

# Andrew J. Burton – Professor of Forest Ecology

College of Forest Resources and Environmental Science  
Michigan Technological University  
1400 Townsend Drive  
Houghton, MI 49931

Phone: (906) 487-2566 Email: [ajburton@mtu.edu](mailto:ajburton@mtu.edu)

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## Research Interests:

Forest responses to global change factors      Belowground processes  
Carbon and nutrient cycling                      Physiological ecology of tree roots  
Undergraduate involvement in research

## Education:

Ph.D.    1997      Forest Science (Forest Ecology), Michigan Technological University  
M.S.    1986      Forestry (Soils and Hydrology), Michigan State University  
B.S.    1983      Forestry, Michigan State University

## Professional Experience:

2018 to Present      Associate Dean and Coordinator of Interdisciplinary, Multi-Institutional Research, College of Forest Resources and Environmental Science, Michigan Technological University

2012 to present      Professor of Forest Ecology, College of Forest Resources and Environmental Science, Michigan Technological University

2018 to present      Director, Microanalytical Facility (MAF), one of Michigan Tech's shared facilities. The MAF laboratories specialize in molecular, elemental, and isotopic analyses for environmental, biomedical, health, and materials research. Hands-on training in trace analytic chemistry for large projects or sample analyses for smaller studies are provided to encourage collaborations with Michigan Tech and external investigators.

2019 to present      Director, Natural Resources, Water and Energy Tech Forward Initiative, Michigan Technological University.

2008 to 2021      Director, Ecosystem Science Center, Michigan Technological University. The Ecosystem Science Center (ESC) is designed to advance our understanding of how ecosystems function and how human activities influence ecosystem processes. The Center's two main objectives were to: (1) foster ecosystem research and (2) educate graduate and undergraduate students in the area of ecosystem science. Initiatives designed to meet these objectives included: graduate and undergraduate research grants, graduate

and undergraduate travel awards, an annual Student Research Forum poster session, an international faculty exchange, co-sponsorship of the Distinguished Ecologist Lecture Series, and co-sponsoring equipment purchases in conjunction with the University's REF Infrastructure Enhancement grants.

- 2012 to 2015 Director, Ford Center and Research Forest, Michigan Technological University. The conference center and forest properties are used extensively for forest and wildlife ecology education, outreach, research and management demonstrations conducted by the School of Forest Resources and Environmental Science.
- 2008 to 2012 Associate Professor, School of Forest Resources and Environmental Science, Michigan Technological University
- 2008 to 2012 Co-Director, Aspen FACE Project/ Northern Forest Ecosystem Experiment (NFEE). The Aspen FACE (Free-Air Carbon Dioxide Enrichment) Experiment was a multidisciplinary study to assess the effects of increasing tropospheric ozone and carbon dioxide levels on the structure and function of northern forest ecosystems. This project, led by Michigan Tech and the US Forest Service, with primary funding from DOE and the USFS, was one of the leading global change research efforts in the world and involved collaboration among scientists from 8 countries. Over 100 Aspen FACE scientific users worked together for more than a decade to produce over 120 peer-reviewed publications.
- 2007 to 2012 Director, Midwestern Regional Center of the DOE National Institute for Climatic Change Research. The Center solicited, reviewed and administered funding and reporting of selected climatic change research projects in a thirteen state region. During its history, NICCR Midwest made 39 research awards to universities, with a total value of \$8.2 million. Research supported by the Center included: 1) field manipulations of temperature and moisture designed to reduce uncertainty about potential effects of climatic change on terrestrial ecosystems; 2) measurements of contemporary exchanges of mass and energy between the atmosphere and terrestrial ecosystems to reduce uncertainty about effects of an altered terrestrial carbon cycle and/or surface energy exchange on global and/or regional climate; and 3) synthesis of existing data and modeling to better understand or forecast potential effects of climatic change on ecological systems and/or feedbacks from terrestrial ecosystems to climate.
- 2005 to 2008 Research Associate Professor and Lecturer, School of Forest Resources and Environmental Science, Michigan Technological University
- 2005 to 2007 Assistant Director, Midwestern Regional Center of the DOE National Institute for Climatic Change Research
- 2001 to 2005 Research Assistant Professor, School of Forestry and Wood Products, Michigan Technological University

1994 to 2001	Research Scientist, Forest Ecology Lab, School of Forestry and Wood Products, Michigan Technological University.
1995	Lecturer, School of Natural Resources & Environment, University of Michigan. (Winter Semester only)
1987 to 1994	Research Specialist, Forest Ecology Lab, Department of Forestry, Michigan State University.
1984 to 1986	Graduate Research Assistant, Department of Forestry, Michigan State University.

### **Awards and Honors:**

Finalist for Michigan Tech's Distinguished Teaching Award, Professor/Associate Professor category, 2011, 2012, 2013, 2018 and 2019

Inducted into Michigan Tech's Academy of Teaching Excellence, April, 2011

Top 10% of MTU instructors on student evaluation forms (Fall 2003, Fall 2018, Fall 2020, Spring 2021)

Certified Senior Ecologist by the Ecological Society of America since 2003

Certified Forester (#3355) by the Society of American Foresters since 2003

Member of honorary societies Sigma Xi, Phi Kappa Phi, and Xi Sigma Pi

Best paper, 2019 Soil Science Society of America meeting (Forest, Range and Wildland Soils Division, Session 139)

Best paper, 2016 Soil Science Society of America meeting (Forest, Range and Wildland Soils Division, Session 119)

Best paper, 2014 Soil Science Society of America meeting (Forest, Range and Wildland Soils Division, Session 130)

Best paper, 2010 Soil Science Society of America meeting (Division S-7, Session 125)

Best paper, 2005 Soil Science Society of America meeting (Division S-7, Session 193)

Best paper, 2003 Soil Science Society of America meeting (Division S-7, Session 13)

Best paper, 1998 Soil Science Society of America meeting (Division S-7, Session 8)

Included in Who's Who Among America's Teachers for 2004 and 2005. Must be nominated by student on The National Dean's List. Only 2% of teachers are included in more than one edition.

National Merit Scholar (1979)

Michigan State University Board of Trustees Award-placed 2<sup>nd</sup> among 1,901 Fall 1983 graduates

## Teaching:

### *Courses Taught at Michigan Tech:*

2008-present	FW3020, "Forest Ecology", Fall Semester. Redesigned the lectures and labs of this existing course. 3 credits (2 hr lecture, three 3-hr labs)
2009-present (every other year)	FW5100, "Advanced Terrestrial Ecology", Spring Semester. Developed this course examining current topics in terrestrial ecosystem ecology, including lab and field analytical techniques. 3 credits (3 hr lecture)
2020-present	FW1050, "The Natural Resources Profession, Spring Semester. 2 credits (2 hr lecture)
2011-2017	FW4810, "Integrated Resource Assessment", Fall Semester. Developed lab sections and advised one to two student project teams annually in this senior capstone class. Was overall course coordinator from 2013-2015.
2016-2017	FW4800, "Communication for Natural Resource Professionals", Fall Semester. Developed and delivered a two week module on grant writing for this new course targeted specifically at developing needed communications skills for students in natural resource fields.
2012-2016	FW5040, "Ecological Processes of Forests", Fall Semester. 2 credits (2 hr lecture, 3-hr lab).
2016	FW5800/FW6800, "Graduate Seminar", Spring Semester. Coordinated seminars by graduate students, provided mentoring on presentation techniques and feedback on presentation strengths and weaknesses.
2006-2007	FW3330, "Soil Science", Fall Semester. 4 credits (3 hr lecture, three 3-hr lab sections).
2005	FW3190, "Multi-resource Assessment", Fall Semester. Significantly revised this existing course in the Integrated Field Practicum. 3 credits.
2005	FW3180, "Geomorphology, Landscapes and Ecosystems", Fall Semester, Revised the landscape and ecosystem portions of this existing course in the Integrated Field Practicum. 2 credits.
2004-2007	FW2020, "Basic Ecology Field Skills", Semester. Developed and implemented this one-week short course held prior to Fall Semester to prepare transfer students for taking Forest and Landscape Ecology and its prerequisites simultaneously. 1 credit.
2000-2004	FW2050, "Measuring Forest Resources", Fall Semester. Developed and implemented this new course for Fall Semester 2000. 3 credits (2 hr lecture and three to four 3-hr labs)

***Summary of Teaching Evaluations:***

Students' responses to question: "Taking everything into account, I would consider this instructor to be an excellent teacher" from 2000 through discontinuation of the question after 2018 (Rated 1 - 5, with 5 being excellent or strongly agree)

Average score of 4.70 for all courses taught at Michigan Tech (44 courses, 1202 students)

Average score of 4.80 for all Ecology courses taught (18 courses, 661 students)

Average of 7 Dimensions scores since its inception in 2014, based on students' responses to questions on Evaluation Form (Rated 1 - 5, with 5 being excellent or strongly agree).

Average score of 4.53 for all courses taught at Michigan Tech (21 courses, 742 students)

Average score of 4.62 for all Ecology courses taught (12 courses, 490 students)

***Other Course Instruction:***

Lecturer                NR432, "Hydrology and Watershed Management", School of Natural Resources & Environment, University of Michigan, Winter 1995.

*Teaching Assistant Forest Hydrology (2 years), Dendrology, and Forest Ecology at Michigan State University*

## Graduate Student Advising/Mentoring

### *Major Advisor – Doctoral Students*

- Eileen Reeves January 2020 to present.
- Samuel Mensah-Opoku August 2019 to present.
- Elizabeth Barnes Ph.D. August 2020. Dissertation “Severe Thunderstorms Create Windfall of Opportunity for Ecosystem-based Management of Mixed Northern Hardwoods”. Dr. Barnes will begin a career with the US Forest Service in May, 2021.
- Akwasi Duah-Gyamfi Ph.D. May 2017. Dissertation “Effects of Selective Logging on Carbon Dynamics: Variation in Aboveground Biomass and Soil Respiration in Pre- and Post-Logging Forest Stands in a Moist Tropical Forest in Ghana”. Dr. Duah-Gyamfi is currently a Research Scientist with the Forestry Research Institute in Ghana (FORIG).
- Mickey Jarvi Ph.D. May 2015. Dissertation: “Ecophysiological Responses of Sugar Maple roots to Climatic Conditions”. Dr. Jarvi is a Lecturer in the College of Forest Resources and Environmental Science at Michigan Tech.
- Carley Kratz Ph.D. May 2014. Erik Lilleskov co-Advisor. Dissertation: “Impacts of Climate Change on Soil Microorganisms in northern hardwood forests”. Dr. Kratz is currently working as the program coordinator for the River Raisin Watershed Council and teaching at Adrian Community College.
- Emmanuel Ebanyenle Ph.D. December 2012. Andrew Storer co-Advisor. Dissertation “Effects of Elevated Atmospheric CO<sub>2</sub> and O<sub>3</sub> on Wood Density, Anatomical Properties and Decomposition of Northern Hardwoods”. Dr. Ebanyenle is currently a Senior Research Scientist with the Forestry Research Institute in Ghana (FORIG).

### *Major Advisor – Master’s Students*

- Emma Shedd August 2021 to present (co-advised with Molly Cavaleri).
- Jeffrey Selan MS Aug 2019. Report “Are the Effects of Ecosystem Nitrogen Saturation, Induced by Chronic Simulated N Deposition, Rapidly Reversible?”
- Bethany Lyons MS December 2012. Thesis “Nitrogen Deposition Effects on Production and Decomposition of Coarse Woody Debris”.
- Lilli Kaarakka MS December 2012. Thesis “The Long-term Effects of Whole-tree Harvest at Final Felling on Soil Properties in a Norway Spruce (*Picea abies* (L) *karst.*) Stand”.
- Mickey Jarvi MS December 2011. Thesis “The Effects of a Changing Climate on Root Respiration of Woody Plants in Sugar Maple Forests and Northern Peatlands”. Dr. Jarvi is a Lecturer in the College of Forest Resources and Environmental Science at Michigan Tech.

- Daniel Yeboah MS August 2011. Andrew Storer co-Advisor. Thesis “Carbon Sequestration Potential of African Tropical Plantation Species”. Daniel Yeboah recently completed a doctoral program at Lakehead University in Thunder Bay, Ontario, Canada.
- Adam Airoidi MS December 2010. Thesis “Forest-Limit Fluctuation in Response to Land Use and Climate Variability: A History of the Alpine Forest Regions Around Røros, Sør-Trøndelag, Norway, and the Social and Ecological Implications of Past Industrialization”. Adam Airoidi is currently pursuing a Ph.D. in Norway.
- Lisa Rouse MS December 2008. Thesis “Characterizing Ozone Tolerance in Trembling Aspen: Implications for Improving Carbon Sequestration Potential in Populus”. Lisa Rouse is currently a Biological Science Technician in the Subtropical Plant Pathology Unit of the USDA Agriculture Research Service in Fort Pierce Florida.
- Jill Katakowski MS December 2007 (coursework option). Jill (Katakowski) Dohner is currently Nursery Operations Manager at The Greening of Detroit.

### ***Doctoral Committee Service***

- Rob Tunison January 2020 to present. M. Cavaleri, advisor.
- James Raschendorfer December 2019 to present, C. Kulheim, advisor.
- Angela Walczyk September 2018 to present. E. Hersch-Green, advisor.
- Dominic Uhelski Ph.D. August 2021 . E. Kane, advisor. Dissertation “Elucidating Peatland Disturbance Ecology and Carbon Dynamics through the Lens of Soil Using Infrared Spectroscopy”
- Michelle Cisz-Brill Ph.D. December 2020. R. Chimner and S. Resh, advisors. Dissertation “Soil Sustainability of Forest Bioenergy Feedstocks across the Americas”
- Kelsey Carter Ph.D. December 2019. M. Cavaleri, advisor. Dissertation “Ecophysiological Responses of Tropical Woody Species to Ambient and Elevated Temperatures”
- Scott Hillard PhD May 2017. R. Froese, advisor. Dissertation “Evaluation of hybrid poplar management, production potential, and estimation of impacts to water resources in the upper Great Lakes Region”
- Josh Davis PhD August 2016. T. Pypker, advisor. Dissertation “Vegetation Dynamics and Nitrogen Cycling Responses to Simulated Emerald Ash Borer Infestation in Fraxinus Nigra- Dominated Wetlands of Upper Michigan, USA”
- Alex Collins PhD August 2015. M. Cavaleri, advisor. Dissertation “Investigating the Effects of Short- and Long-Term Climatic Variation on the Water Use of Three Northern Hardwood Tree Species”
- Adam Coble PhD May 2015. M. Cavaleri, advisor. Dissertation “Investigating Within-Canopy Variation of Functional Traits and Cellular Structure of Sugar Maple (*Acer saccharum*) Leaves”

- Carrie Andrew PhD August 2009. E. Lilleskov, advisor. Dissertation “Response of Ectomycorrhizal Fungi to Elevated Atmospheric CO<sub>2</sub> and O<sub>3</sub> within Northern Deciduous Forests”.
- Linda van Diepen PhD December 2008. E. Lilleskov & K. Pregitzer, advisor. Dissertation “The role and diversity of arbuscular mycorrhizal fungi in *Acer saccharum* dominated forests under natural and N-amended conditions”.
- Alan Talhlem PhD December 2010 (Univ Idaho). K. Pregitzer, advisor. I provided detailed advising to Alan during field sampling he conducted during 2004 and 2005 and subsequent analysis of the samples for bulk density and soil C and N contents. I served on Alan’s committee for his proposal defense and comprehensive exams at Michigan Tech (2004-2007) and continued to work with him after the transfer of his Ph.D. program in 2007.

