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New Invasive Ant Found in Indiana

TIMOTHY GIBB PH.D., INSECT DIAGNOSTICIAN & EXTENSION SPECIALIST;
SEAN KNICKERBOCKER, PURDUE ENTOMOLOGY STUDENT; AND AUSTIN
HECKELSBERG, INSECT NATURALIST/PHOTOGRAPHER

It is official. The Asian needle ant is our newest invasive insect pest and has now become a resident, stinging ant. Pest managers and public health officials should expect stings to humans to be painful (potentially causing severe allergic reactions to susceptible individuals) much like fire ant or bee stings, but fortunately, because these ants are much less aggressive in protecting their nests, the number of stings per encounter is less.

Perhaps more importantly, these cold hardy, predatory ants may displace native ant populations and in so doing, disrupt natural ecosystems long-term.

Professional pest managers should look for them to spread across the state, invading dark, damp environments rich in decaying plant organic matter in residential and urban properties.

Two ant specimens taken from a wooded area in southern Indiana

by an astute amateur entomologist, who observed their appearance and behavior as ‘out of the ordinary’, were submitted to the Indiana Department of Natural Resources and to the Purdue University Plant and Pest Diagnostic Laboratory for species identification in February, 2022. Both were confirmed to be Formicidae: *Brachyponopera chinensis*, commonly known as the Asian Needle Ant, not previously recorded from Indiana.

Asian Needle Ants (ANAs), originally from Eastern Asia (China, Japan, and Korea), were first discovered in the United States in the early 1930s, but only recognized as a pest since 2006. They have been officially established in several states in the U.S. including North Carolina, South Carolina, Alabama and Georgia and, have been anecdotally reported as far north and west as New York, Tennessee and Kentucky.



Since this first officially recorded find in a private wetland area near Evansville, Indiana, independent colonies of ANAs have been found in surrounding locations, including private parks, urban residences and public recreational areas, suggesting that they are now an established species in our state, rather than a single incidence.

All ANA colonies found in Indiana to date are in moist and shaded, mature wooded areas; in the soil or on the ground under old logs, stumps and decaying plant debris. One sample was found in association with an active subterranean termite colony. From [information published in North Carolina](#), such habitats are most commonly invaded by ANA.

Asian needle ants are similar in appearance to both our common odorous house ant (*Tapinoma sessile*) and the invasive Argentine ant (*Linepithema humile*) but differ by; 1) sporting a prominent stinger that protrudes from the lower, rear abdomen, 2) having reddish tinted legs, mouthparts, antennae and stinger, in contrast to the darker black/brown colored body, and 3) being significantly larger (.5 inches in length).

Colony populations range from hundreds to up to a thousand individuals and contain only two castes; workers and reproductives.

IMPACT: The potential impact of any new insect invader is important and must be carefully assessed by authorities in each state. The Asian needle ant is unique because it has now become Indiana's only resident, stinging ant. Pest managers and public health officials should expect stings to humans to be much like those from a fire ant or wasp; painful burning sensation with the potent to cause more severe reactions in hypersensitive and susceptible individuals, but not normally causing a blister. Fortunately, human interactions with this ant have clearly demonstrated that these ants are much less aggressive than fire ants and because colonies are smaller in number, the number of stings per encounter is less. Even though ANAs may occur in areas commonly frequented by people, including parks, recreational areas, and residential areas, people have normally report stings only when inadvertently coming in direct contact with the ant such as by picking up logs, stones or when placing bare hands in older mulch piles, or under trees or landscape timbers that have been in contact with soil.

Behaviorally, ANAs are relatively cold tolerant which allows them to emerge earlier in the spring and affords them a competitive advantage over other ants. In addition, they are predatory opportunists, feeding on other insects including termites



and other ant colonies. These advantages are especially concerning when considering their potentially negative ripple effect in established ecosystems as they displace native ant species, affect ecosystem balance and biodiversity, interfere with natural organic matter decomposition, reduce pollinator efficacy, and disrupt plant seed dispersal.

FUTURE: It is likely that this ant will spread throughout the state in due course. Its ability to disperse very rapidly as well as 'hitch-hike' has been documented in North Carolina. ANA's range there now includes areas with high mountain altitudes, suggesting that wintertime temperature extremes in Indiana will not limit its natural spread.

Professional pest managers may expect ANAs to infest natural, commercial and residential sites, sometimes including homes, where commonly used sugar-based baiting strategies will not be effective.

RESPONSE: After careful consideration and discussion by Indiana authorities it has been determined that a monitoring program to delimit ANAs current distribution in the state is the best course of action at this time. Consideration points included the fact that this ant is not an overly aggressive stinger when compared to other stinging insects, it has already successfully invaded Indiana, control efforts in out-of-door environments are sensitive and have been only marginally effective in other states, and the cost of eradication attempts vs potential for success is high. We therefore invite environmentalists, landscape managers, pest management professionals, and entomologists of all levels to be aware of this new invasive ant and report locations of any new finds to the Cooperative Extension Service.

NOTE: This information has been broadcast through mass media

(television, radio newspaper and on social media), announced in formal meetings of the Indiana and Michigan Professional Urban Pest Management, Indiana Professional Lawn and Landscape Management Associations, the Indiana Vector Control Association Annual Meeting as well as, via this bulletin, to the Indiana State Cooperative Extension Service.

<https://ag.purdue.edu/department/btny/ppdl/whats-hot/docs/2022/asian-needle-ant.html>

<https://uknow.uky.edu/research/new-stinging-ant-species-could-cause-problems-kentuckians>

*All photographs graciously provided by Kevin Weiner, Evansville, IN.



From the Head Bug Purdue Entomology: Looking Ahead - 2022

What a privilege it has been to serve the department in the role of Interim Head this semester. This experience has provided me a very different perspective of the department I have called home for nearly 20 years and the opportunity to witness the many ways that our faculty, staff, students and alumni work together as a community to move Purdue Entomology forward.

As we close out another whirlwind semester of discovery, learning and extension and outreach activities, I feel excited about the future of Purdue Entomology! We are a department unified by our mission to address the societal Grand Challenges of today and tomorrow (where arthropods are involved), through our world-class instructional programs, ground-breaking research and high-impact extension and outreach. Whether helping to build climate resilient systems, preserving species diversity and natural resources, ensuring food security, protecting against disease outbreaks and biosecurity threats or delivering next gen pest management technologies, Purdue Entomology has a role.

