

Curriculum Vitae

STEVEN PETER HAMBURG

Environmental Defense Fund
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EDUCATION

Yale University	Ph.D. (Forest Ecology)	1984
Yale School of Forestry and Environmental Studies	M.F.S.	1977
Vassar College	B.A.	1975

PROFESSIONAL APPOINTMENTS

2008 – present	ENVIRONMENTAL DEFENSE FUND Chief Scientist Ensure that EDF's advocacy is based on the best available science	Boston, MA
2009 – Present	CARY INSTITUTE FOR ECOSYSTEM STUDIES Adjunct Scientist	
2010 – present	BROWN UNIVERSITY Adjunct Associate Professor	Providence, RI
1997-2008	Director - Watson Institute Global Environment Program Coordinate research efforts of Global Environment Program	
1994-2010	Ittleson Associate Professor of Environmental Studies Joint Appointment in Environmental Studies and Ecology and Evolutionary Biology (unpaid leave 2008-2010)	
1994-1995	ENVIRONMENTAL DEFENSE FUND Senior Ecologist Responsible for developing program in ecosystem impacts of climate change (on 80% leave from Brown University)	New York, NY
1990-1994	UNIVERSITY OF KANSAS University Environmental Ombudsman Responsible for initiating changes in University programs and policies in order to minimize their environmental impacts. Report to Executive Vice Chancellor - Lawrence	Lawrence, KS
1990-1994	Director - Environmental Studies Program Responsible for coordination and direction of interdisciplinary program with 350 undergraduate majors	
1991-1994	Associate Professor	

Hamburg CV

Page 2

Joint appointment - Environmental Studies Program and Department of Systematics and Ecology

- 1985-1991 **Assistant Professor**
Joint appointment Environmental Studies Program and Department of Systematics and Ecology
- 1991-1992 HARVARD UNIVERSITY Petersham, MA
Bullard Fellow
Carry out research on the impact of disturbances on ecosystem function at major ecological research sites.
- 1984-1985 STANFORD UNIVERSITY Stanford, CA
Post-Doctoral Fellow (with Dr. Hal Mooney)
Conducting research on nutrient cycling and community dynamics in a serpentine grassland
- 1982-1983 YALE UNIVERSITY New Haven, CT
Research Assistant (with Dr. F.H. Bormann)
Conducted research on long-term nitrogen metabolism of forest ecosystems using macrolysimeters
- 1979-1981 **Teaching Assistant**
Graduate level soils laboratory
- 1978-1979 **Research Assistant** (with Dr. F. H. Bormann)
Conducted research on rates of nitrogen and organic matter accumulation following old-field succession.
- 1977 UNITED STATES FOREST SERVICE Sitka, AK
Soils Technician
Conducted experiments to assess nutrient losses from logging activities in southeast Alaska
- 1976 ENVIRONMENTAL PROTECTION AGENCY Narragansett, RI
Biologist
Developed techniques to monitor long term growth of individual plants of eelgrass, *Zostera marina* L.

SCHOLARSHIP

Books/Monographs

King, H-b, **S.P. Hamburg**, Y-j Hsia, eds. 1997. *Long-Term Ecological Research: East Asia-Pacific Region*. Taiwan Forestry Research Institute. Taipei, Taiwan, R.O.C. 125 pp.

Watson, R.T., J.A. Dixon, **S.P. Hamburg**, A.C. Janetos, R.H. Moss. 1998. *Protecting our planet, securing our Future: Linkages among Global Environmental Issues and Human*

Needs. United Nations Environmental Programme, US NASA, The World Bank. 95 pp.

Book chapters and reports

Hamburg, S.P. 1984. Effects of forest growth on soil nitrogen and organic matter pools following release from subsistence agriculture. IN: E.L. Stone ed. *Forest Soils and Treatment Impacts*, University of Tennessee, Knoxville. pp. 145-158.

Mooney, H.A., **S.P. Hamburg** and J.A. Drake. 1986. The invasions of plants and animals into California. IN: H. A. Mooney and J. A. Drake, eds. *Ecology of Biological Invasions of North America and Hawaii*. Springer-Verlag Ecological Studies 58:250-272.

Hamburg, S.P. and R.L. Sanford, Jr. 1986. Disturbance, *Homo sapiens*, and ecology. *Bulletin of the Ecological Society of America* 67:169-171.

Bormann, F.H., W.B. Bowden, R.S. Pierce, **S.P. Hamburg**, R.C. Ingersoll, G.E. Likens and G.K. Voigt. 1988. The Hubbard Brook sandbox experiment IN: W.R. Jordan III, M.E. Gilpin and J.D. Aber, eds. *Restoration Ecology: a synthetic approach to ecological research*. Cambridge University Press 251-256.

Hamburg, S. P. and S. I. Ask. 1992. Environmental Ombudsman at the University of Kansas. In: D. J. Eagan and D. W. Orr eds. *The campus and environmental responsibility*. New Directions for Higher Education. Jossey-Bass, Inc., San Francisco, Number 77. 133 pp.

Lin, T.C., H.B. King, Y.J. Hsia, **S.P. Hamburg**, and C.B. Liou. (1994) An application of multivariate factor analysis to acid deposition data in a forested watershed of northeast Taiwan. Proceedings of the 7Th IUAPPA Regional Conference on Air Pollution and Waste Issues. Taipei, Taiwan, Volume II. pp. 197- 206

Watson, R.T. et al (including **S.P. Hamburg**). 1996. Summary for Policymakers: Scientific-Technical Analyses of Impacts, Adaptations, and Mitigation of Climate Change: IN Watson, Zinyowera and Moss eds. *Climate Change 1995: Impacts, adaptations and Mitigation of Climate Change: Scientific-Technical Analyses*. Cambridge University Press, Cambridge. pp 1-18.

Watson, R.T. et al (including **S.P. Hamburg**). 1996. Technical Summary: Scientific-Technical Analyses of Impacts, Adaptations, and Mitigation: IN Watson, Zinyowera and Moss eds. *Climate Change 1995: Impacts, adaptations and Mitigation of Climate Change: Scientific-Technical Analyses*. Cambridge University Press, Cambridge. pp 19-53.

