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Permission date



Photo

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Specific Research Interests

Carbon and nutrient cycling, wetland ecology, trace gas production, climate change, biogeochemistry, microbial ecology, plant community structure, plant-nutrient interactions, restoration.

Research Fields

- Atmospheric chemistry
- Biogeochemistry
- Carbon Footprint Analysis
- Climatology
- Community & Disaster Planning
- Data Analysis & Statistical Modeling
- Ecology & Ecosystem Management
- Economics
- Energy policy & technology
- Ethics
- Fire
- Forestry & Forest Management
- Geographic Information Systems
- Horticulture
- Human Impacts - economics
- Human Impacts - health
- Human Impacts - policy
- Hydrology
- Impacts - agriculture & horticulture
- Impacts - ecosystems, populations
- Impacts - physical
- Instrumentation
- Mitigation Policy
- Modeling Climate
- Modeling Ecosystems
- Modeling Socioeconomic Processes
- Natural Resource Policy & Planning
- Outreach & Engagement
- Paleoclimatology
- Paleoecology
- Physical Ecology
- Physiological Ecology
- Urban Ecology
- Water Policy & Planning
- Other...

Wetland Ecology

Projects

- (i) Interactive Effects of Climate Change, Wetlands, and Dissolved Organic Matter on UV Damage to Aquatic Foodwebs in a Northern Michigan Watershed
- (ii) The Biogeochemistry of Anaerobic Carbon Cycling and Methane Fluxes in Wetlands
- (iii) A Carbon Budget for North American Wetlands
- (iv) Nutrient Dynamics in Wetlands
- (v) The Role of Edaphic Factors in Determining Plant Community Structure in Upland Prairies in the Pacific Northwest
- (vi) Wetland Restoration
- (vii) The Effects of Invasive Grasses on Ecosystem Function of a Freshwater Marsh and Estuarine Marsh
- (viii) Oak Savanna Successional Dynamics and Restoration, Using Oak Savanna Restoration to Reduce the Risk of Catastrophic Fire in the Wildland-Urban Interface

