

# 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.

**UF IFAS**  
UNIVERSITY of FLORIDA



## Human Impact on Urban Streams



# A Message from the Chair

In science, we rely on data to tell the story. So, allow me to share some data from the Soil and Water Sciences Department that helps tell our story. It will also give you an idea of our continued successes during 2020, in spite of a global pandemic.

- Enrollment in SWSD courses was the highest on record in 2020, at 2,792 students enrolled.
- Admissions to the M.S. Distance Education program tripled in 2020 from the previous year.
- SWSD faculty were awarded more than \$2.5 million in research grants last year.
- Our Extension faculty reached 5,000 stakeholders directly, either virtually or socially distanced, with many more indirect contacts.



While these are the highlights, there are many more numbers that show SWSD is on the right track. We are also in the process of hiring three new faculty members in the following disciplines: soil physics on the main campus, crop nutrition and water management at the Southwest Florida REC, and watershed hydrology and biogeochemistry at the Range Cattle REC. These new hires will enhance our service to our students and the State of Florida.

In this issue, we are proud to feature two of our successful students. Emily Taylor, who is pursuing her Ph.D., is a great fit with her advisor, Dr. AJ Reisinger, and his lab. You will learn about Emily's passion for urban ecology and her research on urban stream ecosystems. Miranda Jackson just completed her B.S. in Interdisciplinary Studies: Environmental Management of Agriculture and Natural Resources. Miranda made the most of the undergraduate research opportunities available to UF students and is now headed to graduate school.

Our alumni spotlight shines on Debjani Sihi, who received her Ph.D. in 2015. Dr. Sihi is now a faculty member at Emory University in the Department of Environmental Sciences. The path she traveled to get there is a perfect example of how an education from SWSD sets students up for success in a variety of ways.

While I previously mentioned that the pandemic did not slow us down, I do want to acknowledge that the past 15 months or so have not been easy. I want to thank the SWSD faculty and staff for stepping up during a prolonged, unpredictable situation. I also applaud our students who kept on track with their studies and research. I am hopeful things will continue to return closer to "normal" this summer and for the start of the Fall 2021 semester. As always, please reach out to us anytime; you can contact me at [mwhiles@ufl.edu](mailto:mwhiles@ufl.edu).

# Contents

Researchers study how shellfish may improve water quality in north Florida estuary	2
Graduate student research: How humans are impacting urban streams	5
Research underway in SWSD	9
Undergraduate spotlight on Miranda Jackson	10
Alumna steps into teaching role, keeps learning	12
New journal taps professor for chief editor role	16
Soil & Water Sciences graduates	17
New Soil & Water Sciences Students	24
Awards & Honors	25

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.

## UF/IFAS Soil & Water Sciences Department Online Graduate Programs

Learn more about our online master of science degrees and graduate certificates at:  
<https://soils.ifas.ufl.edu/sws-online/>

Academic programs to fit your schedule, your location, and your life.

**UF/IFAS**  
UNIVERSITY of FLORIDA



## Improving water quality in a north Florida estuary: Research grant will assess impact of shellfish filtering abilities

By Caitlin Petros

In St. Johns County, Florida, the Guana Lake and Guana River make up an estuary that is experiencing signs of pollution. This protected area north of St. Augustine is home to rich marshes, mussels, and oyster reefs. Scientists are hoping that shellfish could be an effective effort to filter pollution and restore water quality.

Shellfish are a natural part of maintaining the health of estuaries. They feed on algae and filter particles from the water. This filtration cleans the water for other aquatic species and vegetation.

Ashley Smyth, assistant professor of biogeochemistry in the UF/IFAS soil and water sciences department at the Tropical Research and Education Center, and colleagues have a \$595,000 grant from the National Estuarine Research Reserve System (NERRS) Science Collaborative. The goal is to research sources of nutrients and how shellfish can mitigate water quality issues in Guana Lake and Guana River.

Smyth is the lead principal investigator for the three-year research project. Joining her are A.J. Reisinger, assistant professor of urban soil and water quality, Nikki Dix, research director at the Guana Tolomato Matanzas National Estuarine Research Reserve, and Kaitlyn Dietz, coastal training coordinator at the Reserve, among others.

Reisinger's area of expertise is in water quality, specifically in urban water systems. He will be working closely with the headwaters section and nitrogen budget for the lake as well as the development of nitrogen sensors. Reisinger said the team would like to see community support for and involvement in the project.

"Every step of the way, we want to hear from the community so they can feel like they are a part of the project," Reisinger said.



*Guana Tolomato Matanzas National Estuarine Research Reserve (Image from Google Earth)*

The three-year grant began this April. The team will collect and evaluate data on the quality of water in the system as well as the health of shellfish. They will also identify nitrogen spikes due to changes in land use, engage stakeholders and the community through the project, and evaluate how the benefits of shellfish in regard to water quality can help the local economy.

Of specific interest is understanding nitrogen dynamics within the Guana Lake and Guana River Estuary. The estuary has experienced a loss of water quality due to excess nitrogen, which can lead to algae blooms and other water quality issues. Oysters and mussels can help maintain water quality by denitrification, a natural process that removes nitrogen from the ecosystem.

