo-Dean	MS	Environmental Factors Affecting the Range Expansion of <i>Ixodes Scapularis</i> , the Blacklegged Tick, (Acari:Ixodidae) in Illinois (C. Stone)
	J. Matthew Flenniken	MS	Environmental Drivers of Gulf Coast Tick Range Expansion in the United States (B. Allan)
	Evan Newman	MS	The Disruption and Diversity of an Entire Assemblage of Plecoptera (Stoneflies) Inhabiting Indiana, USA (E. DeWalt)
May 2022	Charles Dean	PhD	Comparative Chemical Ecology of Invasive <i>Depressaria</i> Species (Lepidoptera: Depressariidae) Varying in Hostplant Specificity (M. Berenbaum)
	Anna Grommes-Yeager	MS	Fielding a Strong Defense: Optimizing the Effectiveness of Pheromone-Based Lures for Detection of Cerambycid Beetles (L. Hanks)
	Emily Struckhoff	MS	A Checklist and Taxonomic Key to the Ticks [Acari: Ixodidae and Argasidae] of Illinois: Establishing a Baseline for Research and Surveillance (C. Stone)
Aug 2022	Elizabeth Bello	MS	Cuticular Surface Structures of Insects: A Source of Bioinspiration for Novel Hydrophobic Designs and Materials (M. Alleyne)
	S. Magdalena Murphree	MS	Effects of Imidacloprid and Octopamine on the Honey Bee (<i>Apis mellifera</i>) Trophallaxis Social Network (G. Robinson)
	Sara Wilson	MS	Implications of Pre-Diapause Timing on <i>Culex pipiens</i> Energetic Reserve Acquisition and Overwintering Success (C. Stone)
Dec 2022	Daniel Bush	PhD	Re-Thinking Management Approaches in Complex Agroecosystems: Relationships Between the Fungus <i>Aspergillus flavus</i> and Two Insects of Economic Importance (M. Berenbaum)
	Catherine Dana	PhD	Distribution of Cicadas in Illinois with a Focus on the Natural History, Population Genetics, and Conservation of <i>Megatibicen dorsatus</i> (Hemiptera: Cicadidae) (S. Heads)

ENTOMOLOGY GRADUATE STUDENT ASSOCIATION

2022 has been all about returning to normal as pandemic restrictions have steadily loosened. The new class of officers has been busy revitalizing the energy of EGSA, establishing new traditions and maintaining old ones as well. Our fantastic Social Chairs have organized multiple events to welcome new students and build intradepartmental relationships, including dinners, camping, and hiking trips. EGSA also had a great showing at the National Entomological Society of America meeting this year in Vancouver, BC, with 9 students in attendance and 4 of them winning awards in the student competitions! Finally, we are hoping to hold our 40th consecutive Insect Fear Film Festival and the first one to be in-person since the start of the pandemic.

2022-2023 Officers

President: Ed Hsieh
Secretary: Annaliese Wargin
Treasurer: Jon Tetlie
Webmasters: Sam Mowery and Wen-Yen Wu
Outreach coordinators: Kat Coburn & Aaron Mleziva
Faculty liaison: Luke Hearon
Academic Committee Chair: Kat Coburn
Academic Committee Member: Kylee Noel
GSAC representative: Lincoln Taylor
Social Chair: Elizabeth Bello
NCB-ESA Student Affairs Representative: Siti Fauziyah



2021-2022 Officers

President: Jon Tetlie
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Outreach Officers: Kat Coburn and Maggie Murphree
Faculty Liaison: Wen-Yen Wu
GSAC Rep: Emily Struckhoff
Co-Social Chairs: Elizabeth Bello and Luke Hearon
NCB-ESA Student Affairs Representative: Elizabeth Bello



38TH ANNUAL INSECT FEAR FILM FESTIVAL: Insect Fear Film Festival Featuring Fleas (IFFFF)
- online via Zoom, February 27, 2021



In the midst of a devastating global pandemic, it seemed natural if not a little perverse to focus on an order of insects related to three devastating global pandemics. The order is Siphonaptera (the name of which translates roughly to “wingless sucking device”) to which belong about 2500 species of fleas. Among the fleas in terms of pandemics, getting top billing in this festival is the Oriental rat flea *Xenopsylla cheopis*, along with its fellow traveler, the bacterium *Yersinia pestis*, whose specific epithet literally means “plague”—deservedly so, because it’s the bacterium responsible for bubonic plague, a disease that begins with fever and headache, progressing to eruption of egg-sized swollen lymph nodes called buboes, leading to continuous vomiting of blood, gangrene and blackening of appendages (earning it the name “black death”), coughing, delirium, coma and death if untreated (which it was, until just about a century ago).

So 2020 might not look so bad, compared to, for one, 542, when the first bubonic plague pandemic (“plague of Justinian”) broke out in Egypt and spread throughout the Byzantine empire, lingering for 50 years and ultimately killing =100 million people, almost half the world’s population at the time. Then there’s the second pandemic of bubonic plague, beginning in 1348 AD, originating in Yunnan, China and ultimately leading to the death of possibly 200 million people across Europe, Asia and Africa. The third pandemic erupted in 1892 AD, originating in Yunnan, China and killing 10 million in Asia alone, before the turn of the century—it’s still actually lingering on today.

The third pandemic hasn’t been getting much publicity because, by the turn of the 20th century, scientists finally figured out the disease cycle—what causes it and what makes it spread. In 1894, Alexander Yersin in Bombay and Shibasaburo Kitasato of Japan almost simultaneously described *Yersinia pestis*, in plague victims. In 1903, entomologist Charles Rothschild described six new species of fleas, including the Oriental rat flea, *Pulex =Xenopsylla cheopis*, 0.1 inch long, from Sudan, collected from six different rodents (including two gerbil species) and a civet cat [*Mus gentilis* house mouse, *Acomys witherbyi* spiny mouse, fringe-tailed gerbil *Gerbillus robustus*, African grass rat *Arvicanthis testicularis*, Botta’s gerbil *Dipodillus watersi*, lesser jerboa *Dipus jaculus*, small-spotted genet (a civet cat), *Genetta dongolana*]. Paul-Louis Simond in Karachi in 1898 demonstrated that flea bites were important in plague transmission and he completed the cycle by finding plague bacilli in flea guts. The idea seemed so implausible that it wasn’t widely accepted for nearly a decade.

Other discoveries followed; Oriental rat fleas, along with cat fleas and mouse fleas, were found to be vectors of another pathogen, murine typhus, *Rickettsia typhi* in 1928. Also around this time, dog fleas were discovered to be vectors of dog tapeworms, which can establish residence in humans who accidentally ingest fleas with eggs; the tapeworms can grow to a length of 18 inches and break off segments full of eggs, which pass out in feces or sometimes crawl out on their own. Then there’s cat scratch fever, caused by the bacterium *Bartonella henselae*; infected cat fleas pass the infection along to cats by bites or droppings; when infected cats bite or scratch humans, they can pass the disease along to them because of flea dirt lodged in teeth or claws. Infection is characterized by blisters at the scratch site, swollen lymph node, headaches, fever, and joint pain.

