

# Myakka

*Myakka* ('my-yak-ah' - Seminole word for "big waters") gives a special identity to our department, as it is also the name of Florida's State Soil, Myakka fine sand. The State of Florida has the largest total acreage of Myakka fine sand (sandy, silicious, hyperthermic Aeric Alaquod) on flatwood landscapes.

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## Understanding Soil Formation



# A Message from the Chair

McCarty Hall A, home of the Soil and Water Sciences Department, is a lonely place these days. COVID-19 restrictions mean only essential personnel have been allowed on campus since the end of March. Students are no longer walking the halls. Our faculty and many of our staff members are working remotely, so classrooms, labs, and offices are nearly silent. This is true not just in McCarty, but across all the campus. The usual bustle at the end of a spring semester and preparation for commencement are absent.

Despite the lack of a formal, in-person ceremony to mark the milestone of a graduation, there is no lack of pride for our students who have accomplished much during their course of study. The degrees they have earned are just one form of recognition for the hard work they have invested in the pursuit. The real recognition is what comes next – the first job or additional education where they can apply what they have learned here and build upon it. Although we cannot celebrate together in person, our students should know the whole of SWSD applauds them from afar.

We have much to celebrate in other areas as well. In this issue, you will see the honors and awards bestowed to our students, faculty, and staff that demonstrate their commitment to their profession and those they serve. You can learn about doctoral student Julio Pachón, an NSF Graduate Research Fellow, doing amazing work to make soil health data more accessible to those who need it most. We catch up with alumnus Craig Browning (M.S. 1998) and hear about the interesting path he has taken from “digging holes in soil” to decommissioning chemical weapon sites.

Administratively speaking, SWSD has been working to expand offerings to students. We launched a new graduate certificate program in Soil, Water, and Public Health. Our faculty members with IFAS Extension appointments met this spring to strengthen their programming so they can better serve Florida residents, businesses, and agricultural producers. And the move to teaching only online has shown the great commitment our faculty have to their craft – imagining and realizing new ways of teaching online in a short period of time. It is extraordinary!

All of us at SWSD hope you have a productive summer. More importantly, we hope you stay safe and healthy during this uncertain time. As always, we love to hear from our alumni and friends. Drop us a line anytime and you can contact me at [mwhiles@ufl.edu](mailto:mwhiles@ufl.edu).



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The mission of the UF/IFAS Soil & Water Sciences Department is to provide knowledge and science-based solutions for addressing food security, public health, and protection of natural resources and environment in Florida, the nation, and the world.

# SWSD partners with Streaming Science to engage K-12 students online

As an assistant professor with an UF/IFAS Extension appointment in the Soil and Water Sciences Department, A.J. Reisinger knows the importance of engaging with the public. The urban soil and water quality specialist typically develops and offers programming for participants of the Master Gardeners program, landscape professionals, and developers. However, when the opportunity to talk about urban ecosystems with K-12 students across the country came up, he jumped at the chance.

“My extension program focuses on improving soil and water quality in urban environments and implementing best management practices aimed at protecting the environment,” Reisinger said. “My audience is usually adults, so reaching a younger group is exciting because it gets them thinking about these issues from a new perspective.”

Reisinger and two graduate students in his lab signed on with Streaming Science, a program created by UF/IFAS Agricultural Education and Communication (AEC) assistant professor Jamie Loizzo. Through Loizzo’s courses, UF students create multimedia engagement programs to introduce middle and high school students to real-world scientists to learn about STEM concepts, careers, and research.

“The Streaming Science platform benefits my graduate students who are learning about science communication, the scientists who talk about their research and how it impacts communities, and the K-12 students who have the opportunity to learn about different aspects of science and ask the scientists questions,” Loizzo explained.



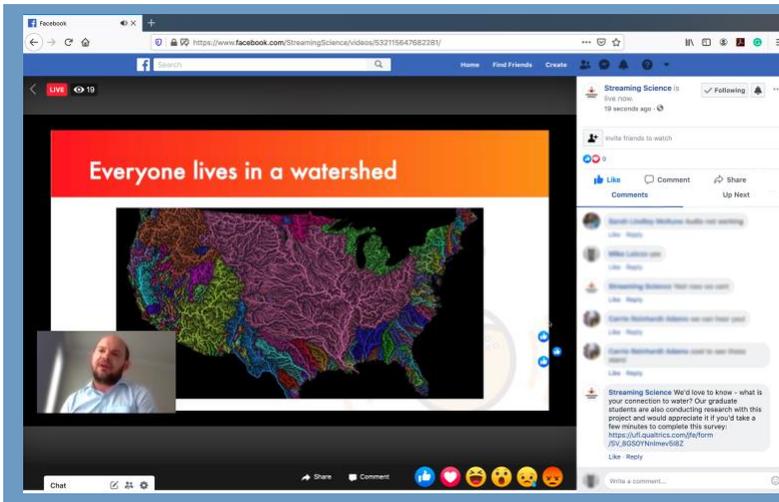
AEC doctoral student Jacqueline Aenlle (left) uses an iPad to live webcast a presentation from Adam Siders during a Streaming Science event. Siders used the laptop to view the connecting classroom of students.

