

Curriculum Vitae Mark B. David

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Education

- Ph.D. Environmental Science, State University of New York, College of Environmental Science and Forestry (1983)
- M.S. Forest Biogeochemistry, University of Maine (1980)
- B.S. Forest Science, Pennsylvania State University (1978)

Professional Experience

- 2016-present Professor Emeritus of Biogeochemistry and Environmental Science, Department of Natural Resources and Environmental Sciences, College of Agricultural, Consumer and Environmental Sciences (ACES)
- 1996- 2016 Professor of Biogeochemistry and Environmental Science, Department of Natural Resources and Environmental Sciences
- 2006-2008 Associate Head, Department of Natural Resources and Environmental Sciences
- 2003 Visiting Fellow (Sabbatical Leave) – Cornell University
- 1995-1996 Associate Professor of Biogeochemistry and Environmental Science, Department of Natural Resources and Environmental Sciences
- 1990-1995 Associate Professor of Biogeochemistry and Environmental Science, Department of Forestry
- 1991 Visiting Scientist (Sabbatical Leave) - National Board of Waters and Environment, Helsinki, Finland (Supported by Finnish Academy of Sciences)
- 1985-1990 Assistant Professor of Biogeochemistry and Environmental Science, Department of Forestry, University of Illinois, Urbana-Champaign (UIUC)
- 1988 Visiting Scientist, Institute of Soil Science and Soil Geography, University of Bayreuth, Bayreuth, Federal Republic of Germany
- 1983-85 Project Scientist and Supervisor, Northrop Services under contract to U.S. Environmental Protection Agency, Corvallis, Oregon

- 1983 Postdoctoral Research Associate, Department of Environmental and Forest Biology, SUNY College of Environmental Science and Forestry
- 1980 Instructor, Summer Session at Husson College, Bangor, Maine

Professional Honors

- Team Award for Excellence, Illinois Nutrient Loss Reduction and Science Assessment Teams, UIUC College of ACES, 2016
- Water Quality Advocates Award, Champaign County Soil and Water Conservation District, 2015
- Faculty Fellow, National Great Rivers Research and Education Center, 2014
- Environmental Quality Research Award, American Society of Agronomy, 2013
- Spitze Land-Grant Professorial Career Excellence Award, UIUC College of ACES, 2013
- Paul A. Funk Recognition Award, UIUC College of ACES, 2009 (College's highest award given for outstanding career impact to the state, the nation, and the world)
- Senior Faculty Award for Sustained Excellence in Research, UIUC College of ACES, 2008
- Fellow, American Association for the Advancement of Science, 2007
- Fellow, American Society of Agronomy, 2006
- Fellow, Soil Science Society of America, 2005
- ISI Highly Cited Researcher, Ecology/Environment, 2001 (ISIHighlyCited.com)
- Outstanding Instructor Award selected by students, UIUC Department of Forestry, 1994

Teaching

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| 2005 to 2016 | NRES 102 – Introduction to Natural Resources and Environmental Sciences (every fall for majors, also 500 student non-majors section each semester since spring 2010) |
| 2001 to 2014 | NRES 285 – Field Experience (7 different field courses since 2006) |
| 1994 to 2014 | NRES 516 – Ecosystem Biogeochemistry (graduate course) |
| 1986 to 2000 | NRES 319 – Environment and Plant Ecosystems
(met University advanced composition requirement 1998 to 2000) |
| 1986 to 2002 | NRES 315 – Forest Soils |
| 2000 to 2002 | NRES 104 – Introduction to Environmental Science |

Societies

American Society of Agronomy, Soil Science Society of America, American Association for the Advancement of Science

Committee Assignments

Service has included a wide range of both appointed and elected committees in the department, college, and university, often as committee chair, in addition to national society service. A representative list of committees is below:

Department of Forestry - Courses and Curricula, Advisory Council, Graduate Programs
University of Illinois Faculty Senate (elected 5 terms)

University of Illinois Campus Promotion and Tenure Committee
University of Illinois Senate Campus Operations Committee
University of Illinois Energy Conservation Advisory Committee
Department of Natural Resources and Environmental Sciences, Appointed - Graduate Programs, Courses and Curriculum, Advisory, Retreat, Awards, Social, Seminar, Facilities and Services
Department of Natural Resources and Environmental Sciences, Elected – Faculty Advisory, Promotion and Tenure
College of ACES – Executive (elected), Research Policy (elected), Undergraduate Policy (elected), Promotion and Tenure

American Society of Agronomy (ASA) – environmental quality research award committee, elected ASA environmental quality section chair (served as chair 2012), ASA Program Planning Committee, ASA Fellows Committee, Presiding leader of the Managing Denitrification in Agronomic Systems community (2011-2013), elected ASA Board of Directors (2014-2016)

Soil Science Society of America – soil science applied research award committee (chair), soil science research award committee (chair), soil science teaching award committee

Served as Graduate Coordinator for many years in the Departments of Forestry and NRES, and as Teaching Coordinator in NRES (2005-2008).

