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Citizenship: U.S.A.
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Education:

Ph.D., M.S., M. Phil., 1987, Yale University, School of Forestry and Environmental Studies, CT.
M.S., 1981, Michigan Technological University, Biology Dept, MI.
B.A., 1978, Northland College, WI.

Research and Teaching Experience:

2006-present	Allegheny College, Professor (Associate Professor: 1998-2006; Assistant Professor: 1990-1997)
2005, Summer	U. Michigan Biological Station, Professor
1987-1990	The Ecosystems Center, Postdoctoral Research Associate
Feb.-June 1987	Yale University, Postdoctoral Research Associate

Research and Professional Interests:

Forest Ecosystems, Natural and Human Disturbance of Forest Ecosystems, Carbon and Nitrogen Cycling, Global Climate Change, Atmospheric Nitrogen Deposition, Service Learning and Experiential Education, Environmental Sustainability, Biomass Energy, DIRT Forest Soil Network

Professional Responsibilities:

Member, Executive Committee, 2000-present; Pennsylvania Environmental Resource Consortium Executive Committee, Chair 2001-2009; President 2011-2012
Member, Northwest Pennsylvania Woodland Association (NWPWA) Advisory Board, 1999-present, Vice-President 2014-2017.
Member, Advisory Board, Foundation for Sustainable Forestry, 2018-present
Member, 2023 North America Forest Soils Conference Steering Committee, 2018-present
Member, 2018 North America Forest Soils Conference Steering Committee, 2014-18
Judge, Annual Sigma Xi Conference, Penn State-Behrend, 2015, 2016, 2017, 2018, 2019
Judge, PA Jr. Academy of Sciences: 2010, 2011, 2012, 2017-2020
Member, Seton Catholic School Board, 2003-present; President, 2011-2014
Community Sustainability Session Moderator, Pennsylvania Environmental Research Consortium, Annual Meeting, State College, PA, 2014
Co-Chair, NSF LTER 2015 All Scientists Meeting, Steering Committee 2014-2015
Member, Long-Term Ecological Research Program, 2012 All Scientists Meeting Steering Committee
Co-Director, Penn's Woods Project, 2010-2016
Member, Steering Committee, PA Great Lakes Region Nature Tourism Initiative, 2006-2009
Member, Executive Committee, Allegheny College Center for Economic and Environmental Development, 1995-1996, 2006-2010
Member, Executive Committee, Northeast Campus Sustainability Consortium, 2004 - 2015
Member, Pennsylvania Wild Resource Conservation Program Advisory Committee, 2009 - 2012.
Sustainable Forestry Project Co-Director, Allegheny College Center for Economic and Environmental Development, 2002-2010
Ecotourism Project Director, Allegheny College Center for Economic and Environmental Development, 1997-2010.
Member, Pennsylvania Game Commission, WMU-1B Citizens Advisory Committee, 2007
Reader, College Board Advanced Placement Exam, Environmental Sciences, Nebraska, 2007, 2009
Member, Seton Catholic School Core Team for Development, 2002-2006, Chair: 2002-2004, 2005-2006
Member, Ecological Society of America, Odum Award Subcommittee for Excellence in Ecology Education, 2000-2003

Member, French Creek Project Science Committee, 1995-1997
Member, French Creek Project Advisory Committee, 1995-1996
Member, Crawford County Well Head Protection Steering Committee, 1995-1996
Project Coordinator and Student Advisor, 1993-1995, Harvard Forest NSF REU Summer Program
Advisor, Northeast Center for the National Institute for Global Environmental Change summer fellows, 1992-1995
Advisor, PA Jr. Academy of Sciences contestants: 1992-1993, 1995-1996,

Academic Responsibilities:

Faculty advisor, Environmental Science and Sustainability newsletter, 2017-present
ESS contact for Semester in Ecosystem Science Program, Woods Hole, MA, 2005-present
Admissions Dept. Master's Classes, "Climate Change Knows No Politics" (2017, 2018, 2019, 2020)
Member, Civic Engagement Advisory Committee, 2011 – present
Member, Civic Engagement Advisory Committee, 2011 – present
Member, VESA Steering Committee, 2008? – present
Recruiting sessions for prospective football students, 2017-2019
Chair, Institutional Review Board, 2018-2020, 2016-2018, member 2014-2016
AC Commencement Marshall, 2019
Entrance Advising, 2016-2018
HS Enrichment Program: Forest Management Course 2018-2019
Adult Enrichment Program: Climate Change Course 2018-2019
Faculty Leader, Alternative Spring Break, Roanoke, VA, Spring, 2017, Nashville, TN, Spring 2016
Environmental Science Departmental Seminar Series Coordinator, 2017.
Institutional Review Board, 2012-2016; chair 2012-2014
Chair, Finance and Facilities Committee Forest Management Subgroup 2014-2016
Member, Allegheny College Climate Change Initiative, 2007
Member, Allegheny College Presidential Environmental Task Force, 2006-2008
Member, Allegheny College Library and Information Technology Committee, 2005-2008
Chair, Allegheny College, Department of Environmental Science, 1998-2002, Fall 2011
Member, Allegheny College Campus Life Committee, 1998-2002 (Chair 2000-2002)
Member, Allegheny College Faculty Council, 1995-1997
Member, Allegheny College Judicial Board, 1993-1995

Courses Taught:

Conservation of Natural Resources, Principles of Environmental Analysis, Introduction to Environmental Science, Senior Research Seminar, Junior Research Seminars (Art and the Environment, Land Use, Forest Conservation, Ecotourism), Rocky Mountains: Natural Resource Controversies and Compromises, Forest Ecology and Management, Biogeochemistry, Threatened Ecosystems, Climate Change

Honors:

Carnegie Science Award, University/Post-Secondary Educator, 2016
University of Michigan Biological Station Summer Research Fellow, 2006
Harvard University Bullard Fellow, 2004-2005
Allegheny College Teacher-Scholar Chair, 2000-2003
Journal of Environmental Quality, 1997 Editor's Citation for Excellence in Manuscript Review
Newton Bobb Speaker, Northland College, WI, 1990
Yale University Research Assistantship, 1985-1987
Yale University Graduate Fellowship, 1980-1984
Michigan Technological University Teaching Assistantship, 1978-1980
Northland College Scholarship, 1974-1978

Publications (* present or former undergraduate author):

In Preparation

Bowden, R.D., C. McClaugherty, T. Sipe, K. Clark*, C. Giffen*, C. Meredith*, S. Stewart.* Legacies of agricultural activities in New England forest soils.

Submitted

- Pierson, D., L. Evans, K. Kayhan, **R.D. Bowden**, K. Nadelhoffer, M. and K. Lajtha. 2021. Roots limit mineral stabilization of soil carbon, even with more and higher quality litterfall. *Biogeochemistry*. In Revision.
- Pierson, D.N., H. Peter-Contesse, **R.D. Bowden**, K. Nadelhoffer, K. Kayhani, L. Evans, and Kate Lajtha. 2021. Resistance of soil carbon pools to alterations of litter inputs. Submitted to *Frontiers in Environmental Science*. Manuscript ID: 527803. In revision.
- Caylor, A., M.G. Kresse, C.F. Castle, R.S. Forsha, J.M. Holder, M.W. Johnston, B.L. Mickley, I.M., Petronka, R.M. Petula, J.T. Pittman, M.J. Savino, M.G. Sherman, O. Spiker, J.P. Steele, D.S. Studer, J.I. Sullivan, J.P. Tokasz, S. Winter, **R.D. Bowden**. 2021. Effects of Prescribed Goat Browsing as a Control Method for *Rosa multiflora*. Allegheny College Department of Environmental Science and Sustainability Technical Report 2021-xx. Submitted.

Published

56. Li, L., W Huang, M. Yang, Y. Liu, **R.D. Bowden**, M.J. Simpson, K. Lajtha, L.Tian, and J. Wang. 2020. Chlorination of forest-derived dissolved organic matter: Long-term nitrogen deposition does not increase formation of toxic disinfection byproducts. *Water Research*. 2020 Oct 15;185:116271. doi: 10.1016/j.watres.2020.116271. Epub 2020 Aug 4.
55. Wang, J-J, Y.Liu, **R.D. Bowden**, K. Lajtha, A.J. Simpson, W-L Huang, and M.J. Simpson. 2020. Long-term nitrogen addition alters the composition of soil-derived dissolved organic matter. *ACS Earth Space Chem*. 4 (2):189–201. <https://doi.org/10.1021/acsearthspacechem.9b00262>
54. **Bowden, R.D.**, S. J. Wurzbacher*, S. E. Washko*, L. Wind*, A. Rice*, A. Coble*, N. Baldauf*, B. Johnson*, J.-J. Wang, M. J. Simpson, and K. Lajtha. 2019. Long-term nitrogen addition decreases organic matter decomposition and increases forest soil carbon. *Soil Science Society of America Journal* 83(S1):S82-S95. doi:10.2136/sssaj2018.08.0293.
53. Wang, J.-J., **R.D. Bowden**, K. Lajtha, S. E. Washko*, S. J. Wurzbacher*, and M. J. Simpson. 2019. Long-term nitrogen addition suppresses microbial degradation, enhances soil carbon storage, and alters the molecular composition of soil organic matter. *Biogeochemistry* 142:299–313. <https://doi.org/10.1007/s10533-018-00535-4>.
52. Lajtha, K., **R.D. Bowden**, S. Crow, I. Fekete, Z. Kotroczó, A. Plante, M.J. Simpson, and K.J. Nadelhoffer. 2018. The detrital input and removal treatment (DIRT) network: Insights into soil carbon stabilization. *Sci. Total Environ*. 640–641: 1112–1120. doi: 10.1016/j.scitotenv.2018.05.388.
51. Reynolds, L.L., K. Lajtha, **R.D. Bowden**, M.M. Tfaily, B.R. Johnson, and S.D. Bridgham. 2018. The Path from Litter to Soil: Insights Into Soil C Cycling From Long-Term Input Manipulation and High-Resolution Mass Spectrometry. *J. Geophys. Res. Biogeosciences* 123(5). doi: 10.1002/2017JG004076.
50. Reynolds, L.L., K. Lajtha, **R.D. Bowden**, B.R. Johnson, and S.D. Bridgham. 2017. The carbon quality-temperature hypothesis does not consistently predict temperature sensitivity of soil organic matter mineralization in soils from two manipulative ecosystem experiments. *Biogeochemistry* 136(3). doi: 10.1007/s10533-017-0384-z.
49. Wang, J.-J., O. Pisani, L.H. Lin, O.O.Y. Lun, **R.D. Bowden**, K. Lajtha, A.J. Simpson, and M.J. Simpson. 2017. Long-term litter manipulation alters soil organic matter turnover in a temperate deciduous forest. *Sci. Total Environ*. 607-608. doi: 10.1016/j.scitotenv.2017.07.063.
48. Lajtha, K., **R.D. Bowden**, S. Crow, I. Fekete, Z. Kotroczó, A. Plante, M.J. Simpson, and K.J. Nadelhoffer. 2017. The Detrital Input and Removal Treatment (DIRT) Network. Reference Module in Earth Systems and Environmental Sciences. Ref. Modul. Earth Syst. Environ. Sci. [online]. doi: 10.1016/B978-0-12-409548-9.09774-8.
47. Wang, J., O. Pisani, L.H. Lin, O. O.Y. Lun, **R.D. Bowden**, K. Lajtha, A. J. Simpson, M. J. Simpson. Long-term litter manipulation alters soil organic matter turnover in a temperate deciduous forest. *Science of the Total Environment*: Accepted pending major revision.
46. **Bowden, R. D.**, L. Deem,* A. F. Plante, C. Peltre, K. Nadelhoffer, K. Lajtha. 2014. Litter Input Controls on Soil Carbon in a Temperate Deciduous Forest. *Soil Society of America Journal* 78:S66-S75.
45. Fekete, I., Z. Kotroczó, C. Varga, P.T. Nagy, J.A. Tóth, **R.D. Bowden**, G. Várбірó, K. Lajtha. 2014. Alterations in forest detritus input influence soil carbon concentration and soil respiration in a Central-European deciduous forest. *Soil Biology and Biochemistry* 74: 106-114.

