

Duke University, Department of Biology  
Campus Box 90338  
Durham NC 27708  
(919) 402-0892

**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, Duke University.  
1998-2004 Research Associate, Duke University. Dissertation title: "Effects of Increased N Deposition on Forest Soil N Cycling and Microbial Community Structure"  
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**

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

**Grants and Awards**

- 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.**, 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 Soil Biology and Biochemistry*.

**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*.

## **Selected 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 N<sub>2</sub> and N<sub>2</sub>O 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". 2<sup>nd</sup> 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.)

*Doctoral Committee:* James Clark, Daniel Richter, Rytas Vilgalys, Steven McNulty