“We are not just thinking about the oysters, but also the mussels,” Smyth said.

Smyth said that ribbed mussels have a lot of the same functions that oysters do. Since oysters are commonly harvested and mussels are not, the team is trying to include mussels into the water quality goals of the estuary. This way, oysters can be harvested, the water quality can be maintained, and the economic benefits of harvesting oysters can remain intact.

“We’ve been working with many stakeholders in the community, including shellfish harvesters, non-profits, developers in upstream urban communities, and more,” Reisinger said. “We want to maximize water quality while maintaining the economy of the area.”

The researchers hope to develop a restoration and management plan for stakeholders. This could eliminate the need for legislative mandated action by the U.S. Environmental Protection Agency that surveys the maximum amount of nutrients allowed in the system. Their overall goal is to establish a sustainable way to monitor and improve water quality in the estuary combined with other ecological, social, and economic factors.

The core team is also drawing on the expertise from other UF colleges and departments within IFAS and across the university.

“This project is a great example that there are so many wonderful people at UF,” Smyth said. “We are combining people from engineering, fisheries, and water to solve this issue in Florida.”

## Guana Headwaters



*Identify relative nitrogen source contributions into Guana Lake*

## Guana Lake



*Identify how the balance of N sources and sinks affects export of nitrogen into Guana River*

## Guana River



*Survey shellfish distributions and health, quantify filtration and nitrogen removal by shellfish, and assess how water quality affects shellfish health and how shellfish affect water quality*

## Project Timeline

### Year 1

- Determine the source of excess nitrogen in the water as well as the presence of oysters and mussels.
- Map out areas of Guana Lake where shellfish communities are located.
- Place real-time nitrogen sensors in crucial parts of the estuary to get a better understanding of the dynamic nature of water quality.

### Year 2

- Evaluate the role of shellfish communities in stimulating the nitrogen process.
- Understand how the different filter feeders in the estuary are similar or different in their ability to clean the water.
- Evaluate variation in shellfish health and nitrogen content under different water quality levels.
- Measure oyster filtration rates and denitrification rates.

### Year 3

- Conduct a large-scale manipulative field experiment to relocate oysters and mussels in the estuary to see where and when they are able to remove nitrogen.

## Graduate Student Research Spotlight

“Metabolism and Nutrient Dynamics of Sub-Tropical Urban Streams”

Emily Taylor (Soil & Water Sciences PhD 2023)

### Topic

Emily Taylor studies urban streams and how urbanization is impacting ecosystem metabolism and nutrient cycling. Ecosystem metabolism describes the coupled processes of primary production and ecosystem respiration. Primary production is the fixation of inorganic carbon into organic material, resulting in the storage of energy and the creation of oxygen. That stored organic material is the food source for the next step in the food chain. Ecosystem respiration refers to the use of oxygen to breakdown organic material to generate energy, releasing carbon dioxide as a by-product of that reaction. Primary production is an important source of energy in aquatic ecosystems while respiration marks the use and transfer of energy through the system. These processes are regulated by several factors including light availability, temperature, hydrology, nutrient availability, and the composition of organic material. Urbanization introduces a variety of stressors that influence these regulators of ecosystem metabolism which can ultimately affect how energy is generated, stored, and transferred through the ecosystem.



Emily Taylor collecting data at Hogtown Creek in Gainesville. (Photo by Mike Loizzo)

### Research Questions

How are humans changing and impacting urban streams' ecosystem metabolism? How are nutrients cycling through an urban stream based on that human impact?

---

“There are definitely certain sources you can point to in an urban environment that impact urban streams,” Emily Taylor said. “Run-off of fertilizer from residential lawns and even little patches of grass on commercial properties is one. Another is human waste products coming from septic systems and leaky sewer lines.”

Yard waste, such as grass clippings and leaves, and animal waste are also contributing to what ecologists call urban stream syndrome. Another factor is the physical properties of the stream. Naturally occurring, they tend to be wide, shallow, and are able to meander, but when surrounded by man-made infrastructure in a city, a stream will narrow and deepen, often times streams will be straightened and lined with a hard surface such as concrete.



Emily collecting field samples during the COVID-19 pandemic. (Photo by Fay Belshe)

“We are good at moving water off of the landscape and out of the way, so it doesn't impact humans, houses, or roads,” Taylor explained. “So, you just have this large volume of water rushing through the stream. This can lead to large amounts of erosion which can scour the stream bed of important habitat and microorganisms while deepening the banks of stream channel.”

### Research and Early Results

To assess the human impacts on streams, Taylor worked with her advisor, Dr. AJ Reisinger, SWS assistant professor of urban soil and water quality, to identify seven sites in Gainesville for measurements. Those range from a mostly residential neighborhood to a natural conservation area to a heavily commercial section of the city.

“We chose these sites to represent the range of different activities commonly found in urban landscapes,” Reisinger explained.

“The range of sites will allow us to identify how a range of urban land uses affect in-stream processes.”

