WINTER 2022 VOL.02, NO. 03

CONNECTIONS

Department of Entomology and Plant Pathology Newsletter



Greetings from your Department of Entomology and Plant Pathology

As 2022 draws to a close, it's a good time to reflect on all that has happened in our department in the past year. One of the most rewarding tasks for faculty at this point late in the semester is to serve on advisory committees of graduate students who are finishing up. It is impressive to see the level of growth and confidence that our graduate students gain over the course of their MS and PhD programs. This year we once again had a strong crop of students and are very proud of all our 2022 graduates.

We know that they will go on to do great things in their professional paths. At the annual national meetings of the APS and ESA this year, I met many alumni from our graduate programs. If their professional standing and success are good indicators, then our recent graduates will have a very bright future. The department has been incredibly fortunate in the past year to have added outstanding new faculty to our ranks.

Not only are these individuals excellent entomologists and plant pathologists, but each of them is also collaborative, hard-working, and thoroughly delightful. I very much look forward to working alongside all our faculty in the coming year as we strive to build a stronger unit and to serve Arkansas and beyond. Check out the rest of this newsletter, which will give you a good sense of just how busy we have all been keeping throughout the fall.

I consider myself still relatively new to my current job, and for 20 years my position here at the University of Arkansas was in the professorial ranks leading a research group and teaching courses. One reason I got into a career in science and academia is that I enjoy the process of learning. I am still learning a lot as a department head. As a unit we face many challenges, but the talented personnel we have among our faculty, staff and students make my job so much easier and enjoyable.

We are also thinking about the changes that 2023 will bring for ENPL. We are expecting to add at least three more new faculty members early in the year; watch for the spring 2023 newsletter for updates. We have already recruited some excellent new students that will join us in January and are hopeful for another strong set of graduates completing their degrees. It will be another busy and exciting year ahead. As always, please reach out if you have any questions or want to share news with ENPL alumni and friends. From the Department of Entomology and Plant Pathology, we wish all our alumni, colleagues, and friends a very peaceful and enjoyable 2023.

Best wishes,

Ken

Ken Korth
Professor and Department Head
kkorth@uark.edu

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Ken Korth

DIVISION OF AGRICULTURE RESEARCH & EXTENSION University of Arkansas System
UNIVERSITY OF ARKANSAS. Dale Bumpers College of Agricultural, Food & Life Sciences Entomology & Plant Pathology





WHAT WE STAND FOR

As part of the ongoing process of strategic planning for the Department of Entomology and Plant Pathology, the faculty composed the following statements. These are meant to guide us as we make decisions and plans for the future growth and success of our unit.

Our Vision:

The Department is a global leader in entomology and plant pathology; promoting human, animal, and plant health, environmental sustainability and food security.

Our Mission:

The Department serves science and society through discovery, translation and dissemination of knowledge and resources to promote human, animal, and plant health, environmental sustainability and food security.

Our Core Values:

To realize our collective Vision and enact our Mission, we will uphold these values:

- Foster interdisciplinary and synergistic collaboration.
- Champion a supportive, diverse, and inclusive environment.
- Support innovation and excellence.
- Ensure scientific integrity.
- Engage and serve our stakeholders.

Authored and adopted by the faculty, March 2021

Recent Events

Insect Festival 2022

On October 27th of this year, hundreds of creepy crawlers took the stage at the Arkansas Insect Festival of 2022. The festival was a huge success with attendees spanning all ages. Around 4,000 people came out and had the opportunity to get an up-close view of collections of live and dead insects.

"We are happy to be hosting the Arkansas Insect Festival again," said Chad Mills, administrative manager for the Department of Entomology and Plant Pathology. "The event is fun for all ages and highlights the important role that insects play in our environment and in our lives."

Display and activity booths were provided by a good portion of members of our department, as well as a variety of festival partners. Combining our booths with that of over 15 visiting partners, it was a full house!

Ranging from marvelous insect displays, interactive educational experiences, cockroach races, crafts galore, an enclosed case featuring live bees, and much more, there was a lot to see!



Instructor Austin Jones leads the cockroach races.



M.S. student Paige Cummins explains an insect display.



Volunteer and Ph.D. student Audra Rogers help run the craft booth.



The Pauline Whitaker Animal Science Arena was packed.

Recent Events cont.



Ph.D. student Abeer Alnasrawi explains the equipment.

