

I V A N J. F E R N A N D E Z

Abbreviated VITA

(3/2017)

BUSINESS ADDRESS:

University of Maine
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EMPLOYMENT HISTORY:

2012 - Present	Professor of Soil Science in the School of Forest Resources
2008 - Present	Cooperating Professor - Climate Change Institute
2012 - Present	Cooperating Professor – School of Food and Agriculture
1993 - 2012	Professor of Soil Science in the Department of Plant, Soil and Environmental Sciences
1993 - 2012	Cooperating Professor – School of Forest Resources
2006 - 2010	Cooperating Professor - Center for Research on Sustainable Forests
1997 - 2002	Chair - Department of Plant, Soil and Environmental Sciences
1990 - 1994	Chair - Department of Plant, Soil, and Environmental Sciences
1987 - 1993	Associate Professor of Soil Science and Cooperating Associate Professor of Forest Resources - University of Maine, Orono, Maine
1983 - 1987	Assistant Professor of Soil Science and Cooperating Assistant Professor of Forest Resources - University of Maine, Orono, Maine
1981 - 1983	Research Forester - National Council of the Paper Industry for Air and Stream Improvement, 260 Madison Avenue, New York

EDUCATION:

1981 - Ph.D. University of Maine - Forest Resources (Forest Soils)
1978 - M.S. University of Maine - Plant & Soil Sciences (Soil Chemistry)
1975 - B.A. Hartwick College - Biology (Plant Science)

PROFESSIONAL AFFILIATIONS:

American Society of Agronomy (1979 – present)
Certified Soil Scientist - State of Maine (1984 – present)
Council for Agricultural Science and Technology (1986 – 1994)
Maine Audubon (1985 – present)
Maine Association of Profession Soil Scientists (1984 – present)
Member - Council of Soil Sci. Examiners (CSSE), (1997-present)
Natural Resources Council of Maine (1985 – present)
Phi Kappa Phi (1979 – present)
Sigma Xi (1979 – present)
Society of American Foresters (1982 – present)
Society of Soil Scientists of Northern New England (1984 – present)
Soil Conservation Society of America (1979 – present)
Soil Science Society of America 1976 - present

SELECTED PROFESSIONAL SERVICE:

USDA Northeast Climate HUB – University of Maine representative (2014-present)
 Editorial Advisory Board for Environmental Monitoring and Assessment (2000 – present)
 Maine Science/Research Advisory Panel (Forestry Offsets) – Regional Greenhouse Gas Initiative (RGGI) – 2007-2010
 Soil Sci. Soc. of America (Chair-elect/Chair Div. S-7, Forest, Range and Wildland Soils, 2003-2005)
 National Atmospheric Deposition Technical Committee and Site Supervisor (1985-2007)
 External Science Advisor to the Hubbard Brook Ecosystem Study (HBES – a National Science Foundation Long Term Ecological Study site) and member of the Hubbard Brook Scientific Coordinating Committee. Thornton, New Hampshire. 2013 – ongoing.
 Member - State of Maine Board of Certification for Geologists and Soil Scientists (1993 – present)
 U.S. Environmental Protection Agency - Science Advisory Board Service
 Advisory Committees
 Clean Air Scientific Advisory Committee (chartered CASAC): 2015-2018
 Advisory Council on Clean Air Compliance Analysis (chartered Council): 2009-2014
 Advisory Council on Clean Air Compliance Analysis, Ecological Effects Subcommittee (a subcommittee of the chartered Council) (Chair): 2009 - 2010
 Science Advisory Board Ecological Process and Effects Committee (EPEC, a standing Committee of the chartered Science Advisory Board): 2000-2006
 Panels of the EPA Science Advisory Board
 Ecological Risk Assessment Panel: 2005-2007*
 Metals Risk Assessment Framework Review Panel: 2005-2006
 Geographic Information System Screening Tool Review Panel: 2005-2006
 Critical Ecosystem Assessment Model Review Panel: 2005 *
 Katrina Soil and Sediment Sampling Plan Workgroup: 2005
 Panel on Suspended and Bedded Sediments: 2003*
 Panels of the EPA Clean Air Scientific Advisory Committee (CASAC)
 Secondary NAAQS Review Panel for Oxides of Nitrogen and Sulfur (Chair): 2015-2020
 Panels of the EPA Advisory Council on Clean Air Compliance
 Advisory Council on Clean Air Compliance Analysis Augmented for Review of Black Carbon: 2011
 Ecological Effects Subcommittee Augmented for Review of the Second Section 812 Prospective Study (Chair): 2009-2010

AWARDS AND RECOGNITION:

Named Fellow in the Soil Science Society of America (2010)
 Sergei A. Wilde Distinguished Lectureship in Forest Soils – Soil Science Society of America (2010)
 CASE/Carnegie Professor of the Year (Maine-2008) – Washington DC
 Distinguished Maine Professor – University of Maine (2007)
 College of Natural Sciences, Forestry, and Agriculture Outstanding Research Award (2004)
 G. Peirce and Florence Pitts Webber Award for Outstanding Research in Forest Resources (1997)

PUBLICATIONS (Last 10 years):**Peer Reviewed Journal Articles**

Tartariw, Corianne, Jean D. MacRae, Ivan J. Fernandez, Marie Cécile Gruselle, Cayce J. Salvino, and Kevin S. Simon. 2017. Chronic nitrogen enrichment at the watershed scale does not enhance microbial phosphorus limitation. *Ecosystems* (in press) doi:10.1007/s10021-017-0140-1.

Tartariw, Corianne, Kaizad Patel, Jean D. MacRae, and Ivan J. Fernandez. 2017. Snowpack loss promotes soil freezing and concrete frost formation in a northeastern temperate softwoods stand. *Northeastern Naturalist* 24(special issue 7):B42-B54.

Kopáček, Jiří, Jiří Kaňa, Svetlana Bičárová, Ivan J. Fernandez, Josef Hejzlar, Marie Kahounová, Stephen

- A. Norton, and Evžen Stuchlík. 2017. Climate change increases calcium and magnesium leaching from granitic alpine catchments. *Environ. Sci. Tech.* 51:159-166.
- Pourmokhtarian, Afshin, Charles T. Driscoll, John L. Campbell, Katharine Hayhoe, Anne M.K. Stoner, Mary Beth Adams, Ivan Fernandez, Douglas Burns, Myron J. Mitchell, and James B. Shanley. 2017. Modeled ecohydrological responses to climate change at seven small watersheds in the northeastern U.S. *Global Change Biology*23:840-856.
- Fatemi, Farrah R., Ivan J. Fernandez, Kevin S. Simon, and David B. Dail. 2016. Nitrogen and phosphorus regulation of soil enzyme activities in acid forest soils. *Soil Biol. Biochem.* 98:171-179.
- Lawrence, Gregory B., Ivan J. Fernandez, Paul W. Hazlett, Scott W. Bailey, Donald S. Ross, Thomas R. Villars, Angelica Quintana, Rock Ouimet, Michael R. McHale, Chris E. Johnson, Russell D. Briggs, Robert A. Colter, Jason Siemion, Olivia L. Barlett, Olga Vargas, Michael R. Antidormi, and Mary M. Koppers. 2016. Methods of soil resampling to monitor changes in the chemical concentrations of forest soils. *J. Vis. Exp.* E54815, doi:10.3791/54815.
- Puhlick, J. J., A. R. Weiskittel, I. J. Fernandez, S. Fraver, L. S. Kenefic, R. S. Seymour, R. K. Kolka, L. E. Rustad, and J. C. Brissette. 2016. Long-term influence of alternative forest management treatments on total ecosystem and wood product carbon storage. *Can. J. For. Res.* 46:1404-1412.
- Puhlick, Joshua J., Ivan J. Fernandez, and Aaron R. Weiskittel. 2016. Evaluation of forest management effects on the mineral soil carbon pool of a lowland, mixed-species forest in Maine, USA. *Can. J. Soil Sci.* 96:207-218.
- Puhlick, J. J., S. Fraver, I. J. Fernandez, A. R. Weiskittel, L. S. Kenefic, R. K. Kolka, and M. -C. Gruselle. 2016. Factors influencing organic horizon carbon pools in mixed-species forests of central Maine, USA. *For. Ecol. Manage.* 364:90-100.
- Nelson, A.S., Wagner, R.G., Day, M.E., Fernandez, I.J., Weiskittel, A.R., and Saunders, M.R. 2016. Light absorption and light-use efficiency of juvenile white spruce trees in natural stands and plantations. *Forest Ecology and Management* 376: 158-165.
- Lawrence, Gregory B., Paul W. Hazlett, Ivan J. Fernandez, Rock Ouimet, Scott W. Bailey, Walter C. Shortle, Kevin T. Smith, and Michael R. Antidormi. 2015. Declining acidic deposition begins reversal of forest-soil acidification in the northeastern U.S. and eastern Canada. *Environ. Sci. Technol.* 49 (22):13103–13111.
- Morse, Jennifer, Jorge Duran, Fed Beall, Eric M. Enanga, Irena F. Creed, Ivan J Fernandez, Peter M. Goffman. 2015. Soil denitrification fluxes from three northeastern North American forests ranging in nitrogen availability. *Oecologia* 177:17-27.
- Ohno, Tsutomu, Thomas B. Parr, Marie-Cécile Gruselle, Ivan J. Fernandez, Rachel L. Sleighter, and Patrick G. Hatcher. 2014. Molecular composition and biodegradability of soil organic matter: A case study comparing two New England forest types. *Environ. Sci. Tech.* 2014: 7229-7236.
- Mineau M. M., F. R. Fatemi, I. J. Fernandez and K. S. Simon. 2014. Microbial enzyme activity at the watershed scale: Response to chronic nitrogen deposition and acute phosphorous enrichment. *Biogeochemistry* 117:131-142.
- Raymond, Jay E., Ivan J. Fernandez, Tsutomu Ohno, and Kevin Simon. 2013. Soil drainage class influences on soil carbon in a New England Forested Watershed. *Soil Sci. Soc. Am. J.* 77:307–317.
- Lawrence, Gregory B., Ivan J. Fernandez, Daniel D. Richter, Donald S. Ross, Paul W. Hazlett, Scott W. Bailey, Rock Ouimet, Richard A. F. Warby, Arthur H. Johnson, Henry Lin, James M. Kaste, Andrew G. Lapenis, and Timothy J. Sullivan. 2013. Measuring environmental change in forest ecosystems by repeated soil sampling: A North American Perspective. *J. Environ. Qual.*42:623-639.

