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First Name: **Whendee** Last Name: **Silver**

Title: **Rudy Grah Chair and Professor of Ecosystem Ecology and Biogeochemistry**

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Education:

PhD: Yale University MS: Yale University BS: School or International Training

General Areas of Expertise:

Biogeochemistry, ecosystem ecology

Short Bio:

Dr. Whendee Silver is the Rudy Grah Chair and Professor of Ecosystem Ecology and Biogeochemistry in the Department of Environmental Science, Policy, and Management at U.C. Berkeley. She received an PhD in Ecosystem Ecology from Yale University. Her work seeks to determine the biogeochemical effects of climate change and human impacts on the environment, and the potential for mitigating these effects. Professor Silver is the lead scientist of the Marin Carbon Project, which is determining the potential for land-based climate change mitigation, particularly by composting high-emission organic waste for soil amendments to sequester atmospheric carbon dioxide. The Silver Lab was recently awarded the Innovation Prize by the American Carbon Registry. Professor Silver is a fellow of the Ecological Society of America and was named a University of California Climate Champion for 2016 for outstanding teaching, research and public service in the areas of climate change solutions, action and broad engagement.

Five Representative Publications:

Harden, J., Hugelius, G., Ahlström, A., Blankinship, J., Bond-Lamberty, B., Lawrence, C., Loisel, J., Malhotra, A., Jackson, R., Ogle, S., Phillips, C., Ryals, R., Todd-Brown, K., Vargas, R., Vergara, S., Cotrufo, F., Keiluweit, M., Heckman, K., Crow, S., Silver, W.L., DeLonge, M., Nave, L. 2017. Networking our science to characterize the state, vulnerabilities, and management opportunities of soil organic matter. Global Change Biology, https://doi.org/ 10.1111/gcb.13896.
Yang, W.H., R. Ryals, D.F. Cusack, and W.L. Silver. 2017. Cross-biome assessment of gross soil nitrogen cycling in California ecosystems. Soil Biology and Biochemistry 107:144-155.
Owen, J. J., and W. L. Silver. 2017. Greenhouse gas emissions from dairy manure management in a Mediterranean environment. Ecological Applications 27: 545-559.
Ryals, R., V. T. Eviner, C. Stein, K. N. Suding, and W. L. Silver. 2016. Managing for multiple ecosystem services: are there tradeoffs between carbon sequestration, plant production and plant diversity in grasslands amended with compost? Ecosphere doi: 10.1002/ecs2.1270.
Owen, J., W. J. Parton, and W. L. Silver. 2015. Long-term impacts of manure amendments on carbon and greenhouse gas dynamics of rangelands. Global Change Biology 21:4533–4547.
Owen, J. and W. L. Silver. 2015. Greenhouse gas emissions from dairy manure management: a review of field-based studies. Global Change Biology 21: 550-565.

FEWSTERN Symposium 2017 Presentation Title and Abstract:

Climate mitigation potential across the food-energy-water nexus: the role of organic waste management

Organic waste management is a large source of greenhouse gas emissions in most urban and rural settings. Here we show how organic waste is an important resource across the food-energy-water nexus that can help contribute to climate change mitigation and adaptation. Composted organic waste applied to grassland soils resulted in large net savings of greenhouse gas emissions when compared to business-as-usual practices. Increased soil organic matter content led to greater soil water retention, improving grassland resistance to drought. Increased soil C stocks represented a sink of new C from the atmosphere. We also measured increased forage production for livestock over multiple years following a single compost application. Organic waste run through a biodigestor prior to composting represents an important potential source of energy for rural consumers. Our results highlight the many co-benefits of repurposing organic waste streams to help mitigate climate change and facilitate climate change adaptation in working landscapes.