The first Insect Festival was organized in 1993 by experiment station entomologist Don Steinkraus, who retired recently but is still active in the event.

"Every one of the festivals has been a big success," Steinkraus said. "We get about 3,000 people each year. The festival brings together entomologists and plant pathologists from all over the state.

"It entertains people and educates people," he said. "It's a blast."



Live music was played by Dominic Roy.

The department also wants to help spread the message of how it is important, now more than ever, for people to learn about bugs since many insect populations are dwindling.

“In terms of pollinating bees and things, insects are really in a precarious position right now. Populations are being reduced because of changes in the environment, changes in land. So it’s important that we educate people about just how important they are in our lives,” said Ken Korth.



Ph.D. student Juanita Gil Bedoya gets in the insect spirit.



Professor Emily McDermott works the Med Vet booth.



Program Tech Elizabeth Smith shows off a cool display at the teaching scope booth.

Thank You Donors!

We are so grateful for everyone who participated, and we especially want to thank our donors.

-Ozark Natural Foods CoOp donated the ample trays of food served all day long.

-Coca-Cola donated all of the bottled drinks.

Recent Events cont.

Visit From Former ENPL Faculty Member

Dr. Yinong Yang presented an invited departmental seminar on November 8th. Dr. Yang is a prominent researcher working on methods of CRISPR-mediated gene-editing in rice. He is a Professor at Penn State University and was formerly faculty here in the Department of Plant Pathology. His wife Qin Wang also worked in our department as a Program Associate. During his visit we held a faculty reception to honor Dr. Yang, which included several alumni from the department. We were joined by Dr. Tameka Bailey, Assistant Professor from the Department of Biological Sciences at the University of Arkansas. Dr. Bailey was mentored by Dr. Yang for her Ph.D. in Cell and Molecular Biology from the University of Arkansas. Also joining us was Dr. Craig Rothrock, retired faculty and interim Department Head.



Pictured here are Yinong Yang, Tameka Bailey, and Ken Korth, former co-workers in labs at the Rosen Center for Alternative Pest Control.

Long-time colleagues were able to reconnect at the reception. Pictured here are Ken Korth, Craig Rothrock, Yinong Yang, Jim Correll, and John Rupe.



Meet New Faculty

We are fortunate to have outstanding new faculty join us this fall.



Rupesh Kariyat

Started at U of A:
July 2022
B.S. institution: Kerala Agricultural University, Kerala, India
M.S. institution: University of Wyoming, Laramie, WY
PhD. institution: The Pennsylvania State University, University Park, PA

About:
I am married, and my wife is a faculty in civil engineering. I have 2 kids- a girl (12) and a boy (4). I was born in the southernmost state of India, Kerala which is famous for its landscape, backwaters and food. I enjoy macro photography as a hobby, and I am a big fan of the author John Grisham.

Research/Extension areas of interest:
I am interested in understanding mechanisms underlying plant defenses and insect herbivore counter defenses in crops to develop better pest management strategies. The lab will use a combination of field entomology, chemical ecology, and "omics" approaches to answer row crop producer led crop protection questions. We plan to collaborate with on campus faculty, extension entomologists and producers in the state of Arkansas and will use corn, sorghum, soybean, rice, and their insect herbivores as our study systems.



Joanna "Asia" Kud

Started at U of A:
October 2022
M.S. institution: Maria Curie-Sklodowska University, Lublin, Poland
PhD. institution: University of Idaho, Moscow, ID

About:
When not working, together with my husband Ahmed, and kids, Tarek and Sarah, we spend a lot of time being physically active, camping or traveling. Rock climbing and reading non-fiction books are my favorite hobbies.

Research/Extension areas of interest:
Plant-parasitic nematodes, soil-inhabiting microscopic roundworms, are important pests that cause an estimated ten billion dollars of crop loss each year in the United States. My research aims to uncover virulence strategies deployed by nematodes to parasites their hosts and understand biochemical nematode-plant interactions to improve crop management strategies.

Honorary "Midge"

The ENPL department welcomes honorary member from the McDermott clan, Milo! Reputable sources (i.e. the mother, Dr. Emily McDermott) provides some insight:

"Milo is doing well, he loves to smile and he's starting to get a little more interested in our dogs. Overall he's a really happy, chill baby and it's been really fun seeing how quickly he changes!"