Three graduate students in Loizzo’s ‘Scientist Online’ course worked with Reisinger and his students to develop an electronic field trip called “The Water Around Us” through Skype in the Classroom. Schools signed up from several states including Arizona, Florida, and New Jersey. Two live events happened before COVID-19 restrictions were implemented. After that, the team adjusted the delivery method to instead use Facebook Live and appeal directly to families who were under stay-at-home orders. The Facebook viewing audience stretched from coast to coast with families watching in California, Nebraska, Indiana, and South Carolina.

“It was an interesting experience,” said Adam Siders, a doctoral student in Soil and Water Sciences. “I have experience with school-age children in a learning environment, but this was a different format for me.”

Siders shared his research on manatees and impacts the animals have on their aquatic ecosystems and vice versa.

“I was able to show dozens of students some of the tools I use in the field as well as photos and videos I have of manatees swimming in Florida rivers,” Siders said. “They had some awesome questions about manatees and what I do as a scientist.”



A screenshot of the Facebook Live event of Streaming Science with Dr. A.J. Reisinger discussing urban ecosystems. The event reached more than 1,700 people during the 40 minutes it aired.

“Anytime we can share the science we do and explain it to a wider audience is a great achievement,” Reisinger added. “Getting younger students interested in science is always a positive too.”

“Thanks to visual, audio, and online technologies, we can continue to leverage new and different formats for not only reaching schools, but now, we can also reach kids in their homes,” Loizzo said.

## SWSD researchers featured in H2Know podcast series



Faculty and graduate students in the SWSD went behind the microphone this spring for a new podcast series. Agricultural Education and Communication (AEC) students involved in the Streaming Science project interviewed more than half a dozen members of the SWSD on their water-related research. Topics included oyster restoration, urban water quality, and precision agriculture. Students were asked to take a “selfie with a scientist” as part of the project. You can listen to the podcasts here:

[soundcloud.com/streaming-science/sets/h2know-the-science-of-water](https://soundcloud.com/streaming-science/sets/h2know-the-science-of-water)

*Left: AEC graduate student Michaela Shaw Kandzer poses with Julie Meyer, assistant professor of microbial ecology and bioinformatics after recording their podcast interview.*

# Alumni Spotlight: Craig Browning

Craig Browning (M.S. 1999) will be the first to tell you his pursuit of a master's degree was less than ideal. His funding from a water management district project dried up halfway through. Fortunately, Dr. Brian McNeal, professor of soil chemistry and a former department chair, had some funding for an assistantship to help him finish up on an accelerated path. His non-thesis project did not go the way he thought it would either. Still, he earned his degree and accepted all the ups and downs as learning experiences.

**Myakka:** What has your career path been like since you left SWSD?



Craig Browning at home in Colorado. (Photo provided)

**Craig Browning:** After graduation, I started doing environmental consulting work. I was the soil guy; primarily threatened and endangered species work and wetland evaluation and monitoring. I started off with a small consultant for a few years and then went to a national consulting firm doing similar work, primarily residential and commercial land developments. Next, I got into some soil and groundwater contamination assessments, so I could use my soil background for that with more of a geohydrology approach to it. I married the Navy in 2007 and in the end, I moved five times in eight years and ended up in Colorado Springs.

**M:** What do you do now?

**CB:** I work for Amentum, (formerly AECOM) at the Pueblo Chemical Agent-destruction Pilot Plant (PCAPP). We destroy stockpiled chemical weapons. This spring, I became the plant safety manager. Prior to that, I was the chemical control officer and shift safety representative at the facility.

**M:** How did you get into chemical weapons?

**CB:** I was looking for a job and applied because my skillset generally fit the description of what they were looking for, but it was a longshot. They called me for an interview, and I was absolutely flabbergasted – could not believe it. During the process, the company was bought by another and I was re-interviewed, and their last question was why do you want to be a safety professional? We had had a great interview, and I said, “Honestly, sir, I am not a safety professional, why do you want me?” They were

surprised I asked, but their answer was that they had a hunch. They were looking for someone with a broad compliance background that they could train to the standard of care to deal with chemical munitions. They found it easier to do that than to take someone from a construction safety or an oil and gas safety background and try to convince them how to operate in a chemical weapons environment. And it has paid off very well – good for me and good for the company. It's really been an amazing experience.

**M:** So, you had demonstrated the knowledge, skills, and abilities. They just needed you to apply that to the position.

