Department of Entomology
College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

HEXAPOD HERALD

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Retreat

Entomology faculty gather to share ideas and experience the UGA Griffin campus

Entomology faculty gathered in Griffin to exchange ideas, update each other on programmatic themes and discuss issues and opportunities in teaching.

Tours of facilities on the Griffin Campus included a visit to the Turfgrass Research and Extension Complex, Plant Genetics Resources and Conservation unit, and the new FoodPic (Food Product, Innovation and Commercialization) Center building.

Part of the event was held in the Research and Education Garden, a unique 60 acre facility adjacent to the campus. Results from interdisciplinary research projects are often incorporated into theme gardens within the Demonstration Areas for visitors to view and experience http://caes2.caes.uga.edu/campus/griffin/garden/

Photos by Nancy Hinkle

From the desk of S. Kristine Braman …

Our faculty retreat this month was held on the Griffin Campus. The two-day session included presentations by Gaelen Burke, Jason Schmidt, Brendan Hunt and Shimat Joseph. Updating each other on the accomplishments of these diverse research programs of some of our early-career scientists was a highlight of the meeting. We believe the grand challenges facing our world can be addressed in many ways by gaining a better understanding of insects and their complex roles in our environment. I hope you will take a minute to scan our 2017 publications in this issue which reflect the breadth and balance of our programs here at UGA Entomology.

The gang's all here!

We welcome Dr. Angelita Acebes into our Department on our Tifton Campus where our Department has moved offices into the newly renovated Agricultural Research Building on the front of campus. We look forward to the dedication of that building next month. We also introduce several new faces in the Department in this issue.

Congratulations to our Linnaean Team (Annie Rich, Kelsey Coffman, Conor Fair and Clesson Higashi) who took second at the branch meeting in Orlando this month and will advance to nationals representing our Southeastern Branch of ESA. We look forward to cheering you on in Vancouver!

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NEW FACES IN THE DEPARTMENT

Cristina "Cris" deRevere started working as the Public Relations Coordinator for the Integrated Pest Management program at the first of the year. In this position, she will manage IPM social media, newsletters and website content as well as develop stakeholder surveys, marketing strategies and assist with yearly reports. Cris is a UGA graduate with a B.A. in English. While working at the Georgia Museum of Art, she completed her Master of Science in Communications from Walden University. She has also worked at the State Botanical Gardens at UGA as the Rental Coordinator. The Georgia native enjoys ballroom dancing, science fiction and outdoor activities with her family.

Joseph Disi recently joined the Ashfaq Sial lab where he will focus on evaluating effectiveness of management programs for economically important pests of blueberries and understanding insecticide resistance mechanisms. Specifically, he will be investigating seasonal biology of Spotted wing drosophila (SED) with the ultimate goal of developing effective management tactics to improve profitability of blueberries in Georgia. Joseph came to UGA from Auburn where he earned his Ph.D. in Entomology. His master's degree is in crop breeding and genetics from Southwest University, Chongqing, China where he also gained a rich cultural background through his work in Africa and East Asia.

Alejandra Millan joined the Dr. Kevin Vogel's lab after working as a technician in several labs across UGA. As a lab manager, she is responsible for supporting the day-to-day activities as well as performing experiments and maintaining the kissing bug colony. She lived in South Florida for several years before moving to Georgia and has enjoyed the changing of the seasons very much. She is passionate about science and the outdoors.

UGA Welcomes Dr. Angelita Acebes

For Dr. Angelita Acebes, growing up as a daughter of a farmer in a small agricultural village in the Philippines is at the heart of her interest and love for the "art and science of farming."

Her childhood entomological fascination eventually led her away from the family farm to pursue higher education studying and researching insect biology, behavior and ecology "along the framework of ecologically-based, integrated pest management."

While pursuing her undergraduate degree in agriculture at the University of the Philippines, Angelita had the opportunity to work on a research project using entomopathogenic fungi to control a leafhopper pest of mangoes.

"I realized then that pursuing a career in the field of entomology as an academic and researcher would become my life goal," said Acebes, who recently joined the entomology faculty in Tifton as an assistant professor in Tree Nut IPM.

