Dr. R. KELMAN WIEDER
Curriculum Vitae – January 2021
Department of Biology, Villanova University, Villanova, PA 19085
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Education:

Ph.D. in Biology, West Virginia University, December 1982
Dissertation: Biogeochemical Relationships in *Sphagnum*-dominated Wetlands in West Virginia
M.A. in Biological Sciences, University of Missouri-Columbia, 1978
Thesis: Decomposition of ^{14}C-labeled Fescue Litter in Acid Missouri Strip Mines
B.A. in Biology, Amherst College, Massachusetts, 1974

Professional Experience (since receiving Ph.D.):

Co-Director, Center for Biodiversity and Ecosystem Stewardship, Villanova University, 2019-present
Assistant Vice Provost for Research, August 2016-August 2017
Assistant Vice President for Research and Strategic Initiatives, Villanova University, February 2014-July 2016
Adjunct Faculty, Faculty of Science and Technology, Athabasca University, Athabasca, Alberta, Canada, January 2014-present
Associate Dean for Sciences, College of Liberal Arts and Sciences, Villanova University, June 2005 - May 2012
Program Officer, National Science Foundation, Ecosystem Studies Program; Co-Director, Biocomplexity in the Environment, Dynamics of Coupled Natural and Human Systems Program, June 2003- May 2005
Visiting Professor, Department of Biological Sciences, University of Alberta, Edmonton, Alberta, Canada, sabbatical leave, July 1998 – August 1999
Acting Program Director, Water Resources and Assessment Program, Soils and Soil Biology Program, U.S. Department of Agriculture, National Research Initiative Competitive Grants Program; USDA Program Manager for Joint NSF/NASA/USDA/DOE Terrestrial Ecology and Global Change Program (leave of absence), January 1998 – July 1998
U.S. Department of Agriculture, National Research Initiative Competitive Grants Program; Panel Manager, Forest/Rangeland/Crop/Aquatic Ecosystems Panel, 1996-1997; Program Director, Soils and Soil Biology, Water Resources Assessment and Protection Programs, 1998
Professor of Biology, Villanova University, 1991 - present
Sabbatical leave, 1991-1992, 1998-1999 academic years; Fall 2017
Tenure awarded, June 1990
Senior Ecologist, Ecological Society of America Certification, 1989; renewed 1994
Associate Professor of Biology, Villanova University, September 1987 - August 1991
Technical Advisor, U.S. Office of Surface Mining, Eastern Field Operations, Pittsburgh, PA (Part-time leave of absence from Villanova), August 1987 - August 1988
Assistant Professor of Biology, Villanova University, August 1984 - August 1987
Research Assistant Professor, Dept. of Biology, West Virginia University, January 1983-August 1984

Membership in Scientific and Honorary Societies:

Sigma Xi (Villanova Chapter, President, 1994-1995; Annual Meeting Delegate, 1995); Society of Wetland Scientists (Mid-Atlantic Chapter Vice-Chair, 2004-2005)

Awards:

Certificate of Excellence in Reviewing, *Biogeochemistry*, 2013, 2014; Fellow, Society of Wetland Scientists, June 2007; National Science Foundation Summer Internship Program, Certificate of Appreciation, August 2004; Society of Wetland Scientists Mid-Atlantic Chapter President's Service Award, 2002; Villanova University Outstanding Faculty Research Award, 1995; Citation for Excellence in Manuscript Review, *Journal of Environmental Quality*, 1991, Honorable Mention, 1996; Villanova University Chapter of Sigma Xi, Certificate of Appreciation, 1995

Teaching - Villanova University:

Undergraduate: Science and Environmental Issues (honors; lecture/laboratory); Environmental Science (lecture; nonmajors); Biometry (lecture/lab); Botany (lecture/lab); General Biology (lecture/lab); General Ecology (lecture/lab); Seminar: Wetland Ecology; Senior Thesis Seminar

Graduate: Biogeochemistry (lecture/laboratory); Plant Ecology (lecture/laboratory); Biostatistics, Ecology/Evolution Seminar; Research Prospectus; Topics: Plant/Microbe Symbioses, Forest Decline

Other Teaching:

Northern Alberta Institute of Technology, NAIT 1st Field Training School, "Alberta Peatland Criteria - Field Training School," Peace River, Alberta, September 2016

UNESCO-IUGS (International Union of Geological Scientists) course entitled, "Geosciences for Environmental Planning," December 1991, Prague and Boží Dar, Czechoslovakia; lecturer on coal mine reclamation, forest decline, global climate change

Center for Urban Horticulture, University of Washington, course entitled "Functions of Wetland Soils," December 1991, Seattle, WA; lecturer on heavy metals in wetland soils

Masters Theses Directed:

Julia Stuart, Net and gross nitrogen mineralization in Alberta bogs as a function of time since fire and experimentally elevated atmospheric nitrogen deposition, May 2016.

Natalie Kashi, Does elevated nitrogen deposition affect peatland function, as revealed by soil enzyme analysis, May 2014.

Jeremy Hartsock, Nitrogen mineralization in a poor fen and a bog in response to elevated atmospheric nitrogen, December 2013

Avni Malhotra, Carbon cycling, *Sphagnum* primary production and hydrology of a poor fen in Alberta, Canada, May 2010

Stephen Mowbray, Evaluating early functional success of reclaiming decommissioned oil wellsites constructed in peatlands in Alberta, Canada through CO_2 flux measurements, May 2010

Medora Burke-Scoll. Nitrogen and sulfur input and accumulation in continental ombrotrophic peatland ecosystems in Alberta, Canada, May 2008

Bin Xu. Root biomass and production along a post-fire chronosequence in boreal peatlands of continental western Canada, August 2004

Brian Benscoter. Pathways of succession following wildfire in peatlands in the discontinuous permafrost zone of western Canada, December 2002.

John Navaratnam. A molecular ecological investigation of the bacterial and fungal diversity in a boreal, continental western Canadian peatland, December 2002.

Susan Crow. The role of roots and root exudation in the carbon cycle of the peat column at Bleak Lake Bog in boreal, continental, western Canada, August 2001.

John Maslowski. The role of methanotrophic bacteria in trichloroethylene degradation in a southeastern Pennsylvania stream, June 1999.

John Jendro. The effects of anthropogenically deposited nitrogen and sulfur in a peatland and global climate change. June 1998

Anne Webster. Reduction of phosphate losses from fertilized soils using acid mine drainage sludge. September 1997

Melanie Vile. Historical rates of heavy metal deposition throughout the Czech Republic as revealed in *Sphagnum* peat deposits. August 1995

Beth Sanguinetti. Characterization of the vegetation patterns of two adjacent *Sphagnum*-dominated wetlands in the glaciated Pocono plateau section of northeastern Pennsylvania. May 1992

Frank Taddeo. The role of dissimilatory sulfate reduction in wetlands constructed for acid coal mine drainage treatment. August 1991

John Poliero. Soil nutrient availability in the serpentine soils of southeastern Pennsylvania. May 1991

Martin Novák. Speciation of sulfur and vertical $\delta^{34}S$ profiles in *Sphagnum*-dominated wetlands. August 1990

Masters Theses Directed (continued):

Robert Bisbing. Effects of high NO_3^- and High SO_4^{2-} concentrations in precipitation on leaf growth and on N and S allocation in the pitcher plant, *Sarracenia purpurea*. May 1989