Selected Recent Publications

- 1) Weltzin, J. F., J. Pastor, C. Harth, S. D. Bridgman, K. Updegraff, and C. T. Chapin. 2000. Response of bog and fen plant communities to warming and water-table manipulations. *Ecology* 81: 3464-3478.
- 2) Updegraff, K., S. D. Bridgman, J. Pastor, P. Weishampel, and C. Harth. 2001. Response of CO₂ and CH₄ emissions in peatlands to warming and water-table manipulation. *Ecological Applications* 11: 311-326.
- 3) Pastor, J., J. Solin, S. D. Bridgman, K. Updegraff, C. Harth, P. Weishampel, and B. Dewey. 2003. Global warming and the export of dissolved organic carbon from boreal peatlands. *Oikos* 100: 380-386.
- 4) Kellogg, C. H., S. D. Bridgman, and S. A. Leicht. 2003. Effects of water level, shade and time on germination and growth of freshwater marsh plants along a simulated successional gradient. *Journal of Ecology* 91:274-282.
- 5) Vile, M. A., S. D. Bridgman, R. K. Wieder, and M. Novák. 2003. Atmospheric sulfur deposition alters pathways of gaseous carbon production in peatlands. *Global Biogeochemical Cycles* 17:1058-1064.
- 6) Keller, J. K., J. R. White, S. D. Bridgman, and J. Pastor. 2004. Climate change effects on carbon and nitrogen mineralization in peatlands through changes in soil quality. *Global Change Biology* 10:1053-1064.
- 7) Kellogg, C. H., and S. D. Bridgman. 2004. Effects of disturbance, seed bank, and herbivory on dominance of an invasive grass. *Biological Invasions* 6(3):319-329.
- 8) Noormets, A., J. Chen, S. D. Bridgman, J. F. Weltzin, J. Pastor, B. Dewey, and J. LeMoine. 2004. The effects of infrared loading and water table on soil energy fluxes in northern peatlands. *Ecosystems* 7:573-582.
- 9) Pendall, E., S. Bridgman, P. J. Hanson, B. Hungate, D. W. Kicklighter, D. W. Johnson, B. E. Law, Y. Luo, J. P. Megonigal, M. Olsrud, M. G. Ryan, and S. Wan. 2004. Below-ground process responses to elevated CO₂ and temperature: a discussion of observations, measurement methods, and models. *New Phytologist* 162:311-322.
- 10) Frost, P. C., J. H. Larson, L. E. Kinsman, G. A. Lamberti, and S. D. Bridgman. 2005. Attenuation of ultraviolet radiation in streams of northern Michigan. *Journal of the North American Benthological Society* 24(2):246-255.
- 11) Frost, P. C., J. H. Larson, C. A. Johnston, K. C. Young, P. A. Maurice, G. A. Lamberti, and S. D. Bridgman. 2006. Landscape predictors of stream dissolved organic matter concentration and physicochemistry in a Lake Superior river watershed. *Aquatic Sciences* 68:40-51.
- 12) Docherty, K. M., K. C. Young, P. A. Maurice, and S. D. Bridgman. 2006. Dissolved organic matter concentration and quality influences upon structure and function of freshwater microbial communities. *Microbial Ecology* 52:378-388.
- 13) Keller, J. K. and S. D. Bridgman. 2007. Pathways of anaerobic carbon cycling across an ombrotrophic-minerotrophic peatland gradient. *Limnology and Oceanography* 52:96-107.
- 14) Bridgman, S. D., J. P. Megonigal, J. K. Keller, C. Trettin, and N. B. Bliss. 2007. Wetlands. The North America carbon budget past and present. Pages 139 – 148 in The First State of the Carbon Cycle Report (SOCCR): North American Carbon Budget and Implications for the Global Carbon Cycle. A report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research, A. W. King, L. Dilling, G. P. Zimmerman, D. M. Fairman, R. A. Houghton, G. H. Marland, A. Z. Rose, and T. J. Wilbanks, eds., National Climatic Data Center, Asheville, NC, 242 pp.
- 15) Pacala, S., R. Birdsey, S. Bridgman, R. T. Conant, K. Davis, B. Hales, R. Houghton, J. C. Jenkins, M. Johnston, G. Marland, K. Paustian, and S. C. Wofsy. 2007. The North America carbon budget past and present. Pages 29 – 36 in The First State of the Carbon Cycle Report (SOCCR): North American Carbon Budget and Implications for the Global Carbon Cycle. A report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research, A. W. King, L. Dilling, G. P. Zimmerman, D. M. Fairman, R. A. Houghton, G. H. Marland, A. Z. Rose, and T. J. Wilbanks, eds., National Climatic Data

Center, Asheville, NC, 242 pp.

16) Pfeifer-Meister#, L. and S. D. Bridgham. *In Press*. Seasonal and spatial controls over nutrient cycling in an Oregon upland prairie. *Ecosystems*.

17) Pfeifer-Meister, L.#, E. Cole*, B. A. Roy, and S. D. Bridgham. *In Press*. Abiotic constraints on the competitiveness of exotic and native grasses in an upland prairie in Oregon, USA. *Oecologia*.

Professional Activities

Editorial Board of the *Soil Science Society of America Journal*, 1994 – 1997.

Editorial Board of *Wetlands*, 1997 – 2000.

Editorial Board of *Biogeochemistry*, 2004 – current.

Leader of Minnesota peatlands site in the initiative Terrestrial Ecosystem Response to Atmospheric and Climate Change (TERACC), under the auspices of the International Geosphere-Biosphere Programme (IGBP).

Chair of the Division S-10, Wetland Soils, of the Soil Science Society of America, 2001 – 2002.

One of lead authors on wetlands chapter in the upcoming Synthesis and Assessment Report 2.2 (SAR 2.2) of the U.S. Climate Change Program, 2005 – 2007.

Panel member and ad hoc reviewer for numerous scientific journals and federal funding agencies.