Professional Activities

National Review Panels and Teams

Panel member for USDA AFRI Renewable Energy, Natural Resources, and Environment (RENRE) Foundational Program: Nitrogen and Phosphorus Cycling Program, 2014

Panel member for USDA AFRI Renewable Energy, Natural Resources, and Environment (RENRE) Foundational Program: Soil, Air, and Water Processes in Agroecosystems Program, 2013

Panel reviewer of USDA ARS National Program 211: Water Availability & Watershed Management program in March 2012.

External reviewer of NRC report “Achieving Nutrient and Sediment Reduction Goals in the Chesapeake Bay,” August 2011.

Mail and panel member for USEPA Science to Achieve Results (STAR) Fellowships program, 2010

USEPA Science Advisory Board Ecological Processes and Effects Committee consultant to review Nutrient Criteria Guidance, 2009

Panel member for USDA National Integrated Water Quality Program, 2008

Project Advisory Board member for Idaho NSF EPSCoR Research Infrastructure Improvement (RII) Grant, 2006-2008.

USEPA Science Advisory Board, Hypoxia Advisory Panel, 2006-2007

Panel member for USEPA SBIR program, Agriculture and Rural Community Improvement and Management of Animal Feeding Operations, 2006

Panel member for the USDA National Research Initiative, Watershed Processes and Water Resources Program, 2005

Panel member for NSF Biocomplexity, Coupled Biogeochemical Processes Program, 2003

Panel member for the USDA National Research Initiative, Watershed Processes and Water Resources Program, 2002

Panel member for USDA-CSREES 406 Water Quality Program, 2001

USDA-CSREES team member for review of the Department of Plant, Soil and Environmental Sciences, University of Maine, 2001

Panel member for USDA-CSREES 406 Water Quality Program, 2000

Panel member for the USDA National Research Initiative, Soils and Soil Biology Program, 2000

Iowa Board of Regents team member for review of the Department of Forestry, Iowa State University, 1996

Panel member for the USDA National Research Initiative, Soils and Soil Biology Program, 1994

Selected Invited Workshops, Panels, Keynotes

NSF Workshop, Feeding the World in the 21st Century: Grand Challenges in the Nitrogen Cycle, Washington, DC, November 2015, “The Agricultural Nitrogen Cycle: Why is it so Difficult to Maximize Production and Reduce Environmental Impacts?”

Environmental Defense Fund Workshop, A Nitrogen Budget Approach to Reducing N Losses in Commodity Cropping Systems: Scientific Basis and Policy Implications, Washington, DC, September 2015.

Conference on Agricultural Productivity and the Environment, USDA ERS, Washington, DC, March 2015, “Agricultural N and P Balances: What do they tell us?”

The National Academies Water Science and Technology Board Planning Session: Nutrient Trends in the Nation's Waters, Washington, DC, March 2014, "Understanding Nutrient Trends and Drivers at the Small Watershed Scale"

National Research Council, Committee on Mississippi River Water Quality Science and Interstate Collaboration, St. Louis, Missouri, November 2013, "Monitoring and Evaluating Water Quality: Methods and Uncertainties in Moving from Field to Watershed Scale"

William E. Larson & Raymond R. Allmaras Lecture Series, "Emerging Issues in Soil and Water," 11th Annual Lecture, University of Minnesota, April, 2013, "Nitrate losses in the tile drained Cornbelt: Why are reductions so difficult?"

SWCS Building Science Assessments for State-Level Nutrient Reduction Strategies, Davenport, Iowa, November, 2012, "Overview – Nutrient Fate and Transport"

Water in a Changing World: A Comparison of Midwest and European Approaches, Champaign, IL, April 2012, "Nutrient standards in the Midwest"

17th Annual Central States Water Environment Association Education Seminar, Madison, Wisconsin, April 2012, "Nutrient Sources and Transport in the Mississippi River Basin"

Annual Meeting of the Livingston County Soil and Water Conservation District, Pontiac, Illinois, January 2011, "Can small watershed projects lead to improvements in water quality?"