44. Lajtha, K., K.L. Townsend, M.G. Kramer, C. Swanston, **R.D. Bowden**, K. Nadelhoffer. 2014. Changes to particulate versus mineral-associated soil carbon after 50 years of litter manipulation in forest and prairie. experimental ecosystems. *Biogeochemistry* 119:341–360.
43. Lajtha, K., **R.D. Bowden**, K. Nadelhoffer. 2014. Litter and Root Manipulations Provide Insights into Soil Organic Matter Dynamics and Stability. *Soil Society of America Journal* 78:S261-S269.
42. Mayzelle, M., M. Krusor, K. Lajtha, **R. Bowden**, J. Six. 2014. Effects of decreasing carbon saturation deficit on temperate forest soil carbon cycling. *Soil Society of America Journal* 78:S76-S83.
41. Frey, S.D., S. Ollinger, K. Nadelhoffer, **R. Bowden**, E. Brzostek, A. Burton, B. Caldwell, S. Crow, C. Goodale, S. Grandy, A. Finzi, M. Kramer, K. Lajtha, J. LeMoine, M. Martin, W. McDowell, R. Minocha, J. Sadowsky, P. Templer, K. Wicking. 2014. Chronic nitrogen additions suppress decomposition and sequester soil carbon in temperate forests. *Biogeochemistry* 121:305-306.
<http://www.springerlink.com/openurl.asp?genre=article&id=doi:10.1007/s10533-014-9970-5>.
40. Sandra Wayman* **R.D. Bowden**, and R. Mitchell. 2013. Seasonal changes in shoot and root nitrogen distribution in switchgrass (*Panicum virgatum*). *Biomass and Bioenergy Research* 7:243-252.
39. Giasson, M., A.M. Ellison, **R.D. Bowden**, P.M. Crill, E.A. Davidson, J.E. Drake, S.D. Frey, J.L. Hadley, M. Lavine, J.M. Melillo, J.W. Munger, K.J. Nadelhoffer, E. Nicoll, S.V. Ollinger, K.E. Savage, P.A. Steudler, J. Tang, R.K. Varner, S.C. Wofsy, D.R. Foster, and A.C. Finzi. 2013. Soil respiration in a northeastern US temperate forest: a 22-year synthesis. *Ecosphere* 4(11): Article 140. <http://dx.doi.org/10.1890/ES13.00183.1>
38. Smithwick, E.A.H., D.M. Eissenstat, G.M. Lovett, **R.D. Bowden**, L.E. Rustad, and C.T. Driscoll. 2013. Root Stress and Nitrogen Deposition: Consequences and Research Priorities. *New Phytologist* 197:712–719.
37. Klotzbücher, T, S. Strohmeier, K. Kaiser, **R. Bowden**, K. Lajtha, H. Ohm, K. Kalbitz. 2012. Lignin properties in topsoils of a beech/oak forest after 8 years of manipulated litter fall: relevance of altered input and oxidation of lignin. *Plant and Soil*. 10.1007/s11104-012-1489-8.
36. Crow, S.E, K. Lajtha, **R. D. Bowden**, Y. Yano, J. Brant, B.A. Caldwell, and E. Sulzman. 2009. Increased coniferous needle inputs accelerate decomposition of soil carbon in an old-growth forest. *For. Ecol. Manage.* 258:2224-2232.
35. Sollins, P., M. Kramer, C. Swanston, K. Lajtha, T. Filley, A.K. Aufdenkampe, R. Wagai, and **R.D. Bowden**. 2009. Sequential Density Fractionation across Soils of Contrasting Mineralogy: Evidence for both Microbial- and Mineral-Controlled Soil Organic Matter Stabilization. *Biogeochemistry*. 96: 209-231.
34. Crow, S.E., K. Lajtha, T.R. Filley, C.W. Swanston, **R.D. Bowden**, and B. A. Caldwell. 2009. Sources of plant-derived carbon and stability of organic matter in soil: implications for global change. *Global Change Biology* 15: 2003-2019.
33. Kotroczó, Z., S. Krakomperger, M. Papp, R.D. **Bowden** and J.A. Tóth. 2007. Long-term change in the composition and structure of an oak forest at Sikfokut, North Hungary. *Termeszettudományi Közlemények* 13:93-100.
32. Crow, S, E.W. Sulzman, W.D. Rugh, **R.D. Bowden** and K. Lajtha. 2007. Isotopic analysis of respired CO₂ during decomposition of separated soil organic matter. *Soil Biology Biochem.* 38: 3279-3291.
31. Tóth J.A., Lajtha, K., Kotroczó Z., Krakomperger Z., Caldwell, B., **Bowden, R.D.**, Papp M. 2007. The effect of climate change on soil organic matter decomposition. *Acta Silvatica et Lignaria Hungarica* 3, 75–85.
30. Sollins, P., C. Swanston, M. Kleber, T. Filley, M. Kramer, S. Crow, B. A. Caldwell, K. Lajtha and **R.D. Bowden**. 2006. Organic C and N stabilization in a forest soil: Evidence from sequential density fractionation. *Soil Biol. Biochem.* 38:3313-3324.
29. Chan, A.S.K. P.A. Steudler, **R.D. Bowden**, J. Gullledge, and C. Cavanaugh. 2005. Consequences of nitrogen fertilization on soil methane consumption in a productive temperate deciduous forest. *Biol. Fert. Soils.* 41:182-189.
Reprint
28. Sulzman, E., J. Brant, **R.D. Bowden**, and Lajtha, K. 2005. Contribution of aboveground litter, belowground litter, and rhizosphere respiration to total soil CO₂ efflux in an old growth coniferous. *Biogeochemistry* 73:231-256.
27. **Bowden, R.D.**, E. Davidson, K. Savage, C. Arabia*, and P.A. Steudler. 2004. Chronic nitrogen additions reduce total soil respiration and microbial respiration in temperate forest soils at the Harvard Forest. *J. For. Ecol. Manage.* 196:43-56. Reprint
26. **Bowden, R.D.** and E. Pallant. 2004. Maintaining a College-Community Ecotourism Project: Faculty Initiative, Institutional Vision, Student Participation, and Community Partnerships. In *Sustainability on Campus: Stories and Strategies for Change*. Geoffrey Chase and Peggy Barlett, eds. MIT Press. pp 197-213. Reprint
25. Aber, J., A. Magill, K. Nadelhoffer, J. Melillo, P. Steudler, J. Hendricks, **R. Bowden**, W. Currie, W. McDowell and G. Berntson. 2004. Exploring the process of nitrogen saturation. Chapter 12 in D. Foster and J. Aber (eds.),