Before I begin, it is important to recognize what we have accomplished given the unprecedented circumstances and challenges of the last few years. This semester saw Purdue faculty, staff and students return to campus after nearly two years of remote and hybrid work. The pandemic impacted and transformed our professional and personal lives in so many ways. We can be proud of how the department worked together to continue operations during the pandemic. Virtual platforms enabled delivery of our programming, but we are grateful to be back to campus, and to work with our students and colleagues in person!

For me, this semester can be best summarized as a series of highlights, some of which I briefly describe below. We kicked-off with the 86th Purdue Pest Management Conference which welcomed more than 500 delegates on campus January 10-12. In conjunction with the conference, the department celebrated the academic achievements of our many undergraduate and graduate student scholarship awardees at the Student Awards and Recognition Banquet. Awardees were presented by Dr. Christine Wilson, Associate Dean and Director of Academic Programs and the event was facilitated by Academic Advisor and Graduate Studies Coordinator, Ms. Amanda Wilson. Thanks to the generosity of our many alumni, friends and donors, Purdue Entomology awarded more than \$83,000 in scholarships to our hardworking and highly deserving students. What an investment in future generations of entomologists!

Bug Bowl returned to campus April 9 after a two-year hiatus. By unofficial count and despite the chilly weather, Purdue hosted an estimated 28,000 visitors as part of Spring Fest. Thanks to the efforts of Education and Outreach Coordinator, Dr. Gwen Pearson, and her team of many volunteers, the walls of Smith Hall were once again transformed by amazing K-12 artwork, cricket



“flinging” records were established on the Ag Mall, there was a wait line at the Petting Zoo and the antennae craft table was a huge hit. It was clear that our campus visitors enjoyed the educational outreach. Thank you to our student, staff and faculty volunteers for helping the public connect with and learn about the important roles of insects in our world!

On April 22, we welcomed 17 prospective Insect Biology students and their families as part of our Discover Insect Biology event. Visitors were introduced to our Grand Challenges-centric curriculum and provided a day-long immersive experience in Purdue Entomology programming encompassing hermetic storage (PICS program), forensics, apiculture and pollinator biology, and urban pest management, among others.



While on campus, students met with members of the Thomas Say Entomological Society and some of our hissing cockroaches in the Bug Barn! Thanks go to our many staff, faculty



and students who helped coordinate this important recruitment event.

The Fish Fry was back at the Indianapolis State Fair grounds on April 30. I had the pleasure to connect with many alumni and friends, including Dr. Mike Culy (BS '79, MS '82, PhD '87), Dr. Hongmei Li-Byarlay (PhD

'07) and Professor Emeritus, Dr. Tom Turpin and families. The featured keynote speaker was Dr. Jerome Adams, former U.S. Surgeon General who spoke on health equity. I am ashamed to admit this was my first Fish Fry, but it won't be my last!

On April 29, the department celebrated Larry Bledsoe's more than 40 years of service to Purdue Entomology Extension. Among various roles, Larry supported the Field Crops Program and served as the CAPS State Survey Coordinator. He will be missed by his many friends and colleagues in the department and around the state. We wish Larry the best in his retirement and hope that he will maintain strong ties with Purdue Entomology.



Purdue Entomology notes the departure of long-standing and highly valued members: Professor Michael Scharf, O. Wayne Rollins/Orkin Endowed Chair accepted the Endowed Professor of Urban Entomology, University of Florida and Eric Imboden, IT Specialist. Mike and Eric will be greatly missed. We are excited for our colleagues and wish them all the best in their new roles.

Spring 2022 commencement has been busy for Purdue Entomology in terms of conferring both undergraduate and graduate-level degrees. To the class of 2022 - CONGRATULATIONS! We know the experience and qualifications gained at Purdue will have lasting professional impact. We wish you the best wherever life takes you from here and encourage you to please keep in touch!

Looking ahead, when we return for the 2022-2023 academic year, the department will be focused on strategies to strengthen our programming and enhance the reputation of Purdue Entomology in each of our mission areas. We will also begin a national search to identify the next permanent head of Purdue Entomology! It will be a busy year. Please stay tuned through the fall newsletter, our website, social media and other communications.

I look forward to connecting with alumni and friends at homecoming and the John V. Osmun Alumni Professional Achievement Award ceremony (mark your calendars for September 23), as well as numerous other fall events. In the interim, I would love to hear from members of the Purdue Entomology community and can be reached by phone or email. Alternatively, please feel free to drop by the main office during your next visit to campus.

To close, I was inspired by a remark Larry Bledsoe made at his retirement celebration - that he was excited to come to work each and every day of his career at Purdue. That's a remarkable statement and a testament to the individual, the profession and the environment. I suspect there are many of us affiliated with Purdue Entomology and our discipline who may share a similar level of enthusiasm.

Wishing you the best at end of semester and see you in the fall!



Catherine A. Hill, Ph.D.
Professor & Interim
Head

BEST WISHES TO OUR DEPARTMENT RETIREES



A Perfect Career

LARRY W. BLEDSOE

I have been given the opportunity to reflect on my time here at the university and give you a few recollections of nearly 47 years. I have seen many changes to the Entomology Department, campus and West Lafayette since I first arrived as an undergraduate student in the Forestry and Natural Resources Department in the fall of 1973, Entomology student employee in 1976, graduate student in 1977, and finally as Entomology staff in the fall of 1981. Some examples include; in the mid 1970s, I only knew of three female faculty members in the entire Ag College, Dr. Virginia Ferris in Entomology being one of them. All faculty wore a suit and tie and it seemed like everyone smoked. Staff meetings would get so hazy that seeing

who was speaking across the room sometimes became difficult. Students of both genders would actually (somewhat) dress up to go to class. Shorts, pajama bottoms, and flip flops in class were an impossibility. As a beginning student, the appearance of hand-held, 4-function calculators were still several years away and it was not uncommon to see someone carrying a slide rule. In West Lafayette, the wonderful aroma of warm bread wafted from Graves Bakery located on the levee where the MacDonal'd's restaurant now stands, and a large Sears, Roebuck & Co store and parking lot were situated on the site where the strip mall and Wabash Landing Nine Cinema are now located by Tapawingo Park. Also, in those days, pea gravel and sand were still being mined from the "gravel pit" south of campus.