After obtaining her bachelor's degree, Angelita pursued a Master's program at the University of Hawaii where she worked with Dr. Russell Messing on the classical biological control of aphids using parasitoid wasp.

Through this work, she was able to examine the multi-trophic interactions among aphids, primary parasitoids and hyperparasitoids. To date, her study on the effects of hyperparasitism on the potential establishment of an aphid parasitoid is one of the very few studies conducted in this subject. And, she had "numerous opportunities to enjoy Hawaii!"

Her Ph.D. work took her from Hawaii to Virginia Tech to study the biology and ecology of the brown marmorated stink bug (BMSB) working with Dr. Chris Bergh and Dr. Tracy Leskey.

Initially, "not much was known about the biology of this polyphagous stink bug species in the US. Through my Ph.D. work, I was able to provide relevant and useful information on the effects of host plants on BMSB development, survivorship and dispersal behavior," she explained.

Next, Angel headed to West Virginia to work as a postdoctoral researcher at the USDA Appalachian Fruit Research Station in Kearneysville where she "refined the monitoring protocols for BMSB by focusing her efforts on defining the area of trapping for the BMB pheromone lure and finding an effective and easily adapted trap design and trap deployment strategy."

This contribution will not only be applicable for the management of BMSB in agricultural farms but also useful in developing biosurveillance programs in newly-invaded locations worldwide.

Another contribution that Dr. Acebes makes is to the US military.

"Halfway through my PhD program, I was presented the opportunity to serve in the US Army Reserves as an officer and entomologist, which I accepted openheartedly as a way to show my gratitude to a country that opened many doors of opportunity for me and my family," said Dr. Acebes who will soon be commissioned as an officer.

And now, this farmer's daughter is planting her professional feet in the soil of Tifton and putting her entomological passion to work by focusing on improving and developing IPM strategies for key pests of pecans and other tree nuts.

UGA Entomology says "Welcome Home!"

Alumni Highlight

On the Move With Jessie Kalina

By Jessie Kalina, Dow AgroSciences

Crop Protection Territory Manager for Western Carolinas/North Georgia

Jessie Kalina

My name is Jessie Kalina, and I am an alumni of the University of Georgia Entomology department. During my time at UGA, I worked on a project under UGA Entomologist, Dr. Kris Braman partnered with Dr. Jim Hanula with the US Forest Service. The project focus was on biological control of Chinese privet using a native lace bug, *Leptoypha mutica*.

Upon completion of my master's degree in 2013, I accepted a job with Dow AgroSciences as a sales trainee in southern California partnering with the seasoned rep in the area. In California, I had the opportunity to work the Turf and Ornamental division of the company which involved customers ranging from sports fields superintendents, nursery owners, California DOT and landscapers. As a representative of Dow AgroSciences my job was to partner with customers to educate and support our products which include herbicides, insecticides and fungicides. This was mostly accomplished by trainings, implementing resources and plot work showcasing our products. Because of my background in entomology, I also had the opportunity to do some of the pretrial work in poinsettias for a new insecticide that was preparing for launch.

After a year, I received my permanent sales territory and packed up my bags again, this time moving to southern Louisiana. This was a significant change as now I was working on the crop protection side of the business covering the state. Most of my time was focused working the rice business where I was able to learn a completely novel crop to me! Other important crops for my portfolio were cotton, soybeans, milo and corn. Similar to California, here I spent my time servicing and supporting my customers, and I should mention…. dodging snakes and alligators!

Recently Dow AgroSciences and DuPont have come together as Corteva Agriscience™, Agriculture Division of DowDuPont™. With this merger, I had the opportunity to move back closer to home and am now the crop protection territory manager for the western Carolinas and north Georgia, residing in Greenville, SC. I am really excited for this next chapter where I will have a crop mixture of over 50 crops ranging from fruits, vegetables, cotton and grain!

I am coming on 5 years with my company and have been able to see and do more than many people can in their entire lifetime. I had no idea my UGA entomology degree would take me across the country and back allowing me to meet the realm of people and experience the diversity of agriculture I have.