Every other week, Taylor and one of her lab mates visited each site to download data. She collected measurements for nutrients, dissolved organic material, conductivity, turbidity, and pH as well as dissolved oxygen. Dissolved oxygen allows Taylor to indirectly measure the amount of carbon dioxide being created or used in an aquatic ecosystem. During the day, many organisms, such as algae, aquatic plants, and cyanobacteria, undergo photosynthesis which uses carbon dioxide and creates oxygen. Throughout the entire day, every organism in the stream is performing respiration, which uses oxygen to create energy and releases carbon dioxide. The sensors will show these changes in concentration at five-minute intervals.

Taylor will have three years of data which will allow her dynamics of the streams across sites but also over seasonal and annual time-sales.

“The nutrient data and some of the other parameters I'm collecting, like dissolved organic material, there is a lot of information and so it will help us fine-tune our understanding and see maybe more nuanced changes throughout the year,” she said.

Taylor is learning how to code all the data so she can run various modeling scenarios. Her goal is to do as much of the statistical analysis for the project as she can.



“People before me have learned how to model metabolism in stream, so I will be using their model for that. The other measurement data I have – I’m taking several stats classes to manage that data,” Taylor said. “I’m excited. I’m enjoying it, but it’s a new challenge for sure.”

## Implications

While Taylor will analyze two-to-three years of information from the streams, the data gathering will continue after she completes her degree. Reisinger hopes to monitor the seven stream sites for decades. The goal is to see how streams in a subtropical environment behave compared to streams elsewhere.

“A lot of research has been done in more temperate climates on urban and non-urban stream metabolism and nutrient cycling, but we have a unique karst topography, so the limestone characteristics present different questions and challenges,” Taylor explained.

Weather pattern is another difference. Many parts of the United States, have snow melt and significant rainfall in the spring. In Florida, the rainy season is in the middle of the summer, which is when streams elsewhere are most productive.

“Our streams would be most productive too, but we keep having rain come in and scour all of our streams,” she said. “It’s a different climate pattern than what we’re used to understanding.”

“Emily’s research is setting the stage for what I hope to be a study that lasts my entire career,” Reisinger added. “I hope that in 30 years I’ll be able to go out and measure primary production in a stream and be able to say ‘wow, that’s a lot higher than when Emily measured it!’ Emily has done a fantastic job of setting up not only her own dissertation research but establishing a project that will continue well after she graduates.”



Emily Taylor collecting flow data at a creek in Gainesville with the help of two student. (2019 photo by Emily Taylor)

---

**Support students in the Soil & Water Sciences Department  
with a gift to one of our scholarship, fellowship, or  
program funds.**

Learn how you can make a difference at  
[soils.ifas.ufl.edu/connect-with-us/giving/](https://soils.ifas.ufl.edu/connect-with-us/giving/)

## The Importance of Mentoring

Emily Taylor is a strong supporter of mentoring. She can point to several positive role models she had in high school and as an undergraduate student. They set her towards the path she is following now.

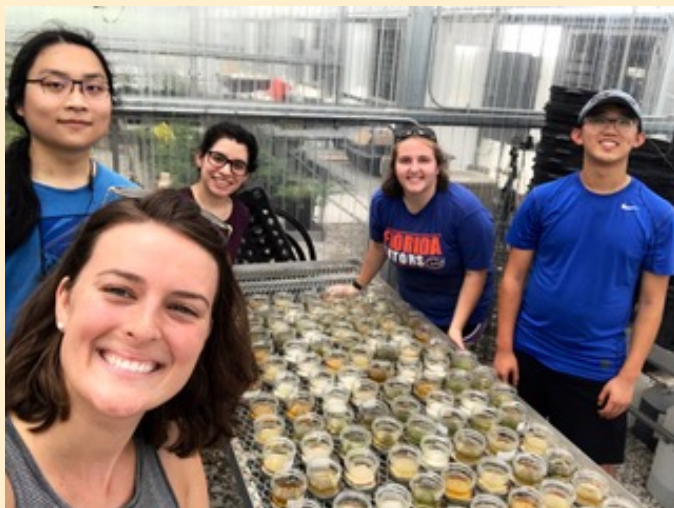
“I thought, ‘Oh, I really like their passion for this,’” she said. “I want to take a closer look at what they’re doing as a career.”

She says her first “real” internship as an environmental science major was with a consulting firm. One employee, in particular, took her under his wing.



Emily Taylor with undergraduate research student Hallie Ferguson (left). (2019 photo by UF CALS Communications)

“Ron was the best mentor in the world,” Taylor said. “He just truly made sure that I was learning things – not just how to do them, but why they were a certain way. He made me responsible for a certain task and then met me with a ton of patience to allow me to learn, which was really formative for me.”



Emily Taylor in the lab with her summer undergraduate research project students. (2019 photo by Emily Taylor)

hands-on learning, I have a duty to pay it forward, especially in the science community,” she said. “If my mentor hadn’t taken the time to teach me, then I wouldn’t be part of the next generation of scientists. So, if I don’t take the time to teach the people coming up after me, then something is lost.”