An interesting occurrence would happen early in the morning about once a week as a diesel locomotive pushed coal cars across campus. The train would travel from a spur off the main track at the edge of the gravel pit. It would run diagonally through the parking lot between a south extension of Smith Hall that was then the old Purdue Creamery and the Biochemistry Building, make a slight left turn and cross State Street in front of Smith Hall just west of Matthews Hall. It would proceed north to a greenhouse and a fish pond full of gold fish in the approximate location of what is now the Psychological Sciences Building, make a right turn and deliver coal to a bunker at the south end of the old power generating station. This power generating station was beneath a 400 ft red brick smoke stack that served as a sentinel to lost freshmen

anywhere on campus. The power station and smoke stack are gone now and the bell tower (near the location of the old gold fish pond) now serves this purpose. A section of the railroad track has been retained and embedded in the walkway in front of the Wilmeth Learning Center.

The Department of Entomology was located in three facilities. The primary location was in what is now Pfendler Hall, but was then named Entomology Hall. Additional staff were housed in the Entomology Environment Laboratory (EEL). In addition to the EEL greenhouse facilities, there were two small greenhouses connected by a support room attached to the back of the Ag Administration Building. These facilities were used primarily by the ENTM Corn and Soybean programs (they were separate programs then). If you look carefully at the color of the brick on the west side of the south wall of AGAD you will still see the outline of a greenhouse roof that was elevated above the support room. The entire Whistler Hall site was the Entomology and Biochemistry parking lot.

The department staff at that time seemed more closely connected than now. There were two or three potluck parties and/or picnics per year in which entire families attended. Spouses and children were known by all and it seemed like an extended family. We often watched and sometimes interacted with the Entomology staff children as they played sports, learned to drive a car, or just grew up. Many of the staff would regularly go fishing, jogging, play handball, basketball, and soft ball, etc. together.

In my association with the field crops program, I found that my much-enjoyed direct connection with farmers unfortunately diminished over the years. This connection with farmers was something that was extremely fulfilling. Forty years ago, it was common to receive a phone call from a farmer somewhere in the state who needed help troubleshooting issues with their crop. If a conversation was not enough to solve the problem, a trip was rapidly planned to visit the field and begin a forensic investigation. The encounter usually resulted in great conversation and many teachable moments as the farmer and I were in the dirt or dissecting plants trying to determine a cause and formulate a cure for the problem. Sometimes the visit resulted in an insecticide test plot which furthered the Extension recommendations a little bit. There was no charge for these visits and it created a lot of good will in the farming culture toward the University. I often had one or two of these encounters per week as did many of us across the ag college. The appearance of the modern crop consultant meant that this model changed over time as I, and many others in Extension, began to train industry to do this service as a now fee-based task.

In my role as a field crop entomologist, I had the pleasant experience to meet and interact with many professionals in the crop protection industry. I developed and still maintain many friendships over the years. Another of the great benefits to my position was to be able to hire and train over 200 student employees and to work closely with many graduate students while assisting their programs across the department. Many of the student employ-

ees have thanked me over the years for teaching/modeling the value of hard, accurate work and for making the experience interesting with my natural history lessons that I slipped in during our travels to, and while at, our worksites. This job provided me the opportunity to visit nearly every county in Indiana and I have many fond memories of experiencing the varied natural physiography of the state during all seasons of the year. I have participated in many multistate research committees at all levels and attended many Entomological Society of America meetings, and this has afforded me the opportunity to visit most of the U.S. states and some European countries.

One my most enjoyable tasks was teaching the entomology curricu-

lum to hundreds of Master Gardner and Master Naturalist programs over the years. The interest and enthusiasm that the students brought to class, not to mention the snacks they served, removed all semblance of work. I would often stay in contact with many of the students by phone calls, letters, and later emails as they further encountered the natural history of insects or applied the science of pest management to their experiences and to those they volunteered to serve in their communities.

In my role as Indiana coordinator for the federally sponsored Cooperative Agricultural Pest Survey (CAPS) I had the fulfilling experience of assisting in protecting our natural resources and facilitating state, national and international trade while conducting state-wide monitoring for exotic, invasive

organisms. This role allowed me to dust off and integrate much of my undergraduate wildlife biology and graduate entomology training to create what I, at least, believe was a successful, productive survey program. It also allowed me to stretch myself into the cryptic world of bark beetle taxonomy and to develop the taxonomic skill of microdissection of moth genitalia during a relatively advanced period of my career.

I believe that it is not very often that a person finds a single, but multifaceted job in the course of their life that is so interesting, challenging, and fulfilling as I have found in the Entomology Department. I have always been amazed (and a little guilty) that I would actually be paid to have so much fun. I have found that the university environment was a magical place to work. Someone once described it as a city in which the vast majority of its citizens never age; they are perpetually 18 to 26 years old. I never saw (or felt) myself getting older because interacting with students kept me young. And, so it is with a mixture of trepidation and sadness that I have chosen to end my long connections with the department and university, but I do feel excitement that a new chapter of my life is about to begin. However, I believe that it is time for someone else to have fun and to be rewarded as I have been. I now extend heart-felt gratitude to all those who have served as my mentors, teachers, and friends over the years. There are too many to name.



GWEN PEARSON, the department's Education and Outreach Coordinator, will be leaving in August 2022 to go back to science writing full-time. She joined Entomology in 2015 after working for WIREd magazine for several years. Gwen has a PhD in Entomology, but left the tenure track to work with research and field stations as a consultant, and then moved on to journalism.

The Bug Barn was renovated by Gwen to focus more on living animals and hands-on engagement, since her pedagogical interests lay in interpretation and SEL (social emotional learning). The Bug Barn is now a destination stop for FFA, 4H, and College of Agriculture tours.

Gwen also worked to form partnerships with groups in and out of Purdue: the College of Agriculture Multicultural Programs; Junior Achievement; Extension offices, and MANRRS, among others. She formed the Insect Festival Working Group to bring together insect festivals across the USA to develop best practices and create a shared evaluation instrument.

