

# Bugged

MSU DEPARTMENT  
OF ENTOMOLOGY

MICHIGAN STATE  
UNIVERSITY



Cicada by Bill Ravlin, MSU Entomology

## FROM THE CHAIR

I'm pleased to announce we concluded our Department of Entomology chairperson search with Dr. Hannah Burrack becoming a Spartan in



January 2022. Hannah comes to us from North Carolina State University and attended her first MSU Entomology faculty meeting last week.

An article detailing Hannah's background can be found in this issue of Bugged. Please join me in welcoming Hannah!

This has been a great summer for entomologists highlighted by Brood X cicadas and many, many, many broods of mosquitoes (I

guess that's not really a highlight). Seventeen-year cicadas emerged in the Ann Arbor area in the first couple of weeks in June.

Lots of insects, lots of noise, lots of photo ops – a great show! If you'd like to see a few images from my cicada photo safari, visit: <https://ravlin.smugmug.com/Insects/Cicadas-BroodX/>.

As with all recent issues of Bugged, I mentioned the pandemic and how it has impacted MSU; I reluctantly continue here. We're rapidly moving toward the fall 2021 semester with a full complement of students on campus. MSU will now require faculty, students and staff to be vaccinated and to wear masks indoors. This is a major step for the university and one that no doubt will be challenging. For more information, see: <https://msu.edu/together-we-will/>.

In preparation, Entomology is making the transition to more normal (whatever that is) business operations and spending considerable time considering how to safely present our courses, especially ones with laboratory sections. This is a highly fluid situation with more to come on this front.

I want to personally thank all of our faculty, students and staff for doing a stellar job of working under very difficult conditions; masks, social distancing, disinfectants, remote meetings, working from home, vaccinations and more. Well done! There also were some positive takeaways from this experience. For example, I fully expect we will continue to use video conferencing with software like Zoom as a major communication tool for faculty meetings, seminars, meetings and to some extent, even conferences. I think most will agree that we prefer in-person courses but video conferencing can be effectively used in some of those situations.

Enjoy being Bugged!



Bill Ravlin,  
Chairperson



Bill Ravlin, MSU Entomology

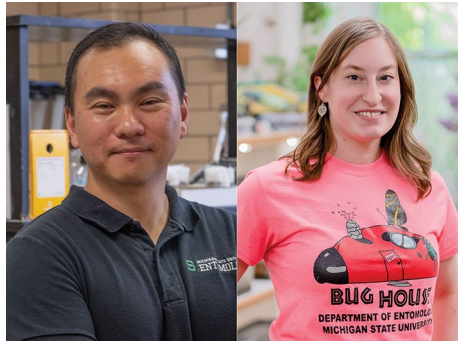


## RESEARCH & PROJECTS

**Henry Chung and Amanda Lorenz have been awarded a three-year \$786,491 grant from the National Science Foundation.**

The grant combines research and outreach opportunities for historically excluded students in STEM (Science, Technology, Engineering, Math) fields. It also will bring new training and outreach programming to the [MSU Bug House](#).

Chung's lab will study cuticular hydrocarbons hoping to identify the genes linked to keeping insects hydrated, determine how these genes can evolve in response to environmental or climate changes and understand how these genes could impact mating success. The grant will also fund production of high-quality videos and K-5 teacher training at the Bug House for a new level of impact. Read more about their innovative approach at the MSU Entomology website in "[New National Science Foundation grant will integrate research and science outreach.](#)"



Henry Chung

Amanda Lorenz

**For Sarah Smith and Anthony Cognato, the pandemic's stay-at-home order created time to focus on the numerous ambrosia beetles** they've found in Central and South America. Studying the specimens they've collected since 2008, they have identified more than three dozen new species of ambrosia beetles. Smith and Cognato described these new species on [June 16 in the journal ZooKeys](#). They have chosen an unusual naming theme honoring female beetles who have helped their species survive and thrive by "boldly going where they hadn't before."