Illinois Fertilizer and Chemical Association Annual Convention, Peoria, IL, January 2011, "Nutrient Losses in Agriculture: Where and When"

Excess Nitrogen and Phosphorus: A High-Profile Water Quality Issue for Illinois, Nutrient Summit, Springfield, Illinois, September, 2010, "Nutrients in Illinois waters"

Workshop on "Nitrogen Assessment Science in the USA" Denitrification Research Coordination Network, May, 2010, Boulder, Colorado.

Workshop on "Science to Solutions, Reducing Nutrient Export to the Gulf of Mexico," December, 2009, Des Moines, Iowa

Workshop on "Managing Denitrification in Human Dominated Landscapes" Denitrification Research Coordination Network, University of Rhode Island Bay Campus, Narragansett, RI, May, 2009.

Workshop on “Linking Biophysical and Economic Models of Biofuel Production and Environmental Impacts,” Energy Biosciences Institute and Great Lakes Bioenergy Research Center, Chicago, IL, November, 2008

Workshop on “Sustainability of Biofuels: State of the Science and Future Directions,” sponsored by US DOE and USDA, Bethesda, MD, October, 2008

Workshop on “Greenhouse Gas Emissions from Biofuels,” University of California - Berkeley, June, 2008

Panelist for Environment Roundtable on “Biofuels and Environmental Quality,” Institute on the Environment, University of Minnesota, November, 2007.

Workshop on “Denitrification Modeling Across Terrestrial, Freshwater, and Marine Ecosystems,” Denitrification Research Coordination Network, Institute for Ecosystem Studies, Millbrook, NY, November, 2006.

Keynote speaker at international workshop on “Nitrogen Loads in Agro-Ecosystems and its Outflow to Water Bodies: Analyses with Monitoring and Modeling” held March 2006 in Tsukuba, Japan

Upper Mississippi River Sub-basin Hypoxia Nutrient Committee, “Gulf Hypoxia and Local Water Quality Concerns,” Ames, Iowa, September 2005

The Woods Hole Research Center, Workshop on Advanced Approaches to Quantify Denitrification,” Woods Hole, Massachusetts, May 2004

USGS-USEPA Workshop, “Science to Support Nutrient-Management Decisions Related to Hypoxia in the Northern Gulf of Mexico and Water Quality in the Mississippi River Basin,” St. Louis, Missouri, October 2002

NOAA Workshop, “A National Research Strategy Addressing the Causes and Effects of Coastal Nutrient Pollution,” Woods Hole, Massachusetts, May, 2002

Summit for Finding Common Ground in Controlling Agricultural Nonpoint Sources of Nutrients, Aspen Institute, Queenstown, Maryland, 2001

Speaker and panelist, pre-conference panel discussion on “Nutrients, Nutrient Cycling, and Hypoxia in the Mississippi River Basin” sponsored by the U.S. Geological Survey, Peoria, Illinois, preceding the 1999 Governor’s Conference on the Management of the Illinois River System.

Workshop on “Atmospheric Deposition: The Ecological Response” held in Washington, D.C. by Ecological Society of America, 1999

Executive Office of the President, Office of Science and Technology Policy Committee on Environment and Natural Resources workshop to develop a national index-site network to examine nutrient imbalance in ecosystems of the U.S. October, 1997

International Dahlem Workshop on "Organic Acids in Aquatic Ecosystems" held in Berlin, West Germany, 1989

International workshop on "Role of Organic Acids in Surface Water Acidification" held in Tucson, Arizona, 1988

Journal Editorships

Associate Editor, *Journal of Environmental Quality*, 2003-2006

Associate Editor, *Soil Science Society of America Journal*, 1995-2000

Publications

* stringent editorial review

** invited publication

Books

Dale, V.H., C.L. Kling, J.L. Meyer, J. Sanders, H. Stallworth, T. Armitage, D. Wangness, T. Bianchi, A. Blumberg, W. Boynton, D.J. Conley, W. Crumpton, M. David, D. Gilbert, R.W. Howarth, R. Lowrance, K. Mankin, J. Opaluch, H. Paerl, K. Reckhow, A.N. Sharpley, T.W. Simpson, C.S. Snyder, and D. Wright. 2010. Hypoxia in the Northern Gulf of Mexico. Springer, New York. 284 p.