### ***Master’s Committee Service***

- Emily Lindback MS, August 2020 to present. M. Cavaleri, advisor.
- Elisabeth Stimmel MS, May 2020. F. Liu, advisor. Thesis “The Interactive Effects of Microtopography and Hydrology on Ground Layer Vegetation and Soil Gas Flux Responses to a Simulated Emerald Ash Borer Infestation in Black Ash Wetlands”
- Thomas De Triquet Master of Forestry, August 2021. T. Bal, advisor.
- Jeffrey Selan MF, May 2019. Tara Bal, advisor.
- Elizabeth Barnes MF, December 2019. Tara Bal, advisor.
- Thomas Nara MS (coursework) December 2018. A. Storer, advisor.
- Angela Walczyk MS August 2018. E. Hersch-Green, advisor. Thesis “Evaluating the Interactive Role of Soil Nutrients and Ploidy Level on Competitive Outcomes of *Chamerion angustifolium*”
- Gwen Jacobson MS August 2017. C. Huckins, advisor. Thesis “The influence of native woody species *Combretum glutinosum* and *Piliostigma reticulatum* on soil fertility in Dialacoto, Senegal”
- Stella Dee MF December 2016
- Nathan Pinti MF December 2015
- Alida Mau MS May 2015. M. Cavaleri, advisor. Thesis “Instantaneous Photosynthetic Response to Temperature of Mature Forest Canopies and Experimentally Warmed Seedlings”
- Mehjabeen Rahman MS May 2015. A. Wellstead, advisor. Thesis “Examining Policy Capacity Initiatives Within Climate Change Frameworks in Three US and Canadian Sectors Using NVIVO Content Analysis”
- Jesse Lehner MF 2013



- Betsy Tahtinen MS December 2012. C. Tarasoff, advisor. Thesis “Influence of white-tailed deer on nitrogen cycling and vegetative community change in canopy gaps in a hemlock-northern hardwood forest”
- Evan Anderson MS December 2012. B. Orr, advisor. Thesis “The Impact of Balsamo (*Myroxylon balsamum* L. Harms) on Coffee Yield and Household Income in El Balsamar, El Salvador”
- Nicholas Jensen MS August 2009. C. Webster, advisor. Thesis “Ungulate Winter Habitat Selection as a Driver of Heterogeneity in Ground-Layer Plant Communities”
- Adam Gahagan MS May 2007. C. Giardina, advisor. Thesis “Carbon Cycling and Storage after 60 Years of Stand Development in Red Pine (*Pinus resinosa*) Plantations and Mixed Hardwood Stands in Northern Michigan Old Fields”
- Forrest Gibeault MF 2005
- Amanda Holey MF 2005
- Josh Watten MF 2005
- Jennifer Eikenberry MS 2004. K. Pregitzer, advisor. Thesis “Chronic Nitrate-Addition Alters Northern Hardwood Root and Leaf Litter Chemistry”
- Jeff Crawford MS 2002. K. Pregitzer, advisor. Thesis “The Effects of Nitrogen Amendments on Belowground Carbon Cycling in Second Growth Sugar Maple Forests Along a Climatic and N-Deposition Gradient in Michigan”

### ***Other Advising/Mentoring***

#### *Post-doctoral Associates*

- Dr. Joseph Darbah May 2010 to May 2012. Dr. Mark Kubiske, USDA Forest Service, co-advisor. Research Topic “Response of regenerating northern forests to elevated tropospheric CO<sub>2</sub> and O<sub>3</sub>”.

#### *Recent Undergraduate Research Mentoring*

- Madalyn Tudor-Duncan Michigan Tech SURF student. May 2021 to present (co-advisor with Molly Cavaleri). “Fine root respiration of *Quercus rubra*: Root system activity across a latitudinal gradient in the Midwest”.
- Kath Schneider NSF REU Supplement. May 2018 to May 2019. “First year effects of cessation of long-term experimental N deposition on mycorrhizal fungi and soil microbial community composition”.
- Ashley Berton NSF REU Supplement. May 2017 to Dec 2018. “Effects of long-term nitrogen additions on litter of common northern hardwood forest species”.
- Peter Hoch NSF REU Supplement. May 2015 to April 2017. “Reversibility of warming responses of sugar maple root and soil respiration to the cessation of experimental warming”.

- Michael Stanley NSF REU Supplement. May 2014 to April 2015. “Chronic N addition effects on wood decomposing fungi”. Michael is currently working for the US Forest Service.
- Sarah Harttung Michigan Tech Summer Undergraduate Research Fellowship. May 2014 to April 2015. “Do genetic differences in drought tolerance and phenology contribute to species divergence in oaks?” (co-advisor, with O. Gailing as lead advisor)
- Ethan Bell NSF REU Supplement. May 2013 to April 2015. “Effect of chronic N and salt additions on canopy phenology and soil solution DOC”.
- Kenneth Carruthers NSF REU Supplement. May 2011 to April 2012. Research Topic “Variation among peatland woody species in specific root respiration rates and root biomass”.
- Alex Mehne Michigan Tech Summer Undergraduate Research Fellowship. May 2011 to April 2012. Research Topic “Performance of non-local tree species planted in Baraga County, MI”. Alex is currently a doctoral student at the University of Minnesota
- Jerry Jondreau NSF REU Supplement. May 2010 to present. Research Topic “Root respiration rates and growing season C allocation to fine root respiration for common forest ecosystems in the upper Lake States”
- Julie Jarvey NSF REU Supplement. May 2009 to December 2010. Research Topic “Response of root nitrogen concentration and respiration to 15 years of chronic nitrogen deposition”. Julie’s findings were included in a Global Change Biology article that she co-authored. She is currently working on a PhD at the University of Michigan.

### *Other Research Mentoring*

- Siona Beaudoin High School Researcher. June 2018 to May 2019. “Do the Effects of Simulated Nitrogen Deposition on a Hardwood Forest in Michigan Persist After Deposition is Stopped”. Siona, a student at Lake Linden-Hubbell High School, presented her summer 2018 results at the regional Junior Science and Humanities Symposium at Treehaven in Tomahawk, Wisconsin on January 26<sup>th</sup>, 2019. Her paper and presentation placed 3rd, earning her a \$1,000 scholarship and a paid trip to the national competition in Albuquerque, NM in April 2019.
- Xuehau Xu Dr. Xu, an Associate Professor in the College of Forestry of the Agricultural University of Hebei in Baoding, China, was a visiting scholar in my lab from September 2018 through September 2019. He examined effects of long-term chronic N deposition on root system biomass and nitrogen content by analyzing archived samples from over two decades of N additions. A poster describing his findings was presented at the 2019 ESA annual meeting in Louisville, KY.

## Current Research Projects:

*Michigan Gradient Study - Long Term Nitrogen Deposition (1987 - present).* Nitrogen (N) saturation of terrestrial ecosystems is one of the most important contemporary ecological issues. Researchers at Michigan Technological University and the University of Michigan added nitrate ( $\text{NO}_3^-$ ) to northern hardwood forests in Michigan to learn how this common Lakes States forest type responded to chronic N additions. The Michigan Gradient study was established in 1987 to examine the effects of climate and atmospheric deposition on ecosystem processes in the Great Lakes region and continued through 2018 with support from NSF. Four northern hardwood study sites extend 500 km from northwestern Upper Michigan to southern Lower Michigan. From 1994 to 2017, these study sites received experimental N additions ( $3 \text{ g NO}_3^- \text{-N m}^{-2} \text{ y}^{-1}$ ), intended to simulate high levels of chronic atmospheric N deposition. The purpose of this field experiment was to understand the mechanisms controlling carbon (C) and N cycling in the face of chronic N deposition and the long-term consequences of N saturation. In 2018, N additions were ended, but the study continued in order to determine if much lower, but still somewhat elevated, ambient N deposition was sufficient to maintain a state of N saturation at the study sites and its impacts on ecosystem processes.

*The FACE Wood Decomposition Experiment – FWDE (2011 - present).* This continental-scale project is utilizing wood of trembling aspen, paper birch, and loblolly pine produced under both ambient and elevated  $\text{CO}_2$  in long-term FACE (Free Air  $\text{CO}_2$  Enrichment). In 2011, small logs of these species were deployed in nine Experimental Forests, representing different bioclimatic zones, across the US. Wood grown under elevated  $\text{CO}_2$  treatments in the FACE experiments contains a distinct  $^{13}\text{C}$  isotopic signature, which enables tracking of C as it moves into different soil fractions or is returned to the atmosphere during the decay process. This approach will provide information only possible from utilizing this unique FACE biomass. The data is providing new insights on the processes involved in wood decomposition and the formation of stable soil C.

*Measurement and Simulation of Carbon Stocks in African Mangroves (2016 to present).* Coastal Blue Carbon ecosystems such as mangroves, salt marshes and seagrass beds have the highest total carbon densities of all ecosystems. Their high carbon sequestration coupled with their high risk of destruction make mangroves a prime candidate for carbon mitigation initiatives such as the United Nations Collaborative Program on Reducing Emissions from Deforestation and Degradation in Developing Countries (UN-REDD and REDD+). However, due to the remote nature of mangroves, it is very difficult to monitor and measure changes in their carbon stocks. This collaborative project will develop and test a process-based biogeochemical model to simulate carbon dynamics in mangrove forests. The Wetland DNDC model will serve as the basis for a new model – Mangrove Carbon Assessment Tool. Field inventories of mangroves in Mozambique, Tanzania, and Gabon will be used to test the model and provide ground-based data on carbon stocks. The inventory data will also be analyzed to develop allometric relationships of forest biomass with stand height, to support linkages with remote sensing data.

*Modeling Carbon Storage and Fluxes in SE US Tidal Freshwater Forested Wetlands (2020 to present).* The goal of this project is to develop a modeling tool for tidal freshwater forested wetlands (TFFW) that can be used to assess the effects of climate change, sea level rise and forest resource management on the forest carbon pools and fluxes. Once the model is calibrated and validated, it will be used to conduct scenario simulations of climate change (e.g., extreme

weather, drought), sea level rise, salt water intrusion, and land and water management on carbon and nitrogen cycling in TFFW to provide information for ecosystem-based management.

### **Past Research Projects:**

*Sustainable Forest-Based Biofuel Pathways (2012 to 2017).* The Wood to Wheels (W2W) Sustainable Energy Pathways (SEP) project conducts multidisciplinary, comprehensive, and integrated research in the area of forest-based infrastructure-compatible liquid biofuel for vehicular transportation. New knowledge generated will span the entire value chain, from forest biomass production to thermochemical processing, fuel combustion, and systems-level sustainability analyses. Project deliverables will help establish a new forest-based biofuels industry featuring high productivity forest energy crops, sustainable forest management practices, catalysts and process technologies, innovations in engine systems, sustainable decision-making databases, and analysis methods/software tools. Researchers from multiple disciplines are working at the cusp of emerging discoveries to develop new knowledge about complex coupled natural/industrial/societal systems. The project's research will focus on the production of "infrastructure compatible green diesel" derived from a novel two-stage torrefaction / fast-pyrolysis treatment and catalytic conversion of primary woody feedstocks. The resulting fuel product will be a direct hydrocarbon replacement for fossil diesel.

*Carbon Sequestration in Tropical Forests (2009 to 2017).* Studies on the effects of logging on ecosystem C storage and soil C efflux in moist semi-deciduous tropical forests in Ghana was initiated in 2012, with doctoral student Akwasi Duah-Gyamfi leading these efforts. The research examines the factors controlling ecosystem biomass and the components of soil respiration both before and after selective logging. In addition to managed natural forests, tropical forest plantations have the potential to play an important role in carbon sequestration and the mitigation of climate change. From 2009 to 2014, I was a carbon consultant on the project "Capacity Building for CDM Forestry in the Framework of SFM Emphasizing Community Forests and Poverty Alleviation in Ghana", sponsored by the International Tropical Timber Organization (ITTO), with additional in-kind support provided by the Forestry Research Institute of Ghana (FORIG) and Samartex. The project helped develop the capacity for Clean Development Mechanism-Forestry in Ghana via a community rehabilitation of Ghana's degraded forests targeted at poverty alleviation in conjunction with sustainable forest management (SFM). Both the private sector and native communities were involved. Methods were developed for assessing the carbon content of trees growing in plantations, up to twelve years in age, established in wet evergreen forest as part of the Oda-Kotomso Community Agroforestry Project (OCAP). This effort was completed by MS student Daniel Yeboah. The OCAP model will be used in establishing new plantations in degraded dry semi-deciduous forests in Ghana's Pamu Berekum Forest Reserve.

*Soil Warming in Northern Forests (2008 to 2017).* We assessed the degree to which temperature acclimation occurs in root systems of a variety of woody plants and determined if such acclimation was a short-term, direct physiological adjustment to warmer temperatures (days to months) or a longer term response as the ecosystem adjusts to long-term warming (years). Partial acclimation of root respiration did occur with experimental soil warming of 4 to 5 °C from 2010 to 2014 in northern hardwood forests, apparently as the result of adenylate control. However this partial acclimation did not fully offset the influence of warmer temperatures, thus

root and soil respiration remained elevated. Soil moisture had a strong influence on respiration rates, which at times were lower in the heated plots due to very dry conditions. Experimental water additions were able to offset this effect. Overall, forests had mechanisms to avoid excessive allocation of C to root systems in warmer soil, by either reducing root/mycorrhizal biomass or by partial acclimation of tissue respiration rates. Still, C returned to the atmosphere as soil CO<sub>2</sub> efflux remained slightly elevated, even after ecosystems had adjusted. From 2015 to 2017, we examined the recovery of root and soil respiration following cessation of the treatments and found that temperature acclimation of roots was a plastic, rapidly reversible response to warming. Soil respiration was lower in previously warmed soil, indicating that labile organic matter had been depleted during the four plus years of warming.

*Facilities Improvements for Ecological Research at Michigan Tech's Ford Center and Research Forest (2012 to 2015).* This project created a wet laboratory facility, established short and long range Wi-Fi capability, and improved lodging facilities for cold-season use at the Ford Center and Forest (FCF), located 42 miles south of the main Michigan Technological University campus. The entire range of forest community-soil associations common in the upper Great Lakes is available for research and instruction on the FCF property.

*Aspen FACE/Northern Forest Ecosystem Experiment (2008 to 2013).* From 1998 to 2009, this project examined the interacting effects of elevated CO<sub>2</sub> and O<sub>3</sub> on ecosystem processes in an aggrading northern forest ecosystem. My direct involvement did not begin until 2008, with the passing of the project's director, Dr. David Karnosky. This study utilized a free-air carbon dioxide enrichment (FACE) facility in Rhinelander, Wisconsin to compare the responses of rapid-growing shade intolerant species (trembling aspen [*Populus tremuloides* Michx.] and paper birch [*Betula papyrifera* Marsh.]) to that of a slower growing shade tolerant species (sugar maple [*Acer saccharum* Marsh.]). After the original aggrading forest was harvested, treatment effects on the regrowing, coppice forest were followed for one year as the Northern Forest Ecosystem Experiment, after which the experiment infrastructure was dismantled.

