

Duke University, Department of Biology
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Durham NC 27708
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Research and teaching interests

Microbial Ecology, Biogeochemistry, Soil Ecology, Global Change

Education

- Ph.D., Duke University, University Program in Ecology (2004). Certificate in Teaching Biology.
- B.A., Geosciences. Franklin & Marshall College, Lancaster, Pennsylvania (1996), Honors in Biology.

Appointments and Research Experience

2004-present Postdoctoral Fellow, University of California, Santa Barbara.
1997 Marine Geology Intern. USGS Center for Coastal Studies. St. Petersburg, FL.
1996 Geoscientist. Pacific Northwest Research Station (USFS/OSU). Blue River, OR.

Teaching Experience

- Teaching Assistant, Duke University. 1998-2001. Intro Biology (2x), Biogeochemistry, Microbiology (2x), Microbial Ecology and Evolution
- Teaching Assistant, Franklin and Marshall College 1995-1996. The Dynamic Earth.

Grants and Awards

- USDA, Northeastern States Resource Cooperative. 2004-2006. Does elevated nitrogen deposition induce phosphorus deficiency in north temperate forest ecosystems? \$101,419 total; \$25,000 subcontract to M. Wallenstein.
- NSF, Doctoral Dissertation Improvement Grant. Awarded in 2002. \$10,000
- NASA, Earth Science System Fellowship. Awarded in 2001. Three years of support. \$72,000
- Sigma Xi, Grants-in-Aid of Research Program. Awarded in 2000. \$400
- Giles award for Phytotron research. Awarded in 2000. \$500
- Keever award. Awarded in 2000. \$500
- Leser Award for undergraduate research. Franklin and Marshall College. Awarded in 1995. \$500

Publications

Barton, A. M. and **M. D. Wallenstein**. 1997. Effects of invasion of *Pinus virginiana* on soil properties in serpentine barrens in southeastern Pennsylvania. *J. Torrey Bot. Club* 124(4):297-305.

Schlesinger, W.H., J.S. Phippen, **M.D. Wallenstein**, K.S. Hofmockel, D.M. Klepeis, and B.E. Mahall. 2003. Community composition and photosynthesis by photoautotrophs under quartz pebbles, southern Mojave desert. *Ecology* 84(12):3222-3231.

Wallenstein, M.D. and R. Vilgalys. Quantitative Analyses of Nitrogen Cycling Genes in Soils. *Submitted to J. Microbiological Methods*.

Wallenstein, M.D., S. McNulty, I. Fernandez, J. Boggs, and W.H. Schlesinger. Nitrogen fertilization decreases forest soil fungal and bacterial biomass in a cross-site study. *Submitted to Ecosystems*.

Wallenstein, M.D., R. Vilgalys, and W.H. Schlesinger. Effects of chronic nitrogen fertilization on the relative abundance of nitrogen functional genes in forest soil DNA. *Submitted to Applied and Environmental Microbiology*

Wallenstein, M.D., M. B. Adams, W. H. Peterjohn, W.H. Schlesinger. Nitrogen fertilization effects on denitrification and N cycling in an aggrading forest. *Submitted to Canadian J. Forest Research*.

Presentations (* indicates invited)

- ***Wallenstein, M.D.** 2004. "Strategies for examining microbial community structure and links to ecosystem processes". Appalachian Farming Systems Research Center (USDA-ARS). Beaver, WV.
- ***Wallenstein, M.D.** 2004. "Functional genes: linking microbial communities to ecosystem processes". International workshop on molecular methods in soil biological and biochemical diversity in terrestrial ecosystems. Taipei, Taiwan.
- Wallenstein, M.D.** 2004. "Effects of nitrogen fertilization on nitrogen cycling and microbial community structure; Why biology matters in biogeochemistry". Duke University, Ecology Seminar Series.
- Wallenstein, M.D.**, W.H. Schlesinger, S.K. Rhee, and J. Zhou. 2003. "Nitrogen fertilization effects on fungal and bacterial biomass and microbial community structure in two long-term Experiments". Ecological Society of America Annual Meeting.
- ***Wallenstein, M.D.** 2003. "Effects of nitrogen fertilization on nitrogen cycling and microbial community structure; Why biology matters in biogeochemistry". University of California, Santa Barbara. Biology department seminar.
- Wallenstein, M.D.**, W.H. Schlesinger, S.K. Rhee, and J. Zhou. 2003. "Microbial Biomass and Community Structure in Three Long-Term Nitrogen Fertilization Experiments". British Ecological Society Annual Symposium: Soil Biodiversity and Function.
- Wallenstein, M.D.** and W.H. Schlesinger. 2002. "Effects of denitrifier community structure on N₂ and N₂O gas flux in a nitrogen fertilization experiment". Ecological Society of America 2002 annual meeting.
- Wallenstein, M.D.** 2002. "It's raining N (hallelujah)! Effects of nitrogen fertilization on forest soil microbial communities". Graduate Afternoon Seminar, Duke University, Nicholas School of the Environment and Earth Sciences.
- Wallenstein, M.D.** 2001. "Environmental and microbial controls on denitrification in a nitrogen fertilization experiment". 2nd International Nitrogen Conference. Potomac, Maryland.
- Wallenstein, M.D.** 2001. "Mechanisms controlling the response of denitrification to anthropogenic nitrogen deposition". Soil Science Society of America annual meeting. Charlotte, North Carolina.
- Wallenstein, M.D.**, W.H. Schlesinger, and L. Huenneke. 2000. "Effects of biodiversity manipulations on nutrient availability in the Jornada Basin, New Mexico". Ecological Society of America 2000 annual meeting.
- Wallenstein, M.D.**, F.J. Swanson. 1996. "Mass-Movement Response to Major Floods: A Western Oregon Example". American Geophysical Union, Fall Meeting 1996.
- Wallenstein, M.D.**, A. Barton. 1996. "Soil amelioration by *Pinus Virginiana* on the New Texas Serpentine Barrens of Pennsylvania". Ecological Society of America 1996 annual meeting.

Synergistic Activities

- Workshop on advanced approaches to quantify denitrification. 2004. Woods Hole, MA. (Invited Participant)
- Founded and organized weekly microbial ecology discussion group. 2002-present.
- Department of Biology, Graduate Steering Committee. 1999-2000.

Advisors

Andrew Barton (B.A. Thesis); William H. Schlesinger (Ph.D.); Joshua Schimel (Postdoctoral)

Collaborators

Mary Beth Adams (USFS), Emily Bernhardt (UMD), Johnny Boggs (NCSU), Mark Bradford (UGA), Ivan Fernandez (UMaine), Noah Fierer (Duke), Kirsten Hofmockel (Duke), Alison Magill (UNH), Steve McNulty (USFS), Jerry Mellilo (Woods Hole), William Peterjohn (WVU), James Reynolds (Duke), Dan Richter (Duke), Lindsey Rustad (USFS), William Schlesinger (Duke), Kathleen Treseder (UCI), Rytas Vilgalys (Duke), Jizhong Zhou (Oak Ridge).