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

Abbreviated VITA

(9/20)

BUSINESS ADDRESS:

University of Maine
School of Forest Resources, Climate Change Institute,
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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 - l987	Assistant Professor of Soil Science and Cooperating Assistant Professor of Forest Resources - University of Maine, Orono, Maine
1981 - l983	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:

Member – Maine Climate Council, Co-Chair of the Science and Technical Subcommittee, and member of the Natural and Working Lands Working Group (2019-2022)
USDA Northeast Climate HUB – University of Maine representative (2014-present)
Advisory Council – Forest Society of Maine (2019-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 – 2019)
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): 2015-2021
  - 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 2015-2018): 2015-2021
- 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:

University of Maine 2018 Presidential Public Service Award
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 (Since 2008):

Peer Reviewed Journal Articles

Bai, Xue, Ivan J. Fernandez. 2020. Comparing publicly available databases to evaluate soil organic carbon in Maine, USA. Soil Sci. Soc. Am. J. 1-15 DOI:10.1002/saj2.20123.

Hazlett, Paul, Caroline Emilson, Gregory Lawrence, Ivan Fernandez, Rock Ouimet, and Scott Bailey.

2020. Reversal of forest soil acidification in the northeastern United States and eastern Canada: site and soil factors contributing to recovery. Soil Systems (in press).

Puhlick, Joshua J. and Ivan J. Fernandez. 2020. Influence of mechanized timber harvesting on soil compaction in northern hardwood forests. Soil Sci. Soc. Am. J. (in press).

Puhlick, Joshua J., Aaron R. Weiskittel, Laura Kenefic, Chrisopher Woodall, and Ivan J. Fernandez. 2020. Strategies for enhancing long-term carbon sequestration in mixed-species, naturally regenerated northern temperate forests. Carbon Mgt. (in press).

Puhlick, Joshua J., Shawn Fraver, Ivan J. Fernandez, Aaron Teets, Aaron R. Weiskittel, and Laura S. Kenefic. 2019. Site quality, disturbance, and vegetation effects on carbon storage and accumulation in old, mixed-species stands in central Maine, USA. Natural Res. J. 39(4): 429-441.

Salvino, Cayce J., Kaizad F. Patel, Ivan J. Fernandez, Marie-Cecile Gruselle, Corianne Tatariw, and Jean D. MacRae. 2019. Phorphorus limits nitrogen dynamics in the O horizon of a forested watershed in Maine, USA. Soil Sci. Soc. Am. J. doi:10.2136/sssaj2019.02.0043.

Contosta, Alexandra R., Nora J. Casson, Sarah Garlick, Sarah J. Nelson, Matthew P. Ayres, Elizabeth A. Burakowski, John Campbell, Irena Creed, Catherine Eimers, Celia Evans, Ivan Fernandez, Colin Fuss, Thomas Huntington, Kaizad Patel, Rebecca Sanders-DeMott, Kyongho Son, Pamela Templer, and Casey Thornbrugh. 2019. Northern forest winters have lost cold, snowy conditions that are important for ecosystems and human communities. Ecolog. Applic. (in press) doi: 10.1002/eap.1974.

Patel, Kaizad F., Ivan J. Fernandez, Sarah J. Nelson, Marie-Cécile Gruselle, Stephen A. Norton, and Aaron R. Weiskittel. 2019. Forest N dynamics after 25 years of whole watershed N enrichment: The Bear Brook Watershed in Maine. Soil Science Society of America Journal. 83:S161-S174. doi: 10.2136/sssaj2018.09.0348.

Belyazid, Salim, Jennifer Phelan, Bengt Nihlgård, Harald Sverdrup, Charles Driscoll, Ivan Fernandez, Julian Aherne, Leslie M. Teeling-Adams, Scott Bailey, Matt Arsenault, Natalie Cleavitt, Brett Engstrom, Robin Dennis, Dan Sperduto, David Werier, and Christopher Clark. 2019. Assessing the Effects of Climate Change and Air Pollution on Soil Properties and Plant Diversity in Northeastern U.S. Hardwood Forests: Model Setup and Evaluation. WASP 230:106. doi.org/10.1007/s11270-019-4145-6

Muñoz Delgado, Bethany L., Laura S. Kenefic, Aaron R. Weiskittel, Ivan J. Fernandez, Jeffrey G. Benjamin, and Alison C. Dibble. 2019. Northern mixedwood composition and productivity 50 years after whole-tree and stem-only harvesting with and without post-harvest prescribed burning. For. Ecol. Manage. 441:155-166.