Kirschbaum, M.U.F. et al. (including **S.P. Hamburg**). 1996 Ecophysiological, ecological and soil processes in terrestrial ecosystems: a primer on general concepts and relationships: IN Watson, Zinyowera and Moss eds. *Climate Change 1995: Impacts, adaptations and Mitigation of Climate Change: Scientific-Technical Analyses*. Cambridge University Press, Cambridge. pp 57-74.

- Haimson, L. et al. (including **S.P. Hamburg**). 1996 A Moment of Truth: Correcting more errors in Gregg Easterbrook's A Moment on the Earth, Part Two. Environmental Defense Fund, New York. 110pp.
- Bloomfield, J. and **S.P. Hamburg**. 1997. *Seasons of Change: Global Warming and New England's White Mountains*. Environmental Defense Fund, New York, NY. 33 pp.
- Hamburg, S.P.**, N. Harris, J Jaeger, T.R. Karl, M. McFarland, J.F.B. Mitchell, M. Oppenheimer, B.D. Santer, S. Schneider, K.E. Trenberth, T. M. L. Wigley. 1997. *Common Questions about Climate Change*. United Nations Environmental Program and World Meteorological Organization. Nairobi, Kenya. 24 pp.
- Bloomfield, J. and **S.P. Hamburg**. 1997. Summary of the Report: "Seasons of Change: Global Warming and New England's White Mountain" in New England Regional Climate Change Impacts Workshop: Workshop Summary Report Institute for the Study of Earth, Oceans, and Space. University of New Hampshire. Durham, NH, USA. pp. 93-96.
- Hsia, Y-J., King, H-B., Horng, F-W., Lin, T-C., Wang, L-J., Lin, K-C., Lin, T-T., and **Hamburg, S.P.** 1998. Biogeochemistry and Hydrology of a Moist, Subtropical, Mixed Evergreen Forest: Use of the Small Watershed Technique, IN Toshio Iwakuma ed. *Long-term Ecological Research in the East Asia-Pacific Region: Biodiversity and Conservation of Terrestrial and Freshwater Ecosystems*. Center for Global Environmental Research, National Institute for Environmental Studies, Tsukuba, Japan. 220 pp.
- King, H-B., **Hamburg, S.P.** 1998. East Asia-Pacific Regional Long-term Ecological Research Network. IN Toshio Iwakuma ed *Long-Term Ecological Research in the East Asia-Pacific Region: Biodiversity and Conservation of Terrestrial and Freshwater Ecosystems*. Center for Global Environmental Research, National Institute for Environmental Studies, Tsukuba, Japan. 220 pp.
- Schlamadinger, B., Karjalainen, T., **Hamburg, S.** (Among 15 other authors). 2000. Afforestation, reforestation, and deforestation (ARD) Activities IN :Watson, R. T. , Noble, I. R., Bolin, B., Ravindranath, N.H., Verardo, D.J., Dokken, D.J. eds. *Land Use, Land-use Change, and Forestry*. Intergovernmental Panel on Climate Change. Cambridge University Press Pg 127-179
- Orenstein, D. and **S. Hamburg** 2005 The JNFs Assault on the Negev *The Jerusalem Report* (November 28 issue).
- Campbell, J.L., Driscoll, C.T., Eager, C., Likens, G.E., Siccama, T.G., Johnson, C.E., Fahey, T.J., **Hamburg, S.P.**, Holmes, R.t., Bailey, A.S., Buso, D.C. 2007 Long-term trends from collaborative ecosystem research in the Hubbard Brook Valley, New Hampshire. USDA Forest Service Northern Research Station - General Technical Report NRS-17
- Hamburg, S.P.**, Pryor, D. and M.A. Vadeboncoeur. 2008. Nitrogen Inputs to Narragansett Bay: an Historical Perspective IN Desbonnet, A. and B Costa-Pierce

eds. *Science for Ecosystem-based Estuarine Management: Narragansett Bay in the 21st Century* Springer New York Pp 177-210.

Referred journal articles

- Thorne, J.F. and **S.P. Hamburg**. 1985. Nitrification potentials of an old-field chronosequence in Campton, New Hampshire. *Ecology* 66:1333-1338.
- Hamburg, S.P.** and P.S. Homann. 1986. Utilization of growth parameters of eelgrass, *Zostera marina*, for productivity estimation under laboratory and *in situ* conditions. *Marine Biology* 93:299-304.
- Strayer, D., D.H. Pletscher, **S.P. Hamburg** and S.C. Nodvin. 1986. The effects of forest disturbance on land gastropod communities in northern New England. *Canadian Journal of Zoology* 64:2094-2098.
- Williams, K., R.J. Hobbs and **S.P. Hamburg**. 1987. Invasion of an annual grassland in Northern California by *Baccharis pilularis ssp. consanguinea*. *Oecologia* 72:461-465.
- Hamburg, S.P.** and C.V. Cogbill. 1988. Historical decline of red spruce populations and climatic warming. *Nature* 331:428-431.
- Huntington, T.G., D.F. Ryan and **S.P. Hamburg**. 1988. Estimating soil nitrogen and carbon pools in a northern hardwood forest ecosystem. *Soil Science Society of America Journal* 52:1162-1167.
- Koide, R.T., L.F. Huenneke, **S.P. Hamburg** and H.A. Mooney. 1988. Effects of applications of fungicide, phosphorus and nitrogen on the structure and productivity of an annual serpentine plant community. *Functional Ecology* 2: 335-344.
- Huenneke, L.F., **S.P. Hamburg**, R. T. Koide, H.A. Mooney, and P.M. Vitousek. 1990. Effects of soil resources on plant invasion and community structure in Californian serpentine grassland. *Ecology* 71:478-486.
- Herkelrath, W.N., **S.P. Hamburg**, and F. Murphy. 1991. Automatic, real-time monitoring of soil moisture in a remote field area with time-domain reflectometry. *Water Resources Research* 27:857-864.
- Robinson, G. R., R. D. Holt, M. S. Gaines, **S. P. Hamburg**, M. L. Johnson, H. S. Fitch, E. A. Martinko. 1992. Habitat Fragmentation has different consequences for different organisms. *Science*. 257:524-526.
- Knapp, A. K., J. T. Fahnestock, **S. P. Hamburg**, L. J. Statland, T. R. Seastedt and D.S. Schimel. 1993. Landscape patterns in soil-plant water relations, net photosynthesis and primary production in tallgrass prairie. *Ecology*. 74:549-560.