- Fatemi, Farrah R., Ivan J. Fernandez, Stephen A. Norton and Lindsey E. Rustad. 2013. Soil solution response to two decades of experimental acidification at the Bear Brook Watershed in Maine. *Water Air Soil Pollut.* 223:6171–6186.
- Mineau, Madeleine M., Chad M. Grigsby, Damon T. Ely, Ivan J. Fernandez, Stephen A. Norton, Tsutomu Ohno, H. Maurice Valett, and Kevin S. Simon. 2013. Chronic catchment nitrogen enrichment and stoichiometric constraints on the bioavailability of dissolved organic matter from leaf leachate. *Freshwater Biology* 58:248-260.
- Stone, Madeleine M., Marissa S. Weiss, Christine L. Goodale, Mary Beth Adams, Ivan J. Fernandez, Donovan P. German, and Steven D. Allison. 2011. Temperature sensitivity of soil enzyme kinetics under N-fertilization in two temperate forests. *Global Change Biology* 18:1173-1184.
- Kerr, J.G., M. C. Eimers, I. F. Creed, M. B. Adams, F. Beall, D. Burns, J. L. Campbell, S. F. Christopher, T. A. Clair, F. Courchesne, L. Duchesne, I. Fernandez, D. Houle, D. S. Jeffries, G. E. Likens, M. J. Mitchell, J. Shanley, H. Yao. 2011. The effects of seasonal drying on sulphate dynamics in streams across southeastern Canada and the northeastern USA. *Biogeochemistry* DOI 10.1007/s10533-011-9664-1.
- Norton, Stephen A., Randall H. Perry, Jasmine Saros, George J. Jacobson, Ivan J. Fernandez, Jiří Kopáček, Michael D. SanClements, and Tiffany A. Wilson. 2011. The controls on phosphorus availability in a boreal lake ecosystem since deglaciation. *J. Paleolimnol.* 46:107–122.
- SanClements, Michael D., Ivan J. Fernandez, and Stephen A. Norton. 2010. Controls on phosphorus fractions in acidic soils of humid temperate forests. *Soil Sci. Soc. Am. J.* 74: 2175–2186.
- Fernandez, Ivan J. and Stephen A. Norton. 2010. The Bear Brook Watershed in Maine – The Second Decade. Preface. *Environ. Monitor. Assess.* 171: 1-2.
- Norton, Stephen A., Ivan J. Fernandez, J. Stephen Kahl, Lindsey E. Rustad, Tomás Navrátil, and Heather Almquist. 2010. The evolution of the science of the Bear Brook Watershed in Maine, USA. *Environ. Monitor. Assess.* 171: 3–21.
- Navrátil, Tomás, Stephen A. Norton, Ivan J. Fernandez, and Sarah J. Nelson. 2010. Twenty-year inter-annual trends and seasonal variations in precipitation and stream water chemistry at the Bear Brook Watershed in Maine, USA. *Environ. Monitor. Assess.* 171: 23–45.
- Amirbahman, Aria, Brett C. Holmes, Ivan J. Fernandez, Stephen A. Norton. 2010. Mobilization of metals and phosphorus from intact forest soil cores by dissolved inorganic carbon. *Environ. Monitor. Assess.* 171: 93–110.
- SanClements, Michael D., Ivan J. Fernandez, and Stephen A. Norton. 2010. Soil chemical and physical properties at the Bear Brook Watershed in Maine, USA. *Environ. Monitor. Assess.* 171: 111-128.
- Fernandez, Ivan J., Mary Beth Adams, Michael D. SanClements, and Stephen A. Norton. 2010. Comparing decadal responses of whole-watershed manipulations at the Bear Brook and Fernow experiments. *Environ. Monitor. Assess.* 171: 149–161.
- Mitchell, Myron J., Gary Lovett, Scott Bailey, Fred Beall, Doug Burns, Don Buso, Thomas A. Clair, Francois Courchesne, Louis Duchesne, Cathy Eimers, Ivan Fernandez, Daniel Houle, Dean S. Jeffries, Gene E. Likens, Micheal D. Moran, Christopher Rogers, Donna Schwede, Jamie Shanley, Kathleen C. Weathers, and Robert Vet. 2010. Comparisons of watershed sulfur budgets in southeast Canada and northeast US: new approaches and implications. *Biogeochemistry* DOI 10.1007/s10533-010-9455-0.
- Sarah E. Godsey, Wenche Aas, Thomas A. Clair, Heleen A. de Wit, Ivan J. Fernandez, J. Steve Kahl, Iain A. Malcolm, Colin Neal, Margaret Neal, Sarah J. Nelson, Stephen A. Norton, Marisa C. Palucis, Brit Lisa Skjelkvåle, Chris Soulsby, Doerthe Tetzlaff, and James W. Kirchner. 2010. Generality of fractal 1/f

scaling in catchment tracer time series and its implications for catchment travel time distributions. *Hydrological Processes* 24: (in press).

Nelson, S.J., I.J. Fernandez, and J.S. Kahl. 2010. A review of mercury concentration and deposition in snow in eastern temperate North America. *Hydrolog. Proc.* 24:1971-1980.

Dail, David Bryan, David Y. Hollinger, Eric A. Davidson, Ivan J. Fernandez, Herman C. Sievering, Neal A. Scott, and Elizabeth Gaige. 2009. Distribution of nitrogen-15 tracers applied to the canopy of a mature spruce-hemlock stand, Howland, Maine, USA. *Oecologia* 160:589-599.

Bethers, Suzanne, Michael E. Day, G. Bruce Wiersma, Ivan J. Fernandez and J. Alexander Elvir. 2009. Effects of chronically elevated nitrogen and sulfur deposition on sugar maple saplings: nutrition, growth and physiology. *For. Ecol. Manag.* 258:895-902.

SanClements, Michael D., Ivan J. Fernandez, and Stephen A. Norton. 2009. Mechanisms defining spatial patterns in P fractions in a forest lake watershed at Acadia National Park, Maine, USA. *For. Ecol. Manag.* 258:2318-2325.