- Forests in Time: The Environmental Consequences of 1000 Years of Change in New England. Yale University Press pp. 259-279. [Reprint](#)
24. Nadelhoffer, K. J., R.D. Boone, **R. D. Bowden**, J. D. Canary, J. Kaye, P. Micks, A. Ricca, J. A. Aitkenhead, K. Lajtha, and W.H. McDowell. 2004. The DIRT experiment: litter and root influences on forest soil organic matter stocks and function. Chapter 15 *in*: D. Foster and J. Aber (eds.), *Forests in Time: The Environmental Consequences of 1000 Years of Change in New England*. Yale University Press, pp. 300-315. [Reprint](#)
 23. Foster, D., J. Aber, **R. Bowden**, J. Melillo and F. Bazzaz. 2004. Comparison between physical disturbance and novel stresses. Chapter 14. *In*: D. Foster and J. Aber (eds.), *Forests in Time: The Environmental Consequences of 1000 Years of Change in New England*. Yale University Press, pp. 296-297. [Reprint](#)
 22. Foster, D., S. Cooper-Ellis, A. Barker Plotkin, G. Carlton, **R. Bowden**, A. Magill and J. Aber. 2004. Simulating a Catastrophic Hurricane. Chapter 11. *In*: D. Foster and J. Aber (eds.), *Forests in Time: The Environmental Consequences of 1000 Years of Change in New England*. Yale University Press, pp. 235-258. [Reprint](#)
 21. Nadelhoffer, K., **R. Bowden**, R. Boone, and K. Lajtha. 2003. Controls on forest soil organic matter development and dynamics: Chronic litter manipulation as a potential international LTER activity. Pp 3-9 *in*: K. Lajtha and K. Vanderbilt (eds.), *Cooperation in Long Term Ecological Research in Central and Eastern Europe: Proc. ILTER Regional Workshop, 22-25 June, Budapest, Hungary*. Oregon State University, Corvallis, Oregon. [Reprint](#)
 20. **Bowden, R.D.**, G. Rullo*. G.R. Stevens* and P.A. Steudler. 2000. Soil fluxes of carbon dioxide, nitrous oxide, and methane at a productive temperate deciduous forest. *J. Env. Qual.* 29:268-276. [Reprint](#)
 19. **Bowden, R.D.**, K.M. Newkirk, and G. Rullo*. 1998a. Carbon dioxide and methane fluxes by a forest soil under laboratory-controlled moisture and temperature conditions. *Soil Biol. Biochem.* 30:1591-1597. [Reprint](#)
 18. Foster, D.R., J.D. Aber, J.M. Melillo, **R.D. Bowden**, and F. Bazzaz. 1998. Forest response to natural disturbance versus human-induced stresses. *Arnoldia* 58:35-40.
 17. Foster, D.R., J.D. Aber, J.M. Melillo, F. Bazzaz, and **R.D. Bowden**. 1997. Forest response to disturbance and anthropogenic stress. *Bioscience* 47:437-445. [Reprint](#)
 16. Magill, A.H., J.D. Aber, J.J. Hendricks, **R.D. Bowden**, J.M. Melillo and P.A. Steudler. 1997. Biogeochemical response of forested ecosystems to simulated chronic nitrogen deposition. *Ecol. Appl.* 7:402-415. [Reprint](#)
 15. Millikin*, C. S. and **R. D. Bowden**. 1996. Soil respiration in pits and mounds following an experimental forest blowdown. *Soil Sci. Soc. Am. J.* 60:1951-1953. [Reprint](#)
 14. **Bowden, R.D.** 1995. Using natural attributes of islands to examine the influence of biodiversity on ecosystem function. P. 221-226. *In* *Islands: Biological diversity and ecosystem function*, P. Vitousek, H. Adersen and L. Loope (eds.) Springer Verlag, Heidelberg. [Reprint](#)
 13. Castro, M.S., P.A. Steudler, J.M. Melillo, J.D. Aber, and **R.D. Bowden**. 1995. Atmospheric methane consumption by temperate forest soils. *Glob. Biogeochem. Cyc.* 9:1-10. [Reprint](#)
 12. **Bowden, R.D.**, M.S. Castro, J.M. Melillo, Steudler, and J.D. Aber. 1993. Fluxes of greenhouse gases between soils and the atmosphere in a temperate forest following a simulated hurricane. *Biogeochem.* 21:61-71. [Reprint](#)
 11. **Bowden, R.D.**, K.J. Nadelhoffer, R.D. Boone, J.M. Melillo and J.B. Garrison.* 1993. Contributions of aboveground litter, belowground litter, and root respiration to total soil respiration in a temperate mixed hardwood forest. *Can. J. For. Res.* 23:1402-1407. [Reprint](#)
 10. Aber, J.D., A. Magill, R. Boone, J.M. Melillo, P. Steudler and **R.D. Bowden**. 1993. Plant and soil responses to three years of chronic nitrogen additions at the Harvard Forest, Petersham, MA. *Ecol. App.* 3:156-166. [Reprint](#)
 9. **Bowden, R.D.** 1991. Inputs, outputs, and accumulation of nitrogen in an early successional moss (*Polytrichum*) ecosystem. *Ecol. Monogr.* 61:207-223. [Reprint](#)
 8. **Bowden, R.D.**, J.M. Melillo, P.A. Steudler and J.D. Aber. 1991. Effects of nitrogen additions on annual nitrous oxide fluxes from temperate forest soils in the northeastern United States. *J. Geophys. Res.* 96:9321-9328. [Reprint](#)
 7. Steudler, P., J. Melillo, **R. Bowden**, M. Castro and A. Lugo. 1991. The effects of natural and human disturbances on soil nitrogen dynamics and trace gas fluxes in a Puerto Rican wet forest. *Biotropica* 23:356-363. [Reprint](#)
 6. Wang, D., A. Lugo, F.H. Bormann and **R.D. Bowden**. 1991. Comparison of nutrient-use efficiency and biomass production in five tropical tree taxa. *For. Ecol. Manage.* 46:1-21. [Reprint](#)
 5. Raich, J.W., **R.D. Bowden** and P.A. Steudler. 1990. Comparison of two static chamber techniques for determination of CO₂ efflux from forest soils. *Soil Sci. Soc. Am. J.* 54:1754-1757. [Reprint](#)
 4. **Bowden, R.D.**, P.A. Steudler, J.M. Melillo and J.D. Aber. 1990. Annual nitrous oxide fluxes from temperate forest soils in the northeastern United States. *J. Geophys. Res.* 95:13997-14005. [Reprint](#)
 3. Steudler, P.A., **R.D. Bowden**, J.M. Melillo and J.D. Aber. 1989. Influence of nitrogen fertilization on methane uptake in temperate forest soils. *Nature* 341:314-316. [Reprint](#)
 2. **Bowden, R.D.**, G.T. Geballe and W.B. Bowden. 1989. Foliar uptake of ¹⁵N from simulated cloud water by red spruce (*Picea rubens*) seedlings. *Can. J. For. Res.* 19:382-386. [Reprint](#)

1. Melillo, J.M., P.A. Steudler, J.D. Aber and **R.D. Bowden**. 1989. Atmospheric deposition and nutrient cycling. pp. 263 - 280. In: M.O. Andreae and D. Schimel (eds.), Exchange of trace gases between terrestrial ecosystems and the atmosphere. John Wiley and Sons, Chichester. [Reprint](#)

Published Reviews and Reports

- Tisch, A., V. Bajek, A.L. Blaisdell, L. Blum, N.A. Fischer, S.G. Galley, T.D. Gates, D.L. Heffner, S.E. Hill, S.M. Holler, E.D. Kauchak, L.E. Lewis, M.R. Malley, A.N. Martin, E. Smith, S.M. Spotts, N.M. Storer, S.G. Thompson, I.S. Wolter and **R.D. Bowden**. 202_. Aquatic macroinvertebrates in streams within and outside the Erie National Wildlife Refuge. Allegheny College Department of Environmental Science and Sustainability Publication 2020-1.
- Brown, J., M. McCampbell, A. Adesiji, C. Aldana, D. Antinozzi, A. Arden, H. Baker, L. Benko, R. Bower, B. Capron, I. Chick, A. Fernandez, N. Ferreira, L. Kellett, J. Lovullo, E. Melanfant, E. McNamara, J. Raphael, E. Shanabrook, A. Spiro, A. Terasavage, A. Tolmachoff, E. Vallejo, Z. Wilson, **R.D. Bowden**. 2020. Invasive plant species abundance along forest edges in northwestern Pennsylvania. Allegheny College Department of Environmental Science and Sustainability Publication 2020-2.
- Hemmelgarn, G.L, A.N. Martin, R.M. Ankney, V. Bajek, M.G. Carrigan, R.A. Carter, A. Caylor, T.A. Clay, G.E. Danczewicz-Helmers, J.L. Drozd,, F.J. Faiello, S.A. Foster, S.G. Galley, T.D. Gates , L.M. Gutzmer, S.L. Hall, D.H. Harrison-Peters, L.Kellett, B.J. Kozalla, M.G.Kresse, I. Krzys, M.R. Malley, I.R. Pettita, M. Savino, B.B. Slack-Foust, S. Spotts, **R.D. Bowden**. 2020. Damage to trees caused goats when used to control multiflora rose in a northwestern Pennsylvania hardwood forest. Allegheny College Department of Environmental Science and Sustainability Technical Report 2020-4.
- Brozell, K.K., O.E. Maack, S.M. McRae, L.L. Curtis, S. Degrendel, C.S. Flynn, L.J. Gilmore, A.N. Graf, C.A. Harris, M.J. Heasley, H.O. Heutsche, S.L. Mayer, L.S. McCann, J.T. Rawls, S.I. Schmidt, F. Schulte, K.W. Thompson, T.P. Weighart and **R.D. Bowden**. 2020. White-tail deer browsing on tree saplings within properties of the French Creek Valley Conservancy. Allegheny College Department of Environmental Science and Sustainability Publication 2020-3.
- Plano, Christopher*, **Richard D. Bowden**, Erin M. Cavagnaro*, Lauren M. Deem*, Caroline L. DiPerna*, Kiley Y. Fisher*, Maggie M. Hanafin*, Benjamin C. Hedin*, Caitlin M. Hubel*, Karl J. Krauskopf*, Anne V. Krol*, Michael T. Larkin*, Nicholas E. Loyacona*, Natalie E. Machado*, Edin A. Nikovic*, Christopher E. Plano*, David J. Schuster*, Julian Seltzer*, Raymond C. Stelzer*, Gabriella G. Tetelman*, Justin M. Wagg*, Bethany A. Walker*, Samuel J. Wyckoff*, Gabrielle E. Zinobile*. 2012. Ash and nutrient concentrations in switchgrass (*Panicum virgatum*) cultivars and ecotypes in northwestern Pennsylvania. Allegheny College Center for Environmental and Economic Development Publication CEED-2012-1
- Johnson, C*. and **R.D. Bowden**. 2010. Potential for Wind Power at Acutec Precision Machining, Inc. Saegertown, PA. Allegheny College Center For Environmental and Economic Development Publication CEED-2010-2.
- Jessie Gallagher*, Patrick McLaughlin*, **Richard D. Bowden***, Greg Bush*, Dan Certo*, Stephanie Clark*, Courtney Columbus*, Melissa Danielson*, Nick Darrow*, Nicki Eckstrom*, Karen Feltz*, Samantha Ford*, Cedric Gamble*, Lydia Gearhart*, Emma Helverson*, Rachel Hutchinson*, Jill Koehler*, Corbin Lichtinger*, Tess Miller*, Alex Nies*, Brendan F. O’Leary*, Mirno R. Pasquali*, Jessica Piette*, Angela Sicker*, Steve Sliger*, Peter Sotherland*, Stephanie VanSickle*, Kiah Voyer-Colbath*, Sarah C. Wilhelm*, Gretchen Wood*, Mike Young*, Matthew A. Zheleznyak*. 2010. Aboveground and Belowground Biomass, Carbon, and Nitrogen Content of Two Strains of Switchgrass in Northwestern Pennsylvania. Allegheny College Center for Environmental and Economic Development Publication CEED-2010-1
- Bowden, R. D.** 2009. Teaching scientists to teach in the same manner that they conduct research. Review of *Pathways to Scientific Thinking*, by Diane Ebert-May and Janet Hodder, Sinauer Press. Quarterly Review of Biology 84 (no3.).
- Alexander*, L., A. Conroy*, **R.D. Bowden**, L., C Buseck*, R. Campbell*, J. Campbell-Heredia*, A. Conroy*, L. Cover*, J. Fago*, M. Findley*, E. Gordon*, B. Greiner*, R. Hollihan*, A. Lee*, T. Ludwig*, B. Marcy-Quay*, M. Martin*, A. Pfeifer*, M. Robelo*, L. Scalera*, A. Silling*, N. Silva*, E. Thornton*, T. Wetsell*, K. Wills*. 2008. Biomass, Carbon, Nitrogen, and Ash Content in Stands of Switchgrass and Big Blue Stem in Northwestern Pennsylvania. Allegheny College Center for Environmental and Economic Development. Publication CEED-2008-2
- Trunzo*, A., **R. Bowden**, K. Castillo*, S. Elliot*, K. Flood*, L. Gardner*, J. Gaudi*, P. Grella*, S. Kane*, I. Lawson*, J. Longobardo*, X. Lu*, K. Minto*, C. Moore-Seymore*, D. Roth*, S. Wayman*. 2008. Grease is the Word: Feasibility of Biodiesel Production in Meadville, PA. Allegheny College Center for Environmental and Economic Development. Publication CEED-2008-1.

