Christine D. Sprunger

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Education

Ph.D. in Crop and Soil Sciences Dec. 2015
and Ecology, Evolutionary Biology, and Behavior
Michigan State University

B.S. in Forest Resources, with Honors June 2010
University of Washington

B.A. in Environmental Studies, Minor in Human Rights June 2010
University of Washington

Appointments

Assistant Professor of Soil Health Aug. 2022 - Present
Michigan State University
W. K. Kellogg Biological Station
Department of Plant, Soil, and Microbial Sciences

Assistant Professor of Soil Science and Rhizosphere Processes 2018-2022
School of Environment and Natural Resources, The Ohio State University
InFACT Discovery Theme

Post-doctoral Research Scientist 2018
School of Environment and Natural Resources, The Ohio State University

NSF Post-doctoral Fellow in Biology 2016-2018
Agriculture and Food Security Center, Columbia University

National Ford Foundation Pre-Doctoral Fellow 2012-2014
Plant, Soil, and Microbial Sciences, Michigan State University

Professional Experience

Hazardous Waste Inspector and Compliance Officer 2008-2010
Supervisor: Jeff KenKnight
U.S. Environmental Protection Agency, Region 10; Seattle, WA

- Led hazardous waste inspections and extracted samples for evidence. Prepared penalty calculations for enforcement cases. Wrote inspection reports and enforcement documents. Other responsibilities included producing a strategy report focused on inspection targeting. Served as the Alaska State Coordinator from June 2009-Sept. 2010.

Publications

*denotes Sprunger lab advisee +denotes student co-author/mentee in collaborative lab

Under Review

Sprunger, C.D. and Martin, T.K. *Under Review.* An integrated approach to assessing soil biological health. *Advances in Agronomy.*

+Vàzquez-Catoni, A.M., **Sprunger, C.D.,** and Benitez Ponce, M.S. *Under Review.* History of chicken grazing stunts tomato seedling growth and influences associated bacterial endophytes. *Communications in Soil Science and Plant Analysis.*

*Martin, T.K. and **C.D. Sprunger**. *Under Review.* Nematodes require space: The relationship between nematode community assemblages and soil carbon across varying aggregates sizes. *Geoderma.*

*Singh, P., Kawa, N., **C.D. Sprunger.** *Under Review.* More questions than answers: Ohio farmers perceptions of novel soil health data and their utility for on-farm management. *Agroecology and Sustainable Food Systems.*

Keiser, A., +Palmer, C., **C.D. Sprunger**. *Under Review.* Changing the narrative: Applying soil ecological principles to restore soil health. *Soil Biology and Biochemistry.*

Published

23. **Sprunger, C.D,** A. Lindsey, *A. Lightcap**.** 2023. Above and belowground linkages during extreme moisture excess: Leveraging knowledge from natural ecosystems to better understand implications for row-crop agroecosystems. *Journal of Experimental Botany.* https://doi.org/10.1093/jxb/erad045

- Invited paper for special issue on Enhancing the Resilience of Plant Systems to Climate Change
- USDA Funded flooding experiment photo selected for cover

22. +Leiva Soto, A. Culman, C., Herms, C., **Sprunger, C.,** Doohan, D. 2023. Managing soil acidity vs. soil Ca:Mg ratio: what is more important for crop productivity? *Crop, Forage, and Turfgrass Management.* https://doi.org/10.1002/cft2.20210

21. *Martin, T.K. and **C.D. Sprunger**. 2022. Sensitive measures of soil health reveal carbon stability across a management intensity and plant biodiversity gradient. *Frontiers in Soil Science. 2:7.* https://doi.org/10.3389/fsoil.2022.917885

- Invited paper for special issue on Soil Health and Security.

20. *Martin, T. and **C.D. Sprunger.** 2022. Soil food web structure and function in annual row-crop systems: How can nematode communities infer soil health? *Applied Soil Ecology, 178, 104553.* https://doi.org/10.1016/j.apsoil.2022.104553

19. Wade, J., S.W. Culman, C.K. Gasch, C. Lazcano, G. Maltais-Landry, A. J. Margenot, *T.K. Martin, T. S. Potter, W.R. Roper, M.D. Ruark, **C.D. Sprunger**, M.D. Wallenstein. 2022. Rigorous, empirical, and quantitative: a proposed pipeline for soil health assessment. *Soil Biology and Biochemistry, 170*, 108710. https://doi.org/10.1016/j.soilbio.2022.108710

18. *Martin, T., S.W. Culman, and **C.D. Sprunger.** 2022. Quality or Quantity? Determining the impact of fine root traits on soil health in row-crop agriculture. *Journal of Soil Science and Plant Nutrition, 22, 2322-2333.* https://doi.org/10.1007/s42729-022-00811-1

17. *Martin, T., J. Wade., *P. Singh, and **C.D. Sprunger.** 2022. The integration of nematode communities into the soil biological health framework by factor analysis. *Ecological Indicators. 136, 108676.* https://doi.org/10.1016/j.ecolind.2022.108676

16. *Martin, T. and **C.D. Sprunger**. 2021. Belowground dynamics influence nitrogen cycling and crop productivity in diversified corn systems. *Frontiers in Sustainable Food Systems. 5:705577.* https://doi.org/10.3389/fsufs.2021.705577

- Invited paper for special issue on Ecological Nutrient Management as a Pathway to Zero Hunger.