Kelly Austin. The effects of simulated acid precipitation on the growth and chlorophyll concentration of three North American *Sphagnum* species; December 1986

Anne Kearney. The effects of acid mine drainage on *Sphagnum* species: growth, chlorophyll concentration, and plant tissue chemistry; December 1986

Mary Christine Lynch. A descriptive analysis of the phytoplankton, benthos, and drift organisms of French Creek (Pennsylvania); August 1986

Undergraduate Research Directed:

Michelle Harris, Decomposition of peat by selected fungal species, 2010-2011

Michelle Harris, Rainfall and nitrogen exclusion on carbon flux and moss nitrogen concentrations in two Alberta bogs, 2009-2010

Erin Brault, Experimental rainfall removal and its effects on surface peat moisture and understory net ecosystem exchange in two Alberta bogs, 2007-2008

Richele Corrado and Samantha LaScala. Chemistry of streams draining 10 small suburban watersheds with contrasting land-use, 2003-2004

John Navaratnam. Bacterial versus fungal contributions to carbon mineralization in peat, University of Alberta, 1998-1999

Merritt Turetsky. Quantifying *Sphagnum* photosynthetic fixation of soil-produced or respired $^{14}CO_2$, 1996- 1997

Maryann Welsch, Heavy metal budgets for an urban stormwater wetland, 1996-1997

Jason LaRocco and Anne Webster. Soil chemical and physical properties associated with two Pennsylvania threatened plant species at Crow's Nest Farm. 1994-1995

Dawn Baechler. Effects of different drying methods on the determination of total sulfur concentrations in freshwater wetland peat. 1992-1993

Melanie Vile. Iron reduction and alkalinity generation in wetlands constructed for acid coal mine drainage treatment. 1991-1992

Camille Corletta. Assessing nitrogen availability using resin bags and soil incubations. Spring 1990

Becky Koch. Landscape characteristics of wetland resources in northeastern Pennsylvania. Summer 1990

Karen Cichowski. Hydrogen sulfide emission from Big Run Bog, WV. Summer 1987

Outside Member/External Examiner - Graduate Student Committees:

Ciara Hayes, doctoral candidate in Plant Biology, Southern Illinois University

Meaghan Petix, M.S., Southern Illinois University, 2013

Juan Benavides, Ph.D., Southern Illinois University, 2012

John Navaratnam, Ph.D., West Virginia University, 2012

Bin Xu, Ph.D., Southern Illinois University, August 2011

Sara Korapchak, M.S., Southern Illinois University, May 2011

Melissa House, M.S., Southern Illinois University, 2011

James Wood, M.S., Southern Illinois University, May 2010

Clay Emerson, Ph.D., Villanova University, College of Engineering, 2008

Wiebe Borren. Ph.D., Utrecht University, the Netherlands, 2007

Brian Benscoter. Ph.D., Southern Illinois University, May 2007

Merritt Turetsky, Ph.D., University of Alberta, January 2002

Richard Goulet. Ph.D., University of Ottawa, January 2000 (external examiner)

Melanie Vile. Ph.D., University of Notre Dame, 2001

Laura Lynch, Ph.D., Rutgers University - Camden, December 1997

Usha Vedagiri, Ph.D., Rutgers University, January 1989

Past Grant Support (awards ≥$50,000):

Alberta Environment and Parks, 2017-2020, "Oil Sands Wetlands Ecosystem Monitoring Network Design (B-MD-10-1718): Atmospheric Deposition Effects on Peatland Ecosystem Biogeochemistry Response Component," (with M.A. Vile; $1,046,562 CAD)

National Science Foundation, 2017-2020, "MRI: Acquisition of an Inductively Coupled Plasma Mass Spectrometer for Ecological, Environmental, and Ecosystem-level Research" (with N.B. Weston, PI; co-PIs, S.T. Goldsmith, M.A. Vile; $286,947)

National Science Foundation, 2013-2018, "RUI: Post-fire Nitrogen Cycling in Boreal Bogs – Critical Unknowns Explored" (with M.A. Vile) $1,170,000

Cumulative Environmental Management Association (CEMA), 2011-2016, "Nitrogen Addition Experiments in Boreal Ecosystems: Understanding the Fate of Atmospherically Deposited Nitrogen in order to Determine Nitrogen Critical Loads," (with M.A. Vile; $1,547,000)

Wood Buffalo Environmental Association, 2013-2014, "Peatland Monitoring and Synoptic Survey" (with M.A. Vile), $181,048

National Science Foundation, 2011-2013. RAPID: Nitrogen Cycling Immediately after Fire in an Alberta Bog" (with M.A. Vile and D.H. Vitt), $69,843

Wood Buffalo Environmental Association, 2009-2013, "Bog, Fen, and Lichen Monitoring Program Development Project" (with D.H. Vitt, M.A. Vile, S. Berryman; $715,099)

Shell Oil, 2007-2010, "Development of Scientific Protocols for Oil Pad Reclamation in Peatlands of Boreal Alberta" (with D.H. Vitt, $434,283)

Cumulative Environmental Management Association, 2005-2009, "Current and Past N and S Deposition in the Athabasca Oil Sands Region and its Effects on Nitrogen Cycling and Peat Bogs" (with D.H. Vitt and M.A. Vile, $260,073)

SURE Northern Energy/Grosmont Venture (later Shell Oil), 2007-2011, "Program in Sustainable Development in Peatland Regions" (with D.H. Vitt; $475,938)

National Science Foundation, 2002-2006, "RUI: Trajectories of Post-fire Carbon Balance in Boreal, Continental, Western Canadian Peatlands" (with D.H. Vitt; $811,200)

National Science Foundation, 2002-2006, "RUI: Carbon Accumulation in the Fens of Boreal, Western Canadian Peatlands" (with D.H. Vitt, Z. Yu, and M. Vile; $484,353)

National Science Foundation, 2001-2003, "RUI: Linking Microbial Diversity to Carbon Metabolism in Peatlands of Canada and Siberia" (with J.A. Navaratnam, $99,438)

National Science Foundation, 1998-2001, "RUI: Carbon Cycling and Peat Accumulation in the Discontinuous Permafrost Region of Boreal, Continental, Western Canada" (with J.B. Yavitt; $612,930); includes $15,000 supplement for 2001 field work in western Siberian peatlands

National Science Foundation, 1994-1997. "RUI: Peatlands and Global Climate Change: Continued Comparative Studies of Northern and Southern Sites" (with J.B. Yavitt; $500,004)

Chesapeake Research Consortium, 1996-1997. "Effectiveness of Urban Stormwater Wetlands as a Best Management Practice - Phase II" (with R.G. Traver and R.A. Chadderton, $50,000)

Chesapeake Research Consortium, 1995-1996. "Effectiveness of Urban Stormwater Wetlands as a Best Management Practice" (with R.G. Traver and R.A. Chadderton, $70,000)

National Science Foundation, 1991-1994. "RUI: Peatlands and Global Climate Change: Insights Obtained through Comparative Studies of Northern and Southern Sites" (with J.B. Yavitt $465,417)

U.S. Office of Surface Mining, Reclamation, and Enforcement, 1988-1992. "The Kentucky Wetlands Project: A Field Study to Evaluate Man-made Wetlands for Acid Coal Mine Drainage Treatment" ($605,386)