Banaitis, Michael R., Ivan J. Fernandez, Cullen Wilson, Stephen A. Norton, and D. Bryan Dail. 2009. Biogeochemical response of a northern forest ecosystem to biosolids amendments. *J. Environ. Qual.* 38:792-803.

Evans, Chris D., Christine L. Goodale, Simon J.M. Caporn, Nancy B. Dise, Bridget A. Emmett, Ivan J. Fernandez, Chris D. Field, Stuart E.G. Findlay, Gary M. Lovett, Henning Meesenburg, Filip Moldan, and Lucy J. Sheppard. 2009. Does elevated nitrogen deposition or ecosystem recovery from acidification drive increased dissolved organic carbon loss from upland soil? A review of evidence from field nitrogen addition experiments. *Biogeochem.* 91:13–35.

Navratil, Tom, Jan Rohovec, Aria Amirbahman, Stephen A. Norton, and Ivan J. Fernandez. 2009. Amorphous aluminum hydroxide control on sulfate and phosphate in sediment-solution systems. *Water Air Soil Pollut* 210:87-98.

Campbell, John L., Lindsey E. Rustad, Elizabeth W. Boyer, Sheila F. Christopher, Charles T. Driscoll, Ivan J. Fernandez, Peter M. Groffman, Daniel Houle, Jana Kiekbusch, Alison H. Magill, Myron H. Mitchell, and Scott V. Ollinger. 2008. Consequences of climate change for biogeochemical cycling in forests of northeastern North America. *Can J For Res* 39:264-284.

Dale, Virginia H., Gregory R. Biddinger, Michael C. Newman, James T. Oris, Glenn W. Suter, Timothy Thompson, Thomas M. Armitage, Judith L. Meyer, Richelle M. Allen-King, G. Allen Burton, Peter M. Chapman, Loveday L. Conquest, Ivan J. Fernandez, Wayne G. Landis, Lawrence L. Master, William J. Mitsch, Thomas C. Mueller, Charles F. Rabeni, Amanda D. Rodewald, James G. Sanders, and Ivor L. van Heerden. 2008. Enhancing the ecological risk assessment process. *Integrated Environmental Assessment and Management* 4:306-313.

Hunt, James F., Tsutomu Ohno, and Ivan J. Fernandez. 2008. Influence of foliar phosphorus and nitrogen content on chemical properties of water extractable organic matter derived from fresh and decomposed sugar maple leaves. *Soil Biol. Biochem.* 40:1931–1939.

Nelson, Sarah J., Kenneth B. Johnson, Kathleen C. Weathers, Cynthia S. Loftin, Ivan J. Fernandez, Jeffrey S. Kahl, and David P. Krabbenhoft. 2008. A comparison of winter mercury accumulation at forested and no-canopy sites measured with different snow sampling techniques. *Applied Geochemistry* 23:384-398.

McNeil, Brenden, Jane Read, Tim Sullivan, Ivan Fernandez, and Charles Driscoll. 2008. The spatial pattern of nitrogen cycling in the Adirondack Park, New York. *Ecol. Applic.* 18:438-452.

Catherine H. Rosfjord, Katherine E. Webster, Jeffrey S. Kahl, Stephen A. Norton, Ivan J. Fernandez, and

Alan T. Herlihy. 2007. Anthropogenically driven changes in chloride complicate interpretation of base cation trends in lakes recovering from acidic deposition. *Environ. Sci. Technol.* 41 (22), 7688 -7693.

Ohno, Tsutomu, Ivan J. Fernandez, Syuntaro Hiradate, and Jessica F. Sherman. 2007. Effects of soil acidification and forest type on water soluble soil organic matter properties. *Geoderma* 140:176-187.

Gaige, E., D. B. Dail, D.Y. Hollinger, E.A. Davidson, I.J. Fernandez, H. Sievering, A. White, and W. Halteman. 2007. Changes in canopy processes following whole-forest canopy nitrogen fertilization of a mature spruce-hemlock forest. *Ecosystems* 10:1133-11247.

McGee, Chandra J., Ivan J. Fernandez, Stephen A. Norton, and Constance S. Stubbs. 2007. Cd, Ni, Pb, and Zn concentrations in forest vegetation and soils in Maine. *Water Air Soil Pollut.* 180:141-153.

Kahl J. S., S. J. Nelson, I. Fernandez, T. Haines, S. Norton, G. B. Wiersma, G. Jacobson Jr., A. Amirbahman, K. Johnson, M. Schauffler, L. Rustad, K. Tonnessen, R. Lent, M. Bank, J. Elvir, J. Eckhoff, H. Caron, P. Ruck, J. Parker, J. Campbell, D. Manski, R. Breen, K. Sheehan and A. Grygo. 2007. Watershed nitrogen and mercury geochemical fluxes integrate landscape factors in long-term research watersheds at Acadia National Park, Maine, *Environ. Monitor. Assess.* 126:9-25.

Nelson, S. J., K. B. Johnson, J. S. Kahl, T. A. Haines, and I. J. Fernandez. 2007. Mass balances of mercury and nitrogen in burned and unburned forested watersheds at Acadia National Park, Maine, USA. *Environ. Monitor. Assess.* 126:69-80.

Sherman, Jessica, Ivan J. Fernandez, Stephen A. Norton, Tsutomu Ohno, and Lindsey E. Rustad. 2006. Soil aluminum, iron, and phosphorus dynamics in response to long-term experimental nitrogen and sulfur additions at the Bear Brook Watershed in Maine, USA. *Environ. Monitor. Assess.* 121: 421-429.

Norton, S. A., Fernandez, I., Amirbahman, A., Coolidge, K., and Navratil, T., 2006, Aluminum, phosphorus, and oligotrophy - Assembling the pieces of the puzzle: *Proc. Soc. Intern. Limnol.* 29, 1877-1886.

Elvir, J.A., G.B. Wiersma, M.E. Day, M.S. Greenwood, and I.J. Fernandez. 2006. Effects of enhanced nitrogen deposition on foliar chemistry and physiological processes of forest trees at the Bear Brook Watershed in Maine. *For. Ecol. Manag.* 221:207-214.

Wallenstein, Matthew D., Steven McNulty, Ivan J. Fernandez, Johnny Boggs, and William H. Schlesinger. 2005. Nitrogen fertilization decreases forest soil fungal and bacterial biomass in three long-term experiments. *For. Ecol. Manag.* 222:459-468.

Sullivan, T.J., I.J. Fernandez, T.C. McDonnell, N.A. Nowicki, A.T. Herlihy, K.U. Snyder, and J.W. Sutherland. 2006. Acid-base characteristics of soils in the Adirondack Mountains, New York. *Soil Sci. Soc. Am. J.* 70: 141-152.

Szillery, Johanna E., Ivan J. Fernandez, Stephen A. Norton, Lindsey E. Rustad, and Alan S. White. 2006. Using ion-exchange resins to study soil response to experimental watershed acidification. *Environ. Monitor. Assess.* 116: 383-398.

Sheehan, Katherine D., Ivan J. Fernandez, J. Stephen Kahl, and Aria Amirbahman. 2006. Litterfall mercury in two forested watersheds at Acadia National Park, Maine, USA. *Water Air Soil Pollut.* 170:249-265.

Selected Books/Collections

Fernandez, Ivan J. and Stephen A. Norton (Guest Editors). 2010. Bear Brook Watershed in Maine – The Second Decade. *Environmental Monitoring and Assessment* Volume 171.

Norton, Stephen A. and Ivan J. Fernandez. 1999 (eds.). *The Bear Brook Watershed in Maine - A Paired*

Watershed Experiment - The First Decade (1987-1997). Kluwer Academic Publishers. Boston. 250 pp.

Selected Book Chapters

Norton, S. A., Kopáček, J., and Fernandez, I. J., 2014, Acidification and Acid Rain: in Holland, H. D. and Turekian K. K. (eds.), Treatise on Geochemistry, 9, 2nd Edition, Chapter, Elsevier. pp. 379-414.

Amirbahman, Aria and Ivan J. Fernandez. 2010. Mercury in Soils. In: Mercury in the Environment: Pattern and Process. Michael S. Bank (ed.). University of California Press, Berkeley, CA. (in press).