15. Mestelan, S., N. Smeck, **C.D. Sprunger**., +A. Dyck, and W. Dick. 2021. Four decades of continuously applied tillage or no-tillage on soil properties and soil morphology. *Agrosystems, Geosciences, & Environment, 4(3),* e20195. https://doi.org/10.1002/agg2.20195

14. **Sprunger, C.D.**, S.W. Culman, L. Deiss, C. Brock, and D. Jackson-Smith. 2021. Which management practices influence soil health in Midwest organic corn systems? *Agronomy Journal. 113:5,* 4201-4219. http://dx.doi.org/10.1002/agj2.20786

13. Chaganti, V.N., S.W. Culman, C. Herms, **C.D. Sprunger,** C. Brock, +A. Leiva Soto., and D. Doohan. 2021. Base cation saturation ratios, soil health, and yield in organic field crops. *Agronomy Journal. 113:5, 4190-4200.* https://doi.org/10.1002/agj2.20785

12. Culman, S.W., Brock, C., Doohan, D., Jackson-Smith, D., Chaganti, V.N., Herms, C., Kleinhenz, M., **Sprunger, C.D.,** and Spargo, J. 2021. Base cation saturation ratios vs. sufficiency level of nutrients: a false dichotomy in practice. *Agronomy Journal, 113:6, 5623-5634*. https://doi.org/10.1002/agj2.20787

11. *Martin, T. and **C.D. Sprunger.** 2021. A meta-analysis of nematode community composition across soil aggregates: Implications for soil carbon dynamics. *Applied Soil Ecology, 168,* 104143. https://doi.org/10.1016/j.apsoil.2021.104143

10. O'Neill**,** B.E., **C.D. Sprunger** and G.P. Robertson. 2021. Do soil health tests match farmer experience? Assessing biological, physical, and chemical indicators in the upper

Midwest United States. *Soil Science Society of America Journal, 85,* 903-918. https://doi.org/10.1002/saj2.20233.

- **Featured in CSA News June 2021 Issue:** https://acsess.onlinelibrary.wiley.com/doi/10.1002/csan.20463

9. Lin, E., **C.D. Sprunger,** and +J. Hwang. 2021. The Farmer's Battlefield: Traditional ecological knowledge and unexploded ordnances in Cambodia. *Agriculture and Human Values*, *38,* 827-837. https://doi.org/10.1007/s10460-021-10195-0.

8. **Sprunger, C.D.** *T. Martin, and *M. Mann. 2020. Systems with greater perenniality and crop diversity enhance soil biological health. *Agricultural and Environmental Letters, 5,* e20030. https://doi.org/10.1002/ael2.20030.

- **Awarded 'Featured Article' for issue**

- **Featured in CSA News March 2021 Issue:** https://acsess.onlinelibrary.wiley.com/doi/full/10.1002/csan.20414.

- **Named 2022 Outstanding Paper of the Year:** https://www.agronomy.org/publications/awards/

7. **Sprunger, C.D.**, S.W. Culman, Peralta, A.L. DuPont, S.T., Lennon, J.T., and Snapp, S.S. 2019. Perennial grain crop roots and nitrogen management shape soil food webs and soil carbon dynamics. *Soil Biology and Biochemistry*, *137*, 107573. https://doi.org/10.1016/j.soilbio.2019.107573

6. **Sprunger, C.D.,** S.W. Culman, M. Thuita, C.A. Palm, and B. Vanlauwe. 2019. Long-term application of low C:N residues enhances maize yield and soil nutrient pools across Kenya. *Nutrient Cycling in Agroecosystems, 114,* 261-276. https://doi.org/10.1007/s10705-019-10005-4

5. +Pugliese, J.Y., S.W. Culman, and **C.D. Sprunger**. 2019. Grain and forage harvest of a perennial grain crop, Kernza (*Thinopyrum intermedium)*, increases its productivity and soil nutrient cycling. *Plant and Soil, 437,* 241-254. https://doi.org/10.1007/s11104-019-03974-6

4. **Sprunger, C.D.,** S.W. Culman, G.P. Robertson, and S.S. Snapp. 2018. How does nitrogen and perenniality influence belowground biomass and nitrogen use efficiency in small grain cereals? *Crop Science, 58, 2110-2120.* https://doi.org/10.2135/cropsci2018.02.0123

3. **Sprunger, C.D.,** S.W. Culman, G.P. Robertson, and S.S. Snapp. 2018. Perennial grain on a Midwest Alfisol shows no sign of early soil carbon gain. *Renewable Agriculture and Food Systems, 33,* 360–372. https://doi.org/10.1017/S1742170517000138

2. **Sprunger, C.D.** and G.P. Robertson. 2018. Early accumulation of active fraction soil carbon in newly established cellulosic biofuel systems. *Geoderma, 318,* 42-51. https://doi.org/10.1016/j.geoderma.2017.11.040
1. **Sprunger, C.D.,** L.G. Oates, R.J. Jackson and G.P. Robertson. 2017. Plant community composition influences fine root production and biomass allocation in perennial bioenergy cropping systems of the upper Midwest, USA. *Biomass and Bioenergy, 105,* 248-258. http://dx.doi.org/10.1016/j.biombioe.2017.07.007.\

In Preparation:

*Naasko, K. *Martin, T.K., *Murray, J. and *Mann, M, **Sprunger, C.D.** Soil protein: a key indicator of soil health and nitrogen management. *To be submitted to Soil Science Society of America Journal (Spring 2023).*

Sprunger, C.D., *M. Mann, and S.W. Culman. Tillage intensity and crop rotational diversity drive aggregate stability on organic farms across the Eastern Corn Belt. *To be submitted to Organic Agriculture (Spring 2023).*

*Martin, T.K. *Naasko, K., Malcarino, A., Bennet, A., **Sprunger, C.D.** The omics of soil health in no-till agricultural systems. *To be submitted to Soil Biology and Biochemistry (Summer 2023).*

Loggenberg, A., Fourie, H., Smith, H., Haney, R., *Martin, T.K., **Sprunger, C.D.,** Du Preez, G. Soil ecosystem restoration under maize-based conservation agriculture in South Africa. *To be submitted to Applied Soil Ecology (Summer 2023).*

*Naasko, K., *Martin, T.K., *Mann, M., Lindsey, A.L., **Sprunger, C.D.** The microbiome of flooded conditions provides early indications of resiliency in agroecosystems. *To be submitted to Nature Microbiology (Fall 2023).*

Book Chapters

Sprunger, C.D. *Martin, T.K., and *Singh, P. Integrating perennials into agroecosystems for enhanced soil biodiversity and long-term sustainability. *Under Review.* Biodiversity and Bioeconomy. K. Singh (Ed.). Elsevier, Amsterdam, Netherlands.