So why does anyone have enough affection for fleas that they make movies about them? Why are they still regarded as a source of amusement? It’s not their pretty faces—they’re mostly too small to see (the largest in the world is *Hystrichopsylla schefferi*, which specializes on the mountain beaver *Aplodontia rufa* in the Pacific NW US; it’s a whopping half-inch long and its head is the size of a cat flea (0.11 inch)). It’s certainly not the biting—flea mouthparts (laciniae) slice the skin, inject saliva loaded with anticoagulants, and suck up blood, often inflicting bites in groups of three (called breakfast, lunch, and dinner by pulicologists (Youssefi 2014)). The allergens in the saliva can cause itching that lasts a week or more (some reports document two years of itchiness!).

If you ask me, it’s the jumping thing. Fleas can jump up to 12 inches in height, 150 times their own height, and reach accelerations in excess of 135 g in the process, 50 times faster than the space shuttle (as sites called “Fun Facts about Fleas” like to report). Energy is stored in a stretchy protein pad in a leg segment; the resilin pad releases the stored energy and extends the leg much more rapidly than a muscle could (like a slingshot). Jumping fleas are thought to have inspired the beloved game tiddlywinks in 1857/1889, called *jeu de puces* in French. And it’s the combination of the jumps and the ability to “pull up to 160,000 times their own body weight—the same

as a human pulling over 2600 double decker buses” (as other Fun Facts sites like to quote)—that led to the creation of the first recorded flea circus in the early 1820s. Impresario Louis Bertolotto promoted an “extraordinary exhibition of industrious fleas” on Regent Street, London; although the heyday may have passed, there are flea circuses re-enacting the Battle of Waterloo around the world to this day. [London watchmaker Mark Scaliot 1578, <https://www.smithsonianmag.com/travel/modern-day-flea-circuses-180967355/>]. Their agile acrobatics even inspired 19th century watchmakers to create tiny flea circuses. This tradition was discussed by our special guest, Dr. Tim Cockerill from Falmouth University in England, whose fleas performed for us.

There’s also the intimate association with humans that has made them subjects for naughty paintings and raunchy poems throughout history. Surprisingly, despite the technological challenges posed by their small size and predilection for jumping, fleas have appeared in movies almost from the very beginning. Pathé Frères may have created the first live action flea film.

The 38th Annual Insect Fear Film Festival (IFFF) Featuring Fleas was held on Saturday, February 27, 2021 hosted by the Entomology Graduate Students Association in the Department of Entomology at the University of Illinois Urbana-Champaign. The 2021 festival was online via Zoom at <https://publish.illinois.edu/uiuc-egsa/iff/>. This festival featured an actual flea circus (on video), a virtual insect petting zoo, flea Bugscope, flea crafts, a virtual tour of the INHS insect collection, and a virtual gallery of the annual IFFF art contest featuring flea-themed artwork by local K-12 students.

Schedule (all times CST)

- 5:00-5:30 – Flea circus Tim Cockerill
- 5:30-5:50 – INHS Insect collection tour (Tommy McElrath)
- 5:50-6:05 – Virtual Insect petting zoo roaches and beetles
- 6:05-6:15 – Flea ventriloquism (Biscuits and Itch, with Hannah Leskosky)
- 6:15-6:20 – Break
- 6:20-6:30 – Insect crafts
- 6:30-6:45 – Virtual Insect petting zoo tarantulas
- 6:45-7:05 – Bugscope (Scott Robinson)
- 7:05-7:30 – Art show and winner announcements (May Berenbaum)
- 7:30-7:45 – Introduction to films (May Berenbaum)
- 7:45-10:00 – Movies

Introduction to the Films 7:30p

- Bobby Bumps Intro 7:45p
- Out of the Inkwell Intro 7:50p
- Looney Tunes Intro 8:05p
- Ectoparasite Control Intro 8:15p
- Pink Panther Intro 8:30p
- Commercials Intro 8:40p
- Documentaries Intro 9:00p
- News Stories Intro 9:40p

2021 IFFF Insect Art Contest

For many years, we have held an *Insect Art Contest* in conjunction with the *Insect Fear Film Festival*. The art contest is organized, judged, and presented by graduate students, but participation by teachers and students truly makes the art contest a success. In the past, we have solicited entries from art teachers in area schools, but we think that participation in the Insect Art Contest can extend beyond art classes. Any student is welcome to enter.

Best in Show – Maggie Li

University Laboratory High School



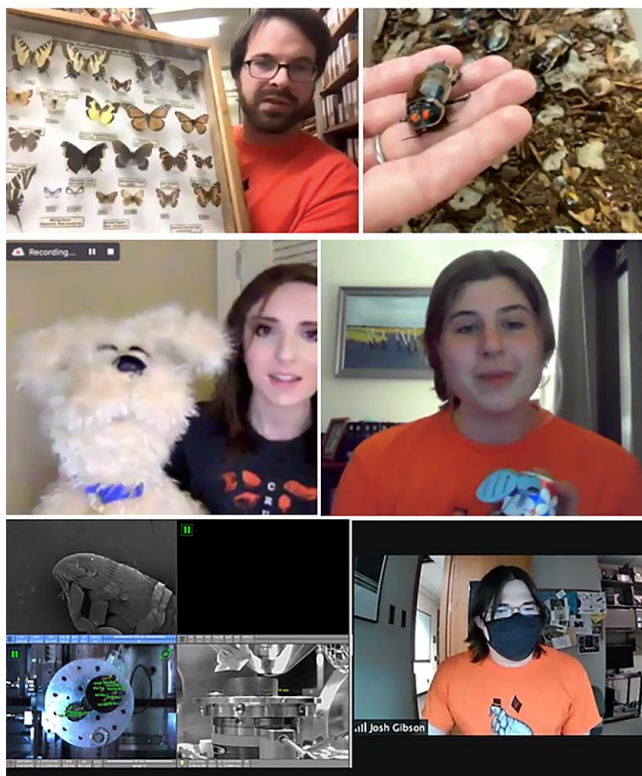
"Bubonic Chain"

Best in Theme – Selene Wong

Dr. Howard School



"Flea Steed"



**39TH ANNUAL INSECT FEAR FILM FESTIVAL - online via Zoom,
February 26, 2022**



Welcome to the 39th Annual Insect Fear Film Festival, the first to focus on venomous insects and related arthropods! Why, you might wonder, in the midst of a pandemic, would we choose to celebrate insects that inflict pain? Actually, the choice this year was inspired by timing, aesthetics, and logistics. As for timing, over the past twelve months, there have been more than 10 billion vaccine doses delivered worldwide; that’s a lot of jabbing. People might not know that the hypodermic syringe was inspired by a stinging insect. Alexander Wood, inventor of the hypodermic syringe and needle, was apparently inspired by the design of stinger of wasps and bees (a case of bioinspiration). In a pandemic with 9.93 billion vaccine doses delivered, recognizing stingers seems appropriate. The theme was a good choice for an online festival. The insect petting zoo features the starring insects each year, and at a typical in-person setting the organizers couldn’t allow guests to handle stinging insects. Finally, stinging insects tend to look good on camera—because they’re dangerous to most mammals, many sport warning colors—e.g., yellow and black, black and red.

The insects most frequently featured in films, animated or otherwise, are species most intrusive to human existence. Most notably, these include insect ectoparasites (particularly fleas, mosquitoes, and other blood-sucking species), domestic pests (such as ants, flies, and moths), and venomous insects (including bees, wasps, hornets, and, loosely speaking, spiders). Part of the appeal is the inversion of alliances—cartoons celebrate victories of the little guy over the oppressive (mice over cats, rabbits over hunters), and insects are the littlest of little guys. The usual behavior of these insects in animated films is often accomplished by the use of tools: bees and hornets have swords in place of stingers (as in *Bee on Guard*, *Bugged by a Bee*). This particular visual motif tends to emphasize the effect of biting, bloodsucking, or stinging on human victims. This depiction totally misses the point that the stinger isn’t a stick, it’s a syringe, an injection device, that causes pain not just because it has a sharp point but because it’s injecting a load of chemical substances designed to cause pain.