Learn about their findings and use of iconic female science fiction characters in the MSUToday story "[Beetles, biodiversity and 'Battlestar Galactica'](#)."



The wing coverings of the *C. katniss* come to an arrowhead-like point, which reminded the researchers of Katniss Everdeen from "The Hunger Games," shown below. "The Hunger Games" image courtesy of Lions Gate Entertainment Inc.

## Long-term study offers insight into native bee population response to extreme weather event

**A team of MSU Entomology faculty and alumni recently published "Resampling of wild bees across fifteen years reveals variable species declines and recoveries after extreme weather"**

in the journal *Agriculture, Ecosystems and Environment*. Authors Kelsey Graham, Jason Gibbs, [Julianna Wilson](#), Emily May and [Rufus Isaacs](#) studied bees who were active during May-June and visited blueberry bushes while they were blooming. Surprisingly, the very warm spring and hot summer of 2012 gave the researchers a unique opportunity to see how bee populations responded and recovered to the extreme weather event in subsequent years.

Flowers were open when frosts struck in April and May 2012. The team saw a 61% decline in the number of bees between the first and second sampling periods because the freeze damaged flowers bees need for food. Some bee species recovered, but others such as the blueberry specialist bee, *Andrena carolina*, declined dramatically and slowly recovered in the third sampling period.

Jason Gibbs holds a bumble bee as Rufus Isaacs and Erin Treanore look on in a 2013 image.



The team also looked at pesticide use and effects from environmental factors were more significant on the bee populations studied. View the publication: <http://bit.ly/15resample-bees>

# Celebrate!

## MSU Entomology's 2021 standout students and staff

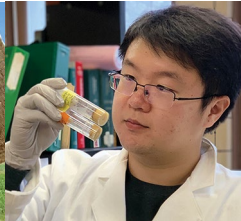
Congratulations, you did it! Despite the challenges of the 2020-2021 pandemic restrictions, your efforts stood out. Here are the Department's award recipients.



Hernandez



Zavalnitskaya



Wang



Wonderlin



Walters



Constancio

### Rhodes (Gene) Thompson Endowed Fellowship in Entomology

**Amanda Howland** is a doctoral student with [Marisol Quintanilla](#). She is researching controlling plant-parasitic nematodes, specifically the northern root-knot nematode, *Meloidogyne hapla*, on daylilies.

### Department of Entomology Outstanding MS Award

**Ariana Hernandez** is graduating with her MS degree summer semester 2021. She has been working with [Matt Grieshop](#) researching the winter morph of spotted wing *Drosophila* (SWD).

### Department of Entomology Outstanding Student Award in Extension

**Jennifer Zavalnitskaya** graduated with her MS degree spring 2021 and will be continuing in the department as a doctoral student with [Zsofia Szendrei](#). Her research interests include plant-insect interactions, insect behavior, integrated pest management and agroecology.

### Robert R. Dreisbach Endowed Fellowship in Entomology and Department of Entomology Outstanding PhD Award

**Zinan Wang** is a doctoral student with [Henry Chung](#) and his research focuses on the genetic mechanisms underlying desiccation resistance in desert fruit flies.

### Department of Entomology Eugenia McDaniel Award

**Nicole Wonderlin** is a doctoral student with [Peter White](#). Her research is exploring how moth populations are distributed in gardens throughout urban environments with emphasis on flower visiting guilds.

### Roger and Barbara Hoopingartner Endowed Graduate Fellowship in Entomology

**Jenna Walters** is working on her PhD with [Rufus Isaacs](#) and is studying the impacts of extreme heat on blueberry pollination.

### Paul Wooley Endowed Fellowship in Entomology

**Natalie Constancio** is a master's student with [Zsofia Szendrei](#) and is developing an integrated pest

management program for onion thrips in onion fields in Michigan.