Chapters in Books

1. David, M.B., M.J. Mitchell and S.C. Schindler. 1984. Dynamics of organic and inorganic sulfur constituents in hardwood forest soils. p. 221- 245. *In* E.L. Stone (ed.) Forest Soils and Treatment Impacts, Proc. Sixth North American Forest Soils Conference, June 1983, The University of Tennessee, Knoxville.
2. ** Mulholland, P.J. (Rapporteur), C.N. Dahm, M.B. David, D.M. DiToro, T.R. Fisher, H.F. Hemond, I. Kogel-Knabner, M.H. Maybeck, J.L. Meyer, and J.R. Sedell (Contributors). 1990. What are the temporal and spatial variations of organic acids at the ecosystem level? p. 315-329. *In* E.M. Perdue and E.T. Gjessing (eds). Organic Acids in Aquatic Ecosystems. Dahlem Konferenzen. John Wiley & Sons Ltd., Chichester.
3. **, * Mitchell, M.J., M.B. David, and R.B. Harrison. 1992. Sulphur dynamics of forest ecosystems. p. 215-254. *In* R.W. Howarth, J.W.B. Stewart, and M.V. Ivanov (ed.) Sulphur Cycling on the Continents: Wetlands, Terrestrial Ecosystems, and Associated Water Bodies. John Wiley & Sons, Chichester, England.
4. *Roila, T., P. Kortelainen, M.B. David and I. Mäkinen. 1994. Acid-base characteristics of DOC in Finnish lakes. p. 863-868. *In* N. Senesi and T.M. Miano (eds.) Humic Substances in the Global Environment and Implications on Human Health. Elsevier Science B.V.

5. David, M.B., G.F. Vance and A.J. Krzyszowska. 1995. Carbon controls on Spodosol nitrogen, sulfur, and phosphorus cycling. p. 329-353. *In* W.W. McFee and J.M. Kelly (eds.) Carbon Forms and Functions in Forest Soils, Soil Science Society of America, Madison, WI.

Articles in Journals

1. * David, M.B. and R.A. Struchtemeyer. 1982. Disposal of sewage effluent on forested land: effects on groundwater. *Environmental Technology Letters* 3:103-110.
2. * David, M.B. and R.A. Struchtemeyer. 1982. Vegetation response to sewage effluent disposal on a hardwood forest. *Canadian Journal of Forest Research* 12:1013-1017.
3. * David, M.B., M.J. Mitchell, and J.P. Nakas. 1982. Organic and inorganic sulfur constituents of a forest soil and their relationship to microbial activity. *Soil Science Society of America Journal* 46:847-852.
4. * Strick, J.E., S.C. Schindler, M.B. David, M.J. Mitchell, and J.P. Nakas. 1982. Importance of organic sulfur constituents and microbial activity to sulfur transformations in an Adirondack forest soil. *Northeastern Environmental Science* 1:161-169.
5. * Landers, D.H., M.B. David, and M.J. Mitchell. 1983. Analysis of organic and inorganic sulfur constituents in sediments, soils and water. *International Journal of Environmental Analytical Chemistry* 14:245-256.
6. * David, M.B., S.C. Schindler, M.J. Mitchell, and J.E. Strick. 1983. Importance of organic and inorganic sulfur to mineralization processes in a forest soil. *Soil Biology & Biochemistry* 15:671-677.
7. * Mitchell, M.J., D.H. Landers, D.F. Brodowski, G.B. Lawrence and M.B. David. 1984. Organic and inorganic sulfur constituents of the sediments in three New York lakes: effect of site, sediment depth and season. *Water, Air, and Soil Pollution* 21:231-245.
8. * David, M.B. and C.T. Driscoll. 1984. Aluminum speciation and equilibria in soil solutions of a Haplorthod in the Adirondack Mountains (New York, U.S.A.). *Geoderma* 33:297-318.
9. * Mitchell, M.J., M.B. David, and A.J. Uutala. 1985. Sulfur distribution in lake sediment profiles as an index of historical depositional patterns. *Hydrobiologia* 121:121-127.
10. * Fuller, R.D., M.B. David, and C.T. Driscoll. 1985. Sulfate adsorption relationships in some forested Spodosols of the northeastern U.S. *Soil Science Society of America Journal* 49:1034-1040.
11. * David, M.B. and M.J. Mitchell. 1985. Sulfur constituents and cycling in waters, seston, and sediments of an oligotrophic lake. *Limnology and Oceanography* 30:1196-1207.