During her time at Purdue, Gwen received the 2016 Medal of Honor from the Entomological Foundation; the 2019 PK-12 Excellence Award for Staff from the College of Agriculture, and the 2021 Outstanding Service Award for Staff from the Department of Entomology.



86TH ANNUAL PURDUE PEST MANAGEMENT CONFERENCE

HOLLY FLETCHER-TIMMONS

The 86th Annual Purdue Pest Management Conference was held January 10 - 12, 2022. Total attendance ran just over 450. Despite the Omicron surge that kept organizers shifting plans all the way through the event, the conference ran smoothly and received great reviews from participants.

This was the first year the conference was offered as a hybrid with both in person and virtual attendance options. In total there were 26 presentations, 13 of which were available to the virtual audience. The virtual presentations were either recorded prior to the event or live streamed from onsite to the conference platform for live viewing. The live streams were converted to video and posted on the website; they remained available for participants to view and receive credit for through January 21st. The hybrid component was a life-saver for the conference as a large portion of the registrants, including several speakers, were not able to travel to campus due to Covid, quarantine, travel restrictions, and airline cancellations. These participants were able to attend the event virtually, and the speakers worked with Purdue Marketing and Media and the Hall of Music to Zoom into the theaters and present their talks to the audience via remote locations.

INSECT ID - AN INTERACTIVE ACTIVITY
Lt. Adam Salyer, a Purdue Entomology alum, worked together with Mat Dittmann, an Entomology PhD student and the conference grad student assistant, to design an interactive activity for onsite attendees to participate in for continuing education credits. The Insect ID Gallery was open both Monday and Tuesday mornings and run by Lt. Adam Salyer and a small team of students. There were about 100 participants seeking credit from the Insect ID Gallery with additional participants doing walkthroughs.



PURDUE ENTOMOLOGY WELCOMES NEW FACES IN OPENING CEREMONIES
Carrie Campbell (1), the Industry Planning Committee Chair, opened the conference with thanks and introductions of both Dr. Catherine Hill (2), the interim Entomology Head, and Dr. Barry Pittendrigh (3), the Urban Center and Conference Director. Both Drs. Hill and Pittendrigh welcomed the audience and expressed gratitude for those in attendance in spite of the difficult circumstance arising from the continuing Covid situation. Dr. Pittendrigh stepped into the role of Director of the Center for Urban and Industrial Pest Management in the Purdue Entomology Department in January of 2021. Dr. Hill took over as interim department head of the Purdue Entomology Department at the beginning of this year. Mark VanderWerp (4) of Rose Pest Solutions, prepared a short news update video that was featured during opening ceremonies.

SPECIAL THANKS TO VOLUNTEERS
The PPMC owes a debt of gratitude to those who volunteered to step in when speakers and moderators were dropping out at the last minute. Some of these include David Resz (1) of Pest Control Supplies who worked with Jeff McGovern to present the Exhibitor Fly By; Doug Foster (2) of Burt's Termite and Pest stepped in to cover as moderator for the business session on Tuesday morning; Ed Hosoda (3) and Jeremy Jackson (4), speakers in the Fumigation session, moderated for one another when their moderator fell ill.

RECOGNIZING OUR 2022 INDUSTRY PLANNING COMMITTEE

Each May, our industry planning committee meets to lay out the program for the upcoming conference. Our committee members consist of the Committee Chair, the Urban Center Director, the Conference Coordinator, the Entomology Graduate Student Assistant, the Entomological Extension Specialist from Illinois University, the Director of USDA APHIS Wildlife Services, the Programs Specialist within Purdue Pesticides Programs, the Manager of Certification and Licensing with the Office of the Indiana State Chemist, and 5 - 6 select additional members from surrounding states, including representatives from PCT or PMP magazine, industry vendors, and small business owners. Members of Purdue's Urban Center, including graduate students, also take part in developing the program. It is our goal to capture the most current issues affecting the pest management industry and design a program that delivers cutting-edge information that is relevant and exciting to all industry members.



Welcome New Staff

MEGAN HAAS



Megan joined John Couture's lab in the position of Lab Manager in January, 2022.

ZEUS MATEO



Zeus, a post-doc, has joined Dr. Ian Kaplan's lab.

ERREN TAPIA



Erren is the new business manager for the department. Her role includes directing the management of finances and business management for Biochemistry/Entomology/State Chemist/CERIS.

Department Departures

ERIC IMBODEN



Eric left the department the first of May, 2022. He served as the Department Academic IT Specialist.

DR. MIKE SCHARF



Mike left the department November 1, 2021. He served as the O. Wayne Rollins/Orkin Chaired Professor for the Center for Urban and Industrial Pest Management.

Awards

PUCESA TEAM AWARD

17-YEAR CICADA TEAM

The interdisciplinary team behind The Brood X Cicada Outreach in the spring and summer of 2021 has been selected as the recipients of the Purdue Cooperative Extension Specialists' Association (PUCESA) Team Award. The team led by Elizabeth Barnes included ENTM members, Leslie Aviles Lopez, Tim Gibb, Matt Ginzel, Laura Ingwell, Emily Justus, Elizabeth Long, Gwen Pearson, Eze Pojmann-Ezeonyilo and Cliff Sadof.



PUBLICATION OF PROFESSIONAL SERVICES - PI CHI OMEGA

DR. AMEYA GONDHALEKAR



Dr. Gondhalekar received a recognition award from the Pi Chi Omega (PCO) pest control fraternity for contributing a book chapter on Insecticide Resistance Management in the newly released book on "Biology and Management of the German Cockroach" (Denver, CO).

COA TEAM AWARD

DRS. ELIZABETH BARNES & CLIFF SADOFF



Congratulations to Elizabeth Barnes and Cliff Sadoff for being part of the 2021 Purdue Agriculture Team Award.

