Thomas S. Adams

Curriculum Vitae

The Pennsylvania State University	Ph. D	2014	Ecology
The University of Minnesota	M.S.	1999	Conservation Biology
The Pennsylvania State University	B.A.	1990	General Arts and Sciences

Employment

Senior Research Support Associate, 2000 – Present (*The Pennsylvania State University)*

- Run the root ecology laboratories and field research sites of Dr. David Eissenstat
- Manage multiple research grants, oversee graduate and undergraduate research activities, and operate/maintain sensitive laboratory equipment
- Conduct research investigating tree root physiology and nutrient availability both domestically and internationally (Greenland, Poland, Italy, Spain, and Canada)
- Interpret data and write scientific manuscripts, assist with grant proposal preparation, and present findings at scientific conferences
- Manage and maintain the scientific equipment associated with the Deployable Energy and Environmental Sustainability Laboratory (DEESL)
- Served on the University Staff Advisory Committee (USAC) and College of Agriculture's Staff Advisory Committee to the Dean

Environmental Research Statistician, 1999 - 2000 (*The Maryland Department of Natural Resources)*

- Collected, analyzed, and interpreted Chesapeake Bay water quality data
- Created and presented reports and graphical summaries for various audiences
- Served as Quality Assurance and Quality Control Officer for field sampling crews working on the Horseshoe Crab survey, the Striped Bass survey, the Chester River Biological Indicators survey, and the Toxic Sediment survey

Laboratory Technician, 1998 - 1999 (*The University of Minnesota)*

- Ran the limnological laboratory of Dr. Robert Sterner
- Conducted research involving aquatic ecology and oversaw student research activities
- Conducted field research on Lake Superior and at the Experimental Lakes Area, Canada

Teaching

Guest Lecturer, 2010 – Present (*The Pennsylvania State University)*

- Ecology of Plant Roots (HORT 517)
- Present multiple lectures per semester on the role of root defense in root ecology

Teaching Assistant, 2000 – Present (*The Pennsylvania State University)*

- Modern Techniques and Concepts in Plant Ecophysiology (PLBIO 514)
- Train and oversee graduate teaching assistants, prepare laboratory equipment, raise study plants, and assure the laboratory sessions run smoothly

Bay Grasses for Classes Instructor, 1999 – 2000 (*Maryland Department of Natural Resources)*

- Presented information to local middle school students on the ecological value of native aquatic plants to the Chesapeake Bay ecosystem
- Worked with students to raise aquatic plants in the classroom and replant them in the Chesapeake Bay

Teaching Assistant 1995 – 1998 (*The University of Minnesota, General Biology Department)*

- Instructed and prepared biweekly biology laboratories for three laboratory sections
- Worked with faculty to create and deliver multimedia computer based biology lectures
- Received "1996 Outstanding Teaching Assistant" award from student nominations

Publications

Chen, W., R.T. Koide, **T.S. Adams**, J.L. DeForest, L. Cheng, and D.M. Eissenstat. (in press) Root morphology and mycorrhizal symbioses together shape nutrient foraging strategies of temperate trees. *PNAS*

Gaines, K.P., J. W. Stanley, F.C. Meinzer, K.A. McCulloh, D.R. Woodruff, W. Chen, **T.S. Adams**, H. Lin and D.M. Eissenstat. 2016. Reliance on Shallow Soil Water in a Mixed-Hardwood Forest in Central Pennsylvania. *Tree Physiology* 36: 444-458.

Eissenstat, D.M. J. M. Kucharski, M. Zadworny, **T.S. Adams** and R.T. Koide. 2015. Linking root traits to nutrient foraging in arbuscular mycorrhizal trees in a temperate forest. *New Phytologist* 208: 114-204.

Adams, T.S. and D.M. Eissenstat. 2015. On the controls of root lifespan: assessing the role of soluble phenolics. *Plant and Soil:* 1-8. DOI 10.1007/s11104-015-2465-x

Adams, T.S. and D.M. Eissenstat. 2014. The continuous incorporation of carbon into existing *Sassafras albidum* fine roots and its implications for estimating root turnover. *PloS one* 9(5): e95321.

McCormack, M.L., **T.S. Adams**, E.A.H. Smithwick, and D.M. Eissenstat. 2014. Variability in root production, phenology, and turnover rate among 12 temperate tree species. *Ecology 95(8):*2224-2235.