Awards and Recognition



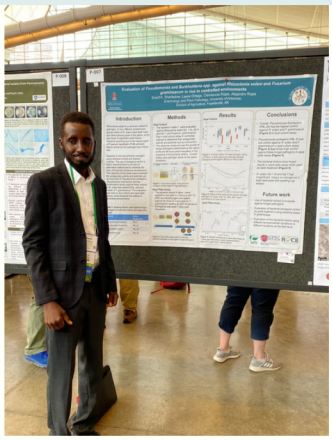
The ENPL group at Plant Health 2022, the annual meeting of the American Phytopathological Society in Pittsburgh, PA.

APS Meeting Philadelphia 2022

Our department had an excellent showing at Plant Health 2022, the annual meeting of the American Phytopathological Society in Pittsburgh, PA, August 6th-10th.Students, faculty, and staff gave talks, presented posters, and participated in a variety of professional networking and educational events.

Plant Health 2022 was especially focused on profound changes occurring in plant health research, education, and engagement driven by transformations in climate, technology, and society.





Left to Right: Ph.D. students Qiurong Fan and Sherif Sharfadine.

Two graduate students, both mentored by Dr. Alejandro Rojas, received recognition at the meeting. Qiurong Fan received the Raymond D. Martyn Student Travel Award, and Sherif Sharfadine was named as recipient of the Milt and Nancy Schroth Student Travel Award and the H. J. Dubin Student Travel Award in honor of the Peace Corps. Fan and Sherif each presented their research findings at the meeting.



ENPL members gather for a selfie.



Ph.D. students Juanita Gil Bedoya and Andrea Mejia Sierra.

Awards and Recognition cont.



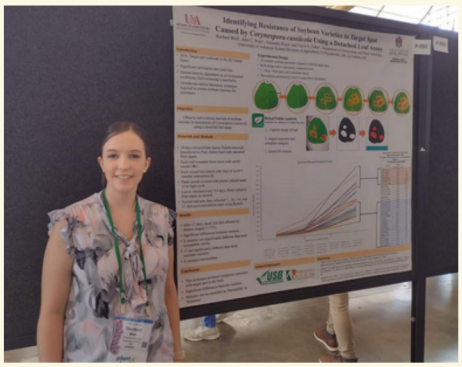
Program associate, Marcos Paulo Da Silva shows off his caricature.



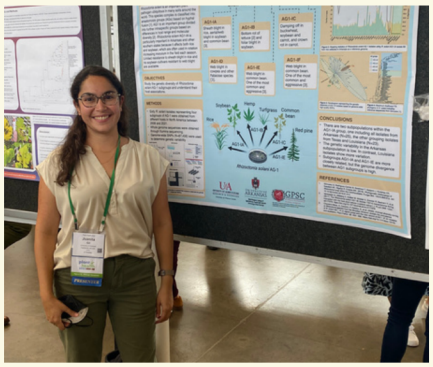
The ENPL group at Plant Health 2022, the annual meeting of the American Phytopathological Society in Pittsburgh, PA.

In addition to lots of science, there was time for networking and fun at the meeting.Alumni, former faculty and staff were able to catch up and re-new friendships. We were fortunate to meet up with many former members of the department and learn about all the great things they are doing now. Notable among those in attendance were alumni Sam Markell (Professor and Assistant Director, North Dakota State University), Lou Hirsch (Assistant Professor, University of Kentucky), Alma Laney (Assistant Professor, Utah Valley University), Kimberly Cochran (Assistant Professor, Texas A&M), and Tracy Hawk (PhD candidate, University of Tennessee).

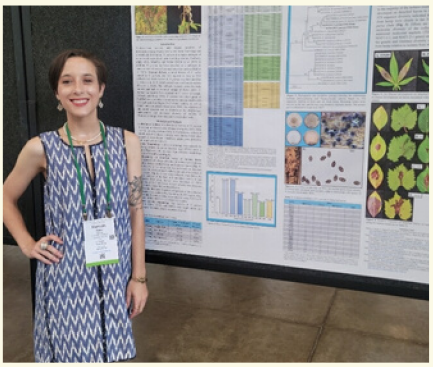
Likewise, former faculty and staff joined in the fun, including Rick Bennett (Professor, University of Kentucky), Braham Dhillon (Assistant Professor, University of Florida), Yinong Yang (Professor, Penn State), Qin Wang (Researcher, Penn State), and Thien Ho (Driscoll Foods). We were glad to also be joined by Yulin Jia and Melissa Jia (USDA-ARS Dale Bumpers National Rice Research Center, Stuttgart).