- Bormann, B., F. H. Bormann, W. B. Bowden, R. S. Pierce, **S. P. Hamburg**, D. Wang, M. C. Snyder, R. C. Ingersoll. 1993. Rapid N₂ fixation in pine, alder and locust: evidence from a confined ecosystem study. *Ecology*. 74:583-598.
- Siccama, T. G., **S. P. Hamburg**, M. A. Arthur, R. D. Yanai, F. H. Bormann, and G. E. Likens, 1994. Corrections to Allometric Equations and Plant Tissue Chemistry for Hubbard Brook Experimental Forest. *Ecology*. 75:246-248.
- Schott, G.W. and **S.P. Hamburg**. 1997. The Seed rain and seed bank of a native tall-grass prairie/old-field transition. *Canadian Journal of Botany* 75:1-7.
- Lin, T-C., **S.P. Hamburg**, H-B King and Y-J Hsia. 1997. Spatial variability of throughfall in a subtropical rain forest in Taiwan. *Journal of Environmental Quality*. 26:172-180.
- Utkin A.I., D.G. Zamolodchikov, G.N. Korovin, V.V. Nefedev, T.A. Gulbe, Y. I. Gulbe, **S.P. Hamburg**. 1997. Determination of stand carbon stock in sample plots: comparison of allometric and conversion-volumetric methods. *Lesovedenie* (Forest Science) 5:51-66. (In Russian).
- Hamburg, S.P.**, D.G. Zamolodchikov, G.N. Korovin, V.V. Nefedjev, A.I. Utkin, J.I. Gulbe and T.A. Gulbe. 1997. Estimating the carbon content of Russian forests; a comparison of phytomass/ volume and allometric projections. *Mitigation and Adaptation Strategies for Global Change*. 2:247-265.
- Mabry, C.M., **S.P. Hamburg**, T-C. Lin, F-W. Horng, H-B. King, Y-J. Hsia. 1998. Typhoon disturbance and stand-level damage patterns at a sub-tropical forest in Taiwan. *Biotropica* 30:238-250.
- Muth, N.Z. and **S.P. Hamburg**. 1998. Purple Loosestrife control policies in Rhode Island. *Northeast Naturalist* 5:67-74.
- Hamburg, S.P.** and T.-C. Lin. 1998. Throughfall chemistry of an ecotonal forest on the edge of the Great Plains. *Canadian Journal of Forest Research* 28:1456-1463.
- Hamburg, S.P.** 2000. Simple rule for measuring changes in ecosystem carbon in forestry-offset projects. *Mitigation and Adaptation Strategies for Global Change* 5:25-37.
- Lin T-C., **Hamburg, S.P.**, H-B. King, and Y-J Hsia. 2000. Throughfall Patterns in a subtropical rain forest of Northeastern Taiwan. *Journal of Environmental Quality*. 29:1186-1193.
- Arthur, M.A., **S.P. Hamburg** and T.G. Siccama. 2001. The accuracy of allometric estimates of aboveground living biomass and nutrient contents of a northern hardwood forest. *Canadian Journal of Forest Research* 31:11-17.

- Lin, T.-C., **S.P. Hamburg**, Y.-J. Hsia, H.-B. King, L.-J. Wang and K.-C. Lin. 2001. Base cation leaching from the canopy of a subtropical rainforest in northeastern Taiwan. *Canadian Journal of Forest Research*. 31:1156-1163
- Kirschbaum, M.U.F., B. Schlamadinger, M.G.R. Cannell, **S.P. Hamburg**, T. Karjalainen, W.A. Kurtz, S. Prisley, E.-D. Schulze and T.P. Singh . 2001. A generalized approach of accounting for carbon stock changes under the Kyoto Protocol. *Environmental Science and Policy* 4:73-85.
- Neilson, C.B., P.M. Groffman, **S.P. Hamburg**, C.T. Driscoll, T.J. Fahey and J.P. Hardy. 2001. Freezing effects on carbon and nitrogen cycling in soils from a northern hardwood forest, *Soil Science Society of America Journal* 65:1723-1730
- Rhoads, A.G. **S.P. Hamburg**, T. J. Fahey, T.G., Siccama, E.N. Hane, J. Battles, C. Cogbill, J. Randall and G Wilson. 2002. Effects of an intense ice storm on the structure of a northern hardwood forest. *Canadian Journal of Forest Research*. 32:1763-1775.
- Hane, E.N. and **S.P. Hamburg**. 2002. Community dynamics of an Oak-hickory ecotonal Forest in Northeastern Kansas. *Great Plains Research* 12:275-294
- Hamburg, S.P.**, R.D. Yanai, M.A. Arthur, J.D. Blum. T.G. Siccama. 2003. Biotic control of calcium cycling in northern hardwood forests: acid rain and aging forests. *Ecosystems* 6:399-406
- Hane, E.N., **S.P. Hamburg**, J. Plaut and A. Barber. 2003. Phytotoxicity of American beech *Fagus grandifolia* leaf leachate to sugar maple *Acer saccharum* seedlings in a greenhouse experiment. *Canadian Journal of Forest Research* 33:814-821
- Lin, T.-C., **S.P. Hamburg**, Y.-J. Hsia, T.-T. Lin, H.-B. King, L.-J. Wang and K.-C. Lin. 2003. Influences of typhoon disturbance on the understory light of a subtropical rain forest in Northeastern Taiwan. *Journal of Forest Research* 8: 139-145.
- Lin, K.C., **S.P. Hamburg**, S.L. Tang, Y.J. Hsia, T.C. Lin. 2003 Typhoon effects on litterfall in a subtropical forest. *Canadian Journal of Forest Research* 33:2184-2192
- Rhoads, A.G. **S.P. Hamburg**, T.J. Fahey, T.G. Siccama and R. Kobe. 2004. Comparing direct and indirect methods of assessing canopy structure in a northern hardwood forest *Canadian Journal of Forest Research* 34:584-591
- Yanai, R.D., J.D. Blum, **S.P. Hamburg**, S.P., M.A. Arthur, T.G. Siccama, C. Nezat. 2005. New insights into Calcium depletion in Northeastern forests. *Journal of Forestry* 103:14-20
- Fahey, T.J., T.G. Siccama, C.T. Driscoll, G.E. Likens, J. Campbell, C.E. Johnson, J.J. Battles, J.D. Aber, J.J. Cole, M.C. Fisk, P.M. Groffman, **S.P. Hamburg**, R.T. Holmes, P.A. Schwarz, R.D. Yanai. 2005. The Biogeochemistry of Carbon at Hubbard Brook. *Biogeochemistry* 75:109-176