### Department of Entomology Outstanding Staff Award

**Elizabeth "Lizz" D'Auria** is a former lab manager and research technician for [Doug Landis'](#) lab. She has relocated to New York and will be job hunting there.

### Gordon E. Guyer Endowed Fellowship in Aquatic Entomology

**Joe Receveur** will graduate with his PhD summer semester 2021. Under the direction of [Eric Benbow](#), Receveur's research has been evaluating the microbial communities of various aquatic habitats and how these communities influence development and behavior of aquatic insects.

### Merritt Endowed Fellowship in Entomology

**Alexandra Bauer** is a doctoral student with [Eric Benbow](#). Her research interests include how insects impact our lives through their involvement in decomposition, disease transmission and nutrient recycling.

*Continued on page 4.*



# Celebrate!

Continued from page 3

D'Auria



Receveur



Bauer



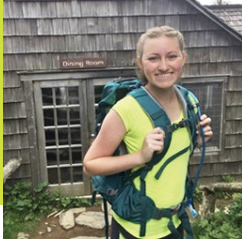
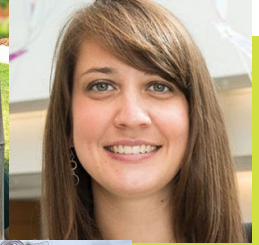
Eschedor



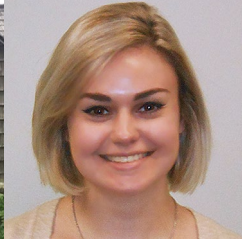
Glassmire



Howland



Alred



Camerato



Hauri



Linder



Posos-Parra

## Department of Entomology Outstanding Undergraduate Award

**Osten Eschedor** is an entomology major and is working with [Doug Landis](#)' field research summer 2021. She plans to pursue an MS degree in entomology after she graduates.

## Department of Entomology Outstanding Postdoc Award

**Andrea Glassmire** is now a postdoctoral research associate in the Department of Biological Sciences at Louisiana State University in Baton Rouge working with James Cronin. She worked with [Will Wetzel](#) during her time here at MSU.

## Department of Entomology Distinguished Alumni Award

**Dr. John Wallace** received his PhD from the Department of Entomology in 1997. He is a professor in the Department of Biology and Director of the Millersville University Center for Environmental Sciences at Millersville University.

## Hutson Research Proposal

### Master of Science recipient

**Natalie Constancio** for the proposal titled "Assessing action thresholds of organic insecticides on bulb yield in onion fields."

### Doctor of Philosophy recipient

**Amanda Howland** for the proposal titled "Determining alternative management strategies to control nematodes in daylily production."

## Olsen Undergraduate Entomology Proposal

**Allison Fisher** for the proposal titled "*Drosophila suzukii* response to 11-cis Vaccenyl Acetate."

## J.E. and Jean M. McPherson Travel Awards for the 2020 Annual Entomological Society Virtual Meeting

- Brianna Alred
- Ellie Camerato
- Natalie Constancio
- Brianna Foster
- Kayleigh Hauri
- Shelley Linder
- Jessika Maas
- Omar Posos-Parra
- Olivia Simaz
- Jennifer Zavalnitskaya

## PEOPLE

**Twelve Ecology, Evolution, and Behavior (EEB) fellowships have been announced** with entomologists earning three of the awards. Each student has received a stipend totaling \$7,500 including matching support from advisors, allowing them to focus solely on research over the summer.

Honored entomology students are:

- **Elizeth Cinto-Mejia**, advised by [Will Wetzel](#)
- **Daniel Turner**, advised by [Will Wetzel](#)
- **Zinan Wang**, advised by [Henry Chung](#)

In addition, Turner ranked in the top of the group and was awarded a Don Hall Fellowship for an additional stipend of \$1,000.

The EEB Program is a research and training hub for those seeking

to understand and predict life in a changing world. EEB members come from 12 departments in five colleges. MSU Entomology has six core faculty members and nine affiliated members.