M.S. student Rachael Wolf



Ph.D. student Juanita Gil Bedoya



M.S. student Hannah Zima

Awards and Recognition cont.

New Equipment Expands Research, Diagnostic Capabilities at Arkansas Plant Health Clinic





Sherrie Smith, director of the Arkansas Plant Health Clinic, left, stands with Alejandro Rojas, assistant professor of plant pathology, and program associate Jason Pavel.

New diagnostic equipment at the U of A System Division of Agriculture's Arkansas Plant Health Clinic is helping expand its research and detection capabilities.

Alejandro Rojas, assistant professor of soilborne pathology and ecology at the Arkansas Agricultural Experiment Station, the Division of Agriculture's research arm, is using a qPCR diagnostic instrument to focus on specialty crops and Phytophthora species as a stepping stone into researching more plant pathogens.

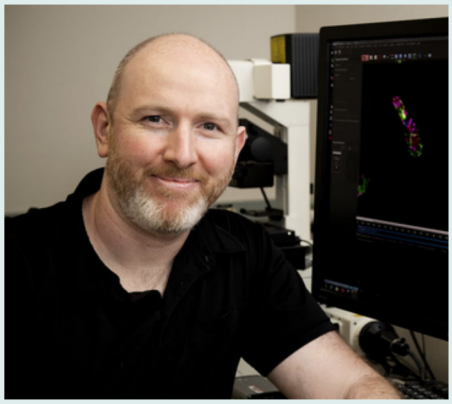
To view the full article, click here: https://tinyurl.com/5n92fbh5

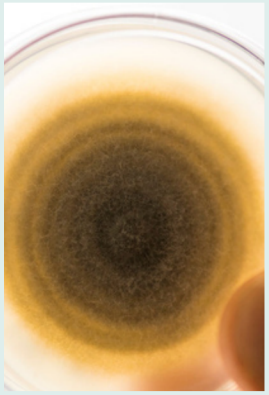
Arkansas Rice Blast Research Garners Nearly $1M National Science Foundation Award

Martin Egan, assistant professor of plant pathology, was awarded $943,941 as part of the National Science Foundation's Faculty Early Career Development Program to aid in research of the inner workings of Magnaporthe oryzae, the fungal pathogen that causes rice blast.

The long-term goal of Egan's research program is to gain further intelligence into the molecular mechanisms of Magnaporthe oryzae's invasion forces.

Read the full article here:
https://tinyurl.com/mbekyfx9





Professor Martin Egan uses high-powered microscopes to investigate the molecular mechanisms of Magnaporthe oryzae, the fungal pathogen that causes rice blast.

Awards and Recognition cont.

How Genetics, Amino Acids, Bacteria Come Together to Combat Soybean Nematode

After several years of research, scientists with the Arkansas Agricultural Experiment Station and other land-grant institutions in California, Washington and Indiana have found a way to boost a soybean plant's natural defenses and reduce reproduction of soybean cyst and root-knot nematodes using special amino acids called peptides.

Scientists with the Arkansas Agricultural Experiment Station have several research projects aimed at improving soybean production. In terms of cash farm receipts, soybeans have the highest value among row crops in Arkansas at $1.6 billion, according to the 2022 Arkansas Agriculture Profile. Soybean is the most common crop in Arkansas, with more than twice the amount of acreage of rice, the agriculture profile adds.



Fiona Goggin, professor of entomology, center, with her research team, post-doctoral fellow Payal Sanadhya and Ph.D. graduate assistant Abeer Alnasrawi.



Sanadhya and Alnasrawi measure photosynthesis parameters of soybean plants.

Faculty Complete Leadership Exploration Program

Dr. Fiona Goggin and Dr. Clemencia Rojas each participated in the spring 2022 ENGAGE Leadership Exploration program. This program is funded on our campus by an NSF ADVANCE grant. It is designed to promote the career success of female faculty, with an emphasis on faculty in the STEM disciplines.

One dimension of the program engages participants in academic leadership exploration and capacity building. The goals of the program are to engage participants in assessing and building their leadership mindset and capabilities.Congratulations to Drs. Goggin and Rojas for completing this valuable activity.



ENPL faculty and others at the Leadership Exploration program.

Awards and Recognition cont.



Ioannis Tzanetakis - Director of ACPC, and Professor of Plant Virology.