- Yanai, R.D., B.B. Park and **S.P. Hamburg**. 2006. The vertical and horizontal distribution of roots in northern hardwood stands of varying age. *Canadian Journal of Forest Research* 36:450-459.
- Lin T-C., J-H Jung, H-M Hsiao and **S.P. Hamburg**. 2006. Understory light at the Fushan Experimental Forest in Northeastern Taiwan: Watershed and Landscape Perspectives *Taiwan Journal of Forest Science* 21:131-145.
- Leighty, W.W., **S.P. Hamburg**, J. Caouette. 2006 Effects of forest management on carbon sequestration in Southeastern Alaska. *Ecosystems* 9:1051-1065
- Bradley, B.A. R.A. Houghton, J.F. Mustard and **S.P. Hamburg**. 2006. Invasive grass reduces carbon stocks in the shrublands of the Western US. *Global Change Biology* 12:1-8
- Elmore, A.J., J.F. Mustard, **S.P. Hamburg** and S.J. Manning. 2006. Agricultural Legacies in the Great Basin alter vegetation response to precipitation and vegetation composition. *Ecosystems* 9:1231-1241.
- Park, B.B., R.D. Yanai, M. A. Vadeboncoeur and **S.P. Hamburg**. 2007. How to estimate root biomass: pits cores, or allometric equations. *Soil Science Society of America Journal* 71:206-213
- Vadeboncoeur, M. A., **Hamburg, S.P.**, and Yanai, R.D. 2007. Validation and Refinement of Allometric Equations for Roots of Northern Hardwoods. *Canadian Journal of Forest Research* 37: 1777-1783.
- Nezat, C.A., J.D. Blum, R.D. Yanai, and **S.P. Hamburg**. 2007 A sequential extraction to determine the distribution of apatite in granitoid soils with application to weathering at the Hubbard Brook Experimental Forest, NH, USA *Applied Geochemistry* 22:2406-2421
- Skeldon, M, M.A. Vadeboncoeur, **S.P. Hamburg** and J.D. Blum, 2007 Terrestrial gastropod responses to an ecosystem-level calcium manipulation in a northern hardwood forest. *Canadian Journal of Zoology*. 85:994-1007
- Blum, J.D., A.A. Dasch, **S.P. Hamburg** R.D. Yanai and MA Arthur. 2008 Use of foliar Ca/Sr discrimination and $^{87}\text{Sr}/^{86}\text{Sr}$ ratios to determine soil Ca sources to sugar maple foliage in a northern hardwood forest. *Biogeochemistry* 87:287-296.
- Robertson, G.P., V.H. Dale, O.C. Doering, **S.P. Hamburg**, J.M. Melillo, M.M. Wander (17 additional authors) 2008 Sustainable biofuels Redux *Science* 322:49-50
- Henman, J.E., **S.P. Hamburg** and A.A.S. Vega 2008 Feasibility and barriers to entry for small-scale CDM forest carbon projects: a case study from the northeastern Peruvian Amazon. *CCLR* 3:254-263.

- Tsai, C-J, T.C. Lin, J.L. Hwong, N.H. Lin, C.P. Wang and **S.P. Hamburg** 2009 Typhoon impacts on stream water chemistry in a plantation and an adjacent natural forest in central Taiwan. *Journal of Hydrology* 378: 290-298
- Searchinger, T., **S.P. Hamburg**, J Melillo, W. Chameides, P. Havlik, D.M. Kammen, G.E. Likens, R. Lubowski, M. Obersteiner, M. Oppenheimer, G.P. Robertson, W. Schlesinger, and G.D. Tilman 2009 Fixing a Critical Climate Accounting Error *Science* 326:527-528
- Weeks, B.C., **S.P. Hamburg** and M.A. Vadeboncoeur. 2009. Ice Storm Effects on the Canopy Structure of a Northern Hardwood Forest after Eight Years. *Canadian Journal of Forest Research* 39:1475-1483
- Orenstein, D.E. and **S.P. Hamburg**. 2009 To Populate or Preserve? Evolving Political-Demographic and Environmental Paradigms in Israeli Land Use Policy. *Land Use Policy* 26:984-1000
- Fahey, T.J., P.B. Woodbury, J.J. Battles, C.L. Goodale, **S. P. Hamburg**, S. Ollinger and C.W. Woodall. 2010. Forest carbon storage: ecology, management and policy. *Frontiers in Ecology and the Environment* 8:245-252
- Orenstein, D.E. and **S.P. Hamburg**. 2010 Population and Pavement: Population Growth and Land Development in Israel. *Population and Environment*. 31(4):223-254.
- Schaller, M., J.D. Blum, **S.P. Hamburg** and M.A. Vadeboncoeur. 2010 Spatial variability of long-term chemical weathering in the White Mountains, New Hampshire, USA *Geoderma* 154:294-301
- Meyer, J.D., P.C. Frumhoff, **S.P. Hamburg** and C. de la Rosa. 2010 Above the Din but in the fray: environmental scientists as effective advocates. *Frontiers in Ecology and the Environment* 8:298-304
- Vadeboncoeur, M., **S.P. Hamburg** and D. Pryor. 2010. Modeling Nitrogen loading to Narragansett Bay: 1850 to 2015 *Estuaries and Coasts* 33:1113-1127
- Orenstein, D.E., L. Jiang, and **S.P. Hamburg**. 2011. An Elephant in the Planning Room: Political-Demography and its Influence on Sustainable Land Use Planning in Drylands. *Journal of Arid Environment* 75:596-611
- Fatemi, F,R,, R. D. Yanai, **S. P. Hamburg**, M. A. Vadeboncoeur, M. A. Arthur, R. D. Briggs, and C. R. Levine, 2011. The Influence of Stand Age on Aboveground Allometry of Northern Hardwood Tree Species. *Canadian Journal of Forest Research* 41:1-11
- Lin, T-C., **S.P. Hamburg**, K-C Lin, L-J. Wang, C-T Chang, Y-J Hsia, M.A. Vadeboncoeur, C.M. M. McMullen and C-P Liu. 2011. Typhoon Disturbance and Forest Dynamics: Lessons from a Northwest Pacific Subtropical Forest. *Ecosystems (in press)*