Sebestyen, Stephen, Donald Ross, James Shanley, Emily Elliott, Carol Kendall, John Campbell, David Dail, Ivan Fernandez, Christine Goodale, Gregory Lawrence, Gary Lovett, Patrick McHale, Myron Mitchell, Sarah Nelson, Michelle Shattuck, Trent Wickman, Rebecca Barnes, Joel Bostic, Anthony Buda, Douglas Burns, Keith Eshleman, Jacques Finlay, David Nelson, Nobuhito Ohte, Linda Pardo, Lucy Rose, Robert Sabo, Sherry Schiff, John Spoelstra, and Karl Williard. 2019. Unprocessed atmospheric nitrate in waters of the Northern Forest Region in the USA and Canada. ES&T (in press).

Cheng, Susan J., Peter G. Hess, William R. Wieder, R. Quinn Thomas, Knute J. Nadelhoffer, Julius Vira, Danica L. Lombardozzi, Per Gundersen, Ivan J. Fernandez, Patrick Schleppi, Marie-Cécile Gruselle, Filip Moldan, and Christine L. Goodale. 2019. Decadal impacts of nitrogen additions on temperate forest carbon sinks: A data-model comparison. Biogeosciences 16: 2771-2793. doi.org/10.5194/bg-16-2771-2019.

Minocha, Rakesh, Stephanie Long, Swathi A. Turlapati, and Ivan Fernandez. 2019. Evaluation of metabolic changes as indicators of physiological stress and overall health in trees exposed to N+S additions at the Bear Brook Watershed in Maine, USA. Ann. For. Sci. 76:25. doi.org/10.1007/s13595-019-0808-0.

Sebestyen, Stephen D.; Kendall, Carol; Elliott, Emily M.; Schiff, Sherry L.; Barnes, Rebecca T.; Bostic, Joel T.; Buda, Anthony R.; Burns, Douglas A.; Campbell, John L.; Dail, D. Bryan; Eshleman, Keith N.; Fernandez, Ivan J.; Finlay, Jacques C.; Goodale, Christine L.; Griffiths, Natalie A.; Hall, Steven J.; Lawrence, Gregory B.; Lovett, Gary M.; McHale, Patrick J.; Mitchell, Myron J.; Nelson, David M.; Nelson, Sarah J.; Ohte, Nobuhito; Pardo, Linda H.; Rose, Lucy A.; Ross, Donald S.; Sabo, Robert D.; Shanley, James B.; Shattuck, Michelle D.; Spoelstra, John; Weintraub, Samantha R.; Wickman, Trent R.; Williard, Karl W. J. 2019. Nitrate isotope database for meteoric waters, surface waters, soil waters, and groundwaters. Fort Collins, CO: Forest Service Research Data Archive. https://doi.org/10.2737/RDS-2019-0003

Patel, Kaizad F., Michael D. Jakubowski, Ivan J. Fernandez, Sarah J. Nelson, and William Gawley. 2019. Soil nitrogen and mercury dynamics seven decades after a fire disturbance: A case study at Acadia National Park. Water Air Soil Pollut. https://doi.org/10.1007/s11270-019-4085-1.

McDonald, Gregory J., Stephen A. Norton, Ivan J. Fernandez, Kathy M. Hoppe, Jeff Dennis, and Aria Amirbahman. 2019. Chemical controls on dissolved phosphorus mobilization in a calcareous agricultural stream during base flow. Sci. Tot. Env. 660:876-885.

Patel. Kaizad F. and Ivan J. Fernandez. 2018. Nitrogen mineralization in O horizon soils during 27 years of nitrogen enrichment at the Bear Brook Watershed in Maine, USA. Environmental Monitoring and Assessment. 190:563. DOI: 10.1007/s10661-018-6945-3

Gavin, Amanda, Sarah Nelson, Amanda Klemmer, Ivan Fernandez, Kristin Strock, and William H. McDowell. 2018. Acidification and climate linkages to increased dissolved organic carbon in high elevation lakes. Water Res. Research https://doi.org/10.1029/2017WR020963.

Patel, Kaizad, Sarah Nelson, Cheryl Spencer, and Ivan J. Fernandez. 2018a. Fifteen–year record of soil temperature at the Bear Brook Watershed in Maine. Scientific Data 5: 180153. DOI: 10.1038/sdata.2018.153.