Fernandez, I.J. and M.B. Adams. 2000. Nitrogen sturation: An experimental approach at the watershed scale. In: Mickler, R., R. Birdsey, and J. Hom (eds.). Responses of Northern U.S. Forests to Environmental Change. Springer-Verlag New York Inc. pp.333-355.

Rustad, Lindsey E., Jerry M. Melillo, Myron J. Mitchell, Ivan J. Fernandez, Paul A. Steudler, and Patrick J. McHale. 2000. Effects of soil warming on carbon and nitrogen cycling. In: Mickler, R., R. Birdsey, and J. Hom (eds.). Responses of Northern U.S. Forests to Environmental Change. Springer-Verlag New York Inc. pp.357-381.

Peer Reviewed Technical Reports (Last 10 years):

Fernandez, I.J., C.V. Schmitt, S.D. Birkel, E. Stancioff, A.J. Pershing, J.T. Kelley, J.A. Runge, G.L. Jacobson, and P.A. Mayewski. 2015. Maine's Climate Future: 2015 Update. Orono, ME: University of Maine. 24pp.

Turcotte, David E., Christopher C. Dorion, Nicholas R. Butler, and Ivan J. Fernandez. 2015. Seasonal water table and temperature relationships in calcareous till and residual soils of central Maine. Maine Agricultural and Forest Experiment Station Miscellaneous Report 447. 30 pp.

Jacobson, G.L., I.J. Fernandez, P.A. Mayewski, and C.V. Schmitt (editors). 2009. Maine's Climate Future: An Initial Assessment. Orono, ME: University of Maine. 72 pp.

Jacobson, G.L., I.J. Fernandez, P.A. Mayewski, and C.V. Schmitt. 2009. Maine's Climate Yesterday, Today, and Tomorrow. Maine Policy Review Vol. 17, No. 2. pp. 16-23

Fernandez, Ivan J. 2008. Carbon and nutrients in Maine forest soils. Maine Agricultural and Forest Experiment Station Technical Bulletin 200. University of Maine, Orono, Maine. 24 pp.

Fernandez, Ivan J., Joseph E. Karem, Stephen A. Norton, and Lindsey E. Rustad. 2007. Temperature, soil moisture, and streamflow at the Bear Brook Watershed in Maine (BBWM). Maine Agricultural and Forest Experiment Station Technical Bulletin 196. University of Maine, Orono, Maine. 26 pp.

McGee, Chandra J., Ivan J. Fernandez, Stephen A. Norton and Constance S. Stubbs. 2006. Element Concentrations in Maine Forest Vegetation and Soils. Maine Agricultural and Forest Experiment Station Technical Bulletin 159. University of Maine, Orono, Maine. 25 pp.

Meyer, S.R.; R. Wagner; J. Witham; S. Norton; I. Fernandez; G.B. Wiersma; E. Small; J. Wilson; and A. Kimball. 2006. Long-term forest ecosystem studies of the Cooperative Forestry Research Unit and the University of Maine. Long-term silvicultural and ecological studies: results for science and management. Irland, Camp, Brissette, and Donohew, eds. Yale GISF, Res. Paper 005. 245 pp.

Other Publications

Fernandez, Ivan J. 2015. Thoughts on Soils and Climate Change: Paradigms and Pragmatism. Soil Horizons 56(5):1-3.

Fernandez, Ivan J., Stephen A. Norton, and Tiffany Wilson (eds.). 2012. BIOGEOMON 2012, The 7th

International Symposium on Ecosystem Behavior. Northport, Maine. ISBN 978-0-87723-108-0. 261 pp.

Norton, Stephen A., Randall H. Perry, Jasmine Saros, George L. Jacobson, Jr., Ivan J. Fernandez, Jiří Kopáček, Michael SanClements, Tiffany A. Wilson, Marie-Claire Pierret-Neboit and Daniel F. Lesser. 2010. Early post-glacial and holocene history of the sargent mountain pond watershed, as seen from the bottom of Sargent Mountain Pond, Acadia National Park, Maine. New England Intercollegiate Geological Conference: Orono, Maine, pp. A4-1 - A4-16.

Fernandez, Ivan J. 2009. Why Forest Soils Matter – Ecosystem Services in the 21st Century. New England Society of American Foresters News Quarterly. Vol. 70, No. 2.

Selected Published Abstracts and Presentations (Last 10 years)

Fernandez, Ivan J., Invited Speaker – Maine’s Climate Future – How Do We Respond? University of Fort Kent, Fort Kent, Maine Environmental Speaker Series. March 17, 2017.

Gruselle, M.C., Fraver, S., Puhlick, J.J., Fernandez, I.J., Woodall, C.W. 2017. Buried dead wood: An often overlooked detrital pool in the Acadian Forest? New England SAF - 97th Winter Meeting, Northeastern Forest Pest Council - 79th Annual Meeting, Maine Chapter of The Wildlife Society – 41st Annual Meeting. Adapt, Adopt, Advance: Resiliency in Natural Resource Management. Bangor, Maine, USA. March 8 – 10.

Muñoz, B., L. Kenefic, A. Weiskittel, I. Fernandez. 2017. Quantifying northern mixedwood soil nutrient availability 50 years following biomass harvesting. 11th North American Forest Ecology Workshop (NAFEW), June 19-22, 2017, University of Alberta, Edmonton, Alberta, Canada.

Muñoz, B., L. Kenefic, A. Weiskittel, I. Fernandez. 2017. Evaluating 50 year differences in northern mixedwood productivity following biomass harvesting and prescribed burning. International Boreal Forest Research Association Conference (IBFRA), June 5-9, 2017, Cross Insurance Center, Bangor, ME.

Fernandez, Ivan J. Invited Keynote Speaker: Maine’s Climate Future – Is there more than one? Climate Change Impacts on Maine Wabanaki People Workshop. Penobscot Indian Nation. Indian Island. Maine. 12/13/2016.

Fernandez, Ivan J. Invited Keynote Speaker: The Climate Future of Maine. University of Maine at Augusta Senior College. Augusta, Maine. 10/30/2016.

Jakubowski, Michael and Ivan Fernandez. Multidecadal response in soil carbon, nitrogen, and mercury to the Mr. Desert Island Fire of 1947 using paired watersheds in Acadia National Park, Maine. Acadia National Park Science Symposium. Schoodic Education and Research Center, Winter Harbor, Maine. 10/5/2016.

Fernandez, Ivan J., Invited Speaker – Acadia National Park Interpwoods – Seasonal Training. “Maine’s Climate Future: Trends, Effects and Adaptation”. College of the Atlantic. Bar Harbor, Maine. 6/10/2016.

Patel, Kaizad, Corianne Tatariw, Ivan J. Fernandez, Jean MacRae, and Tsutomu Ohno. “Nutrient Dynamics in a Changing Climate: How Does a Decreasing Snowpack Influence Soil Biogeochemistry?” Presented at the Maine Sustainability and Water Conference. Augusta, ME. March 29, 2016.

Fernandez, Ivan J. Invited Keynote “Maine’s Climate: What Are the Right Questions Now?” – Annual Meeting of the Maine Invasive Species Network. Hallowell, Maine. March 2, 2016.

Fernandez, Ivan J. Invited Science Lecture: The End of Climate Change, Southworth Planetarium, University of Southern Maine, Portland, ME. December 17, 2015.

SanClements, Michael D., Ivan J. Fernandez, and Mary Beth Adams. 2015. Using Fluorescence Spectroscopy to Link Changes in Soil Chemistry with Stream Dissolved Organic Matter. (Paper 39-7)

Presented at the ASA-CSSA-SSSA International Meetings. Minneapolis, MN. November 15-18. ASA, CSSA, SSSA, Madison, WI.

Patel, Kaizad, Corianne Tartariw, Ivan J. Fernandez, Jean MacRae, and Tsutomu Ohno. 2015. Effect of Snow Removal on Soil Biogeochemistry. (Paper 39-13). Presented at the ASA-CSSA-SSSA International Meetings. Minneapolis, MN. November 15-18. ASA, CSSA, SSSA, Madison, WI.

Lawrence, Gregory B., Paul Hazlett, Ivan J. Fernandez, Rock Ouimet, Scott Bailey, Walter Shortle, Kevin Smith, and Michael Antidormi. 2015. Declining Acidic Deposition Begins Reversal of Forest-Soil Acidification in the Northeastern U.S. and Eastern Canada. (Paper 39-19). Presented at the ASA-CSSA-SSSA International Meetings. Minneapolis, MN. November 15-18. ASA, CSSA, SSSA, Madison, WI.

