

Profiles



Department of Soil Science
UNIVERSITY OF WISCONSIN-MADISON

DEC 2023 VOL. 15 NO.1

MESSAGE FROM THE DEPARTMENT CHAIR

As 2023 draws to a close, it is a good time to reflect on some of the milestones, accomplishments, and changes in the Department of Soil Science. First, we thank Professor Alfred Hartemink for his eight years of leadership as Department Chair. Under Alfred's guidance, we were able to expand our faculty and improve our financial standing. Alfred kept us connected to our rich history (most recently with a celebration of F.H. King's 175th birthday), led a curriculum re-design, and navigated University politics in a way that has left our department in a strong position to advance soil science while addressing challenges both local and global in nature. In 2023, we said hello to several new faces. Dr. Natasha Rayne will begin in January as an assistant professor in soil fertility and nutrient management. We also welcomed Maddie Hoffman as a payroll and benefits specialist, Dr. Nadia Noor as a teaching faculty, and Zach Wyman as an academic advisor. While not technically new in 2023, assistant professors Xia Zhu-Barker and Inna Popova each completed their first full calendar year in the department. In 2023, we proudly graduated our first cohort of students from the Environmental Remediation and Management Professional Masters Program. We recently had to say a bittersweet goodbye to financial specialist Dan Capacio who retired in November after 45(!) years of service to the University. Dan's kindness and competence will be missed! And finally, while we have many awards and achievements to celebrate in 2023, we congratulate Assistant Professor Jingyi Huang for his 2023 Early Career Award from the Soil Science Society of America – a well-deserved and prestigious honor! As we bid farewell to a successful 2023, we look forward to 2024, with some very exciting news and opportunities already in the works.



Doug Soldat
Chair

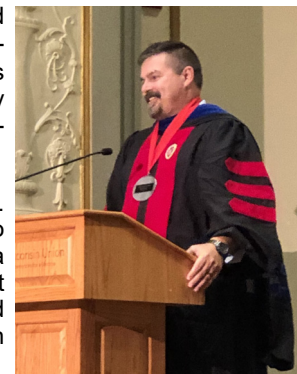
RESEARCH CORNER: RUARK



Matt Ruark, professor and extension specialist in the UW–Madison Department of Soil Science, has been named the inaugural recipient of the Wisconsin Potato and Vegetable Grower BCS Chair at the UW–Madison College of Agricultural and Life Sciences. This new chair is designed to bolster the research program of a CALS faculty member working on potatoes and/or vegetables, and the environmental and economic impacts of these crops. The appointment runs from July 1, 2023 to June 30, 2028.

The chair was established by the Wisconsin Potato and Vegetable Growers Association (WPGVA) to help ensure the ongoing strength of UW's potato research program and the university's ability to support the state's potato producers. The "BCS" in the name honors Larry Binning, David Curwen and John Schoenemann, UW professors who made outstanding contributions in these areas.

Matt's selection as chair recognizes his extensive work on nitrogen management. His research and extension efforts focus on optimizing nitrogen use in potato production and reducing nitrate leaching to groundwater. He has developed data sets which can be used to provide recommendations on nutrient management and identify future opportunities for improvement. Matt is also actively involved in addressing sustainability and water quality goals in grain and dairy production systems, and he is the faculty advisor for the UW Discovery Farms program.



WELCOME

Noah Anderson
(Research Assistant, Whitman)

Evan Mascitti
(Research Associate, Soldat)

Emily Sotelo Edwards
(Soil Technician, Arriaga)

Nadia Noor
(Teaching Faculty)

Tracy Campbell
(Research Associate, Ruark)

Kendra Saunders
(Research Assistant, Popova)

Clare Tallamy
(Research Assistant, Freedman)

Zach Wyman
(Academic Advising Manager)

Hashim Ibrahim
(Research Associate, Popova)

Yavuz Sahin Turgut
(Hon. Assoc. Fellow, Hartemink)

Aundrea Taylor
(Research Assistant, Balster)

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ANTIGO SILT LOAM

STUDENT PROFILE: ANNA STEVENSON

When Anna isn't at her desk or in the lab, you'll often find her tending to her garden plots, armed with a soil knife in one hand and a packet of seeds in the other. Raised in Madison, she is proud to be using her passion for gardening and soil science to deepen our understanding and appreciation of urban soils. Anna earned her BS in Soil Science from UW-Madison in 2021 and is currently pursuing her PhD with Professor Alfred Hartemink in the FD Hole Soils Lab. Her research focuses on understanding state-wide urbanization trends and their impacts on soil resources. She is also assessing and making available data on soil attributes in community gardens across Madison and Milwaukee. She is interested in the connections between land use history, present management practices, and socioecological factors, examining their influence on soil quality and health in these small but mighty urban food production systems. Anna plans to use a combination of traditional laboratory analyses, spectral inference with proximal soil sensors (i.e., mid-infrared and x-ray fluorescence spectrometers), and geographic information systems (GIS) to understand patterns in soil attributes. Her goal is to empower gardeners and urban land managers to foster soils-focused perspectives in urban food production and land management.