Environmental Protection Agency, 1986-1990. "The Use of Wetlands to Treat Acid Mine Drainage: Growth Responses of *Sphagnum* and Mechanisms of Metal Retention in Peat" (with S.I. Shupack; $265,045)

Past Grant Support (awards ≥$50,000), continued:

National Science Foundation, 1986-1988. "Ecological Significance of Methanogenesis and Sulfate Reduction in *Sphagnum* peat: Temporal and Spatial Patterns in Ombrotrophic and Minerotrophic Systems" (with G.E. Lang and J.B. Yavitt; $149,827, plus $4,000 REU supplement, "Hydrogen Sulfide Emission from Freshwater

National Science Foundation, 1983-1985. "Methanogenesis and Sulfate Reduction in Freshwater Wetlands" (with G.E. Lang; $151,098)

Environmental Protection Agency, 1982-1986. "The Use of Wetlands to Modify Acid Mine Drainage" (with G.E. Lang; $228,148)

Past Grant Support (awards <$50,000):

Cumulative Environmental Management Association (CEMA), 2010-2011, "Establish a Critical Load for Eutrophying Nitrogen for Sensitive Ecosystems in the Regional Municipality of Wood Buffalo," $43,024

Canadian Forest Services, 2010-2011, "Carbon Accumulation in Peatlands of the MacKenzie River Basin," $16,212

National Science Foundation, 2003-2007, "Undergraduate Mentoring in Wetland Science with a Focus on Underrepresented Groups," on behalf of the Society of Wetland Scientists ($42,000)

National Science Foundation, Support for BIOGEOMON, the Fifth International Symposium on Ecosystem Behavior, 1 June 2006 – 31 May 2007 (with M.R. Turetsky and M.A. Vile; $10,000)

National Science Foundation, 2005-2006, "Planning a Russian-American Peatland Research Program, a Coordinated Approach" (with M. Turetsky, M. Vile, D.H. Vitt, and Z. Yu; $34,091)

National Science Foundation, 2000-2003, "RUI: High-precision, Fine-scale Depth Resolution Dating of Recently Accumulated *Sphagnum* Peat: Cross-Corroboration of Techniques and Development of a Novel Approach" (with M.R. Turetsky; $49,960)

Villanova University Summer Research Fellowship and Research Support Grants, 2001, "Carbon Cycling, Climate Change, and Permafrost Melting in the Boreal Peatlands of Continental Western Canada and Central Siberia" ($12,500)

National Science Foundation, 1997-1998, "Financial Support for *BIOGEOMON, The Third International Symposium on Ecosystem Behavior*: ($15,000)

Electric Power Research Institute, 1997-1998, "Financial Support for *BIOGEOMON, The Third International Symposium on Ecosystem Behavior*" ($25,000)

National Science Foundation, 1997. REU Supplement to NSF grant ($5,000)

Villanova University Small Summer Research Grant, 1994. "Experimental Studies of Pb Mobility in *Sphagnum*-derived Peat" (with M.A. Vile; $1,600)

Weston Institute. 1990-1991. "Landscape/Spatial Characteristics of Wetland Resources in Northeastern Pennsylvania" (undergraduate independent study project; $4,500)

Becker Foundation, Smithsonian Institution, 1987-1988. "Continued Studies of the Effect of Water Augmentation during the Dry Season on N, P and S Availability in the Tropical Moist Forests of Barro Colorado Island, Panama" (with S.J. Wright and J.B. Yavitt; $13,000)

Smithsonian Tropical Research Institute, 1987-1988. "Temporal Changes in the Chemical Composition of Litterfall and Forest Floor Litter as Affected by Water Augmentation during the Dry Season in the Tropical Moist Forests of Barro Colorado Island, Panama" ($6,560)

Becker Foundation, Smithsonian Institution, 1986-1987. "The Effect of Water Augmentation during the Dry Season on Nitrogen, Phosphorus, and Sulfur Availability in the Tropical Moist Forests of Barro Colorado Island, Panama" (with S.J. Wright and J.B. Yavitt; $10,000)

West Virginia University Energy Research Center, 1982-1983. "Modification of Acid Mine Drainage by a Freshwater Wetland" (with G.E. Lang; $22,500)

Publications in Refereed Journals:

Vitt, D.H., M. House, S. Kitchen, R.K. Wieder. 2020. A protocol for monitoring plant responses to changing nitrogen deposition in Alberta. *Environmental Monitoring and Assessment* 192: 743.

Wieder, R.K., D.H. Vitt, M.A. Vile, J.A. Graham, J.A, Hartsock, J.M.A. Popma, H. Fillingim, J.C. Quinn, K.D. Scott, M. Petix, K.J. McMillen. 2020. Experimental nitrogen addition alters structure and function of a boreal poor fen: Implications for critical loads. *Science of the Total Environment* 733, 138619.

Wieder, R.K., D.H. Vitt, M.A. Vile, J.A. Graham, J.A. Hartsock, H. Fillingim, M. House, J.C. Quinn, K.D. Scott, M. Petix, K.J. McMillen. Experimental nitrogen addition alters structure and function of a boreal bog: Critical load and thresholds revealed. *Ecological Monographs* 89, e01371.

Hartsock, J.A., R.K. Wieder, M.A. Vile. 2018. Nitrogen retention by *Sphagnum fuscum* in laboratory mesocosms: Responses to experimentally added NH_4^+-N and NO_3^--N. *Wetlands* 39: 79-85.

Stuart, J.E.M, R.K. Wieder, M.A. Vile. 2018. Net nitrogen mineralization in Alberta Bog peat is insensitive to experimentally increased nitrogen deposition and time since wildfire. *Biogeochemistry* 138: 155-170.

Wieder, R.K., M.A. Vile, K.D. Scott, C.M. Albright, K. McMillen, D.H. Vitt, M. Fenn. 2016. Differential effects of high atmospheric N and S deposition on bog plant/lichen tissue and porewater chemistry across the Athabasca Oil Sands Region. *Environmental Science and Technology* 50: 12630-12640.

Wieder, R.K., M.A. Vile, C.M. Albright, K.D. Scott, D.H. Vitt, J.C. Quinn, M. Burke-Scoll. 2016. Effects of altered atmospheric nutrient deposition from Alberta oil sands development on *Sphagnum fuscum* growth and C, N, and S accumulation in peat. *Biogeochemistry* 129: 1-19.

Graham, J.A, J.A. Hartsock, D.H. Vitt, R.K. Wieder, and J.J. Gibson. 2015. Linkages between spatio-temporal patterns of environmental factors and distribution of plant assemblages across a boreal peatland complex. *Boreas* 45: 207-219

Shotyk, W., R. Belland, J. Duke, H. Kempter, M. Krachler, T. Noernberg, R. Pelletier, M. Vile, K. Wieder, C. Zaccone, and S. Zhang. 2015. Response to comment on "S*phagnum* mosses from twenty-one ombrotrophic bogs in the Athabasca Bituminous Sands region fail to reveal significant atmospheric contamination of 'heavy metals.'" *Environmental Science and Technology* 49: 6354-6357.

Shotyk, W., R. Belland, J. Duke, H. Kempter, M. Krachler, T. Noernberg, R. Pelletier, M. Vile, K. Wieder, C. Zaccone, and S. Zhang. 2014. *Sphagnum* mosses from twenty-one ombrotrophic bogs in the Athabasca Bituminous Sands region fail to reveal significant atmospheric contamination of "heavy metals." *Environmental Science and Technology* 48: 12603-12611.

