

Ariana E. Sutton-Grier

Smithsonian Environmental Research Center
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Research Interests

Ecosystem ecology, biogeochemistry, biodiversity and ecosystem function, wetland restoration

Appointments

Smithsonian Fellow, Smithsonian Environmental Research Center (2008-present)

American Association of University Women (AAUW) Doctoral Fellow (2007-2008)

National Science Foundation (NSF) Graduate Fellow (2003-2006)

Education

Duke University, Durham, North Carolina
Nicholas School of the Environment and Earth Sciences
Ph.D. in Ecology. May 2008.

Dissertation Title: *The role of plant functional diversity and soil amendments in regulating plant biomass and soil biogeochemistry in restored wetland ecosystems in the North Carolina Piedmont.*

Committee Members: Curtis Richardson (adviser), Norm Christensen, Dean Urban, Justin Wright, and Joy Zedler.

Oregon State University, Corvallis, Oregon

Honors B.S. in Environmental Science, *Summa Cum Laude*. June 2000.

Honors B.A. in International Studies, *Summa Cum Laude*. June 2000.

Honors Thesis Title: *Marine Environments: Species Interactions in Rocky Intertidal Habitats and Contrasting International Marine Protection Strategies.*

Thesis Advisers: Jane Lubchenco and Bruce Menge.

Universite Jean Moulin III, Lyon, France

Direct Exchange Study Abroad Program, 1997-1998.

Publications

Freidenburg, T.L., B.A. Menge, P.M. Halpin, M. Webster, and **A.E. Sutton-Grier**. 2007. Cross-scale variation in top-down and bottom-up control of algal abundance. *Journal of Experimental Marine Biology and Ecology*. 347:8-29.

Sutton-Grier, A.E. and M.A. Kenney. 2005. Recruiters and Academia: A Class Act. *Nature*. 436: 886.

Sutton-Grier, A. E., J. Pahl, M. Ho, and C.J. Richardson. 2005. Compost Use in Urban

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Restored Wetlands. *BioCycle Journal of Composting and Organics Recycling*. October 2005: 40-41.

Pahl, J., M. Ho, J. Morse, **A.E. Sutton-Grier**, and C.J. Richardson. 2005. Charlotte-Mecklenburg Storm Water Hidden Valley Ecological Garden Stream and Floodplain Restoration Project, Report of 2005 Project Activities to Mecklenburg County Storm Water Services and Water Quality Program.

Pahl, J., **A.E. Sutton-Grier**, M. Ho, and C.J. Richardson. 2004. Charlotte-Mecklenburg Stormwater Hidden Valley Ecological Garden Stream and Floodplain Restoration Project, Report of 2004 Project Activities to Mecklenburg County Storm Water Services and Water Quality Program.

B. In Review or Revision

A.E. Sutton-Grier, J.P. Wright, S. Qian, and C.J. Richardson. Do plant traits, plant diversity, or environmental conditions regulate riparian zone nitrogen cycles? (in revision)

A.E. Sutton-Grier, M.A. Kenney, C.J. Richardson. Does restoration of ecosystem structure restore ecosystem function? (in review)

A.E. Sutton-Grier, M. Ho, and C.J. Richardson. Organic amendment additions improve soil conditions and denitrification but do not consistently affect plant growth or diversity in a restored riparian wetland in North Carolina. (in review)

Grants Received

- American Association of University Women American Fellowship. (2007-2008)
- National Science Foundation Doctoral Dissertation Improvement Grant. "The role of plant functional diversity in regulating nitrogen removal in a restored riparian wetland." (2005-2008)
- National Science Foundation Graduate Research Fellowship. (2003-2006)
- Society of Wetland Scientists Student Research Grant. (2005)
- FORWARD to Professorship Washington, D.C. (Focus on Reaching Women for Academics, Research, and Development). Conference travel funding from the National Science Foundation ADVANCE leadership award. (2007)
- Sigma Xi Annual Conference Travel Grant Award. (2006)
- Conference Travel Grant Award. Funding from the Duke University Graduate School and the Nicholas School of the Environment and Earth Sciences. (2006)
- Conference Travel Grant Award. Funding from the Duke University Graduate School and the Nicholas School of the Environment and Earth Sciences. (2005)
- Conference Travel Grant Award. Funding from the Duke University Graduate School and the Nicholas School of the Environment and Earth Sciences. (2004)
- Oregon State University Research Innovation, Scholarship, Creativity Undergraduate Incentive Program. (1999)

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Presentations

A. Invited Presentations

Sutton-Grier, A.E., J. Wright, and C.J. Richardson. 2007. "Plant Functional Diversity and the restoration of riparian wetland ecosystem function." Participant in the Biodiversity and Ecosystem Restoration Symposium at the annual Ecological Society of America conference. San Jose, California.