Published Datasets

Sprunger, C. D. and G. P. Robertson. 2018. Data from: Early accumulation of active fraction soil carbon in newly established cellulosic biofuel systems. *Dryad Digital Repository*. https://doi.org/10.5061/dryad.7jq46.

Extension Materials

Culman, S., L. Deiss, B. Fortune, M. Gingery, *M. Mann, C. Sprunger, E. Hawkins, C. Brown, T. Hurriso, A. Fulford, D. Francis, L. Lindsey, B. Bergefurd. 2022. Baseline Assessment of Soil Health in Ohio. The Ohio State University Extension.

Competitive Grants

Submitted Grant Proposals:

Sprunger, C.D. Exploring the efficacy of prairie strips as a soil health promoting practice. North Central SARE. Pre-proposal submitted: Oct. 11, 2022. Selected to submit full proposal March 30, 2023 (37/141 invited to submit full proposal).

Bronikowski, A., F. Janzen, S. Roy, **C.D. Sprunger.** RaMP: Training the next generation of diverse scientists to address global change biology: A mentorship program between Kellogg Biological Station and regional businesses. NSF RaMP. $2,952,918. Submitted February 16, 2023.

Active grants:

Haddad, N., B. Basso, S. Evans, A. Kravchenko, D. Landis, J. Lau, G.P. Robertson, **C. Sprunger**, P. Zarnetske. 2022 – 2028. LTER: KBS – Revealing ecological and social mechanisms of resilience in agroecological systems. NSF LTER. $7,650,000.

Sprunger, C.D., C. Cordova, Y. Lin. 2022-2024. Assessing a suite of indicators to predict soil carbon trajectories in agricultural systems. Environmental Defense Fund. $298,433. **Awarded to Michigan State University in April 2022.**

Hattey, J., N. Basta, M. Davies, M. Rodriguez, B. Slater**, C.D. Sprunger.,** B. Wenner, R. Williams. 2021-2025. FUTURE Restoration: Food in Urban Environments-Training Undergraduates for Research and Extension in restoration and agroforestry. USDA Education Workforce Development. $499,879.

Jackson-Smith, D., M. Chiavegato, S. Culman, S. Lyon, T. Parker, A. Shah, and **C.D. Sprunger.** 2021-2025. Comparing Environmental Tradeoffs and Synergies of Alternative Modes of Integrating Livestock into Cash Grain Cropping Systems. USDA NIFA IDEAS. $999,408.

Lindsey, A. and **C.D. Sprunger.** 2021-2026. After the Flood: Impacts on Rhizosphere Biology, Nutrient Cycling, and Corn Growth and Yield. USDA AFRI. $500,000. **Subaward to Michigan State University for years 2022-2026**.

Culman, S.W., **Sprunger, C.D.,** M. Sulc, B. Ward, R. Hayden, J. Jungers, M. Ryan, T. Crews, and L. DeHaan. 2019-2023. Organic dual-use perennial grain crops: Pathways to profitability and soil health. USDA OREI. $1,776,905.

Completed Grants:

Lipschitz, F., B. Flemming, S. Inwood, S. Karle, B. Milligan, Z. Plakias, **C.D. Sprunger**, and P. Summerlin. 2019-2020. Identifying opportunities for Landscape Architectural Engagement with Climate Smart Agriculture. InFACT Linkage and Leverage Grant 2019. $34,613.

Martin, K*. and **C.D. Sprunger.** 2020-2021. The use of nematodes and enzyme activities for on-farm soil biological health tests. USDA North Central Sustainable Agriculture Research and Education Graduate Student Grant. $10,875.

Sprunger, C.D. 2020-2021. Nematode Quantification in Ohio Soybean Fields. Ohio Soybean Council. $35,000.

Sprunger, C.D., N.C. Kawa, J.E. Doll, P. Singh. 2020-2021. How can soil health indicators inform farmers' soil conservation practices and climate adaptation strategies? InFACT Linkage and Leverage Grant. $34,153.

Sprunger, C.D. 2019-2021. Rainfall extremes and rhizosphere dynamics: Implications for soil health and crop productivity. OARDC Seeds. $49,987.

Lindsey, L. E. Hawkins, and **C.D. Sprunger**. 2019-2020. Identifying the cause of soybean self-thinning using Climate FieldView™. Bayer Crop Science. $68,512.

Baethgaen, W. and **Sprunger, C.D.** 2016. Developing and assessing soil carbon management and restoration recommendations for climate smart agriculture: A pilot study with smallholder farmers in Tanzania. Columbia University, The Earth Institute: Cross-Cutting Initiative. $30,000.

Sprunger, C.D. and G.P. Robertson. 2015. Biodiversity effects on soil carbon gain in annual and perennial cropping systems. USDA Sustainable Agriculture Research and Education Program; 2014-2015. $6,382.