Venomous animals all share certain characteristics. Venoms are toxins delivered by an external injection apparatus, generally consisting of gland, reservoir, duct, injection device, and venom (typically containing proteins, particularly enzymes). Many of the same proteins convergently facilitated the evolution of blood-feeding or prey capture. Many venoms are neurotoxic (e.g., neuromuscular junctions, cardiac muscle); some target voltage-gated ion channels and others target the receptors for neurotransmitter substances (sodium, calcium, potassium channels). Others are hemotoxic, affecting blood cell integrity (e.g. anticoagulants targeting each step of the blood-clotting process, vasodilation).

Toxins typically are mixtures of compounds. Phospholipase A, fatty acids released by phospholipases, can participate in synthesis of prostaglandins and other pain-inducing compounds. Hyaluronidase, an enzyme that catalyzes the breakdown of hyaluronic acid, increasing tissue permeability (thus acting as a “spreading factor”) that facilitates the entry of other toxic venom components into cells. Non-enzyme components include biogenic amines, polypeptides, peptides that potentiate kinins (physiologically active peptides that work on smooth muscle), and acids. Apamin is a calcium-activated potassium (SK) channel blocker; these channels are abundant in brain regions involved in learning and memory. In mice, apamin increases contextual fear memory (Vick et al. 2009). Bees don’t want to kill their enemies—they just want their enemies to learn to leave them alone and at least some of the chemicals are designed to ensure that you won’t forget the encounter—that you’ll learn to avoid anything resembling the stinging insect and all of her relatives (and even some posers who pretend to be venomous so you’ll leave them alone, too).

Among arthropods, all spiders produce venom, although not all spiders present a risk to humans, due both to venom toxicity and ability to penetrate the skin to deliver venom. All scorpions are predators; venom composition reflects physiological targets in prey (e.g., arthropod) as well as enemies (e.g., vertebrates). Among venomous arthropods in cartoons, the order Hymenoptera is king (well, queen—in this order, only the females are venomous). Spiders are perhaps second, but their frequency of occurrence onscreen corresponds to their frequency of encounters in the real world. Social hymenopterans in particular—they’re social, so that lifestyle provides opportunities for encounters; they’re active during the day (as are we) and they respond en masse to perceived threats. By contrast, spiders are nocturnal, for the most part living solitary lives, and rarely go about boldly advertising their activities with bright colors. By the way, bites can be venomous, too. Spiders have fangs that drip, ostensibly with venom. And then there are the ambidextrous? venomous arthropods that sting and bite.



I grew up amongst the weeds, wildflowers, and insects of rural Central Pennsylvania. In high school and college biology, chemistry and physics were my favorite courses and ultimately steered me on the path of science. I explored the four corners of North America, starting in Pennsylvania, then British Columbia, Georgia, and New Brunswick, before finally settling in Arizona, the Holy Grail of fascinating insects in the US. I stumbled into the beauty of stinging insects while digging a harvester ant colony in Georgia. That experience not only awakened my pain receptors, it also awakened my sense of the amazing beauty and potential of all life including stinging insects. Little did I know at the time I would spend the rest of my academic career studying and enjoying working with all manner of stinging insects and arthropods in a variety of beautiful locations around the world. What luck to have stumbled into this richly rewarding lifetime work and not really being aware what lay ahead for me at the time of that amazing sting! I have been so lucky to have been brought up in a loving environment which continued throughout my adulthood with my own family. During this time, I was also able to do what I loved. That rich path included receiving an Ig Nobel Prize in Physiology and Entomology, a guest appearance on Jimmy Kimmel Live, have a semi-naked photo of me in the NY Times, be quoted in the movie Ant Man, and many more. I was invited to write "The Sting of the Wild", where I could take audiences aged 5 to 105 on insect safari adventures into the magical lives of stinging insects, the reasons why they sting, and how we all coexist. How could one ask for anything more from life?

5 pm CST, Saturday, February 26, 2022

Activities will begin at 5 pm CST, and film introductions will start at 7:30 pm CST.

Schedule (all times CST)

- 5:00-5:45 – The Sting of the Wild, Justin Schmidt – University of Arizona
- 5:45-6:00 – INHS Insect Collection Tour, Dr. Christopher Dietrich – Illinois Natural History Survey Insect Collection Curator
- 6:00-6:10 – Virtual Petting Zoo (nonvenomous insects)
- 6:10-6:20 – Bee Ventriloquism, (the puppet "Buzz" with ventriloquist [Hannah Leskosky](#))
- 6:20-6:25 – Break
- 6:25-6:35 – Insect Crafts (see the Crafts section below)
- 6:35-6:45 – Virtual Insect Petting Zoo (trantulas and honey bees)
- 6:45-7:05 – Bugscope, Cate Wallace – Microscopy Suite Manager, University of Illinois Imaging Technology Group
- 7:05-7:30 – Art Show and Winner Announcements, Dr. [May Berenbaum](#) – Professor & Head, University of Illinois Dept. of Entomology
- 7:30-10:00 – Film clips, presented by Dr. May Berenbaum

As befits our Zoom format, we will be presenting a program featuring animated and live short film clips from feature-length films. The clips will be grouped in three acts: first, stings as exaggerated comic plot elements; next, reactions to stings, including anaphylaxis, as humorous, dramatic, or horrific highlights; and, finally, shorts revealing the scientific reality of venom and venomous insects, including potential beneficial uses of arthropod venom. Venom usage among arthropods can vary greatly—honey bee workers sting as a means to protect themselves or their colony, while predatory wasps use their venom to paralyze their prey to feed to their larvae. We will even be featuring a live stinging demonstration to highlight the fascinating process of venom delivery. Come and feel the virtual burn!

Festival Links:

Act I—Venom for Laughs

1. Silly Symphony, "The Bears and the Bees" (1931)
<https://youtu.be/BJCiwdRk6WI?t=139>
2. Three Stooges, "Hoi Polloi" (1935)
<https://www.youtube.com/embed/WI0VvUbfm70?&start=315&end=410>
3. Popeye, "A Jolly Good Furlough" (1943)
<https://www.youtube.com/embed/v-zophTCR0?&start=0&end=100>
4. Donald Duck, "Bee on Guard" (1951)
https://www.youtube.com/embed/_jUIB6_fYiY?&start=0&end=90
5. Batman, "Bee-Sting Battle" (1967)
https://www.youtube.com/embed/_AhNvLyXZ8A
6. Cool Cat, "Bugged by a Bee" (1969)
<https://www.dailymotion.com/embed/video/x2ib6j3?autoplay=0>
7. The Adventures of André and Wally B. (1984)
https://www.youtube.com/embed/a_9TSbduk9E?&start=0&end=85