Undergraduate Student Spotlight

Hayley Schroeder

I am Hayley Schroeder and I came to UGA four years ago as a die-hard ecologist with a keen interest in butterflies and pollinator ecology. I quickly found a home in Dr. Sonia Altizer's disease ecology lab working with monarch butterflies and their debilitating protozoan parasite.

I avoided adding an entomology degree for my first two years because I was under the impression that the entomology department was only focused on pests and how to eliminate them. Dr. Kenneth Ross managed to change my mind with his Insect Natural History course. Anyone that has taken his class knows that his excitement about insects is infectious and this quickly showed me that the entomology department is truly a welcoming second home for an ecologist.

For the past four years in Dr. Altizer's lab, I have been working as one of the project coordinators for the citizen science project *Monarch Health*. In this project, participants sample adult monarchs (without killing them!) for the protozoan parasite *Ophryocystis elektroscirrha* (OE), allowing our lab to better understand the spatial and temporal spread of the disease and the role that migration plays in mitigating it. *Monarch Health* is unique in its ability to teach people about the important role disease plays in wild populations and how human actions could be altering natural disease dynamics.

Through my work with Monarch Health, I was able to attend an International Conference on monarch butterflies in Toluca, Mexico and present on what we have learned through *ten years* of citizen science monitoring. After the conference, I visited several of the overwintering colonies and learned about some of the research being conducted by scientists in Mexico and the efforts on the part of the Mexican government to preserve the monarchs. This experience was truly transformative for me. Standing before a forest cloaked in butterflies, you realize the incredible odds that each animal had to overcome to claim their place on that mountainside, and yet *millions* gather there together. Furthermore, this trip drove home for me the fact that monarch habitat spans across three countries; thus, their preservation depends on collaboration between people that share this land with them. It is inspiring that an insect weighing less than a gram has such power to bring people together.

As I finish up my undergraduate career, I am writing up the results of the experiment I conducted during the fall investigating flight metabolic rate in migratory monarchs. I am so excited to begin a career studying insects through an ecological lens and to help convince the world of their immense value. We will see where my research takes me from here!

Charlie Braman

I have been fortunate to be presented with many opportunities to investigate and better understand insects and their ecosystems throughout my career at UGA. While pursuing my undergraduate degree in the Odum School of Ecology, I worked for several years as a technician identifying tropical stream invertebrates before spending my final semester in sub-antarctic Chile characterizing mountainous stream habitats and documenting the distribution of stream invertebrates to help establish a baseline for future climate change monitoring projects.

After graduating, I spent two nesting seasons serving as the field director for a Hawksbill sea turtle population monitoring project in Antigua working on an island with no native mammals. Our biggest predator for turtle nests was fire ants, which would often destroy turtle nests they invaded. After the Caribbean work, I spent some time learning to shape bread and making pastries at a local bakery as well managing the trails and serving as an environmental educator at the State Botanical Garden of Georgia. However, the challenge of how we might be able to deal with invasive fire ants on fragile coastal ecosystems consistently returned to my mind and drew me back to the research world.

In 2016, I began working on a master's project with Dr. Brian Forschler documenting the interactions between nesting sea turtles and ants along the Georgia coast while also surveying the species richness of ant communities on our barrier islands. Our work has been a collaboration with many organizations throughout the state, including the Georgia Sea Turtle Cooperative and multiple groups on Cumberland, Sapelo and Little St. Simons islands. We have several new species records for the state and have been able to document the dynamic island biogeography on islands under various stages of fire ant invasion. We have also worked with collaborators at the University of Texas, Austin to put together a documentary about the ecology of the coast and the scientific process while focusing on the biology and genetics of fire ants. Before grad school, I vaguely remember something called free time that I used to spend frolicking along forest trails or canoeing down rivers in Georgia's incredibly beautiful wilderness. After graduation I'm looking forward to the next adventure out in California where I plan to continue studying coastal and island community ecology.