EEB doctoral students earn a dual degree. Master's students pursue a specialization. Students take required courses in ecology, evolution, and quantitative methods and coursework to pursue their individual interests.

## INTRODUCING OUR NEW CHAIR **HANNAH BURRACK**

Hannah Burrack has been selected to be the new chair of the MSU Department of Entomology. Burrack is currently a professor of entomology and extension specialist at North Carolina State University (NCSU) in Raleigh, North Carolina. She has served in growing faculty roles at NCSU since 2007, most recently serving as Director for Education & Outreach with the [NC Plant Sciences Initiative](#), an interdisciplinary initiative with the goal of conducting transformational plant sciences research, education and outreach.

Burrack's current research focuses broadly on the ecology of insect pests in tobacco and small fruit crops, utilizing the information to enhance pest management. Her extension appointment at NCSU supports tobacco production and small fruit crop diversification as she works with local and regional growers.

In 2018, Burrack received the University Faculty Scholar Award and the Extension Service Award from NCSU.



At NCSU, Burrack has been the principal investigator and manager of several USDA National Institute of Food and Agriculture grants and panels related to research on spotted wing Drosophila management, crop protection, pest management and methyl bromide transitions.

Burrack earned her doctorate and master's degrees in entomology both from the University of California—Davis and bachelor's degrees in rural sociology and entomology from the University of Wisconsin—Madison. During her career, Burrack has been part of extension engagement and outreach with stakeholders; taught courses in entomology, horticulture and crop sciences departments; supported

undergraduate research projects; and mentored students and visiting scholars. She has also been a part of various NCSU committees related to teaching and tenure, extension, research and technology, as well as faculty search committees.

Burrack said, "I have followed the innovative research, exceptional students and impactful extension undertaken by the MSU Entomology Department from the very start of my career, and I am thrilled to be joining this team in January. I am passionate about science that connects with stakeholders—be that students, growers, industry partners or the broader citizens of the state. Entomology as a discipline naturally fosters these connections, and I am so excited to work together with the faculty, students and staff at MSU to do great things!"

Burrack will take over for F. William Ravlin, who has served as chairperson since 2014.

*This article is an excerpt from an announcement by the MSU College of Agriculture and Natural Resources*

**Congratulations to these faculty** who were promoted or reappointed during 2020 and 2021:

- [Peter White](#) – promotion to associate professor
- [Eric Benbow](#) – promotion to professor
- [David Mota-Sanchez](#) – promotion to associate professor
- [Henry Chung](#) – reappointment as assistant professor
- [Marianna Szűcs](#) – reappointment as assistant professor
- [Will Wetzel](#) – reappointment as assistant professor

**The College of Agriculture and Natural Resources Alumni Association awards scholarships** to students who are well-rounded in their academic and non-academic pursuits and have a vision for their future career. Congratulations to **Elizeth Cinto Mejia**, a graduate student pursuing a PhD in Entomology, Ecology, and Evolutionary Biology Behavior with [Will Wetzel](#). Cinto Mejia will receive funding toward a computer to support her work on climate models and their various effects upon nature.

**Mallory Marienfeld has accepted a new position** as the IPM and conservation communications manager for MSU Extension. She has worked diligently the past 10 years as a communications specialist for IPM and the Department of Entomology with Joy Landis. Some of her successes include building an audience of over 8,000 followers on Entomology's Twitter account and overseeing production of MSU Extension's plant agriculture news, reaching over 86,000 subscribers with its emailed newsletters.



## Featured Students



**Hometown:** Detroit, Michigan

**Future study or career plans:** Unsure, hopefully something with many ants.

### KELLY HOLSINGER UNDERGRAD STUDENT

**What inspired your interest in entomology?** I spent very little time indoors during my childhood. At the third grade career fair, I chose to be an entomologist and from that point on there wasn't a question of what I would be doing the rest of my life. Also, I've always loved Pokémon, and there is nothing that comes closer to being a real Pokémon professor than entomology. Gotta catch 'em all!