Act II—Venom for Science

8. OddsOut, "The Spiders and the Bees" (2019)
<https://www.youtube.com/embed/E-fakvMntAk?&start=0&end=484>
9. Coyote Peterson, "Stung by a Giant Hornet" (2020)
<https://www.youtube.com/embed/i7VMcMJBjD4?&start=0&end=1045>
10. Arvin Pierce, "Do Honeybees Really Die When They Sting?" (2016)
<https://www.youtube.com/embed/G-C77ujnLZo?&start=0&end=253>
11. Adrian Smith, "Fire ants – sting, prey, raft" (2018)
<https://www.youtube.com/embed/F60agY1lpM?&start=0&end=163>
12. Adrian Smith, "How Ant Stingers Work!" (2019)
https://www.youtube.com/embed/_jvgY-ZHPxO?&start=0&end=189
13. SciShow, "The Problem with Bee Venom Therapy" (2018)
<https://www.youtube.com/embed/PBgHGKrvfg0?&start=0&end=308>
14. Business Ideas, "\$39,000,000 for SCORPION VENOM" (2021)
https://www.youtube.com/embed/_6LbhFaE6rw?&start=0&end=354
15. Born Survivor, "Bee Sting" (2008)
<https://www.youtube.com/embed/h03wzwBiJbE>

Justin Schmidt, from University of Arizona, was a long-time official "friend of the Department" and a welcome guest at the Illinois mixers at annual Entomological Society of America meetings (pictures at left are Justin at the 2015 Minneapolis meeting and the 2016 Orlando meeting—note his choice of t-shirts!). An expert on insect venoms, he was widely known as the "King of Stings" and he was the ideal guest speaker for our 2022 Venomous Insect Fear Film Festival. His presentation was bursting with beautiful images and delightful anecdote and perfectly captured the joy he found in sharing his love of insects with kindred admirers.

He was a special friend not just to us but to all entomologists and we were devastated to learn of his death on February 18, 2023. Justin, rest in peace amidst the ants, bees, and other six- and 8- legged wonders with the surprises at the end of their abdomens...



Stinging Insects are Beautiful, Cute, Rascally, Talented and a bit Scary!

Justin O. Schmidt
Southwestern Biological Institute &
Department of Entomology
University of Arizona
Tucson, AZ

Insect Fear Film Festival
University of Illinois
26 February 2022

Best in Show – Maggie Li

University Laboratory High School



"Cow Killer"

Best in Theme – Patrick Yoon

Hansen Elementary School



"The Venomous Murder Hornet"

16. Michael Smith talks about his Ig Nobel Award (2021)
<https://www.youtube.com/embed/Be00TnX6S50?&start=0&end=40>
 17. IgNobel Prize, "Worst place to be stung by a bee" (2021)
https://www.youtube.com/embed/_Amkyp-dhYX0?&start=3370&end=3476
 18. Dr. Kavanagh Removes Stinger from the Eye (2019)
<https://www.youtube.com/embed/QXvxf865z3c>
 19. ProTrairings, "How to Use an EpiPen" (2020)
https://www.youtube.com/embed_eF7ls0Y8JIJ
- #### Act III—Venom for Horror
- (Content note: some clips are gruesome; the headers of these clips are red. Viewer discretion is advised.)
20. To Have and Have Not, dead bees can bite you (1944)
https://www.youtube.com/embed_9dUZYT7rcuU
 21. Pure Luck, bee sting (1991)
<https://www.youtube.com/watch?v=ZaalgYG3i3Q>
 22. My Girl, death of Thomas (1991)
https://www.youtube.com/embed_izDX7BvzDUg
 23. Anaconda, tracheostomy (1997)
https://www.youtube.com/embed_MfivSh-tko8?&start=0&end=133
 24. National Security, bumblebee scene (2003)
https://www.youtube.com/embed_PkKn7o4k_gM
 25. Case 39, bee in eye (2009)
https://www.youtube.com/embed_8jCe9epWBS4
 26. Stung, dinner party wasps (2015)
https://www.youtube.com/embed_rjuLV5YxvUk?&start=4&end=152
 27. Stung, wasp transformation (2015)
https://www.youtube.com/embed_GiWfhdnHkHA?&start=4&end=167
 28. Evolution of spiderman (1967 to today)
https://www.youtube.com/embed_pbmJTR6wWcE
 29. Liberty Mutual, "Spider Bite" (2021)
https://www.youtube.com/embed_jcrWUxtg7dI?&start=0&end=22

ALUMNI NEWS

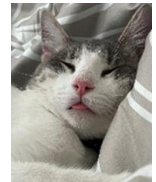


Diana Arias-Penna, PhD 2014. After my graduation in 2014, I returned to my native country, Colombia, where I still live today. I persevere with the study of hymenopteran parasitoids from the Neotropics. Nonetheless, a wind of change appeared between the years 2021 and 2022. During this time frame, I extended my knowledge about these minute wasps to another geographical area, the Middle East. The opportunity to do collaborative research with colleagues from this region has been enlightening, fascinating, and rewarding. As a result, compelling papers have been published or are in the process of publication. Heartfelt gratitude to Mostafa, Minoo, and Mohammad. On a personal note, my husband Peter and I still have our hands full with childcare. Time flies and now my son Andrés is about to turn eight years old and my daughter Catalina is already five.

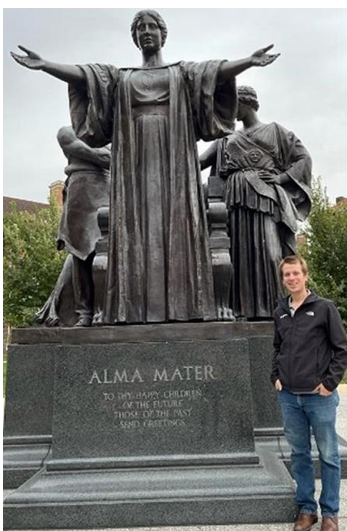


Nathalie Baena Bejarano, PhD 2019 and Mark Demkovich, PhD 2019.

After nearly three years apart while waiting on a visa during the pandemic, Nathalie and I were finally together again in the United States! We married on March 4th and have been happily living together in Visalia, California, since then. We adopted a kitten off the street and named him Jimmy. He is a talkative and friendly purring machine. Here are some updates on our positions within academia and industry:



Nathalie: In Colombia, I enjoyed spending time with my family and was able to attend my grandma's 99th birthday (she just turned 100 a few days ago). I worked at Humboldt Institute in the Conservation Genetics Laboratory, where I generated DNA barcodes for Colombian polyneopterans and had the rewarding opportunity to establish a pilot program to barcode 30,000 insects from an ecoreserve in a remote area of Colombia as part of a team. This massive project involved the local community from this area and 18 undergrad and master's students. One of my students submitted his first paper that involved the review and identification of 16,000 dipterans for his undergraduate research project. Once I received the news about the USA visa, I left the Institute right before closing this program and continued collaborating from a distance. I recently started as a postdoctoral scholar at the University of California Riverside. In my new role, I will be working on a project that aims to develop the sterile insect technique for navel orangeworm (Pyralidae: *Amyelois transitella*) with cold tolerance and the use of sex pheromones at the Kearney Agricultural Research and Extension Center. I am excited for this new opportunity to acquire more experience in pest management.



Mark: I am almost through my third year with Syngenta Crop Protection. In my role as an R&D Scientist, I test unregistered, early-stage compounds for efficacy against target pests at the company research station in Visalia, CA. Additionally, I am responsible for the placement of research trials with contractors on the north-central coast of California (Monterey and Santa Cruz Counties). For my own work on-site, I am responsible for making all insecticide applications (most trials are usually less than an acre), which means I am usually out in the fields as the sun is rising in order to avoid the extreme heat of the Central Valley in the summer. Occasionally, I make trips through the Salinas Valley to meet with contractors and see the trials they are running for Syngenta. Overall, I am very happy in this role and really enjoy working with the other scientists at the station. I would be happy to go further into specifics for any graduate students considering industry careers; let me know!