DEPARTMENT NEWS

Matt Ruark received USDA-NIFA funding for carbon farming impacts on soybean yield. The project entitled, "Carbon Farming: Does enhancing soil carbon boost soybean yield?" is one of 17 projects sharing the \$5.3 million in funding.

Congratulations to **Travis Miller** (Soil Sci MS student, Soldat) on his oral presentation at the Soil Science Society of America in the Turfgrass Division garnering 2nd place. Also, congratulations to **Afona Irabor** (Plant Path PhD student, Ruark and Gevens) was awarded 2nd place in the Soil Health community student oral competition.

The department celebrated **Dan Capacio's** 45 years of service to UW-Madison with a retirement party. As our financial specialist, he was the first person to greet individuals visiting the department. His easy going manner and excellent service will be greatly missed by everyone. We wish Dan all the best in retirement!

Yakun Zhang has been selected as the 2023 recipient of the Soil Science Society of America Pedology Division Award. This award acknowledges her contributions to pedology through the development of methods and techniques that advance pedology.



Geoff Siemering



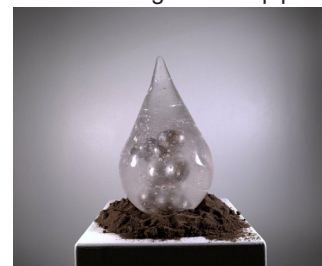
Abby Sunde

Geoff Siemering partnered with UW-Madison student Abby Sunde in the 2023 Flow Project, which brings together undergraduate artists from all 13 UW System Schools to partner with water professionals to make art inspired by water. Abby's piece, "Mercury, Suspended," paid homage to Geoff's investigation of mercury contamination from artisanal small-scale gold mining on the Peruvian Amazon aquatic ecosystem (*National Geographic*-funded, multiuniversity collaboration). Thanks to a Community-Based Water Research Grant from Water@UW-Madison and UW's Morgridge Center for for Public Service, Abby and Geoff are together supporting a citizen-scientist group, Waadookaawad Amikwag, that is working to detect damages to watersheds stemming from the Enbridge Line 3 pipeline

replacement in northern Minnesota. Through a USDA Tribal Student Fellowship, Abby is further helping this effort and also making art tied to it, with Geoff as her mentor.

The Hartemink research group recently had the paper entitled, "Rates of soil organic carbon change in cultivated and afforested sandy soils," published in *Agriculture, Ecosystems & Environment*. **Annalisa Stevenson** is the lead author with coauthors **Yakun Zhang, Jingyi Huang, Jie Hu, Keith Paustian, and Alfred Hartemink**.

Jingyi Huang received the Soil Science Society of America Early Career Award recognizing him as a professional who has made outstanding contributions in Soil Science within seven years of completing his final degree.



"Mercury Suspended" by Abby Sunde

Be sure to check out the latest issue of *GROW* magazine for an article entitled, "The Turf Manager's Apprentices," about the Farm and Industry Short Course program that provides "supercharged" training for turfgrass management roles at golf courses, lawn care companies, and more. The program was started by **Doug Soldat** and Paul Koch (Plant Pathology), with an aim to train newcomers to the field as well as those already working in turfgrass management who want to increase their knowledge.

JAMES G. BOCKHEIM DISTINGUISHED LECTURESHIP

The department hosted its annual **James G. Bockheim Distinguished Lectureship** on October 18. Dan Egan, environmental journalist and author of *The Devil's Element: Phosphorus and a World Out of Balance*, joined us and led a discussion on the impact of phosphorus on the world - historically, culturally, agriculturally, and environmentally. The large and diverse audience enthusiastically embraced the discussion format of this year's presentation.