Vile, M.A., R.K. Wieder, T. Živković, K.D. Scott, D.H. Vitt, J.A. Hartsock, C.L. Iosue, J.C. Quinn, M. Petix, H. Fillingim, J.M.A. Popma, K.A. Dynarski, T.R. Jackman, C.M. Albright and D.D. Wykoff. 2014. N_2-fixation by methanotrophs sustains carbon and nitrogen accumulation in peatlands. *Biogeochemistry* 121: 317-328.

Yu, Z., D.H. Vitt and R.K. Wieder. 2014. Continental fens as effective carbon sinks during the Holocene in western Canada. *The Holocene* 24: 1090-1104.

Novak, M., M. Stepanova, I. Jackova, M.A. Vile, R.K. Wieder, F. Buzek, M. Adamova, L. Erbanova, D. Fottova and A. Komarek. 2014. Isotopic evidence for nitrogen mobility in peat bogs. *Geochimica et Cosmochimica Acta* 133: 351-361.

Benavides, J.C., D.H. Vitt and R.K. Wieder. 2013. The influence of climate change on recent peat accumulation patterns of *Distichia muscoides* cushion bogs in the high elevation tropical Andes of Colombia. *Journal of Geophysical Research-Biogeosciences* 118: 1627-1635.

Vitt, D.H., R.K. Wieder, B. Xu, M. Kaskie and S. Koropchak. 2011. Peatland establishment on mineral soils: Effects of water level, amendments, and species after two growing seasons. *Ecological Engineering* 37: 354-363.

Novák, M., L. Zemanova, F. Buzek, M. Adamova, A. Komarek, M.A. Vile, R.K. Wieder and M. Stepanova. 2010. The effect of a reciprocal peat transplant between two contrasting Central European sites on C cycling and C isotope ratios. *Biogeosciences* 7: 921-932.

Wieder, R.K., M.A. Vile and K.D. Scott. 2010. Cosmogenic ^{10}Be as a potential dating tool in peat. *Biogeochemistry* 101: 177-182.

Wieder, R.K. D.H. Vitt, M. Burke-Scoll, K.D. Scott, M. House and M.A. Vile. 2010. Nitrogen and sulfur deposition and the growth of *Sphagnum fuscum* in bogs of the Athabasca Oil Sands Region. *Journal of Limnology* 69 (Suppl. 1): 161-170.

Publications in Refereed Journals, continued:

Bauer, I., J. Bhatti, C. Swanston, R.K. Wieder, and C. Preston. 2009. Organic matter accumulation and community change at the peatland-upland interface: Inferences from ^{14}C and ^{210}Pb dated profiles. *Ecosystems* 12: 636-653.

Vitt, D.H., R.K. Wieder, K.D. Scott and S. Faller. 2009. Decomposition and peat accumulation in rich fens of Boreal, Alberta, Canada. *Ecosystems* 12: 360-373.

Wieder, R.K., K.D. Scott, K. Kamminga, M.A. Vile, D.H. Vitt, T. Bone, B. Xu, B.W. Benscoter and J.S. Bhatti. 2009. Post-fire carbon balance in boreal bogs of continental, western Canada. *Global Change Biology* 15: 63-81.

Turetsky, M.R., S.E. Crow, R. Evans, D.H. Vitt and R.K. Wieder. 2008. Tradeoffs in resource allocation among moss species control decomposition in boreal peatlands. *Journal of Ecology* 9: 1297-1305.

Turetsky, M.R., R.K. Wieder, D.H. Vitt, R.J. Evans and K.D. Scott. 2007. The disappearance of relict permafrost in boreal regions: Effects on peatland carbon storage and fluxes. *Global Change Biology*, 13: 1922-1934.

Benscoter, B.W., D.H. Vitt and R.K. Wieder. 2005. Association of postfire peat accumulation and microtopography in boreal bogs. *Canadian Journal of Forest Research* 35: 2188-2193.

Benscoter, B.W., R.K. Wieder and D.H. Vitt. 2005. Linking microtopography with post-fire succession in bogs. *Journal of Vegetation Science* 16: 453-460.

Novák, M., M. Adamová, R.K. Wieder and S.H. Bottrell. 2005. Sulfur mobility in peat. *Applied Geochemistry* 20: 673:681.

Crow, S.E. and R.K. Wieder. 2005. Sources of CO_2 emission from a northern peatland: the role of root respiration, root exudates, and soil organic matter. *Ecology* 86: 1825-1834.

Yavitt, R.K., C.J. Williams and R.K. Wieder. 2004. Soil chemistry versus environmental controls on production of CH_4 and CO2 in northern peatlands. *European Journal of Soil Science*: 56: 169-178.

Yavitt, J.B., R.K. Wieder and S.J. Wright. 2004. Seasonal drought and dry-season irrigation influence leaf-litter nutrients and soil enzymes in a moist, lowland forest in Panama. *Austral Ecology* 29: 177-188.

Turetsky, M.R., S. Manning and R.K. Wieder. 2004. Dating of recent peat deposits: review of current methodology and a case study in wiggle-matching. *Wetlands* 24: 324-356.

Novák, M., S. Emmanuel, M.A. Vile, Y. Erel, A. Veron, T. Pačes, R.K. Wieder, M. Vaneček, M. Stepanova, E. Břízová and J. Hovorka. 2003. Origin of lead in eight Central European peat bogs determined from isotope ratios, strengths and operation times of regional pollution sources. *Environmental Science and Technology* 37, 437-445.

Vitt, D.H., R.K. Wieder, L.A. Halsey and M.R. Turetsky. 2003. Response of *Sphagnum fuscum* to nitrogen deposition: A case study of ombrogenous peatlands in Alberta, Canada. *The Bryologist* 106: 235-245.

Benscoter, B.W. and R.K. Wieder. 2003. Variability in organic matter lost by combustion in a boreal bog during the 2001 Chisholm fire. *Canadian Journal of Forest Research* 33: 2509-2513.

Vile, M.A., S.D. Bridgham, R.K. Wieder and M. Novák. 2003. Atmospheric sulphur deposition alters pathways of gaseous carbon production in peatlands. *Global Biogeochemical Cycles* 17, 10.1029/2002GB001966.

Vile, M.A., S.D. Bridgham and R.K. Wieder. 2003. Response of anaerobic carbon mineralization rates to sulfate amendments in a boreal peatland. *Ecological Applications* 13: 720-734.

Turetsky, M.R., R.K. Wieder, L.A. Halsey and D.H. Vitt. 2002. Current disturbance and the diminishing peatland carbon sink. *Geophysical Research Letters* 29, 10.1029/2001GL014000.

Turetsky, M.R., R.K. Wieder and D.H. Vitt. 2002. Boreal peatland C fluxes under varying permafrost regimes. *Soil Biology & Biochemistry* 34: 907-912.

Turetsky, M.R. and R.K. Wieder. 2001. A direct approach for quantifying organic matter lost as a result of peatland wildfire. *Canadian Journal of Forest Research* 31: 363-366.

Wieder, R.K. 2001. Past, present and future peatland carbon balance - An empirical model based on ^{210}Pb-dated cores. *Ecological Applications* 11: 327-342.