Daniel Bush, Ed Hsieh, Nathalie Baena Bejarano, and Mark Demkovich - October 2022



Ria Barrido, MS 1999. Ria and her son, Lucas, with May Berenbaum, visiting the Department in summer 2022.



Ember Chabot, MS 2010. In the past two years I have celebrated a decade of teaching and coaching at a private school in Brooklyn, New York, and welcomed my first child.



Andrew Chen, PhD 1976. I continue to enjoy my retirement by turning wood objects on my lathes. Because of the COVID pandemic the travels in the last three years have been limited and there were no foreign trips. One of this year's travels took me to the Chicago suburb of Northbrook for a woodturning symposium in September. I spent one night in Champaign on the way up. It was a short stay and I didn't have the time to visit the department. However, I managed to get hold of Charlie Helm and he treated me to a nice pizza dinner at Papa Del's Pizza Factory. We had a real nice visit. I hope to be able to travel to Europe sometime next year.



Scott Clem, PhD 2021. I've been doing a USDA NIFA postdoc under Dr. Bill Snyder at University of Georgia. I am continuing some of the work I did at Illinois looking at hover fly migration, but now I am using a population genomics approach. So, I've been driving all over the Southeast collecting these insects! Illinois is still close to my heart, though, and I definitely miss Urbana-Champaign.

Randy Cohen, PhD 1987. Susan and I are enjoying semi-retirement in Southern California. Not fully retired. I continue to teach at California State University, Northridge (CSUN) and occasionally get involved in article editing but only in Spring. Fall teaching is now replaced by Fall vacations. Our children are now in their 30s. Rachel is now a full Professor at Minnesota State University, Mankato, and just received a \$2 million grant from the NSF. Sarah is an Administrative Assistant at CSUN and takes care of her parents - especially when it comes to technology. Josh left a tenure-track position at Pace University (in NYC) and is now back in Southern California part-time teaching. Why leave? His marine biologist wife got a tenure-track job at a local community college. He still digs up Utah every summer, searching for the oldest eutherian mammal teeth.



Ed Cupp, PhD 1969. 2021/2022 was a good year as I wound down all my professional activities. I completed the editing of the World Health Organization's training manual designed to help field workers throughout Africa evaluate the status of onchocerciasis ("river blindness"). An international, uniform approach is needed as more programs come online and make progress toward elimination of this disease. In editing the manuscript, I was joined by colleagues/contributors from the Americas, Europe, and Africa. One charitable group - SightSavers International - beta-tested some chapters in several countries following early editing and found them to be very useful.

I was also named the 2022 recipient of the Harry Hoogstraal medal, an award given by the American Society of Tropical Medicine and Hygiene. Recipients are selected by the American Committee of Medical Entomology for their "having made a major impact on advancing the



field of medical entomology". Aside from the professional recognition (this is an international award), the Hoogstraal award has special meaning for me. Dr. Hoogstraal was a UIUC graduate (B.A., M.A.) and two other professionals associated with UIUC - Dr. William Horsfall and Dr. George B. Craig - were recipients.



Jacob Dixon, MS 2018. Hello all! I moved in early August of this year (2022) to start a PhD program here at Tulane in New Orleans and already it feels like ages ago. I'm a TA for an introductory biology class, I've been writing for funding of my project, and I'm delving deep into foundational ecology papers (as prescribed by my class). It's been very busy but the department here is supportive, the grad students are cool, and there is free food all over campus. Isn't that what we all wanted? I am also quite close to another alum, Todd Johnson! We have been in communication and since I plan to use equipment at LSU where Todd currently is we'll likely see each other soon enough - nice to know some other ento folks are around! Just a little about my project if you don't know: effects of endophytic fungi in morning glories on foliage-feeding tortoise beetles and bruchine seed predators. Tulane has a connection to a field station in Ecuador through the nonprofit FCAT (Fundación para la Conservación de los Andes Tropicales). I'm hoping to acquire funding to make it over there and explore my project idea in a tropical system. A big thanks to all of those who saw me through my Master's work, helped me write up this project that I now get to explore, and who are continuing to work with me! And if you ever find yourself in the Crescent City, give yourself a lagniappe and come visit me!



Mohammed Farooqui, PhD 1979. I graduated from the University of Illinois at Urbana-Champaign in 1979 with a Ph.D. in Entomology. I worked under Dr. Robert L. Metcalf for my dissertation work. After a 5-year post-doctoral training at the University of Texas Medical Branch in Galveston, Texas I joined the then Pan American University in Edinburg, Texas in 1984 and successfully climbed through the ladder of tenure and promotion from Assistant to Associate and finally full professor in the Department of Biology. I developed and taught two

courses in this University in Entomology and Environmental Toxicology for several years. The University changed its status and name to first University of Texas Pan American, and then to the University of Texas Rio Grande Valley (UTRGV). I brought more than 1.2 million dollars in grants to the university and trained hundreds of students in research who later matriculated into graduate and medical schools. After 38 years of service, this year I was awarded the inaugural UTRGV Distinguished Career Faculty Excellence Award in Teaching, Research, and Service to this University. I have 3 children, all doctors and / or in medical profession. I am enjoying my life with 8 grandchildren 12 and under.



Matt Flenniken, MS 2021. These days I'm living in north Florida, working for the Florida Fish & Wildlife Conservation Commission - Florida's state wildlife agency. I research endangered or otherwise imperiled invertebrates and make policy and management recommendations for their conservation. Outside of work, I'm doing my best to get outside and enjoy the diversity of wildlife the Sunshine State has to offer!



Allison Gardner, PhD 2016. I'm writing this a week ahead of the ESA annual meeting and I can't wait to see many of you in Vancouver soon, on my first major trip since March 2020! The past couple years have been eventful, and things are going well. My biggest professional news is that last spring I was promoted to associate professor with tenure in the School of Biology and Ecology at the University of Maine. I've loved working at UMaine as a medical entomologist for the past 6+ years and I'm really happy and proud to have reached this milestone. I also am excited to be a founding member of a new CDC-sponsored New England Regional Center of Excellence for Vector-Borne Disease that launched this fall, which has opened some great new research collaborations to me. And last but not least, I finally have scored a long-awaited teaching assignment this upcoming spring, our graduate level experimental design course. As strange a long-term ambition as this might sound, I've aspired to teach this course for literally a decade since being a TA in applied statistics in the Crop Sciences department at UIUC! My big personal news is that next summer I'm tying the knot with my partner, Brandon Lieberthal, a fellow Illini (PhD 2015, Theoretical and Applied Mechanics) and a longtime friend of the entomology department, who I met through the Metagamers board game club in school 12 years ago.



Anna Grommes, MS 2022. I graduated in May 2022 with my master's degree and have since been working as the Hanks Lab Manager, overseeing a team of undergraduate students and the day-to-day operations of the lab. My thesis project involved determining the ideal dose of pheromone used in cerambycid lures. In summary, we found this was largely dependent on beetle species, with some preferring the highest possible concentration of pheromone and others preferring much lower concentrations. This is an important consideration for monitoring insects using chemicals, especially those of which are costly to synthesize. In my time at UIUC, I had the pleasure of teaching the lab sections for Introduction to Entomology and Integrated Pest Management as well as helping the Ngumbi

Lab with many of their feeding assay experiments. On a personal note, I married my long-time partner, Ben, in early 2021. In my free time, I enjoy tending to my large houseplant collection, spending time outdoors, and birdwatching with our two cats, Iverson and Violet. I recently accepted a position as an Entomology Research Associate for Corteva Agriscience in Des Moines, Iowa and will begin working there in November of 2022.