PhD Student Spotlight

Bryana Bush is a PhD candidate studying wetland entomology under the advisement of Dr. Darold Batzer and Dr. Michael Ulyshen. She joined the department in the fall of 2013 after receiving her MS in Coastal Marine and Wetland Studies from Coastal Carolina University where she also earned a BS in biology with a concentration in ecology, evolution, and conservation. Her research focuses on incorporating invertebrates as ecological indicators. She is currently working on three projects: successional patterns among invertebrate communities in beaver wetlands, the impact of invasive Chinese Privet on insects and ecosystem processes on floodplains, and the trophic interactions involved in leaf litter decomposition.

Bryana also enjoys both teaching and undergraduate mentorship. While at UGA, she has mentored several undergraduate students and has taught several different laboratory courses. More recently, she has been working on revising the Medical Entomology laboratory in collaboration with Dr. Donald Champagne. When she's not working, Bryana enjoys road trips, kayaking, and camping with her husband and her dog.

Murray awarded grant

Congratulations to Kelly Murray for being selected to receive a 2018 Communications of Research and Scholarship Grant which supports graduate student efforts to engage new populations with their research and scholarship. The $1895 grant will assist Kelly with her communication and outreach activities. Kelly in a master's student working in Dr. Darold Batzer's lab.

Kelly Murray

Linnaean Team headed to National Contest

Congratulations to the UGA Linnaean Team that recently placed second place at the Southeastern Branch meeting of the Entomological Society of America's team competition. They will now compete at the national contest being held at at the ESA meeting in Vancouver, Canada. Team members are **Captain Annie Rich, Kelsey Coffman, Connor Fair and Clesson Higashi.**

2017 FALL COMMENCEMENT

University of Georgia Entomology graduates enjoyed a moment together celebrating their academic accomplishments during the fall commencement ceremony. Graduates are from left to right, Nancy Bostick, MPPPM, Tifton; Tyler Seth Whitehouse, M. S., Athens; Thomas C. McElrath, PhD., Athens; Professor Joseph McHugh; Ashley E. Duxbury, PhD., Athens; Benjamin L. Reeves, M. S., Athens; and Thomas N. Sheehan, M.S., Athens.

Dr. Joe McHugh places a doctorate hood on graduate Thomas C. McElrath. At left, McHugh congratulates Thomas Sheehan.

Publications 2017

Chapters

Buntin, G. D. (2017). Management of canola insects in the Southeastern United States. In G. V. P. Reddy (Ed.), Integrated management of insect pests on canola and other Brassica oilseed crops (pp. 176-182). CAB International Press

Riley, D. G., Sparks, A. N., Srinivasan, R., Kennedy, G., Fonsah, E., & Scott, J. (2017). Thrips: Vector biology and management. In *Sustainable Management of Arthropod Pests of Tomato* (pp. 30 pages). Amsterdam, Netherlands: Elsevier Academic Press

Shockley, M., R.N. Allen and D. Gracer. 2017. *Product development and promotion* in *Insects as food and feed: from production to consumption.* Wageningen Academic Publisher.

Shockley, M., J. Lesnik, R.N. Allen, and A. F. Munoz. 2017. *Edible Insects and Their Uses in North America: Past, Present and Future* in *Edible Insects in Sustainable Food Systems*. Springer Publishers.

Srinivasan., & Buntin, G. D. (2017). Insect-transmitted viruses in canola. In G. V. P. Reddy (Ed.), Integrated management of insect pests on canola and other Brassica oilseed crop (pp. 305-315). CAB International Press

Strand, M. R. (2017). The gut microbiota of mosquitoes: diversity and function. In Arthropod Vector: Controller of Disease Transmission, Volume 1 Vector Microbiome and Innate Immunity of Arthropods (pp. 185-199). Academic Press

Refereed Journal Articles

Bacigalupe, L. D., **Moore, A. J.,** Nespolo, R. F., Rezende, E. L., & Bozinovic, F. (2017). Quantitative Genetic Modeling of the Parental Care Hypothesis for the Evolution of Endothermy. FRONTIERS IN PHYSIOLOGY, 8, 8 pages. doi:10.3389/fphys.2017.01005