12. * Mitchell, M.J., M.B. David, D.A. Maynard, and S.A. Telang. 1986. Sulfur constituents of soils and streams of a watershed in the Rocky Mountains of Alberta. *Canadian Journal of Forest Research* 16:315-320.
13. * David, M.B. 1986. Chemistry differences in two streams entering an acidic lake in the Adirondack Mountains, New York (U.S.A.). *Water, Air, and Soil Pollution* 29:415-424.
14. * David, M.B. and M.J. Mitchell. 1987. Transformations of organic and inorganic sulfur: importance to sulfate flux in an Adirondack forest soil. *Journal of the Air Pollution Control Association* 37:39-44.
15. * Rochelle, B.P., M.R. Church, and M.B. David. 1987. Sulfur retention at intensively studied sites in the U.S. and Canada. *Water, Air, and Soil Pollution* 33:73-84.
16. * David, M.B. and G.Z. Gertner. 1987. Sources of variation in soil solution collected by tension plate lysimeters. *Canadian Journal of Forest Research* 17:190-193.
17. * David, M.B., M.J. Mitchell, and T.J. Scott. 1987. Importance of biological processes in the sulfur budget of a northern hardwood ecosystem. *Biology and Fertility of Soils* 5:258-264.
18. * David, M.B., J.O. Reuss, and P.M. Walthall. 1988. Use of an equilibrium model to understand soil chemical processes that influence soil solution and surface water alkalinity. *Water, Air, and Soil Pollution* 38:71-83.
19. * Cote, B., J.O. Dawson, and M.B. David. 1988. Autumnal changes of sulfur fractions and the ratio of organic sulfur to total nitrogen in leaves and adjacent bark of eastern cottonwood, white basswood, and actinorhizal black alder. *Tree Physiology* 4:119-128.
20. * David, M.B. 1988. Use of loss-on-ignition to assess soil organic carbon in forest soils. *Communications in Soil Science and Plant Analysis* 19:1593-1599.
21. * Bartel-Ortiz, L.M. and M.B. David. 1988. Sulfur constituents and transformations in upland and floodplain forest soils. *Canadian Journal of Forest Research* 18:1106-1112.
22. * David, M.B., D.F. Grigal, L.F. Ohmann, and G.Z. Gertner. 1988. S, C, and N relationships in forest soils across the northern Great Lake States as affected by atmospheric deposition and vegetation. *Canadian Journal of Forest Research* 18:1386-1391.
23. * David, M.B., M.J. Mitchell, D. Aldcorn, and R.B. Harrison. 1989. Analysis of sulfur in soil, plant and sediment materials: sample handling and use of an automated analyzer. *Soil Biology & Biochemistry* 21:119-123.
24. * David, M.B., G.F. Vance, J.M. Rissing, and F.J. Stevenson. 1989. Organic carbon fractions in extracts of O and B horizons from a New England Spodosol: effects of acid treatment. *Journal of Environmental Quality* 18:212-217.

