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Education:

B.A. Environmental Science, University of Virginia, 1980.

Ph.D Ecology, University of Georgia, 1984.

Professional Positions:

2005 – current, Senior Scientist, Institute of Ecosystem Studies

1999 - 2004, Scientist, Institute of Ecosystem Studies

1993 - 1998, Associate Scientist, Institute of Ecosystem Studies.

1992, Assistant Scientist, Institute of Ecosystem Studies.

1987 - 1991, Assistant Professor, Department Natural Resources Sci., Univ. of Rhode Island.

1984 - 1987, Postdoctoral Research Associate, Departments of Crop and Soil Science and Microbiology and Public Health, Michigan State University.

1980 - 1984, Graduate Research Assistant and Graduate Teaching Assistant, Institute of Ecology, University of Georgia.

Research Interests and Activities:

Terrestrial microbial ecology, dynamics of microbial processes at the landscape level, nutrient cycling and transformation of environmental pollutants in wetlands, forests, agro-ecosystems and groundwater.

U.S. National Climate Assessment, Convening Lead Author, Ecosystems, Biodiversity and Ecosystem Services Chapter. 2011 – 2014.

Chair, U.S. Long Term Ecological Research Network Science Council, 2014 – present.

U.S. Climate Change Science Program, Synthesis and Assessment Product Committee on “Thresholds of Change in Ecosystems.” 2007 – 2008.

U.S. National Committee for Soil Science. Board on International Scientific Organization, Policy and Global Affairs Division, National Academy of Sciences. 2007 – 2013.

Intergovernmental Program on Climate Change (IPCC); lead author, chapter on North America (2000) in 3rd Assessment Report, lead author, Wetlands (1995) in 2nd Assessment Report.

Selected Publications:

Grimm, N.B., P.M. Groffman, M. Staudinger and H. Tallis. 2016. Climate change impacts on ecosystems and ecosystem services in the United States: Process and prospects for sustained assessment. *Climatic Change* 135:97-106.

Groffman, P. M., J. M. Grove, C. Polsky, N. D. Bettez, J. L. Morse, J. Cavender-Bares, S. J. Hall, J. B. Heffernan, S. E. Hobbie, K. L. Larson, C. Neill, K. Nelson, L. A. Ogden, J. O'Neil-Dunne, D. E. Pataki, R. Roy Chowdhury, and D. H. Locke. 2016. Satisfaction, water and fertilizer use in the American residential macrosystem. *Environmental Research Letters* 11:034004. doi:10.1088/1748-9326/11/3/034004

Weathers, K.C., P.M. Groffman, E. Van Dolah, E.S. Bernhardt, N.B. Grimm, K. McMahon, J. Schimel, M. Paolisso, R. Maranger, S. Baer, K. Brauman and E.L. Hinckley. 2016. Frontiers in ecosystem ecology from a community perspective: The future is boundless and bright. *Ecosystems* DOI: 10.1007/s10021-016-9967-0.

Groffman, P.M., T.J. Fahey, M.C. Fisk, J.B. Yavitt, R.E. Sherman, P.J. Bohlen and J.C. Maerz. 2015. Earthworms, microbial biomass and nitrogen retention in northern hardwood forest soils. *Soil Biology and Biochemistry* 87:51-58.

Morse, J. L., J. Durán, and P. M. Groffman. 2015. Denitrification and greenhouse gas fluxes in a northern hardwood forest: the importance of snowmelt and implications for ecosystem N budgets. *Ecosystems* 18:520-532.

Groffman, P.M., J. Cavender-Bares, N.D. Bettez, J.M. Grove, S.J. Hall, J.B. Heffernan, S.E. Hobbie, K.L. Larson, J.L. Morse, C. Neill, K. Nelson, J. O'Neil-Dunne, L. Ogden, D. Pataki, C. Polsky, R.R. Chowdhury and M.K. Steele. 2014. Ecological homogenization of urban USA. *Frontiers in Ecology and Environment* 12:74-81.

Polsky, C., J.M. Grove, C. Knudson, P.M. Groffman, N.D. Bettez, J. Cavender-Bares, S.J. Hall, J.B. Heffernan, S.E. Hobbie, K. Larson, J.L. Morse, C. Neill, K.C. Nelson, L.A. Ogden, J. O'Neil-Dunne, D.E. Pataki, R. Roy Chowdhury and M. Steele. 2014. Assessing the homogenization of urban land management with an application to US residential lawncare. *Proceedings of the National Academy of Sciences* 111:4432-4437.

Burgin, A.J., J. Lazar, P.M. Groffman, A.J. Gold and D.Q. Kellogg. 2013. Balancing nitrogen retention ecosystem services and greenhouse gas disservices at the landscape scale. *Ecological Engineering* 56:26-35.