Barman, A. K., Gadhave, K. R., Dutta, B., & **Srinivasan, R.** (2017). Plasticity in host utilization by two host-associated populations of Aphis gossypii Glover.. Bulletin of entomological research, 1-10. doi:10.1017/s0007485317000852

Bergh, J. C.., W. R. Morrison III., **S. V. Joseph.**, & T. C. Leskey. (2017). Characterizing spring emergence of adult Halyomorpha halys (Hemiptera: Pentatomidae) using experimental overwintering shelters and commercial pheromone traps.. Entomologia Experimentalis et Applicata

Benowitz, K. M., McKinney, E. C., Cunningham, C. B., & **Moore, A. J.** (2017). Relating quantitative variation within a behavior to variation in transcription. EVOLUTION, 71(8), 1999-2009. doi:10.1111/evo.13273

Benowitz, K. M., McKinney, E. C., Roy-Zokan, E. M., Cunningham, C. B., & **Moore, A. J.** (2017). The role of lipid metabolism during parental care in two species of burying beetle (Nicrophorus spp.). ANIMAL BEHAVIOUR, 129, 143-149. doi:10.1016/j.anbehav.2017.05.019

Bewick, A. J., **Vogel, K. J.**, **Moore, A. J.**, & Schmitz, R. J. (2017). Evolution of DNA Methylation across Insects (vol 34, pg 654, 2017). MOLECULAR BIOLOGY AND EVOLUTION, 34(4), 1025. doi:10.1093/molbev/msx067

Beyer, B. A., **Srinivasan, R., Roberts, P. M., & Abney, M. R.** (2017). Biology and Management of the Threecornered Alfalfa Hopper (Hemiptera: Membracidae) in Alfalfa, Soybean, and Peanut. Journal of Integrated Pest Management, 8(1). doi:10.1093/jipm/pmx003

Blaauw, B. R., Morrison, W. R., Mathews, C., Leskey, T. C., & Nielsen, A. L. (2017). Measuring host plant selection and retention of Halyomorpha halys by a trap crop. ENTOMOLOGIA EXPERIMENTALIS ET APPLICATA, 163(2), 197-208. doi:10.1111/eea.12571

Blount, J., Roberts, P., **Toews, M.**, **Gardner, W.**, All, J., Davis, J., & **Buntin, G. D.** (2017). Season population dynamics of Megacopta cribraria (Hemiptera: Plataspidae) in kudzu and soybean, and implication for insecticidal control in soybean. Journal of Economic Entomology, 110, 157-167

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Brandt, J. W., Chevignon, G., **Oliver, K. M.,** & **Strand, M. R.** (2017). Culture of an aphid heritable symbiont demonstrates its direct role in defence against parasitoids. PROCEEDINGS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES, 284(1866), 9 pages. doi:10.1098/rspb.2017.1925

Brosi, B. J., **Delaplane, K. S.,** Boots, M., & de Roode, J. C. (2017). Ecological and evolutionary approaches to managing honeybee disease. NATURE ECOLOGY & EVOLUTION, 1(9), 1250-1262. doi:10.1038/s41559-017-0246-z

Brosi, B. J., **Delaplane, K. S.**, Boots, M., & Roode, J. C. (2018). Publisher Correction: Ecological and evolutionary approaches to managing honeybee disease.. Nature ecology & evolution, 2(1), 196. doi:10.1038/s41559-017-0394-1

Boyer, S., Ikeda, T., Lefort, M. -C., Malumbres-Olarte, J., & **Schmidt, J.** (2017). Percentage-Based Author Contribution Index. A Universal Measure Of Author Contribution To Scientific Articles. Research Integrity and Peer Review, 2. doi:10.1101/138875

Buntin, G. D., & Murphy, T. R. (2017). Biological Control of Musk Thistle (Asteraceae) by the Weevil Rhinocyllus conicus (Coleoptera: Curculionidae) and its Establishment on Non-Target Thistles in Georgia, USA1. Journal of Entomological Science