Now, Taylor feels the need to give back to high school and undergraduate students. During Summer 2019, two high school students spent seven weeks in Dr. AJ Reisinger’s lab as part of the UF Student Science Training Program. She was able to take them into the field and helped them conduct research. Additionally, undergraduate students are a fixture in Reisinger’s lab throughout the year.

“When somebody gives you a gift, this unique experience for

## Research in SWSD

**Dr. Sarah Strauss** is leading a team that is looking into how changes in soil health due to cover crops impact citrus and other sub-tropical tree crops. Specifically, they will examine how quickly soil health can change in Florida's sub-tropical sandy soils and how specific changes in soil health might impact yield. The USDA National Institute of Food and Agriculture recently funded the nearly \$500,000, four-year project. Joining Strauss are soil and water sciences department colleagues Dr. Gabriel Maltais-Landry, assistant professor of sustainable nutrient management systems, and Dr. Allan Bacon, assistant professor of environmental pedology. Dr. Danielle Treadwell, associate professor in the horticultural sciences department, will help expand the scope beyond citrus. Dr. Antonio Castellano-Hinojosa, a post-doctoral associate in Strauss's lab, brings expertise in plant growth-promoting bacteria and their linkage to soil nutrient cycling.



Cover crops grow between rows of citrus trees. (Photo from Dr. Antonio Castellano-

**Dr. Stefan Gerber** is working with UF Electrical and Computer Engineering and Agronomy colleagues on a \$1.2 million USDA-funded project. The team is working to improve the way plant root systems are studied over time. The grant will help the team to study fine-scale plant root dynamics with new sensor technology. Gerber is examining the team's result with the goal to model plant root - soil interaction, to better understand soil organic matter consumption by microbes and therefore predict soil carbon sequestration.

**Dr. Laura Reynolds** and her research team planted two-acres of eelgrass in Lake Apopka this April. The planting brings the total number of acres planted there to six. The eelgrass improves the water quality by reducing nutrients and holding the sediment in place. It also provides a habitat for fish and other aquatic species. The work is in partnership with Duke Energy and the St. Johns River Water Management District is funding the project. Reynolds is collaborating with Dr. Carrie Adams in Environmental Horticulture and Dr. Charlie Martin at the UF/IFAS Nature Coast Biological Station.

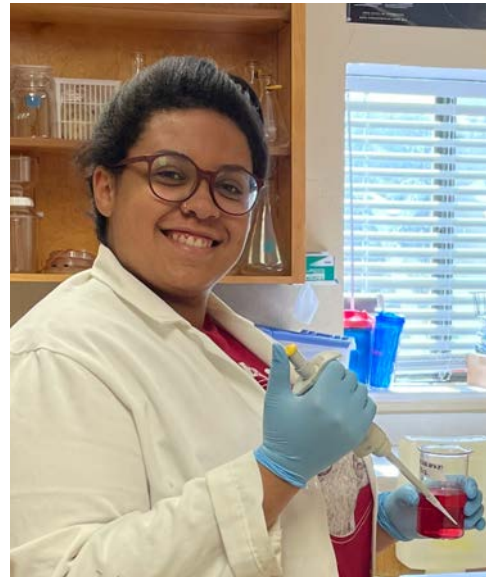


Planting at Lake Apopka, Nov. 2019. (Photo from Dr. Laura Reynolds)

**Dr. Jango Bhadha** and **Dr. Sam Smidt** were awarded a USDA-NRCS Conservation Effects Assessment Project (CEAP) to monitor and assess conservation practices within the Everglades Agricultural Area in South Florida. The objective is to evaluate farming practices, such as crop-rotation and cover-crops, to quantify the environmental effects of conservation practices for managing the agricultural landscape. The project will involve extension agents and support from local stakeholders including growers, the water management district, and FDACS personnel. Some of the geospatial and modeling work will be facilitated by Dr. Young Her in the Agricultural and Biological Engineering Department at the UF/IFAS Tropical Research and Education Center.

## Undergraduate Spotlight: Miranda Jackson

When Miranda Jackson came to the University of Florida, she had a goal in mind. However, as is common with many students, plans – and majors – change. Miranda discovered the Interdisciplinary Studies: Environmental Management in Agriculture and Natural Resources (IS-EMANR) program. This May, she graduates with her B.S. degree.



Miranda Jackson (Photo provided)

### **Hometown**

Fleming Island, FL, which is south of Jacksonville.

### **Transfer or four-year UF student?**

Four-year student, but I transferred from UF campus to UF Online in 2019.

### **Why did you choose EMANR as a major?**

I wanted to be a veterinarian, but that plan unfortunately did not work out. I got into nature trips a while back as a way to see wild animals, because I wasn't able to see them anymore after leaving my job as a veterinary technician. Through those trips, I learned a lot about the environment and environmental issues. I found the Environmental Management major on the UF majors catalog and thought it was a perfect fit!

### **Any particular class(es) that you've enjoyed or found interesting?**

I really enjoyed Wetlands (SWS 4244), taught by Dr. Mark Clark, Managing Public Lands and Waters (FOR 6934), taught by Dr. Clark Seely, and Sustainable Agricultural and Urban Land Management (SWS 4207), taught by Dr. Sam Smidt.