The lectureship is made possible by the generosity of Jim and Julie Bockheim to this Distinguished Lectureship in Soil Science Fund.



l-r Jim Bockheim, Julie Bockheim, Dan Egan, and Doug Soldat

STAFF PROFILE: NADIA NOOR

Nadia Noor joined the Department of Soil Science in August 2023, as a Teaching Faculty. She finished her PhD program in Soil Biogeochemistry at The University of Georgia, Athens-GA in 2021. Her expertise is in soil biogeochemical interaction in different redox fluctuating conditions. She did her PhD research on the bioavailability of soil organic carbon associated with short-range ordered Fe-oxide minerals exposed to the redox gradient environment in the presence of native soil microbes. She continued exploring soil as a post-doctoral fellow at the University of Georgia where she focused on the nitrogen mineralization potential of soils from different states of the USA and how different indices to measure the N mineralization potential of soil get impacted by changes in soil organic matter content and texture. She completed her BS degree in Soil Science and MS in Soil and Environmental Science from the University of Dhaka, Bangladesh. Her MS research focused on biochar's effect on the phytoavailability of soil arsenic and other heavy metals. While doing her MS she also worked at the Bangladesh-Australia Center for environmental research as a research associate on the arsenic problem of Bangladesh soils. After completing her MS, she worked in three public universities in Bangladesh as a Lecturer including the University of Dhaka. While working as a teaching assistant (during her PhD program), she immensely enjoyed teaching which made her choose a teaching-focused career rather than a research-focused one.



She enjoys traveling, gardening, singing, and spending time with her family.

ALUMNI UPDATES

Laura Bybee (MS 2019) is a Soil Conservationist with the USDA-NRCS office in the Vernon County, Wisconsin.

Leslie Sherman (PhD 1997) has been promoted from associate to full professor and is the W. Alton Jones Professor of Chemistry and Environmental Science, as well as Chair of the Department of Chemistry at Washington College, Chestertown, Maryland.

Kang Xia (PhD 1997) is a Professor at and the Director of the Center for Advanced Innovation in Agriculture and Interim Associate Director of the Virginia Agricultural Experiment Station (VAES), Virginia Tech.

Zhang, Yakun (PhD 2019) will begin as an assistant professor at Oregon State University this January.

RECENT GRADUATES

UNDERGRADUATE DEGREES

Freed, Evan | Soil Science BS

Koffron, Cole | Soil Science BS and Environmental Sciences BS

Mandella, Brady | Soil Science BS

GRADUATE DEGREES

Alramadhan, Ahmad | Environmental Remediation & Mgmt MS

Daly, Jordan | Environmental Remediation & Mgmt MS

Nosal, John R. | Environmental Remediation & Mgmt MS

Anderson, Hannah | Soil Science MS (Freedman)

Root exudation and rhizosphere microbial recruitment are influenced by novel cultivar development in organic carrot production

Benning, Claire | Agroecology MS (Ruark)

Growth and benefits of interseeded cover crops in organic corn systems

Crane, Walker | Soil Science MS (Arriaga)

Optimizing cover crop and manure management practices for corn silage systems to reduce water quality impacts

Grover, Salvador | Agroecology MS (Freedman)

*Early production of Switchgrass (*Panicum virgatum*) and willow (*Salix* spp.) indicates carbon accumulation potential in Appalachian marginal soil*

Luo, Mengmeng | Soil Science and Agroecology MS (Ruark/Whitman)

Impacts of subsequent fire on physical, chemical, and biological characteristics of preexisting Pyrogenic organic matter

Miller, Travis | Soil Science MS (Soldat)

Impact of sand topdressing on measurements of bentgrass putting green performance

Winanto, Hendri | Soil Science MS (Huang)

Soil greenhouse gas (GHG) monitoring and modeling under natural and managed ecosystems

Nayela Zeba | Soil Science PhD (Whitman)

The other dark matter: Pyrogenic organic matter (PyOM) cycling by post-fire soil microbes

Rawal, Ashmita | Soil Science PhD (Ruark)

Nitrogen uptake and nitrogen demand of potatoes on sandy soil

West, Jaimie | Soil Science PhD (Whitman)

Bacterial communities under soil disturbance: From experimental mixing in the lab to tillage and bioturbation in the field

Department of Soil Science at the University of Wisconsin-Madison

The Department of Soil Science is deeply grateful to its alumni and friends. Your generous support is appreciated, and we thank you! To join other students, alumni, industry, and friends in enhancing the teaching, research, and outreach programs in the department, please consider donating to one of our various funds. A complete list of funds available can be found on our website (<https://soils.wisc.edu/giving/>).

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Profiles

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Alumni Update

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or send your updates via email to: jgarvin2@wisc.edu

Name:

Degree(s) and Year(s): BS () MS () PhD ()

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