Tyler Hedlund, MS 2015. Hello! For anyone I haven't run into yet, I'm back in the C-U area! Laredo, TX was a bit too much, so when a position opened in Champaign, I couldn't pass it up. Now I'm back and operating as a Plant Health Safeguarding Specialist, working more on the export side than the import side as before. That said, I'm still on campus quite often doing containment inspections as well. Rounding it out is emerald ash borer biocontrol, general insect trap monitoring, and getting ready for spotted lanternfly to appear in Illinois. Jocelyn and I just bought a house in Mahomet, so it's exciting to finally be out of apartments! She got her teaching certification in Texas and had no problem

transferring it to Illinois. She's now teaching sixth grade math in Rantoul. I still visit Texas a couple times a year for two major arthropod ID projects, one in Ft. Davis, the other on a private ranch near Falfurrias. Those are proceeding smoothly, with the Ft. Davis property already yielding five new species (mostly mirids, including two new genera) and a couple dozen new state/country records. We should have 1000 arthropod species IDed by the end of the year. And that's after 2.5 years! I've launched a similar arthropod ID project locally at a few Champaign County Forest Preserves. I'm also working on fossil arthropods with Sam Heads and Jared Thomas in the Center for Paleontology over in INHS.





Todd Johnson, PhD 2019. Greetings from Baton Rouge, Louisiana! In September 2022, I joined the Department of Entomology at Louisiana State University as an Assistant Professor of Forest Entomology. The central focus of our interdisciplinary research program is to identify and describe the underlying factors that contribute to the evolution and maintenance of chemical diversity within tri-trophic systems. Our work will further our understanding of the behavioral and chemical ecology of forest arthropods, as well as optimize biological control of insects across the heterogeneous landscape. A secondary objective of our group is to characterize the



ecological interactions of arthropods in distinct and culturally important ecosystems in Louisiana, such as bottomland swamps. Understanding how natural and anthropogenic disturbances such as climate change and invasive species alter or disrupt these ecosystems is critical for their conservation. We are using traditional methods such as field and laboratory bioassays, chemical analyses, and taxonomy to achieve our objectives, as well as modern technologies such as computer vision to test hypotheses and to make predictions about forests and their arthropod inhabitants. By the next newsletter, hopefully I will be able to tell you about all the exciting projects underway. As part of my appointment, I will be teaching Insect Ecology in Fall 2023. It is exciting and humbling to have the opportunity to teach such a foundational class. In the future, I hope to collaborate with individuals from departments such as art and history to further enhance my teaching and research program as well as deepen our understanding and ability to communicate about forest entomology.

In the last newsletter I discussed my work at the University of New Hampshire. This ongoing project involves the analysis of large dataset (1500+ samples) describing how ash trees in natural forests in the Northeast change their chemical profiles after attack by the emerald ash borer (EAB) or defensive induction with the plant hormone methyl jasmonate. While the chemical data are still being analyzed, we have consistently found that EAB develops more rapidly in white ash, as compared to green ash. This may have implications for the success of biological control of the beetle in different regions.

Before leaving the Northeast, my partner and I hiked as much as possible throughout the beautiful natural areas of New Hampshire and Maine, as well as took a week-long trip to Acadia National Park. On this trip, we hiked through the dark to see the sunrise at Cadillac Mountain, the highest point on the East Coast. The summit overlooks the town of Bar Harbor and the Atlantic Ocean. The seafood was also excellent. We also got to see puffins. I highly encourage you to visit this incredible park if you have an opportunity. I hope everyone is well and, as always, look forward to connecting at conferences.

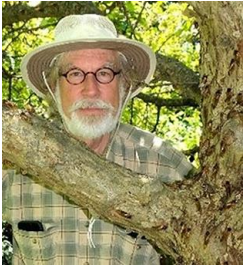


Gail Kampmeier, MS 1984. I have been closely involved in the organization of the first true hybrid conference <https://www.tdwg.org/conferences/2022/> for Biodiversity Information Standards (TDWG). The conference was hosted by Pensoft Publishers in Sofia, Bulgaria in October 2022, and the 8-hour time difference was only the beginning of the challenges of planning a hybrid event and participating as a virtual speaker. COVID reared its ugly head, laying low my co-author/keynote speaker, who was unable to present <https://doi.org/10.3897/biss.6.93866> our talk in person, so I ended up doing so remotely. Questions came not only from those in the room but from those participating online via Zoom or Slack (see photo). The pandemic has highlighted what many already knew: attending a conference, particularly an international conference, in person is a privilege. However, opening up participation to an online community (both synchronous and asynchronous), particularly as we better learn to integrate and engage all participants, makes strides toward equity and inclusion of traditionally underrepresented demographics as well as reduces the carbon footprint of many conference attendees.

Pensoft @Pensoft · Oct 21
 🌱 (Hybrid) inclusivity in practice by @tdwg, as @idbdeb opens the #TDWG2022 closing session in person, while @gkampmeier participates via Zoom.



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Gene Kritsky, MS 1976, PhD 1977. It has been another busy year. I have been finishing up the six-volume series *The Cultural History of Insects*, which will be published next year. I have also been working on a series of books on the upcoming periodical cicada emergences. *The Periodical Cicadas: The Brood X Edition* was published last year by the Ohio Biological Survey. Jesse is creating more insect-inspired jewelry, and she continues to copy-edit *American Entomologist*. I have decided to retire on June 30, 2023, so we can do more entomologizing and travel. We wish everyone a productive and prosperous 2023!



Fred Larabee, MS 2011, PhD 2015. After spending nine years in Washington, DC, across four different institutions (including a remote stint as a post-doc at UIUC!), my family has just moved to San Jose, California. I am starting an appointment as Assistant Professor of Insect Biology at San Jose State University. In addition to continuing my research on insect functional morphology, I am also serving as director for the J. Gordon Edwards Insect Collection. My wife, Lisa, and son, Oliver (3), are adjusting well to the new, laid-back, West Coast attitude and we are all enjoying the constant sunshine.



Bruce McPheron, PhD 1987. Since I stepped away from the Ohio State provost role in August, 2021, I've returned to the entomology department and am attempting to contribute to faculty efforts. In addition to teaching and committee work, I also assist our college's international programs office with strategic work. UIUC alumna Carol Anelli and I share discussions about students these days and how it was much more challenging when we used to walk uphill in the snow to class. When we want to be serious, we talk about historical figures in entomology and the impact our predecessors had on our discipline. I've spent more time looking at insects in nature and planting native host plants on our farm (Marilyn is the sixth generation of her family to own this property) 50 miles northwest of Columbus. UIUC alumnus D. Courtney Smith eggs me on to plant more tephritid hosts. And, when it's time to play, UIUC alumnus Steve Sheppard and I head off to Yakutat, Alaska, to guide various newbies in the art of salmon fishing. Marilyn and I are looking at retirement in the not-so-distant future. I've been consulting with Huron Consulting Group in higher education leadership, and I can do that from the farm just as easily as I can do it from Columbus. Our son Neale (career Navy, now senior chief petty officer and still a rescue swimmer [says the water is further away and a lot harder after 16 years]) and his family are currently in southern Maryland. Our daughter Brenna is here in Columbus, so we see her often. Marilyn and I really enjoyed being back on campus for the Berlocher-fest this past summer. Great to catch up with so many friends. I'll make a pitch to send a few dollars to the graduate student support endowment set up for SHB (giving.illinois.edu, search for fund 11776518) - honor a career spent influencing the future of our discipline and recognize someone who, as a guitarist, is known to be a quality entomologist.