[Read more about the Purdue Landscape Report here.](#)

ESA AWARDS

DR. LAURA INGWELL



POSTER
PRESENTATION
2ND PLACE

DR. KRystal HANS



STANDOUT
EARLY CAREER
PROFESSIONAL

JACOB PECENKA



DEBATE
1ST PLACE

& IPM
2ND PLACE

LESLIE AVILES LOPEZ



POSTER
PRESENTATION
2ND PLACE

& IPM
1ST PLACE

LILAC HONG



MS PRESENTATION
1ST PLACE
(NCB-ESA)

GORDON MACCLOED



SysEB
2ND PLACE

Friends of Entomology

GIFTS TO THE DEPARTMENT (OCTOBER 2021 - APRIL 2022)

MONARCH CLUB (\$1000 UP)

- A-Mark Pest and Bird Management Inc.
- AMVAC Chemical Corporation
- Bayer CropScience LP Environmental Science
- Corteva Agriscience
- Daniel Yunez
- David and Mary Beth Mueller
- E. I. Dupont De Nemours & Company
- Fluker's Cricket Farm, Inc.
- FMC Corporation
- Garden Girls Repellents LLC
- James and Bernice DeMarco
- John Lawrence Gedeon
- Larry and Evelyn Murdock
- Mash Services of Illinois, Inc.
- MGK Insect Control
- North Coast Media, LLC
- pbi/Gordon Corporation

- Purdue Federal Credit Union
- Syngenta AG
- Syngenta Crop Protection Inc.
- Syngenta Seeds Inc.
- Terry and Susan Ferris-Edgell
- University Book Store

HONEY BEE CLUB (\$500-\$999)

- David and Susan Hogg
- Fritz and Anne Schumann
- Harry and Nancy Moore Jr.
- Mary Sue Torres
- Paul Erich Rensner
- Peter and Georgia Dunn
- The Critter Depot

FIREFLY CLUB (\$101-\$499)

- Colwell Ann Cook
- Darryl Paul Sanders
- Dawn Napolitano
- Dieudonne Baributsa

- Douglas Richmond
- Edward Stanley Saugstad
- Elizabeth Barnes
- Eric Lee-Chien-Hsin Pang
- Glen Edward Williams
- Haskell & Morrison Funeral Home
- James and Mary Delaney
- James William Smith
- Janet and Larry Bledsoe
- Anonymous
- John and Jean Burton
- John Lyon Obermeyer
- Kenneth Harold Kendall
- Margaret M. Fischang
- Mark and Julie Thornburg
- Mark and Kathleen Shelton
- Mary R. Daniels
- Matthew D. Ginzel
- Robert and Judy Dold
- Vincent Ernest Scala
- Vinnedge Moore Lawrence

Staff Awards

COAG ACCOUNT MANAGEMENT APPRECIATION AWARDS



LORI EDWARDS

Lori received multiple awards during the CoAg Account Management and Appreciations (virtual) event. Business offices staff were tasked with clearing up overdrafts, closing expired grants, etc. and Lori received awards for the following:

- 1) Grants Overdraft – Most Impact – Numbers
- 2) Most Impact – Numbers
- 3) Expiring/Expired – Most Impact – Numbers
- 4) Overdraft – Most Impact – Numbers

OUTSTANDING SERVICE AWARD 2021



GWEN PEARSON

Student Awards



OUTSTANDING SERVICE TO STUDENTS AWARD 2021

WADIH GHANEM



OUTSTANDING MS STUDENT IN ENTOMOLOGY 2021

MADELINE CARPENTER



BILSLAND FELLOWSHIP JANUARY, 2022-2023

RAJANI SAPKOTA



FORENSIC SCIENCE FOUNDATION FIELD RESEARCH GRANT PROGRAM 2021-2022

ELANCO ANIMAL HEALTH GRADUATE ENDOWMENT AWARD 2022-2023

TEOMIE RIVERA-MIRANDA



OUTSTANDING PHD STUDENT IN ENTOMOLOGY 2021

JACOB PECENKA

Bug Bowl is Back!

GWEN PEARSON, OUTREACH COORDINATOR, ENTOMOLOGY

Bug Bowl returned as an in-person event this year, after cancellation in 2020 and being digital only in 2021. Saturday, April 9th, 2022 was a cold and blustery day, but an estimated 30,000 attendees (and exhibitors!) bunched up and had fun.

A few changes were made to adjust to our ongoing pandemic environment; Cricket Spitting in particular seemed risky. Airborne spit is a normal part of the competition. To keep our signature event, we modified it to Cricket Flinging. All the fun, but none of the phlegm!

Frozen crickets were placed in large plastic spoons and flung as far as the participant could launch them. The competition was quite fierce as contestants vied for 2022 prize ribbons.

[Watch the video! Introducing Cricket Flinging for 2022 Spring Fest](#)



All our regular Smith Hall exhibits were back – The Pollinator Room, the amazing display collection of the Capps Family, and the Petting Zoo. A popular new addition to Bug Bowl this year was an antennae room! Dr. Elizabeth Long piloted this new exhibit where folks could make antennae headbands. All seemed to enjoy a chance to be creative and learned a bit about insect chemoreception. The K-12 Bug Bowl Art Contest entries covered the lower floors of Smith Hall and delighted everyone.



In the Big Top Tent, both the Forensics club and the Thomas Say Student Entomological Society had booths, as well as an exhibit on Black Soldier Fly composting from the Ingwell Lab, an Invasive Species game, and information about Industrial Hemp research.



This year also marked the first formal evaluation of Bug Bowl. Clearly with 32 years of Bug Bowl, we're doing something right, but... what, exactly? Both visitors and volunteers were surveyed this year, to help us answer that question. We hope to learn what motivates visitors to attend, the demographic makeup of our audience, and if we change any knowledge or behavior in visitors. This evaluation project is a pilot for the larger Insect Festival Working Group (<https://insectfestivals.org/map/>), founded by Gwen Pearson.

All photos courtesy of John Obermeyer

Student Spotlight

MADDIE CARPENTER

THE STUDENT

Maddie Carpenter was working toward a degree in international affairs at Northeastern University before changing to biology. “In reality,” Carpenter says about the switch, “some of my friends’ classes sounded much cooler than the courses I was taking!” Shortly thereafter, the native of Albany, New York, signed on for a six-month urban beekeeping internship in the Boston area. The experience proved a turning point: “I fell in love with the job and working with honey bees, especially the caretaking part of it.” After completing the internship, Carpenter continued to read scientific articles related to honey bees while exploring graduate programs in beekeeping. The head of Purdue’s beekeeping lab, Professor Emeritus Greg Hunt, had just retired from the entomology department, but Carpenter delved into papers written by his successor, Brock Harpur, assistant professor of entomology. The two spoke over Zoom about the parasite resistance work Harpur intended to start in his new lab. “My approach before was from a beekeeper perspective,” Carpenter says. “The way Dr. Harpur was going about it — a proactive approach using genome sequencing to take out the traits to prevent parasite infection — was fascinating to me.” Carpenter joined Harpur’s lab and began master’s study in fall 2019.