25. * Mitchell, M.J., C.T. Driscoll, R.D. Fuller, M.B. David, and G.E. Likens. 1989. Effect of whole-tree harvesting on the sulfur constituents of a forest soil. *Soil Science Society of America Journal* 53:933-940.
26. * David, M.B. and G.F. Vance. 1989. Generation of soil solution acid neutralizing capacity by addition of dissolved inorganic carbon. *Environmental Science & Technology* 23:1021-1024.
27. * Vance, G.F. and M.B. David. 1989. Effect of acid treatment on dissolved organic carbon retention by a Spodic horizon. *Soil Science Society of America Journal* 53:1242-1247.
28. * Paschke, M.W., J.O. Dawson, and M.B. David. 1989. Soil nitrogen mineralization in plantations of *Juglans nigra* interplanted with actinorhizal *Elaeagnus umbellata* or *Alnus glutinosa*. *Plant and Soil* 118:33-42.
29. * David, M.B., R.D. Fuller, I.J. Fernandez, M.J. Mitchell, L.E. Rustad, G.F. Vance, A.C. Stam, and S.C. Nodvin. 1990. Spodosol variability and assessment of response to acidic deposition. *Soil Science Society of America Journal* 54:541-548.
30. * David, M.B. and W. Zech. 1990. Adsorption of dissolved organic carbon and sulfate by acid forest soils in the Fichtelgebirge, FRG. *Zeitschrift für Pflanzenernährung und Bodenkunde* 153:379-384.
31. * Fasth, W.J., M.B. David, and G.F. Vance. 1991. Sulfate retention and cation leaching of forest soils in response to acid additions. *Canadian Journal of Forest Research* 21:32-41.
32. * David, M.B., W.J. Fasth, and G.F. Vance. 1991. Forest soil response to acid and salt additions of sulfate: I. Sulfur constituents and net retention. *Soil Science* 151:136-145.
33. * David, M.B., G.F. Vance, and W.J. Fasth. 1991. Forest soil response to acid and salt additions of sulfate: II. Aluminum and base cations. *Soil Science* 151:208-219.
34. * Vance, G.F. and M.B. David. 1991. Forest soil response to acid and salt additions of sulfate: III. Solubilization and composition of dissolved organic carbon. *Soil Science* 151:297-305.
35. * David, M.B. and G.F. Vance. 1991. Chemical character and origin of organic acids in streams and seepage lakes of central Maine. *Biogeochemistry* 12:17-41.
36. * Vance, G.F. and M.B. David. 1991. Spodosol cation release and buffering of acidic inputs. *Soil Science* 151:362-368.
37. * Vance, G.F. and M.B. David. 1991. Chemical characteristics and acidity of soluble organic substances from a northern hardwood forest floor, central Maine, USA. *Geochimica et Cosmochimica Acta* 55:3611-3625.

38. * David, M.B., G.F. Vance, and J.S. Kahl. 1992. Chemistry of dissolved organic carbon and organic acids in two streams draining forested watersheds. *Water Resources Research* 28:389-396.
39. * Binkley, D., D. Richter, M.B. David, and B. Caldwell. 1992. Soil chemistry in loblolly/longleaf pine forest with interval burning. *Ecological Applications* 2:157-164.
40. * Vance, G.F. and M.B. David. 1992. Dissolved organic carbon and sulfate sorption by Spodosol mineral horizons. *Soil Science* 154:136-144.
41. * Kortelainen, P., M.B. David, T. Roila, and I. Mäkinen. 1992. Acid-base characteristics of organic carbon in the HUMEX Lake Skjervatjern. *Environment International* 18:621-629.
42. * Rustad, L.E., I.J. Fernandez, R.D. Fuller, M.B. David, S.C. Nodvin, and W.A. Halteman. 1993. Soil solution response to acidic deposition in a northern hardwood forest. *Agriculture, Ecosystems, and Environment* 47:117-134.
43. * Fernandez, I.J., Y. Son, C.R. Kraske, L.E. Rustad, and M.B. David. 1993. Soil carbon dioxide characteristics under different forest types and after harvest. *Soil Science Society of America Journal* 57:1115-1121.
44. * Mitchell, M.J., M.B. David, I.J. Fernandez, R.D. Fuller, K. Nadelhoffer, L.E. Rustad, and A.C. Stam. 1994. Response of buried mineral soil bags to experimental acidification of forest ecosystem. *Soil Science Society of America Journal* 58:556-563.
45. * Roila, T., P. Kortelainen, M.B. David and I. Mäkinen. 1994. Effects of organic anions on acid neutralizing capacity in surface waters. *Environment International* 20:369-372.
46. * Christ, M., and M.B. David. 1994. Fractionation of dissolved organic carbon in soil water: effects of extraction and storage methods. *Communications in Soil Science and Plant Analysis* 25:3305-3319.
47. * Lawrence, G.B., M.B. David, and W.C. Shortle. 1995. A new mechanism for calcium loss in forest-floor soils. *Nature* 378:162-164.
48. * Mattsson, T., P. Kortelainen, and M.B. David. 1995. Acid neutralizing capacity of solutions containing organic acids isolated from Finnish lakes. *Water, Air, and Soil Pollution* 85:505-510.
49. * Kaupenjohann, M. and M.B. David. 1996. Evidence for effects of CO₂ on soil solution chemistry in Spodosols by a simple in-field extractor. *Zeitschrift für Pflanzenernährung und Bodenkunde* 159:195-198.
50. * Lawrence, G.B. and M.B. David. 1996. Chemical evaluation of soil-solution in acid forest soils. *Soil Science* 161:298-313.