Orenstein, D.E., B. Bradley, J. Albert, J. Mustard, and **S.P. Hamburg**. 2011. The Truth is in the Data? Comparative Methodologies for Monitoring Urban Development in Israel. *International Journal of Remote Sensing (in press)*

Lectures Given in 2010 - 2011

Cornell University, University California at Davis and Berkeley, Brandies University, University of Texas at Austin, Energy Information Administration, Washington State University, Vassar College, Society of American Foresters Annual Meeting, American Forest and Paper Association, Bioenergy Power Association, National Archives

University Service (partial listing)

BROWN UNIVERSITY

CES Director search 2007-2008
Director, Watson International Scholars of the Environment 2006-present
CCURB committee 2007-present
CES Director Graduate Studies 2004 – 2008
Environmental Science Concentration Advisor 1995 - 2008
Energy and Environmental Advisory Committee 2006 – 2008
Vice Chair (2005- 2008) Campus Planning Advisory Committee 2004- 2008
CES/ECI Director Search Committee 2003-2004
Chair, Global Environment/CES assistant Professor search committee - 2002
Strategic Planning Committee – Watson Institute 2001
Conservation Biologist Search Committee – 1999-2000
Chair-Environmental Sciences Assistant Professor (Research) Search - 1997-1998
NEASC accreditation Steering Committee - 1997-1998
Strategic Planning Committee - Liberal Education in the 21st Century - 1996-1997
MacMillan Hall Building Committee - 1994-1998
Among many others

Student advising:

Freshman advisor -	8 advisees - 1996-1997 10 advisees – 2000-2001 6 advisees – 2002-2003
Sophomore advisor -	1 advisee - 1996-1997 2 advisees - 1997-1998 4 advisees - 1998-1999 2 advisees – 1999-2000 2 advisees – 2003-2004 2 advisees – 2004-2005 3 advisees – 2006-2007 3 advisees – 2007 - 2008
Concentration advisor -	21 advisees - 1997-1998 19 advisees - 1998-1999 18 advisees – 1999-2000 11 advisees – 2000-2001

Hamburg CV

Page 11

	11 advisees – 2002-2003
	14 advisees – 2003-2004
	12 advisees – 2004-2005
	12 advisees – 2005-2006
	12 advisees – 2006-2007
	19 advisees – 2007-2008
Graduate committees -	6 committees - 1997-1998
	6 committees - 1998-1999
	5 committees – 1999-2000
	4 committees – 2000-2001
	3 committees – 2002-2003
	7 committees – 2003-2004
	5 committees – 2004-2005
	7 committees – 2005-2006
	6 committees – 2006-2007
	6 committees – 2007-2008

Doctoral Dissertations Supervised:

Daniel Orenstien, 2006. Drivers and Ecological Implications of land-use / Land cover change in Israel

Anne Rhoads, 2004. Role of disturbance in the structure and function the northern hardwood forest.

Elizabeth Hane, 2001. Multi-factor interactions in the decline of *Acer saccharum* regeneration in the White Mountains of New Hampshire 155 pp.

Masters' Theses Supervised:

William Yandik, 2008. The effects of low-density residential development on avian species richness in an exurban second-growth temperate forest.

Celia Reichel 2008. Socio-demographic drivers of land use change on non-industrial private forestland

Jessica Hunter 2008. Greenways and Water Quality Protection? A Comparison of Urban Land-use in Curitiba, Brazil, and Providence, Rhode Island

Stephanie Elson, 2006. Transformation of rural New England to an Exurban landscape: Campton, NH case study

Adam Wienert, 2006. Understanding the carbon implications of exurban development in the White Mountains of New Hampshire

Farhod Maksudov, 2006. Environmental impacts of Independence: Uzbekistan

Jennifer Henman, 2004 Feasibility of Peru using the CDM to meet its conservation goals in the Peruvian Amazon

David Rowland, 2002. Forestry Management and Carbon Storage in New Hampshire

(<http://envstudies.brown.edu/thesis/2001/rowland/index.htm>)

Leslie Katz, 2000. Management plan for the Block Island Salt Pond.

James Henson ,1999. Does JABOWA work? A verification study and its policy implications.

Malena Sell, 1999. Climate Change Mitigation Projects in the forestry sector: the significance of co-benefits beyond carbon sequestration.

- Hugh Brandt, 1997. Creating Choice Through Information: Educating Consumers to Consider Environmental Impact When They Purchase Electricity in a Deregulated Market
- Avijit Sen, 1997. Characterization of water temperature in Mount Hope Bay in the influence of thermal discharge from Brayton Point power plant

Undergraduate Theses Supervised:

- Moen, Erica (ScB) 2008 honors. Air Quality and Environmental Health in a Developing Sub-Saharan City: Case Study of Abuja, Nigeria
- Dennis, Lauren (AB) 2008 honors. The importance of fragmentation and its associated threats on a coastal old-growth beech forest.
- Ridhibhinyo, Nina (ScB) 2008 honors. Managing urban natural areas using a scientific framework
- Genello, Laura (ScB) May 2007 honors. The dirt on organic: soil fertility differences between organic and conventional farms in New England.
- Austin, Kemen (ScB) May 2007 honors The intersection of land use history and exurban development: Implications for carbon storage in the northeast
- Deringer, Molly (AB). May 2006. honors From Woodlots to House Lots? A Parcel-level Analysis of Private Forestry in Four Central New Hampshire Towns.
- Forsyth, Elizabeth (ScB). May 2006. honors. Patterns of Typhoon Damage in Two Subtropical Forests (Royce Fellow)
- Fuller, Christopher (ScB). December 2006. The Legacy of Subsistence Agriculture on New England's Successional Forest Soils: A 25-year Direct Measurement Perspective.
- Harris, Maria (ScB). May 2006. honors. Recent and Historic Land Covers of the Big River Management Area Implications for Early Successional Habitat Management.
- Ross, Noam (ScB). May 2006. honors. Soil Organic Carbon at Lake Hovsgol, Mongolia: The Role of Grazing and Permafrost.
- Brian Weeks (BA) May 2006. honors. The impacts of an ice storm on the forest canopy of a Northern Hardwood forest
- Monica Skeldon (ScB) May 2006. honors. The Ecology of Terrestrial Gastropod Distribution in the Northern Hardwood Forest
- Maria Hast (ScB) May 2006. honors. Snag Biomass and Dynamics in a Neotropical Rainforest
- Monica Candal (ScB) May 2005. Identifying Sites for Successful Eelgrass Restoration in Narragansett Bay, Rhode Island
- Aaron Wdowin (ScB) May 2005. Is the quality of water in the Big River Management Area affected by land use?
- Timothy Downing (ScB) May 2005. honors. Modeling shrub encroachment in Shompole Group Ranch, Kenya
- Michal Kapitulnik (ScB) May 2005 A Tree Grows in Kenya: The Status of *Prunus africana* in the Kakamega Forest, Western Kenya.
- Glenday, J (ScB) May 2004. honors. Carbon Storage and Carbon Emission Offset Potential in an African Tropical Forest (Royce Fellow – Faculty Scholar).
- Apte, J (ScB) honors May 2004. Residential windows, greenhouse gas emissions and the Potential of Emerging Window Technologies. (Royce Fellow)

- Wang, L (ScB) May 2003. Climate change in New England: Implications for a vector Borne disease.
- Leighty, W (ScB) May 2001. honors. Modeling the effects of potential management regimes on carbon sequestration in the Tongass National Forest, USA, using spatial analysis. (Royce Fellow – Faculty Scholar)
- Balazs, C. (ScB) honors May 2001. Deforestation and Human Land-Use Dynamics in the Brazilian Amazon: A Case Study Using Remote Sensing and GIS
- Smith, J. (ScB) May 2000. A management plan for Slater Island, Slater Park, Pawtucket.
- Chuang, T. (ScB) May 2000. honors. Ambient air pollution and daily mortality in Taipei, Taiwan and Hong Kong, China
- Sinaikin, J (ScB) May 2000. The effect of Nitrogen and Phosphorous fertilization on the Cation Exchange Capacity of Artic Soils and Plant Nutrient Content
- Coleman, K. (ScB) May 2000. honors An assessment of the possible importance of species composition to calcium cycling in young northern hardwood forest stands
- Fredericks, R. (ScB) December 1999. Carbon dynamics of a New Hampshire hill farm.
- Gokaldas, V. (ScB) December 1999. Telling a story from the ground up: land-use history and vegetation change in Owens Valley, California
- Rotkin-Ellman, M. (ScB) December 1999. Nitrogen uptake in riparian zone soils.
- Abrams, E. (ScB) May 1999. Conservation biology of rare New England plant: *Cynolossum boreale*.
- Atlee, J. (ScB) May 1999. The effects of whole tree harvest on soil carbon and nitrogen after 15 years.
- Denenny, D. (ScB) May 1999. Keeping up, catching up or giving up: mapping plant species distribution changes in a Cape Cod salt marsh to determine the Impact of sea level rise and coastal storms.
- Hardt, B. (ScB) May 1999. Site quality effects of *Ailanthus altissima* and *Acer platanoides* on an urban-rural gradient.
- Schmitt, L. (ScB) May 1999. Exploration of Possible Feedback Mechanisms for Carbon and Nitrogen Cycling in a Forested Ecosystems in response to Global Climate Change.
- Stander, E. (ScB) May 1999. Using epiphytes as bioindicators of acid rain in a subtropical rainforest of Taiwan.
- Hayes, T. (ScB) May 1998. Speak to the past and it shall teach thee: Effect of 250 Years of Agriculture on Soil Characteristics at Casey Farm
- Nielsen. C. (ScB) May 1998. honors. Changes in Microbial Respiration and Nitrogen Cycling Following Soil Freezing
- Nuengsigkapan, P. (ScB) May 1998. honors. Have Our Forests Stopped Growing? Detecting Changes in Forest Productivity Through Analyzing 150 Years of Aboveground Biomass Accumulation in the White Mountains of New Hampshire
- Sanderman, J. (ScB) May 1998. honors. The effects of elevated soil temperatures in root and microbial respiration in a mixed hardwood forest
- Westover, K. (ScB) May 1998. honors. Detecting a Record of Hurricane Strikes and Lead Pollution in Succotash Marsh, Rhode Island

- Perrette, J. (AB) May 1998. The Potential for Community Supported Agriculture (CSA) in Rhode Island: Evaluating the Durability of the CSA Model for Agricultural Decision-Making in the 21st Century
- Jeremy Burns (AB) 1997. Can US Property Insurers (help) Save the Planet? An Examination of Insurance Arrangement, Loss Prevention and Global Climate Change
- Lauri Mignone (AB) 1997. Are Environmental Concerns Compatible With An Increase in Water Usage By Expanding Vermont And New Hampshire Ski Resorts For Snowmaking Purposes?
- Kim Burkland (ScB) 1997. Oregon's History of "Red Tides": A Retrospective Analysis of Shellfish Toxicity Data
- Megan Carney (ScB) 1997. Surface temperatures in Narragansett Bay: Seasonal dynamics and anthropogenic effects
- Wendy Fujikawa (ScB) 1997. Honors. A Reconstruction of the Presettlement Forest in the White Mountains of New Hampshire
- Sibylle Otto (ScB) 1997. honors. Effects of N enrichment and vegetation type on microbial processes in a freshwater tidal marsh
- Gerin River (ScB) 1997. honors. The Magnitude and Mechanisms of Coral Growth Inhibition by a Macroalga
- Molly Smith (ScB) 1997. honors. An Analysis of Land Gastropod Population Declines in the White Mountains of New Hampshire
- Norris Muth (AB) 1997. honors. Purple Loosestrife, a scientific and policy analysis.
- Marn-Yee Lee (AB) 1996. honors. Strengthening global environmental research: A case-study of Long-term Ecological Research (LTER) networking in East Asia.
- Sam Stegman (AB) 1996. Honors. Recreating Riverside Mills: a chance for alignment of the ecological and social improvements on the Woonasquatucket River Greenway?
- Zac Unger (AB) 1996. honors. Rangeland health assessment: historic roots and modern practices.
- Marya Carr (ScB) 1996. honors. Metals levels in Rhode Island municipal sludges and their resulting appropriateness for agricultural use by sod farms.
- Rebecca Miller (ScB) 1996. honors Parasitism of Cranberry Fruitworm by indigenous *Trichogramma* on Cranberries in Massachusetts.
- Christina Seda (ScB) 1996. Identifying sources of fecal coliform to the Orange Juice Creek Tributary, East Providence, RI
- Avijit Sen (ScB) 1996. honors. Characterization of water temperature in Mount Hope Bay in the influence of thermal discharge from Brayton Point power plant.
- Andy Holdsworth (ScB) 1995. honors. Effects of fire on regeneration of an Amazonian Forest
- Josh Berry (AB) 1995. Impacts of climate change on the White Mountains of New Hampshire
- Amy Doherty (AB) 1995. honors. Historical patterns of Eelgrass distribution in Narragansett Bay