### **Were you involved in any extracurricular activities or clubs?**

I am one of two undergraduate student representatives on the SWSD Diversity, Equity, and Inclusion Committee. I'm currently teaching myself how to code using The Odin Project program, which has been very fun!! Other than that, though, I enjoy weightlifting, reading, and going to theme parks (in non-COVID times!).

**Any study abroad experiences?**

Unfortunately, I have never left the United States! I hope to change that though, after COVID is properly taken care of, and go to Japan for my first trip out of the country.

**Did you have any internships or research work experiences in UF labs?**

I currently work under Dr. Ed Philips at the UF/IFAS Center for Aquatic and Invasive Plants. There, I research the effects of microplastics in local waterbodies, grow algae for biofuel production, and analyze phytoplankton biomass compositions. It's been a great experience and has even allowed me to get properly published in Nature's *Scientific Reports*, which was an honor for me as an undergraduate student.

**Plans after graduation?**

After I graduate with my B. S. degree, I will be completing a Master of Fisheries and Aquatic Sciences degree. Dr. Philips will be my advisor. I'm really excited to learn more about aquatic environments and the animals that live in them. As I complete that degree, I hope to get accepted to the Environmental Sustainability graduate internship at Walt Disney Imagineering in Burbank, California. I've always wanted to live on the west coast and starting it out by being an Imagineer would be the best new beginning!



Miranda in Dr. Ed Philips' lab (Photo provided)

**What is your advice to high school students or undecided undergraduate students?**

In a nutshell, explore all the opportunities you're given and never lose hope that you're on your way to where you should be. Since being accepted to UF, I have changed my major four times, been diagnosed with a learning disability, and completely rewrote my entire "life plan" almost every year. I felt very disappointed when I decided to not pursue veterinary medicine anymore, but it was the best decision I could have made. Also, if you can manage it, get some real-world work experience! I've been granted so many opportunities through the various jobs I've had as a college student. The impacts those have had on my life are immeasurable!

# Alumni Spotlight:

## Debjani Sihi

If there is a continuous theme in Debjani Sihi's career, it is to keep doors open. Now an assistant professor at Emory University, the SWS alumna (Ph.D. 2015) believes being open to different research experiences has given her more depth and breadth in what she can study and teach her students. Likewise, being open to working with new scientists has given her a greater network of colleagues and more research opportunities.



*Debjani Sihi (photo provided)*

“And I still keep my door open to learning, because you’re never too old to learn new things,” Sihi said of her philosophy.

After earning a B.S. degree in agricultural chemistry and soil science, and an M.S. degree in environmental sciences in India, she began to look for opportunities to pursue her Ph.D. The goal was to find a program where she could study the connection between wetlands soil environment and greenhouse gases. In the meantime, she got in touch with Dr. Ramesh Reddy, who was SWS department chair at the time, through a scientist who visited UF as a Fulbright Fellow. That opened the door for her to come to SWS.

“The University of Florida, especially IFAS, has a really highly regarded program,” Sihi explained. “Because I have a background in agriculture, I was very familiar with the land grant mission, but I was also looking for better and broader opportunities.”

She found those opportunities in Dr. Patrick Inglett’s lab. Inglett, an associate professor of biogeochemistry, served as Sihi’s major advisor.

“I got to know very quickly that Debjani was determined, and she was not going to quit. She was talented, as well,” Inglett recalled. “So, for me, it was just a question of using all that potential to build on some of our previous work. Once she got started, she knew where the work could take her.”

“Patrick did a really great job in helping me to become an independent scientist,” Sihi remembers. “He trained me in developing my research designs, presenting at conferences, and preparing my dissertation products. He was there for me when it came to advising about my studies.”

While he kept her on track, Inglett also allowed her freedom to explore her interests.

“He was patient to let me figure out what I need to do, and to get a sense of what is out there, what are the cutting-edge science questions that I can ask,” Sihi said. “He helped me build my dissertation work around the topic (temperature sensitivity of soil organic matter decomposition in tropical/subtropical wetlands) that is at the forefront in the carbon cycle science.”



Debjani Sihi on an airboat in the Everglades. (photo provided)

While she was interested in conducting empirical work, Sihi also had a desire to work on process-based modeling. Dr. Stefan Gerber, associate professor of landscape biogeochemistry, came to the department just before Sihi began her studies. He is an expert in land surface modeling and agreed to serve on her dissertation committee.

“I believe in our initial one-on-one meeting, I expressed my interest in modeling,” Sihi said. “Then it was a really nice marriage between the experimental work that I did in Patrick Inglett’s lab and the modeling study that I did with Stefan Gerber. I learned all the basics of process-based modeling from Stefan.”

“Working with Debjani was a two-way street,” recalled Gerber. “I learned a lot, Debjani had to explain her experimental setups many times over, while we probed the models that have been described in the literature together. The science Debjani developed morphed into a major focus of mine, and we are still working together on how microbial dynamics affect soil carbon storage.”