THE RESEARCH

Skills from Carpenter’s earlier studies in international affairs and its focus on history proved unexpectedly useful in entomological research. A U.S. map on Carpenter’s laptop illustrates the first of two projects. Bees are not native to the United States; Carpenter tracked their import from Europe, Asia and Africa and their movement around this country. “The map documents the initial spread of the Western honey bee across the United States,” she explains. “I was the first person to construct a map of this kind from eyewitness accounts, newspapers, and honey bee journals spanning 400 years.” It laid the groundwork for a second phase of research — analyzing the entire genome of the honey bee — 263 million base pairs — for parasite resistance using its from a wider geographic range than in previous research — groundbreaking work that Carpenter hopes will help beekeepers and honey bee researchers in the future.



OPPORTUNITIES

Carpenter’s thorough review of the archival and available genetic history of honey bees in the U.S. over the last 400 years was published in January 2021 and presented at several major conferences in the field. Attending beekeeper meetings balances the research with outreach that spans hobbyist beekeepers with a hive or two in their yards to large commercial beekeeping operations. Carpenter credits Harpur with encouraging such opportunities as well as “anytime I run into a hurdle, nudging me in the direction of fixing it.”

FUTURE PLANS

Carpenter completed the MS and graduated this spring and is considering a career that would allow for ongoing working with genome sequencing. “I enjoy the very complex puzzle, and it’s a growing field that holds my interest.” Outside of the lab, Carpenter enjoys recreational hiking in the area — a throwback to a childhood often spent outdoors fishing, hiking and “observing the natural world.”

<https://ag.purdue.edu/arge/Pages/Spotlight---Carpenter.aspx>

“For the most part honey bees rely on humans to survive. We have been breeding them for many hundreds of years to express the traits we want, like honey production, resistance to disease and gentleness.” - Maddie Carpenter

News

Dr. Krystal Hans was named Stand-out Early Career Professional by ESA. Hans was selected to present her research at the ECP Recognition Symposium at Entomology 2021, October 31 – November 3, in Denver, Colorado.



Krystal was also recently selected amongst twelve faculty and staff members from the West Lafayette campus to participate in Purdue's Societal Impact Fellow Program.

[See a video to learn more](#)

Krispn Given was featured in the Purdue College of Agricultural publication *Behind the Research* in November, 2021.



[See the full article here](#)



Krispn was also featured on the cover of the March 2022 issue of Bee Culture magazine - one of the biggest beekeeping magazines in the country.

<https://www.beeeculture.com/>



Dr. Laura Ingwell was featured in Inside Indiana Business with Gerry Dick, March 17, 2022 in an article titled: Purdue Study Targets Pests in High Tunnels. Laura is leading a \$3.7 million study examining the impacts of pests in high tunnels, plastic barriers designed to protect crops from environmental factors.

[See full article here](#)

CONGRATULATIONS to **Helena Avila-Arias**, a post-doc in the Richmond lab, and her husband Justin on the birth of their daughter, Eleanor on Thursday, March 10.



Dr. Ameya Gondhalekar was part of a team that helped TED-Ed to create the lesson plan/narrative for a Cockroach Resilience educational video.

[See the video here.](#)



Student News

Maddie Carpenter was interviewed on PolliNation, a podcast out of Oregon State University about her recently published manuscript on the history of honey bee importations in the United States.

"Italian honey bees were successfully brought to North America in 1859, but imports ground to a halt with the American Civil War. Imports picked up after the war and in 1866 there was an explosion of interest in both Italian honey bees. Their continued importation after the initial craze formed the nucleus of Italian honey bee breeding stock in the United States."

[Listen to the podcast here.](#)



Jacob Pecenka a PhD student with Kaplan was recently published in PNAS (Proceedings of the National Academy of Sciences of the United States of America) along with other collaborators from the department.

"IPM reduces insecticide applications by 95% while maintaining or enhancing crop yields through wild pollinator conservation"

Jacob R. Pecenka, Laura L. Ingwell, Rick E. Foster, Christian H. Krupke, and Ian Kaplan

[See the article here.](#)



Meghan Jerke, 2022 Bug Bowl Intern was featured in a write up in Pest Control Technology (PCT) Magazine Online. A sponsorship from Franklin Pest Solutions allowed Gwen Pearson the ability to hire some extra help for this year's Bug Bowl. Meghan, an Insect Biology Major, was recognized in the write up in the PCT online article on March 31st.

Megan was responsible for the annual Insect Art Show which receives around

1,600 pieces of K-12 artwork. [The article can be viewed here.](#)



Rajani Sapkota, PhD, a student in Mike Scharf's lab was published in the Journal of Experimental Biology.

"Regulation of host phenotypic plasticity by gut symbiont communities in the eastern subterranean termite (Reticulitermes flavipes)"

Rajani Sapkota, Cindy H. Nakatsu, Michael E. Scharf.

[View the article here.](#)

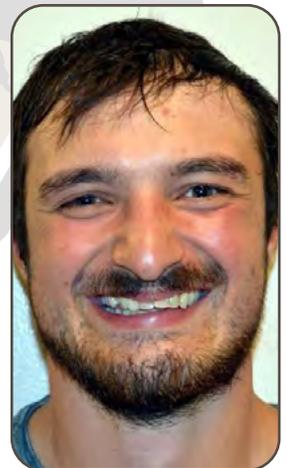


Raquel Peron recently published the first chapter of her dissertation. The study, published in Remote Sensing, examined the ability of spectral data to estimate nitrogen concentrations and nitrogen use efficiency in a population of winter wheat in a population bred for efficient use of nitrogen. The study also explored the ability of spectral estimates of plant nitrogen levels to scale across years and different wheat genotypes. A major take away from the study is that mid-season, remotely detected levels of nitrogen can be used to estimate year-end calculations of nitrogen use efficiency. Outcomes from this work highlight the potential of non-invasive, spectral estimates of plant functional traits to more efficiently screen individuals within breeding populations for desirable agronomic traits.