Tatariw, Corianne, Jean MacRae, Kevin S. Simon, Ivan J. Fernandez, and Marie-Cecile Gruselle. 2015. The Effect of Long Term Nitrogen Deposition on the Structure and Function of Soil Microbial Communities. (Paper 48-21). Presented at the ASA-CSSA-SSSA International Meetings. Minneapolis, MN. November 15-18. ASA, CSSA, SSSA, Madison, WI.

Gruselle, Marie-Cecile, Ivan J. Fernandez, Kevin S. Simon, Madeleine M. Mineau, and Stephen A. Norton. 2015. Fate of ¹⁵N Tracer Additions in a New England Watershed with a 25 Years History of Experimental N Addition. (Paper 311-10) Presented at the ASA-CSSA-SSSA International Meetings. Minneapolis, MN. November 15-18. ASA, CSSA, SSSA, Madison, WI.

Jakubowski, Michael, and Ivan J. Fernandez. 2015. Multidecadal Response in Soil Carbon, Nitrogen, and Mercury to the Mt. Desert Island Fire of 1947 Using Paired Watersheds in Acadia National Park, Maine. (Paper 311-13) Presented at the ASA-CSSA-SSSA International Meetings. Minneapolis, MN. November 15-18. ASA, CSSA, SSSA, Madison, WI.

Fatemi, Farrah, Anika Bieg, Aaron Gentile, Ivan J. Fernandez and Erin Buckley. 2015. Does Chronic N Enrichment Enhance Soil Microbial P Limitation? : Evidence from Several Long-Term Studies in the Eastern US. (Paper 311-16). Presented at the ASA-CSSA-SSSA International Meetings. Minneapolis, MN. November 15-18. ASA, CSSA, SSSA, Madison, WI.

Fernandez, Ivan J. 2015. The Forest's Perception of Multi-Air Pollutant Stressors in the 21st Century. Invited Speaker at Acid Rain 2015 - 9th International Conference on Acid Deposition. Rochester, New York. 10/19-23/2015.

Lawrence, G., P. Hazlett, I. Fernandez, R. Ouimet, S. Bailey, W. Shortle, K. Smith and M. Antidormi. 2015. Declining Acidic Deposition in the Northeastern U.S. and Eastern Canada. Acid Rain 2015 - 9th International Conference on Acid Deposition. Rochester, New York. 10/19-23/2015.

Norton, S. I. Fernandez, A. Olsen, K. Negrich, and C. Salvino. 2015. Al, REEs, P, and DOC Linkages in a Changing pH Environment. Acid Rain 2015 - 9th International Conference on Acid Deposition. Rochester, New York. 10/19-23/2015.

Fernandez, Ivan J., Invited Speaker – Maine Farm Days – Soil Know Your Roots – 2015 ME Soils Conference: “UMaine, Soils, and Climate Change”. Misty Meadows Farm, Clinton, Maine. 8/27, 2015.

Fernandez, Ivan J. Keynote Speaker – “Maine’s Climate Future 2015: Our Climate and Why It Matters.” Wild Blueberry Summer Field Day and Meeting. Wild Blueberry Research and Extension Facility, Jonesboro, Maine. 6/15/2015.

Fernandez, Ivan J. Invited Presentation and Tandberg Discussion, “Maine’s Climate Future”. University of Maine Cooperative Extension Talking with UMaine Researchers Series. Orono, Maine. 6/23/2015.

Fernandez, Ivan J. Invited Panelist, “What the Data Tells Us” – Maine’s Economy & Climate Change: Challenges and Opportunities. Envision Maine. Brunswick, Maine. June 12, 2015.

Fernandez, Ivan J. Invited Speaker. "Maine's Climate Future 2015 – What it means for Maine". Bangor Rotary Club. Bangor, Maine. May 26, 2015.

Fernandez, Ivan J. Invited Speaker: "Climate Impact on Northern New England". 23rd Annual Tri-State Association of School Business Professionals. Portland, Maine. May 21, 2015.

Fernandez, Ivan J. Invited Presenter. "Pollen as an Indicator of Ecological Health". The Council of State and Territorial Epidemiologists – Pollen Summit. Portland, Maine. May 14, 2015.

Fernandez, Ivan J. Maine's Changing Climate and Effects. Invited Speaker – NOAA Climate Adaptation for Coastal Communities Workshop. Wells National Estuarine Research Reserve. Wells, Maine. April 14, 2015.

Patel, Kaizad and Ivan Fernandez. Is there a changing climatology at the Bear Brook Watershed in Maine? Northeastern Ecosystem Research Cooperative Conference, Saratoga Springs, NY, March 2015.

Tatarw C, JD MacRae, K Simon, IJ Fernandez, MC Gruselle. The effect of long term nitrogen deposition on structure and function of soil microbial communities. Northeastern Ecosystem Research Cooperative Conference, Saratoga Springs, NY, March 2015.

Fernandez, Ivan J., Caitlin Cleaver, Caroline Noblet, and Matthew Chatfield. Climate Change in Maine. Invited presentations and panelists for the first annual Maine Science Festival, Bangor, Maine. March 21, 2015.

Puhlick, Joshua J., Aaron R. Weiskittel, Ivan J. Fernandez, Shawn Fraver, Laura S. Kenefic, and Robert S. Seymour. Comparisons of carbon pools among alternative management regimes on the Penobscot Experimental Forest. New England Society of American Foresters Meeting. Fairlee, Vermont. March 24-27, 2015.

Fernandez, Ivan J. – Participant and Invited Speaker "Maine's Climate Future: 2015 Update" at Farming in the Face of Climate Change, The Maine Organic Farmers and Growers Spring Growth Conference, Unity, Maine. 3/7/2015.

Simon K.S., Mineau M.M., Rancatti R.R., Adams M.B., Fernandez I.J. and Norton S.A. Coupled biogeochemical cycling in watersheds subjected to chronic nitrogen enrichment and acidification. Joint Water Symposium of the New Zealand Hydrological Society, New Zealand Freshwater Sciences Society and the IPENZ Rivers Group. Blenheim, New Zealand, 27 November 2014

Gruselle, Marie-Cecile, Ivan J. Fernandez, Kevin S. Simon and Stephen A. Norton. 2014. Soil ¹⁵N enrichment in a whole watershed ¹⁵N tracer experiment in New England forests. (Paper 130-3). Presented at the ASA-CSSA-SSSA International Meetings. Long Beach, California. November 2-5. ASA, CSSA, SSSA, Madison, WI.

Salvino, Cayce, Ivan J. Fernandez, Marie-Cecile Gruselle and Jean MacRae. 2014. Is nitrogen cycling and bioavailability limited by phosphorus in northern New England forest soils? (Paper 412-5). Presented at the ASA-CSSA-SSSA International Meetings. Long Beach, California. November 2-5. ASA, CSSA, SSSA, Madison, WI.

Fernandez, Ivan J. 2014. Invited Speaker: Maine's Energy and Climate Future, Building Sustainable Communities: International, National and Local Perspectives. Estia's 11th Annual Conference. University of Maine, Orono. October 25.

Munoz, Bethany L., Laura Kenefic, Aaron Weiskittel, Ivan Fernandez, Jeffrey Benjamin, and Shawn Fraver. 2014. Northern mixedwood forest productivity 50 years after whole-tree and stem-only harvesting. (Paper #111) National Convention of the Society of American Foresters, Salt Lake City, Utah.

Puhlick, Aaron Weiskittel, Ivan Fernandez, Shawn Fraver, Laura Kenefic, and Robert Seymour. 2014.

How silvicultural treatments and site quality affect carbon storage in a mixed species forest. (Paper #149) National Convention of the Society of American Foresters, Salt Lake City, Utah.

Fernandez, Ivan J. 2014. Invited Speaker: Maine's Climate Future 2014: Our Physical and Chemical Climate, Ecosystems and Vulnerability. Conference on Climate Adaptation and Sustainability (CLAS), Building a Framework and Platform for Climate Adaptation and Sustainability Planning for Maine Communities. University of Maine, Orono. October 23.