“SWS Department, UF will always remain very special to me. It gave me the platform to follow my passion along with my ‘partner in crime,’ Biswanath Dari, who is now an assistant professor at Oregon State University,” Sihi said. “I’m grateful to all my mentors, Drs. Patrick Inglett, Stefan Gerber, Kanika Sharma Inglett, Ramesh Reddy, and Thomas Bianchi for their support during my time at UF and beyond.”

## After Graduation

After graduating in 2015, Sihi accepted a position with the University of Maryland Center for Environmental Science (UMCES). She was an assistant research scientist at the Center’s Appalachian Lab. Her supervisor was Dr. Eric Davidson, a world-leader in the field of soil and environmental biogeochemistry.

“The work focused on a Bayesian model-data fusion approach, where I integrated soil and ecosystem models with real-time data collected from the field,” Sihi explained. “For my Ph.D., I did a lot of work in the lab, which is great, but I also had the desire to work with long-term data, big data, which this position allowed.”

The work opened another door to Sihi. The research was in collaboration with work underway at Harvard University. This allowed her to also be a visiting post-doctoral fellow there as the research work overlapped.

“I’m still working with the same team, we just submitted a paper, which is based on the last 25 years of data collection on carbon stocks and fluxes at the Howland Forest in Maine,” Sihi said. “I guess after my Ph.D., I shifted more towards greenhouse gases, so I started working with carbon dioxide, methane, and nitrous oxide, all three significant greenhouse gases emitted by soils from agricultural, forest, wetland, and other landscapes.”

That expanded focus and connections she made while working on the research helped her land a job at the Oak Ridge National Laboratory (ORNL).

“The project for my ORNL position was based on a tropical rainforest in Puerto Rico, the tropical climate/landscape, which I was familiar with,” Sihi said. “I also had the skill set they needed for coupling data collected from lab and field experiments with process-based models, which I collectively gathered from my research works at UF and UMCES.”



Debjani Sihi at work in the lab. (photo provided)

## Faculty Position

Sihi wears many hats: biogeochemist, ecosystem ecologist, environmental scientist, soil scientist, modeler. The toolbox of skills that all those require opened the door to a new opportunity. She was in the job market, and found an announcement of an assistant professor position in Biogeochemistry at Emory University. She applied for the job and was offered the position. She assumed her new role in the Fall 2020 semester.

“I’m in the Department of Environmental Sciences, so they want to spread their work on biogeochemistry, biogeochemical cycles, and I did not know when I was selected for the interview, but later when I visited, I learned they wanted someone with expertise in soil science,” Sihi explained.



She is teaching an introductory soil science course and plans to teach a course in biogeochemistry this fall. She is also setting up her lab space and preparing to build her research team. It is a different experience to start a new position in the middle of a pandemic as you have to rely on the Zoom world for communicating with your new colleagues and students, but Sihi remains positive.

“I am passionate about working in the area that I chose, and that really helped me get the inspiration to work beyond the nine-to-five timeframe,” Sihi said. “If you feel like it's an obligation that's a hard thing to do, but if you're really passionate, you want to do it and you can work on something until you finish the job.”

# CONNECT WITH US

Join us on LinkedIn, Facebook  
& Twitter or signup to receive  
news about the Soil and  
Water Sciences Department.

[click here for details](#)

**UF | IFAS**  
UNIVERSITY of FLORIDA



## Professor selected as the chief editor of new journal

Sabine Grunwald, professor of Pedometrics, Landscape Analysis and GIS in the Soil and Water Sciences Department, is one of the chief editors of a new journal. *Frontiers in Soil Science* debuted in December 2020. She leads the pedometrics section of the journal.

“It is exciting that pedometrics and other soil science topics are now included in the portfolio of Frontiers,” Grunwald said.

*Frontiers in Soil Science* provides “a forum for research excellence in all aspects of soil science.” It invites scientists to submit research in the traditional fields of soil chemistry, physics, and biology as well as those involved in pedology.



Dr. Sabine Grunwald

Frontiers is one of the largest international research publication platforms. Its portfolio contains more than 100 journals covering the physical, medical, and social sciences. All Frontiers articles are published open access, which means there is no cost to access published journal articles.

“It is a wonderful opportunity to represent pedometrics on this growing global research publication platform which features innovative topics such as artificial intelligence, AI (machine learning and deep learning) applied to soil science, quantitative soil health models, soil sensing and spectroscopy, and emergent frontiers in digital soil mapping,” Grunwald added. “Frontiers Journals has over 1 billion article views and downloads annually with broad readership.”

She hopes her role as a chief editor will encourage faculty, post-doctoral associates, and students in the Soil and Water Sciences Department and IFAS to submit their research. More information about *Frontiers in Soil Science* is [HERE](#) and the Pedometrics section is [HERE](#).