**CB:** Yes, and it was an extraordinary learning curve. Everything was new. I had never been anywhere near anything like that. Never knew it existed. I just stuck my head in the procedures, started reading, started asking questions, and started going.



A technician at the Pueblo Chemical Agent-Destruction Pilot Plant prepares to enter into a toxic area where liquid chemical agent may be present. He is wearing an OSHA Level A Demilitarization Protective Ensemble. It is Browning's job to ensure PCAPP protocols are in place to protect employees, the plant, and its surroundings (Credit: PCAPP)

The business unit I work for, has pretty much the only group of people in North America that has experience in design, systemization, startup, operation, and decommissioning of highly complex, highly hazardous industrial processes – chemical weapons neutralization, nuclear enrichment facility decommissioning. It's a niche market. Our future will be focused on the decommissioning process – not power plants, but research and enrichment facilities.

**M:** While at PCAPP, you worked for a time at Camp Arifjan Army Base Kuwait. What was that experience like?

**CB:** I was the environmental, health, and safety manager under URS-Federal Services/AECOM for Camp Arifjan. I managed a national workforce on a multi-million-dollar contract supporting the maintenance and readiness of the Army's equipment – a magnitude of the vehicles to include tanks, trucks, and ground equipment. Primarily, I provided programmatic procedure development and implementation, and worked daily with senior project management to solve staffing and regulatory challenges.

I've traveled to 19 countries and lived in three of them. The Middle East is a unique culture, but I would not like to live there. I got a good understanding of how the world works during my travels. It was very rewarding working over there, but very challenging.

**M:** What are some of the good memories you have of UF?

**CB:** I enjoyed working with Dr. McNeal. I was his last student before he retired. I don't know if I broke him... or maybe he broke me! I got a lot out of the classes I took. I found them quite challenging, because I didn't have much of a chemistry background and a third of them were chemistry-related, including McNeal's class. I took Dr. Reddy's class, biogeochemistry of wetlands (twice), which I enjoyed. I found the graduate professors quite willing to support students who came from other academic backgrounds.

*"I've come a long way from digging holes in soil."*

**M:** Do you have any words of wisdom for current or future graduate students?

**CB:** If you get a degree in biology and then a degree in soil science, you might end up in chemical weapons safety – that's how that works! Consider opportunities that may be outside of the direction you think you should be going. I credit my having a diverse academic background to having the ability to transition from one career path to another. While, in academia, there's an emphasis on specialization and becoming the "expert," I would argue the opposite and say go general, go wide.

In your career, look for opportunities to address technical issues that others aren't willing to take on. You'll learn new things about your field, some you will enjoy, others not. You might be surprised at the direction these opportunities take you. During all of this, really study the art of communication. Learn to listen, learn to speak (learn when not to speak), and learn to write well. You have a lot of opportunity to improve these skills while still in school. Keep improving them when you enter the work force. Finally, if you have the opportunity to travel, and especially live and work in another country, take it! It can really enrich your life in ways you may not expect.

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# Graduate Student Spotlight

Julio César Pachón (SWS Ph.D. 2021)

## **Dissertation (tentative title): “Novel Indices of Soil Microaggregation to Understand Soil, Water, and Ecosystem Processes”**

Despite humanity’s dependence on soil, there are many gaps in our understanding of its formation and the changes it undergoes in both natural and managed systems. The biogeochemical processes that bind soil particles lead to basic soil structure, termed microaggregates, whose physical properties influences numerous ecosystem processes. The overall goal of my research is two-fold: (1) to improve how we measure soil microaggregation and (2) to understand the environmental drivers and consequences of this phenomena. To accomplish these goals, I have developed a novel method to quantify microaggregation that is rapid and more detailed than traditional methods. I am applying my method regionally across the Southeastern US to identify ecosystem processes that control microaggregation, in Sub Saharan Africa to characterize the effects of microaggregation on aboveground productivity, and in Florida to evaluate how microaggregation influences soil hydrology.

### **Research Question:**

What are the environmental drivers and consequences of soil particle interactions?

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“This whole idea of collecting data and making it more useful begins with the thought that by making it user-friendly and giving it back to the different stakeholders, they can improve overall management,” Julio Pachón said. “It’s not one-sided if many people have access to it. The communication can be a little more honest, there’s an evenness of power.”

The research Pachón is conducting is part of the evolution of soil science. He believes the study of soil processes is on the verge of being upturned.

“There is a need to rewrite the way we classify soils using the advent of technologies such as spectrophotometry and laser diffraction,” Pachón said. “This reclassification will be similar to the upset in biological taxonomy that DNA technology allowed.”

*“The work I want to do deals more with gathering existing data and developing it to be user-friendly, so stakeholders can work with it in ways that I may not even envision.”*

For more than a century, professionals have recognized aggregation and used it as a proxy for soil health. Pachón argues that developing and standardizing the estimation of soil aggregates with laser diffraction technology will lead to stronger landscape models. Those, in turn, will explain the movement of water, air, and chemicals in Earth’s critical zone – that layer between the bedrock and the upper atmosphere.