- Groffman, P. M., P. Kareiva, S. L. Carter, N. B. Grimm, J. J. Lawler, M. C. Mack, V. Matzek, and H. Tallis. 2013. Ch. 8: Ecosystems, Biodiversity, and Ecosystem Services. *In* J. M. Melillo, Terese (T.C.) Richmond, and G. W. Yohe, editors. *Climate Change Impacts in the United States: The Third National Climate Assessment*. U.S. Global Change Research Program, <http://nca2014.globalchange.gov/report/sectors/ecosystems>.
- Burgin, A.J. and P.M. Groffman. 2012. Soil O₂ controls denitrification rates and N₂O yield in a riparian wetland. *Journal of Geophysical Research Biogeosciences* *Biogeosciences* 117: G01010. doi:10.1029/ 2011JG001799.
- Groffman, P.M. 2012. Terrestrial denitrification: Challenges and opportunities. *Ecological Processes*: doi:10.1186/2192-1709-1-11.
- Groffman, P.M., L.E. Rustad, P.H. Templer, J.L. Campbell, L.M. Christenson, N.K. Lany, A.M. Soggi, M.A. Vadeboncoeur, P.G. Schaberg, G.F. Wilson, C.T. Driscoll, T.J. Fahey, M.C. Fisk, C.L. Goodale, M.B. Green, S.P. Hamburg, C.E. Johnson, M.J. Mitchell, J.L. Morse, L.H. Pardo and N.L. Rodenhouse. 2012. Climate change effects are manifest in complex and surprising ways in the northern hardwood forest. *BioScience* 62:1056-1066.
- Groffman, P.M. and M.C. Fisk. 2011. Calcium constrains plant control over forest ecosystem nitrogen cycling. *Ecology* 92:2035–2042.
- Groffman, P.M. and M.C. Fisk. 2011. Phosphate additions have no effect on microbial biomass and activity in a northern hardwood forest. *Soil Biology and Biochemistry* 43:2441-2449.
- Harrison, M.D., P.M. Groffman, P.M. Mayer, S.S. Kaushal and T.A. Newcomer. 2011. Denitrification in alluvial wetlands in an urban landscape. *Journal of Environmental Quality* 40:634–646.
- Groffman, P.M., J.P. Hardy, S. Fashu-Kanu, C.T. Driscoll, N.L. Cleavitt, T.J. Fahey and M.C. Fisk. 2010. Snow depth, soil freezing and nitrogen cycling in a northern hardwood forest landscape. *Biogeochemistry* 102:223-238.
- Groffman, P.M., C. Stylinski, M.C. Nisbet, C.M. Duarte, R. Jordan, A.J. Burgin, M.A. Previtali and J.Coloso. 2010. Restarting the conversation: Challenges at the interface between ecology and society. *Frontiers in Ecology and Environment* 8:284-291.
- Groffman, P.M., J.P. Hardy, M.C. Fisk, T.J. Fahey and C.T. Driscoll. 2009. Climate variation and nitrogen and carbon cycle processes in a northern hardwood forest. *Ecosystems* 12: 927–943. DOI: 10.1007/s10021-009-9268-y.
- Groffman, P.M., K. Butterbach-Bahl, R.W. Fulweiler, A.J. Gold, J.L. Morse, E.K. Stander, C.L. Tague, C. Tonitto and P. Vidon. 2009. Challenges to incorporating spatially and temporally explicit phenomena (hotspots and hot moments) in denitrification models. *Biogeochemistry* 93:49-77. DOI: 10.1007/s10533-008-9277-5
- Groffman, P.M. and R.V. Pouyat. Methane uptake in urban forests and lawns. 2009. *Environmental Science & Technology* DOI: 10.1021/es803720h.

- Kaushal, S.S., P.M. Groffman, L.E. Band, C.A. Shields, R.P. Morgan, M.A. Palmer, K.T. Belt, C.M. Swan, S.E.G. Findlay and G.T. Fisher. 2008. Interaction between climate and land use amplifies watershed nitrogen export. *Environmental Science & Technology*. DOI: 10.1021/es800264f
- Kulkarni, M.V., P.M. Groffman and J.B. Yavitt. 2008. Solving the global nitrogen problem: It's a gas! *Frontiers in Ecology and Environment* 4:199-206.
- Groffman, P.M., M.C. Fisk, C.T. Driscoll, G.E. Likens, T.J. Fahey, C. Eagar and L.H. Pardo. 2006. Calcium additions reduce nitrogen cycling in a northern hardwood forest. *Ecosystems* 9:1289-1305.
- Groffman, P.M., J.P. Hardy, C.T. Driscoll and T.J. Fahey. 2006. Snow depth, soil freezing and trace gas fluxes in a northern hardwood forest. *Global Change Biology* 12:1748-1760.
- Groffman P.M., M.A. Altabet, J.K. Böhlke, K. Butterbach-Bahl, M.B. David, M.K. Firestone, A.E. Giblin, T.M. Kana, L.P. Nielsen and M.A. Voytek. 2006. Methods for measuring denitrification: Diverse approaches to a difficult problem. *Ecological Applications* 16:2091-2122.
- Groffman, P.M., J.S. Baron, T. Blett, A.J. Gold, I. Goodman, L.H. Gunderson, B.M. Levinson, M.A. Palmer, H.W. Paerl, G.D. Peterson, N. L. Poff, D.W. Rejeski, J.F. Reynolds, M.G. Turner, K.C. Weathers and J. Wiens. 2006. Ecological thresholds: The key to successful environmental management or an important concept with no practical application? *Ecosystems* 9:1-13.
- Kaushal, S.S., P.M. Groffman, G. E. Likens, K. T. Belt, W. P. Stack, V. R. Kelly, L. E. Band and G. T. Fisher. 2005. Increased salinization of fresh water in the northeastern U.S. *Proceedings of the National Academies of Science of the United States of America* 102:13517-13520.
- Groffman, P.M., N.L. Law, K.T. Belt, L.E. Band and G.T. Fisher. 2004. Nitrogen fluxes and retention in urban watershed ecosystems. *Ecosystems* 7:393-403.
- Groffman, P.M., C.T. Driscoll, G.E. Likens, T.J. Fahey, R.T. Holmes, C. Eagar and J.D. Aber. 2004. No gloom of night: A new conceptual model for the Hubbard Brook ecosystem study. *BioScience* 54:139-148.
- Groffman P.M., P.J. Bohlen, M.C. Fisk and T.J. Fahey. 2004. Exotic earthworm invasion and microbial biomass in temperate forest soils. *Ecosystems* 7:45-54.