Turetsky, M.R., R.K. Wieder, C.J. Williams, and D.H. Vitt. 2000. Organic matter accumulation, peat chemistry and permafrost melting in peatlands of boreal Alberta. *Écoscience* 7: 379-392.

Yavitt, J.B., C.J. Williams and R.K. Wieder. 2000. Controls on microbial production of methane and carbon dioxide in three *Sphagnum*-dominated peatland ecosystems as revealed by a reciprocal field peat transplant experiment. *Geomicrobiology Journal* 17: 61-88.

Publications in Refereed Journals, continued:

Vile, M.A., R.K. Wieder and M. Novák. 2000. 200 years of Pb deposition throughout the Czech Republic: Patterns and sources. *Environmental Science and Technology* 34: 12-21.

Turetsky, M.R. and R.K. Wieder. 1999. Refixation of soil-produced or respired $^{14}CO_2$ by *Sphagnum* in a boreal bog. *Écoscience* 6: 587-591.

Vile, M.A., R.K. Wieder and M. Novák. 1999. Mobility of Pb in *Sphagnum*-derived peat. *Biogeochemistry* 45: 35-52.

Wieder, R.K. and S.T. Starr. 1998. Quantitative determination of organic fractions in highly organic, *Sphagnum* peat soils. *Communications in Soil Science and Plant Analysis* 29: 847-857.

Wieder, R.K., J.B. Yavitt, C.E. Gasda, S.T. Starr, and C. Williams. 1998. Tetrazolium (INT) reduction in acidic *Sphagnum*-derived peat - A poor measure of terminal carbon mineralization. *Wetlands* 18: 79-83.

Williams, C.J., J.B. Yavitt, R.K. Wieder, and N.L. Cleavitt. 1998. Cupric oxidation products of northern peat and peat-forming plants. *Canadian Journal of Botany* 76: 51-62.

Schell, W.R., M.J. Tobin, M.J.V. Novák, R.K. Wieder, and P.I. Mitchell. 1997. Deposition history of trace metals and fallout radionuclides in wetland ecosystems using ^{210}Pb chronology. *Water, Air, and Soil Pollution*, 100: 233-239.

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Novák, M., and R.K. Wieder. 1992. Mobility of sulfur during early diagenesis of freshwater peats. 29th International Geological Congress, Kyoto, Japan.

Abstracts, continued:

Taddeo, F.J. and R.K. Wieder. 1992. Sulfur cycling in constructed wetlands exposed to acid mine drainage. American Society of Limnology and Oceanography Annual Meeting, Santa Fe, New Mexico, February 1992. (Invited)

Vile, M.A. and R.K. Wieder. 1991. Biological alkalinity generation in wetlands constructed for acid mine drainage treatment. Second International Conference of the Abatement of Acidic Drainage, Montreal, Canada, September 1991. (Poster)

Taddeo, F.J. and R.K. Wieder. 1991. Accumulation of iron sulfides in wetlands constructed for acid coal mine drainage (AMD) treatment. Second International Conference of the Abatement of Acidic Drainage, Montreal, Canada, September 1991. (Poster)

Wieder, R.K. 1991. Spatial and temporal patterns in surface and subsurface water chemistry in five wetlands constructed for acid coal mine drainage (AMD) treatment. Second International Conference of the Abatement of Acidic Drainage, Montreal, Canada, September 1991. (Poster)

Poliero, J.P. and R.K. Wieder. 1991. Growth and needle tissue chemistry of *Pinus rigida* populations on serpentine and nonserpentine soils. Ecological Society of America Annual Meeting, San Antonio, TX, August 1991.

Wieder, R.K. and S.J. Wright. 1991. Mass balance estimates of litter decomposition in a moist forest on Barro Colorado Island, Panama: Effects of dry-season irrigation. Association for Tropical Biology Annual Meeting, San Antonio, TX, August 1991.

Wieder, R.K. 1991. Iron retention in wetlands constructed for acid coal mine drainage (AMD) treatment: Short-term responses to a major precipitation event. Ecological Society of America Annual Meeting, San Antonio, TX, August 1991.

Sanguinetti, E. and R.K. Wieder. 1991. Vegetation and plant community distribution in two adjacent but contrasting Pocono Mountain wetlands. Society of Wetland Scientists Annual Meeting. Ann Arbor, MI, May 1991.

Wieder, R.K. 1991. Diel changes in Fe^{2+} and Fe^{3+} concentrations in acid mine drainage (AMD) passing through constructed wetlands. Society of Wetland Scientists Annual Meeting. Ann Arbor, MI, May 1991.

Wieder, R.K. 1991. Sulfur cycling/decomposition in Big Run Bog, WV. Symposium on Appalachian Mountain Bogs and Fens, Association of Southeastern Biologists & Society of Wetland Scientists. Boone, NC, April 1991. (Invited).

Wieder, R.K., M.N. Linton and S.T. Starr. 1991. Fractionation of Fe, Al, and Mn by wet chemical sequential extraction in organic substrates from wetlands exposed to acid coal mine drainage. Symposium on Wetland Chemistry, American Chemical Society Annual Meeting. Atlanta, Georgia, April 1991. (Invited)

Wieder, R.K., M.N. Linton, and S.T. Starr. 1990. Effectiveness of wetlands constructed with different types of organic matter for acid coal mine drainage (AMD) treatment. Ecological Society of America Annual Meeting, Salt Lake City, Utah, August 1990.

Wieder, R.K., M.N. Linton, and K.P. Heston. 1990. Laboratory mesocosm studies of metal retention in wetlands exposed to synthetic acid coal mine drainage. Society of Wetland Scientists Annual Meeting, Breckenridge, Colorado, June 1990. (Invited presentation)

Wieder, R.K., M.N. Linton, and K.P. Heston. 1990. Using laboratory mesocosms to evaluate the potential effectiveness of constructed wetlands for acid mine drainage treatment. 1990 Mining and Reclamation Conference, Charleston, WV, April 1990.

Wieder, R.K. 1989. Is a negative carbon balance at Big Run Bog, West Virginia a result of high sulfur deposition in acid precipitation? Botanical Society of America/Canadian Botanical Association Special Symposium, Wetlands: Sensors of Environmental Change, AIBS Meeting, August 1989. (Invited symposium presentation).

Wieder, R.K. and J.B. Yavitt. 1989. Assessing differences in anaerobic carbon mineralization between two Appalachian *Sphagnum* wetlands with reciprocal peat transplants. Ecological Society of America Annual Meeting, August 1989. Abstract: Bull. Ecol. Soc. Amer. 70:298.

Abstracts, continued:

O'Hara, E.M., R.K. Wieder, and S.J. Wright. 1989. Nutrient cycling through litter in the tropical moist forest of Barro Colorado Island, Panama (Poster). Ecological Society of America Annual Meeting, August 1989. Abstract: Bull. Ecol. Soc. Amer. 70:218.

Yavitt, J.B., R.K. Wieder, and S.J. Wright. 1989. Characteristics of soils in a seasonally wet forest on Barro Colorado Island, Panama. Association for Tropical Biology Annual Meeting, August 1989.

Henrot, J., and R.K. Wieder. 1988. Biotic and abiotic factors affecting Fe and Mn in peat exposed to acid mine drainage. Soil Science Society of America Annual Meeting, Anaheim, CA, November 1988.