- Bowden, R.D.**, E. Pallant, D. Goldstein, E. Straus*, K. Biondi*, K. Blair*, N. Cash*, E. Czolowski*, N. Fuhrman*, J. Gathmann*, A. Gorski, A. Hall*, J.P. Hendrickson*, T. Hollies*, A. Ingley*, C. LaRochelle*, C. McClusky*, C. McShea*, E. Mellick*, C. Moon*, C. O'Neill*, A. Patrick*, K. Pawlak*, G. Raspanti*, R. Recker*, C. Wagner*, S. Rigotti*, E. Winter*, S. Zaret* 2009. Siting Wind Turbines at Acutec Precision and Manufacturing, Inc., Saegertown, Pennsylvania: An Environmental Impact Assessment. Allegheny College Center for Environmental and Economic Development. Publication CEED-2009-1.
- Sandra Wayman*, A. M. Trunzo*, **R.D. Bowden**, K. Castillo*, S. Elliot*, K. Flood*, L. Gardner*, J. Gaudi*, P. Grella*, S. Kane*, I. Lawson*, J. Longobardo*, X. Lu*, K. Minto*, C. Moore-Seymore*, D. Roth*. 2009. Variability of Soil Carbon and Nitrogen in Switchgrass and Big bluestem Fields in Northwestern Pennsylvania. Allegheny College Center for Environmental and Economic Development. Publication CEED-2009-2.

Presentations (*Present or former undergraduate author)

- Lajtha, K., D Pierson, **R. Bowden**, K. Nadelhoffer, M Simpson. 2020. Root activity, root death, and the stability of soil organic matter. Goldschmidt Virtual 2020 Conference (annual, international conference on geochemistry and related subjects, organized by the Geochemical Society and the European Association of Geochemistry.)
- Simpson, J., K. Lajtha, **R. Bowden**, Integrative Molecular Biogeochemistry of Soil Organic Matter with Long-term Litter Manipulation in Temperate Forests. Goldschmidt Virtual 2020 Conference (annual, international conference on geochemistry and related subjects, organized by the Geochemical Society and the European Association of Geochemistry.)
- Bowden, R.D.**, S. Wurzbacher*, S. Washko*, L. Wind*, Alexandria Rice*, J.-J. Wang, M. Simpson, K. Lajtha. 2018. Long-term nitrogen addition decreases organic matter decomposition and increases soil carbon in a temperate deciduous forest. North American Forest Soils Conference, Quebec City, Quebec. June 10-14, 2018 (Presented as poster and invited rapid-fire presentation).
- Bowden, R.D.**, M. Simpson, K. Nadelhoffer, A.F. Plante, S. Crow, L. Deem, A. Simpson, I. Fekete, Z. Kotroczó, J.-J. Wang, O. Pisani, L.H. Lin, O. O.Y. Lun, K. Lajtha. The Detrital Input and Removal Treatment (DIRT) Project: Exploring Soil C Storage and Chemistry. Presented at the Annual Harvard Forest Research Symposium. March 2019.
- Stuart*, S., **R.D. Bowden**. 2015. The Carbon Athletic Conference. Annual meeting of the Association of Environmental Science and Studies, San Diego, CA.
- Stuart*, S., **R.D. Bowden**. 2015. The Carbon Athletic Conference. Annual meeting of the Pennsylvania Environmental Resource Consortium, State College, PA.
- Bowden, R.D.**, L. Deem*. 2015. Controls on Forest Soil Carbon. NSF Long-Term Ecological Research All-Scientists Meeting. Estes Park, Co.
- Schock*, J., M. Keeley, **R.D. Bowden**. 2015. Hemlock: A Documentary. NSF Long-Term Ecological Research All-Scientists Meeting. Estes Park, Co.
- Pallant* I., D. Conant, L. Nagel, C. Soff, A. Walker, **R.D. Bowden**. 2015. Basking in the sun: Can solar power work for the municipality of Meadville PA?"
- Bowden, R.D.**, C. Bradshaw-Wilson, B. Choate, B. Davis, B. Haywood, C. Waggett, E. Pallant. 2015. Teaching Environmental Research by Doing It in an Entry-Level Course," Annual Meeting of the Association of Environmental Science and Studies, San Diego, CA.
- Bowden, R.D.** 2015. Presenter, Forests and Wildlife, Loving the Land Conference, Foundation for Sustainable Forests.
- R.D. Bowden**, L. Deem*, A. F. Plante, C. Peltre, K. Nadelhoffer, K. Lajtha. 2014. DIRT beyond the Harvard Forest: Litter Input Controls on Soil Carbon in a Temperate Deciduous Forest in Pennsylvania. Harvard Forest Research Annual Research Symposium. Petersham, MA.
- Lajtha, K., F. Peterson, K. Nadelhoffer, and **R.D. Bowden**. 2014. "Twenty Years of Litter and Root Manipulations: Insights into Multi-Decadal Soil Organic Matter Dynamics at the Harvard Forest." Annual Harvard Forest Research Symposium, Petersham, MA.
- Reynolds, L., M. Tfaily, K. Roscioli, K. Lajtha, **R. Bowden**, B. Johnson, S. Bridgham. 2014. Linking SOM Content, Chemistry, and Decomposition: Complex Responses to Input Manipulation and Long-term Incubation. Am. Geophysical Union. San Francisco, CA.
- Nadelhoffer, K, **R.D. Bowden**, S. Crow, K. Lajtha. 2014. Detritus Inputs & Forest Soil Organic Matter Formation: Is There a Linear Relationship Between Detrital Input Rates and Soil Carbon Accumulation? Soil Science Society of America Annual Meeting. Long Beach, CA.

- Wurzbacher, S*. , **R.D. Bowden**. 2013. "Long-term nitrogen additions increase soil C in an eastern US deciduous forest." Twelfth North American Forest Soils Conference, Whitefish, MT.
- Bowden, R.D.**, L. Deem*, A. F. Plante, C. Peltre, K. Nadelhoffer, K. Lajtha. 2013. "Litter Controls on Soil Carbon Quantity and Quality in an Eastern Deciduous Forest." Twelfth North American Forest Soils Conference, Whitefish, MT.
- Frey, S., **R. Bowden**, E. Brzostek, A. Burton, B. Caldwell, S. Crow, C. Goodale, S. Grandy, A. Finzi, M. Kramer, K. Lajtha, M. Martin, W. McDowell, R. Minocha, K. Nadelhoffer, S. Ollinger, P. Templer, K. Wicking. 2012. Temperate Forest Soils Sequester as much Carbon as Trees in Response to Nitrogen Deposition. National Science Foundation Long-Term Ecological Research Program All-Scientists Meeting. Estes Park, CO. September, 2012.
- Reynolds, L. K. Lajtha, **R.D. Bowden**, B. Johnson, and S. Bridgman. 2012. The DIRT on Q10: Differential temperature response of soils depleted of labile inputs. National Science Foundation Long-Term Ecological Research Program All-Scientists Meeting. Estes Park, CO. September, 2012.
- Trunzo, A. *, P. Carey*, E. Straus*, T. Bensel and **R. Bowden**. 2009. Forest Education for High School Students. Pennsylvania Undergraduate Research at the Capitol Symposium. Harrisburg, PA. October, 2009.
- Wayman, S. A*. Trunzo* and T. Weiss* and **R. Bowden**. 2009. The secret underground life of switchgrass: Exploring belowground processes. 2009. Pennsylvania Undergraduate Research at the Capitol Symposium. Harrisburg, PA. October, 2009.
- Bowden, R.** E. Fager*, K. Nadelhoffer and J. LeMoine. 2009. Decomposition of Roots and Leaves in a Northern Temperate Forest. Annual Meeting of the Soil Science Society of America. Pittsburgh, PA. November 2009.
- Bowden, R.D.**, S.D. Frey, S. Ollinger, R. Maclean, M. Day, K. Nadelhoffer, J. LeMoine, A. Finzi, E. Brzostek, C. Goodale, A. Melvin, M. Weiss. 2009. *Organic Matter Responses to Chronic Nitrogen Additions at the Harvard Forest*. National Science Foundation Long-Term Ecological Research Program All-Scientists Meeting. Estes Park, CO. September, 2009
- Frey, S., S. Ollinger, R. MacLean, M. Day, K. Nadelhoffer, J. LeMoine, **R. Bowden**, A. Finzi, C. Goodale, K. Lajtha, W. McDowell, A. Melvin, P. Templar, S. Trumbore, M. Weiss. 2009. Nitrogen saturation – A 20-yr synthesis. 20th Annual Harvard Forest Ecology Symposium. March, 2009. Harvard Forest, Petersham, MA.
- Klotzbucher, T., K. Klaiser, K. Lajtha, **R.D. Bowden** and K. Kalbitz. 2008. Effects of plant litter input on lignin degradation in forest soils. Eurosoil Conference. Vienna, Austria, August 2008.
- Crow, S.E., **R. D. Bowden**, B. Caldwell, T. Filley, K. Lajtha, J. Brant, E. Sulzman. 2008. Sources of long-term soil organic matter varies by forest type; But how stable is it? Tenth North American Forest Soils Conference. Virginia Tech, Blacksburg, VA. 2008.
- Robinson, S.M. , E. Evetts, W. Taylor, **R D. Bowden**, J.A. Toth, W. H McDowell, K. Lajtha and J A Aitkenhead-Peterson. 2008. Above- and below-ground litter: Controls on retention and release of dissolved C and N." Presented at the Annual Meeting of the Soil Science Society of America, Houston, TX. October 2008.
- DeHart, J.L., E. Pallant, **R. Bowden**, A. Geffen, J. Law*, L. Lee, B. Rietnour, S. Rigotti*, R. Simko and A. Werner*. 2008. Green Honchos: How Allegheny College's Taskforce for Environmental Responsibility created eco-minded administrators. American Association for Sustainability in Higher Education. Raleigh NC, November 2008.
- Robinson*, S. E. Evetts*, W. Taylor*, **R. Bowden**, L. Lajtha, W.H. McDowell and J.A. Aitkenhead-Peterson. 2007. Above-and belowground litter manipulation: Impact of the retention and release of dissolved C and N. Geological Society of America/American Society of Agronomy Annual Meetings. Houston, TX. October 2007.
- Sollins, P., M. Kramer, C. Swanston, K. Lajtha, T. Filley, A.K. Aufdenkampe, R. Wagai, and **R.D. Bowden**. 2006. Stabilization of Soil Organic C and N: Evidence from Sequential Density Fractionation. American Society of Agronomy Annual Meetings, Indianapolis, IN. November 2006.
- Crow, S. T. Filley, C. Swanston, B. Caldwell, **R. Bowden**. 2006. Above- and Belowground Litter Controls on Forest Soil Dynamics. Soil Sci. Soc. Am. Annual Meeting.
- Bowden, R. D.**, L. Nagel*, Z. Kotrocó, Z. Krakomperger, M. Papp, and J.A. Tóth. 2006. Long-term change in vegetation composition and biomass in a Central European oak forest at the Sikfokut International Long-Term Ecological Research (ILTER) Site, Hungary. NSF Long-Term Ecological Research Site All-Scientists Meeting, Estes Park, CO. September, 2006.
- Nagel, L. *, **Bowden, R. D.**, J.A. Tóth , J. Aitkenhead-Peterson and K. Lajtha. 2006. Rapid Changes in Soil Carbon and Organic Matter at the Sikfokut International Long-Term Ecological Research Site, northeast Hungary NSF Long-Term Ecological Research Site All-Scientists Meeting, Estes Park, CO. September, 2006.
- Sulzman, E., J. Brant, D. Myrold, K. Lajtha, B. Caldwell, and **R. Bowden**. 2006. Components of soil CO₂ efflux in an old growth coniferous forest: a tale of roots, microbes, and priming. NSF Long-Term Ecological Research Site All-Scientists Meeting, Estes Park, CO. September, 2006.

