WENDY H. YANG

University of Illinois Urbana-Champaign (U of I)
Urbana, Illinois, USA

HISTORY OF EMPLOYMENT

2010-2013	Post-Doctoral Scholar, Department of Environmental Science, Policy, and Management, University of California, Berkeley
2013-2019	Assistant Professor, Departments of Plant Biology and Geology, U of I
2014-present	Affiliate, Program in Ecology, Evolution, and Conservation Biology, U of I
2015-2019	Assistant Professor, Institute for Sustainability, Energy, and Environment, U of I
2019-present	Affiliate, Institute for Genomic Biology, U of I
2019-2023	Associate Professor, Departments of Plant Biology and Geology, U of I
2019-2023	Associate Professor, Institute for Sustainability, Energy, and Environment, U of I
2020-2023	Associate Professor, Center for Digital Agriculture, U of I
2021-present	Associate Director, Agroecosystem Sustainability Center, U of I
2022-2025	Leader of Sustainability Theme, Center for Advanced Bioenergy and Bioproducts Innovation (CABBI)
2023-present	Professor, Department of Plant Biology, U of I
2023-present	Professor, Institute for Sustainability, Energy, and Environment, U of I
2023-present	Professor, Center for Digital Agriculture, U of I
2025-present	Deputy Director of Research & Development, CABBI

DEGREES

Harvard University	Environmental Science & Public Policy	B.A., 2003
University of California, Berkeley	Environmental Science, Policy & Management	Ph.D., 2010

NARRATIVE OF RESEARCH EXPERIENCE

The structure and function of ecosystems are changing due to anthropogenic factors such as climate change, nitrogen deposition, land use and cover change, and species invasion. I aim to improve understanding of soil, microbial, and plant dynamics to better predict, mitigate, and adapt to the effects of these global environmental changes. As an ecosystem ecologist and biogeochemist, I use observational and experimental studies in the field and laboratory to study mechanisms driving greenhouse gas emissions and soil chemical transformations in natural and managed ecosystems. I innovate stable isotope approaches to quantify poorly-constrained nutrient transformation rates, integrate biogeochemistry and microbial ecology to elucidate controls on microbially mediated biogeochemical processes, and test mechanistic hypotheses to reveal the context dependency of controls on carbon and nitrogen cycling. In particular, I seek to (1) improve understanding of soil emissions of nitrous oxide (N_2O), a potent greenhouse gas that is accumulating in the atmosphere largely due to agricultural fertilizer use, and (2) elucidate how plant-soil-microbe interactions alter ecosystem carbon and nitrogen cycling.

KEY PUBLICATIONS (out of 80 total)

1. **Liu WH**, Bryant DM, Hutyra LR, Saleska SR, Hammond Pyle E, Curran DC, Wofsy SC (2006) Woody debris contribution to the carbon budgets of selectively-logged and maturing mid-latitude forests. *Oecologia*, 148, 108-117.
2. **Yang WH**, Teh YA, Silver WL (2011) A test of a field-based ^{15}N-nitrous oxide pool dilution technique to measure gross N_2O production in soil. *Global Change Biology*, 17, 3577-3588.
3. **Yang WH**, Weber KA, Silver WL (2012) Nitrogen loss from soil through anaerobic ammonium oxidation coupled to iron reduction. *Nature Geoscience*, 5, 538-541.
4. **Yang WH**, Liptzin D (2015) High potential for iron reduction in upland soils. *Ecology*, 96, 2015-2020.
5. **Yang WH**, Silver WL (2016) Gross nitrous oxide production drives net nitrous oxide fluxes across a salt marsh landscape. *Global Change Biology*, 22, 2228-2237.