Wieder, R.K., and K.M. Cichowski. 1988. Hydrogen sulfide emission from Big Run Bog, WV. Ecological Society of America Annual Meeting, August 1988. Abstract: Bull. Ecol. Soc. Amer. 69: 342.

Wieder, R.K., J.B. Yavitt, and S.J. Wright. 1988. Evaluating N, P, and S mineralization potentials in the seasonally wet forests on Barro Colorado Island, Panama. Association for Tropical Biology Annual Meeting, August 1988.

Yavitt, J.B., R.K. Wieder, and S.J. Wright. 1988. Nutrient fluxes across the litter/soil interface in a lowland tropical moist forest on Barro Colorado Island, Panama. Association for Tropical Biology Annual Meeting, August 1988.

Yavitt, J.B., R.K. Wieder, and S.J. Wright. 1987. Soil chemical and microbiological changes in a lowland tropical forest over a 3 month dry season. Soil Science Society of America Meeting, December 1987.

Wieder, R.K., K.P. Heston, E.M. O'Hara, and G.E. Lang. 1987. Aluminum retention in a man-made wetland. Ecological Society of America Annual Meeting. Abstract: Bull. Ecol. Soc. Amer. 68: 446-447.

Yavitt, J.B., G.E. Lang, and R.K. Wieder. 1987. Patterns of methane production and sulfate reduction in *Sphagnum* peat from an Appalachian peatland. Ecological Society of America Annual Meeting. Abstract: Bull. Ecol. Soc. Amer. 68: 453.

Yavitt, J.B., R.K. Wieder, and G.E. Lang. 1987. Changes in soil chemical properties over the 3 month dry season in lowland tropical moist forest in Panama. Association for Tropical Biology Meeting, August 1987.

Wieder, R.K. 1987. Treatment of acid coal mine drainage using *Sphagnum* wetlands: Facts versus artifacts. American Geophysical Union, Session on Hydrologic Issues in Wetland Research. Baltimore, MD. May 1987. Abstract: EOS, Transactions of the American Geophysical Union 68: 325. (Invited paper).

Wieder, R.K. 1987. Treatment of acid mine drainage using wetlands: Biological and chemical processes. 14th Annual West Virginia Mining Symposium. Charleston, WV. January 1987 (Invited paper).

Wieder, R.K., and G.E. Lang. 1986. Short-term fate of $^{35}SO_4^{2-}$ in *Sphagnum* peat from Big Run Bog, WV. Ecological Society of America Annual Meeting. Abstract: Program IV International Congress of Ecology, p. 351.

Yavitt, J.B., R.K. Wieder, and G.E. Lang. 1986. Nutrient mineralization potentials in lowland tropical forest soils on Barro Colorado Island, Panama. Ecological Society of America Annual Meeting. Abstract: Program IV International Congress of Ecology, p. 361.

Austin, K.A., and R.K. Wieder. 1986. Effects of acid precipitation on the growth and chlorophyll concentration of *S. fallax* and *S. henryense*. Ecological Society of America Annual Meeting. Abstract: Program IV International Congress of Ecology, p. 81 (Poster).

Bisbing, R.C., and R.K. Wieder. 1986. Effects of high NO_3^- and high SO_4^{2-} concentrations in precipitation on leaf growth in the pitcher plant, *Sarracenia purpurea*. Ecological Society of America Annual Meeting. Abstract: Program IV International Congress of Ecology, p. 92 (Poster).

Kearney, A.D., and R.K. Wieder. 1986. Growth of *Sphagnum* species in acid coal mine drainage waters (AMD). Ecological Society of America Annual Meeting. Abstract: Program IV International Congress of Ecology, p. 197 (Poster).

Wieder, R.K., and G.E. Lang. 1986. Sulfur cycling in freshwater wetlands. Page 6 in International Symposium on Ecology and Management of Wetlands. Charleston, SC, June 1986. (Invited paper).

Girts, M.A., G.E. Lang, and R.K. Wieder. 1986. Chemical retention in *Sphagnum* wetlands during a late summer storm event. Symposium on Freshwater Wetlands and Wildlife. Savannah River Ecology Laboratory, March 1986.

Abstracts, continued:

Lang, G.E., R.K. Wieder, A.E. Whitehouse, and M.A. Girts. 1985. Mitigating the chemical pollution of streams from acid mine drainage by a *Sphagnum*- dominated peatland. Page 22 in Ohio River Basin Consortium for Research and Education, First Annual Symposium, "Multimedia Interactions of Environmental Pollutants," November 1985.

Girts, M.A., G.E. Lang, and R.K. Wieder. 1985. Hydraulic flow rates in *Sphagnum*-dominated Appalachian wetlands. Page 383 in Proceedings of a Conference on Wetlands and Water Management on Mined Lands. The Pennsylvania State University, October 1985. (Poster).

Lang, G.E., and R.K. Wieder. 1985. The ability of freshwater wetlands to chemically modify acid mine drainage: mechanisms for removing hydrogen, iron, and sulfate. Ecological Society of America Meeting. Abstract: Bull. Ecol. Soc. Amer. 66:214.

Wieder, R.K., and G.E. Lang. 1985. Sulfur biogeochemistry in an Appalachian peatland. American Society of Limnologists and Oceanographers Symposium: Freshwater Wetland Biogeochemistry, June 1985. (Invited paper).

Wieder, R.K., and G.E. Lang. 1984. Distribution and abundance of iron compounds in freshwater wetland peat: Comparisons along an iron loading gradient. Ecological Society of America Annual Meeting. Abstract: Bull. Ecol. Soc. Amer. 65: 280.

Yavitt, J.B., R.K. Wieder, and G.E. Lang. 1984. Productivity and carbon storage in a non-glaciated wetland in West Virginia. Ecological Society of America Annual Meeting. Abstract: Bull. Ecol. Soc. Amer. 65: 278.

Lang, G.E., and R.K. Wieder. 1984. The role of beaver in vegetation patterning and development in *Sphagnum*-dominated wetlands in West Virginia. Ecological Society of America Annual Meeting. Abstract: Bull. Ecol. Soc. Amer. 65: 243.

Whitehouse, A.E., G.E. Lang, and R.K. Wieder. 1984. *Sphagnum*-dominated wetlands and acid mine drainage: Implications for reclamation. 5th Annual National Meeting, Society of Wetland Scientists. San Francisco, May 1984.

Wieder, R.K., and G.E. Lang. 1984. Iron biogeochemistry in freshwater wetland peat. Ocean Sciences Meeting of the American Geophysical Union, New Orleans, January 1984. Abstract: EOS, Transactions of the American Geophysical Union 64: 1067. (Invited paper).

Wieder, R.K., and G.E. Lang. 1983. Annual ion yields in streamflow from three contrasting watersheds in the Appalachian Mountains of West Virginia. Ecological Society of America Annual Meeting. Abstract: Bull. Ecol. Soc. Amer. 64: 66.

Wieder, R.K., and G.E. Lang. 1982. Biogeochemical relationships in a *Sphagnum*-dominated wetland in West Virginia. Ecological Society of America Annual Meeting. Abstract: Bull. Ecol. Soc. Amer. 63: 155.

Wieder, R.K., and G.E. Lang. 1980. Vegetation and water chemistry of a *Sphagnum*-dominated wetland in West Virginia. Ecological Society of America Annual Meeting. Abstract: Bull. Ecol. Soc. Amer. 61: 57.