Submitted but unsuccessful grant proposals:

Sprunger, C.D., E. Schultheis. Collaborative Research: Promoting Soil Biodiversity and Ecosystem Function Using Prairie Conservation Corridors. NSF: Partnership to Advance Conservation Science and Practice. $308,416. Submitted with Western Michigan University and Edward Lowe Foundation. Submitted: Oct. 11, 2022.

Chiavegato, M., N. Bello, S. Lyon, **C. Sprunger**. Effects of grazing and flooding on nitrogen stocks and losses. NC SARE. $249,984. Submitted March 2022.

Sprunger, C.D. Bridging soil biodiversity and soil health through the quantification of nematodes and other dynamic soil properties. Soil Science Collaborative Research. USDA NRCS. $265,680.35. Submitted April 2022 via Michigan State University.

V. Roman-Ryna, J. Jacobs**, C.D. Sprunger.** USDA AFRI. Assessing the impact of carbon availability on soil food webs in rice ecosystems for enhanced crop productivity and ecological function. $849,726.

Sprunger, C.D. Linking farmer management decisions to soil health outcomes. FFAR New Innovator Award. $448,943.33.

Sprunger, C.D. Advancing plant production and diversifying STEM through dedicated training and mentorship. USDA NIFA National Needs Fellowship Program. $79,500.

Jackson-Smith, D., Culman, S.W., Dooah, D., Kumarappan, S., **Sprunger, C.D**. Improving the Value of Scientific Research on Organic Systems: Incorporating Soil Balancing into Soil Health Management through Tiered Collaborative Research. USDA OREI. $1,499,935.

Mercer, K., **C.D. Sprunger,** R. Dick, H. Perales, and V. Bernau. Dissecting the impacts of genetic and environmental variation on nitrogen fixation in maize. USDA AFRI. $498,955

Sprunger, C.D. Linking farmer management decisions to soil health outcomes. FFAR New Innovator Award. $445,260.

Sprunger, C.D. and S.W. Culman. Uncovering the hidden half of cover crops: Linking belowground processes to soil health and agronomic performance. USDA AFRI. $499,916

Culman, S.W. **C.D. Sprunger,** A. Hodson. Development of rapid nematode indicators to reflect soil food web functions. USDA AFRI. $494,667.

Jackson-Smith, D., M. Chiavegato, S. Culman, S. Lyon, T. Parker, A. Shah, **C.D. Sprunger,** and H. Wang. 2019. Comparing Environmental Tradeoffs and Synergies of Alternative Modes of Integrating Livestock into Cash Grain Cropping Systems. USDA NIFA IDEAS. $1,000,000.

Lindsey, A. and **C.D. Sprunger.** 2019. After the Flood: Impacts on Rhizosphere Biology, Nutrient Cycling, and Corn Growth and Yield. USDA AFRI. $494,667.

Singh, P., N.C. Kawa, **C.D. Sprunger**. 2020. An integrated approach to assessing the impacts of extreme precipitation on soil health and farmer decision-making in Ohio. USDA North Central Sustainable Agriculture Research and Education Graduate Student Grant. $9,930.

Chen, C., Lyon, S., Demyan, S., **Sprunger, C.D.** 2020. Wireless In-Situ Soil Sensing System Development. National Science Foundation. $939,401.

Tomich, T.P., Scow, K., Hoy, C., Geisseler, D., Ullmann, K., Huber, P., Lipschitz, F., Culman, S.W., **Sprunger, C.D.,** and Jackson-Smith, D. 2018. Tipping the scales towards

a sustainable food system connecting soil health practices from microbiomes to working landscapes. USDA SAS. $9,997,893.

Invited Seminars, Extension Workshops, and Media

Sprunger, C.D. 2023. Baseline assessment of Soil health in Ohio (and our vision for assessments in Michigan). Soil Health Nexus Digital Café. Virtual Seminar. February 2023. Invited Speaker.

Sprunger, C.D. 2023. Regenerative Agriculture for new roots and soil health. Seminar. New Roots for Restoration Biology Integration Institute Seminar Series. The Danforth Center. January 2023. Invited Seminar Speaker.

Sprunger, C.D. 2022. Linking soil food web structure and function to soil health in agroecosystems. Special Session: The Microbiome of Soil Health. ASA-CSA-SSSA International Annual Meetings. Baltimore. November 2022. Invited Oral Presentation.

Sprunger, C.D. 2022. Enhancing soil health: Opportunities for climate mitigation and adaptation in agroecosystems. North Central Climate Collaborative Webinar Series. Invited Speaker.

Sprunger, C.D. 2022. The integration of nematode communities into the soil health framework. Department of Biological Sciences Seminar Series. Western Michigan University. Invited Speaker.

Sprunger, C.D. 2022. Soil carbon sequestration as a climate solution: Is there a market? Carbon Market Working Group. LTER All Scientist Meeting. Pacific Grove, CA. Invited Speaker.

Sprunger, C.D. 2022. Advancing soil health assessments for enhanced agronomic performance and ecological function. Pacific Northwest Laboratory. Environmental, Molecular Sciences Laboratory (EMSL) Exchange. Invited Speaker.

Sprunger, C.D. 2022. Lessons from the Rhizosphere: Opportunities for Climate Mitigation and Adaptation in Agroecosystems. University of Missouri Interdisciplinary Plant Group Symposium. Invited Speaker.

Sprunger, C.D. 2022. Advancing soil health assessments for enhanced agronomic performance and ecological function. Department of Geography. University of Wisconsin. Invited Speaker for the Yi-Fu Lecture Series.

Sprunger, C.D. 2022. Advancing soil health assessments for enhanced agronomic performance and ecological function. Department of Soil, Water, and Climate. University of Minnesota. Invited Speaker.