## Talking about Soil

Pachón was born and raised in Colombia, where his interest in soil first took hold. His family moved to the United States in 2001, when he was ten years old, and settled in Miami. Pachón attended MAST Academy, which is a maritime and science technology magnet school in Miami. During high school he volunteered at the Everglades National Park and later worked as a tour guide.

“That’s what set me up to go to Cornell after high school,” explained Pachón. There, he earned a bachelor’s degree in Science of Natural and Environmental Systems. He also took advantage of all the opportunities he could find. Pachón traveled to Limpopo, South Africa, to be part of a soil microbiology research group to reinvigorate soils; to Intag, Ecuador, to help the local coffee cooperative maintain a high quality of coffee through inexpensive methods; and a semester of studying abroad in Brazil. After graduating, he worked with 2Seeds Network, based in Washington D.C. That experience took him to Kijango, Tanzania, where he was part of a team that overhauled a small business education initiative.

“Through the program, I got to know one of the local parents, Mama Sophia, who mentored me on how to work the land,” Pachón recalls. “We talked about how to try out different agricultural practices by starting experimental plots.”

The two experimented with elevated beds and leaving bean residues on the ground of maize rows in three different areas of her field.

“I chose these treatments based on conversations I had with Mama Sophia and what I read from the soil.”

The removal of bean residues with all of their nutrients was common practice. At the end of the growing season, the corn yield in the elevated rows with bean residues was about 30 % greater.

“Even in this remote area, people like Mama Sophia listened to weather reports on the radio. I could not help but imagine, what if the radio told villagers about other trends on the land,” Pachón wondered. “If Mama Sophia had a better understanding of the macronutrients in her soil and those trends, her corn crops would have increased long before I arrived in Kijango.

“What if people talked about soil moisture levels and soil nutrient fluxes like they talk about the weather,” he thought.



*Julio Pachón at a workshop with ISRIC in Wageningen, Netherlands. (Photo provided)*

## The Path to the University of Florida

The experience in Tanzania was eye-opening for Pachón, it reinforced his desire to work in international research and development. However, he also realized achieving his goals would require further education. As he looked at possible graduate programs, UF ranked high on the list because of its reputation and strong international ties.

His application caught the eye of Dr. Allan Bacon, assistant professor of environmental pedology, who was just hired into the SWSD.

“I had heard all kinds of conflicting information about what constitutes a ‘promising graduate student,’ so I decided to look for someone with genuine life experience,” Bacon recalled. “Having traveled the world, Julio fit that bill. His undergraduate education and tremendous research experience were icing on the cake, I had to give him a call.”

Pachón was taking time off and had travelled to Hawaii when Bacon reached him.

“Waves crashing in the background couldn’t muffle Julio’s excitement nor his vision for how higher education could help him meet his goals,” Bacon said. “After ten minutes, I knew I needed this guy.”

He agreed on the spot, recognizing Dr. Bacon’s enthusiasm and the opportunity to join a lab in its inception; knowing that starting his own lab might become a possibility in the future.

Just before Pachón arrived at UF, Bacon added another important team member to the lab – a laser diffraction particle analyzer. Bacon said he had never used the technology, but that its potential utility in soil science was “written on the wall.” He asked Pachón to put it to the test.



*Pachón teaching soil science to a forestry class in the field. (Photo provided)*

“We had some notions about what sort of research Julio might conduct, but these notions were quickly thrown out the window,” Bacon said. “As Julio familiarized himself with the analyzer, he quickly discovered he could use the instrument to quantify soil aggregation in a whole new way that provided unique insights into this important environmental phenomenon.”

“Soils are fascinating,” Pachón said. “We have this rock that slowly weathers away, but the beautiful thing is as it comes back to the surface, it slowly comes back together in such a way that it becomes the catalyst for much of the life on land.”

## Conducting the Research

“It’s remarkable that with the particle size analyzer and four grams of soil, you can start getting an index of that microaggregation, the possibilities for research are extensive given how many projects have stored soil samples. It was exciting from the get-go,” Pachón said.

With the right tool in the lab and understanding its capabilities, Pachón got to work.

“For the first part of my dissertation, I took soil samples from the Calhoun Critical Zone Observatory (CZO) going down to eight meters deep to look at changes in physical properties of soil aggregates across profiles for soils formed in situ,” he explained. “I also used the PINEMAP (Pine Integrated Network: Education, Mitigation, and Adaptation Project) soils to look at differences in the physical properties of soil aggregates for soils across the Southeastern U.S.”