- Bowden, R.D.**, K.J. Nadelhoffer, P. Micks, J. LeMoine and L. Nagel. * 2006. Contributions of Autotrophic and Heterotrophic Sources to Total Soil Respiration in Temperate Forests: Site Productivity Controls on Aboveground and Belowground Carbon Allocation. NSF Long-Term Ecological Research Site All-Scientists Meeting, Estes Park, CO. September, 2006.
- Bowden, R.D.**, D. Brown, S. Just, K. Baratan, T. Emmett, H. Greenberg; S. Kabala, R. McKinstry. 2005. "The Pennsylvania Consortium for Interdisciplinary Environmental Policy: A Policy-Relevant Research Collaboration between Pennsylvania Academic Institutions and State Environmental Agencies." Greening of the Campus VI: Extending Connections, Ball State University, September 2005.
- Kirk, E., J. Palmer, D. Goldstein, S. Onyeiwu, K. R. **Bowden**, K. Bakken, T. Bensen, K. Greely, J. DeHart, C. Waggett, A. Geffen and E. Pallant, 2005. Sustainability is working in the rust belt. Greening of the Campus VI: Extending Connections, Ball State University, September 2005.
- Kotroczó, Z. Krakomperger, Z. Papp, M., **Bowden, R.D.**, Tóth, J. Thirty-one years of change in vegetation composition of a Central European oak forest at the Sikfokut ILTER. Ecol. Soc. Am. Abstracts, 90th Annual Meeting.
- Baros, B., C. Waggett, A. Coble*, J. Krempecki*, G. Dunkle*, and **R. D. Bowden**. 2004. Environmental Microbiology: A multidisciplinary, multi-class approach. 11th Annual ASM Conference for Undergraduate Educators. Xavier University, Louisiana.
- Bowden, R.D.**, E. Davidson, K. Savage, C. Arabia and P.A. Steudler. 2004. Nitrogen additions reduce microbial respiration in temperate forest soils at the Harvard Forest LTER. Mid-Atlantic Regional Meeting of the Ecological Society of America. April 27-28, 2004. Franklin and Marshall College, Lancaster, PA.
- Lajtha, K., Y. Yano, E. Sulzman, **R. Bowden**, B. Caldwell, K. Nadelhoffer, J. Toth, and K. Vanderbilt. 2003. Detrital control of soil organic matter dynamics: an experimental approach." International Conference on Mechanisms and Regulation of Organic Matter Stabilisation in Soils. October 5-8, 2003, Schloss Hohenkammer, Munich Germany. Sponsored by the Deutsche Bodenkundliche Gesellschaft.
- Caldwell, B.A., **R. Bowden**, K. Lajtha, K. Nadelhoffer, E. Sulman, J. Toth, and K. Vanderbilt. 2003. "Detrital controls on microbial processing of SOM in four forest." International Conference on Mechanisms and Regulation of Organic Matter Stabilisation in Soils. October, 2003, Schloss Hohenkammer, Munich Germany. Sponsored by the Deutsche Bodenkundliche Gesellschaft.
- Chan, A.S.K. P.A. Steudler, **R.D. Bowden**, J. Gullledge, C. Cavanaugh. 2003. Consequences of Nitrogen Fertilization on Soil Methane Oxidation in a Productive Temperate Deciduous Forest. Am. Soc. Agron.
- Bowden, R.D.**, E. Davidson, K. Savage, C. Arabia*, P.A. Steudler, 2003. Chronic nitrogen additions reduce total and microbial respiration in temperate forest soils at the Harvard Forest LTER. Proc. Tenth N. Am. Forest Soils Conf., July, 2003, Sault Ste. Marie, Canada.
- Caldwell, B.A., B. Baros, **R. Bowden**, M. Copeland*, S. Crow, K. Lajtha, P. Micks, K. Nadelhoffer, B. McDowell, E. Sulzman, J. Toth, and K. Vanderbilt. 2003. Influence of detrital inputs on carbon processing in forest soils. Proc. Tenth N. Am. Forest Soils Conf., July, 2003, Sault Ste. Marie, Canada.
- Sulzman, E.W., **R. Bowden**, K. Lajtha, J. Gregg, and K. Nadelhoffer. 2003. Partitioning soil respiration using experimental manipulations and stable isotopes. Soc. Exper. Biol. 134:S195.
- Arabia, C.*, E. Davidson, K. Savage, P. Steudler and **R. Bowden**. 2002. Long-term suppression of soil respiration by nitrogen deposition: Contribution of microbial decomposition. p20. In A. B. Plotkin, J.S. Pallant and D. Recos-Smith, eds. Abstracts of the 13th Ann. Harvard Forest Ecol. Symp. 28 March 2002.
- Sipe, T.W., C.M. McClaugherty, and **R.D. Bowden**. 2000. The effects of nearground enriched carbon dioxide on photosynthesis in forests with different land use legacies. Ecol. Soc. of Am. 86th Annual Meeting Abstracts. P344.
- Lajtha, K., B. Caldwell, K. Nadelhoffer, **R. Bowden**, D. Coleman, W. Currie, S. Hobbie, B. McDowell, M. Meade-Callahan, J. Moore. 2000. DIRT: A cross-continental, experimental study of forest SOM and N dynamics. LTER All Scientists Meeting, Snowbird, UT. Ecol. Soc. Am. Abstracts, 85th Annual Meeting.
- McClaugherty, C.M., T.W. Sipe and **R.D. Bowden**. 2000. Near-ground light and carbon resource allocation in temperate forests with contrasting historical land uses. 166th National Meeting of Amer. Assoc. Advance. Sci. Annual Meeting. p75.
- Bowden, R.D.**, G. Rullo*, G.R. Stevens* and P.A. Steudler. 1999. Soil fluxes of carbon dioxide, methane, and nitrous oxide at a productive temperate deciduous forest. Ecol. Soc. Am. Abstracts, 84th Annual Meeting.
- Kunkle*, J.M, T.W. Sipe, **R.D. Bowden** and C.M. McClaugherty. 1999. Growth rates and biomass allocation of tree seedlings across forests with three different land-use legacies in central Massachusetts. Ecol. Soc. Am. Abstracts, 84th Annual Meeting.
- Bixler*, K.S., T.W. Sipe, C.M. McClaugherty and **R.D. Bowden**. 1998. Spatial variation of sunfleck regimes in forests with different land-use legacies in central Massachusetts. Ecol. Soc. Am. Abstracts, 83th Annual Meeting.