Sprunger, C.D. 2022. Rhizosphere dynamics drive soil health and plant performance in agroecosystems. Soil and Water Sciences Department. University of Florida. Diversity, Equity, & Inclusion Committee Invited Seminar Speaker.

Sprunger, C.D. 2022. Soil Biology Scientific Round Table Discussion. Washington State University Soils Conference 2022. Invited Panelist. https://www.youtube.com/watch?v=snVGOXSZAno&list=PLBU9aYUI-eYLLBBu-BxbTNMIlYJvXlunh&index=8

Sprunger, C.D. 2021. Advancing soil health assessments for enhanced agronomic performance and ecological function. Kellogg Biological Station and The Department of Plant, Soil, and Microbial Sciences. Michigan State University. Invited Speaker.

Sprunger, C.D. 2021. Rhizosphere dynamics drive soil health and plant performance in agroecosystems. Department of Plant Pathology. The Ohio State University. Invited Speaker.

Sprunger, C.D. 2021. Carbon Markets. Ask the Expert Panelist. Farm Science Review. The Ohio State University. Invited Panelist.

Sprunger, C.D. 2021. Soil Carbon Pools and their connection to soil health. Soil Health Nexus Conference. Michigan State University. Invited Speaker.

Sprunger, C.D. 2021. Encourage development of root stocks that increase carbon capture and can support grain crop cover. Agricultural Genome to Phenome Initiative. USDA funded virtual conference. Invited Speaker.

Sprunger, C.D. 2021. How do rhizosphere dynamics drive soil health in agroecosystems? Kellogg Biological Station Seminar Series, Michigan State University. Invited Seminar Speaker.

Sprunger, C.D. 2021. How do rhizosphere dynamics drive soil health in agroecosystems? Department of Environmental Science, Policy, and Management, University of California, Berkeley. Spring Seminar Series. Invited Seminar Speaker.

Sprunger, C.D. 2021. Which management practices most influence soil health in organic corn production? The Ohio State University Organic Webinar Series. Virtual Oral Presentation.

Sprunger, C.D. and T. Martin. 2020. Drivers of rhizosphere dynamics and soil biological health in agroecosystems. ASA-CSSA-SSSA International Meetings. Invited oral talk (Virtual).

Sprunger, C.D. 2020. How do rhizosphere dynamics drive soil health in agroecosystems? Department of Plant Science Fall Seminar Series, Penn State University. Invited Seminar Speaker.

Sprunger, C.D. 2020**.** Can nematodes serve as effective soil health indicators? Washington State University Soil Health Seminar. Oral Presentation.

Sprunger, C.D. 2020. The role that roots play in building soil organic matter and soil health. Association for Ohio Pedologists. February 27, 2020.

Sprunger, C.D. 2020. The role that roots play in building soil organic matter and soil health. Conservation Tillage Conference. March 4, 2020.

Sprunger, C.D. 2019. How do soils provide important ecosystem services? Invited Speaker. Environmental Professionals Network. Columbus, Ohio. December 4, 2019.

Sprunger, C.D. 2019. Perenniality or Diversity: Which is most effective at providing ecosystem services within agro-ecosystems? Ames, IA. Invited Speaker. Department of Agronomy seminar series, Iowa State University.

Sprunger, C.D. 2019. Embracing Difficult Conversations: The necessary path to diversifying soil science. Amherst, MA. Bridge Scholar/Invited Speaker. Stockbridge School of Agriculture Seminar Series: Bridge2Impacts, University of Massachusetts.

Sprunger, C.D. 2019. Perenniality or Diversity: Which is most effective at providing ecosystem services within agro-ecosystems? Amherst, MA. Bridge Scholar/Invited Speaker. Stockbridge School of Agriculture Seminar Series: Bridge2Science, University of Massachusetts.

Sprunger, C.D. 2019. Perenniality or Diversity: Which is most effective at providing ecosystem services within agro-ecosystems? Columbus, OH. Invited Speaker. Department of Horticulture and Crop Seminar Series, The Ohio State University.

Sprunger, C.D. 2019. What management practices most influence soil health in corn production? Conservation Tillage and Technology Conference. Ada, OH. Invited Speaker.

Sprunger, C.D. 2019. Sustainable Agriculture: Can we increase crop productivity while reducing agriculture's environmental footprint? Department of Biology Seminar Series, College of Wooster. Wooster, OH. Invited Seminar Speaker.

Sprunger, C.D. and S. W. Culman. 2019. On-farm evaluation of crop diversity effects on soil health and ecosystem function in the Great Lakes Region. Special Session. Soil Science Society of America International Annual Meetings. San Diego, CA. Invited Oral Presentation.

Sprunger, C.D. 2018. Root production and soil carbon dynamics in agroecosystems. Microbial Based Solutions for Agriculture. The Ohio State University. Wooster, OH. Invited Oral Presentation.

Sprunger, C.D. 2018. Root production and soil carbon dynamics in agroecosystems: A biogeochemical and social science approach. School of the Environment and Natural Resources, The Ohio State University. Invited Oral Presentation.

Sprunger, C.D. 2017. Managing soil carbon: Implications for enhanced crop productivity, long-term soil health, and climate change mitigation. Department of Biology Seminar Series, East Carolina University. Invited Seminar Speaker.

Sprunger, C.D. 2017. Diversity and Inclusion in STEM. Department of Biology, East Carolina University. Greenville, North Carolina. Invited Oral Presentation.

Sprunger, C.D. 2017. Soildoc Maproom Climate Tool Application. USAID funded workshop. Morogoro, Tanzania. Extension Talk: Invited Oral.