The Arkansas Clean Plant Center for Berries provides plant nursery operators and berry growers in Arkansas and the U.S. with plants that are free of targeted-pathogens

In October 2022, the Center underwent a major overhaul, allowing for expanded diagnostic capabilities and enhanced speed of service. New equipment will permit in-house high-throughput sequencing and other advanced procedures, providing the highest level of service for diagnosis and elimination of systemic pathogens.

National Clean Plant Center for Berries expands capabilities with new home

The Arkansas Center, part of the National Clean Plant Network, provides diagnostic testing, virus elimination and foundation services.

The Arkansas Clean Plant Center for Berries is one of four regional centers in the National Clean Plant Network that are dedicated to berries. The other three are at the USDA-ARS Horticultural Crops Disease and Pest Management Research Unit in Corvallis, the University of California at Davis, and North Carolina State University, Raleigh.

THE ARKANSAS
CLEAN PLANT CENTER



Research scientist Dan Villamor sets up samples in the centrifuge in the Arkansas Clean Plant Center for Berries.



Program associate Shivani Singh prepares samples for analysis.

Awards and Recognition cont.

ENPL Department Represents at ESA Conference 2022 in Vancouver, BC



Left to Right: Ph.D. students Cassie Steele, Blythe Lawson, and Olivia Kline.



The ENPL department at the ESA Conference 2022 in Vancouver, BC.

We were well represented this year at the annual meeting of the Entomological Society of America (ESA). The meeting was a joint effort between the ESA, Entomological Society of Canada (ESC), and the Entomological Society of British Columbia (ESBC) hosted November 13-16 in Vancouver, British Columbia. The theme for this year's meeting was Entomology as Inspiration: Insects through art, science, and culture. The meeting was held both in-person and virtually, and many members of ENPL were fortunate to attend and present.

All of our graduate students did a tremendous job of communicating their work, and they represented the department well. Blythe Lawson, mentored by Dr. Emily McDermott, brought home a second-place award in the Vector Biology and Management section, for her oral presentation on An evaluation of contact and topical toxicity of fluralaner on culicoides biting midges. Congratulations Blythe!

This year allowed many more entomologists to meet in-person at the meeting, and so we were able to catch up with multiple friends and alumni from the department. Notable among those in attendance were alumni Haylee Campbell (Spectrum Brands), Hillary Fischer (post-doc, Boyce Thompson Institute), Beth Ferguson (post-doc, Rutgers University), Russell Grove (Department Chair, University of Wisconsin), Mark Janowiecki (New Orleans Mosquito, Termite and Rodent Control Board), and Mary-Kate Williams (Ph.D. candidate, Utah State University) (and apologies for anyone else that we missed).

We also reconnected with several former department members, including Rob Wiedenmann, Tanja McKay, and Tim Kring. Special friends and some unofficial ambassadors for the department in attendance included Aaron Cato (also alumnus), Sarah Cato, Becca Lett, Susie Jones, Debbie Korth and Caitlin Thrash.

Awards and Recognition cont.

ACPA Research

Multiple members of ENPL participated and presented at the 2022 Arkansas Crop Protection Association (ACPA) Research Conference. On November 29-30th, the group met in Fayetteville to hear from students, staff and faculty working in agricultural research across the state. Presentations included student competitions, and covered diverse topics including pest control, along with crop and water management. Associate Professor Nick Bateman is currently serving as President-Elect of the ACPA, and Assistant Professor Ben Thrash is the Vice President.



Student Awards Received:

- Gage Maris-2nd place undergraduate oral competition
- Andrew Plummer/Taylor Ibbotson-2nd place program associate poster competition
- Garrett Felts (Not pictured)-3rd place program associate poster competition

Many members of ENPL were able to attend the ACPA meeting. Pictured here are some, from left to right: Rafael Zaia, Ken Korth, Rupesh Kariyat, Terry Spurlock, Glenn Studebaker, Taylor Ibbotson, Taylor Harris, Nick Bateman, Neel Joshi, Gage Maris, Andrew Plummer, and Ben Thrash.

Short Takes: Caught on Camera: Insects Edition

University of Arkansas researchers have developed a prototype of an insect trap that can help farmers monitor and identify potential pests more efficiently in order to protect valuable crops. The trap, developed by researchers Ashley Dowling and Khoa Luu, captures footage of insects, uses artificial intelligence to identify them and sends real-time data back to the farmers. It also eliminates the need for manual monitoring, allowing farmers to make decisions on the fly and take the appropriate measures to counteract potential damage.