Sutton-Grier, A.E., C.J. Richardson, and G.L. Bruland. 2007. "The Importance of Soil Processes for Effective Wetland Restoration." Keynote Address at Radford University's 2nd Annual Wetland Symposium. Radford, Virginia.

Sutton-Grier, A.E., C.J. Richardson, and G.L. Bruland. 2006. "Understanding Soil Processes: The Next Frontier of Wetland Restoration." World Congress of Soil Science conference. Philadelphia, Pennsylvania.

Sutton-Grier, A.E., M. Ho, J. Pahl, and C.J. Richardson. 2005. "Compost Use in Urban Restored Wetlands." BioCycle Southeast Conference meeting. Charlotte, North Carolina.

Sutton-Grier, A.E. 2006, 2007. "TA Survival Skills: Getting the most out of your Teaching Assistantship." Invited panelist for Duke University Teaching IDEAS workshop.

B. Presentations

Sutton-Grier, A.E., J.Wright, S. Qian and C.J. Richardson. 2008. "Plant functional diversity and nitrogen removal in a restored riparian wetland." Society of Wetland Scientists meeting, Washington, D.C.

Sutton-Grier, A.E., J.Wright, S. Qian and C.J. Richardson. 2007. "Plant Functional Diversity: A good Predictor of Denitrification and Plant Biomass Nitrogen?" 10th International Symposium on Wetland Biogeochemistry. Annapolis, Maryland.

Sutton-Grier, A.E., J.Wright, S. Qian and C.J. Richardson. 2006. "The role of plant species and functional diversity in the restoration of riparian wetland ecosystem functions." Ecological Society of America conference. Memphis, Tennessee.

Sutton, A. E., D. Bradbury and A. C. Finzi. 2001. "Landscape-scale Variation in Soil Resources: Implications for Forest Composition." Ecological Society of America meeting, Madison, Wisconsin.

C. Posters

Sutton-Grier, A.E., M. Ho and C. J. Richardson. 2005. "Organic Matter Amendments and Water Availability Regulate Soil Biogeochemistry, Plant Survival and Diversity in an Urban Restored Wetland Ecosystem." Ecological Society of America meeting, Montreal, Quebec.

Sutton-Grier, A. E., M. Ho and C. J. Richardson. 2005. "The Role of Organic Matter Amendments in Regulating Soil Biogeochemistry in an Urban Restored Wetland Ecosystem." Society of Wetland Scientists meeting, Charleston, South Carolina.

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Sutton-Grier, A. E., G. L. Bruland and C. J. 2004. "Pre-Restoration Characterization of Spatial Soil Variability in a Piedmont Floodplain Riparian Wetland in North Carolina." Ecological Society of America meeting, Portland, Oregon.

Honors, Awards, and Scholarships

- American Association of University Women American Fellowship (2007-2008)
- 10th International Symposium on Wetland Biogeochemistry "Best Student Presentation" (2007)
- National Science Foundation Graduate Research Fellowship (2003-2006)
- Oregon State University Waldo Cummings Outstanding Senior Award (2000)
- OSU College of Science Outstanding Woman in Science Scholarship (1999)
- Oregon State University Oregon Laurels Scholar (1996-2000)

Research Experience

Smithsonian Fellow, Smithsonian Environmental Research Center (2008-present)

Post-doctoral Researcher: Examining competition between iron-reducing and methane-producing microbes in tidal freshwater marshes to understand wetland greenhouse gas emissions and nutrient cycling.

Wetland Ecology, Biogeochemistry, and Restoration, Duke University (2002-2008)

Research Assistant: Conducted research examining how wetland restoration techniques, including organic matter amendments and plant species diversity, affect the restoration of wetland ecosystem functions. Designed and established a biodiversity experiment in Duke Forest. Performed soil and plant analyses including denitrification enzyme potential, available nitrogen, total nitrogen, and loss on ignition carbon.