51. * David, M.B. and G.B. Lawrence. 1996. Soil and soil solution chemistry under red spruce stands across the northeastern USA. *Soil Science* 161:314-328.
52. * Gödde, M., M.B. David, M. Christ, M. Kaupenjohann, and G.F. Vance. 1996. Carbon mobilization from the forest floor under red spruce in the northeastern U.S.A. *Soil Biology and Biochemistry* 28:1181-1191.
53. * Krzyszowska, A.J., M.J. Blaylock, G.F. Vance, and M.B. David. 1996. Ion-chromatographic analysis of low molecular weight organic acids in Spodosol forest floor solutions. *Soil Science Society of America Journal* 60:1565-1571.
54. * Christ, M.J. and M.B. David. 1996. Dynamics of extractable organic carbon in Spodosol forest floors. *Soil Biology and Biochemistry* 28:1171-1179.
55. * Christ, M.J. and M.B. David. 1996. Temperature and moisture effects on the production of dissolved organic carbon in a Spodosol. *Soil Biology and Biochemistry* 28:1191-1199.
56. * Ross, D.S., M.B. David, G.B. Lawrence, and R.J. Bartlett. 1996. Exchangeable hydrogen explains the pH of Spodosol Oa horizons. *Soil Science Society of America Journal* 60:1926-1932.
57. * Rustad, L.E., I.J. Fernandez, M.B. David, M.J. Mitchell, K.J. Nadelhoffer, and R.B. Fuller. 1996. Experimental soil acidification and recovery at the Bear Brook Watershed in Maine. *Soil Science Society of America Journal* 60:1933-1943.
58. * Dai, K.H., M.B. David, G.F. Vance, J. McLaughlin, and I.J. Fernandez. 1996. Acidity characteristics of soluble organic substances in spruce-fir forest floor leachates. *Soil Science* 161:694-704.
59. * Dai, K.H., M.B. David, G.F. Vance, and A.J. Krzyszowska. 1996. Characterization of phosphorus in a spruce-fir Spodosol by phosphorus-31 nuclear magnetic resonance spectroscopy. *Soil Science Society of America Journal* 60:1943-1950.
60. * Dai, K.H., M.B. David, and G.F. Vance. 1996. Characterization of solid and dissolved carbon in a spruce-fir Spodosol. *Biogeochemistry* 35:339-365.
61. * Lawrence, G.B. and M.B. David. 1997. Response of aluminum solubility to elevated nitrification in soil of a red spruce stand in eastern Maine. *Environmental Science & Technology* 31:825-830.
62. * Shortle, W.C., K.T. Smith, R. Minocha, G.B. Lawrence, and M.B. David. 1997. Acidic deposition, cation mobilization, and biochemical indicators of stress in healthy red spruce. *Journal of Environmental Quality* 26:871-876.

63. * Lawrence, G.B., M.B. David, S.W. Bailey, and W.C. Shortle. 1997. Assessment of soil calcium status in red spruce forests in the northeastern United States. *Biogeochemistry* 38:19-39.
64. * David, M.B., L.E. Gentry, D.A. Kovacic, and K.M. Smith. 1997. Nitrogen balance in and export from an agricultural watershed. *Journal of Environmental Quality* 26:1038-1048.
65. * David, M.B., L.E. Gentry, K.M. Smith, and D.A. Kovacic. 1997. Carbon, plant, and temperature control of nitrate removal from wetland mesocosms. *Transactions of the Illinois State Academy of Science* 90:103-112.
66. * Minocha, R., W.C. Shortle, G.B. Lawrence, M.B. David, and S.C. Minocha. 1997. Relationships among foliar chemistry, foliar polyamines, and soil chemistry in red spruce trees growing across the northeastern United States. *Plant and Soil* 191:109-122.
67. * Christ, M.J., M.B. David, P.J. McHale, J.W. McLaughlin, M.J. Mitchell, L.E. Rustad, and I.J. Fernandez. 1997. Microclimatic control of microbial C, N, and P pools in Spodosol Oa-horizons. *Canadian Journal of Forest Research* 27:1914-1921.
68. * Gentry, L.E., M.B. David, K.M. Smith, and D.A. Kovacic. 1998. Nitrogen cycling and tile drainage nitrate loss in a corn/soybean watershed. *Agriculture, Ecosystems, and Environment* 68:85-97.
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