Camacho, E. R., Chong, J. -H., **Braman, S. K.,** Frank, S. D., & Schultz, P. B. (2017). Life History of Parthenolecanium spp. (Hemiptera: Coccidae) in Urban Landscapes of the Southeastern United States. JOURNAL OF ECONOMIC ENTOMOLOGY, 110(4), 1668-1675. doi:10.1093/jee/tox170

Chevignon, G., Boyd, B., Brandt, J. W., **Oliver, K. M.**, & **Strand, M.** (2017). Culture-facilitated whole- genome sequencing identifies key features underlying strain variation in the heritable facultative symbiont Hamiltonella defensa. Genome Biology and Evolution

Coon, K. L., Valzania, L., McKinney, D. A., **Vogel, K. J.**, **Brown, M. R.**, & **Strand, M. R.** (2017). Bacteria-mediated hypoxia functions as a signal for mosquito development. PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, 114(27), E5362-E5369. doi:10.1073/pnas.1702983114

Cunningham, C. B., Badgett, M. J., Meagher, R. B., Orlando, R., & **Moore, A. J.** (2017). Ethological principles predict the neuropeptides co-opted to influence parenting. NATURE COMMUNICATIONS, 8, 6 pages. doi:10.1038/ncomms14225

Dempsey, M., **Riley, D. G.,** & **Srinivasan, R.** (2017). Insecticidal Effects on the Spatial Progression of Tomato Yellow Leaf Curl Virus and Movement of Its Whitefly Vector in Tomato. JOURNAL OF ECONOMIC ENTOMOLOGY, 110(3), 875-883. doi:10.1093/jee/tox061

Dennis, A. B., Patel, V., **Oliver, K. M.,** & Vorburger, C. (2017). Parasitoid gene expression changes after adaptation to symbiont-protected hosts. EVOLUTION, 71(11), 2599-2617. doi:10.1111/evo.13333

Desneux, N., Asplen, M. K., Brady, C. M., Heimpel, G. E., Hopper, K. R., Luo, C., **Oliver, K. M.** . . . White, J. A. (2018). Intraspecific variation in facultative symbiont infection among native and exotic pest populations: Potential implications for biological control. BIOLOGICAL CONTROL, 116, 27-35. doi:10.1016/j.biocontrol.2017.06.007

Doremus, M. R., & **Oliver, K. M.** (2017). Aphid Heritable Symbiont Exploits Defensive Mutualism. APPLIED AND ENVIRONMENTAL MICROBIOLOGY, 83(8), 15 pages. doi:10.1128/AEM.03276-16

Doremus, M. R., Smith, A. H., Kim, K. L., Holder, A. J., Russell, J. A., & **Oliver, K. M.** (2017). Breakdown of a defensive symbiosis, but not endogenous defences, at elevated temperatures.. Molecular ecology. doi:10.1111/mec.14399

Evans, R. K., **Toews, M.**, & **Ahmad, A.** (2017). Diel Periodcity of Drosophila suzukii (Diptera: Drosophilidae) under field conditions. PLoS ONE, 12(2), 1-20

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Fulcher, A., AV LeBude, SA White, MR Chappell, SC Marble, J-H Chong, W Dunwell, S Frank, F Hale, J Neal, A Windham, W Klingeman, G Knox, J Derr, J Williams-Woodward, **SK Braman**, A Dale, F Baysal-Gurel, J Del Castillo-Munera, F Peduto Hand, C Swett, N Gauthier, and E. Vafaie. 2017. Advancing IPM Adoption and Achieving Extension Impact: A Working Group Success Story. HortTechnology, 27:759-764. DOI:10.21273/HORTTECH03755-17

Gadhave, K., Dutta, B., Coolong, T., **Sparks, A. N.**, Adkins, S., & **Srinivasan, R.** (2017). First Report of a Cucurbit yellow stunting disorder virus in cucurbits in Georgia, United States. Plant Health Progress

