

# Profiles



ANTIGO SILT LOAM

## MESSAGE FROM THE DEPARTMENT CHAIR

Greetings!

Our department now seems to be the only Department of Soil Science in the US. Departments at other universities across the country (as well as in many other countries) have been merged, relabeled or closed. Some of the merged and relabeled departments have been more successful than others, but in several cases it seem to have resulted in diluted - if not decreased - soil science capacity. Fortunately, we have been able to maintain our strong research, teaching and extension because of the support from the College and University which values the relevance of our work and the importance of soil science for the judicious management of the earth's soil resources.



Naturally, we are aware of the necessity for adaption and change, but most of that need is driven by our determination to remain at the frontiers of the soil science discipline. The department aspires to grow on all fronts for we continue to deliver essential expertise for the college as well the university. We have set ambitious but realistic goals for the coming five years that include, for example, the development of new high enrollment courses, hiring of new faculty, develop a revenue generating Professional Master Program, and growing the Environmental Science Major. Our soil science courses are well-subscribed and our students (we graduate more MS and PhDs than BS students) all find jobs fairly promptly. Research funds are always tight and competition is stiff, but our research is quite well-funded which reflects the demand for good soil science. We are extremely grateful for all the alumni donations, most of which are being used for student fellowships or research support. We like to invest in people for little science, teaching and outreach is done without them.

Soil science at University of Wisconsin-Madison was started in 1889. From a scientific point of view, we are scratching the surface of our understanding, and we know that there is much to be discovered and even more to be learned. Every day we work on that, and realize that we were the first department of soils in the US. Now, almost 130 years later we are the first again. The soil science discipline is vibrant and thriving; our future is bright!

Season's greetings and best wishes for 2019 from all of us in soils in Madison.

**Alfred Hartemink**

## JAMES G. BOCKHEIM DISTINGUISHED LECTURE IN SOIL SCIENCE

The first annual James G. Bockheim Distinguished Lectureship in Soil Science was held on November 14. Dr. Sylvie Quideau, Professor in the Department of Renewable Resources at the University of Alberta in Edmonton, Canada was this year's presenter. Her presentation entitled, "Soil carbon: the labile, the stable, the unknown," was well attended by students, staff, and faculty from around campus.

This lectureship is made possible by the generosity of James and Julie Bockheim and the James G. Bockheim Distinguished Lectureship in Soil Science Fund.



*Emeritus Professor of soil science James Bockheim (center) and Julie Bockheim (right) with 2018 James G. Bockheim Distinguished Lecture presenter, Dr. Sylvie Quideau*

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## RESEARCH CORNER: MATT RUARK



The popularity of cover crops has led to a doubling of acres planted over the past eight years. However, there remain many questions about cover crop management and the quantifiable benefits of cover crops in Wisconsin. Dr. Ruark's Nutrient Cycling and Agroecosystems Laboratory has been conducting cover crop research trials since he started at UW-Madison in 2008. He has worked with many types of cover crops, but it is the legume cover crops (red clover, berseem clover, and crimson clover) that have dominated his research interests in recent years. These cover crops function as green manures, supplying nitro-

gen to the subsequent corn crop and in many cases, have also led to yield gains. His most recent work involves planting red clover into standing corn crops early in the season, which if beneficial, will lead to an increase in cover crop use in corn rotations. Through his collaboration with others in Wisconsin and the Midwest, he has developed a cover crop selector tool ([mccc.msu.edu](http://mccc.msu.edu)) which provides recommendations for planting windows for each cover crop species. The tool also provides cover crop recommendations based on the goal of the cover crop use (e.g., erosion control, nitrogen sources, soil builder, etc.). His lab group, led by Research Associate Chelsea Zegler and former Research Associate Jaimie West, has conducted dozens of cover crop trials throughout the state. His current students, Miranda Sikora and Alexandra Walters are studying the benefits of cover crops in organic production systems and sandy soil cropping systems, respectively.

## STAFF PROFILE: GEOFF SIEMERING

Geoff Siemering, Outreach Specialist, has been with the department since 2014. His work mostly focuses on stakeholder driven questions about behavior of contaminants in soil and water at the nexus of science, policy, and public health. This has led to a diverse research background including aquatic herbicide environmental impacts, long term storage of radioactive waste, and cheese maker wastewater disposal. Currently he is involved in projects looking at historic lead mine contamination of soil in the Driftless Region and organic contaminants in Milwaukee soil. Geoff is also a member of the Wisconsin Brownfield policy advisory board.