**What have you learned as a student during a global pandemic?** Remote classes were ideal for me. I was feeling very burnt out from school and while MSU being a "big school" is nice sometimes, having an hour-plus commute took so much time and energy. I felt like I could bring so much more to discussions when I had the extra time back and was able to have regular meals and take a break between classes, even if it were only 15-20 minutes. That time would have normally been used getting across campus.

Remote classes also helped me learn more effectively than in-person classes. I struggle with focusing and sitting still. With online classes I was able to stand up and move around or oblige tics like tapping my foot or my desk without disrupting the class. The class I did best in was the lecture I listened to on the treadmill! I also have trouble speaking up to ask questions, which was much easier with Zoom's chat options. I think online schooling options are very beneficial for people like me who struggle with traditional schooling. I hope MSU will continue to advocate for online options even post-COVID-19.

I also had the opportunity to attend clubs for the first time in my college experience because of remote schooling. Previously, attending a club after dinner was not an option for me. Because clubs were over Zoom calls this past year, I was able to try out a bunch of clubs and meet new people!

**What is your favorite insect and why?** Ants! They are the first group of insects that I worked on and this year I started a county-wide survey collection of ants as a personal project.

**Home country:** Zapopan, Jalisco, México

**Previous education:** Instituto Tecnológico y de Estudios Superiores de Monterrey, Campus Guadalajara

**Major professor:** [David Mota-Sanchez](#)



### OMAR POSOS-PARRA GRADUATE STUDENT

**What are you researching?** My research is concerned with understanding and deciphering how fall armyworm (*Spodoptera frugiperda*) resistance to pesticides develops from a biochemical and genetic perspective and its inheritance of resistance. The fall armyworm is a pest of economic importance worldwide. Its recent migration to the Eastern Hemisphere has had tremendous economic impact. It adapts to different environments in a short time and is expected to become one of the five pests with the most significant impact worldwide in the coming years.

**You drove to MSU from Mexico—what was that experience like?** I have always enjoyed driving, and when I received the email that I was accepted into MSU Entomology's PhD program, I asked myself, "How much time would it take to drive from my home to East Lansing?"

My dad has a good friend who lives part-time in Los Angeles, and he offered to help me with driving. We started on Thursday at 5 a.m. and arrived at MSU on Saturday night. The trip was beautiful; we watched the change of season from Guadalajara to East Lansing. We even crossed part of the desert in Mexico, and hours later we were in snow. I came here in early December 2018 and thought we were lucky we did not have any trouble with snow. It was my first time living with temperatures below 32 degrees Fahrenheit. The temperature outside was 80 F when I began the journey. When it ended, it was 16 F!

**Why study entomology?** My primary intention has always been to dedicate myself to pesticides, toxicology or parasitology issues. I have been interested in insects from a very young age thanks a lot to my parents. My mother is a biologist and my father is an agronomist, a parasitologist. I remember living around a lot of June bugs (*Phyllophaga ravidata*) when I was little when my parents carried out colony samplings in infested cornfields.

**What have you learned from the pandemic?** I would quote Antonio Gala, "Happiness is realizing that nothing is too important."

Read the complete interviews at [ent.msu.edu](http://ent.msu.edu)

As postdoctoral researchers are critical contributors to MSU's research, this feature is about an "alum" post-doc. Christie Bahlai, an assistant professor at Kent State University, was recently selected for a National Science Foundation (NSF) early-career award. Bahlai earned degrees at the University of Guelph before joining Doug Landis' lab and the Kellogg Biological Station Long-Term Ecological Research network as a postdoc in 2012.