Adams, T.S., M.L. McCormack, D.M. Eissenstat. 2013. Foraging strategies in trees of different root morphology: the role of root lifespan. *Tree Physiology* 33: 940-948

Meinzer F.C., D.R. Woodruff, D.M. Eissenstat, H.S. Lin, **T.S. Adams** and K.A. McCulloh. 2013. Above- and belowground controls on water use by trees of different wood types in an eastern US deciduous forest. *Tree Physiology* 00:1-12

McCormack, M.L., **T.S. Adams**, E.A.H. Smithwick, and D.M. Eissenstat. 2012. Predicting fine root lifespan from plant functional traits in temperate trees. *New Phytologist* 195: 823-831

Adams, T.S. and R.W. Sterner. 2000. The Effect of Dietary Nitrogen Content on Trophic Level ^{15}N Enrichment. *Limnology and Oceanography*, 45: 601-607

Sterner, R.W., A. Bajpa, and **T.S. Adams**. 1997. The Enigma of Food Chain Length: Absence of Theoretical Evidence for Dynamical Constraints. *Ecology, 78(7)*: 2258-2262

Presentations

Szink, I., D.M Eissenstat**, T.S. Adams**, W. Chen, A.S. Orr. Root and Fungal Ecology at SSHCZO. Shale Hills Critical Zone Observatory All-Hands Meeting. University Park, PA, USA, May 2016

Eissenstat, D.M., A.S. Orr, **T.S. Adams**, W. Chen, M.K. Gaines. Influence of Topography on Root Processes in the Shale Hills-Susquehanna Critical Zone Observatory. Annual Meeting of the American Geophysical Union. San Franciso, CA, USA, December 2015.

Hasenmueller, E.A., X. Gu, J.N. Weitzman, J.N. **T.S. Adams**, G.E. Stinchcomb, D.M. Eissenstat, S.L. Brantley, J.P. Kaye. Do deep roots weather rocks: the activity of deep roots in bedrock fractures at Susquehanna Shale Hills Critical Zone Observatory, USA. Annual Meeting of the American Geophysical Union. San Franciso, CA, USA, December 2015.

Kaye, J.P., S. Brantley, D.M. Eissenstat, E.A. Hasenmueller, X. Gu, **T.S Adams**, and L. Hill. The imprint of biota on acid- and redox-weathering hypothesis. Shale Hills Critical Zone Observatory All-Hands Meeting. University Park, PA, USA, May 2015

Shi, Y., A. Orr, D.M. Eissenstat, **T.S. Adams**, J.P. Kaye, and K. Davis. Exploring the Influence of Topography on Belowground C Processes at the Shale Hills Critical Zone Observatory. Environmental System Science (ESS) PI Meeting. Washington, DC, USA, April 2015.

Eissenstat, D.M., **T.S. Adams**, J. Kucharski, M. Zadworny, and M.L. McCormack. Linking Root Foraging with Root Morphology. Sixth International Symposium on Physiological Processes in Roots of Woody Plants. Nagoya, Japan, September 2014.

Chen, W., **T.S. Adams**, L. Cheng, R.T. Koide, and D.M. Eissenstat. Mycorrhizal-mediated nutrient foraging strategies of roots in temperate trees. Annual Meeting of the Ecological Society of America, Sacramento, CA, USA, August 2014.

Eissenstat, D.M., M.L. McCormack, K.P. Gaines, and **T.S. Adams**. Scaling Root Processes Based on Plant Functional Traits. Annual Meeting of the American Geophysical Union. San Franciso, CA, USA, December 2013.

Cheng, L., X. Wei, **T.S. Adams**, L. Li, W. Chen, M.L. McCormack, J. Deforest, R.T. Koide, and D.M. Eissenstat. Are roots and mycorrhizal fungi complementary in nutrient foraging of tree species? Ecological Society of America, Minneapolis, MN. USA, August 2013

McCormack, M.L., **T.S. Adams**, E.A.H. Smithwick, and D.M. Eissenstat. Fine root turnover: a story of root production and root phenology. American Geophysical Union, San Francisco, CA, USA. December 2012.

McCormack, M.L, **T.S. Adams**, E.A.H. Smithwick, and D.M. Eissenstat. Predicting fine root lifespan from plant functional traits in temperate trees. Scaling Root Processes: Global Impacts Workshop. Arlington, VA, USA, March 2012.

McCormack, M.L., **T.S. Adams**, E.A.H. Smithwick, and D.M. Eissenstat. Patterns of fine root turnover in temperate forests. Annual Meeting of the Ecological Society of America, Austin, TX, USA, August 2011.

McCormack, M.L., **T.S. Adams**, and D.M. Eissenstat. Linking fine root lifespan with suites of plant species traits. Annual Meeting of the Ecological Society of America, Albuquerque, NM, USA, August 2009.

McCormack, M.L., **T.S. Adams**, and D.M. Eissenstat. Predicting fine root lifespan: Is it possible and what's it good for? Environmental Chemistry Student Symposium, University Park, PA, USA, March 2009.

Falik, O., N. Barto, **T.S. Adams**, R.T. Koide, and D.M. Eissenstat. Acclimation of root respiration to temperature among plant species from broad latitudinal gradients. Annual Meeting of the Ecological Society of America, Montreal, Quebec, Canada, August 2005.

Adams, T.S., R.W. Sterner. The effect of dietary nitrogen content on ^{15}N enrichment across trophic levels. The American Society of Limnology and Oceanography. Santa Fe, NM, USA, February 1999.