Another aspect of the research looks at changes in physical properties of soil aggregates across time. For that, Pachón used soil samples from the Calhoun Long Term Soil-Ecosystem Plots (LTSE), which has taken samples from 1962 to present in five-year intervals. A third research component is developing hydrologic models using soil aggregate data for samples at Calhoun CZO and with the soils from Florida’s soil survey that were taken back in the 1960-80s.

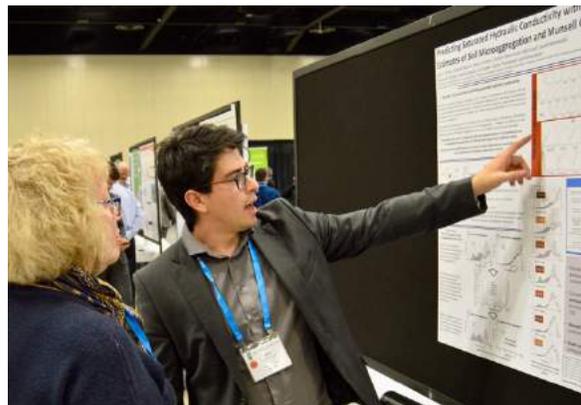
“It was very visionary to try to keep those soils here, not knowing exactly what they were going to be used for someday,” he said. “Luckily, I don’t need that much of each one, so we can still save quite a bit for whomever needs some.”

The National Science Foundation awarded him a Graduate Research Fellowship. The three years of funding from NSF, and a small match from UF, will allow him to conduct the research and complete his degree.

If that was not enough, Pachón hopes to complete another aspect of the research involving the soils of sub-Saharan Africa. Pachón is working with Dr. Pedro Sanchez, research professor of tropical soils, on a soil functionality classification system he has been developing.

The World Agroforestry Center (ICRAF) has data he can use to run his aggregate indexing, because ICRAF has laser diffraction data at different levels of dispersion. Pachón wants to use that data in conjunction with all the other soil data they have to model a selected number of soil constraints to plant growth with laser diffraction and spectrophotometry data.

“Soil classification done up to now is not very user friendly,” Pachón said. “But this soil functionality classification that Pedro has been developing tells you valuable information that’s more accessible, such as this area is soil erosion prone or nutrient deficient or rich in toxic elements.”



*Pachón explaining his research during a poster session at the 2019 Tri-Societies meeting in San Antonio, TX.*

The goal is to classify all of sub-Saharan Africa with the information from the World Agroforestry Center in a more efficient and cost-effective way.

## **Future Plans**

Pachón hopes to complete his dissertation and earn his Ph.D. in 2021. The other long-standing goal he has is to get more people to talk about soil like they talk about the weather.

“Farmers and people who work on the land, people who have close relations to land, in developed countries have a wide variety of tools, education, and resources to manage resources at a pretty high level,” he said. “They have sensors and data that match topnotch institutions anywhere. However, this is not true in most areas of the world, and this gap widens the living standards between people in most rural areas of the world and those in urban and developed rural areas.”

Pachón hopes to even out this inequality by getting more information into the hands of those who need it, in a form that they can understand. He points to the great wealth of knowledge in the United States and at the hands of farmers.

“At the same time, we still have a wide-ranging set of problems, of which an infamous example is the Gulf of Mexico with anoxic conditions,” Pachón said.

“There are still plenty of problems to be addressed in developed countries. In part because the topnotch data and information are in the hands of a few people,” he added. “If we can get more user-friendly information about local natural resources and how it changes over time to a wider community, then they will use it to address some of these problems. Asymmetry of information is a problem from the local area, to internationally.”

## **Taking Advantage of Opportunities**

Julio has jumped at both privately and publicly funded opportunities. He views these as being key to developing conscientious global citizens who will tackle today’s and tomorrow’s challenges. To this end, Julio has worked, supported, and fundraised, so other people can further their potential.

“The ability my family had to move between two countries allows me to see the immense benefits that migration may bring to both the people moving, the receiving countries, and other countries given the sense of internationality you develop,” Julio said.

“Recent efforts to limit migration globally worry me,” he added. “I hope that the continuous transfer of knowledge and technology, along with controls for international financial transparency, can mitigate the number of people fleeing insecurity and poverty.”

# Soil, Water & Public Health Certificate Program Launched

From dirty beaches following an oil spill to the Flint, Michigan, water crisis – soil and water contamination pose a public health risk to people, plants, and wildlife.

To better understand the risks, remediation, and prevention of such hazards, the SWSD now offers a graduate-level certificate program in Soil, Water, and Public Health. Courses are available both online and in-person, ideal for both working professionals and current students. It is one of six certificates the SWSD offers at the graduate level.

The curriculum teaches students how soil and water quality are critically linked to the health of both ecosystems and human populations. This interdisciplinary certificate is a partnership between the UF/IFAS College of Agricultural and Life Sciences (CALs) and the UF College of Public Health and Health Professions (PHHP).