Sprunger, C.D. 2016. The importance of Active Soil C. Prairie Public: Main Street Radio. Radio Show Interview. Friday, July 22, 2016.
http://www.prairiepublic.org/radio/mainstreet

O'Neill, B.E. and **C.D. Sprunger**. 2015. Results of soil health tests on Michigan farms. Farming for the Future Conference. Paw Paw, MI. Extension Talk: Oral.

Sprunger, C.D., S.S. Snapp, and S.W. Culman. 2013. Management impacts on belowground carbon dynamics: annual versus perennial cropping systems. Special Session on Managing Belowground Processes in Agroecosystems. Ecological Society of America Annual Meeting, Minneapolis, MN. Oral Presentation.

Sprunger, C.D. and B. Gottshall. 2012. Perennialization in Urban and Rural Landscapes to Enhance Ecosystem Services. LTER All Scientist Meeting. Estes Park, CO. Oral Presentation/Workshop Moderator.

Presentations

Durso, L.M, Cater, T., Obour, AK., **C.D. Sprunger** and others. ASA. CSSA. SSSA Diversity, Equity, and Inclusion Committee Showcase Poster. ASA-CSA-SSSA International Annual Meetings. November 2022. Poster Presentation.

[+]Wanderson, N. **C.D. Sprunger,** L.E. Lindsey, S. Khanal, O. Ortez, M. Mann*, and A.J. Lindsey. Assessing various N sources and water excess on corn growth and grain yield. ASA-CSA-SSSA International Annual Meetings. November 2022. Oral Presentation.

[+]Wanderson, N. **C.D. Sprunger,** L.E. Lindsey, S. Khanal, O. Ortez, M. Mann*, and A.J. Lindsey. Elucidating how N management practices and excess water conditions affect corn N uptake and grain yield. ASA-CSA-SSSA International Annual Meetings. November 2022. Poster Presentation.

Martin, T. and **C.D. Sprunger.** Thirty-years of long-term management shifts nematode community composition across a suite of cropping systems. ASA-CSA-SSSA International Annual Meetings. November 2022. Oral Presentation.

Martin, T. and **C.D. Sprunger.** Assessment of soil food webs across time: How do nematodes infer shifts in community structure over 30 years under varying agroecosystems? Ecological Society of America. August 2022. Oral Presentation.

Sprunger, C.D. and Martin, T. 2020. Exploring the relationship between key soil health indicators and nematode community composition in agroecosystems. American Geophysical Union Annual Meetings (virtual). Poster Presentation.

Hoekstra, N.C. **C.D. Sprunger**, N.T. Basta, M.M Gardiner, and S.W. Culman. 2019. The impact of Vegetation Management Strategies on Soil Health in Urban Vacant Lots. Soil Science Society of America International Annual Meeting. San Diego, CA.

Wade, J., S.W. Culman, T.T. Hurisso, and **C.D. Sprunger.** 2019. Benefits and Limitations of Soil Carbon, Nitrogen and Biological Measures of Soil Health. Soil Science Society of America International Annual Meeting. San Diego, CA.

Sprunger, C.D., S.W. Culman, C.A. Palm, B. Vanlauwe. (2017). Integrated soil fertility management has altering effects on soil health and crop productivity across sites in Kenya. Soil Science Society of America Meeting. Tampa, Florida. Oral Presentation.

Sprunger, C.D., and G.P. Robertson. (2015). Differences in active, slow, and resistant soil carbon fractions under annual and perennial biofuel crops. Long Term Ecological Science All Scientists Meeting. Estes Park, Colorado. Poster Presentation.

Sprunger, C.D., G.P. Robertson, R.D. Jackson, and L.G. Oates. 2015. Differences in fine root production and C allocation among perennial cropping systems in contrasting soils of the upper Midwest. Ecological Society of America Annual Meetings. Baltimore, Maryland. Oral Presentation.

Sprunger, C.D., and G.P. Robertson. 2014. Differences in active and slow soil carbon fractions under annual and perennial biofuel crops. Soil Science Society of America Meeting. Long Beach, CA. Poster Presentation.

Sprunger, C.D., S.S. Snapp, and S.W. Culman. 2013. Root production an indicator for belowground nitrogen use efficiency in perennial and annual grain cropping systems. Soil Science Society of America Meeting. Tampa, FL. Oral Presentation.

Sprunger, C.D., S.S. Snapp, and S.W. Culman. 2013. Implications for carbon sequestration: Management effects on annual and perennial root production. Michigan Organic Reporting Session, East Lansing, MI. Poster Presentation.

Sprunger, C.D., S.S. Snapp, and S.W. Culman. 2013. Implications for carbon sequestration: Management effects on annual and perennial root production. LTER Kellogg Biological Station All Scientist Meeting, East Lansing, MI. Poster Presentation.

Sprunger, C.D., S.S. Snapp, and S.W. Culman. 2012. Implications for carbon sequestration: Management effects on annual and perennial root production. Soil Science Society of America Meeting, Cincinnati, OH. Poster Presentation.

Sprunger, C.D., S.S. Snapp, and S.W. Culman. 2012. Annual vs. perennial roots: Implications for carbon sequestration in agriculture. Ford Foundation Fellowship Conference, Newport Beach, CA. Poster Presentation.

Sprunger, C.D., S.S. Snapp, and S.W. Culman. 2012. Conventional and Organic Management Effects on Annual and Perennial Root Biomass. Michigan Organic Reporting Session, East Lansing, MI. Poster Presentation.

Sprunger, C.D. and D. Zabowski. 2011. Organic farming and its effect on soil carbon content. Michigan Organic Reporting Session, East Lansing, MI. Poster Presentation.