Patel, Kaizad, Sarah Nelson, Cheryl Spencer, and Ivan J. Fernandez. 2018b. Soil temperature record for the Bear Brook Watershed in Maine. PANGAEA. DOI:10.1594/PANGAEA.885860.

Sullivan, Timothy J., Charles T. Driscoll, Colin M. Beier, Dallas Burtraw, Ivan J. Fernandez, James N. Galloway, David A. Gay, Christine L. Goodale, Gene E. Likens, Gary M. Lovett and Shaun A. Watmough. 2018. Air pollution success stories in the United States: The Value of Long-Term Observations. Environ. Sci. Policy 84:69-73.

SanClements, Michael D., Ivan J. Fernandez, Mary Beth Adams, Joshua A. Roberti, Robert H. Lee, Garret A. Rue, and Diane M. McKnight. 2018. Long-term experimental acidification drives watershed scale shift in dissolved organic matter composition and flux. Environ. Sci. Tech. 52 (5), pp 2649–2657.

Ohno, Tsutomu, Katherine A. Heckman, Alain F. Plante, Ivan J. Fernandez, and Thomas B. Parr. 2017. 14C mean residence time and its relationship with thermal stability and molecular composition of soil organic matter: A case study of deciduous and coniferous forest types. Geoderma 308:1-8. doi.org/10.1016/j.geoderma.2017.08.023.

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 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 Biology23:840-856.

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. Groffman. 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. Kirchner1. 2010. Generality of fractal 1/f

scaling in catchment tracer time series and its implications for catchment travel time distributions. Hyrological 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.

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.

Technical Reports (Since 2008):

Fernandez, I., S. Birkel, C. Schmitt, J. Simonson, B. Lyon, A. Pershing, E. Stancioff, G. Jacobson, and P. Mayewski. 2020. Maine's Climate Future 2020 Update. Orono, ME: University of Maine. climatechange.umaine.edu/climate-matters/mainesclimate-future/.

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.

Other Publications

MCC STS. 2020. Scientific Assessment of Climate Change and Its Effects in Maine. A Report by the Scientific and Technical Subcommittee (STS) of the Maine Climate Council (MCC). Augusta, Maine. 369 pp. [I.J. Fernandez and R.G. Marvinney – Eds. and co-Chairs]

Birthisel, S.K., and B.A. Eastman, A.R. Soucy, M. Paul, R.S. Clements, A. White, M.P. Acquafredda, W. Errickson, L-H. Zhu, M.C. Allen, S. A. Mills, G. Dimmig, and K. M. Dittmer. 2020. Convergence, continuity, and community: a framework for enabling emerging leaders to build climate solutions in agriculture, forestry, and aquaculture. Climatic Change DOI 10.1007/s10584-020-02844-w [Ivan J. Fernandez – Faculty Advisor]

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.

Grant History (Last 10 years)

Daigneault, Adam, Aaron Weiskittel, and Ivan Fernandez. *An Integrated Approach to Quantifying the GHG Mitigation Potential of Natural Climate Solutions from Maine's Working Lands.* US Climate Alliance (American Forests) - $132,174

Daigneault, Adam, Ivan Fernandez, Cynthia Isenhouer, Sonja Birthisel. *A Maine Soil Health Initiative to Enhance Agricultural Sustainability and Mitigate Climate Change.* Senator George J. Mitchell Center for Sustainability Solutions - $22,981

Fernandez, Ivan J. Biochar as a Soil Amendment in Maine – Phase I. NSF (UMaine Department of Civil and Environmental Engineering) - $53,951

Puhlick, J. J., M. -C. Gruselle, and I. J. Fernandez. *Assessing and monitoring the influence of forest management practices on soil productivity, carbon storage, and conservation in the Acadian Forest Region.* Sustainable Forestry Initiative - $90,000

Puhlick, J. J., M. -C. Gruselle, and I. J. Fernandez. *Assessing and monitoring soil productivity, carbon storage, and conservation on the Maine Adaptive Silviculture Experimental Network.* Cooperative Forestry Research Unit, University of Maine - $65,000

Ivan J. Fernandez. *USDA Northeast Climate Hub Graduate Student Climate Adaptation Partners.* USDA Forest Service – Northern Research Station - $10,000