Miscellaneous Invited Presentations:

"Emergence of Biogeochemistry as a Scientific Discipline and a Humble Look to the Future," Silver Anniversary Speaker; 25th Anniversary Goldschmidt Conference, Prague, Czech Republic, September 2015

"Mosses and Muskeg Matter: More than You Might Imagine," Athabasca University, Athabasca, Alberta, Canada on 17 April 2014. The lecture was a part of AU's Science Outreach Program and was co-sponsored by the Athabasca Garden Club.

R.K. Wieder and M.A. Vile. Villanova scientists predict oil sands' impact on peat, climate change. Interview, WHYY, The Pulse, March 13, 2014, http://www.newsworks.org/index.php/local/the-pulse/65825-villanova-scientists-predict-oil-sands-impact-on-peat-climate-change.

Opening evening speaker, Catholic Social Teaching and Ecology Conference, "Global Change into the 21st Century: Meeting the Challenges of using 'Science and Technology in a Full and Constructive Way'," Villanova University, November 2005

Guest Lecture, Chemistry Department Professional Development Seminar, Fall 2005

Keynote speaker, Northeast Ecology and Evolution Conference, "Writing Successful Grants," University of Connecticut, March 2004

Miscellaneous Invited Presentations, continued:

Guest Lecture, Villanova Retired Faculty Club, "Western Canadian Peatlands, Source or Sink of atmospheric Carbon? Spring 2002

Groundbreaking Ceremony speaker for expansion and renovation of the Mendel Science Complex, Villanova University, Spring 1997.

Ecological Society of Villanova and the Villanova Student Government Association, "Your Professors Talk

McKaig Nature Education Center, King of Prussia, PA, Annual Board Meeting, "Vegetation of McKaig Woods," November 1992.

It's Your Earth, Upper Merion Township (PA) Environmental Forum, "Ecological Values of Wetlands," April 1992.

Philadelphia Botanical Club Centennial Celebration Symposium: Wetland Flora: Diversity, Function, and Importance. London Grove, PA, November 1991.

U.S. Office of Surface Mining, Reclamation, and Enforcement, Abandoned Mine Lands Conference Symposium on Wetland Treatment of Mine Drainage, Breckenridge, Colorado, September 1990.

Kentucky Academy of Sciences Symposium, Innovative Applications of Constructed Wetlands, University of Kentucky, July 1990.

RAMP (Rural Abandoned Mine Program) Managers Workshop, Beckley, WV, October 1988; dinner speaker, "Using Wetlands for Treatment of Mine Related Pollutants."

Invited Seminars, since 2004:

University of Calgary, Jan Ciborowski Lab, June 2020 (virtual)

Villanova University, Geography and the Environment Global Change Seminar, March 2009

Villanova University, Department of Biology, February 2008

University of Utrecht, January 2007

Academy of Natural Sciences of Philadelphia, April 2006

Juniata College, Frontiers of Biology Seminar Series, February 2006

National Science Foundation, Science Assistant Mentoring Seminar, May 2005

University of North Dakota, Grand Forks, March 2005

National Science Foundation, Hispanic American Colleges and Universities Intern Seminar, June 2004

University of Memphis, Department of Biology, March 2004

Franklin and Marshall College, Department of Earth and Environment, March 2004

Conference Organization:

BIOGEOMON, Tenth International Symposium on Ecosystem Behaviour; Organizing Committee, Villanova University (postponed) 2020

BIOGEOMON, Seventh International Symposium on Ecosystem Behaviour; Organizing Committee, Point Lookout, Maine, June 2012, *Biogeochemistry* Special Issue Editorial Committee

Reclamation and Restoration of Boreal Peatland and Forest Ecosystems: Toward a Sustainable Future, Workshop supported by NSF Research Coordination Network grant, PEATNET, Edmonton, Alberta, Canada, May 2010

BIOGEOMON, Sixth International Symposium on Ecosystem Behaviour; International Scientific Committee, Helsinki, Finland, June 2009, *Biogeochemistry* Special Issue Editorial Committee

Second International Symposium on Carbon in Peat, Workshop supported by NSF Research Coordination Network grant, PEATNET, Prague, Czech Republic, May 2009, Co-organizer.

Why is there Peat? Workshop supported by NSF Research Coordination Network grant, PEATNET, Villanova University, April 2008, Co-organizer.

Society of Wetland Scientists 2008 Annual Meeting, Washington D.C., Conference Co-Chair

BIOGEOMON, Fifth International Symposium on Ecosystem Behaviour; co-sponsored by the Czech Geological Survey and Villanova University; University of California at Santa Cruz, June 2006

Mid-Atlantic Chapter of the Society of Wetland Scientists, Villanova University Conference Center, October 2004

BIOGEOMON, Fourth International Symposium on Ecosystem Behaviour; co-sponsored by the Czech Geological Survey and Villanova University; University of Reading, UK, August 2002; Organizing Committee member; *Water, Air, & Soil Pollution* Special Issue Editorial Committee

Conference Organization, continued:

BIOGEOMON, Third International Symposium on Ecosystem Behavior; co-sponsored by Villanova University and the Czech Geological Survey; Villanova University, June 1997; Organizing Committee; *Water, Air, & Soil Pollution* Special Issue Editorial Committee

Ecology and Conservation in the Philadelphia Region (with Dr. Stevens Heckscher, Natural Lands Trust), April 1995

BIOGEOMON, *Symposium on Ecosystem Behavior*, Conference Co-Secretary, Prague, Czech Republic, September 1993; Co-editor: Special Issue, *Water, Air, & Soil Pollution*, March 1995

Co-Organizer; Symposium on Constructed Wetlands for Wastewater Treatment, ASLO/SWS Joint Meeting, Edmonton, Alberta, June 1993.

Workshop Participant:

Oil Sands Monitoring – Wetland Monitoring Integration Workshop, Edmonton, Alberta, December 2017

Oil Sands Monitoring – Deposition Integration Workshop, Toronto, Ontario, September 2017

State of Knowledge Workshop, Boreal Peatlands in Manitoba, Winnipeg, Manitoba, November 2010

Reclamation and Restoration of Boreal Peatland and Forest Ecosystems: Toward a Sustainable Future, Edmonton, Alberta, March 2010

Implications of Disturbance on Boreal Peatland Carbon Cycling – from Sites to landscape-scale Carbon Budgets, ESA/INTECOL, Montreal, Quebec, Canada, August 2005 (Symposium co-organizer)

Treatment Wetlands Working Group Workshop, Cumulative Environmental Management Association, Calgary, Alberta, April 2004

Creating Wetlands in the Oil Sands Workshop, Cumulative Environmental Management Association, Ft. McMurray, Alberta, October 2003

Workshop on Peatlands, Permafrost and Climate Change, Canadian Forest Services, Northern Forestry Centre, Montreal, Quebec, Canada, March 2002

International Workshop on Carbon Dynamics of Forested Peatlands: Knowledge Gaps, Uncertainty and Modeling Approaches, Natural Resources Canada, Canadian Forest Service, Edmonton, March 2001

American Geophysical Union Chapman Conference on the Science and Technology of Carbon Sequestration, San Diego, California, January 2005

Advances in Terrestrial Ecosystem Carbon Inventory, Measurements and Monitoring, Sponsored by the U.S. Forest Service and others, Raleigh, North Carolina, October 2000

Wetlands, Carbon Cycling, and Future Climate Change Workshop, Institute for Wetland Science and Public Policy, Association of State Wetland Managers, U.S. Fish and Wildlife Patuxent Research Refuge, Laurel, Maryland, April 2000.