Sprunger, C.D. and D. Zabowski. 2009. Organic farming and its effect on soil carbon content. Program on the Environment Symposium, University of Washington, Seattle. Oral Presentation.

Sprunger, C.D. and D. Zabowski. 2009. Organic farming and its effect on soil carbon content. Soil Science Society of America Meeting, Pittsburgh. Poster Presentation.

Fellowships, Honors, and Awards

Agricultural and Environmental Letters Outstanding Paper of the Year Award 2022

National Science Foundation Post-Doctoral Fellowship in Biology, $138,000 2016,2017

ASA, CSSA, SSSA Graduate Student Leadership Award 2014

Kellogg Biological Station Graduate Research Fellowship, $1000 2014

ASA, CSSA, SSSA Future Leaders in Science Award, Washington D.C. 2014

National Ford Foundation Fellowship, $66,000 2012-2014

Michigan State University Enrichment Fellowship, $48,000 2010, 2015

Soil Science Society of America Meeting, Cincinnati, OH, Student Poster Award 2012

Michigan Organic Reporting Session, Graduate Student Poster Award 2013

National Science Foundation Graduate Research Fellowship, Honorable mention 2012

Kellogg Biological Station, Summer Student Fellowship, $1000 2011

Michigan Organic Reporting Session, Graduate Student Poster Award 2011

Undergraduate Travel Award, Forest Resources, University of Washington, $400 2009

Teaching, Advising, and Mentoring

Teaching
Instructor, The Ohio State University, *Root and Rhizosphere Ecology* 2019-2022

Instructor, The Ohio State University, *Advanced Principles in Enviro Sci* 2021-2022

Co-Instructor, The Ohio State University, ENR 8890.04 2020-2022

Post-doctoral Researchers
Current: Katherine Naasko (2023-Present)

Graduate Student Chair
Current: Tvisha Martin (PhD, ENR)

Completed: Tvisha Martin (MS, ENR), Prabhjot Singh (MS, ESGP)

Graduate Student Committee Member (9 total)
Current MS Students: Chee Gang Ngui (HCS)

Completed: Ashly Dyck (SENR), Christine Charles (SENR), Francis Clark (HCS), Ana Vazquez (Plant Pathology), Jenna Moore (HCS)

Current PhD students: Prabhojot Singh (OSU, SENR)

Completed: Andrea Leiva Soto (OSU, HCS) and Sean Fenstemaker (OSU, HCS);

Post-Bachelor Technicians
- Meredith Mann (2019 – Present)
- Hanna Korn (2022- Present)
- Emily Parker (2022 – Present)
- Louceline Fleuridor (2019)
- Nicole Hoekstra (2018-2019)

Undergraduate Research Assistants and Undergraduate Research Distinction
- Jacob Murray (Spring 2021-Present)
- Allison Bunce (Summer 2022)
- Ainsley Lightcap (Spring 2021-Summer 2022)
- Abby Rees (NSF REU 2022)
- Dani Alabyadh (Fall 2020-2021)
- Christian Mamana (NSF REU 2021)

Guest Speaker Fall 2022

- Perenniality in agroecosystems
- Foundations in Agriculture and the Environment, Yale University

Guest Speaker Spring 2021

- Assessing soil health on farmer field
- ESPM 290, Science of Healthy Soils University of California, Berkeley

Guest Lecture Fall 2019

- The Rhizosphere: Important for Food production and the Environ.
- ENR 3000, The Ohio State University

Guest Lecture Summer 2019

- The Rhizosphere: Important for Food production and the Environ.
- ENR 3000, The Ohio State University

Guest Lecture Summer 2019

- How to identify a research question?
- Summer Research Opportunities Program, OARDC

Guest Instructor Spring 2019

- Soil Science Graduate Seminar
- Organized Inaugural OSU Soil Science Symposium

Invited Guest Lecture November 2018

- Crop rotations, diversity, and perenniality impacts on nutrient cycling
- SENR Soil Fertility Course. Wooster, OH.

Invited Guest Lecture November 2018

- Sustainable management practices for enhanced yields and ecosystem services
- ATI Soil fertility Course. Wooster, OH.

Invited Guest Lecture November 2017

- Sustainable management practices for enhanced yields and ecosystem services
- SENR Soil Fertility Course. Columbus, OH.

Mentor to Alessandra Zuniga Summer 2014

- Research Experience for Undergraduates Program at the Kellogg Biological Station.
- Completed M.S. in Biology from Northern Arizona University (2017)

Mentor to Lazarius Miller Summer 2014

- Undergraduate Research Apprentice Program at the Kellogg Biological Station

Mentor and Supervisor to Marie-Flore Doyen Summer 2013

- Undergraduate Exchange Program between the Kellogg Biological Station and Purpan University
- Completed Masters of Agriculture from Purpan University (2016)

Mentor and Tutor to twenty Sexton high school students 2011-2012
- College Ambition Program at Sexton High School, Lansing MI.