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Guan, Q., Wu, H., Lu, K., Lu, X., & **Batzer, D. P.** (2017). Longitudinal and lateral variation in snail assemblages along a floodplain continuum. HYDROBIOLOGIA, 792(1), 345-356. doi:10.1007/s10750-016-3073-3

Harris, B. A., **Braman, S. K.,** & Pennisi, S. V. (2017). Pan Trap Designs for Monitoring Pollinators and Other Beneficial Insects in Conservation Gardens(1). JOURNAL OF ENTOMOLOGICAL SCIENCE, 52(1), 9-14. doi:10.18474/JES16-13.1

Harris-Shultz, K., Ni, X., Wadi, P. A., Wang, X., Wang, H., Huang, F., **Buntin, G. D.**, Yang, X. (2017). Microsatellite Markers Reveal a Predominant Sugarcane Aphid (Homoptera: Aphididae) Clone is Found on Sorghum in the United States. Crop Science, 57, 2064-2072. doi:10.2135/cropsci2016.12.1010

Hopper, K. R., Kuhn, K. L., Lanier, K., Rhoades, J. H., **Oliver, K. M.**, White, J. A., . . . Heimpel, G. E. (2018). The defensive aphid symbiont Hamiltonella defensa affects host quality differently for Aphelinus glycinis versus Aphelinus atriplicis. BIOLOGICAL CONTROL, 116, 3-9. doi:10.1016/j.biocontrol.2017.05.008

Ingrao, A. J., **Schmidt, J.**, Jubenville, J., Grode, A., Komondy, L., VanderZee, D., & Szendrei, Z. (2017). Biocontrol on the edge: Field margin habitats in asparagus fields influence natural enemy-pest interactions. Agriculture, Ecosystems & Environment, 243, 47-54. doi:10.1016/j.agee.2017.04.011

Johnson, J. W., Chen, Z., Buck, J. W., **Buntin, G. D.**, Babar, M. A., Mason, R. E., . . . Mergoum, M. (2017). 'GA 03564-12E6': A High-Yielding Soft Red Winter Wheat Cultivar Adapted to Georgia and the Southeastern Regions of the United States. JOURNAL OF PLANT REGISTRATIONS, 11(2), 159-164. doi:10.3198/jpr2016.07.0036crc

Joseph, S. V. (2017). Effects of Insect Growth Regulators on Bagrada hilaris (Hemiptera: Pentatomidae). JOURNAL OF ECONOMIC ENTOMOLOGY, 110(6), 2471-2477. doi:10.1093/jee/tox264

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Joseph, S., I. M. Grettenberger., & L. D. Godfrey. (2017). Damage by Bagrada hilaris (Hemiptera: Pentatomidae) adults on germinating stages of arugula seed in a choice test.. Journal of Entomological Science, 52, 468-471

Joseph, S. V., Godfrey, L. D., & Bettiga, C. (2017). Influence of Interval Between Postharvest Lettuce Residue Management and Subsequent Seeding of Broccoli on Cabbage Maggot (Diptera: Anthomyiidae) Infestation on Broccoli. Journal of Economic Entomology, 110(5), 2172-2179. doi:10.1093/jee/tox196

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SNAPSHOTS

"Creativity is intelligence having fun." - Albert Einstein

http://www.caes.uga.edu/departments/entomology.html

TA-RAN-TULA 5K supports UGA Insect Zoo

The University of Georgia Insect Zoo is hosting its second annual TA-RAN-TULA 5k run on Saturday, April 21 on the beautiful trails of The State Botanical Garden of Georgia. After the race everyone will have the opportunity to interact with their favorite furry friends... tarantulas!

As well as being a fun occasion to run this challenging yet beautiful course, this event is dedicated to familiarizing the public with these gentle creatures and highlighting the importance of insects and arachnids in our environment.

The cost is $25 and the proceeds from the TA-RAN-TULA 5k will go towards supporting the UGA Insect Zoo and the UGA Bug Dawgs. The UGA Insect Zoo provides FREE insect (and arachnid!) educational outreach programs to Athens and surrounding areas.

During the race the Insect Zoo will be offering free child care. There will be crafts, books, and plenty of bugs for them to look at too. All being supervised by UGA Bug Dawg volunteers.