*Midwestern Regional Center of the National Institute for Climatic Change Research (2005 to 2012).* The National Institute for Climate Change Research (NICCR) was sponsored by the U.S. Department of Energy's (DOE's) Office of Biological and Environmental Research (BER). The Midwestern Region supports work in the following states: North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Michigan, Indiana, and Ohio. The Midwestern Regional Center funded proposals that used a variety of approaches to answer questions relevant to the DOE's climate change research program. These included experiments that manipulated temperature, moisture and other global change factors; studies that sought to understand how the distribution of species and ecosystems might change under future climates; studies that used measurements and modeling to examine current ecosystem fluxes of energy and mass and those that would exist under future conditions; and studies that synthesized existing data sets to improve our understanding of the effects of climatic change on terrestrial ecosystems. The broad variety of projects the Midwestern Regional Center supports gave us a unique opportunity to greatly improve our ability to predict the future health, composition and function of important agricultural and natural terrestrial ecosystems within the Midwestern Region. The NICCR Midwestern Regional Center funded 39 climatic change research projects with a total value of more than \$8.2 million. These projects resulted in over 100 peer-reviewed publications.

*Treeline Change in Norway (2009 to 2010).* This project, initiated by MS Student Adam Airoidi, examines the recent rebound in treeline elevation in Norway in response to changes in land use and climate. It also assesses the potential C sequestration as alpine forests redevelop in their former range in the absence of grazing and mining pressure.

*REU Site for Ecosystems in Transition (PI). 2004 - 2006.* Each summer, ten Research Experiences for Undergraduates (REU) students spend the summer at Michigan Technological University examining ecosystems in transition. The students work with faculty mentors on existing large-scale, long-term, interdisciplinary experiments examining the responses of forest ecosystems to climatic variations, anthropogenic pollutants, changing wildlife populations, exotic species invasions and ecosystem restoration efforts.

*Cross-Site Study: A cross-biome examination of belowground C allocation (Co-PI). 1997 - 2001.* How does belowground allocation of carbon respond to environmental variables, such as temperature and moisture, and to altered availability of resources, such as nitrogen? To address these questions, researchers in the Forest Ecology group at Michigan Tech quantified root and soil respiration, root system architecture, root production and mortality, and mycorrhizal community composition in ten common North American forest ecosystems.

*Carbon and Nutrient Cycling in Olympic National Park (Co-PI). 1998-2002.* Eleven diverse study sites were used to learn how soil CO<sub>2</sub> efflux (soil respiration) and the production of dissolved organic carbon (DOC) and dissolved organic nitrogen (DON) were affected by seasonal changes in temperature and moisture availability at a given location and by climatic differences that existed along mountain elevation gradients.

## **Research Grants: (\$17,942,106 as PI, \$7,361,633 as co-PI)**

### ***Active Grants:***

- 1/2022 – 6/2023 National Science Foundation “COVID supplement to: Collaborative Research: Impact of microbial and termite communities on transfer of decaying wood C to stable and protected mineral soil C pools”, \$33,115. **A.J. Burton (PI)**.
- 12/2021 – 11/2022 Michigan Tech Pandemic Impact Grant, \$20,427. **A.J. Burton (PI)**
- 9/2021 – 12/2022 USDA Forest Service “Long-term Effects of Hurricane Hugo and Prescribed Fire Management on Sustainability of Coastal Plain Forests”, \$62,181 (includes \$17,181 in cost share). **A.J. Burton (PI)** and Z. Dai.
- 7/2021 – 6/2023 National Science Foundation “REPS supplement to: Collaborative Research: Impact of microbial and termite communities on transfer of decaying wood C to stable and protected mineral soil C pools”, \$40,281. **A.J. Burton (PI)**.
- 7/2021 – 6/2022 Michigan Tech Shared Facility Grant to the Microanalytical Facility, \$98,947. **A.J. Burton (PI)**, M. Gretz, L. Mazzoleni, and A. Marcarelli.
- 4/2021 – 4/2022 White Pine Copper Refinery “Analysis of Electroplating Solutions by ICP-OES”, \$1,203. **A.J. Burton (PI)**, and J.R. Eikenberry.
- 10/2020 – 9/2022 USDA McIntire-Stennis “Effects of Global Change Factors on Belowground Processes and Carbon Storage in Northern Hardwood Species”, \$24,888 (includes \$8,888 in waived overhead). **A.J. Burton (PI)**.
- 8/2020 – 12/2022 USDA Forest Service “Modeling Carbon Storage and Fluxes in Tidal Freshwater Forested Wetlands in Southeastern United States under Climate Change, Sea Level Rise and Resource Management”, \$63,066 (includes \$18,066 in cost share). **A.J. Burton (PI)** and Z. Dai.
- 7/2020 – 6/2022 National Science Foundation “USDA Forest Service “MRI: Acquisition of an Isotope Ratio Mass Spectrometer for using stable isotopes to study complex ecological systems”, \$467,239 (includes \$140,172 in cost share). **A.J. Burton (PI)** M. Cavaleri, F. Liu, S. Resh, and J. Wolfe.
- 7/2019 – 6/2024 Michigan Tech “Tech Forward – Natural Resources, Water and Energy Initiative”, \$184,167. **A.J. Burton (PI)**.
- 5/2019 – 6/2023 National Science Foundation “REU Supplement to Collaborative Proposal: Impact of microbial and termite communities on transfer of decaying wood C to stable and protected mineral soil C pools”, \$6,250, **A.J. Burton (PI)**.
- 1/2019 – 6/2023 National Science Foundation “Collaborative Proposal: Impact of microbial and termite communities on transfer of decaying wood C to stable and protected mineral soil C pools”, \$889,455 (\$677,541 for Michigan Tech), **A.J. Burton (PI)**, M.F. Jurgensen, A.J. Storer, C. Trettin, B. Forschler, D. Lindner, D. Page-Dumroese, and J. Schilling.

***Previously Funded Grants:***

- 7/2020 – 6/2021 Michigan Tech Shared Facility Grant to the Microanalytical Facility, \$161,479. **A.J. Burton (PI)**, M. Gretz, L. Mazzoleni, and A. Marcarelli.
- 5/2020 – 4/2021 USDA Forest Service “GLRI Plant Sample Tissue Analysis for  $\delta^{13}\text{C}$ ”, \$13,770 (includes \$3,870 in cost share). **A.J. Burton (PI)**.
- 1/2020 – 12/2020 Michigan Tech Research Excellence Funds “State-of-the-Science Plant Gas Exchange Measurements for Ecological Research”, \$59,350 (includes \$34,350 in cost share). M.A. Cavalieri (PI), **A.J. Burton**, C. Kulheim, and E. Hersch-Green
- 7/2019 – 6/2020 Michigan Tech Shared Facility Grant to the Microanalytical Facility, \$79,419. **A.J. Burton (PI)**, M. Gretz, and L. Mazzoleni.
- 2/2019 – 5/2021 USDA Forest Service “Application of MCAT in Estimating Total Ecosystem Carbon in Blue Carbon Ecosystems”, \$199,410 (includes \$53,226 in cost share), **A.J. Burton (PI)** and Z. Dai.
- 9/2017 – 8/2021 White Pine Copper Refinery “Analysis of Electroplating Solutions and Filtered Cake by ICP-OES”, \$11,710. **A.J. Burton (PI)**, and J.R. Eikenberry.
- 7/2017 – 8/2018 Michigan Tech Research Excellence Funds “Understanding feedbacks between ecosystems and the genetics of a dominant plant (*Solidago gigantea*, Asteraceae)”, \$15,000. E. Hersch-Green (PI), **A.J. Burton (co-PI)**
- 8/2016 – 6/2019 USDA Forest Service (subaward on DOE grant) “Wood Decomposition: Understanding Processes Regulating Carbon Transfer to Soil Carbon Pools Using FACE Wood at Multiple Scales”, \$219,896. **A.J. Burton (PI)**, and M.F. Jurgensen.
- 7/2016 – 8/2017 Michigan Tech Research Excellence Funds “Precise and Efficient Position Data Acquisition for Forests, Streams, and Wetlands”, \$13,835, **A.J. Burton (PI)**, R.A. Chimner, R.E. Froese, C.J. Huckins, J.W. Wagenbrenner, and C.R. Webster.
- 6/2016 – 12/2017 USDA Forest Service “Measurement and Simulation of Carbon Stocks in African Mangroves”, \$150,613 (includes \$30,119 in cost share). **A.J. Burton (PI)**
- 10/2015 – 9/2020 USDA McIntire-Stennis “Effects of Climate Change on Northern Hardwood Productivity: Influences of Landscape Position and Population Genetics”, \$58,420 (includes \$20,420 in waived overhead). **A.J. Burton (PI)**
- 7/2015 – 8/2016 Michigan Tech Research Excellence Funds “Remote Data Acquisition from Forests, Streams and Wildlife for Research and Instruction”, \$52,333, **A.J. Burton (PI)**, Y.L. Dickinson, R.E. Froese, A.M. Marcarelli, and J.W. Wagenbrenner.
- 12/2014 – 9/2015 MITREE Wood Energy Grant Program “Wood Energy for Michigan Tech’s Ford Center”, \$155,388 (including \$82,388 in cost share), **A.J. Burton (PI)**



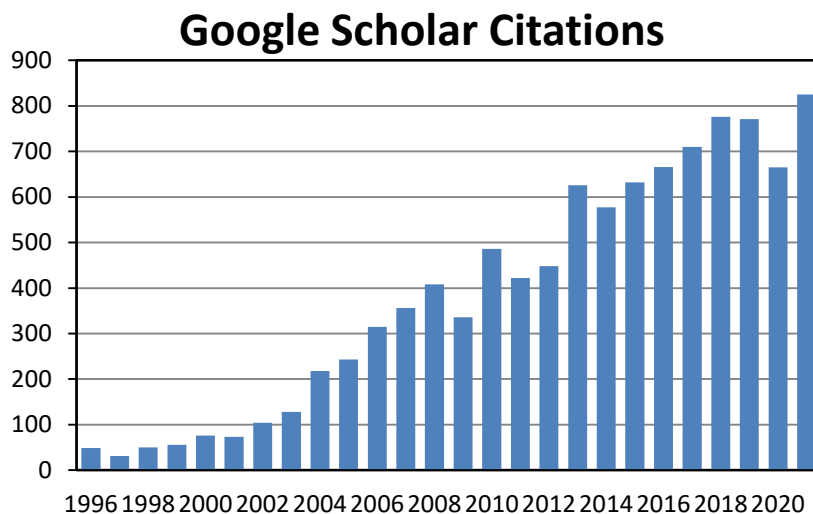
- 9/2013 – 12/2017 USDA Forest Service “Assessment of the Microbiome during Early Stages of Wood Decomposition”, \$89,125 (includes \$31,625 in cost-share), **A.J. Burton (PI)**, C.C. Trettin, D. Linder, W. Mohn, D. Page-Domroese, and M.F. Jurgensen
- 9/2013 – 8/2018 National Science Foundation “Collaborative LTREB Renewal: Long-Term Ecosystem Response to Chronic Atmospheric Nitrate Deposition”, \$156,056, **A.J. Burton (PI)**
- 9/2013 – 8/2018 National Science Foundation “REU Supplements to: Collaborative LTREB Renewal: Long-Term Ecosystem Response to Chronic Atmospheric Nitrate Deposition”, \$25,000 **A.J. Burton (PI)**
- 10/2012 – 9/2015 USDA McIntire-Stennis “Effects of Climatic Variability and Change on Forest Ecosystem Productivity”, \$32,550 (includes \$11,550 in waived overhead). **A.J. Burton (PI)**
- 9/2012 – 8/2017 National Science Foundation “SEP: Sustainable Forest-Based Biofuel Pathways to Hydrocarbon Transportation Fuels: Biomass Production, Torrefaction, Pyrolysis, Catalytic Upgrading, and Combustion”, \$1,800,000. D.R. Shonnard (PI), E. Bar Ziv, **A.J. Burton (co-PI, Thrust 1 leader)**, A.L. Mayer, and J.D. Naber
- 8/2012 – 9/2015 USDA Forest Service “Stable Isotope Analysis of Pine Samples”, \$14,976 (includes \$4,416 in cost share), **A.J. Burton (PI)** and J.R. Eikenberry
- 8/2012 – 7/2015 National Science Foundation “Facilities Improvements for Ecological Research at Michigan Tech's Ford Center and Research Forest”, \$343,639. **A.J. Burton (PI)**, R. Froese, O. Gailing, L. Artman, and K. Price,
- 7/2011 – 4/2013 Michigan Tech Research Excellence Funds - Infrastructure Enhancement “Improving Michigan Tech's Ability to Quantify Stable Isotopes of Water” \$18,000 **A.J. Burton (PI)**, R.A. Chimner, M.A. Cavaleri, T.G. Pypker
- 8/2010 – 5/2011 Michigan Tech Research Excellence Funds - Infrastructure Enhancement “Enhancing Michigan Tech’s ability to assess ecosystem sustainability and trace metal movement in upland, wetland and aquatic ecosystems” \$34,000 **A.J. Burton (PI)**, R. Froese, J. Bump, R. Chimner
- 5/2010 – 4/2015 USDA Forest Service “The Northern Forest Ecosystem Experiment”, \$546,412 (includes \$141,111 in cost share). **A.J. Burton (PI)**
- 8/2009 – 8/2014 USDA Forest Service “Climate change science delivery, adaptation, and ecological assessment”, \$1,079,725 (includes \$224,516 in cost share), P. Butler (PI), R.E. Froese, **A.J. Burton (co-PI)**, T.G. Pypker, and A.J. Storer
- 10/2008 – 5/2012 USDA McIntire-Stennis “Ecosystem constraint of belowground autotrophic respiration: Maintaining positive NPP in a changing world”, \$43,680 (includes 15,680 in waived overhead). **A.J. Burton (PI)**
- 9/2008 – 8/2013 National Science Foundation “Collaborative LTREB Proposal: Long-Term Ecosystem Response to Chronic Atmospheric Nitrate Deposition”, \$151,628, **A.J. Burton (PI)**