Service

USDA NIFA
- Peer Review Panel Member
- Agricultural Microbiomes in Plant Systems and Natural Resources
- December 2022 – January 2023

Michigan State University
- Agronomy Committee
- November 2022- Present

Michigan State University
- Regenerative Agriculture Extension Educator Search Committee Member
- October 2022- Present

Michigan State University
- Long-Term Agroecosystems Research (LTAR) Steering Committee
- August 2022-Present

Michigan State University
- KBS Cultural & Inclusion Committee
- August 2022-Present

USDA NCR-SARE
- Peer Review Panelist
- Graduate Student Research Grant Program
- 2021-2022

Soil Science Society of America Outstanding Dissertation Committee
- January 2020-Present

Agronomy, Crops, and Soils Diversity Society Committee
- January 2020-Present

Soil Science Society of America Science Policy Committee
- January 2020- December 31, 2022

The Ohio State University
- SENR Fellowship Committee
- Spring 2021-2022

The Ohio State University/OARDC
- ORIP Committee
- January 2020-2022

The Ohio State University
- SENR Academic Affairs Committee
- Fall 2019-2022

The Ohio State University
- InFACT Strategy, Research and Grant Opportunities
- Fall 2019

The Ohio State University
- Alpha Zeta Partners
- Spring 2019

The Ohio State University
- MENR Learning Objectives Ad Hoc Committee
- Spring 2019

The Ohio State University
- SENR Hydrology Position Search Committee
- Fall 2018-Spring 2019

The Ohio State University
- SENR Soil Science Curriculum Re-vamp
- Weekly meetings, Fall 2018; Spring 2019; Fall 2019

The Ohio State University
- InFact Discovery Theme Strategic Planning Retreat, Initiative for Food and AgriCultural Transformations, September 6, 2018

Peer Reviewer: PNAS, Biogeochemistry, Agriculture, Ecosystems, and the Environment, Plant and Soil, Soil Science Society of America, Geoderma, Agronomy Journal, Applied Ecology, Applied Soil Ecology, Nutrient Cycling in Agroecosystems, Global Change Biology, Journal of Animal Ecology

Mentor, The Fairy God-Sister mentoring program 2017-2018
New York City

Tour Guide, Long Term Ecological Research Site 2014-2015
Kellogg Biological Station, Michigan State University

Communicating Science Volunteer, Science Festival — April 2014
Michigan State University

Graduate Student Representative, Seminar Committee — 2014-2015
Kellogg Biological Station, Michigan State University

Graduate Student Representative, Academic Programs Committee, — 2013-2014
Kellogg Biological Station, Michigan State University

Communicating Science Volunteer, Share the harvest, Kellogg — Oct. 2013
Biological Station, Michigan State University

Graduate Student Representative, Graduate Program Committee, — 2011-2013
Department of Plant, Soil, and Microbial Sciences, Michigan State University

Secretary, Crop and Soil Science Graduate Student Organization. — 2010-2013
Department of Plant, Soil, and Microbial Sciences, Michigan State University

Co-Chair, Professional Development Committee, — 2011-2012
Graduate Women in Science Association, Michigan State University Chapter

Professional Development Training

Teaching Assistant Seminar and Orientation, Michigan State University — 2013

Science policy, Communication, and Advocacy training, ASA, CSSA, SSSA — 2014

Mentoring workshop, W.K. Kellogg Biological Station — 2013

Stable Isotope Biogeochemistry intensive course, Michigan State University — 2012

Cropping System Modeling Course (SALUS), Michigan State University — 2011

40-hour Hazardous Waste Training, Environmental Protection Agency — 2009

Resources Conservation and Recovery Act three-day training, McCoy Associates — 2008

Professional Memberships

Ecological Society of America, Soil Science Society of America, Crop and Soil Science Society of America, and Agronomy Society of America, Association for Women Soil Scientists, Graduate Women in Science, Xi Sigma Pi Honor Society.

Outreach, Public Engagement, DEIJ Efforts

Sprunger, C.D. 2023. Round Table Discussion: Preparing for oral defense workshop. Women of Color Initiatives. Invited Panelist.

Sprunger, C.D. 2023. A holistic approach to assessing soil health. Open Access Government. January 2023. https://doi.org/10.56367/OAG-037-1040.

Sprunger, C.D. 2022. In the Weeds: All there is to know about organic matter! Michigan Field Crops Team. Podcast.

Sprunger, C.D. 2022. Deteriorating soil health: 'A teaspoon of soil contains more life than there are humans on earth". Open Access Government. October 2022. https://doi.org/10.56367/OAG-036-10403

Sprunger, C.D. 2022. The simple act of welcoming. Planting seeds and storytelling (DEIJ) Working Group. LTER All Scientists Meeting. Pacific Grove, CA. September, 2022.

Sprunger, C.D. 2022. Biodiversity! Smithsonian Science Education Center. Science for Global Goals.

Scienta Feature: Tackling Soil Health from Every Angle. March 2022 https://doi.org/10.33548/SCIENTIA803

Generated soil health test results for 22 farmers across Ohio. Fall 2020.

Judge for Agronomy, Crops, and Soils Student Diversity Poster Competition. ASA-CSA-SSSA. Virtual Annual Meetings. November 2020.

Leaders of Color Career Panel: Young Professionals in the Environmental Space. River Network. October 7, 2020.

European Geosciences Union. Black in Soil Science Feature. Blog Post. 2020. https://blogs.egu.eu/divisions/sss/2020/07/06/black-in-soil-science/

Soil health in the No-till trial presentation to legislative staffers. CFAES. August 23, 2019.

Designed hands on soil science activities for 5th and 6th grade students as part of the Expanding Your Horizons Girl's Science Day. College of Wooster. April 6th, 2019.

Lin, E., **C.D. Sprunger**, N. T. Basta. Report on Heavy Metal Contamination from UXO and Landmine Areas in Cambodia. Cambodian government. April 2019.

Sprunger, C.D. 2019. Feature Interview. Women in Ag Science Organization. April 2, 2019. https://www.womeninagscience.org/post/christine-sprunger-soil-science-assistant-professor.

Soil health testing for organic corn growers across Michigan, Indiana, Ohio, and Pennsylvania. Fall 2018 and Spring 2019.

Generated soil health test results for 200+ farmers across the Great Lakes Region. Fall and Fall 2018 and Spring 2019.