The overall and age group finishers will receive hand crafted ceramic medals and prizes donated by local businesses. All participants who register before April 9th will be guaranteed a race t-shirt featuring a Mexican Red Knee tarantula in running shoes!

Last year, almost 80 registered runners plus their families attended the event. The UGA Insect Zoo looks forward to seeing this event grow even more.

And so do the tarantulas.

Hexapod Herald Subscriptions

The Hexapod Herald will be issued in **March**, **July** and **November** of each year. We ask that you share this issue with friends and neighbors, and anyone who is interested in UGA Entomology. Due to printing & mailing costs, a limited number of hard copies will be produced & mailed. Electronic subscription is preferred. To subscribe to the Hexapod Herald, contact us

Write to Hexapod Herald, 413 Biological Sciences Bldg, UGA Campus, Athens, GA 30602 or

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This semester a team of undergraduate interns at the **UGA Collection of Arthropods** has been busy working on the LepNet Project, an NSF-funded collaboration of 29 research collections working to digitize label data for more than two million butterfly and moth specimens. The digitized collection data and associated specimen images will become a rich resource supporting a variety of research and education efforts.

IPM Field Day held in Alma to assist growers in South Georgia

By Cristina deRevere

With spring approaching, blueberry farmers focus on maximizing their 2018 yields, which means finding new ways to deal with pests like gall midge and spotted wing drosophila.

To help these growers stay on top of potential pest problems, University of Georgia integrated pest management (IPM) researchers hosted a spring field day in Alma, Georgia, on Feb 21. Over 70 regional farmers from several southwestern Georgia counties, such as Bacon, Clinch, Appling and Pierce, attended the half-day event.

Attendees ranged from experienced growers to new farmers.

"We've only been in business for five years, and I feel like I have to take advantage of any opportunity to learn," said Elizabeth McQuaig McIntyre, a farm manager in Abbeville, Georgia.

The field day included presentations about pest risks and management strategies by UGA IPM coordinator Ash Sial and his blueberry research team. Following the presentations, attendees rotated through three stations: a sponsored lecture by AirScout, a pest identification station and a sprayer calibration demonstration.

UGA entomology professor Glen Rains demonstrated sprayer calibration on various types of equipment.

"Properly calibrated, maintained and adjusted sprayers are important to efficient pest management," said Rains. "Calibration can be overwhelming if you are a novice or even a seasoned veteran. These field days equip farmers with the knowledge to better care for their crops."

The pest identification station included a microscopic viewing of pest specimens and damage, and management strategies by Sial and his team. Andy Wilkes, a novice blueberry farmer, found this station particularly beneficial.

"All the information is extremely helpful, but there is something to be said about walking in the fields, learning what and how to identify, and seeing everything that is against us," said Wilkes. "Every field day event we attend, we learn something new."

All attendees received Pesticide Applicator license credits.

For more information on IPM, including upcoming field days, please visit the UGA Extension IPM website at www.ipm.uga.edu. For more information about the UGA Extension Blueberry Team, visit https://site.caes.uga.edu/blueberry/.

Calendar Reminders

April 4-6— 82st Annual Meeting of the Georgia Entomological Society. Joint meeting with the South Carolina Entomological Society. Unicoi State Park and Lodge.

April 9-13 — Lund Week

April 21 — Ta-ran-tula 5K run hosted by the UGA Insect Zoo at the State Botanical Gardens of GA.

May 3 — CAES Convocation ; 6 pm Classic Center Theatre

May 4 — Spring Commencement; 7 pm Sanford Stadium

May 28 — Memorial Day Holiday

July 9-13 — UGA Bug Camp I

July 23-27 — UGA Bug Camp II

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If you have any questions about making a gift to CAES, please contact the Office of External Relations at 706-542-3390 or email external@uga.edu.

Entomology at UGA wishes you a very Bright and Happy Spring!

Thanks to Linden Pederson, undergraduate student and resident chalkboard artist, for keeping our bulletin board in the holiday spirit!