**frontiers**  
in Soil Science

Pedometrics



*Congrats!*



## Fall 2020 Graduates

Advisor(s) in parenthesis



### Ph.D.

Katsutoshi "Toshi" Mizuta (Grunwald)

Dipti Rai (Gerber & Silveira)

Kay Wilcox (Gerber)

### M.S.

Timothy Beach (Li)

Rachelle Berger (Daroub & Martens-Habbena)

Qinghong Cui (Lin & Judy)

Zijing Liao (Lusk & Rechcigl)

Joseph Molenda (Lusk)

Perseveranca Mungofa (Schumann & Mylavarapu)

Sainfort Vital (Maltais-Landry)





# Fall 2020 Graduates

## Graduate Certificates

### **Sustainable Land Resource and Nutrient Management**

(Dr. Bacon, certificate administrator)

Christopher Cappiello

Nan Xu

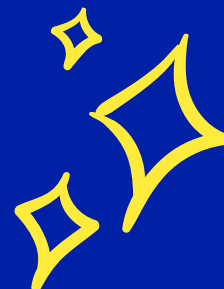
## **Wetland & Water Resource Management**

(Dr. Clark, certificate administrator)

Mary Barnwell

John Hussain

Michael Naymik



# Fall 2020 Graduates



## B.S. Soil & Water Sciences

(Advisor: Bonczek)

Madelene Clark

Sean Coughlin

Lukas Pidgeon

Sierra Richardson



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

(Advisors: Curry & Enloe)

Zoe Crawford

Lynsae Davidson

Michelle Gomez

Hannah Gutner

Pamela Jones

Andrea Mearig

Charles Sardisco

Chelsea Slofkin

John Upchurch

Jason Williams



*Best of  
Luck!*

*Congrats!*



# Spring 2021 Graduates

Advisor(s) in parenthesis

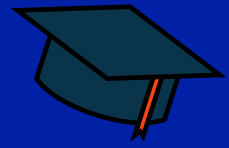
## Ph.D.



Kalindhi Larios (Gerber)  
Conor MacDonnell (P. Inglett)

## M.S.

Taryn Chaya (Osborne)  
Tanyaradzwa Chinyukwi (Kadyampakeni)  
John Hamilton (Osborne)  
Jessica "Arielle" Taylor-Manges (Reynolds)





# Spring 2021 Graduates

## Graduate Certificates

### Soil Ecosystem Services

(Dr. He, certificate administrator)

Daniel Gorsten Schunemann

### Wetland & Water Resource Management

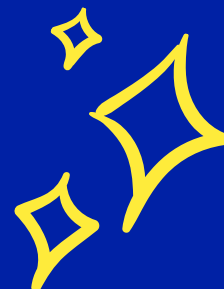
(Dr. Clark, certificate administrator)

John Hamilton

Christopher McNabb

Kristen Ramsey

Gabriella "Bella" Reyes



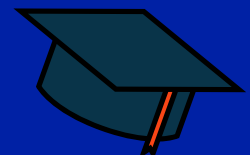
# Spring 2021 Graduates



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

(Advisors: Curry, Enloe, and Sisk)

Nicole Aguilera  
Anthony Bolesta  
Ryan Brissey  
John Valcour Flores  
Regan Fox  
Katharine Frey  
Kenneth Gorham  
Chloe LaCouture  
Kailey McGuire  
Jennifer McKeever  
Hannah McLaren  
Hannah Moore  
Caitlin Morrison  
Matthew Phillips  
Jonathan Ravis  
Maria Jose Robinson  
Katie Yanuzzelli





# Spring 2021 Graduates



## Soil & Water Sciences Minor



(Advisor: Bonczek)

John Valcour Flores

Regan Fox

Katharine Frey

Matthew Godwin

Kyle Harris

Marisha Innis

Kelly LaPlante

Lilyann Linehan

Hannah Moore

Mark Mulhall

Conrad Oberweger

Savannah Peltrau

Paislee Peyton

Samantha Victores

Karen Zhang



*Best of  
Luck!*

# SWSD WELCOMES OUR NEW STUDENTS!

## Ph.D. Students

Advisor(s) in Parenthesis

Julia Barra Netto Ferreira (Sharma)

Love Kumar (Deitch)

Swarnali Mahmood (Sharma)

Perseveranca Mungofa (Schumann)

Ayush Sharma (Sharma)

Shankar Shrestha (Schumann)

## M.S. Students

Advisor(s) in Parenthesis

Salena Alberti (Bhadha)

Mary Barnwell (Daroub)

Anthony Bolesta (Wilkie)

Madison Brown (Smidt)

Juma Bukomba (Lusk)

Ryan Champiny (Lin)

Leidy Cruz (Lusk)

Ryan Czaplewski (Daroub)

Jennifer Draper (Osborne)

Ann Dunn (Daroub)

Savannah Fortune (Smidt)

Navdeep Kaur (Sharma)

Angelique Lopez (Bhadha)

Michelle Metts (Maltais-Landry)

Ryan Moore (Wilson)

Amanpreet Kaur Sandhu (Sharma)

Megan Skeen (Wilkie)

Lauren-Marie Williams (Deitch)

Ashton Woods (P. Inglett)

## B.S. Soil & Water Sciences Students

Advisor: Bonczek

Kendall Breland

Alexander Couture

Maria Fletcher

Aliyah Formont

Yewon Lee

James Prescott

## B.S. Interdisciplinary Studies: Environmental Management in Agriculture and Natural Resources Students

Advisors: Curry, Enloe, and Sisk

Matthew Bolton

Caitlyn Claverie

Sherry Edwards

Daniel Gutierrez

Donavan Hamlet

Evan Harms

Samantha Hudon

Justus Jones

Mahdi Kassam

Christopher Kimble

Jonathan Marks

Maria Reyes-Leon

Ashlyn Ritz

Cassidy Sawallis

Holly Stralka

Regan Tadrowski

Juan Tejada

Martino Trotta

Brenna Ward

Alex Wester

Emily Witt

# Awards, Honors, & Recognition

## STUDENTS

**Xiaoping Xin** (He & Judy) received the Soil and Water Sciences Department Excellence in Graduate Studies Award for her Ph.D. dissertation: *Development, Characterization, and Evaluation of Polymeric Nanoparticles for Application in Agriculture*.