- 4/2009 – 9/2013 USDA Forest Service “Carbon, water and soils research support”, \$269,812 (includes \$34,263 in waived overhead), T.G. Pypker (PI), R.A. Chimner and **A.J. Burton (co-PI)**
- 5/2009 – 8/2013 National Science Foundation “REU Supplements to: Collaborative LTREB Proposal: Long-Term Ecosystem Response to Chronic Atmospheric Nitrate Deposition”, \$27,750 **A.J. Burton (PI)**
- 4/2008 – 11/2013 US Department of Energy-National Institute for Climatic Change Research “Short and long-term temperature acclimation of roots systems in woody plants and the moderation of warming-induced enhancement of soil CO<sub>2</sub> efflux”, \$540,387, **A.J. Burton (PI)** and E.A. Lilleskov.
- 4/2008 – 3/2013 US Department of Energy “Impacts of interacting elevated atmospheric CO<sub>2</sub> and O<sub>3</sub> on the structure and functioning of a northern forest ecosystem: Operating and decommissioning the Aspen FACE Project. \$3,893,313, D.F. Karnosky (PI, deceased), K.S. Pregitzer, and D.R. Zak. **A.J. Burton (PI beginning 11/2008)**
- 6/2007 – 8/2009 US Department of Energy (via subcontract from University of Nevada-Reno) “Ecosystem response to elevated tropospheric CO<sub>2</sub> and O<sub>3</sub> is regulated by plant-microbe interactions in soil”, \$201,178. **A.J. Burton (MTU PI)**, K.S. Pregitzer and D.R. Zak
- 6/2007 – 8/2009 National Science Foundation (via subcontract from University of Nevada-Reno) “From genes to ecosystems: mechanisms controlling long-term ecosystem response to nitrogen deposition”, \$168,327, **A.J. Burton (MTU PI)**, E.A. Lilleskov, K.S. Pregitzer and D.R. Zak
- 12/2005 – 11/2013 US Department of Energy “Midwestern Regional Center for the National Institute of Climatic Change Research” (Center administration), \$817,222 (includes \$240,976 in waived overhead), **A.J. Burton (PI 2007-2012)**, K.S. Pregitzer (PI through June 2007)
- 12/2005 – 11/2013 US Department of Energy “Supplements to Midwestern Regional Center for the National Institute of Climatic Change Research” (to fund subcontracts at Universities throughout the Midwest to conduct research projects selected by the NICCR Midwestern Center), \$7,766,784, **A.J. Burton (PI 2007-2012)**, K.S. Pregitzer (PI through June 2007)
- 3/2004 – 3/2006 National Science Foundation “REU site for ecosystems in transition: the role of research in assessing ecosystem responses to a changing environment”, \$155,463, **A.J. Burton (PI)** and K.S. Pregitzer
- 9/2003 – 2/2009 National Science Foundation “Nitrogen saturation: mechanisms and consequences of altered ecosystem metabolism” \$923,739 (includes \$113,739 in waived overhead), **A.J. Burton (PI from June 2007 to 2009, co-PI prior)**, K.S. Pregitzer (PI prior to June 2007), D.R. Zak
- 6/2000 – 12/2003 National Science Foundation “Plant-microbe interactions and the production of dissolved organic carbon and nitrogen”, \$883,480, K.S. Pregitzer (PI), **A.J. Burton (co-PI)**, and D.R. Zak

- 9/2000 – 9/2003 National Science Foundation “The movement of elements through ecosystems: major research instrumentation for the integration of research and education”, \$894,130, K.S. Pregitzer, **A.J. Burton (co-PI)**, DJ Flaspohler, S.A. Green, and W.C. Kerfoot
- 6/1998 – 6/2002 US Environmental Protection Agency “Collaborative research on belowground ecosystem function: merging long-term climate monitoring with soil, root and foodweb dynamics to understand mechanisms regulating C and N transformations”, \$387,595, K.S. Pregitzer (PI), **A.J. Burton (co-PI)**, P. Rygielwicz, R Stottlemeyer, S. Green, J. Chen, and E. Hobbie.
- 3/1997 – 2/2001 National Science Foundation “Factors regulating belowground carbon allocation in terrestrial ecosystems: a cross-site experiment”, \$261,302, K.S. Pregitzer (PI), **A.J. Burton (co-PI)**, M.F. Allen, R.L. Hendrick, and R.W. Ruess
- 9/1996 – 8/2000 National Science Foundation “Cycling of NO<sub>3</sub>-N in northern hardwood forests: regulation and consequences of N saturation”, \$690,000, K.S. Pregitzer (PI), **A.J. Burton (co-PI)**, and D.R. Zak
- 1996 – 2003 National Science Foundation REU supplements to existing grants for undergraduate summer research projects. Funding for nine students was received. \$47,000 (wrote the supplement requests for projects on which I was a co-PI)

## Publications

For all publications my graduate advisees are indicated by \*, graduate students whose committees I served on are indicated by \*\*, post-doctoral associates are indicated by §, and undergraduate students are indicated by †.



*Citations from Google Scholar,  
March 10, 2022:*

**Total Citations: 10,450; 814 in 2021**

**h-index 44, i10-index 72**

### *Refereed Journal Publications:*

79. Mensah Opoku\*, S., **A.J. Burton**, and E. Opuni-Frompong. 2022. Carbon accumulation in soil layers under degraded, intact and planted forest cover types in tropical semi-deciduous and moist evergreen forests. *New Forests* <https://doi.org/10.1007/s11056-022-09911-3>
78. Barnes\*, E.M., and **A.J. Burton**. 2021. Sugar maple (*Acer saccharum*) seedling bank response to storm disturbance and single tree selection harvest in the southern Keweenaw Peninsula, Michigan. *The American Midland Naturalist* 186(2):274-290. [Abstract](#)
77. Dai Z., C.C. Trettin, **A.J. Burton**, M.F. Jurgensen, D.S. Page-Dumroese, B.T. Forschler, J.S. Schilling, and D.L. Lindner. 2021. Coarse Woody Debris Decomposition Assessment Tool: Model validation and application. *PLoS ONE* 16:e0254408. [Abstract](#)
76. Dai Z., C.C. Trettin, **A.J. Burton**, M.F. Jurgensen, D.S. Page-Dumroese, B.T. Forschler, J.S. Schilling, and D.L. Lindner. 2021. Coarse woody debris decomposition assessment tool: Model development and sensitivity analysis. *PLoS ONE* 16:e0251893. [Abstract](#)
75. Jarvi\*, M.P., and **A.J. Burton**. 2020. Root respiration and biomass responses to experimental soil warming vary with root diameter and soil depth. *Plant and Soil* 451:435-446. [Abstract](#)

74. Opuni-Frimpong, E., K.N. Baniako, S.M. Opoku\*, S.A. Owusu, E.J.D. Belford, and **A. Burton**. 2020. Extrapolating tree biomass and related carbon stocks from high-valued indigenous forest plantation in Ghana. *Journal of Ghana Science Association* 19:45-55. [Abstract](#)
73. Collins\*\*, A.R., **A.J. Burton** and M.A. Cavaleri. 2018. Effects of experimental soil warming and water addition on the transpiration of mature sugar maple. *Ecosystems* 21:98-111. [Abstract](#)
72. Crowther, T.W., M.B. Machmuller, J.C. Carey, S.D. Allison, J.M. Blair, S.D. Bridgham, **A.J. Burton**, F.A. Dijkstra, B. Elberling, M. Estiarte, K.S. Larsen, H. Laudon, M. Lupascu, S. Marhan, J. Mohan, S. Niu, J. Peñuelas, I.K. Schmidt, P.H. Templer, G. Kröel-Dulay, E. Pendall, and M.A. Bradford. 2018. Crowther et al. reply. *Nature* 554: E7–E8
71. Ibáñez I., D.R. Zak, **A.J. Burton**, and K.S. Pregitzer. 2018. Anthropogenic nitrogen deposition ameliorates the decline in tree growth caused by a drier climate. *Ecology* 99:411-420. [Abstract](#)
70. Jarvi\*, M.P., and **A.J. Burton**. 2018. Adenylate control contributes to thermal acclimation of sugar maple fine root respiration in experimentally warmed soil. *Plant Cell and Environment* 41:504-516. [Abstract](#)
69. Mosier\*\*, S.L., E.S. Kane, D.L. Richter, E.A. Lilleskov, M.F. Jurgensen, **A.J. Burton** and S.C. Resh. 2017. Interactive effects of climate change and fungal communities on wood-derived carbon in forest soils. *Soil Biology and Biochemistry* 115:297-309. [Abstract](#)
68. Carey, J.C., J. Tang, P.H. Templer, K.D. Kroeger, T.W. Crowther, **A.J. Burton**, J.S. Dukes, B. Emmett, S. Frey, M. Heskell, L. Jiang, M. Machmuller, J.E. Mohan, A.M. Panetta, P.B. Reich, S. Reinsch, X. Wang, S.D. Allison, C. Bamminger, S.D. Bridgham, S.L. Collins, G. de Dato, W.C. Eddy, B.J. Enquist, M. Estiarte, J. Harte, A. Henderson, B.R. Johnson, K.S. Larsen, Y. Luo, S. Marhan, J. Melillo, J. Peñuelas, L. Pfeifer-Meister, C. Poll, E.B. Rastetter, A. Reinmann, L.L. Reynolds, I.K. Schmidt, G.R. Shaver, A.L. Strong, V. Suseela, and A. Tietema. 2016. Temperature response of soil respiration largely unaltered with experimental warming. *Proceedings National Academy of Sciences* 113:13797-13802. [Abstract](#)
67. Crowther, T.W., C.W. Rowe, W.R. Wieder, J.C. Carey, M.B. Machmuller, K.E.O. Todd-Brown, L.B. Snoek, S. Fang, G. Zhou, S.D. Allison, J.M. Blair, S.D. Bridgham, **A.J. Burton**, Y. Carrillo, J.S. Clark, A.T. Classen, F.A. Dijkstra, B. Elberling, B. Emmett, M. Estiarte, S.D. Frey, J. Guo, J. Harte, L. Jiang, B.R. Johnson, G. Kröel-Dulay, K.S. Larsen, H. Laudon, J.M. Lavelle, Y. Luo, M. Lupascu, L.N. Ma, S. Marhan, A. Michelsen, J. Mohan, S. Niu, E. Pendall, J. Peñuelas, L. Pfeifer-Meister, C. Poll, S. Reinsch, L.L. Reynolds, I.K. Schmidt, S. Sistla, N.W. Sokol, P.H. Templer, K.K. Treseder, J.M. Welker, P. Reich, and M.A. Bradford. 2016. Quantifying global soil C losses in response to warming. *Nature* 540:104-108. [Abstract](#)
66. Ebanyenle\*, E., **A.J. Burton**, A.J. Storer, D.L. Richter, J.A. Glaeser. 2016. Elevated tropospheric CO<sub>2</sub> and O<sub>3</sub> may not alter initial wood decomposition rate or wood-decaying fungal community composition of northern hardwoods. *International Biodeterioration and Biodegradation* 111:74-77. [Abstract](#)

65. Ibanez, I., D. Zak, **A.J. Burton**, K. Pregitzer. 2016. Chronic nitrogen deposition alters allometric relationships in a dominant tree species: Implications for woody biomass production and ecosystem carbon storage. *Ecological Applications* 26:913-925. [Abstract](#)
64. Gahagan\*\*, A., C.P. Giardina, J.S. King, D. Binkley, K.S. Pregitzer, and **A.J. Burton**. 2015. Carbon fluxes, storage and harvest removals through 60 years of stand development in red pine plantations and mixed hardwood stands in Northern Michigan, USA. *Forest Ecology and Management* 337:88-97. [Abstract](#)
63. Frey, S.D., S. Ollinger, K. Nadelhoffer, R. Bowden, E. Brzostek, **A. Burton**, B.A. Caldwell, S. Crow, C.L. Goodale, A.S. Grandy, A. Finzi, M.G. Kramer, K. Lajtha, J. LeMoine, M. Martin, W.H. McDowell, R. Minocha, J.J. Sadowsky, P.H. Templer, and K. Wickings. 2014. Chronic nitrogen additions suppress decomposition and sequester soil carbon in temperate forests. *Biogeochemistry* 121:305-316. [Abstract](#)
62. Kaarakka\*, L., P. Tamminen, A. Saarsalmi, M. Kukkola, H.S. Helmisaari, and **A.J. Burton**. 2014. Effects of repeated whole-tree harvesting on soil properties and tree growth in a Norway spruce (*Picea abies* (L.) Karst.) stand. *Forest Ecology and Management* 313:180-187. [Abstract](#)
61. Talhelm, A.F., K.S. Pregitzer, M.E. Kubiske, D.R. Zak, C.E. Company, **A.J. Burton**, R.E. Dickson, G.R. Hendrey, J.G. Isebrands, K.F. Lewin, J. Nagy, and D.F. Karnosky. 2014. Elevated carbon dioxide and ozone alter productivity and carbon storage in northern temperate forests. *Global Change Biology* 20:2492-2504. [Abstract](#)
60. Tahtinen\*\*, B., B.D. Murray, C.R. Webster, C. Tarasoff, and **A.J. Burton**. 2014. Does ungulate foraging behavior in forest canopy gaps produce a spatial subsidy with cascading effects on vegetation? *Forest Science* 60:819-829. [Abstract](#)
59. Yeboah\*, D., **A.J. Burton**, A.J. Storer, E. Opuni-Frimpong. 2014. Variation in wood density and carbon content of tropical plantation tree species from Ghana. *New Forests* 45:35-52. [Abstract](#)
58. Jarvi\*, M.P., and **A.J. Burton**. 2013. Acclimation and soil moisture constrain sugar maple root respiration in experimentally warmed soil. *Tree Physiology* 33:949-959. [Abstract](#)
57. Opuni-Frimpong, E., S.M. Opoku, A.J. Storer, **A.J. Burton**, and D. Yeboah\*. 2013. Productivity, pest tolerance and carbon sequestration of *Khaya grandifoliola* in the dry semi-deciduous forest of Ghana: a comparison in pure stands and mixed stands. *New Forests* 44:863-879. [Abstract](#)
56. Talhelm, A.F., **A.J. Burton**, K.S. Pregitzer, and M.A. Campione<sup>†</sup>. 2013. Chronic nitrogen deposition reduces the abundance of dominant forest understory and groundcover species. *Forest Ecology and Management* 293:39-48. [Abstract](#)
55. Wei, H., J. Gou, Y. Yordanov, H. Zhang, W. Jones, R. Thakur, and **A.J. Burton**. 2013. Global transcriptomic profiling of aspen trees under elevated [CO<sub>2</sub>] to identify potential molecular mechanisms responsible for enhanced radial growth. *Journal of Plant Research* 126:305-320. [Abstract](#)
54. **Burton, A.J.**, J.C. Jarvey<sup>†</sup>, M.P. Jarvi\*, D.R. Zak, and K.S. Pregitzer. 2012. Chronic N deposition alters root respiration-tissue N relationship in northern hardwood forests. *Global Change Biology* 18:258-266. [Abstract](#)