Robert Mitchell, MS 2008, PhD 2012. It has been a few turns of the newsletter since I last sent an update! I am now tenured at the University of Wisconsin Oshkosh, where I curate the university insect collection, teach zoology and entomology, and oversee research on beetle pheromones and chemosensory genomics. Lauren has continued working in public libraries and assists in the university herbarium cataloging their extensive botanical library. However, we have spent the better part of our time managing our son Daniel, now seven years old. This has taken a surprising amount of mental dexterity given Daniel's penchant for memorizing long lists of arcana (e.g., counties of Texas, software changelogs) and then expecting his parents to engage knowledgeably on the subject. Parenthood did help the pandemic years to pass largely without incident, as we had long since eschewed travel, dining, and most recognized forms of social behavior. We also finally became homeowners, and we now reside on a small island where we are perpetually surrounded by ice or caddisflies, depending on the season.



Hilary Reno, MS 1998, PhD 2000. Not much has changed since 2020. At Washington University in St. Louis, I have taken on more research time with a number of mentees working to use large data sets to improve sexual health care in the face of skyrocketing rates of Sexually Transmitted Infections. I continue with the CDC Division of STD Prevention clinical team, co-authoring the national guidelines and running the local STI clinic, now with lots of HHS funding for HIV prevention. And 2022 has been busy with MPox cases and coordinating regional programs and care for the latest "new" infection. It would be ok if that stopped for a while (get ALL your vaccines and boosters!). I was diagnosed with breast cancer this year, but at Stage 1, so no worries--just need to get through treatment. I'm very open about it as this is an opportunity to remind people to --- Get your mammograms/ colonoscopies, etc! My cancer would not have been found until much more advanced otherwise. We need to take care of ourselves. Shaun continues to teach and grade papers. Ian is 16, driving, and has grown into a kind, considerate human. We are starting the college search soon and will have him visit U of IL! Kieran is 12, loves video games and his friends, does not love school (middle school is tough). We got a puppy last year to join Oscar (7) and they bring us all great joy. We are traveling again, visited Redwoods National Park, New Mexico, Colorado, and will head to Italy for the holidays this year celebrating Ian's 16th, my 50th, our 26th wedding anniversary, and being cancer-free! I am on Twitter (for now) @hrenoID.



Alan Schroeder, PhD 1990. Now am part-way to being “jubilado”, as they say in español (I don’t like the English word “retired”). Jubilated to not be working full time sounds better. Besides, there is more, much more, to life besides work, researching and writing documents. That said, I’m still picking up a few—very few—special contracts from loyal colleagues in the international agriculture consulting business, especially if they get me travel to new countries or to countries that I have already fallen in love with, in between enjoying other adventures.

In Roncesvalles at the start of the Camino
 The big news this year is that Sonia and I just completed the Camino de Santiago, 755 km in 33 days across northern Spain, kind of like a “haj” or pilgrimage for Catholics, especially Spanish ones, even if we are not religious nor Spanish. New discoveries every day, if not every minute. Staying in albergues, sharing big rooms with bunk beds and communal meals with other pilgrims. New sights, experiences, beautiful natural surroundings, delicious Spanish cuisine, meeting fellow pilgrims from around the world. Well-worn ancient trails through 800-year-old chestnut forests, hiking to rugged mountaintops along the way. From 1200 years ago when the Camino first started, entire towns built from adobe or stone with little stone “ermitas” (like teensy churches) for meditation and prayer, all the way to giant soaring cathedrals in Santiago, Leon, Burgos, Logroño and Pamplona—built hundreds of years before the invention of the construction crane. The Camino was an incredible, challenging, and humbling experience—adventure at its best!



In Santiago de Compostela, 33 days of walking/hiking later

The big news last year, during COVID, was that we got invited to a very special wedding in Dubrovnik, just prior to tourist season (so we had the entire town to ourselves). Mátia, a very bright Croat friend and colleague who works for the European Commission and met and worked with Sonia when she was the Science Attaché to our Embassy to the EU in Brussels, invited us to his special day with his wife-to-be Claudia. The bride and groom arrived in town by boat from the Adriatic and the wedding was held in the Rector’s Palace of all auspicious places. The reception was held on the terrace of the hillside Museum of Modern Art, overlooking Dubrovnik. With that view, under a full moon, we danced the night away. After the wedding, we traveled up to, and stayed in, Korčula, a classical town that Marco Polo stopped over and stayed in (his place is still there) on his famous trips to the East. The town has tons of charm, great seafood, natural beauty and history, with sights like those below.



Natural beauty of the Croatian Adriatic Coastline



Croatia with beautiful sights



Alto de Perdon middle of Camino

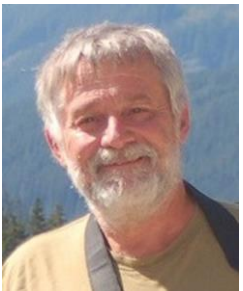


Emily Struckhoff, PhD 2022. Hi everyone! It's been a crazy past two years since the last newsletter! In May 2022 I wrapped up my master's in the INHS Medical Entomology lab, which focused on developing a checklist and taxonomic key for the ticks of Illinois. Along the way I had the opportunity to present my research at the 2021 Entomological Society of America and the 2021 Illinois Mosquito and Vector Control Association Annual Meetings. I also had the opportunity to visit the United States National Tick Collection at Georgia Southern University (the largest curated tick collection in the world and one of the coolest/creepiest places I've been). I am so grateful for all the amazing work I got to do in Illinois and all the wonderful people I met along the way. Since graduation, I've made the big move from the prairies of Illinois to the mountains of Pennsylvania to start a new job as a vector-borne disease program specialist with Penn State Extension. When I'm not busy driving around PA teaching about ticks and mosquitoes, you can find me hiking in the Appalachians, practicing my embroidery art, or spending time with my cat Nova.



Mark Sturtevant, MS 1988, PhD 1990. Hello fellow alumni! Life has been good! Work continues in my department (Biological Sciences at Oakland University in Michigan). Recent duties include being chair of our Curriculum Committee plus serving on other committees and then there is mainly teaching. Like many here, we are largely back to in-person classes and I am enjoying it immensely. Meanwhile, the kids are pretty much grown up and the last of them is on track to graduate next year. So Ann and I will soon be empty-nesters who are looking forward to retirement. I have been keeping busy with the rewarding hobby of macrophotography. The picture shows how crazy I look when chasing bugs with TWO cameras in tow. The big one here is mostly for dragonflies, and

there is a second camera on the chest with a macro lens and dual flash heads. A pleasant surprise was that one of my pictures made it into the ESA social media pages (Facebook, etc.). I include it here. It's a focus stacked picture of festive tiger beetles (*Cicindella scutellaris*). I wish I could show more pictures! But you can find me on Flickr. Cheers!



Michael Toliver, PhD 1979. Lately, I've been working on butterflies of New Mexico (a life-long passion) with Steve Cary (<https://peecnature.org/butterflies-of-new-mexico/>). Steve did most of the work, and generously let me barge in to give him a hand. We work well together, and perhaps one day will turn this into a cellulose edition. I've been to the INHS to visit my collection there and give more specimens.