Gruselle, Marie-Cécile, Ivan Fernandez, Kevin Simon, Stephen Norton. 2014. ¹⁵N enrichment of the forest floor after a whole watershed scale ¹⁵N tracer addition at a long-term forested paired watershed site in Maine, USA. BIOGEMON 2014, The 8th International Symposium on Ecosystem Behavior. Bayreuth, Germany.

Gruselle, M-C and Ivan J. Fernandez. 2014. Ecosystem Responses to a Unique Whole-Watershed Isotopic Tracer Experiment: Where did the 15N go? Oral presentation at the Harold W. Borns Jr. Symposium. University of Maine, Orono, ME. April 17-18, 2014.

Patel, Kaizad, Ivan Fernandez. 2014. Climatic trends at the Bear Brook Watershed in Maine – Biogeochemistry of the vernal transition. BIOGEMON 2014, The 8th International Symposium on Ecosystem Behavior. Bayreuth, Germany.

Gruselle, M-C and Ivan J. Fernandez. 2014. Defining whole watershed nitrogen dynamics with 15N. Poster presented at the 2014 Acadia National Park Science Symposium. Schoodic Education and Research Center, Winter Harbor, ME. April 16, 2014.

Fernandez, Ivan J. and Sarah J. Nelson. Led a teacher field tour for interpreting the landscape at a workshop for The Future of Four Season in Maine: a Scientist-Teacher-Student Partnership to investigate climate change in seasonally snow-covered watersheds. Schoodic Education and Research Center, Acadia National Park, Maine. 7/2/2014.

Fernandez, Ivan. Climate Change in Maine. Participant and keynote for Maine Physical Sciences Partnership, RISE Center. Schoodic Education and Research Institute. Winterharbor, Maine. 2/26/2014.

Puhlick, J.J., A.R. Weiskittel, I.J. Fernandez, S. Fraver, L. S. Kenefic, and R.S. Seymour. 2014. How silvicultural treatments and site quality affect carbon storage in a mixed species forest. SAF/CIF-IFC National Convention, technical session (oral presentation), Salt Lake City, UT, October 8-11, 2014.

Fernandez, Ivan J. Invited Speaker. Climate Change in Maine. At the Maine Earth Smart-“Farming for the Future” A Maine Agricultural Greenhouse Gas Emissions Reduction and Certification Program Focusing on Adaptation and Mitigation. Professional Development Workshop. Androscoggin Valley SWCD. Lewiston, Maine. 2/24/2014.

Fernandez, Fernandez, Ivan J. Climate Change in Maine – Agriculture and Marine Systems. Invited Panel Speaker, 2013 Maine Food Summit. University of Maine. December 6, 2013.

Fernandez, Ivan J. Invited Keynote: What would Morrill, Hatch, Smith and Lever Think about Climate Change? Land-Grant Institutions Northeast Management Officers Annual Meeting, October 8, 2013. Portland, Maine.

Gruselle, Marie-Cecile, Cayce Salvino, Ivan J. Fernandez, Kevin Simon and Corianne Tartariw. 2013. Does Chronic N Fertilization Increase P Limitation in Northeastern U.S. Forest Soils? (Paper 383-4). Presented at the ASA-CSSA-SSSA International Meetings. Tampa, Florida. November 3-6. ASA, CSSA, SSSA, Madison, WI.

Fatemi, Farrah, Michael D. SanClements, and Ivan J. Fernandez. 2013. Microbial Carbon Cycling Along a Drainage Sequence in a New England Forested Watershed. (Paper 252-2). Presented at the ASA-CSSA-SSSA International Meetings. Tampa, Florida. November 3-6. ASA, CSSA, SSSA, Madison, WI.

Morse, Jennifer L., Jorge Duran, Fred Beall, Irena Creed, Eric Enanga, Ivan Fernandez, and Peter M. Groffman. 2013. Soil denitrification fluxes and oxygen dynamics in three contrasting northeastern North American forests. Ecological Society of America. Minneapolis, Minnesota 8/4-8/9.

SanClements, Michael, Ivan Fernandez, Mary Beth Adams, and Jenny Erwin. 2013. Linking Stream DOM Quality and Source to Watershed Acidification and Recovery in Temperate Forests of the Northeastern United States. 12th North American Forest Soils Conference, Whitefish, Montana. p. 112.

Gruselle, Marie-Cecile, Ivan Fernandez, and Corianne Tatariw. 2013. Manganese Dynamics in the Third Decade of Forest Ecosystem Experimental Acidification and Nitrogen Enrichment. 12th North American Forest Soils Conference, Whitefish, Montana. p. 35

MacRae, J.D., C. Tatariw, D. Rothenheber, S. Nelson, I.J. Fernandez. The effects of nitrogen enrichment on forest soil microbial communities and their activities, 2013 AEESP 50th Anniversary Conference, July 14-16, Golden, CO.

Boca, Antra, Mercedes Roman Dobarco, Helga Van Miegroet, Marie-Cecile Gruselle, Beate Michalzik, and Ivan Fernandez. 2013. Linking Overstory, Soil and Climate Characteristics to Explain C Storage in Forest Soils. 12th North American Forest Soils Conference, Whitefish, Montana. p. 29.

Gruselle, M.-C., Fernandez, I., Simon, K., Norton S., 2013. The effects of long-term ecosystem N enrichment on ¹⁵N dynamics at the Bear Brook Watershed in Maine. NERC 2013 Conference, Saratoga Springs, NY.

Minocha, Rakesh, Swathi A. Turlapati, Stephanie Long, Mohammad M. Bataineh, Aaron Weiskittel, Ivan Fernandez, and Lindsey Rustad. 2013. Chronic N and S additions impact foliar physiology of forest trees at the Bear Brook Watershed in Maine, USA. Hubbard Brook Experimental Forest Annual Meeting, Thornton, NH.

Fernandez, Ivan J. The End of Climate Change – Why Should Central Maine Care? Invited Keynote, Waterville Rotary Club, Waterville, Maine. 4/29/2013.

Ohno, Tsutomu, Ivan J. Fernandez, Rachel L. Sleighter, and Patrick G. Hatcher. Influence of depth on soil organic matter characteristics: An ultrahigh resolution mass spectrometry study. Advanced Analytical Characterization of Natural Organic Matter, Goldschmidt 2013, Florence, Italy, August 25-30, 2013.

Fernandez, Ivan J. and Sarah J. Nelson. 2013. Bear Brook, Backpack Sprayers, and What's More Fun Than Gym Class? Invited seminar at the School of Forest Resources noon-time seminar series. University of Maine, Orono, Maine.

Mayewski, Paul, Ivan J. Fernandez, Stephen A. Norton and Sean Birkel. 2013. Presentation on Climate Change and Maine to the Allagash Wilderness Waterway Advisory Council. March 22. Augusta, Maine.

Fernandez, Ivan J. Climate Change in Maine. Invited Presentation. Tree Fruit Pre-Season Meeting. Highmoor Farm, Monmouth. Maine. 3/27/2013.

Fernandez, Ivan J. The End of Climate Change – What Do We Tell The Kids? Invited Keynote, University of Maine Cooperative Extension 2013 All Organizational Meeting. University of Maine. 3/5/2013.

Fernandez, Ivan J. The End of Climate Change. Invited Keynote, Conference on Current Topics in Orthopedics. Sugarloaf Resort, Maine. 3/10/13.

Puhlick, J.J., A.R. Weiskittel, I.J. Fernandez, R.S. Seymour, S. Fraver, and L. S. Kenefic. 2013. How silvicultural treatments and site quality affect carbon storage on the Penobscot Experimental Forest. North American Forest Ecology Workshop (oral presentation), Bloomington, IN, June 16-20, 2013.

Puhlick, J.J., A.R. Weiskittel, L. S. Kenefic, I.J. Fernandez, S. Fraver, L.E. Rustad, R.K. Kolka, and J.C. Brissette. 2012. How silvicultural treatments affect carbon storage on the Penobscot Experimental Forest: A 60-year perspective. Eastern CANUSA Forest Science Conference (oral presentation), Durham, NH, November 1-3, 2012.

Fernandez, Ivan J., Madeleine M. Mineau, Kevin S. Simon, and Stephen A. Norton. 2012. The influence of decadal-scale N enrichment on N dynamics and ^{15}N discrimination in a New England Forested Watershed. (Paper 302-2). Presented at the ASA-CSSA-SSSA International Meetings. Cincinnati, Ohio. October 22-25. ASA, CSSA, SSSA, Madison, WI.