53. Patterson, S.L., D.R. Zak., **A.J. Burton**, A.F. Talhelm\*\*, and K.S. Pregitzer. 2012. Simulated N deposition negatively impacts sugar maple regeneration in a northern hardwood ecosystem. *Journal of Applied Ecology* 49:155-163 [Abstract](#)
52. Talhelm\*\*, A.F., K.S. Pregitzer, **A.J. Burton**, and D.R. Zak. 2012. Air pollution and the changing biogeochemistry of northern forests. *Frontiers in Ecology and the Environment* 10:181-185. [Abstract](#)
51. Whittinghill, K.A., W.S. Currie, D.R. Zak, **A.J. Burton**, and K.S. Pregitzer. 2012. Anthropogenic N deposition increases soil C storage by decreasing the extent of litter decay: analysis of field observations with a biogeochemical model. *Ecosystems* 15:450-461. [Abstract](#)
50. Zak, D.R., K.S. Pregitzer, M.E. Kubiske, and **A.J. Burton**. 2012. Atmospheric CO<sub>2</sub> and O<sub>3</sub> alter competition for soil nitrogen in developing forests. *Global Change Biology* 18:1480-1488. [Abstract](#)
49. Darbah<sup>§</sup>, J.N.T., W.S. Jones, **A.J. Burton**, J. Nagy, and M.E. Kubiske. 2011. Acute O<sub>3</sub> damage on first year coppice sprouts of aspen and maple sprouts in an open-air experiment. *Journal of Environmental Monitoring* 13:2436-2442. [Abstract](#)
48. Melillo, J.M., S. Butler, J. Johnson, J. Mohan, P. Steudler, H. Lux, E. Burrows, F. Bowles, R. Smith, L. Scott, C. Vario, T. Hill, **A. Burton**, Y. Zhou, and J. Tang. 2011. Soil warming, carbon-nitrogen interactions and forest carbon budgets. *Proceedings of the National Academy of Sciences* 108:9508-9512. [Abstract](#)
47. Swanston, C., and **A. Burton**. 2011. Carbon in northern forests. *Forest Sci.* 57:449-450.
46. Talhelm\*\*, A.F., K.S. Pregitzer, and **A.J. Burton**. 2011. No evidence that chronic nitrogen additions increase photosynthesis in mature sugar maple forests. *Ecological Applications* 21:2413-2424. [Abstract](#)
45. Zak, D.R., K.S. Pregitzer, M.E. Kubiske, and **A.J. Burton**. 2011. Forest productivity under elevated CO<sub>2</sub> and O<sub>3</sub>: positive feedbacks to soil N cycling sustain decade-long net primary productivity enhancement by CO<sub>2</sub>. *Ecology Letters* 14:1220-1226. [Abstract](#)
44. Zak, D.R., K.S. Pregitzer, **A.J. Burton**, I.P. Edwards, and H. Kellner. 2011. Microbial responses to a changing environment: implications for the future functioning of terrestrial ecosystems. *Fungal Ecology* 4:386-395. [Abstract](#)
43. Pregitzer, K.S., D.R. Zak, A.F. Talhelm\*\*, **A.J. Burton**, and J.R. Eikenberry\*\*. 2010. Nitrogen turnover in the leaf litter and fine roots of sugar maple. *Ecology* 91:3456-3462. [Abstract](#)
42. **Burton, A.J.**, J.M. Melillo and S.D. Frey. 2008. Adjustment of forest ecosystem root respiration as temperature warms. *J. Integr. Plant Biol.* 50:1467-1483. [Abstract](#)
41. Pregitzer, K.S., **A.J. Burton**, J.S. King, and D.R. Zak 2008. Relationships among root biomass, root turnover and soil respiration following long-term exposure of northern forests to elevated atmospheric CO<sub>2</sub> and tropospheric O<sub>3</sub>. *New Phytologist* 180:153-161. [Abstract](#)
40. Pregitzer, K.S., **A.J. Burton**, D.R. Zak, and A.F. Talhelm\*\*. 2008. Simulated chronic nitrogen deposition increases carbon storage in northern temperate forests. *Global Change Biology* 14:142-153. [Abstract](#)

39. Zak, D.R., W.E. Holmes, **A.J. Burton**, K.S. Pregitzer, and A.F. Talhelm. 2008. Simulated atmospheric  $\text{NO}_3^-$  deposition increases soil organic matter by slowing decomposition. *Ecological Applications* 18:2016-2027. [Abstract](#)
38. Smemo, K.A., D.R. Zak, K.S. Pregitzer, and **A.J. Burton**. 2007. Characteristics of DOC exports from northern hardwood forests receiving chronic experimental  $\text{NO}_3^-$  deposition. *Ecosystems* 10:369-379. [Abstract](#)
37. Zak, D.R., W.E. Holmes, M.J. Tomlinson, K.S. Pregitzer, and **A.J. Burton**. 2006. Microbial cycling of C and N in northern hardwood forests receiving chronic atmospheric  $\text{NO}_3^-$  deposition. *Ecosystems* 9:242-253. [Abstract](#)
36. DeForest, J.L., D.R. Zak, K.S. Pregitzer, and **A.J. Burton**. 2005. Atmospheric nitrate deposition and enhanced dissolved organic carbon leaching: Test of a potential mechanism. *Soil Sci. Soc. Am. J.* 69:1233-1237. [Abstract](#)
35. **Burton, A.J.**, K.S. Pregitzer, J.N. Crawford\*\*, G.P. Zogg, and D.R. Zak. 2004. Simulated chronic  $\text{NO}_3^-$  addition reduces soil respiration in northern hardwood forests. *Global Change Biol.* 10:1080-1091. [Abstract](#)
34. DeForest, J.L., D.R. Zak, K.S. Pregitzer, and **A.J. Burton**. 2004. Atmospheric nitrate deposition, microbial community composition, and enzyme activity in northern hardwood forests. *Soil Sci. Soc. Am. J.* 68:132-138. [Abstract](#)
33. DeForest, J.L., D.R. Zak, K.S. Pregitzer, and **A.J. Burton**. 2004. Atmospheric nitrate deposition and the microbial degradation of cellobiose and vanillin in a northern hardwood forest. *Soil Biol. Biochem.* 36:965-971. [Abstract](#)
32. Pregitzer, K.S., D.R. Zak, **A.J. Burton**, J.A. Ashby, and N.W. MacDonald. 2004. Chronic nitrate additions dramatically increase the export of carbon and nitrogen from northern hardwood ecosystems. *Biogeochem.* 68:179-197. [Abstract](#)
31. Zak, D.R., K.S. Pregitzer, W.E. Holmes, **A.J. Burton**, and G.P. Zogg. 2004. Anthropogenic N deposition and the fate of  $^{15}\text{NO}_3^-$  in a northern hardwood ecosystem. *Biogeochem.* 69:143-157. [Abstract](#)
30. **Burton, A.J.**, and K.S. Pregitzer. 2003. Field measurements of root respiration indicate little to no seasonal temperature acclimation for sugar maple and red pine. *Tree Physiol.* 23:273-280. [Abstract](#)
29. Crocker, T.L., R.L. Hendrick, R. Ruess, K.S. Pregitzer, **A.J. Burton**, M.F. Allen, J. Shan, and L.A. Morris. 2003. Substituting root numbers for length: Improving the use of minirhizotrons to study fine root dynamics. *Appl. Soil Ecol.* 23:127-135 [Abstract](#)
28. Kane\*\*, E.S., K.S. Pregitzer, and **A.J. Burton**. 2003. Soil respiration along environmental gradients in Olympic National Park. *Ecosystems* 6:326-335. [Abstract](#)
27. Ruess, R.W., R.L. Hendrick, **A.J. Burton**, K.S. Pregitzer, B. Sveinbjornsson, M.F. Allen, and G.E. Maurer. 2003. Coupling fine root dynamics with ecosystem carbon cycling in black spruce forests of interior Alaska. *Ecol. Monogr.* 73:643-662. [Abstract](#)
26. **Burton, A.J.**, K.S. Pregitzer, R.W. Ruess, R.L. Hendrick, and M.F. Allen. 2002. Root respiration in North American forests: effects of nitrogen concentration and temperature across biomes. *Oecologia* 131:559-568. [Abstract](#)



25. **Burton, A.J.**, and K.S. Pregitzer. 2002. Measurement carbon dioxide concentration does not affect root respiration rates of nine tree species in the field. *Tree Physiol.* 22:67-72. [Abstract](#)
24. Pregitzer, K.S., J.L. DeForest, **A.J. Burton**, M.F. Allen, R.W. Ruess, and R.L. Hendrick. 2002. Fine root architecture of nine North American trees. *Ecol. Monogr.* 72:293-309. [Abstract](#)
23. Brown\*\*, S.E., K.S. Pregitzer, D.D. Reed, and **A.J. Burton**. 2000. Predicting daily mean soil temperature from daily mean air temperature in four northern hardwood forest stands. *Forest Sci.* 46:297-301. [Abstract](#)
22. Burton, A.J., K.S. Pregitzer, and R.L. Hendrick. 2000. Relationships between fine root dynamics and nitrogen availability in Michigan northern hardwood forests. *Oecologia* 125:389-399. [Abstract](#)
21. Pregitzer, K.S., J.S. King, **A.J. Burton**, and S.E. Brown. 2000. Responses of tree fine roots to temperature. *New Phytol.* 147:105-115. [Abstract](#)
20. Zogg, G.P., D.R. Zak, **A.J. Burton**, and K.S. Pregitzer. 2000. Microbial immobilization and the retention of anthropogenic nitrate in a northern hardwood forest. *Ecology* 81:1858-1866. [Abstract](#)
19. **Burton, A.J.**, K.S. Pregitzer, G.P. Zogg, and D.R. Zak. 1998. Drought reduces root respiration in sugar maple forests. *Ecol. Appl.* 8:771-778. [Abstract](#)
18. MacDonald, N.W., J.A. Witter, D.D. Reed, **A.J. Burton**, K.S. Pregitzer, and H.O. Liechty. 1998. Environmental stress effects on vigor, mortality, and growth in northern hardwood forests along a pollution-climate gradient. *Michigan Academician* XXX:27-47.
17. Pregitzer, K.S., M.J. Laskowski†, **A.J. Burton**, V.C. Lessard, and D.R. Zak. 1998. Variation in sugar maple root respiration with root diameter and soil depth. *Tree Physiol.* 18:665-670. [Abstract](#)
16. **Burton, A.J.**, G.P. Zogg, K.S. Pregitzer, and D.R. Zak. 1997. Effects of measurement CO<sub>2</sub> concentration on sugar maple root respiration. *Tree Physiol.* 17:421-427. [Abstract](#)
15. **Burton, A.J.**, K.S. Pregitzer, G.P. Zogg, and D.R. Zak. 1996. Latitudinal variation in sugar maple fine root respiration. *Can. J. For. Res.* 26:1761-1768. [Abstract](#)
14. Zogg, G.P., D.R. Zak, **A.J. Burton**, and K.S. Pregitzer. 1996. Fine root respiration in northern hardwood forests in relation to temperature and nitrogen availability. *Tree Physiol.* 16:719-725. [Abstract](#)
13. Gross, K.L., K.S. Pregitzer, and **A.J. Burton**. 1995. Spatial variation in nitrogen availability in three successional plant communities. *J. Ecol.* 83:357-367.
12. MacDonald, N.W., **A.J. Burton**, J.A. Witter, and D.D. Richter. 1994. Sulfate adsorption in forest soils of the Great Lakes region. *Soil Sci. Soc. Am. J.* 58:1546-1555. [Abstract](#)
11. Reed, D.D., K.S. Pregitzer, H.O. Liechty, A.J. Burton, and G.D. Mroz. 1994. Productivity and growth efficiency in sugar maple forests. *For. Ecol. and Manage.* 70:319-327. [Abstract](#)

10. **Burton, A.J.**, K.S. Pregitzer, and N.W. MacDonald. 1993. Foliar nutrients in sugar maple forests along a regional pollution-climate gradient. *Soil Sci. Soc. Am. J.* 57: 1619-1628. [Abstract](#)
9. MacDonald, N.W., J.A. Witter, **A.J. Burton**, K.S. Pregitzer, and D.D. Richter. 1993. Relationships among atmospheric deposition throughfall, and soil properties in oak forest ecosystems. *Can. J. For. Res.* 23:2348-2357. [Abstract](#)
8. MacDonald, N.W., **A.J. Burton**, H.O. Liechty, J.A. Witter, K.S. Pregitzer, G.D. Mroz, and D.D. Richter. 1992. Ion leaching in forest ecosystems along a Great Lakes air pollution gradient. *J. Environ. Qual.* 21:614-623. [Abstract](#)
7. Pregitzer, K.S., **A.J. Burton**, G.D. Mroz, H.O. Liechty, and N.W. MacDonald. 1992. Foliar sulfur and nitrogen along an 800-km pollution gradient. *Can. J. For. Res.* 22:1761-1769. [Abstract](#)
6. **Burton, A.J.**, K.S. Pregitzer, and D.D. Reed. 1991. Leaf area and foliar biomass relationships in northern hardwood forests located along an 800 km acid deposition gradient. *For. Sci.* 37:1041-1059. [Abstract](#)
5. **Burton, A.J.**, C.W. Ramm, K.S. Pregitzer, and D.D. Reed. 1991. Use of multivariate methods in forest research site selection. *Can. J. For. Res.* 21:1573-1580. [Abstract](#)
4. MacDonald, N.W., **A.J. Burton**, M.F. Jurgensen, J.W. McLaughlin, and G.D. Mroz. 1991. Variation in forest soil properties along a Great Lakes air pollution gradient. *Soil Sci. Soc. Am. J.* 55:1709-1715. [Abstract](#)
3. Pregitzer, K.S., and **A.J. Burton**. 1991. Sugar maple seed production and nitrogen in litterfall. *Can. J. For. Res.* 21:1148-1153. [Abstract](#)
2. **Burton, A.J.**, J.B. Hart, and D.H. Urie. 1990. Nitrification in sludge amended Michigan forest soils. *J. Environ. Qual.* 19:609-616. [Abstract](#)
1. Reed, D.D., H.O. Liechty, and **A.J. Burton**. 1989. A simple procedure for mapping tree locations in forest stands. *For. Sci.* 35:657-662. [Abstract](#)

### ***Conference Proceedings and Book Chapters:***

5. Moyano, F.E., O.K. Atkin, M. Bahn, D. Bruhn, **A.J. Burton**, A. Heinemeyer, W.L. Kutsch, and G. Wieser. 2009. Respiration from roots and the mycorrhizosphere. Chap. 7, p. 127-156, *In* W. Kutsch, M. Bahn and A. Heinemeyer (eds). Soil Carbon Dynamics: An Integrated Methodology. Cambridge University Press, New York. [Abstract](#)
4. **Burton, A.J.**, and K.S. Pregitzer. 2008. Measuring forest floor, mineral soil, and root carbon stocks. Chap. 10, p. 129-142 *In* C. Hoover (ed). Field Measurements for Forest Carbon Monitoring: A Landscape-Scale Approach. Springer. [Abstract](#)
3. Pregitzer, K.S., D.R. Zak, W.M. Loya, J.S. King and **A.J. Burton**. 2007. The contribution of root – rhizosphere interactions to biogeochemical cycles in a changing world. Chapter 7. p. 155-178 *In* Z. Cardon and J. Whitbeck (eds). The Rhizosphere: An Ecological Perspective, Academic Press. [Abstract](#)
2. Reed, D.D., G.D. Mroz, H.O. Liechty, K.S. Pregitzer, **A.J. Burton**, D.R. Zak, J.A. Witter, and N.W. MacDonald. 1994. Studying the effects of air pollution on forests along exposure gradients: experiences in the United States and opportunities for cooperation. p. 109-115 *In* Proceedings of the Conference on Climate and Atmospheric Deposition Studies in Forests (J. Solon, E. Roo-Zielinska, and A. Byternowicz, eds.). Nieborow, Poland, October 6-9, 1992. Polish Academy of Sciences.
1. **Burton, A.J.**, D.H. Urie, and J.B. Hart. 1987. Nitrogen transformations in four sludge amended Michigan forest types. p. 142-153 *In* The forest alternative for treatment and utilization of municipal and industrial wastes. Univ. of Washington Press, Seattle.