- Bowden, R.D.**, C. McClaugherty, T. Sipe, K. Clark*, C. Giffen*, C. Meredith*, S. Stewart.*1998b. Legacies of agricultural activities in New England forest soils. Proc. Ninth N. American Forest Soils Conference, August 9-14, 1998, Tahoe City, CA.
- Sipe, T. W., **R.D. Bowden**, B. Danner*, and C.J. Giffen*. 1998. Spatial variation in forest floor CO₂ enrichment and its implications for photosynthesis in forests with different land-use legacies. Ecol. Soc. Am. Abstracts, 83th Annual Meeting.
- Bowden, R.D.**, C.A. McClaugherty, R. Bakker*, K. Clark*, C. Giffen*, C. Meredith*, S. Stewart*. 1998. Historic agricultural land-use alteration of temperate forest soil at the Harvard Forest LTER. Ecol. Soc. Am. Abstracts, 83th Annual Meeting.
- Hunker*, V. L., **R. Bowden**, T. Sipe, and C. McClaugherty. 1997. Root-soil relationships in red maple and red oak seedlings at three Harvard Forest LTER land-use sites. Ecol. Soc. Am. Bull. 78:113 .
- Norris*, M. D., **R. Bowden**, C. McClaugherty, and T. Sipe. 1997. Forest composition following abandonment of agricultural land at the Harvard Forest LTER. Ecol. Soc. Am. Bull. 78:154.
- Bowden, R.D.**, A. Lawrence* and K. Kryger*. 1996. Depth distribution of soil nitrogen and potential net N mineralization and nitrification in two temperate forests. Ecol. Soc. Am. Bull. 77:48.
- Canary, J. D., R.D. Boone, K.J. Nadelhoffer, **R.D. Bowden** and J. Kaye. 1996. Estimates of above- and belowground litter inputs to a forest soil using CO₂ fluxes measured by two methods. Ecol. Soc. Am. Bull. 77:68.
- Stiles*, K., G. R. Stevens* and **R. D. Bowden**. 1995. Immediate influence of nitrogen fertilization on trace gases in a temperate forest. Ecol. Soc. Am. Bull. 76:254.
- Foster, D. R., J. Aber, J. Melillo, **R. Bowden** and F. Bazzaz. 1995. Temperate forest response to natural catastrophic disturbance and chronic anthropogenic stress. Ecol. Soc. Am. Bull. 76:327.
- Bowden, R.D.**, K.M. Newkirk, C.S. Millikin* and G. Rullo*. 1994. Effects of soil moisture and temperature on fluxes of carbon dioxide and methane in a temperate forest soil. Ecol. Soc. Am. Bull.
- Bowden, R.D.**, K.J. Nadelhoffer, R.D. Boone, J.M. Melillo and J.B. Garrison* and K.X. Cario*. 1993. Soil respiration: Contributions of aboveground litter, belowground litter, and root respiration in two temperate mixed hardwood forests. Proceedings of NSF Long-Term Ecological Research All Scientists and International Summit Meeting, Estes Park, CO, Sept. 18-24, 1993.
- Bowden, R.D.**, K.J. Nadelhoffer, R.D. Boone, J.M. Melillo and J.B. Garrison* and K.X. Cario*. 1993. Soil respiration: Contributions of aboveground litter, belowground litter, and root respiration in two temperate mixed hardwood forests. Proceedings of the Eighth North American Forest Soils Conference, Gainesville, FL, May 1993.
- Bowden, R.D.**, M.S. Castro, J.M. Melillo, Steudler, and J.D. Aber. 1993. Fluxes of greenhouse gases between soils and the atmosphere in a temperate forest following a simulated hurricane. Ecol. Soc. Am. Bull. 74:170.
- Millikin*, C.S. and **R.D. Bowden**. 1993. Effects of pit and mound disturbance on CO₂ effluxes following a simulated hurricane blowdown in a temperate forest. Ecol. Soc. Am. Bull. 74:361.
- Bowden, R.D.**, K.J. Nadelhoffer, R.D. Boone, J.M. Melillo and J.B. Garrison*. 1992. Contributions of root respiration and above- and belowground litter to total soil respiration in a temperate mixed hardwood forest. Ecol. Soc. Am. Bull. 71:118.
- Kicklighter, D.W., P.A. Steudler, J.M. Melillo, M.S. Castro, W.T. Peterjohn, **R.D. Bowden** and K. M. Newkirk. 1992. Regional estimation of carbon dioxide fluxes from temperate forest soils: Issues of temporal scale. Ecol. Soc. Am. Bull. 71:118.
- Bowden, R.D.**, P.A. Steudler, J.M. Melillo and M.S. Castro. 1991. Trace gas fluxes between the atmosphere and soils of subtropical forests in Puerto Rico. Ecol. Soc. Am. Bull. 70:97.
- Castro, M.S., J.M. Melillo, P.A. Steudler and **R.D. Bowden**. 1991. The effect of disturbance on the exchange of N₂O, CO₂, and CH₄ between the atmosphere and wet subtropical forest soils in Puerto Rico. Ecol. Soc. Am. Bull. 72:84.
- Bowden, R.D.**, J.M. Melillo, P.A. Steudler, J.D. Aber and A.M. Boutwell. 1990. Effect of temperature, soil moisture, and N on carbon dioxide fluxes from soils in a red pine plantation and a mixed hardwood forest in Massachusetts. Ecol. Soc. Am. Bull. 70:97.
- Bowden, R.D.**, P.A. Steudler, J.M. Melillo and J.D. Aber. 1989. The influence of N fertilization on annual nitrous oxide fluxes in a red pine plantation and mixed hardwood forest in Massachusetts. Ecol. Soc. Am. Bull. 70:67.
- Bowden, R.D.**, G.T. Geballe and W.B. Bowden. 1987. Foliar uptake of ¹⁵N- labelled cloudwater nitrogen by red spruce (*Picea rubens*) seedlings. Ecol. Soc. Am. Bull. 68:267.
- Bowden, R.D.** 1985. Retention of precipitation nitrogen by moss (*Polytrichum*) ecosystems in central New Hampshire. Ecol. Soc. Am. Bull. 66:145.
- Bowden, R.D.** 1984. The nitrogen budget of a developing moss ecosystem in central New Hampshire. Ecol. Soc. Am. Bull. 65:98.
- Bowden, R.D.** 1983. Nitrogen dynamics in an early successional moss ecosystem. Ecol. Soc. Am. Bull. 64:92.

Invited Seminars, Symposium and Conference Presentations, Workshops

- Bowden, R.D.** 2019. Invited Seminar: “Floods on French Creek”, The Catholic Community of Meadville, July 2019.
- Bowden, R.D.** 2018. Facilitator, Loving the Land Conference, Foundation for Sustainable Forestry. May 2018.
- Bowden, R.D.** 2018. Invited Seminar: “Aquatic Ecology”, The Catholic Community of Meadville, July 2018.
- Bowden, R.D.** 2018. Invited Seminar: “Resource use and consumption: Environmental consequences”, The Catholic Community of Meadville, July 2018.
- Bowden, R.D.** 2018. “Bousson Experimental Forest,” One-hour TV program for Crawford County Outdoors, with Duane Koller, June 2018.
- Bowden, R.D.** 2018. Invited Discussion Leader: Local Showing of “Saving Snow.” Wilderness Lodge. February 2018.
- Bowden, R.D.** 2017. Invited Seminar: Climate change knows no politics. Crawford County Conservation District, October 2017.
- Bowden, R.D.** 2017. Invited Seminar: The Papal Environmental Encyclical”, The Catholic Community of Meadville, July 2017.
- Bowden, R.D.** 2017. Facilitator, Loving the Land Conference, May 2017.
- Bowden, R.D., 2016.** Can forest soils clean carbon out of the atmosphere?: Soil carbon in temperate forest ecosystems. Invited seminar, Hubbard Brook Experimental Forest Annual Summer Seminar Series. Hubbard Brook Experimental Forest, NH.
- Bowden, R.D.** 2014. Forest Biology Workshop. Loving the Land Conference. Foundation for Sustainable Forests. Spartansburg, PA.
- R.D. Bowden.** 2014. Digging into the DIRT Experiment: Soil Carbon Dynamics and Storage in Forest Ecosystems. 2014 Harvard Forest Summer Seminar Series. Petersham, MA.
- Reynolds, L., M. Tfaily, K. Roscioli, K. Lajtha, **R. Bowden**, B. Johnson, S. Bridgham. 2014. Linking SOM Content, Chemistry, and Decomposition: Complex Responses to Input Manipulation and Long-term Incubation. Am. Geophysical Union. San Francisco, CA.
- Nadelhoffer, K, **R.D. Bowden**, S. Crow, and K. Lajtha. 2014. Detritus Inputs & Forest Soil Organic Matter Formation: Is There a Linear Relationship Between Detrital Input Rates and Soil Carbon Accumulation? Soil Science Society of America Annual Meeting. Long Beach, CA.
- “Teaching and research at a small undergraduate college”. Yale University 30th Annual Doctoral Conference, Nov. 2013. New Haven, CT.
- Forest Ecology Field Trip. Loving the Land Conference. Foundation for Sustainable Forests. May 2013. Meadville, PA.
- “Forest litter influence on soil organic matter quantity and quality: The ability of soils to store carbon.” With Knute J. Nadelhoffer, Kate Lajtha, Alain Plante, Janos Toth, Lauren Deem*, Susan E. Crow, and Jim LeMoine,. Feb. 2013. US Forest Service, Irvine PA.
- “Forest soil C quantity and quality: Twenty years of the DIRT Experiment Invited Presentation UC-Davis”. 2012. With Kate Lajtha, Lauren Deem, Susan E. Crow, Alain F. Plante, Jim LeMoine, Sarah J. Wurzbacher*, Knute J. Nadelhoffer. July 2012. U. Pennsylvania.
- “Campus food waste: Fueling city vehicles and greening the campus lawn”. With Kelly Boulton, Mirno Pasquali*. 2012. Northeast Campus Sustainability Consortium, Syracuse, NY
- “Long-term controls on forest soil C quantity and quality: The dirt on the DIRT Experiment.”, With Kate Lajtha, Susan E. Crow, Alain F. Plante, Jim LeMoine, Sarah J. Wurzbacher, and Knute J. Nadelhoffer. 2011, Invited presentation, Eighth North Forest Ecology Workshop, Blacksburg, VA.
- “Hands-on undergraduate instruction in renewable energy; Linking student research and community partners.” With Alesandra Trunzo*, Sandra Wayman*, Carlyn Johnson*, Eric Pallant, Don Goldstein, John Christopher Soff, Calvin Ernst, and Robert Smith. 2011. Advancement of Sustainability in Higher Education 2011 Conference and Expo, Pittsburgh, PA.
- “Greasing a solution to a complex problem: A college-municipal community effort to turn used cooking oil into biodiesel fuel.” With Joe Christ, Christopher Soff, Alessandra Trunzo*, Sandra Wayman*, Krystle Castillo*, Samuel Elliot*, Katie Flood*, Lynette Gardner*, Justin Gaudi*, Peter Grella*, Sarah Kane*, Isis Lawson*, Jessica Longobardo*, Xi Lu*, Kelsey Minto*, Chas Moore-Seymore*, and Daniel Roth*. 2011 Annual meeting of the Association of Environmental Studies and Sciences, in Burlington, VT.