Hamburg CV

Page 15

Rockefeller Residency Program - Nature, Culture and Society Executive Committee, 1991-1994.
Univ. Senate Comm. on Libraries, 1986-1989, Chair 1988-1989
Humanities Lecture Committee, 1988-1991
Department of Systematics and Ecology, Admissions Committee, 1989-1991, Co-Chair, 1990-1991
Remote Sensing Search Committee, 1989-1990
Experimental and Applied Ecology Building Comm. Chair 1991-1994
Chair, Applied Ecologist Search Committee, 1992-1993
Environmental Studies Director Search Committee, 1993-1994
Among many other committees served on

Graduate Committees Supervised:

Teresa Shister (Ph.D.) 1989. Risk assessment in environmental policy-- Theory and application to the hazard ranking system
Susan Woontner (MA). 1990. Nitrogen saturation, forest floor dynamics and the Hubbard Brook ecosystem study
Linda Johnston (MA). 1990. Sense of place--an environmental perspective
Gary Schott (MA). 1993. Seed rain in a tallgrass prairie
Teng-Chiu Lin (Ph.D.). 1995. Throughfall dynamics in a subtropical forest.
Elizabeth Hane (MA). 1995. Community Dynamics of a Northeastern Kansas Ecotonal Forest

Undergraduate Theses Advised:

Ashley Sherard. Honors. Conservation Easement law in Kansas
Cynthia Biller. Sigma Xi Undergraduate research award. Calibration of time domain reflectometry
Scott Hayes. Preservation of Agricultural lands in Douglas County, KS

Special Students advised:

Ian Baldwin; 1988-1989. Nitrogen turnover, and old-field succession
Larry Statland; Summer 1989, 1990-6 months. Time domain reflectometry, water relations and the tallgrass prairie

Professional service (since 2000)

Member – National Agricultural Research, Extension, Education and Economics Advisory Board 2009- present (appointed by the Secretary of Agriculture
Co-chair – Solar Radiation Management Governance Initiative, Royal Society 2010- present
Steering committee – Forest Health Initiative (Forest Endowment and USDA)
Steering Committee – Asilomar conference on Geoengineering 2009-2010
Vice Chair, International Long-term Ecological Research Network 2006- 2009
Co-chair International Committee US-LTER 2003- 2008
Board of Editors, Northeastern Naturalist 2002- 2008
NSF Biological Field Station program panel member 2006, 2007
Chair External Review Committee – Earth, Oceans and Space Institute, University of New Hampshire 2005
Chair External Review Committee – Ramat Hanadiv, Rothschild Foundation, Israel 2005

Hamburg CV

Page 16

Participant National Academy of Sciences Meeting on Use of Biosphere 2 2005
Chair, Education and Outreach Committee, Hubbard Brook Ecosystem Study
2003- 2007

Co-chair – US LTER Committee in support of the East Asia and Pacific Region
ILTER network 1999- 2004

Review Panel, International Programs, National Science Foundation – 2001

Switzer Fellowship Selection Committee 2000-2001, 2003, 2007

Steering Committee, New England Science Center Collaborative, 1999- 2008

External Review Committee – Environmental Studies Program, University of
Oregon – 2001

Chair – New Hampshire Voluntary Greenhouse Gas Registry – Carbon
Sequestration Sub-committee 1999-2000

Steering Committee member - East Asia Regional ILTER Network 1995-2007

Member – Future Meetings Committee, Ecological Society of America 1999-2001

Lead Author - Intergovernmental Panel on Climate Change. Special Report on
Land-Use and Land-Cover Change 1998-2000.

Community Service

Member – Board of Directors – Clean Air Cool Planet 2006 – present
Finance Committee member

Vice Chair (2010 – 2011 Chair starting in 2011) – Hubbard Brook Research
Foundation 2007 - Present

Member - Board of Directors, Save the Bay (on leave FY 2002) 1998-present
Vice President 1999-present

Chair - Program and Policy Committee 1999- 2009

Chair – Executive Director Search Committee 2008

Chair - Program Committee of Capital Campaign 1999-2001

Member – Capital Campaign Steering Committee 1999 – 2004

Architect Selection Committee 2000-2001

Building Committee 2002- 2004

Site Implementation Committee – 2001 - 2005

Member – Facilities Committee of Capital Campaign 1999-2001

Member Providence Zoning Commission – Subcommittee on Waterfront and
Environmental Zoning 2005

Member, Governor’s Narragansett Bay Task Force – Nutrients panel 2004

Save the Bay - Bay Experience Task Force 1997

Advisor - Peace Dale Pond Association 1995-1996

Member - Campton, N.H. Planning Board, 1991-1992

President - Kansas Land Trust, 1990-1994

Chief Strategist - Power Line Task Force, 1992-1994

8 Academic Honors

2007 IPCC Nobel Peace Prize (contributing member)

2002, 2008 US EPA Environmental Merit Award

1993 Sixth Annual Seaver Lecturer, University of Kansas

1991-1992 Bullard Fellowship - Harvard University

1990 Nomination - HOPE award - outstanding educator

1990 Selection to teach in Kansas Honors Academy

1987, 2010 Outstanding Paper (S-7) - Soil Science Society

Hamburg CV

Page 17

1982-1983 Fulbright Fellowship - Hebrew University
(Israeli Government Grant) - declined
1981-1982 Yale University Fellowship
1975-1977 Yale Forestry School Fellowship
1971-1975 New York State Regents Scholarship

Current grant support:

Seasons of Change: NSF 2007-2011 PIs Hamburg and Polonsky \$1,750,000

Long Term Ecological Research at the Hubbard Brook Experimental Forest. NSF, 2004-2011. Hamburg subcontract, \$100,000.