International Long-Term Ecological Research Program Workshop, Budapest, June 1999.

Wetlands and Carbon Sequestration, International Institute for Sustainable Development, Wetlands International, Ducks Unlimited, Winnipeg, Manitoba, Canada, April 1999.

Watershed Response to Nutrient Loads: Best Uses of Monitoring and Modeling, Chesapeake Bay Program, Scientific and Technical Advisory Committee, Harper's Ferry, WV May 1997

Mid-Atlantic Regional Pilot Workshop for the National Environmental Monitoring and Research Framework, Executive Office of the President, Office of Science and Technology Policy, University of Maryland, April 1996.

Collaborative Research on Canadian Peatlands: Present Status and Future Initiatives, Royal Society of Canada, Global Change Program and University of Alberta. December 1992.

Workshop on Sulphur Cycling in Wetland and Terrestrial Ecosystems, SCOPE (Scientific Committee on Problems of the Environment), Trent University, Ontario, May 1989.

Workshop on Climate Feedbacks and the Role of Peatlands, Tundra, and Boreal Ecosystems in the Global Carbon Cycle, U.S. Department of Energy, Oak Ridge, Tennessee, May 1988.

Professional Service:

NSERC, Collaborative Research and Development Grant, University of Waterloo, Review team Chair, August 2018

NSF Preproposal Panel, Ecosystems Studies, Spring 2012 and 2013; Macrosystems Biology Panel, Spring 2017

Advisory Board, University of Pennsylvania, National Science Foundation-supported PIRE Mongolia Project, Spring 2010

Rutgers University, Pinelands Field Station Advisory Committee, 2005-present

Board of Directors, FLUXNET-Canada, 2002-2007

Chair, Science Advisory Panel, FLUXNET-Canada, 2003-2007

Site Review Team, U.S. DOE, Nevada Environmental Research Park FACE Facility, October 2004

Committee of Visitors, U.S. Department of Energy, Office of Biological and Environmental Research, Environmental Sciences Division, Terrestrial Ecology Program, April 2003

Outside expert, Muskeg River Watershed Integrity Workshop, Cumulative Effects Environmental Management Association, Calgary, Alberta, Canada, September 16-20, 2002

Panelist: USDA, National Research Initiative Competitive Grants Program, Natural Resources Program Description Development Workshop, June 1993; Forest, Rangeland, Crop, and Aquatic Ecosystems Program, Proposal Review Panel, Spring 1994; Soils and Soil Biology Program, Proposal Review Panel, Spring 1995

Professional Society Service:

Society of Wetland Scientists, Mid-Atlantic Chapter Vice-Chair, 2004, President 2005; Student Grant Committee, 2000-2003, Chair 2001-2003; Annual Meeting Program Chair, 2002

Ecological Society of America, Annual Meetings: Reviewed abstracts 1985, 1987, 1988; Session Chair 1984, 1985, 1987, 1989, 1994; Buell Award Judge 1985-1990; Buell/Braun Award Committee, 1990

Society of Wetland Scientists: Panelist: Protecting Chesapeake non-tidal Wetlands: Research Needs in a New Regulatory Environment, Washington, D.C, June 1988; Annual Meeting Session Chair, 1999

Editorial Boards: *Ecological Engineering*, 1993-2003; *Urban Ecosystems*, 1995-2003; *Wetlands*, 1993-1996; *Biogeochemistry*, 2005-present

Service to other Universities:

External Reviewer, Doctoral Program in Plant Biology, The Ohio State University, 1995; Department of Biology, University of Minnesota – Duluth, 2012

Miscellaneous Reviews:

Pennsylvania Department of Natural Resources, "Best Professional Judgment Analysis of the Treatment of Post-Mining Groundwater Seeps", Fall 1993

USEPA, USDA Soil Conservation Service, Pennsylvania Department of Natural Resources, "A Handbook of Constructed Wetlands for the Northeastern United States, v. 4," Fall 1994

Book reviews: *Ecology*, 1986; *Microchemical Journal*, 1988; *Journal of Vegetation Science*, 1991

Reviewed manuscripts for: *Advances in Bryology*, *American Midland Naturalist*, *Applied Geochemistry, Aquatic Sciences, Bartonia*, *Biogeochemistry*, *BioScience*, *Biotropica*, *Boreal Environment Research*, *Bulletin of the Torrey Botanical Club*, *Canadian Journal of Forest Research*, *Chemical Geology*, *Climate Change, Diversity, Ecology*, *Ecological Applications*, *Ecological Engineering*, *Ecosystems, Environmental and Experimental Botany, Environmental Management, Environmental Research Letters, Fire, Global Biogeochemical Cycles*, *Geochimica et Cosmochimica Acta*, *Geological Transactions of the Royal Society of Chemistry*, *Geophysical Research Letters*, *Global Change Biology, Hydrology, Hydrobiologia*, *Journal of Coastal Research*, *Journal of Contaminant Hydrology, Journal of Environmental Quality*, *Limnology and Oceanography*, *Microchemical Journal*, *New Zealand Journal of Forestry Science*, *Oecologia*, *Plant and Soil*, *PNAS, Science of the Total Environment, Soil Biology & Biochemistry*, *Soil Science Society of America Journal*, *Vegetatio*, *Water, Air and Soil Pollution*, *Water Resources Research*, *Wetlands*, *Wetland Ecology and Management*

Reviewed grant proposals for: NSF - Ecosystems Studies, Ecology, Atmospheric Chemistry, Atmospheric Sciences Paleoclimate, EPSCoR in Alabama, Arctic System Science, Arctic Natural Sciences, Office of Polar Programs; NASA, New Investigator Program; Canadian Circumpolar Institute; Civilian Research and Development Fund; U.S. EPA, Office of Research and Development, Hazardous Waste Engineering Research Laboratory, Emerging Technology Program; Southern Appalachian Research Resource Management Cooperative,

Spruce-Fir Ecosystem Assessment Program; U.S. Department of Agriculture, National Research Initiative Competitive Grants Program - Water Quality, Forest/Rangeland Crop Ecosystem, Small Business Innovation Research, Water Resources Assessment and Protection, and Agricultural Systems Programs; U.S. Bureau of Mines, Abandoned Mine Lands Research Program; National Institute for Global Environmental Change, Midwestern Regional Center; Center for Coastal and Environmental Studies, Rutgers University; Maryland Department of Natural Resources - Power Plant Research Program and Chesapeake Bay Research and Monitoring Division; Minnesota Sea Grant College Program; West Virginia University Energy Research Center; Center for Transportation & the Environment, University of North Carolina; Grant Agency of the Czech Republic; National Environment Research Council, Directorate of Science and Technology, UK; Fonds FCAR (Fonds pour la Formation de Chercheurs et l'Aide à la Recherche) - Québec; Canadian Circumpolar Institute; Netherlands Organization for Scientific Research, Earth and Life Sciences; Sustainable Forest Management Network, Canada; Canadian Foundation for Climate and Atmospheric Sciences; National Science and Engineering Research Council (Canada), Steacie Fellowships, Industrial Research Chairs, Site Review Team to Evaluate FLUXNET Canada proposal; Alberta Conservation Association, Challenge Grants in Biodiversity