“Soils, water and public health interact in various ways,” said CALS Dean Elaine Turner. “Through the new certificate program, students will learn how those interactions can be predicted and controlled.”

“This program is a great example of how we can utilize the vast resources at UF to build bridges across disciplines that lead to better protection of ecosystems and human health,” added PPHP Dean Michael G. Perri.

A goal of the certificate is to connect soil and water sciences and public health for professionals who may work in both areas. Andrew Ogram, UF/IFAS professor of soil microbiology, said that too often, students in the two disciplines do not realize how they intersect.

“This unique interdisciplinary graduate certificate program not only focuses on the numerous examples of discipline overlap but develops skills necessary for competency and communication between the disciplines,” Ogram explained.

“Emphasis is on how the physical, chemical and biological components of soils and water determine, or can be manipulated to determine, if the soil is a public health threat or savior. Students will be able to express the impact via risk assessment.”

The Soil, Water, and Public Health certificate requires three courses:

- Environmental Health Concepts in Public Health (PHC 6313)
- Ecology of Waterborne Pathogens (SWS 5308)
- Soils, Water, and Public Health (SWS 5551)

In addition, each student will choose one of four elective courses to reach the required 12 credit hours (four classes). Students must achieve an overall GPA of 3.0 or better for the entire program.

“Affording students and professionals in the soil and water sciences the opportunity to look at complex environmental problems through a public health lens opens the door for development of innovative and more effective solutions and approaches that span molecular and applied practice disciplines,” said Tara Sabo-Attwood, an associate professor and chair of the UF department of environmental and global health through PPHP.

Applicants seeking enrollment in the Soil, Water, and Public Health graduate certificate should have completed a bachelor’s degree in soil and water sciences or an equivalent field such as biology, environmental science, or agronomy. Applicants with other majors may be required to complete prerequisite courses before applying for admission. It is not necessary to be admitted to the UF Graduate School to earn a certificate. Students who later enroll in a UF graduate program may petition to transfer up to 15 UF graduate-level credit hours (grade B or better) to their graduate degree program.

More information about the Soil, Water, and Public Health certificate program is available at <https://soils.ifas.ufl.edu/sws-online/certificates/>

## Soil and Water Sciences Department Extension Retreat

SWSD faculty members with UF/IFAS Extension appointments held their 2020 retreat in early March at the Citrus Research and Education Center in Lake Alfred. The Departmental Extension Committee organizes the annual event. The current committee members are assistant professors A.J. Reisinger, Davie Kadyampakeni, and Ashley Smyth and professor Rao Mylavarapu.

Each faculty member shared an overview of their extension activities before the group reviewed the IFAS Road Map. The majority of the day was spent collaborating on program development using the Logic Model and performing a SWOT analysis.

“We had a constructive retreat that touched on many items,” said Rao Mylavarapu, SWSD Extension Coordinator. “It was interesting to see how some of the perceived weaknesses and threats were easily turned into opportunities for us to improve and better serve our stakeholders throughout Florida.”



SWSD has 16 faculty members (equivalent to 6.2 FTE) around the state. Their work covers soil, nutrient, and water management for production agriculture; soil microbiology; soil fertility and nutrient management; wetlands and urban ecosystems; soil health; and environmental quality.

“The discussions we had and exercises we performed are designed to develop better coordination among our faculty, streamline our programs, provide effective leadership in the state for our clientele, and prevent redundancy,” Mylavarapu said. “We will use the information to update our SWSD Extension roadmap to better align with the IFAS road map.”

He added that there are a few areas around the state related to SWSD expertise, which our faculty can take a lead in developing programs to better serve Floridians.



Above: Faculty write down and categorize what they see as the SWSD Extension program’s strengths, weaknesses, opportunities, and threats.

Previous Page: Two groups work together on a Logic Model exercise, which is the standard tool for designing educational programs in Extension.

**Learn more about the SWSD Extension programs:  
[soils.ifas.ufl.edu/extension](https://soils.ifas.ufl.edu/extension)**

*Congrats!*



# Spring 2020 Graduates

Advisor(s) in parenthesis

## Ph.D



Ibukun Timothy Ayankojo (Morgan)  
Tiantian Li (Li & Tong)  
Yanyan Lu (Silveira)  
Carlos Quintero (Cohen & Osborne)

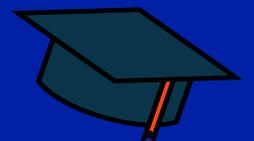
## M.S. (Thesis)

John Allar (Maltais-Landry)  
Yuting Fu (Bhadha)  
Susan Lamb (Smidt)



## M.S. (Professional Non-Thesis)

Christina Carr (Deitch)  
Daniel Fahr (Wilson)  
Benjamin Moose (Clark)  
Jennifer Trevis (Liao)