Faulkner, J. W.; Fernandez, IV, J..; Koehler, GL, W..; Mendez, V., ER.; Schattman, RA, E..; Kaplan, MA, .; Tobin, DA, .; Ontl, TO. *The Climate Adaptation Fellowship: A Collaborative Curriculum Design Project.* USDA AFRI: Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area. - $248,900

Ivan J. Fernandez, Michael D. SanClements, Sarah J. Nelson, and Stephen A. Norton. RAPID: *Experimental Recovery at the Bear Brook Watershed in Maine.* National Science Foundation - $49,720

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

Ivan J. Fernandez, Kevin S. Simon, Stephen A. Norton, and Lindsey E. Rustad. LTREB Renewal: *Biogeochemical Mechanisms of Response in the Third Decade of Whole-Ecosystem Experimental Manipulations at the Bear Brook Watershed in Maine (BBWM)*.
National Science Foundation - $448,875

Jasmine Saros, Ivan J Fernandez, Paul A Mayewski, Kristin Sobolok, Mario Teisl. *IGERT: Adaptation to Abrupt Climate Change (A2C2).*
National Science Foundation - $2,929,087

Ivan Fernandez, Michael SanClements, Kevin Simon, and Mary Beth Adams. *Does Changing Atmospheric Deposition of N and S Alter Stream DOM Quality and Flux in Northern Forested Watersheds?*
Northeastern States Research Cooperative – Theme Two - $63,627

Aaron Weiskittel, Laura Kenefic, Ivan Fernandez, Lindsey Rustad, and Randall Kolka. *How Silvicultural Treatments Affect Carbon Storage in a Northern Conifer Forest: A 60-Year Perspective*.
Northeastern States Research Cooperative – Theme Three. $55,041

Ivan J. Fernandez and Stephen A. Norton. *Participant Support for BIOGEOMON 2012.*
National Science Foundation - $15,000

Stephen A. Norton and Ivan J. Fernandez. *Conference Development Funds for BIOGEOMON 2012.*
Nestle' Waters North America, Inc. - $3,000

Ivan J. Fernandez, Kevin S. Simon, Stephen A. Norton, Jean D. MacCrae, Tsutomu Ohno, Lindsey E. Rustad.
Biogeochemical Controls on Altered Nitrogen Cycling in the Third Decade of Whole-Watershed Simulated N Deposition.
National Science Foundation - $1,199,733

Andrew S. Nelson, Robert G. Wagner, Michael E. Day, Ivan J. Fernandez
Silvicultural effects on environmental conditions and resulting aboveground productivity and carbon sequestration of northeastern mixedwood forests
Northeastern States Research Cooperative - Theme 3 (Forest Productivity and Forest Products) - $38,350

Kevin S. Simon, H. Maurice Vallett, Ivan J. Fernandez, Stephen A. Norton, Mary Beth Adams
COLLABORATIVE RESEARCH: Interactive effects of chronic N deposition, acidification and phosphorus limitation on coupled element cycling in streams.
National Science Foundation - $522,857

Ivan J. Fernandez, Stephen A. Norton, Lindsey E. Rustad
LTREB: Biogeochemical Mechanisms of Response in the Third Decade of Whole-Ecosystem Experimental Manipulations at the Bear Brook Watershed in Maine (BBWM)
National Science Foundation - $442,027

Ivan J. Fernandez and Laura S. Kenefic
Soil-Site Influences on Northern White-Cedar (Thuja occidentalis) Stem Quality and Growth
USDA Forest Service – Northern Stations Research Cooperative - $60,000

Ivan J. Fernandez, Stephen A. Norton, Aria Amirbahman, Lindsey E. Rustad, and Bernard J. Cosby, Jr.

Mechanisms Controlling Metal and Phosphorus Dynamics in an Experimentally Acidified Watershed in Maine
National Science Foundation - $535,500

Stephen A. Norton, Aria Amirbahman, and Ivan J. Fernandez
Abiotic Controls on the Trophic Status of Oligotrophic Surface Waters
National Science Foundation - $850,135

Ivan J. Fernandez
Biogeochemical Effects of N-Viro Soil Amendments in a Northeastern Forested Ecosystem: Phase II
Soil Preparation, Inc., Plymouth, Maine - $148,739

Ivan J. Fernandez, Lindsey E. Rustad, Stephen A. Norton
LTREB: Forest Ecosystem Response to Changes in Atmospheric Chemistry and Climate at the Bear Brook Watershed in Maine (BBWM)
National Science Foundation - $294,980