- “The Penn’s Woods Project: Forest Science Education for High School Students,” With Terry Bensel, Stacia-Fe Gillen*, Lauren Deem *, Kelsey Ream*, Alessandra Trunzo*, and Taylor Weiss*. 2011. Pennsylvania Forest Festival, Pennsylvania State University.
- “The Penn’s Woods Project: Forest Science Education for High School Students,” Pennsylvania Forest Festival, Pennsylvania State University. With Terry Bensel, Stacia-Fe Gillen*, Lauren Deem *, Kelsey Ream*, Alessandra Trunzo*, and Taylor Weiss*. 2011. 2011 Annual Convention of the Society of American Foresters, Honolulu, HI.
- “Above- and belowground biomass, and nitrogen retranslocation in switchgrass.” With Sandra Wayman* Calvin Ernst, and Rob Mitchell. Presented at the Annual Meeting of the Soil Science Society of America, in Long Beach, CA. 2010.
- “Chainsaws and hikers - An unlikely mix? Yes, but foresters need to partner actively with forest recreationists. ” With Sarah Wurzbacher* and Alessandra Trunzo*. Presented at the Society of American Foresters Allegheny Region Annual Meeting. 2011
- “Long-term controls on forest soil C quantity and quality: The dirt on the DIRT Experiment, Invited presentation.” Kate Lajtha, Susan E. Crow, Alain F. Plante, Jim LeMoine, Sarah J. Wurzbacher*, and Knute J. Nadelhoffer. West Virginia University Biology Department Seminar Series. 2011.
- “Soil organic matter dynamics: a cross-ecosystem approach.” 2009. Workshop presented with K. Lajtha (Oregon State) and Alain Plante (U. Penn) at the National Science Foundation Long-Term Ecological Research Program All-Scientists Meeting. Estes Park, CO. September, 2009
- “Global Climate Change: Is It Real? Should We Care?” Crawford County Conservation District Earth Day Seminar. April, 2009.
- “Using vegetation to capture and reduce carbon emissions: Forest carbon sequestration, biofuel studies and native wildflower gardens.” National Wildlife Federation Campus Ecology Habitat Restoration & Protection on Campus Web Conference, February, 2009.
- “Earth, Wind, and Fire: Singing the Praises of Geothermal, Wind, and Biodiesel Energy at Allegheny College.” National Wildlife Federation Campus Ecology Onsite Renewable Energy: Wind, Solar & Geothermal Web Conference, March, 2009.
- “Faces of Change: Environmental Sustainability on Small College Campuses” Otterbein University Symposium on Sustainability. Columbus, OH. April, 2008
- “Biomass Energy: What’s the role for northwestern Pennsylvania?” Presented at the 2008 Annual Forest Landowner’s Conference. Allegheny College. March, 2008.
- “Is there a role for energy from biomass in northwestern Pennsylvania?” Presented at the Pennsylvania Woodland Owners Association. Waterford, PA. February, 2008.
- “Allegheny College Climate Change Initiative (ACCCI): Mobilizing support for campus climate change efforts” With C.E. Waggett, K. Greely, R. O’Brien, J. E. Nickell, E. Pallant, J. DeHart, E. Kirk and A. Geffen. Ball State Conference on Sustainability in Higher Education. Muncie, IN. September 2007.
- “Forest Research at Allegheny College,” Forest Landowners Conference, Allegheny College, January, 2007.
- “Environmental Sustainability through Student-Faculty-Community Partnerships: Moving from Research to Action.” Invited Seminar, Loyola University-Chicago. May, 2007.
- “Climate Change: Is it real? Should We Care?” Erie County Township Supervisors Training Session, Waterford, PA. March, 2007.
- Bowden, R. and D. Brown. “College-Community Environmental Sustainability Initiatives: Local and State Partnerships in Pennsylvania.” Invited Seminar, Third Annual Conference of the Northeast Campus Sustainability Consortium, Yale University, November, 2006.
- “Nature Tourism in Northwest Pennsylvania.” Invited Seminar, Great Lakes Region, Pennsylvania Tourism Office, Tom Ridge Environmental Center, Erie, PA. June 2006.
- “Enhancing Environmental Sustainability Education through University-Community Partnerships.” Invited seminar, University of Debrecen. Debrecen, Hungary. May, 2006.
- Meadville Community Energy Project Visioning Session, December 2005.
- Sollins, P., C. Swanston, M. Kleber, K. Lajtha, M. Kramer, T. Filley, S. Crow, B. C, **R. Bowden** and D. Beilman. 2005. Organic C and N stabilization in a forest soil: evidence from sequential density fractionation. 22nd International Meeting on Organic Geochemistry. September 2005. Seville, Spain
- Sollins, P., C. Swanston, M. Kleber, K. Lajtha, M. Kramer, T. Filley, S. Crow, B. C, **R. Bowden** and D. Beilman. 2005. Organic C and N stabilization in a forest soil: evidence from sequential density fractionation. Second International Conference on Mechanisms of Soil Organic Matter Stabilization and Destabilization in Soils. October, 2005. Monterey, CA.

“CEEDs of change: College-community collaborations for environmental sustainability.” University of Michigan Biological Station, Summer Seminar Series, July 2005.

“Soil Respiration in an Old-Growth Coniferous Forest: Contributions of Organic Matter and the Rhizosphere.” Invited seminar, Lake Balaton Limnological Institute, Tihany, Hungary. May, 2005.

“Soil Respiration in an Old-Growth Coniferous Forest: Contributions of Organic Matter and the Rhizosphere.” Invited seminar, University of Debrecen. Debrecen, Hungary. May, 2005.

“Rapid Changes in Soil Carbon and Organic Matter at Sikfokut DIRT Plots.” Invited seminar, University of Debrecen. Debrecen, Hungary. May, 2005. with Laura Nagel* and Anna Bartosewicz*.

“Hands-on research and service learning: Extending sustainability education from the classroom into the community at Allegheny College.” Invited Seminar, Harvard Forest Seminar Series. February 2005.

“Colonial agriculture and modern forest soils: Legacies of past land use on soil patterns and processes,” Invited Seminar, University of New Hampshire, Complex Systems Research Center, November, 2004.

“Agricultural legacies in modern forest soils.” Invited Seminar, Harvard Forest, October 2004.

“Pennsylvania Consortium for Interdisciplinary Environmental Policy: 2004 State of the Consortium Address.” Pennsylvania Consortium for Interdisciplinary Environmental Policy Annual Meeting, Harrisburg, PA. October 2004.

“Hands-on research and service learning: Extending sustainability education from the classroom into the community at Allegheny College.” Presenter and Facilitator for “Sustainability and Community Outreach: The Need, the Benefits, and the Challenges,” at the Northeast Campus Sustainability Summit Northeast Conference on Environmental Sustainability, University of New Hampshire, September, 2004.

“Historic Land Use Alters Modern Forest Soils.” Invited seminar, University of Debrecen. Debrecen, Hungary. July, 2004.

“Workshop on Root Biology.” Invited participant. University of Michigan Biological Station, Pellston, MI. June 2004.

Press Moderator. PCIEP release of 2003 PA Environment Indicators Report, PA DEP, Harrisburg, PA. March 2004.

“Pennsylvania Consortium for Interdisciplinary Environmental Policy: 2003 State of the Consortium Address.” Pennsylvania Consortium for Interdisciplinary Environmental Policy Annual Meeting, Harrisburg, PA. October 2003.

“Sustainability on Campus: Stories and Strategies for Change.” Panel Discussant. Greening of the Campus V. Ball State University, Muncie, IN. September 2003.

“From Nutrient Cycling to Environmental Policy: The Influence of Hubbard Brook on Watershed Research and Environmental Protection.” Hubbard Brook Ecosystem Study Annual Cooperator’s Meeting. July 2003.

“Agricultural Legacies in New England Forests: Impacts of 19th Century Agriculture on Soils and Soil C in 21st Century Forests.” Invited seminar at Oregon State University, Department of Crop and Soil Science, Corvallis, OR. April 2003.

“Do Soil Nitrogen and Site Productivity Influence Soil Respiration? A Tale of Two Forests.” Invited seminar, Oregon State University Department of Botany and Plant Pathology, Corvallis, OR. October 2002.

“Pennsylvania Consortium for Interdisciplinary Environmental Policy: 2002 Annual Update.” Pennsylvania Consortium for Interdisciplinary Environmental Policy Annual Meeting, Harrisburg, PA. October 2002.

“Soil Nitrogen and Soil Respiration: Influence of Site Productivity and N Deposition. Invited seminar at University of Debrecen. Debrecen, Hungary. May, 2002.

“The Hemlock Woolly Adelgid: Threat to ecological and economic viability of Pennsylvania’s Hemlock Forests. With J. DeHart and C. Arabia* Northwest Pennsylvania Woodland Association., Spartansburg, PA. March 2002.

“Does Soil Have Memory: Agricultural Legacies in Modern Forests.” Pymatuning laboratory of Ecology, University of Pittsburgh, July 2001.

“Allegheny College Greenway Project,” Presentation at the Allegheny Watershed Network French Creek Water Trail Roundtable. April, 2000.

“Forming Partnerships,” Co-presenter with T. Bensel, Allegheny Region, Society of American Foresters Annual Conference. Titusville, PA. February 23-25, 2000.

“Ecotourism in Northwest Pennsylvania,” Canadohta Lake Area Business Association, July 1999.

“A National Model of Collaboration for Sustainability: Allegheny College and its Watershed”, Co-Presenter, The National Town Meeting for a Sustainable America, Detroit, MI, May 2-5, 1999.

“Catastrophic Natural Disturbance versus Chronic Human Stress: Does the Forest Notice a Difference?”, Appalachian Environmental Laboratory, Frostburg, MD, October 15, 1998.

“Impacts of Catastrophic Natural Disturbance and Anthropogenic Stress on forest ecosystem processes”, USDA Forestry Sciences Laboratory, Warren, PA. April 14, 1998.

Workshop on Ecotourism in Northwest Pennsylvania, Allegheny College, March 7, 1998, Project Director and Conference Convener.

Forestry and Wildlife in Northwest Pennsylvania: Seeking Balance, Allegheny College, April 17, 1998, Conference Convener.

Envisioning a Sustainable Forest Industry in Northwest Pennsylvania: A Roundtable Discussion, Allegheny College, April 18, 1997, Conference Convener.

"Big, Bad Hurricanes vs. Quiet, Invisible Alteration: Ecosystem Response to Natural Disturbance and Human Stress." Rutgers University, May 1997

"Geography of French Creek," French Creek Project Workshop, Meadville, PA, October 1995.

"Disturbance in forest ecosystems: Natural disasters vs. Human Stresses." Northland College, February 1995.

"Natural vs. human disturbance in a temperate forest ecosystem: Will the real disturbance please stand up?" Institute of Ecosystem Studies, September 1995.

Consultant, University of Kentucky Geology Dept., Environmental Science Program Planning, 1994.

"Global Environmental Change." Meadville (PA) Bird and Tree Club. December 1993.

Discussion Leader, "Biological Diversity and Ecosystem Function: Islands as Model Ecosystems". Workshop sponsored by Scientific Committee on Problems of the Environment, Nassau, Bahamas, October 1993.

Participant, "Roots: Turnover, Longevity and Mini-Rhizotron Technology". NSF Long-Term Ecological Research All Scientists and International Summit Meeting, Estes Park, CO, Sept. 1993.

"Plant and soil responses to three years of chronic nitrogen additions at the Harvard Forest LTER." Hubbard Brook Annual Cooperators Meeting, NH. July, 1993.

"Effects on soil respiration, soil chemistry, and litterfall of deer browsing in the Allegheny National Forest." with K. McCracken*, B. Drbal*, and G. Gumbert*. U.S. Forest Service, Warren, PA, May 1992.

"Effects of physical and chemical disturbances on fluxes of greenhouse gases in temperate and tropical forests." Wabash College, January 1992.

"Effects of physical and chemical disturbances on fluxes of greenhouse gases in temperate and tropical forests." The Harvard Forest, MA, June 1992.

"Effects of physical and chemical disturbances on fluxes of trace gases at the Harvard Forest." The Harvard Forest, MA, June 1991.