Forest Biogeochemistry, Boston University (2000-2002)

Laboratory Manager: Performed nutrient analyses including Potential Net Nitrogen Mineralization, Microbial Biomass, and Total Kjeldhal Nitrogen and Phosphorous to determine element cycling in forest soil and plant samples. Assisted in the development of a ¹⁵N isotope dilution technique to measure gross rates of ammonium and nitrate production and consumption. Collected data on delta ¹³C values in leaves to compare water use efficiencies. Trained undergraduate workers in lab activities, maintained safe, clean lab environment.

Coastal Intertidal Ecology, Oregon State University (Summer 1999)

Research Assistant: Implemented a research project studying herbivores and algal abundance. Gathered data at low tides, analyzed photos using Adobe Photoshop and Image Analyst.

Teaching Experience

Duke University Women's Studies and Nicholas School of the Environment and Earth Sciences (2005)

Instructor: Co-designed and co-taught a multidisciplinary course about Gender and the Environment entitled "Feminism and Ecology" with Melissa Kenney. Implemented the

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course with a focus on student involvement using active learning techniques such as role-plays, discussions and small-group activities. Received excellent student evaluations.

Duke University Nicholas School of the Environment and Earth Sciences (2006-present)

Guest lecturer:

- Wetland Ecology and Management
- Wetland Restoration

Duke University Graduate School (2008)

The College Teaching Practicum: Developed four teaching demonstrations using different visual aids and active learning techniques that were recorded followed by a critical self-evaluation of each demonstration. Also observed and evaluated teaching presentations by peers.

Duke University Nicholas School of the Environment and Earth Sciences (2002/03 and 2006/07)

Teaching Assistant: Wetland Ecology and Management and Wetland Restoration

Responsibilities included lecturing, developing course materials including problem sets and exams, grading of assignments and exams, and assisting with field trips and classroom logistics. Received excellent student evaluations.

Duke University Graduate School (2005-2006)

Preparing Future Faculty: Worked with two mentors, Professors Janice Swab and Elizabeth Wolfinger, at Meredith College finding out about faculty life, responsibilities and teaching. Guest lectured in the senior research seminar class.

Articles and T.V. Specials featuring my research

- Public Broadcasting (PBS) Dragonfly TV “Wetlands of North Carolina” Kids’ science show, Spring 2007
- Duke Magazine “Plant Manager,” July-August 2006
- News and Observer, Raleigh, NC. “Duke scholars work to restore wetlands-on campus” Aug. 22, 2005

Activities

A. Reviews for Scientific Journals

- Journal of the North American Benthological Society
- Soil Science Society of America
- Nutrient Cycling in Agroecosystems
- Aquatic Botany
- Chemosphere

B. Activities

- Symposium. Biodiversity and Restoration in a Changing World. Ecological Society of America Annual Meeting, San Jose, 2007. Co-Organizers: Justin Wright and Roberto

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- Duke Representative at the National Conference on Graduate Student Leadership, 2007
- Duke University Commencement Committee (2006)
- Duke University Consortium on Teaching and Learning (2005-present)
- Duke University Graduate and Professional Women's Network (2002-present), Advisory Board (2006-present)
- Duke University, Nicholas School of the Environment and Earth Sciences, New Building Committee (2004-2006)
- Duke University Women in Science and Engineering (2002-present)
- Pathways to the Professoriate (2003)

C. Educational and Mentoring Activities

- Durham Women and Math Mentor for two 8th grade girls, 2008
- PBS Dragonfly TV "SciGirls" Mentor, 2006
- Wetland Educator for the North Carolina Museum of Life and Science, 2005-2006
- Group Leader for N.C. State "Expanding Your Horizons" Math and Science Conference for 8th grade girls, 2004, 2005, 2007

D. Professional Organizations, Memberships

- Sigma Xi Scientific Research Society (2005-present), Events Committee Chair of the Duke Chapter of Sigma Xi (2005-2008)
- American Association for the Advancement of Science (2006-present)
- Ecological Society of America (2003-present)
- Society of Wetland Scientists (2003-present)