[See the article here.](#)

Garett Slater was accepted into Purdue's Graduate Student Fellow Program. The program seeks to recognize strengths and identify possible opportunities for improvement. The program will provide professional development activities for faculty, graduate students, and post-docs. Fellows will have the opportunity to assess/describe the mentoring culture within their college and shape programming over the next year.

[Read more here.](#)



Alumni News

Professor Emeritus Gary Bennett was selected to co-author a chapter entitled "Advances in Urban Entomology" in Annual Review of Entomology. Gary is also serving as co-chair of Pi Chi Omega's committee to address decline in academic positions in Urban Entomology.



Dr. Eric Rebek (Ph.D., 2004) has accepted a position with FMC Corporation as technical service manager based out of Minneapolis, MN. His primary crop responsibilities include corn and soybean for Minnesota and South Dakota. Eric spent the past 15 years at Oklahoma State University as a state extension specialist and earned the rank of Professor with tenure. He is very happy to be back in the upper Midwest closer to his family and friends in Wisconsin. His family in Oklahoma will join him as soon as his wife, Bridget, graduates from OSU with her Ph.D. later this year.



Dr. Hongmei Li-Byarlay (PhD, 2007) is currently an Assistant Professor at Central State University (CSU), an 1890 Land-Grant Institution in the State of Ohio. Her research group focuses on behavioral genetics of honeybees. She has received one NSF Research Initiation Award to study the honeybee epigenomics and behavior, one USDA NIFA grant to study abiotic and biotic stress of honeybees. She will receive a new grant from USDA SARE North Central Region and work with Dr. Brock Harpur to improve the quality of queens using local resources. In 2021, she has received the first CSU President's Award for Faculty Excellence in Research. She recently published several new scientific publications as well.

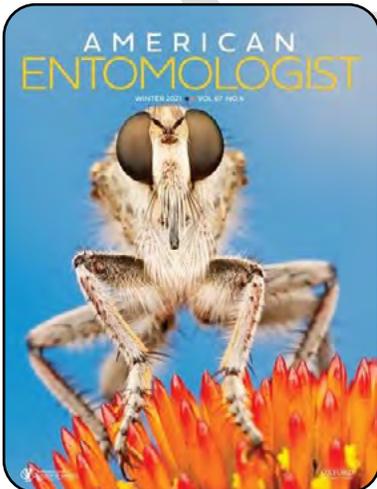


Tom Myers (B.S., 1973). The cover photo on the Winter 2021 issue of American Entomologist is by Purdue Entomology alum Tom Myers. Tom Myers is a Board Certified Entomologist. He earned his B.S. in Entomology at Purdue University and his M.S. at Iowa State University in Entomology and Insect Pest Management. Myers was involved in insect research while at Purdue, Iowa State and the University of Kentucky. His research has been published in Scientific Journals and Industry Trade Magazines.



- Pesticide residues in the pollen and nectar of oilseed rape (*Brassica napus* L.) and their potential risks to honey bees, X Wen, C Ma, M Sun, Y Wang, X Xue, J Chen, W Song, H Li-Byarlay, ..., *Science of The Total Environment* 786, 147443 2021
- Assessment and comparison of two different methods to extract nucleic acids from individual honey bees, R Swami, B Ganser, DR Tarcy, MK Strand, H Li-Byarlay, *Annals of the Entomological Society of America* 114 (5), 614-619 2021
- Morphological Changes in the Mandibles Accompany the Defensive Behavior of Indiana Mite Biting Honey Bees Against *Varroa Destructor*, J Smith, XL Cleare, K Given, H Li-Byarlay, *Frontiers in Ecology and Evolution* 9, 243.
- Chapter Two - Current trends in the oxidative stress and ageing of social hymenopterans, H Li-Byarlay, XL Cleare, *Advances in Insect Physiology* 59, 43-69, 2, 2020.
- Transcriptomic and epigenomic dynamics of honey bees in response to lethal viral infection, H Li-Byarlay, H Boncristiani, G Howell, J Herman, L Clark, MK Strand, ...*Frontiers in genetics* 11, 1056

Known world-wide as a photographer and entomologist, he has traveled to all seven continents, sometimes under the most extreme circumstances, to document our world and the people and wildlife in it. Tom's work has appeared in numerous national magazines including National Geographic publications and Nature's Best. His images appear in calendars, newspapers, textbooks, TV broadcasts and scientific guides. The National Pest Management Association and the Entomological Society of America have extensively used his insect images for years. His images have won local, national and international awards including the honor of being on exhibit in Washington D.C. at the Smithsonian's National Museum of Natural History.



Dr. Jesusa (Susie) C. Legaspi (Ph.D., 1991) a Research Entomologist at the Insect Behavior and Biocontrol Research unit, USDA-ARS-Center for Medical, Agricultural and Veterinary Entomology in Tallahassee, FL received the 2021 International Integrated Pest Management (IPM) Award of Recognition (Team) as part of the Center for Biological Control (CBC) IPM Team at Florida A&M University. The award was presented at the 10th International IPM Symposium held in Denver, CO on Feb. 28 - Mar. 3, 2022. Team members include Drs. Lambert Kanga (Director, CBC), J. C. Legaspi (co-director, CBC), Stephen Hight, Muhammad Haseeb, Raymond Hix, Benjamin Hottel, Wills Flowers and Manuel Pescador. The team was recognized for their collaborative activities which resulted in a substantial increase in the number



of underrepresented and minority students receiving experiential IPM research training in undergraduate and graduate programs. The CBC IPM Team was also recognized for the increased number of underrepresented small-scale growers, backyard / urban gardeners, organic farmers, and the public that have benefited from the team's research and outreach activities. (<https://ipmsymposium.org/2022/awards.html>)

Dr. Legaspi also presented a virtual talk on Nov. 2, 2021, at Florida State University (FSU) as part of the inaugural seminar series on Diverse Voices in STEM, Tallahassee, FL. She was asked to share her story. The purpose of the seminar series organized by the FSU librarians was to encourage underrepresented undergraduate students to continue on to graduate school in a STEM field. The talk was entitled "International Research Experience from East to West: Lessons Learned" and included the partnership between USDA and Florida A&M University-Center for Biological Control. The talk is now posted at the FSU Diverse Voices in STEM website (<https://youtu.be/IIWLHpwhPt4>). It will be translated to a few languages for the diverse FSU student population.