# Spring 2020 Graduates

## Graduate Certificates

### Sustainable Land Resource and Nutrient Management

(Dr. Bacon, certificate administrator)

Lauren Gottfreid

Casey Luzius

### Wetland & Water Resource Management

(Dr. Clark, certificate administrator)

Brian Brandon

Brandi Braschler

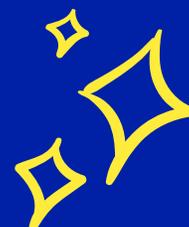
Erica Brookman

Cortney Cameron

Garret Christ

Zachary Leibowitz

Benjamin Moose



# Spring 2020 Graduates



## **B.S. Soil & Water Sciences**

(Advisor: Bonczek)

Matthew Phipps



## **Soil & Water Sciences Minor**

(Advisor: Bonczek)

Rachel Barthle

Emma Broadbent

Cari Bean

Gabrielle Bryson

Courtney Carroll

Barbara Cory

William Donaghy

Colson Douglas

Alexander Mason

Maria Pulgar

Serena Sakkal

Domenica Santana

Tamara Serrano

Benjamin Tubbs

Chad Ward

Marlee Wasserman



*Best of  
Luck!*

# Spring 2020 Graduates



## B.S. Environmental Management in Agriculture & Natural Resources

(Advisors: Curry & Enloe)



Deni Barrington

Rachel Barthle

Sarah Birkmire

Emily Cline

Nicholas Eder

Alexander Fast

Emily Gaskin

Samuel Glinsky

Sara Lewis

Alexander Mason

Tiffany Opachich

Ashley Pogue

Serena Sakkal

Domenica Santana

Matthew Stephenson-Smith

John Sydney

Benjamin Tubbs

Donielle Turner

Elisa Williams



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# WELCOME, NEW STUDENTS!

## Summer 2020

### Ph.D.

Jay Capasso (Sharma)

### M.S.

Benjamin Tubbs (Sharma)

## B.S. Environmental Management of Agriculture & Natural Resources

Advisors Curry & Enloe

Erin Downey

Shannon Gray

Christopher Maceri

Jessica Salter

Cayla Shirley

Anthony Shiver

Bryce Tawil

## Fall 2020 Graduate Students

### Ph.D.

Julia Barra Netto Ferreira (Sharma)

Audrey Goeckner (Reisinger)

Casey Harris (Reisinger)

Swarnali Mahmood (Sharma)

Shankar Shrestha (Schumann)

### M.S.

Emma Broadbent (Judy)

Juma Bukomba (Lusk)

Matthew Chesser (Reddy)

Hannah Flynn (Smidt)

Jonathan Francis (Fujimoto)

Aubrey Frye (Reynolds)

Lil Iturria (Wright)

Devin Leonard (P. Inglett)

Valerie Mendez (Liao)

Precious Nyabami (Lin)

Chad Raimer (Reddy)

John Sydney Jr. (Grunwald)

Joris Daniel Van Zeghbroeck (Li)

Xinya Yang (Judy)



# Awards, Honors, & Recognition

## FACULTY HONORS

Dr. Jehangir "Jango" Bhadha was selected for the Fulbright Specialist Roster by the U.S. Department of State's Bureau of Education and Cultural Affairs (ECA) and World Learning. He is eligible to be matched with research projects designed by host institutions in over 150 countries globally on topics related to soil sustainability, water resources, and food-security over a three-year period.

Dr. Kanika Sharma Inglett received an Exemplary Online Award (EOA) from the UF Center for Teaching Excellent for her course SWS4932 Math for Environmental Professionals. The EOA recognizes exemplary and innovative practices in online teaching and course production.

Dr. Davie Kadyampakeni received the Epsilon Sigma Phi (EPS)-Alpha Delta Chapter Outstanding Specialist Award. The award recognizes his contributions in Extension and ESP regional activities.

Susan Curry was named Faculty Advising/Mentor of the Year for the College of Agricultural and Life Sciences for 2019-2020.

## GRADUATE STUDENT HONORS

Claire Friedrichsen received the *2019 Award of Excellence for Graduate Research – Ph.D.* for her dissertation: Identifying Communication Barriers to Successful Implementation of Soil and Water Technology for Improving Food Security. Her advisor is Dr. Samira Daroub.

Qudus Uthman received the *2019 Award of Excellence for Graduate Research – M.S.* for his thesis: Fate and Transport of Boron, Manganese and Zinc in Citrus Grown on Florida Sandy Entisol. His advisors are Dr. Davie Kadyampakeni and Dr. Peter Nkedi-Kizza.



Clayton Nevins (left) was awarded the Florida Fertilizer and Agrichemical Association (FFAA) Yara Doctoral Scholarship and the Biogeochemistry Graduate Fellowship Award from the SWSD Wetland Biogeochemistry Lab. His major advisor is Dr. P. Inglett and his co-chair is Dr. Sarah Strauss.