### What led you to study entomology, systems and data?

I was into nature as a kid, but never thought of it as a field. Instead, my undergraduate major was physics and I was a "middle of the road" student, which didn't feel right after excelling as a high school student. I knew that science was where I wanted to be, so I found a job in Rebecca Hallett's entomology lab working on pea leafminers. The lab was researching the pest's many host plant preferences to understand choice, and I just loved it. Suddenly, I could see how things fit together in a system and how in studying a system, you could peel off parts of a problem and get a better understanding of the biology and potentially solve a problem effecting growers, people.

I also did an undergraduate thesis on host plant interactions with a parasitoid wasp and was invited by another entomology professor, Mark Sears, to begin my master's degree studying puzzling behavior by ladybeetles, *Harmonia axyridis*, and their interactions with soybean aphid. In 2001, a cloud of soybean aphids famously shut down a Toronto Blue Jays baseball game. The new pest aphid arrived on farms and understanding ladybeetle predation and behavior

in a lot of settings became important. Sears let me explore. I did behavioral, population and overwintering projects. I rejoined Rebecca Hallett's lab for my PhD working on soybean aphid and community level predation and got to have my first experience teaching a chemical ecology class.

**Tell us about the NSF early-career grant.** These awards are intended to support early-career faculty to grow their research and teaching program as they move into tenure. My concept is the culmination of everything I've done bringing together computational ecology, population and insect ecology to address insect decline. If everyone has access to the same data about insects, why is there a raging debate about insect decline?

There's a human deciding what data goes in at every data point in a model. It conflicts with the idea that you can always come up with a strict numerical answer. My project is about studying and honoring that human element in quantitative ecology. I'm developing tools to evaluate how reliable a conclusion would be based on the window of time chosen by the user and whether we can pull

apart multiple sources of variation and critically interrogate what is really changing in the data.

**How does your work impact people's lives?** Many people are uncomfortable with numbers. People are especially uncomfortable with variation. But natural systems are variable. I'm developing curriculum and have a podcast about demystifying numbers. It's my mission to preach the good word about natural variability. If we embrace that, we can learn so much more.

### How did your postdoc at MSU contribute to where you are today?

I had no idea before working with Doug Landis on NSF's Long Term Ecological Research (LTER) network that data could be scaled up through a collaboration of people working over decades. I'm interested in long term patterns and the data connectivity made me feel very at home in the LTER network. I continue as an investigator with MSU's Kellogg Biological Station LTER today, where we keep asking what can we find out next?

Also during my postdoc, I was awarded a Mozilla Science fellowship for people working toward the goal of expanding access to advocacy, education and advancing open science. It gave me space to infiltrate my work with open science and gave me a global network. Many of the guests on my podcast are people from all over the world who I met through the fellowship.

### What do you know today that you wish you'd known earlier?

Embrace variability in data (and life!). It's real, natural and beautiful. Variability is what tells the most interesting stories.



## Summer research is underway for first EROF fellows

MSU Entomology's graduate students launched their new initiative, [Entomology Research and Outreach Fellowship \(EROF\)](#), this summer. The program was created to promote diversity, equity and inclusion by creating research opportunities with insects, nature and science.

Each EROF fellow is assigned a mentor in an Entomology lab and experiences working as a team with many members of their particular research lab. Meet EROF fellows through these brief introductions and follow the program on Twitter [@erof\\_msu](#).



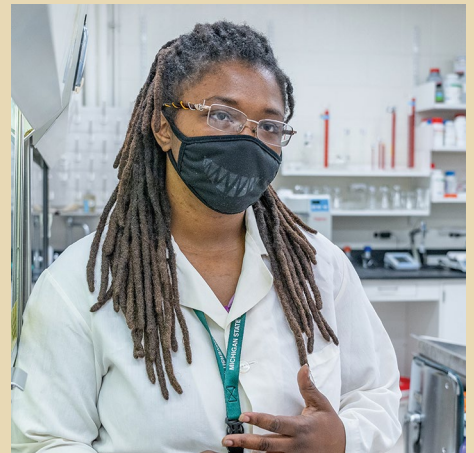
Mohammad Turaani is a sophomore at Henry Ford Community College majoring in biology. He is working with Juan Huang in Larry Gut's lab on orchard integrated pest management this summer.