### **Technical Reports:**

21. Trettin, C.C., **A.J. Burton**, M.F. Jurgensen, D.S. Page-Dumroese, Z. Dai, R. Oren, B. Forschler, J. Schilling, and D. Lindner, 2021. Wood Decomposition and its role in the forest carbon cycle: the FACE wood decomposition experiment. Gen. Tech. Rept. SRS-262, U.S. Dept. Agriculture, Forest Service, Southern Research Station, Asheville, NC. 33 pg. <https://doi.org/10.2737/SRS-GTR-262>
20. **Burton, A.J.** 2019. Collaborative LTREB Renewal: Long-Term Ecosystem Response to Chronic Atmospheric Nitrate Deposition. Final Report to the National Science Foundation for Grant DEB 1251529.
19. Walker, A.P., B. Yang, T. Boden, M.G. De Kauwe, L.F. Fenstermaker, B. Medlyn, P.J. Megonigal, R. Oren, E. Pendall, D.R. Zak, S. Zaehle, **A.J. Burton**, B.G. Drake, R.D. Evans, B. Hungate, D.P. Johnson, D. Kim, D. LeCain, K.F. Lewin, M. Lu, K.F. Mueller, R.S. Nowak, J.S. Riggs, S.D. Smith, L.M. Tharp, T.J. Zelikova, and R.J. Norby. 2018. Phase 2 Free Air CO<sub>2</sub> Enrichment Model-Data Synthesis: Meteorological Data and Protocols. United States. doi:10.15485/1480328. <https://www.osti.gov/servlets/purl/1480328>.
18. Walker, A.P., M.G. De Kauwe, L.F. Fenstermaker, B. Hungate, B. Medlyn, P.J. Megonigal, R. Oren, E. Pendall, A.F. Talhelm, S. Zaehle, D.R. Zak, T. Boden, A.L.P. Brown, **A.J. Burton**, J.R. Butnor, F.P. Day, B.G. Drake, P. Dijkstra, R.D. Evans, A.C. Finzi, C.M. Iversen, R.B. Jackson, D. LeCain, H.R. McCarthy, T.L. Powell, R.S. Nowak, J.S. Riggs, S.D. Smith, D.B. Stover, L.M. Tharp, J.M. Warren, S.D. Wullschleger, and R.J. Norby. 2018. FACE-MDS Phase 2: Data from Six US-Located Elevated CO<sub>2</sub> Experiments. United States. doi:10.15485/1480325. <https://www.osti.gov/servlets/purl/1480325>.
17. Kubiske, Mark E.; Foss, Anita R.; Burton, Andrew J.; Jones, Wendy S.; Lewin, Keith F.; Nagy, John; Pregitzer, Kurt S.; Zak, Donald R.; Karnosky, David F. 2015. Supporting 13 years of global change research: the history, technology, and methods of the Aspen FACE Experiment. Gen. Tech. Rep. NRS-153. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 50 p.
16. **Burton, A.J.**, R.E. Froese, O. Gailing, L.A. Artman, and K.L. Price. 2015. Facilities Improvements for Ecological Research at Michigan Tech's Ford Center and Research Forest. Final Report to the National Science Foundation for Grant DBI 1226627.
15. Janowiak, M.K.; Iverson, L.; Mladenoff, D.J.; Peters, E.; Wythers, K.R.; Xi, W.; Brandt, L.A.; Butler, P.R.; Handler, S.D.; Shannon, P.D.; Swanston, C.W.; Parker, L.R.; Amman, A.J.; Bogaczyk, B.; Handler, C.; Lesch, E.; Reich, P.B.; Matthews, S.; Peters, M.; Prasad, A.; Khanal, S.; Liu, F.; Bal, T.; Bronson, D.; **Burton, A.**; Ferris, J.; Fosgitt, J.; Hagan, S.; Johnston, E.; Kane, E.; Matula, C.; O'Connor, R.; Higgins, D.; St. Pierre, M.; Daley, J.; Davenport, M.; Emery, M.R.; Fehring, D.; Johnson, G.; Neitzel, D.; Notaro, M.; Rissman, A.; Rittenhouse, C.; Ziel, R. 2014. Forest ecosystem vulnerability assessment and synthesis for northern Wisconsin and western Upper Michigan: a report from the Northwoods Climate Change Response Framework project. Gen. Tech. Rep. NRS-136. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 247 p.
14. **Burton, A.J.**, D.F. Karnosky, K. Pregitzer, K. Percy, N. Nelson, A. Rogers, J. Nagy, M. Kubiske, R. Lindroth, and D. Zak. 2014. Impacts of Interacting Elevated Atmospheric CO<sub>2</sub> and O<sub>3</sub> on the Structure and Functioning of a Northern Forest Ecosystem: Operating and

- Decommissioning the Aspen FACE Project. Final Technical Report for the Period September 1, 1995 – March 31, 2014 to the Department of Energy's Office of Biological and Environmental Research for Grant DE-FG02-95ER62125.
13. **Burton, A.J.** 2014. Midwestern Regional Center of the DOE National Institute for Climatic Change Research. Final Technical Report for the Period December 1, 2005 – November 30, 2013 to the Department of Energy's Office of Biological and Environmental Research for Grant DE-FC02-06ER64158.
  12. **Burton, A.J.** 2013. Collaborative LTREB Proposal: Long-Term Ecosystem Response to Chronic Atmospheric Nitrate Deposition. Final Report to the National Science Foundation for Grant DEB 0814864.
  11. Pregitzer, K.S., **A.J. Burton**, and D.R. Zak. 2010. From Genes to Ecosystems: Mechanisms Controlling Long-Term Ecosystem Response to Nitrogen Deposition. Final Report to the National Science Foundation for DEB Grants 0614422 and 0735116.
  10. **Burton, A.J.**, K.S. Pregitzer, D.R. Zak, and E.A. Lilleskov. 2009. Continuing Grant Nitrogen Saturation: Mechanisms and Consequences of Altered Ecosystem Metabolism. Final Report to the National Science Foundation for Grant DEB 0315138.
  9. Karnosky, D.F., G.K. Podila and **A.J. Burton**. 2009. An Integrated Functional Genomics Consortium to Increase Carbon Sequestration in Poplars: Optimizing Aboveground Carbon Gain. Final Technical Report - DE-FG02-04ER63792.
  8. **Burton, A.J.**, and K.S. Pregitzer. 2006. REU Site for Ecosystems in Transition: The Role of Research in Assessing Ecosystem Responses to a Changing Environment. Final Report to the National Science Foundation for Grant DEB 0353973.
  7. Pregitzer, K.S., **A.J. Burton**, and D.R. Zak. 2004. Plant-Microbe Interactions and the Production of Dissolved Organic Carbon and Nitrogen. Final Report to the National Science Foundation for Grant DEB 0075397.
  6. Pregitzer, K.S., **A.J. Burton**, D.J. Flaspohler, S.A. Green, and W.C. Kerfoot. 2004. The movement of elements through ecosystems: Major research instrumentation for the integration of research and education. Final Report to the National Science Foundation for Grant DEB 0079566.
  5. Pregitzer, K.S., P.T. Rygielwicz, R. Stottlemeyer, S.A. Green, J. Chen, **A.J. Burton**, and E.A. Hobbie. 2002. Collaborative research on below-ground ecosystem function: Merging long-term climate monitoring with soil, root, and foodweb dynamics to understand mechanisms regulating C and N transformations in Olympic National Park. Final Technical Report, Park Research and Intensive Monitoring of Ecosystems Network (PRIMENet), US EPA Assistance Agreement #CR826541-01-0. <http://www.cfc.umt.edu/primenet/pregitzer.htm>
  4. Pregitzer, K.S., **A.J. Burton**, M.F. Allen, R.L. Hendrick, and R.W. Ruess. 2001. Collaborative Research: Factors Regulating Below-Ground Carbon Allocation in Terrestrial Ecosystems: A Cross-Site Experiment. Final Report to the National Science Foundation for Grant DEB 9615509.
  3. Pregitzer, K.S., **A.J. Burton**, and D.R. Zak. 2000. Cycling of NO<sub>3</sub>-N in Northern Hardwood Forests: Regulation and Consequences of N Saturation. Final Report to the National Science Foundation for Grant DEB 9629842.

2. Witter, J., G. Mroz, K. Pregitzer, **A. Burton** et al. (20 authors). 1991. Effects of an Air pollution Gradient on Northern Hardwood Forests in the Northern Great Lakes Region. Final Report for the Eastern Hardwood Research Cooperative.
1. Witter, J., G. Mroz, K. Pregitzer, **A. Burton** et al. (16 authors). 1989. Michigan Gradient Case History Study for the NAPAP Assessment Plan. Report to EPA and the USDA Forest Service Eastern Hardwoods Research Cooperative.

***Book Reviews:***

**Burton, A.J.** 1998. Review of "Impact of air pollutants on southern pine forests", S. Fox and R.A. Mickler, eds. Quarterly Rev. Biol. 73:101.

***Theses:***

**Burton, A.J.** 1997. Sugar maple fine root respiration and longevity along a latitudinal gradient. Ph.D. dissertation. Michigan Technological University, Houghton. 104 p.

**Burton, A.J.** 1986. Nitrogen transformations and nitrate leaching following sludge application to four Michigan forest types. M.S. thesis, Michigan State University, E. Lansing. 144 p.

## Presentations

For all presentation my graduate advisees are indicated by \*, graduate students whose committees I served on are indicated by \*\*, post-doctoral associates are indicated by ‡, and undergraduate students are indicated by †.

### *Presentations at Scientific Meetings and Conferences (107 published abstracts, of which 103 were also presented. Presenters are indicated in italics):*

107. *Burton A.J.*, E.C. Reeves\*, and J.R. Eikenberry. 2021. Persistence of N saturation effects following reduction of experimental N inputs to northern hardwood forests. Oral presentation and published abstract, annual meeting of the Soil Science Society of America, Salt Lake City UT, Nov 7-10.
106. *Burton, A.*, C. Trettin, M. Jurgensen, D. Page-Dumroese, J. Schilling, D. Lindner, B. Forschler, and Z. Dai. 2021. Impact of microbial and termite communities on transfer of decaying wood C to stable and protected mineral soil C pools. Oral presentation and published abstract, Santee Experimental Forest Research Forum, Cordesville SC, Apr 1. (i)
105. *Dai, Z.*, C. Trettin, **A. Burton**, M. Jurgensen, D. Page-Dumroese, B. Forschler, J. Schilling, and D. Lindner. 2021. Modelling coarse woody debris decomposition on Santee, SC, using a process model CWDDAT. Oral presentation and published abstract, Santee Experimental Forest Research Forum, Cordesville SC, Apr 1. (i)
104. *Wang H.*, Z. Dai, K. Krauss, C. Trettin, G.B. Noe, **A.J. Burton**, C.L. Stagg, and E. Ward. 2021. Modeling the responses of greenhouse gas emissions to drought-induced saltwater intrusion in tidal freshwater forested wetlands. GC34A-08. Oral presentation and published abstract, AGU Fall Meeting, New Orleans LA, Dec 13-17.
103. *Burton A.J.*, E.C. Reeves\*, K.E. Schneider†, and J.R. Eikenberry. 2020. Persistence of N saturation effects after N inputs are reduced in northern hardwood forests. Oral presentation and published abstract, annual meeting of the Soil Science Society of America, virtual meeting.
102. *Opoku\**, *S.M.*, **A.J. Burton**, and E. Opuni-Frimpong. 2020. Carbon accumulation in soil layers under different forest cover types in Ghana. Poster presentation and published abstract, annual meeting of the Soil Science Society of America, virtual meeting.
101. *Burton, A.J.*, M.F. Jurgensen, and C. Trettin. 2019. Movement of isotopically depleted FACE log C into mineral soil after six years of decomposition. Oral presentation and published abstract, annual meeting of the Soil Science Society of America, San Diego, CA, Jan 6-9.
100. *Opuni-Frimpong, E.*, K.N. Baniako, E.J.D. Belford, and **A. Burton**. 2019. Restoration of degraded landscapes and carbon sequestration in different plantation systems in western Ghana. Oral presentation and published abstract at 31st Biennial Conference of the Ghana Science Association, Cape Coast, Ghana, Jul 29-Aug 1.
99. *Selan\**, *J.M.*, and **A.J. Burton**. 2019. Are the effects of ecosystem N saturation induced by chronic simulated N deposition rapidly reversible? Poster presentation and published abstract at the Ecological Society of America Annual Meeting, Louisville KY, Aug 11-16.

98. Schneider<sup>†</sup>, K., J.R. Eikenberry and **A.J. Burton**. 2019. Effects of reductions in experimental N deposition on mycorrhizal and decomposer abundance in a northern hardwood forest. Poster presentation and published abstract at the Ecological Society of America Annual Meeting, Louisville KY, Aug 11-16.
97. *Xu, X.*, **A.J. Burton** and J.R. Eikenberry. 2019. Long-term experimental N deposition increases soil C and N content and root N storage. Poster presentation and published abstract at the Ecological Society of America Annual Meeting, Louisville KY, Aug 11-16.
96. **Burton, A.J.**, M.A. Cavaleri, M.P. Jarvi\*, and A.R. Collins\*\*. 2018. Responses of root system respiration and stem sap flux to experimental soil warming in a sugar maple forest. Oral presentation and published abstract at the Ecological Society of America Annual Meeting, New Orleans, LA, Aug 5-10. (invited)
95. *Dai, Z.*, C. Trettin, **A.J. Burton**, M. Jurgensen, and D. Page-Dumroese. 2018. Modeling coarse woody debris decomposition in forests. B13G-2216. Poster presentation and published abstract at the AGU Fall Meeting, Washington DC, Dec 10-14.
94. *Trettin, C.*, **A.J. Burton**, J.S. Schilling, B.T. Forschler, D. Lindner, Z. Dai, D. Page-Dumroese, and M.F. Jurgensen. 2018. The FACE wood decomposition experiment: Understanding processes regulating carbon transfer to soil carbon pools using FACE wood at multiple scales. B33B-05. Oral presentation and published abstract at the AGU Fall Meeting, Washington, DC, Dec 10-14.
93. *Hoch<sup>†</sup>, P.J.*, **A.J. Burton**, and M.P. Jarvi. 2017. Reversibility of warming-induced changes in sugar maple root and soil respiration. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Portland, OR, Aug 6-11.
92. *Talhelm, A.F.*, K.S. Pregitzer, and **A.J. Burton**. 2017. Long-term simulated nitrogen deposition decreases seedling and sapling abundance in northern hardwood forests. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Portland, OR, Aug 6-11.
91. *Trettin, C.*, **A. Burton**, M. Jurgensen, D. Page-Dumroese, D. Lindner, B. Forschler, J. Schilling, and Z. Dai. 2017. The FACE Wood Decomposition Experiment: Abiotic and biotic controls on the fate of carbon from dead wood. Oral presentations and published abstract, 125<sup>th</sup> Anniversary Congress, International Union of Forestry Research Organizations, Freiburg, Germany, Sep 18-22.
90. **Burton, A.J.**, M.F. Jurgensen, and C. Trettin. 2016. Movement of isotopically depleted FACE log C into mineral soil after four years of decomposition. Oral presentation and published abstract, annual meeting of the Soil Science Society of America, Phoenix, AZ, Nov 6-9.
89. **Burton, A.J.**, and E.J. Bell<sup>†</sup>. 2016. Enhancement of canopy development rate and early season LAI by chronic N deposition: Implications for sugar maple growth and seedling survival. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Fort Lauderdale, FL, Aug 7-12.