Luke Jacobus, (Ph.D. '06) an associate professor of Biology at IUPUC received a grant from the Indianapolis Zoo for research into threatened or endangered species of Mayflies in the state of Indiana. The grant is part of a \$350K zoo program supporting conservation initiatives around the world.



[See the full article here.](#)

Mark Shelton, (M.S. 1980) & **Kathy Shelton** (B.S. 1979) are retired and pleased to report their family is doing well and growing, with five granddaughters so far. Mark and Kathy recently enjoyed a Zoom reunion with Tom & Chris Turpin and other Entomology department friends from their time at Purdue. Since retiring from Cal Poly teaching/administration in 2020, Mark's traveled and fly fished to his heart's content, while also being active in Rotary, the local Food Bank, and some conservation organizations. Kathy loves doting on the granddaughters, ski trips, gardening and reading.



David Mueller, BCE, (B.S. 1975) started a family business in 1981 to help solve pest problems in stored products. Insects Limited, Inc. and FSS are celebrating their 40th anniversary. Presently they have about 100 employees with several Purdue entomologist.



David retired in 2018 and his sons Tom and Pete Mueller (Purdue) are managing the companies. David still returns to Purdue for the Distinguished Alumni (1999). He was involved with John Osmun Award (2001), College of Agriculture Distinguished, Alumni Award (1999) Purdue Pest Management Conference (46 years), Pi Chi Omega meetings, "The Entomologist" statue committee, the endowed chair alumni committees, the Alumni Room committee in Smith Hall, the entomology developmental committee, and he is a season ticket holder for Purdue Basketball. He is married to Mary Beth (45 years) they have three grown children and five grandchildren and resides in Westfield, IN.

David used the science of insects to develop his international pheromone and fumigation businesses. He believes that you always start with the insect first when solving a pest problem. Dr John Osmun was his inspiration, friend, and mentor. "Purdue has been very good to me and our family."

Obituary

Milan Busching, (M.S. 1975) age 71, passed away unexpectedly on April 19th, 2022. Milan loved to collect and rear insects and found the job of his dreams as the head of the World Insects Exhibit at the Cincinnati Zoo in 1976 where he developed an insect exhibit that set a new standard for zoos around



the country. He remained in his position at the zoo for nearly 30 years, traveling all over the country as well as to locations in Central and South America and Asia. Dr. Tom Turpin was Milan's advisor at Purdue.

[Read Milan's full obituary here.](#)

JOHN V. OSMUN ALUMNI PROFESSIONAL ACHIEVEMENT AWARD IN ENTOMOLOGY



JOHN V. OSMUN

John V. Osmun served as Head of the Department of Entomology from 1956-1972. Upon retirement from the Purdue Entomology faculty in 1987, an award fund, The John V. Osmun Alumni Professional Achievement Award in Entomology, was established in his honor.

In 1948 John Osmun came to Purdue University with a vision and two goals. The first goal concerned the coming-of-age of the structural pest control industry. He recognized the imperative that urban entomology be firmly established on strong scientific and educational foundations. He was determined to be a catalyst toward that end. Thus, during his early years at Purdue, John established the first four-year program devoted to urban and industrial entomology. Today it is known as the finest anywhere.

The second goal was to help build the Department of Entomology so it would be rated among the best in the country. As department head, Osmun guided the department for 16 years, during which time it grew in both size and reputation. Laboratory and field research became interactive; classes were diversified and expanded; and program outreach included correspondence-course instruction. Later, John served as the first director of the Operations Division of the U.S. Environmental Protection Agency, lending guidance and bringing a scientist's balance during the agency's early years when performance standards were being established. The John V. Osmun Alumni Professional Achievement Award in Entomology is to recognize a hallmark of John Osmun's long career, professionalism, and his great respect for Entomology Alumni.

PURPOSE OF THE AWARD

Friends, former students, and peers established the John V. Osmun Alumni Professional Achievement Award as an expression of gratitude for John's many and enduring contributions. The Award is given annually to a degree holding alumnus of the Purdue University Department of Entomology. The Osmun Award's purpose is to perpetuate the standards of excellence exemplified by Purdue's entomology department. The award serves to recognize and promote both high achievement and professionalism in entomology and its related fields. The Award carries with it a plaque for the recipient. A permanent display bearing the award winners' names is located in the Entomology Department Conference Room at Purdue's West Lafayette campus.

ELIGIBILITY

Recipients must (1) Be degree holding alumni of the Purdue University, Department of Entomology. (2) Have demonstrated high standards of professionalism in their lives. (3) Have established a career reputation of distinction, excelling either in the broad discipline of entomology or in some related field. Recipients may be professionals who have been employed in any aspects of academe, industry, government, or private or public enterprise. (4) Be willing and available to accept the award by participating in appropriate on-campus activities to recognize their achievements.

NOMINATIONS

Nominations are encouraged from all members of the various entomological professions, alumni, and from departmental staff and former staff. Each nomination should include a letter from the nominator, two letters of support, and the nominee's vita or resume. The nomination package is due August 1, 2022. Submit to: Mardelle Lorton, Department of Entomology; Purdue University, Smith Hall, 901 W. State Street, West Lafayette, IN 47907.

[Osmun Award Nomination Form](#)

[Osmun Award Nomination Instructions](#)

Nominations Due August 1st



Calendar

2022

August

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2022 JOHN V. OSMUN AWARD -
[NOMINATIONS DUE](#)

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2022 JOHN V. OSMUN AWARD -
CEREMONY

From the editor

With each issue of **Boiler Buzz** we keep you up to date on what's happening in the Department of Entomology and with Alumni. Please take a moment to let us know any of your own updates.

Holly Fletcher-Timmons - Editor, **Boiler Buzz**
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Please include your name, address, degree, major and year of graduation. Digital photos (.jpg or .tif) are preferred. Photos received by mail will be returned upon request. To update your contact information online, go to:
www.purdueinsects.org

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