Jimmy Jones is an MSU junior majoring in data science and is working with [Wayne Jiang](#) on a pesticide residue study from Africa.



Natasha MacKay graduated from Eastern Michigan University this spring with a bachelor's degree in biology and a discipline in physiology. She is interested in outreach and extension and is working on trapping methods and biological control of brown marmorated stink bug with lab teams led by [Julianna Wilson](#) (shown in image with MacKay) and [Juan Huang](#).



Carlisha Johnson is pursuing an associate of science degree in chemistry at Lansing Community College. She is contributing to research in [Zsofia Szendrei's](#) vegetable entomology lab on how nematodes alter a plant's chemical defense strategies and nutrition and whether insects are then influenced to change their host choice.



Naim Benin is a senior at Eastern Michigan University majoring in biology. This summer, he's working in [Matt Grieshop's](#) organic pest management lab studying improved monitoring for spotted wing *Drosophila*.



**Stephen Ireland** (BS 2014) received a PhD last year in molecular, cellular, and developmental biology from the University of Michigan, and is now a postdoctoral researcher at AstraZeneca in Maryland.

**Emily Pochubay** (MS 2012, Grieshop) reports that after seven-plus years working as an MSU Extension fruit educator, she has accepted a position with the Michigan Department of Agriculture and Rural Development working as a pesticide inspector beginning May 17, 2021.

**Adam Ingrao** (PhD 2018, Szendrei) has been selected as an Executive Advisory Committee member for the Farmer Veteran Coalition. The organization is the largest in the nation for farmers that are military veterans with over 35,000 members. Ingrao will represent Michigan, Wisconsin and Minnesota.

Some of our alums compared notes and came up with this list of **MSU Entomology graduates who serve or served as medical entomologist in the army.** Thanks for taking your entomology expertise to the service and around the globe:

- **Jamie Blow** (Ret COL; PhD)
- **Erik Foster** (Reserves; MS)
- **Jareè Johnson** (MAJ and active; MS)
- **Karl Korpál** (Ret MAJ; BS)
- **Elizabeth Wanja** (LTC and active; PhD)

## Meet our postdocs

This spring, Bug Talk podcast interviewed outgoing MSU Entomology postdocs **Andrea Glassmire** and **Eli Bloom**. They shared the challenges of the pandemic-era job market and what they'll fondly remember about the MSU Entomology community. Glassmire recently started a new position working in the Cronin Lab at Louisiana State University and can be found online at [aglassmire.com](http://aglassmire.com). Bloom is beginning a postdoc position at Cornell University in Clare Casteel's lab. He is on Twitter [@sustanabeelity](https://twitter.com/sustanabeelity).

Listen to Bug Talk Episode 56: <http://bit.ly/Glassmire-Bloom>



This summer, the Michigan Department of Agriculture and Rural Development Apiary and Right-to-Farm inspectors received in-hive training at the new MSU Pollinator Performance Center. The center is designed to support expanded and enhanced training and outreach on campus. Above, the MSU Apiculture Team shows the inspectors frames from honey bee colonies. Read more about this new hub of MSU pollinator research, teaching and outreach at [bit.ly/msu-bee-hub](http://bit.ly/msu-bee-hub).

## Bugged newsletter

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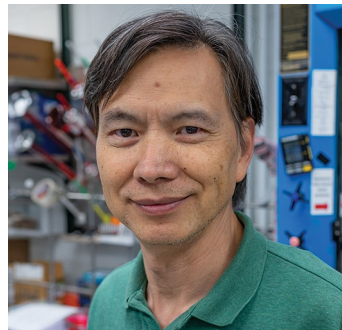


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## CAMPUS VISIT



Photos by Derrick Turner, MSU Photography