88. *Duah-Gyamfi\**, A., S. Adu-Bredu, Y. Malhi, and **A.J. Burton**. 2016. Comparison of taxonomic and functional trait effects on aboveground biomass in pre- and post-logging forest stands in a moist tropical forest in Ghana. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Fort Lauderdale, FL, Aug 7-12.
87. **Burton, A.J.**, M.P. Jarvi\*, and K.M. Griffith. 2015. Relative responses of soil and root respiration to soil warming suggest little soil C loss after the initial two years. Poster presentation and published abstract, annual meeting of the Ecological Science Society of America, Baltimore, MD, Aug 9-14.
86. *Ibanez, I.*, D.R. Zak, **A.J. Burton**, and K.S. Pregitzer. 2015. Chronic nitrogen deposition alters tree allometric relationships and growth resilience to drought: Implications for biomass production and carbon storage under global change. Oral presentation and published abstract, annual meeting of the Ecological Science Society of America, Baltimore, MD, Aug 9-14.
85. *Jarvi\**, M.P., and **A.J. Burton**. 2015. Ecosystem root respiration in sugar maple forests increases with temperature within populations but not across populations: Results of a range-wide study. Oral presentation and published abstract, annual meeting of the Ecological Science Society of America, Baltimore, MD, Aug 9-14.
84. *Stanley†*, M.A., M.P. Jarvi\*, and **A.J. Burton**. 2015. Reduced decomposition of coarse-woody debris under simulated chronic N deposition is associated with lower fungal biomass. Poster presentation and published abstract, annual meeting of the Ecological Science Society of America, Baltimore, MD, Aug 9-14.
83. **Burton, A.J.**, B.J. Lyons\* and M.A. Stanley†. 2014. Altered decomposition of coarse woody debris under chronic experimental nitrogen deposition. Oral presentation and published abstract, annual meeting of the Soil Science Society of America, Long Beach, CA, Nov 2-6.
82. **Burton, A.J.**, M.P. Jarvi\*, and C.J. Kratz\*. 2014. Root and mycorrhizal acclimation to increased temperature in experimentally warmed northern forests. Oral presentation and published abstract, annual meeting of the Ecological Society of America, Sacramento, CA, Aug 10-15.
81. *Cavaleri, M.A.*, A.R. Collins\*\*, and **A.J. Burton**. 2014. Inter-annual difference in the water use of mature sugar maple in response to experimental warming and irrigation. Oral presentation and published abstract, International Union of Forest Research Organizations World Congress, Salt Lake City, UT, Oct 5-11.
80. *Collins\*\**, A.R., **A.J. Burton**, and M.A. Cavaleri. 2014. Inter-annual differences in the water use of mature sugar maple in response to experimental soil warming and irrigation. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Sacramento, CA, Aug 10-15.
79. *Jarvi\**, M.P., and **A.J. Burton**. 2014. Sugar maple fine-root respiration is mechanistically constrained by adenylate control after 3 years of experimental soil warming. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Sacramento, CA, Aug 10-15.

78. *Opuni Frimpong, E., N. Nyarko-Duah, S. Opoku, A. Storer, and A. Burton.* 2014. Restoration of degraded lands with mahogany in mixed-species plantations promotes biodiversity and conservation of valuable timber species. Oral presentation and published abstract, International Union of Forest Research Organizations World Congress, Salt Lake City, UT, Oct 5-11.
77. *Opuni Frimpong, E., S. Opoku, S. Owusu, A. Burton, and A. Storer.* 2014. Growth and productivity of *Khaya grandifoliola* in the dry semi-deciduous forest of Ghana: a comparison in pure and diverse species stands. Poster presentation and published abstract, International Union of Forest Research Organizations World Congress, Salt Lake City, UT, Oct 5-11.
76. *Talhelm, A.F., K.S. Pregitzer, D.R. Zak, and A.J. Burton.* 2014. Decadal effects of elevated CO<sub>2</sub> and O<sub>3</sub> on forest soil respiration and belowground carbon cycling at Aspen FACE. Presentation and published abstract, American Geophysical Union fall meeting, San Francisco, CA, Dec 15-19.
75. *Burton, A.J.* 2013. Predicted and observed changes in sugar maple-dominated northern hardwoods. Oral presentation and published abstract, Michigan Society of American Foresters spring meeting, April 30. (invited)
74. *Jarvi\*, M.P., and A.J. Burton.* 2013. Reduced non-structural carbohydrate concentration and temperature acclimation in sugar maple roots following experimental warming. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Minneapolis, MN, Aug 4-9.
73. *Kaarakka, L. \*, H.-S. Helmisaari, P. Tamminen, A. Saarsalmi, and A. Burton.* 2013. The long-term effects of whole-tree harvest at final felling on soil properties in a Norway spruce stand. In: Leppälammil-Kujansuu, J., Soenne, H., Merilä, P., Rankinen, K., Salo, T. & Hänninen, P. (eds.). Maankäytön kestävyys. VII Maaperätieteiden päivien abstraktit. Pro Terra 61:20-21.
72. *Kratz\*, C.J., A.J. Burton, and E.A. Lilleskov.* 2013. Soil microbial extracellular enzyme activities from a Northern temperate forest with experimental temperature and moisture manipulations. Oral presentation and published abstract, annual meeting of the Ecological Society of America, Minneapolis, MN, Aug 4-9.
71. *Lyons\*, B.J., and A.J. Burton.* 2013. Forest stand dynamics and accumulating down dead wood under chronic simulated nitrogen deposition in Michigan. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Minneapolis, MN, Aug 4-9.
70. *Murray, B.D., C.R. Webster, B.E. Tahtinen\*\*, C.S. Tarasoff, J.K. Bump, and A.J. Burton.* 2013. Conditional migration and foraging patch selection by a generalist herbivore results in a spatial resource subsidy in relict eastern hemlock forest. Oral presentation and published abstract, annual meeting of the Ecological Society of America, Minneapolis, MN, Aug 4-9.

69. *Talhelm, A.F.*, K. Pregitzer, M. Kubiske, D. Zak, C. Company, and A. Burton. 2013. Elevated CO<sub>2</sub> and O<sub>3</sub> alter productivity and carbon storage in northern temperate forests: Results from Aspen FACE. Presentation and published abstract, American Geophysical Union fall meeting, San Francisco, CA, Dec 9-13.
68. *Webster, C.R.*, B.D. Murray, J.K. Bump, B.E. Tahtinen\*\*, C.S. Tarasoff, and **A.J. Burton**. 2013. The importance of yellow snow: winter aggregations of a semi-migratory ungulate create a pulsed-resource subsidy with cascading effects on vegetation. Oral presentation and published abstract, 9<sup>th</sup> North American Forest Ecology Workshop, Bloomington, IN, Jun 16-24.
67. **Burton, A.J.**, D.R. Zak, K.S. Pregitzer, and M.E. Kubiske. 2012. Impacts of elevated CO<sub>2</sub> and O<sub>3</sub>, alone and in combination, on the functioning of a northern forest ecosystem. Poster presentation and published abstract, U.S. Department of Energy Terrestrial Ecosystem Sciences (TES) PI Meeting 2012, Washington, DC, Apr 23-24. (invited)
66. **Burton, A.J.** 2012. Root responses to elevated temperature and nitrogen deposition. Oral presentation and published abstract, Scaling Root Processes: Global Impacts Workshop. Department of Energy, Arlington, VA, Mar 7-9. (invited)
65. *Jarvi\**, *M.P.*, and **A.J. Burton**. 2012. Response of ecosystem fine root respiration to soil warming in a sugar maple forest. Oral presentation and published abstract, annual meeting of the Ecological Society of America, Portland, OR, Aug 5-10.
64. *Jarvi\**, *M.P.*, and **A.J. Burton**. 2012. Partial temperature acclimation of fine root respiration in sugar maple during the first year of soil warming. Poster presentation and published abstract, Scaling Root Processes: Global Impacts Workshop. Department of Energy, Arlington, VA, Mar 7-9. (invited)
63. *Lyons\**, *B.J.*, and **A.J. Burton**. 2012. Chronic simulated nitrogen deposition and the decomposition of dead woody material along a latitudinal gradient in Michigan. Oral presentation and published abstract, annual meeting of the Ecological Society of America, Portland, OR, Aug 5-10.
62. *Talhelm, A.F.*, **A.J. Burton**, K.S. Pregitzer, and D.R. Zak. 2012. Simulated nitrogen deposition reduces the abundance of dominant forest understory and groundcover plants. Presentation and published abstract, American Geophysical Union fall meeting, San Francisco, CA.
61. **Burton, A.J.**, M.P. Jarvi\*, K.M. Griffith, and C.J. Kratz\*. 2011. Responses of the components of northern hardwood soil respiration to experimental warming and moisture additions. Oral presentation and published abstract, annual meeting of the Soil Science Society of America, San Antonio, TX, Oct 16-19.
60. **Burton, A.J.**, M.P. Jarvi\*, and J.C. Jarvey†. 2011. Long-term NO<sub>3</sub>- additions alter root respiration:tissue N relationships in northern hardwood forests but not ecosystem root respiration. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Austin, TX, Aug 7-12.
59. **Burton, A.**, S. Frey and J. Melillo. 2011. Response of fine root respiration and biomass to soil warming in hardwood forests. Twenty-first Annual Harvard Forest Ecology Symposium. Petersham, MA, Harvard Forest, Mar 15.

58. *Jarvi\**, M., R. Chimner, and **A. Burton**. 2011. Increases in woody plant root respiration found with decreased water depth in a northern peatland. Poster presentation and published abstract, annual meeting of the Soil Science Society of America, San Antonio, TX, Oct 16-19.
57. *Jarvi\**, M.P., and **A.J. Burton**. 2011. Short-term metabolic response of sugar maple roots to soil warming. Oral presentation and published abstract, annual meeting of the Ecological Society of America, Austin, TX, Aug 7-12.
56. *Jondreau†*, G.P., M.P. *Jarvi\**, and **A.J. Burton**. 2011. Influence of root biomass and specific respiration rates on variation in ecosystem level fine root respiration among forest types. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Austin, TX, Aug 7-12.
55. *Kratz\**, C.J., **A.J. Burton**, and E.A. Lilleskov. 2011. Microbial metabolic responses to short-term soil warming in a temperate deciduous forest. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Austin, TX, Aug 7-12.
54. **Burton, A.J.**, R.A. McDonald, M.P. *Jarvi\**, S.M. Butler, and J.M. Melillo. 2010. Responses of fine root respiration and root N to soil warming in hardwood forests. Oral presentation and published abstract, annual meeting of the Soil Science Society of America, Long Beach, CA, Oct 31-Nov 3.
53. **Burton, A.**, S. Frey and J. Melillo. 2010. Response of fine root respiration rates and root N to soil warming in hardwood forests. Twentieth Annual Harvard Forest Ecology Symposium. Petersham, MA, Harvard Forest, Mar 16. [Abstract](#)
52. *Jarvey†*, J., M.P. *Jarvi\**, and **A.J. Burton**. 2010. Northern hardwood root respiration in response to chronic nitrogen addition. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Pittsburgh, PA, Aug 1-6.
51. *Jarvi\**, M.P., and **A.J. Burton**. 2010. Response of northern hardwood root respiration to warmer soils. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Pittsburgh, PA, Aug 1-6.
50. *Kratz\**, C.J., E.A. Lilleskov, **A.J. Burton**, S. Butler, and J.M. Melillo. 2010. Physiological responses of fungi to soil warming. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Pittsburgh, PA, Aug 1-6.
49. *Melillo, J.M.*, S.M. Butler, R.M. Smith, C.L. Vario, **A.J. Burton**, Y. Zhou, J. Tang, J.E. Johnson, and J. Mohan. 2010. Effects of soil warming on the carbon cycle at the Harvard Forest, Massachusetts, USA. Oral presentation and published abstract, annual meeting of the Ecological Society of America, Pittsburgh, PA, Aug 1-6.
48. *Smith, R.M.*, J.M. Melillo, S.M. Butler, C.L. Vario, **A.J. Burton**, Y. Zhou, J. Tank, J.E. Johnson, and J.E. Mohan. 2010. Effects of soil warming on the carbon cycle at the Harvard Forest. Twentieth Annual Harvard Forest Ecology Symposium. Petersham, MA, Harvard Forest, Mar 16. [Abstract](#)

47. *Talhelm\*\**, *A.F.*, K.S. Pregitzer, **A.J. Burton**, and D.R. Zak. 2010. Air pollution, emissions regulations, and long-term changes in regional forest biogeochemistry. Oral presentation and published abstract, annual meeting of the Ecological Society of America, Pittsburgh, PA, Aug 1-6.
46. **Burton, A.J.** 2009. Longer growing seasons and chronic nitrogen deposition increase productivity and alter soil carbon storage in Lake States northern hardwood forests. Carbon in Northern Forests: Integration of Research and Management, Traverse City, MI, June 10-11.
45. **Burton, A.**, S. Frey and J. Melillo. 2009. Response of fine root respiration rates and root N to soil warming in hardwood forests. Nineteenth Annual Harvard Forest Ecology Symposium. Petersham, MA, Harvard Forest, Mar 17. [Abstract](#)
44. **Burton, A.J.**, S.D. Frey, A.R. Contosta, J.M. Melillo, and S. Butler. 2008. Adjustment of fine root respiration rates to soil warming in hardwood forests. Poster at annual meeting of the Ecological Society of America, Milwaukee, WI, Aug 3-8.
43. **Burton, A.J.**, K.S. Pregitzer, J.S. King, and D.R. Zak. 2008. Soil respiration, root biomass, and root turnover at the Aspen FACE study. Facing the Future: A Joint Meeting of AspenFACE, SoyFACE, and SFB 607, Rhinelander, WI, April 2-4. (invited)
42. **Burton, A.J.**, K.S. Pregitzer, and D.R. Zak. 2007. Changes in northern hardwood growing season length and productivity during an 18-year warming trend. Poster at annual meeting of the Ecological Society of America, San Jose, CA, Aug 5-10.
41. **Burton, A.**, S. Frey and J. Melillo. 2008. Adjustment of fine root respiration rates to soil warming in hardwood forests. Eighteenth Annual Harvard Forest Ecology Symposium. Petersham, MA, Harvard Forest, Mar 18. [Abstract](#)
40. *Talhelm\*\**, *A.F.*, K.S. Pregitzer, and **A.J. Burton**. 2007. Chronic nitrogen additions and photosynthetic gas exchange in sugar maple: Instantaneous measurements and a stable isotope chronosequence. Annual meeting of the Ecological Society of America, San Jose, CA, Aug 5-10.
39. **Burton, A.J.** 2006. Root system responses to chronic N additions. Annual meeting of the Soil Science Society of America, Indianapolis, Indiana, Nov 12-16. (invited)
38. *Brown†*, *S.E.*, **A.J. Burton**, A.L. Pickett, and K.S. Pregitzer. 2005. A field comparison of two dynamic chamber instruments for measuring forest soil respiration. Poster at annual meeting of the Ecological Society of America, Montreal, QC, Aug 7-12.
37. **Burton, A.J.** and J.W. Culclasure†. 2005. Root respiration and biomass in the forest floor and surface mineral soil of northern hardwood forests receiving chronic N additions. Poster at annual meeting of the Ecological Society of America, Montreal, QC, Aug 7-12.
36. *Rothstein, D.E.*, **A.J. Burton**, D.R. Zak, and K.S. Pregitzer. 2005. Effects of long-term nitrogen amendment on leaf and wood decomposition in northern hardwood forests. Poster at annual meeting of the Ecological Society of America, Montreal, QC, Aug 7-12.
35. *Smemo, K.A.*, D.R. Zak, K.S. Pregitzer, and **A.J. Burton**. 2005. Qualitative chemistry of dissolved organic carbon exports from northern hardwood forests in response to chronic experimental nitrate deposition. Annual meeting of the Soil Science Society of America.