View the video here: https://tinyurl.com/52336xk4

Awards and Recognition cont.

ENPL Grad Student Selected Through MANRRS to Attend PestWorld Conference



M.S. student Amina Twaibu.

Read the full article here: https://tinyurl.com/4p98wadn

Amina Twaibu, a master's degree student in entomology working with advisor Neel Joshi, has been selected to attend the national Pest World Conference in Boston.

Twaibu was chosen by the National Pest Management Association Diversity Council.

She was one of two students nationally selected through Minorities in Agriculture, Natural Resources and Related Sciences with all expenses covered by NPMA.

Twaibu receives registration and access to general and education sessions, keynote speaker events, the exhibit hall, networking events, hotel lodging and airfare.

Adair Bollenbacher Scholars Present

Three undergraduate students were awarded the Adair & Bollenbacher Scholarships for this year. They presented their work from the research they did over the summer.

The final seminar titles and presenters are listed as follows:

Investigating the Role of the SUMO-Activating Enzyme, Uba2, in Infection-related Morphogenesis of M. oryzae
-Rachel Taylor

Investigating pathogenicity, and molecular diversity of the Fusarium wilt pathogen of lettuce and the dieback pathogen of hemp
-Ryan Conklin

Soybean seedborne fungi and impact on seed health
-Colette Ackley



The Adair Bollenbacher Scholars take a photo with ENPL members they worked with other the summer.

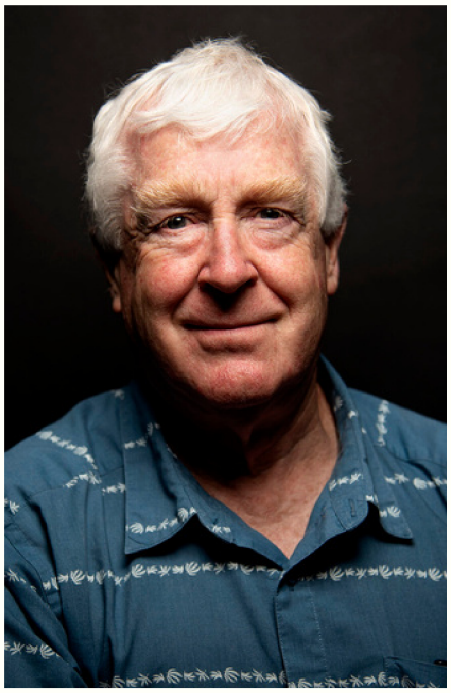
Read more about the Adair & Bollenbacher Program here: https://tinyurl.com/4syh9p46

Recent Retirements

Dr. Donald Steinkraus

Thank you for many years of service with the University of Arkansas and the Division of Agriculture

Don Steinkraus retires after more than 30 years as an entomologist for the Arkansas Agricultural Experiment Station and the Dale Bumpers College of Agricultural, Food and Life Sciences



Steinkraus joined the Arkansas Agricultural Experiment Station in 1989 and launched a successful career in integrated pest management research in row crops. He also became a window into the captivating world of insects for generations of students and Arkansas residents of all ages

Steinkraus retired in June 2022. But he's not yet done with the tiny, multi-legged intrigues of arthropods."I was hired as research faculty, with 80 percent of my appointment in the experiment station," Steinkraus said. "Only 10 percent of my appointment was for teaching in Bumpers College. But I did a lot more than 10 percent teaching."

"Don is a skilled teacher and researcher, and he has always emphasized understanding natural systems and consideration of practical applications of his work," Korth said.



The first class he was assigned to teach was Insect Morphology — about the anatomy of insects.
"It was a very difficult course," Steinkraus said. "Difficult to teach, difficult to learn. But I grew to love it."

He taught Insect Morphology for more than 30 years and said he would like to write a book on it.
Steinkraus has been clearing out his office and lab since retiring in June, but he's not ready to call it quits.
Besides spending time with his wife, Jane, and their family, he has his bees and reams of data from research projects he's run on the side when he had time. There may yet be research papers to publish.

Read his full retirement article here: https://tinyurl.com/mwhrcva8

CONNECT WITH US





Alumni, we would love to hear from you! Reach out to us with updates or let us know how you are using that ENPL degree at enpl@uark.edu. We would love to feature you in our department newsletter.

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