6. **Yang WH**, McNicol G, Teh YA, Wood TE, Silver WL (2017) Revising the classical conceptual model of peatland methane dynamics. *Global Biogeochemical Cycles*, 31, 1435–1453.
7. Edwards JD, Pittelkow C, Kent A, **Yang WH** (2018) Dynamic biochar effects on soil nitrous oxide emissions and underlying microbial processes during the maize growing season. *Soil Biology & Biochemistry*, 122, 81-90.
8. Krichels AH, DeLucia EH, Sanford R, Chee-Sanford J, **Yang WH** (2019) Historical soil drainage mediates the response of soil greenhouse gas emissions to intense precipitation events. *Biogeochemistry*, 142, 425-442.
9. Suriyavirun N, Krichels AH, Kent AD, **Yang WH** (2019) Microtopographic differences in soil properties and microbial community composition at the field scale. *Soil Biology & Biochemistry*, 131, 71-80.
10. Almaraz M, Wong M, **Yang WH** (2020) Looking back to look ahead: A vision for soil denitrification research. *Ecology,* 101, Article e02917.
11. Shan J, Sanford RA, Chee-Sanford J, Ooi S, Löffler FE, Konstantinidis KT, **Yang WH** (2021) Beyond denitrification: the role of microbial diversity in controlling nitrous oxide reduction and soil nitrous oxide emissions. *Global Change Biology,* 27, 2669-2683.
12. Seyfried GS, Dalling JW, **Yang WH** (2021) Mycorrhizal type effects on leaf litter decomposition depend on litter quality and environmental context. *Biogeochemistry,* 155, 21-38.
13. Burnham M, Simon S, Lee DK, Kent A, DeLucia E, **Yang WH** (2022) Intra- and inter-annual variability of nitrification in the rhizosphere of field-grown bioenergy sorghum. *Global Change Biology Bioenergy,* 14, 393-410.
14. Eddy WC and **Yang WH** (2022) Improvements in soil health and soil carbon sequestration by an agroforestry for food production system. *Agriculture, Ecosystems, and Environment,* 333, 107945.
15. Seyfried G, Midgley M, Phillips R, **Yang WH** (2023) Refining the role of nitrogen mineralization in mycorrhizal nutrient syndromes. *Biogeochemistry*, 164, 473-487.
16. Stuchiner E, Jernigan W, Zhang Z, Eddy WC, DeLucia EH, **Yang WH** (2024) Particulate organic matter predicts spatial variation in denitrification potential at the field scale. *Geoderma*, 448, 116943.
17. Zhang Z*, Eddy WC*, Stuchiner ER, DeLucia EH, **Yang WH** (2024) A new conceptual framework explaining spatial variation in soil nitrous oxide emissions. *co-first author. *Communications Earth & Environment*, 5, 730.
18. Krichels AH, Sanford RA, Chee-Sanford JC, Connor L, Van Allen R, Kent AD, **Yang WH** (2025) Distinct N-cycling microbial communities contribute to microtopographic variation in soil N_2O emissions. *Soil Biology & Biochemistry*, 202, 109683.
19. Edwards JD, Dalling JW, Fraterrigo J, Eddy WC, **Yang WH** (2025) Functional traits of ectomyccorhizal trees influence their effects on surrounding soil organic matter properties. *Functional Ecology*, 39, 1705–1720.
20. **Yang WH**, Guan K, DeLucia EH, Wagner-Riddle C, Bernacchi CJ, Yu Z, Peng B, Li Z, Butterbach-Bahl K, Griffis TJ, Groffman PM, Hall SJ, Johnson JMF, Lee DK, Liu L, Moore DJP, Nevison C, Novick KA, Ogle SM, Pelster DE, Silver WL, Tang J, Weintraub-Leff SR, Zondlo MA, Brown SE, Eddy WC, Kantola IB, Vittore KM (2026) N_2Onet: a global collaborative network facilitating advances in measurement, modeling, and mitigation of agricultural soil nitrous oxide emissions. *Environmental Research Letters*, 21, 044015.

PROFESSIONAL SOCIETY MEMBERSHIPS

- American Geophysical Union
- Ecological Society of America