While there, it was great to see my dear friends, Charlie and Ann Helm. Peg is still working as a layout editor for the *Journal of the Lepidopterists' Society* and as a photographer par excellence. Our daughter came to help celebrate Peg's birthday - a wonderful visit. If only she didn't live so far away. Best wishes to all you bug people.



Joseph Wong, MS 2011, PhD 2016. Area Identifier – Entomologist, USDA APHIS PPQ



OBITUARIES

William Henry Luckmann, MS 1951, PhD 1956, World War II veteran. (1926-2021) [“*Dr. 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 and the first William H. Luckmann Award was granted in 1994.*”] [<https://sib.illinois.edu/graduate/grants/Luckmann>]



In Memoriam: William “Bill” Henry Luckmann, World War II veteran, originally from Cape Girardeau, Missouri and long-time resident of Champaign, Illinois died on February 14, 2021, in Peoria, Illinois. He was 95. William H. Luckmann, during the course of his long career, was a Professional Scientist at the Illinois Natural History Survey, Professor of Entomology in the School of Life Sciences, Professor and Head of the Office of Agricultural Entomology in the College of Agriculture, and Head of the Center for Agricultural Entomology at the Illinois Natural History Survey from 1965 through 1984. He was actively involved in research programs during this period of time and mentored both graduate students and post doctorates. His work contributed greatly to advances in integrated pest management in field and vegetable crops. Upon his retirement, an endowment, William H. Luckmann Award for Student Research in Applied

Entomology, was established to support student attendance and presentation of research at scientific meetings.

William Henry Luckmann was born on January 15, 1926, in Cape Girardeau, Missouri to William August Luckmann and Leonora Ochs. He was their only child. In 1943, while still in high school, Luckmann spent the summer as a solo fire lookout on Strawberry Mountain in eastern Oregon. This experience shaped Bill for the rest of his life. In 1944, after graduating from Cape Central High School, he joined the U.S. Army Air Corps and trained as a navigator. WW II ended before he saw action.

After the war, he attended the University of Missouri on the GI Bill and earned a B.S. degree in agriculture in 1949. While there he took a general education course in entomology and fell in love with the subject. He went on to receive advanced degrees in entomology at the University of Illinois, Urbana-Champaign: an M.S. in 1951 and PhD in 1956, with an appointment as entomologist in 1959. He titled his PhD dissertation “Corn rootworm pest management in canning sweet corn.” During the summers of 1947 and 1948, he was employed in the research department of California Packing Corps (Del Monte), in Rochelle, Illinois. While there, he met June Myers Kepner. They were married for 71 years.

Luckmann had an international reputation in Integrated Pest Management. In 1972, Luckmann and Robert Lee Metcalf authored and edited *Introduction to Insect Pest Management*, which has seen 28 editions.

As an advocate for natural pest control, Luckmann traveled the world, attending conferences and mentoring other entomologists. He was especially proud of consulting work he did in India and Iran.

Luckmann enjoyed mentoring scores of graduate students, from North America and around the world. He often entertained foreign entomologists while they visited and studied at the University of Illinois. A graduate student honored Luckmann by naming a newly described insect after him: *Caliothrips luckmanni* Wilson, a species of thrips, collected in Jabalpur, India from mango leaves.

After retiring, Bill and June spent 25 years experiencing the wild outdoors. They loved visiting the National Parks and were known for their camping adventures on roads less traveled. Luckmann was an expert fisherman. He loved hunting and fishing with his sons and friends at a cabin in Southern Illinois. He was beloved and skilled as a storyteller. He was a devoted family man who took great pride in his children and many grandchildren and great grandchildren.

He is survived by his wife, June, of 71 years, and five children: Charles (Susan Specter) Luckmann, Bellingham, WA; Nancy (Curtis) Glass), Orr, MN; Jill (Robert) Musselman, Toulon, IL; Carol (Mark) Parrish, Monmouth, IL; and John (Rebecca), Luckmann, Columbus, IN. He is also survived by 14 grandchildren and 26 great grandchildren. His life will be celebrated with friends and family at a later date.

Donations in his memory can be made to “William H. Luckmann Entomology for the Ages” fund. Mail checks payable to the UI Foundation to: The University of Illinois Foundation • Harker Hall • 1305 West Green Street • Urbana, IL 61801 notating the William H. Luckmann Entomology for the Ages fund.

[<https://www.dignitymemorial.com/obituaries/peoria-il/william-luckmann->

[10058115?utm_source=obit_alerts&utm_medium=email&utm_campaign=obit_detail&utm_content=decedent_name](https://www.dignitymemorial.com/obituaries/peoria-il/william-luckmann-10058115?utm_source=obit_alerts&utm_medium=email&utm_campaign=obit_detail&utm_content=decedent_name)]

Robert John Novak, PhD 1976, (1947-2022)



In memoriam: Robert John Novak passed away at the age of 75 on August 4, 2022, in Tampa, FL. He leaves behind his lovely and dedicated wife, Loraine J. (Krane), daughter Karen S. Novak and her fiancé, Aaron M. Smithers, his eldest daughter Lisa J. (Novak) Woof and grandson, Matthew J. Woof of the UK, and his sister Marcia (Novak) and her husband David Hammel. He was preceded in death by his parents, John and Alice (Lukanic) Novak including both sets of his grandparents. Robert was an outstanding, world-renowned Medical Entomologist. He was very precise with his research and had passed his love, his perfection and quality of research work and expectations of himself onto his students.

He belonged to numerous Professional Entomological Organizations contributing to the advancement of the Scientific Study of Insects. He appeared on the television show 20/20 and on the Today Show when he was President of the American Mosquito Control Association for two terms; he published over 1000+ research papers on mosquito colony rearing, maintaining the colony and utilizing various experimental methods to (Illinois/Missouri), Dengue (Center for Disease Control and Prevention/Puerto Rico & Caribbean Islands), West Nile Virus (Illinois/Midwest USA), Malaria (Africa: Kenya, Eritria, Ethiopia, Togo, Johannesburg, etc.) including China's Wuhan Lab and Cambodia. Invited as Guest speaker at various conferences in Asia, South America, and Europe, with funding from National Institute of Health, World Health Organization, as well as other research funded sources. He did his post-Doctoral work at Notre Dame in South Bend, Indiana and then moved on to Atlanta, Georgia to work at CDC and then in Puerto Rico. He also served as a consultant and advisor for numerous national and international organizations including: the U.S. Environmental Protection Agency, World Health Organization, Chinese Academy of Sciences, U.S. Fish and Wildlife, National Center for Supercomputing Applications, Illinois Governor's Office and Pollution Control Board, Vector Control Division of the Puerto Rico Department of Public Health, the Ministry of Health of U.S. Virgin Islands, the United States Agency for International Development in Honduras, the U.S. Army Medical Virology Institute in Fort Detrick, Maryland, the Pan American Health Organization Aedes aegypti Biology and Control, and the Pueblo Board of Water Works in Colorado. Along the way he has touched and saved many lives from those he taught and those he learned from. The Scientific world will very much be on its own without him.

[<https://www.dignitymemorial.com/obituaries/pueblo-co/robert-novak-10891089>]

Bruce Allen Steinley, Jr., PhD (1991), (1928-2020)

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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 1/1/2021-12/31/2022 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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