Disaster, Resilience and the Built Environment on the Gulf Coast. NSF 2007-2011. PIs Logan, Brown, Hamburg, Morello, Mustard \$750,000

Past grant support:

Effects of land management on soil carbon and nitrogen: abandoned cropland in the tall grass prairie region. General Research Fund, The University of Kansas, July 1986-June 1987, \$4,488. PI - Hamburg.

Tall grass prairie: soil erosion, vegetation, and management regimes. General Research Fund, The University of Kansas, July 1987 - June 1988, \$5,155. PI -Hamburg.

Research on the utilization of remote sensing/GIS Technologies for land management, U.S. Department of Agriculture, July 15, 1987 - September 15, 1988, \$181,068. PI - Martinko (Hamburg - cooperating researcher -\$12,300).

Establishment of a research program to study the characteristics and environmental impacts of atmospheric deposition. Research Improvement Award, The University of Kansas, July 1986 - June 1989, \$100,500. PIs -Lane, Hamburg, Marotz, Randtke, and Martin.

Aerosol nitrogen inputs to a tree/grass ecotone. Environmental Protection Agency, October 1986 - September 1989, \$373,943. PIs - Lane, Hamburg, Marotz, Randtke and Martin.

Accumulation of macronutrients during 70 years of old-field succession. General Research Fund, The University of Kansas, July 1989 - June 1990, \$4,990. PI - Hamburg.

Patch size, herbivory and secondary succession: an experimental study. National Science Foundation, January 1988 - December 1990, \$259,376. PIs - Holt, Gaines, and Hamburg.

Installation of a TDR system. Subcontract from Konza Prairie LTER -- Kansas State University, May-July 1990, \$1,600 direct, \$2,000 indirect. PI-Hamburg.

Development of TDR as an ecological tool. General Research Fund, The University of Kansas, July 1990-June 1991, \$6,511. PI-Hamburg.

Integration of an Historical Perspective into Ecological Research. Andrew W. Mellon Foundation, October 1987 - June 1991, \$95,000. PI - Hamburg.

A Laboratory Building for Kansas Ecological Reserves, National Science Foundation, 1990, \$110,00. PI-Armitage, CoPIs-Hamburg and 6 others.

Synthesis of the Integration of History into Ecology Tropical-Temperate Forest Comparisons. Andrew W. Mellon Foundation, July 1991-June 1993, \$119,000. PIs-Hamburg and Sanford.

Remote Sensing and GIS Approaches to Understanding Ecological Impacts of Global Change. University of Kansas. July 1993-June 1995. \$60,000. PIs-Rich, Gogineni, Hamburg, Holt, and Price.

Nitrogen Pollution and a Subtropical Forest ecosystem. National Science Foundation. July 1993-December 1996, \$120,000. PI-Hamburg.

Teachers and Resources for Environmental Education in Schools. Eisenhower Professional Development Proposal. January 1996-December 1996. \$48,000. PIs-Ward, Hamburg and Rolbin.

A computer Learning Center for Remote Sensing and GIS. NASA 1997-1998. \$160,000 PI's Mustard, Hamburg and Prell.

Long Term Ecological Research at the Hubbard Brook Experimental Forest. National Science Foundation, 1992-1998. PIs-Fahey and Driscoll (Hamburg subcontracts \$20,000).

Calcium, Snails and Moose. Andrew W. Mellon Foundation (subcontract through Yale University) 1996-1999. \$17,000 PI Hamburg.

The dynamics of a semi-arid region in response to climate and water-use policy. NASA. 1997-2000. \$358,000 PI's-Mustard, Hamburg, Grant, Manning and Steinwand

Catalyzing the Flow of North-South Environmental Knowledge at Brown University. Henry Luce Foundation, 2001-2004. PIs - Hamburg and Wetzler. \$1,200,000.

Landscape Dynamics and Land-use Land-Cover Change in the Great Basin-Mojave Desert region. NASA, 2001-2005. \$364,708 PIs Mustard, Hamburg and Manning,

Hamburg CV

Page 19

US-Taiwan research Development visit with EASI: Linking TERN with the US LTER Network through graduate student Visits. NSF. 2003-2005. \$18,600. PI Hamburg.

Long Term Ecological Research at the Hubbard Brook Experimental Forest. National Science Foundation, 1998-2005. PIs-Fahey and Driscoll (Hamburg subcontract \$202,000, including supplements).

Developing a land-use plan for the Big river Management Area Water Resources Board of the Rhode Island. \$30,000 2003, 2005 PI Hamburg

The Biotic Control of Calcium Supply: distinguishing sources to regrowing forests. NSF, 2003-2007. PIs - Yanai, Arthur, Blum and Hamburg \$550,000 (Hamburg subcontract \$147,000).

Linking the US-LTER with the ILTER Network. NSF, 2004-2007. \$520,000. PI – Hamburg.

Katrina and the built environment: spatial and social impact. NSF 2005-2007. \$98,104 PIs Logan, Brown, Hamburg, Morello, Mustard

The Middle East Environmental Futures Project. SEED grant Brown University 2004-2007 \$65,000 PIs Hamburg, Albert, Morello, Goldschnider

Land-use Change: Designing and Implementing New Global Environmental Curricula. Henry Luce Foundation, 2006-2009. PIs –Hamburg, Jacobs, Mustard, Pulver, Wetzler, White . \$550,000.

Mitigating climate change through re-lamping low income households Wal-Mart Foundation 2008 PI Hamburg \$100,000