**Audrey Goeckner** (Lusk) received the Soil and Water Sciences Department Excellence in Graduate Studies Award for her M.S. thesis: *Carbon Dynamics of Urban Stormwater Ponds: Burial, Gas Flux, and Dissolved Organic Matter Quality*.

**Katsutoshi “Toshi” Mizuta** (Grunwald) was the SWSD nominee for the UF Institute of Food and Agricultural Sciences Excellence in Graduate Studies Award for his Ph.D. dissertation: *Interfacing Pedometrics and Econometrics to Model the Efficiency of Soil-Ecosystem Functions at Regional Scale*.

**Yuting Fu** (Bhadha) was the SWSD nominee for the UF Institute of Food and Agricultural Sciences Excellence in Graduate Studies Award for her M.S. Thesis: *Investigating the Use of Aquatic Weeds as Biopesticides towards Promoting Sustainable Agriculture*.

**Kaile Zhang** (Liao & Maltais-Landry) received the George J. Hochmuth Education Enrichment Award.

**Nan Xu** (Bhadha & Mylavarapu) and **Miurel Brewer** (Kadyampakeni & Kanissery) received the V.W. Carlisle Fellowship Award.

**Qudus Uthman** (Kadyampakeni & Kizza) received the Sam Polston Fellowship Award.

**Heather Donnelly** (Smyth) and **Taryn Chaya** (Osborne) received the Ben Skulnick Fellowship Award.

**Gabriela “Bella” Reyes** (Smyth & Reynolds), **Samuel Kwakye** (Kadyampakeni), **Amanda Rodriguez** (Nair), and **Emily Taylor** (Reisinger) received the William Robertson Fellowship Award.

**Alexandra Bijak** (Reynolds & Smyth), **Adam Siders** (Whiles & Reisinger), and **Caroline Buchanan** (Judy) received the Biogeochemistry Fellowship Award.

**Corinne Bregman** (Curry & Enloe) received the George J. Hochmuth Education Enrichment Award.

**Cece Collinson** (Curry & Enloe) and **Kathryn Winstanley** (Curry & Enloe) received the Donald A. Graetz Education Award.

**Clayton Nevins** (P. Inglett & Strauss) received the 2021 Wilbur Ellis Graduate Scholarship from the Foundation of Environmental Agriculture Education. It is awarded annually to one graduate student nationwide in support of the agriculture industry.

**Miurel Brewer** (Kadyampakeni & Kanissery) won second place in the Southern Weed Science Society meeting poster competition. More than 100 students presented their research. The title of Miurel's poster was "Exploring the Use of Cover Crops for Suppressing Weeds in Florida's Citrus (*Citrus sinensis*) Orchards."

**Gabriela "Bella" Reyes** (Smyth & Reynolds) received a National Science Foundation Graduate Research Fellowship for her research on mangroves in urban areas. **Amanda Muni-Morgan** (Lusk) received an honorable mention in this year's NSF Graduate Research Fellowship competition.

## FACULTY

**Dr. Ann Wilkie**, research professor of Bioenergy and Sustainable Technology, received the inaugural VP Promise Award. The honor recognizes the exceptional mentorship of undergraduate students within UF/IFAS Research.

Association of Natural Resources Extension Professionals (ANREP) and the Florida chapter of the association (FANREP) award winners:

**Mark Clark**, associate professor of wetland ecology, received the *Outstanding Extension Specialist* award from FANREP. Clark is the UF/IFAS wetland extension specialist.

**Laura Reynolds**, assistant professor of coastal ecology, is part of the team recognized for its *Florida Master Naturalist Program (FMNP) Marine Habitat Restoration* efforts. The team won the following awards: Comprehensive Program Curriculum category – Gold Award, ANREP, and 1<sup>st</sup> Place, FANREP; TV/Video category – Silver Award, ANREP, and 1<sup>st</sup> Place, FANREP; and Long Publication category – 3<sup>rd</sup> Place, FANREP.

**Mary Lusk**, assistant professor of urban soil and water quality, shares the FANREP Outstanding Team award with her colleagues from the Healthy Ponds Certification Program.

**Ashley Smyth**, assistant professor of biogeochemistry, received the FANREP Outstanding 4-H/Youth Development award as part of the *Touring Florida: Wildlife, Water, and Climate Change* team. They also won 2<sup>nd</sup> Place in the FANREP Website/App/Education Technology category.