Geoff received his M.S. in Soil Science from the University of California, Berkeley where his thesis was on the behavior of uranium in Central Valley wetland sediment. Prior to moving to Madison, he worked at Lawrence Livermore and Lawrence Berkeley National Laboratories as well as the San Francisco Estuary Institute.



## STUDENT PROFILE: LAURA BYBEE



Laura never saw grad school in her future until she was looking for a way to apply her chemistry degree in the agricultural sector. She grew up on a hog and row farm near Rockford, IL. She attended Coe College, a small liberal arts college in Iowa, where she completed her degree in chemistry. Coe's summer research program also fostered a love of lab work particularly when combined with field work. For three summers, she did water quality research where the group monitored nitrate levels in tile drainage. After graduation, she spent five months hiking the Appalachian Trail before joining the Barak lab in January 2017.

Laura is currently working on developing a method to calculate nitrogen losses from animal husbandry operations and testing a technology called electrodialysis to recover the otherwise lost nitrogen. She takes manure samples at various points in the manure handling process and compares their isotopic ratios of nitrogen. Electrodialysis is a technology where a charge is applied to a membrane stack and ions flow into different channels creating a concentrated stream and a diluted stream. The concentrated stream enriched with ammonia can be turned into a fertilizer product for farmers to use or sell.

## OUR SUPPORTERS

5/16/2018 to 11/30/2018

Prof. and Mrs. Barak  
Prof. and Mrs. Bockheim  
Mr. and Mrs. Brooks  
Prof. and Dr. Brown  
Dr. and Mrs. Cates  
Dr. Chapman  
Dr. and Mrs. Checkai  
Mr. Daniels  
Mr. and Mrs. Duffy  
Great Lakes Agronomy, LLC  
Prof. and Mrs. Harris  
Prof. Hartemink  
Mr. Hess  
Mr. Hole  
Mr. and Ms. Jankus  
Prof. and Mrs. Kelling  
Prof. Kirkham  
Mr. and Ms. Krueger  
Ms. Lund  
Dr. and Dr. Morgan  
Mr. and Ms. Morgridge  
Mosaic Global Sales, LLC  
Mr. Mulcahy  
National Turfgrass Evaluation Prog.  
Prof. and Mrs. Norman  
Dr. Pan  
Dr. Randall  
Mr. Sasman  
Mr. Shehadeh and Ms. Elshareif  
Simplot Partners  
Prof. and Dr. Sommers  
Prof. and Mrs. Stroehlein  
Ms. Tanner  
Mr. Timmons  
Valent  
Dean Emeritus Walsh and Ms. Boekhoff Walsh  
Mr. Wenzel  
WI Agri-Business Assoc.  
WI Potato and Veg. Growers Assoc.

## RECENT GRADUATES GRADUATE DEGREES

### Boswell, Edward P. - PhD, 2018

Soil Science (RA, Balster)  
*Experimental Changes in Snow Cover on Freeze-thaw Cycling, Soil Aggregate Properties, and Organic Carbon Pools in an Agricultural Field and a Restored Prairie in Southwestern Wisconsin.*

### Henke, Benjamin M. - MS, 2018

Soil Science (RA, Soldat)  
*Creating Growing Degree Day Models for the Reapplication of Plant Growth Regulators to Kentucky Bluegrass at Various Mowing Heights.*

### Jensen, Amanda K. - MS, 2018

Soil Science (RA, Barak)  
*Ammonia Recovery from Wastewater Using a Lab-Scale Electrodialysis Prototype.*

### Kranz, Christina N. - MS, 2018

Soil Science (RA, Whitman)  
*Prescribed Burning Effects on Jack Pine from High and Low Serotiny Regions: Microbial Interactions and Soil Properties.*

### Richardson, Gregory S. - MS, 2018

Soil Science and Agroecology (RA, Ruark)  
*The Influence of Farm Management Practices and Soil Properties on Soil Organic Matter Pools.*

## WELCOME

The department has numerous new graduate students and staff members to welcome:

**Nick DeMarsh** (PhD, Ventura)

**Hannah Francis** (MS, Ruark)

**Kyle Kettner** (MS, Arriaga)

**Jacob Kruse** (MS, Barak)

**Miranda Sikora** (MS, Ruark)

**Alexandra Walters** (MS, Ruark)

**Edward Boswell** (Assistant Faculty Associate)

**Jacob Price** (Research Associate, Whitman)

**Dr. Chaoxiu Ren** (Honorary Associate Fellow, Pedersen)

## DEPARTMENT NEWS CONGRATULATIONS

**Thea Whitman** has been selected to receive an Elton D. and Carrie R. Aberle Faculty Fellow Award. The award was established by former CALS Dean Abe Aberle and his wife and is designed to recognize and reward promising young faculty within CALS by providing support and encouragement during the critical pre-tenure period.