Fernandez, I.J., S.A. Norton, S.J. Nelson, and C. Salvino. 2012. Evidence of transient alteration of N dynamics from an ice storm at the Bear Brook Watershed in Maine, USA. BIOGEOMON 2012, The 7th International Symposium on Ecosystem Behavior. Northport, Maine. ISBN 978-0-87723-108-0. p. 93.

Raymond, J., I.J. Fernandez, T. Ohno, and K.S. Simon. 2012. Evidence of transient alteration of N dynamics from an ice storm at the Bear Brook Watershed in Maine, USA. BIOGEOMON 2012, The 7th International Symposium on Ecosystem Behavior. Northport, Maine. ISBN 978-0-87723-108-0. p. 94.

Mineau, M.M., K.S. Simon, I.J. Fernandez, S.A. Norton, and H.M. Valett. The effect of chronic watershed nitrogen deposition and acidification on the interaction among phosphorus, carbon, and nitrogen uptake in streams. BIOGEOMON 2012, The 7th International Symposium on Ecosystem Behavior. Northport, Maine. ISBN 978-0-87723-108-0. p. 167.

Norton, S.A., I.J. Fernandez, T. Navratil, K.S. Simon, and S. Jain. 2012. The Bear Brook Watershed in Maine (BBWM) at 25: manipulation, monitoring, mechanisms, and modeling. BIOGEOMON 2012, The 7th International Symposium on Ecosystem Behavior. Northport, Maine. ISBN 978-0-87723-108-0. p. 177.

Rancatti, R., K. Simon, M. Mineau, D. Anderson, I.J. Fernandez, S.A. Norton, and M.B. Adams. 2012. Effects of watershed acidification on abiotic and biotic phosphorus uptake in streams draining two whole-watershed experimental forests. BIOGEOMON 2012, The 7th International Symposium on Ecosystem Behavior. Northport, Maine. ISBN 978-0-87723-108-0. p. 204.

SanClements, M.D., G.P. Oelsner, D.M. McKnight, I.J. Fernandez, S.J. Nelson, M.B. Adams, M. Mineau, and K. Simon. 2012. BIOGEOMON 2012, The 7th International Symposium on Ecosystem Behavior. Northport, Maine. ISBN 978-0-87723-108-0. p. 218.

Nelson, S.J., I.J. Fernandez, S.A. Norton. BIOGEOMON 2012 Teachers' Workshop exhibit. 2012 Maine EPSCoR State Conference, "Building Partnerships for Sustainability Solutions". September 24, 2012, University of Maine, Orono. ME.

Invited Speaker: Nitrogen Effects on Maine Forests. Schoodic Education and Research Center. August 15, 2012.

Invited speaker, Maine Agricultural Trade Show, Climate Change in Maine and Adaptation Considerations. Augusta, Maine January 11, 2012

Raymond, Jay, Ivan Fernandez, Tsutomu Ohno, and Kevin Simon. 2011. Soil drainage and forest type influences on soil organic carbon fractions in a New England forested watershed. Acadia National Park Science Symposium. October 26, 2011. The Schoodic Education and Research Center, Winter Harbor, Maine.

Redding, EJ, IJ Fernandez, ME Day, GB Wiersma. 2011. Phenology at the Bear Brook Watershed in Maine: foliar chemistry and morphology. Acadia National Park Science Symposium. October 26, 2011. The Schoodic Education and Research Center, Winter Harbor, Maine.

Raymond, Jay, Ivan Fernandez, Tsutomu Ohno, and Kevin Simon. 2011. Soil drainage and forest type influences on soil organic carbon fractions in a New England forested watershed. (Paper 142-15).

Presented at the ASA-CSSA-SSSA International Meetings. San Antonio, Texas. October 16-20. ASA, CSSA, SSSA, Madison, WI.

Raymond, Jay, Ivan Fernandez, Tsutomu Ohno, and Kevin Simon. 2011. Drainage class influences on soil respiration in a New England forested watershed. Gordon Conference on Catchment Science: Interactions of Hydrology, Biology and Chemistry. Bates College, Lewiston, Maine. July 10-15.

Redding, EJ, IJ Fernandez, ME Day, GB Wiersma. 2011. Phenology at the Bear Brook Watershed in Maine: foliar chemistry and morphology. Gordon Conference on Catchment Science: Interactions of Hydrology, Biology and Chemistry. Bates College, Lewiston, Maine. July 10-15.

Schneider, S.B., I.J. Fernandez, S.A. Norton, K.S. Simon. 2011. Soil base cation response to two decades of change at the Bear Brook Watershed in Maine. Gordon Conference on Catchment Science: Interactions of Hydrology, Biology and Chemistry. Bates College, Lewiston, Maine. July 10-15.

Mineau, M. M., K. S. Simon, D. T. Ely; R. L. Rancatti, I. J. Fernandez, S. A. Norton, and H. M. Valett. 2011. Effects of chronic nitrogen enrichment and acidification on coupled nitrogen and phosphorus cycling in streams: Insights from multiple spiraling techniques. Annual meeting, North American Benthological Society, Providence, RI.

Fernandez, Ivan J. Invited presentation on “Biomass Harvesting and Forest Soils”, New England Regional Council on Forest Engineering Meeting, Orono, Maine. March 8, 2011.

Fernandez, Ivan J. 2010. The Sergei A. Wilde Distinguished Lectureship on Forest Soils – “Forest soils through time: Change you can believe in!”. (Paper 329). Invited presentation at the ASA-CSSA-SSSA International Meetings. Long Beach, CA. October 31- November 4. ASA, CSSA, SSSA, Madison, WI.

Fatemi, Farrah, Ivan Fernandez, Kevin S. Simon, David Dail, Lindsey Rustad and Stephen A. Norton. 2010. The effects of long-term forest N enrichment and acidification on soil CNP dynamics. (Paper 239-4). Presented at the ASA-CSSA-SSSA International Meetings. Long Beach, CA. October 31- November 4. ASA, CSSA, SSSA, Madison, WI.

Simon, K.S., Anderson, D.S., Fernandez, I.J., Norton, S.A., Valett, H.M., and Ely, D.T. 2010. Chronic watershed nitrogen enrichment enhances phosphorus limitation of stream microbes and changes the stoichiometry of microbial enzymes. Joint meeting of the American Society for Limnology and Oceanography and the North American Benthological Society. Santa Fe, New Mexico, 10 June.

Fatemi, Farrah R., Ivan J. Fernandez, Kevin S. Simon, D. Bryan Dail, and Lindsey E. Rustad. 2009. The Effect of Nutrient Availability On Soil Extracellular Enzyme Activity and CNP Dynamics.. (Paper 113-2). Presented at the ASA-CSSA-SSSA International Meetings. Pittsburgh, PA. November 1-4.. [CD-ROM]. ASA, CSSA, SSSA, Madison, WI.

Burke, Andrea M., Ivan J. Fernandez, Aaron Weiskittel, and Robert Wagner. 2009. Predicting differences in forest stand nutrient uptake and removal: Potential effects of increased biomass removals for energy on long-term site sustainability. (Paper 346-10). Presented at the ASA-CSSA-SSSA International Meetings. Pittsburgh, PA. November 1-4. [CD-ROM]. ASA, CSSA, SSSA, Madison, WI.

Fatemi, Farrah R., Ivan J. Fernandez, Kevin S. Simon, and D. Bryan Dail. 2009. Soil extracellular enzyme activities as indices of microbial nutrient limitation and soil CNP dynamics. Soil Ecology Society Conference. Burlington, Vermont. July 12-15.

SanClements, Michael D., Ivan J. Fernandez, Stephen A. Norton and Lindsey E. Rustad. 2009. Decadal responses in stream and soil Ca and Mg in an experimentally acidified watershed in the eastern United States. BIOGEMON 2009. June 29-July 3. Helsinki, Finland.

Norton, Stephen A., Jiří Kopáček, Tomáš Navrátil, Ivan J. Fernandez, and Aria Amirbahman. 2009.

Evolution of controls on phosphorus availability in aquatic ecosystems: peri-glacial to recent times. BIOGEMON 2009. June 29-July 3. Helsinki, Finland.