"Carbon dioxide respiration from temperate forest soils: Linkages to temperature, moisture, and nitrogen cycling." U.S. Forest Service, Warren, PA, February 1991.

"Controls on CO₂ and N₂O fluxes in forests" Trace Gas Symposium -Understanding global change: What controls the fluxes of trace gases? Marine Biological Laboratory, July 1990.

"Fluxes of atmospheric trace gases from tropical forest soils in Puerto Rico", U.S. Forest Service. Institute for Tropical Forestry, Puerto Rico, April 1990.

"The Greenhouse Effect: Causes and consequences of global warming, Northland College", March 1990.

"Fluxes of atmospheric greenhouse gases from temperate forest soils receiving chronic atmospheric nitrogen deposition." University of Washington, February 1990.

"Annual nitrous oxide fluxes from temperate forest soils in the northeastern United States." Fraunhofer-Institut für Atmosphärische Umweltforschung, Garmisch-Partenkirchen, FRG, June 1989.

"The nitrogen budget of a moss ecosystem developing on glacial outwash sands in New Hampshire." University of Gottingen, FRG, October 1987; The Ecosystems Center, Marine Biological Laboratory, MA, May 1985; University of Wisconsin, May 1985; Cornell University, March 1985; Harvard Forest, April 1984.

"Nitrogen cycling in the northern hardwood forest ecosystem." U.S. Army, Cold Regions Research and Engineering Laboratory, NH, February 1984.

Extramural Grants Received (18 grants totaling \$1,996,734.)

Native American Views of Ecosystem Management and Sustainability. Great Lakes Colleges Association New Initiatives Program. 2013-2014. \$6,998.

"Long-term controls on forest soil C quantity and quality: A strengthening sabbatical application". USDA-National Institute of Food and Agriculture-Agriculture and Food Research Initiative Foundational Program. \$35,500. March 1, 2012 – March 1 2013. Grant 2011-03746. "ROA: Long-term detrital controls on soil organic matter stabilization". NSF ROA award through Oregon State University. 17,109. May 18, 2011 – August 31 2014.

"High School Forest Conservation Education Modules: Preparing Students to Understand Conservation and Management of Penn's Woods," Submitted to Pennsylvania Dept. of Conservation and Natural Resources Wild Resource Conservation Program, 2009-2010, \$40,375.

“Leaf and Root Litter Decomposition: Soil OM Contributions” National Science Foundation Long-Term Supplement Award to the Harvard Forest Long-Term Ecological Research Site. 2008-2009. \$4,990

“Forest Education in Northwest PA”, with Terry Bensel, Rees Foundation, 2006-7, \$25,000.

Proposal for Wind Power Feasibility Study. With D. Goldstein, E. Pallant, Acutec Precision Machining, Inc., Saegertown, Pa. 2007-8. \$4,500.

Plan to Develop a PCIEP Proposal: Forests and Energy: High School Education Modules Linking Forests and Energy, PA Department of Environmental Protection, 2007, \$3,200.

“Allegheny College Environmental Science Department Leadership Initiative in Global Environmental Sustainability,” A.W. Mellon Foundation, with T. Bensel, J. Dehart, E. Pallant, J. Palmer, C. Waggett, S. Wissinger, 2006, \$300,000.

“University of Michigan Biological Station Research Fellowship Award.” 2006. \$5,000.

“Detritus input and removal treatments (DIRT): A collaborative project with the Sikfokut ILTER site, Hungary.” NSF LTER III Supplement DEB-0080592. 2004-2006. (With J. Aitkenhead-Peterson). \$14,292.

“Does soil have memory? Alterations in forest soils and soil nutrients following 175 years of forest regrowth.” Harvard University Bullard Fellowship. 2004-2005. \$24,000.

“Adaptation and Implementation of a Watershed Model: The French Creek Watershed Research Program at Allegheny College. 2002-2005. NSF-CCLI, \$166,449. NSF. (with R O’Brien and S. Wissinger).

NSF-REU Supplemental support for “Collaborative Research: Dirt: A cross-continental, experimental study of forest SOM and N dynamics.” 2003. NSF. \$6,000.

NSF-REU Supplemental support for “Collaborative Research: Dirt: A cross-continental, experimental study of forest SOM and N dynamics.” 2002. NSF. \$10,550.

“Collaborative Research: Dirt: A cross-continental, experimental study of forest SOM and N dynamics.” 2000-2003. NSF. \$295,942. (with K. Lajtha, Oregon State U. and W. McDowell, U. New Hampshire).

“Tourist Opportunities in Northwest Pennsylvania” 2001-2002. (with M. Keeley). State of Pennsylvania. Subcontract with Crawford County Convention and Visitor’s Bureau. \$7,000.

“Development of a web page for nature tourism in northwest PA”. 1999. Pennsylvania Center for Economic Development, with Crawford County Convention and Visitor’s Bureau \$2000.

“CRUI: The impact of land-use legacies on forest soil-plant-atmosphere interactions,” 1995-2000, NSF, \$853,067. (with T. W. Sipe, Franklin and Marshall College, C.A. McLaugherty, Mt. Union College).

“REU program in forest ecology at the Harvard Forest”, 1993-1996, NSF, \$150,000.

“Effects of White-tail Deer (*Odocoileus virginiana*) densities on soil invertebrate distribution, abundance, and diversity in a temperate forest.” 1994, U.S. Forest Service, \$380.

“Effects of soil moisture and temperature on fluxes of carbon dioxide and methane in a temperate forest soil”, 1993-1994, Dept. of Energy, National Institute for Global Environmental Change, \$14,000.

“Factors influencing atmospheric trace gas fluxes between temperate forest soils and the atmosphere”, 1992, NSF, \$11,424.50.

“Improvement of Soil and Ecosystem Analysis Laboratory”, 1991, NSF, \$41,074.

“Global Warming: The influence of forest ecosystems on greenhouse gases in the atmosphere”, 1991, Pew Midwest Science Cluster, \$3,300.

“Influences of white-tailed deer browsing on litterfall and soil respiration in the Allegheny Plateau forests”, 1991, U.S. Forest Service, \$1,461.25.

Allegheny College Grants Received (14 grants totaling \$54,076)

“Soil Organic Matter Research.” Allegheny College Faculty Development Award, 2011. \$200.

“Root and leaf litter chemistry and decay.” Allegheny College Faculty Development Award, 2008. \$2,500.

“Decomposition of Above- and Belowground Derived Litter,” Allegheny College Faculty Development Award, 2007, \$2,500.

“Forest Ecosystem and Ecotourism Research - 2006,” Shanbrom Fund (awarded to Maria Pyrdk (’07)), 2006, \$1,000.

“Creation of Web-based Course Resources for Forest Ecosystems and Management.” Demmler Teaching Endowment, 2005. \$2,750.

“Forest Ecology Summer 2005 Research,” Shanbrom Fund (awarded to Laura Nagel (’07)), 2005, \$1,000.

“Forest Ecology Summer 2005 Research,” Wells Student Research Fund (awarded to Laura Nagel (’07)), 2005, \$1,000. “Ecotourism: Development of Local Ecotours.” Center for Economic and Environmental Development, 2005-2006. \$6,575.

"Proposal to Examine Soil Carbon Dynamics in Forested Ecosystems,"Wells Student Research Fund (awarded to Laura Nagel and Anna Bartosewicz), 2004-2005, \$3,497.
"Ecotourism: Promotion of Bus Ecotours." Center for Economic and Environmental Development, 2004-2005. \$4,800.
"Ecotourism: Development of Bus Ecotours." Center for Economic and Environmental Development, 2003-2004. \$4,850.
"Ecotourism: Development of Bus Tours." Center for Economic and Environmental Development, 2002-2003. \$4,960.
"Ecotourism Development." Center for Economic and Environmental Development, 2001-2002, \$3,925.
"Effects of catastrophic forest disturbance on fluxes of atmospheric trace gases between forest soils and the atmosphere." 1991, Howard Hughes Medical Institute, \$12,519.
"Factors influencing atmospheric trace gas fluxes between temperate forest soils and the atmosphere," 1992, Howard Hughes Medical Institute, \$2,000.

Proposals Pending:

none

Reviews:

Environmental Protection Agency P3 Awards Panel, 2011
NSF Ecosystems Panel. 2010
Smartwood Certified Forestry, Peer-Reviewer, 1999, Site Assessment Team Member, 2000.
NSF Coweeta Hydrologic Laboratory Long-Term Ecological Research Site Review Team, Chairman, 1999
NSF Collaborative Research at Undergraduate Institutions Review Panel Member, 1999.
U.S. Department of Agriculture Review Panel Member, National Research Initiative Competitive Grants Program, 1995-1997
National Science Foundation Committee of Volunteers Member, Ecological Studies Cluster, 1995.

Proposal reviews: Environmental Protection Agency, National Science Foundation, U.S. Dept. of Agriculture, Israel Science Foundation, Montana Office of Science, Mount Union College Student Research Awards, Social Sciences and Humanities Research Council of Canada

Manuscript reviews (39 journals) : Acta Oecologia, Agricultural and Forest Meteorology, American Naturalist, Annals of Forest Science, Atmospheric Environment, Australian Journal of Soil Science, Biogeochemistry, Biology and Fertility of Soils, Bioscience, Canadian Journal of Forest Research, Ecology, Ecological Modelling, Ecosphere, Ecosystems, Forests, Forest Ecology and Management, Forest Science, Geophysical Research Letters, Geosciences, Global Biogeochemical Cycles, Global Change Biology, Global Change Biology – Bioenergy, Journal of Environmental Quality, Journal of Geophysical Research, Journal of Great Lakes Research, Northeastern Naturalist, PA Academy Sciences, Pedosphere, Plant and Soil, Proceedings 10th Central Hardwood Forest Conference, Restoration Ecology, Sci. Rep., Soil Research, Soil Science Society of America Journal, Urban Ecosystems, Pedosphere, PLoS One, Science of the Total Environment, Soil Biology and Biochemistry.

Book reviews: Benjamin Cummings Publishing, Dushkin Publishing Co., Freeman Press, Wiley Press, Yale University Press. University Press of New England, Wm. C. Brown Publishers, Roberts and Company Publishers

Academic Program Reviews: Mount Union College (2017), Berry College (2017), Dickinson College Department of Environmental Studies (February 2005), Capital College Department of Biology (March 2005), Creighton University Department of Environmental and Atmospheric Sciences (April 2005).

Personal Hobbies and Interests:

Hiking, camping, canoeing, kayaking, gardening, downhill skiing, cross-country skiing, hunting, fishing, history, Special Olympics