Nevins also was named chair of the overall Graduate Student Committee for the combined American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America.

## STAFF HONORS

Mike Sisk, SWSD academic program specialist for graduate and undergraduate programs, received a **2020 UF/IFAS Superior Accomplishment Award**. He is responsible for course scheduling, academic activities reporting, course-teacher evaluations and grade authorizations, in addition to serving as the primary source for information about the department's on-campus and online academic programs. Mike works with more than 100 graduate students, 120 undergraduates and more than 60 students in the graduate certificate program.



Mike has a reputation in the Soil and Water Sciences Department as, in the words of one letter of support, a “living Alexa.” He is the go-to person for questions about everything from academic policies to scholarship opportunities. This past year, his expertise was invaluable to the department, which was welcoming a new chair and three new faculty members. The department itself is made up of 50% junior faculty who are still getting up to speed on its undergraduate and graduate programs. However, this new challenge has allowed Mike's talents to shine even more brightly. He kept track of large amounts of vital and time-sensitive information important to faculty and students, while also remaining a responsive source of knowledge and advice. Mike not only participates in student recruitment but also goes out of his way to make sure students are transitioning well into UF.

The 15 letters of support submitted with Mike's nomination testify to the critical role he plays in the soil and water sciences department. A student recruited this year by Mike had this to say: “With Mike's help and reminder, I was able to receive the Board of Education Fellowship, a Grinter Fellowship, and a Doris Lowe and Earl and Verna Lowe Scholarship. Mike is a dedicated, resourceful, and exceptional staff member, who is patient willing to listen, apt to respond to student's questions and concerns... Mike inspires me to be more dedicated, efficient, and patient and kind to people regardless of the number of times I encounter them in a day.”

## Support SWSD Students!

Consider making a gift to one of our scholarship, fellowship, or program funds.

Learn more:

[soils.ifas.ufl.edu/connect-with-us/giving/](https://soils.ifas.ufl.edu/connect-with-us/giving/)



# SWSD Undergraduate Research in the Spring Symposium

The annual UF Spring Symposium went online this year. The UF Center for Undergraduate Research-sponsored event included the usual poster sessions, but a student's online poster was paired with a three-minute video presentation they recorded. Students also answered questions via an online chat function. Ann Wilkie, research professor of bioenergy and sustainable technology, and Masa Fujimoto, research assistant professor of aquatic microbial ecology, advised the following undergraduates on their research projects:

- **Daisy Andrews** (Wilkie) - Student Compost Cooperative - "Plate-to-Plate" Sustainability
- **Justin Andrienas** (Wilkie) - Computer-Vision Estimation of Insolation from Satellite Imagery
- **Jade Bittenbender** (Fujimoto) - Ordway Swisher Biological Station Aquatic Microbial Communities Study
- **Lars Bjorndal** (Wilkie) - Dehydration Kinetics of the Filamentous Alga Oedogonium
- **Katherine Messer** (Wilkie) - Composting - Fostering A Culture of Sustainability
- **Connor Tringali** (Fujimoto) - Analysis of Microorganisms in Florida Lakes Reveal Significantly Different Communities between the Surface and Depths

You can view their research posters and video presentations online:  
<https://cur.aa.ufl.edu/2020-spring-virtual-symposium/>



## Soil Pit Signage at Campus Garden

The soil pit at the Field & Fork Farm and Gardens now has its official signage (left). The pit was dug during the Spring 2019 semester at the request of Allan Bacon, assistant professor of environmental pedology. His classes use it as an outdoor lab on campus to study soil horizons. Bacon also provided the technical content for the sign that stands near the pit.

# SWSD Supports Alachua Regional Science Fair Students

Three winners of the Alachua Regional Science Fair presented their research at the weekly SWSD Seminar on February 28. The goal was to give them more experience presenting their research work before attending the state science fair. Faculty and SWSD students posed questions after the presentations and filled out evaluation forms for the students, so they could review the feedback.



Elizabeth Nowicki

7<sup>TH</sup> Grade

Oak View Middle School

*Oil Spills! Hair Today, Gone Tomorrow!*

Earth and Environmental Sciences Division

Matthew Settles

8<sup>TH</sup> Grade

Westwood Middle School

*Is It Possible to Tell the Ripeness of a Watermelon by the Volatiles in its Rind?*

Plant Sciences Division



Katie Law

7<sup>TH</sup> Grade

Howard Bishop Middle School

*What is Really in That Dietary Supplement?*

Chemistry Division

Special thanks to Dr. Peter Nkedi-Kizza, SWSD professor emeritus of soil physics and hydrology, who helped coordinate with the Alachua School District for this event and who was the first to organize this collaboration more than 15 years ago. For presenting, the students received a certificate from SWSD, and the department offered to print a new poster for them before the state science fair.