Fatemi, Farrah R., Ivan J. Fernandez, Kevin S. Simon, D. Bryan Dail, and Lindsey E. Rustad. 2008. Response of forest soil CNP dynamics to N enrichment at the Bear Brook Watershed in Maine: Clues from extracellular enzyme activities. (Paper 596-4). Presented at the ASA-CSSA-SSSA International Meetings. Houston, Texas. October 5-9. [CD-ROM]. ASA, CSSA, SSSA, Madison, WI.

SanClements, Michael D., Ivan J. Fernandez, Stephen A. Norton, Aria Amirbahman and Lindsey E. Rustad. 2008. Metal controls on forest floor and B horizon extractable phosphorus in forested watersheds. (Paper 596-2). Presented at the ASA-CSSA-SSSA International Meetings. Houston, Texas. October 5-9. [CD-ROM]. ASA, CSSA, SSSA, Madison, WI.

Fernandez, Ivan J., Stephen A. Norton, Lindsey E. Rustad, G. Bruce Wiersma, and Kevin S. Simon. 2008. New challenges for the third decade of whole-ecosystem experimental manipulations at the Bear Brook Watershed in Maine (BBWM). (Paper 699-20). Presented at the ASA-CSSA-SSSA International Meetings. Houston, Texas. October 5-9. [CD-ROM]. ASA, CSSA, SSSA, Madison, WI.

Fernandez, I.J. 2008. Carbon and nutrients in Maine forest soils. Abstract and presentation at the 11th North American Forest Soil Conference. Blacksburg, VA. p. 106.

Fatemi, F.R., I.J. Fernandez, L.E. Rustad, K.S. Simon and S.A. Norton. 2008. The effects of N enrichment on forest CNP stoichiometry at the Bear Brook Watershed in Maine. Abstract and presentation at the 11th North American Forest Soil Conference. Blacksburg, VA. p. 66.

SanClements, M.D., I.J. Fernandez, and S.A. Norton. 2008. Evolution of phosphorus fractions from an upland watershed to lake sediments. Abstract and presentation at the 11th North American Forest Soil Conference. Blacksburg, VA. p. 100.

Nelson, S.J., I.J. Fernandez, J.S. Kahl. 2008. Mercury concentration and deposition in snow in eastern temperate North America. Eastern Snow Conference, Fairlee, VT, May 28-30, 2008.

Fatemi, Farrah, Ivan J. Fernandez, Johanna Szillery, Stephen Norton and Lindsey E. Rustad. 2007. Insights from soil solutions on long-term acidification at the Bear Brook Watershed in Maine. (Paper 313-1). Presented at the ASA-CSSA-SSSA International Meetings. New Orleans, Louisiana. November 4-8. [CD-ROM]. ASA, CSSA, SSSA, Madison, WI.

SanClements, Michael, Ivan Fernandez, Mary Beth Adams, Stephen Norton and Lindsey Rustad. 2007. Effects of long term experimental acidification on forest soil phosphorus. (Paper 347-1). Presented at the ASA-CSSA-SSSA International Meetings. New Orleans, Louisiana. November 4-8. [CD-ROM]. ASA, CSSA, SSSA, Madison, WI.

Rustad, Lindsey, Ivan Fernandez, Stephen G. McNulty and Alison Magill. 2007. Temporal and spatial response of fine root growth and turnover to experimentally elevated nitrogen deposition at three long-term study sites in the northeastern United States. (Paper 312-2). Presented at the ASA-CSSA-SSSA International Meetings. New Orleans, Louisiana. November 4-8. [CD-ROM]. ASA, CSSA, SSSA, Madison, WI.

SanClements, M.D., I.J. Fernandez, S.A. Norton, M.B. Adams, and L.E. Rustad. 2007. Soil phosphorus fractions from six acidic forested watersheds in the U.S. and Europe. Gordon Conference on Catchment Science: Interactions of Hydrology, Biology and Chemistry. Colby-Sawyer College, New London, New Hampshire. July 8-13.

Norton, S. A., J. Kopáček, I. J. Fernandez, P. Porcal, A. Amirbahman, T. Wilson, B. Lake, M. SanClements, D. Huntress. 2007. Al-Fe-DOC-P Coupling in Forested Ecosystems. Gordon Conference on Catchment Science: Interactions of Hydrology, Biology and Chemistry. Colby-Sawyer College, New London, New Hampshire. July 8-13.

Sullivan, T., C. Driscoll, B. Cosby, J. Zhai, I. Fernandez, A. Herlihy, K. Snyder, R. Stemberger, T. McDonnell, D. Moore, J. Sutherland, N. Nowicki, C. Boylen, and S. Nierzwicki-Bauer. 2007. Representativeness of Adirondack Long Term Monitoring Lakes and Recovery from Acidification. Environmental Monitoring, Evaluation and Protection in New York: Linking Science and Policy. New York State Energy Research and Development Authority. Albany, New York. November 15-16, 2007.

Kenefic, Laura, Andy Reinmann, Ivan Fernandez, and Walter Shortle. 2006. Effect of Harvest Intensity on Soil Productivity and Red Spruce Growth Response. Invited presentation at the National Workshop on Forest Productivity and Technology: Cooperative Research to Support a Sustainable and Competitive Future. Sponsored by USDA Forest Service in partnership with Agenda 2020 Technology Alliance, AF&PA, National Council for Air and Stream Improvement, US Dept. of Energy Nov. 8-9 2006, Washington, DC.

Banaitis, Michael, Cullen Wilson, and Ivan Fernandez. 2006. Temporal and Spatial Patterns in Forest Soil Response to Biosolid Amendments. (Paper 297-6) Presented at the ASA-CSSA-SSSA International Meetings. Indianapolis, Indiana. November 12-16, 2006. [CD-ROM]. ASA, CSSA, SSSA, Madison, WI.

SanClements, Michael, Ivan Fernandez, Stephen Norton, Aria Amirbahman, and Lindsey Rustad. 2006. Distribution of Soil Phosphorus Fractions in Acid Soils of Forested Watersheds. (Paper 234-5) Presented at the ASA-CSSA-SSSA International Meetings. Indianapolis, Indiana. November 12-16, 2006. [CD-ROM]. ASA, CSSA, SSSA, Madison, WI.

Rustad, Lindsey, Ivan Fernandez, Steve McNulty, and Allison McGill. 2006. Linkages between fine root dynamics and soil chemistry at three long-term nitrogen manipulation experiments in the northeastern United States. (Paper 203-8) Presented at the ASA-CSSA-SSSA International Meetings. Indianapolis, Indiana. November 12-16, 2006. [CD-ROM]. ASA, CSSA, SSSA, Madison, WI.

Fernandez, Ivan J., Stephen A. Norton and Lindsey E. Rustad. 2006. Invited keynote, The difficulty in defining long-term ecosystem response mechanisms with short-term experimental manipulations. BIOGEMON 2006. Santa Cruz, California. June 25-30.

Navrátil, Tomáš, Stephen A. Norton, Ivan J. Fernandez, and Melinda Diehl. 2006. Secondary soil phases controlling surface water chemistry during experimental acidification at the Bear Brook Watershed in Maine, USA. BIOGEMON 2006. Santa Cruz, California. June 25-30.

Diehl, Melinda, J. Stephen Kahl, Stephen A. Norton, Ivan J. Fernandez, and Katherine E. Webster. 2006. Catchment resiliency to long-term experimental acidification at the Bear Brook Watershed in Maine, USA. BIOGEMON 2006. Santa Cruz, California. June 25-30.

Fernandez, Ivan J. 2006. Invited speaker, "The Evolution of Acid Deposition – Trends and Insights for the Northeast". National Council of the Paper Industry for Air and Stream Improvement (NCASI) Northeast Regional Meeting. Portland, Maine. May 17.

Grant History (Last 10 years)

Ivan J. Fernandez. *Supporting Carbon Cycle and Earth systems Modeling With Measurements Yr4*. USDA Forest Service. - \$49,200

Sarah J. Nelson, Bill Zoellick, Hannah Webber, Ivan Fernandez, Jasmine Saros: *The Future of Four Seasons in Maine: a Scientist-Teacher-Student Partnership to investigate climate change in seasonally snow-covered watersheds*.

National Oceanic and Atmospheric Administration - \$293,917

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