**Dick Cates** has retired after serving 24 years with UW-Madison and CALS. A reception was held Nov. 1 in the Jackson-Tanner Commons to honor the former director of the Wisconsin School for Beginning Dairy and Livestock Farmers, a cooperative effort of the Center for Integrated Agricultural Systems with the Farm and Industry Short Course here at UW-Madison in CALS.

The 21st World Congress of Soil Science was held this past August in Rio de Janeiro, Brazil where **Alfred Hartemink** was awarded a Medal and Presidential Award of the Brazilian Society of Soil Science for his contributions to the World Congress of Soil Science.

Data Science Initiative recipient, **Thea Whitman** was selected for her project entitled, "Addressing Misclassification in the Microbiome: A Data-scientific Approach to Propagating Uncertainty in Microbial Community Composition." Her proposal was selected as one of 10 highly innovative projects from among the fifty-four proposals submitted from across campus.

As part of CALS redesign efforts and the creation of a new collaborative between the Departments of Soil Science and Biological Systems Engineering, a **Soils-BSE coffee social** was held Friday, Nov. 16. Dean Kate VandenBosch joined faculty and staff from both departments as they gathered to meet new friends and reacquaint with old.

### SAVE THE DATE!

Wednesday, April 24, 2019 is the date of the 7th annual Leo M. Walsh Distinguished Lectureship in Soil Science. Dr. Don L. Sparks, Professor in the Department of Plant and Soil Sciences at the University of Delaware will be our guest presenter. The Department wishes to thank **Leo Walsh** and **the Leo M. Walsh Distinguished Lectureship in Soil Science Fund** for making this opportunity a possible.

## Department of Soil Science at the University of Wisconsin-Madison

I/we wish to join other students/alumni, industry, and friends in enhancing the teaching, research, and outreach programs in the Department of Soil Science by contributing as indicated below.

\_\_\_ \$50    \_\_\_ \$100    \_\_\_ \$250    \_\_\_ \$500    \_\_\_ \$1,000    \_\_\_ Other

Please charge my gift of \$\_\_\_\_\_ to my (please circle):    Mastercard    Visa    American Express

Card Number: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

Cardholder's Name (please print): \_\_\_\_\_

Cardholder's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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Home Phone: \_\_\_\_\_ Work Phone: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

If paying by check, please make your check payable to the UW Foundation-Department of Soil Science and mail to:  
University of Wisconsin Foundation • US Bank Lockbox • P.O. Box 78807 • Milwaukee, WI 53278-0807

Online donation is available on our website <http://soils.wisc.edu/alumni-friends/>

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## IN MEMORIAM

**Floyd R. Holloway** (BS, 1947) passed away on May 22, 2018. He worked closely with UW-Madison and UW Extension, conducting field trials on his family farm. As an innovator in agriculture, he was the first farmer in Kenosha County to have a documented corn yield to exceed 100 bushels per acre in 1953.



**SOILS OF WISCONSIN**  
Department fieldtrip to Marshfield, Kemp Station, and the Central Sands. Participants (l-r): Prof. Alfred Hartemink, Prof. Jingyi Huang, Greg Richardson, Hans Klopp, Prof. Thea Whitman, Ada Zhou, Yakun Zhang, Prof. Will Bleam

## Alumni Update

**We'd love to hear from you!** Please complete and return this form or send your updates via email to: [jgarvin2@wisc.edu](mailto:jgarvin2@wisc.edu)

Name: \_\_\_\_\_

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

Home Address: \_\_\_\_\_

Email: \_\_\_\_\_ Phone No.: \_\_\_\_\_

Position: \_\_\_\_\_ Employer: \_\_\_\_\_

News to share: \_\_\_\_\_

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