34. **Burton, A.J.**, and K.S. Pregitzer. 2004. Tree mortality and decay in northern hardwood forests. Annual meeting of the Soil Science Society of America, Seattle, Washington, Oct. 31-Nov. 4.
33. *Rustad, L.*, J. Gurevitch, M. Adams, **A. Burton**, M. Corre, B. Emmett, I. Fernandez, N. Lamersdorf, G. Lovett, A. Magill, H. Majdi, and W. Wessel. 2004. A meta-analysis of the response of fine root biomass, fine root chemistry and soil respiration to experimentally elevated N deposition in north temperate forest ecosystems. Annual meeting of the Soil Science Society of America, Seattle, Washington, Oct. 31-Nov. 4.
32. **Burton, A.J.**, and K.S. Pregitzer. 2004. Soil respiration in common North American forests: interactive effects of temperature, moisture and nitrogen availability. 18<sup>th</sup> North American Forest Biology Workshop, Michigan Technological University, Houghton, Michigan, July 12-15.
31. **Burton, A.J.**, and K.S. Pregitzer. 2003. Root and microbial contributions to soil CO<sub>2</sub> efflux in northern hardwood forests with and without chronic N additions. Annual meeting of the Soil Science Society of America, Denver, Colorado, Nov. 2-6.
30. *Crawford\*\**, *J.N.*, K.S. Pregitzer, **A.J. Burton**, and D.R. Zak. 2002. Effect of experimental N-additions on soil and root respiration in northern hardwood stands. Annual meeting of the Ecological Society of America, Tucson, Arizona, Aug. 5-9.
29. *Eikenberry\*\**, *J.R.*, K.S. Pregitzer, **A.J. Burton**, and D.R. Zak. 2002. Chronic N effects on root and leaf litter chemistry of northern hardwood forests. Annual meeting of the Ecological Society of America, Tucson, Arizona, Aug. 5-9.
28. **Burton, A.J.**, K.S. Pregitzer, and K.L. Bradley<sup>†</sup>. 2001. Spatial and temporal variation of soil respiration in a pinyon-juniper woodland. Poster at annual meeting of the Ecological Society of America, Madison, Wisconsin, Aug 5-10.
27. *Kane<sup>†</sup>*, *E.S.*, K.S. Pregitzer, and **A.J. Burton**. 2001. Soil CO<sub>2</sub> efflux along a diverse environmental gradient in Olympic National Park, Washington. Poster at annual meeting of the Ecological Society of America, Madison, Wisconsin, Aug. 5-10.
26. *Pregitzer, K.S.*, **A.J. Burton**, R.W. Ruess, R.L. Hendrick, and M.F. Allen. 2001. Soil temperature, moisture, and nitrogen interact to influence soil respiration in North American forests. Poster at the International Geosphere-Biosphere Programme (IGBP) global change open science conference: Challenges of a Changing Earth, Amsterdam, Netherlands, July 10-13.
25. **Burton, A.J.**, K.S. Pregitzer, G.P. Zogg, and D.R. Zak. 2000. Northern hardwood soil respiration after six years of N additions. Poster at annual meeting of the Soil Science Society of America, Minneapolis, Minnesota, Nov. 5-9.
24. **Burton, A.J.**, and K.S. Pregitzer. 2000. Field measurements of root respiration in sugar maple and red pine forests indicate no temperature acclimation. Poster presentation and published abstract, annual meeting of the Ecological Society of America, Snowbird, Utah, Aug. 6-10.

23. Zogg, G.P., D.R. Zak, **A.J. Burton**, and K.S. Pregitzer. 1999. Belowground fate and flow of nitrate in a northern hardwood forest. Annual meeting of the Ecological Society of America, Spokane, Washington, Aug. 8-12.
22. **Burton, A.J.**, and K.S. Pregitzer. 1998. Fine root respiration rates in North American forests. Poster at annual meeting of the Soil Science Society of America, Baltimore, Maryland, Oct. 18-22.
21. **Burton, A.J.**, K.S. Pregitzer, G.P. Zogg, and D.R. Zak. 1997. Belowground carbon allocation in sugar maple forests with differing nitrogen availability. Annual meeting of the Soil Science Society of America, Anaheim, California, Oct. 26-30.
20. **Burton, A.J.**, K.S. Pregitzer, G.P. Zogg, and D.R. Zak. 1997. Drought reduces root respiration in sugar maple forests. Annual meeting of the Ecological Society of America, Albuquerque, New Mexico, Aug. 10-14.
19. Pregitzer, K.S., M.J. Laskowski<sup>†</sup>, **A.J. Burton**, and V.C. Lessard. 1997. Variation in northern hardwood root respiration with root diameter and soil depth. Poster at annual meeting of the Ecological Society of America, Albuquerque, New Mexico, Aug. 10-14.
18. Zogg, G.P., D.R. Zak, **A.J. Burton**, and K.S. Pregitzer. 1996. The contribution of fine roots to carbon dioxide flux from forest soils. Annual meeting of the Soil Science Society of America, Indianapolis, Indiana, Nov. 3-8.
17. **Burton, A.J.**, K.S. Pregitzer, and G.P. Zogg. 1995. Latitudinal variation in sugar maple fine root respiration. Annual meeting of the Ecological Society of America, Snowbird, Utah, July 30-Aug. 3.
16. **Burton, A.J.**, K.S. Pregitzer, and G.P. Zogg. 1995. Temperature and nitrogen effects on fine root longevity in sugar maple forests. Annual meeting of the Soil Science Society of America, St. Louis, Missouri, Oct. 29-Nov. 3.
15. Zogg, G.P., D.R. Zak, **A.J. Burton**, and K.S. Pregitzer. 1995. Patterns of fine-root respiration in northern hardwood forests in relation to temperature and nitrogen availability. Annual meeting of the Ecological Society of America, Snowbird, Utah, Aug. 6-10.
14. **Burton, A.J.**, K.S. Pregitzer, and N.W. MacDonald. 1993. Insect defoliation effects on northern hardwood nutrient cycling. Annual meeting of the Soil Science Society of America, Cincinnati, Ohio, Nov. 7-12.
13. MacDonald, N.W., J.A. Witter, **A.J. Burton**, K.S. Pregitzer, and D.D. Richter. 1992. Relationships among atmospheric deposition, throughfall, and soil properties in oak forest ecosystems. Annual meeting of the Soil Science Society of America, Minneapolis, Minnesota, Nov. 1-6.
12. MacDonald, N.W., **A.J. Burton**, H.O. Liechty, G.D. Mroz, and J.A. Witter. 1991. Soil solution chemistry and ion leaching in northern hardwood forests across an 800 km pollution gradient. Poster at Emerging Issues in Northern Hardwood Management: Air Pollution, Climate Change and Biodiversity, Mackinac Island, Michigan, May 20-23.
11. Pregitzer, K.S., **A.J. Burton**, G.D. Mroz, H.O. Liechty, and N.W. MacDonald. 1991. Northern hardwood foliar stoichiometry across an 800-km pollution gradient. Emerging

Issues in Northern Hardwood Management: Air Pollution, Climate Change and Biodiversity, Mackinac Island, Michigan, May 20-23.

10. *MacDonald, N.W., A.J. Burton, M.F. Jurgensen, and J.W. McLaughlin.* 1990. Variation in soil properties along an air pollution gradient in the northern Great Lakes region. Annual meeting of the Soil Science Society of America, San Antonio, Texas, Oct. 21-26.
9. *Mroz, G., A. Burton, O. Hua, M. Jurgensen, H. Liechty, N. MacDonald, K. Pregitzer, D. Reed, R. Stottlemeyer, J. Witter, and D. Zak.* 1990. Effects of an air pollution gradient on northern hardwood forests in the northern Great Lakes Region: Part 2 - Nutrient cycling and forest productivity. NAPAP International Conference, Hilton Head, SC, Feb. 11-16.
8. *Witter, J., G. Mroz, K. Pregitzer, A. Burton, M. Jurgensen, D. Karnosky, H. Liechty, N. MacDonald, D. Reed, D. Richter, R. Stottlemeyer, and D. Zak.* 1990. Effects of an air pollution gradient on northern hardwood forests in the northern Great Lakes Region: Part 1 - Overview. NAPAP International Conference, Hilton Head, South Carolina, Feb. 11-16.
7. *Burton, A.J., and K.S. Pregitzer.* 1989. Specific leaf area and leaf area index in Great Lakes northern hardwood forests. Annual meeting of the Ecological Society of America, Toronto, Ontario, Canada, Aug. 6-10.
6. *Mroz, G.D., D.D. Reed, J.A. Witter, K.S. Pregitzer, M.F. Jurgensen, H.O. Liechty, A.J. Burton, J.R. Stottlemeyer, N.W. MacDonald, D.R. Zak, and O. Hua.* 1989. Effects of an air pollution gradient on northern hardwood forests in the northern Great Lakes Region: Part 2 - Nutrient cycling and forest productivity. Poster at International Congress on Forest Decline Research: State of Knowledge and Perspectives, Friedrichshafen, Lake Constance, Federal Republic of Germany, Oct. 2-6.
5. *Witter, J., G. Mroz, K. Pregitzer, A. Burton, M. Jurgensen, D. Karnosky, H. Liechty, N. MacDonald, D. Reed, D. Richter, R. Stottlemeyer, and D. Zak.* 1989. Effects of an air pollution gradient on northern hardwood forests in the northern Great Lakes Region: Part 1 - Overview. Poster at International Congress on Forest Decline Research: State of Knowledge and Perspectives: Friedrichshafen, Lake Constance, Federal Republic of Germany, Oct. 2-6.
4. *Hendrick, R.L., K.S. Pregitzer, A.J. Burton, and P.V. Nguyen.* 1988. Fine root dynamics in northern hardwood forests along an acid deposition gradient. Poster at annual meeting of the Soil Science Society of America, Anaheim, California, Nov. 27-Dec. 2.
3. *Liechty, H., A. Burton, M. Jurgensen, G. Mroz, K. Pregitzer, D. Reed, D. Richter, R. Stottlemeyer, and J. Witter.* 1988. Relationships of throughfall chemistry to precipitation in six northern hardwood stands along a sulfate deposition gradient. Poster at International Symposium on Acidic Deposition and Forest Decline, Rochester, New York, Oct. 20-21.
2. *Burton, A.J., J.B. Hart, Jr., and D.H. Urie.* 1985. Sludge nitrogen form and acidity effects on nitrogen transformations in Michigan forest soils. Annual meeting of the Soil Science Society of America, Chicago, Illinois, Dec. 1-6.
1. *Burton, A.J.* 1985. Nitrogen transformations in four sludge-amended Michigan forest types. Poster at Forest Land Applications Symposium, Univ. of Washington, Seattle, June 25-28.



***Other Presentations (57 oral presentations without published abstracts of which 38 were invited. Presenters are indicated in italics):***

57. ***Burton, A.J.***, and C.C. Trettin. 2020. The FACE Wood Decomposition Experiment: Wood decomposition's role in global carbon cycles. Presentation to the Berkeley High School environmental science class, Moncks Corner, SC, Mar 12.
56. ***Burton, A.J.*** 2019. Impacts of global change on below-ground processes in forests. Oral presentation to the Northeast Forest University in Harbin, China, May 14. (i)
55. ***Burton, A.J.*** 2019. The Ecosystem Science Center. Oral presentation to the Northeast Forest University in Harbin, China, May 14. (i)
54. ***Burton, A.J.***, C.C. Trettin, J.S Schilling, D.L. Lindner, Z. Dai, B.T. Forschler, M.F. Jurgensen, and D.S. Page-Dumroese. 2019. The FACE wood decomposition experiment: Understanding processes regulating carbon transfer to soil carbon pools using FACE wood at multiple scales. Caspar Creek Experimental Watershed 2019 Annual Meeting, Fort Bragg, CA, May 8-9. (i)
53. ***Burton, A.J.*** 2016. Wood energy for Michigan Tech's Ford Center. Oral presentation at Heating the Midwest Conference, Adopting Renewable Biomass Heat: Investing in Tomorrow's Sustainable Communities. Island Resort and Casino, Harris, MI, Oct. 11-13. (i)
52. ***Burton, A.J.*** 2016. Lectures and field presentations on: acid rain, N deposition and N saturation; climate change, temperature and moisture; the soil warming experiment, and designing global change experiments to high school teachers attending Global Change Teacher Institute. Houghton, Michigan, June 20-24.
51. ***Burton, A.J.*** 2016. Wood energy for Michigan Tech's Ford Center. Webinar presentation for Cord Wood Boilers: Success Stories in Commercial Applications, hosted by the Southeast Michigan Resource Conservation and Development Council and funded by the USDA Forest Service Northeastern Area State and Private Forestry. June 1. (i)
50. ***Burton, A.J.*** 2015. Field presentations on soil – ecosystem – vegetation relationships for Lake Linden Hubbell and Dollar Bay 6<sup>th</sup> grade students. Camp Nesbit, Michigan, May 14. (i)
49. ***Burton, A.J.*** 2014. Lectures and field presentations on: acid rain, N deposition and N saturation; climate change, temperature and moisture; the soil warming experiment, and designing global change experiments to high school teachers attending Global Change Teacher Institute. Houghton, Michigan, July 7-11.
48. ***Burton A.J.*** 2014. Root system and carbon allocation responses to global change manipulations in temperate forests. Environmental Engineering graduate seminar, Michigan Technological University, Houghton, Michigan, April 14. (i)
47. ***Burton, A.J.*** 2013. Capacity building for CDM forestry in the framework of SFM emphasizing community forests and poverty alleviation in Ghana. Forestry Research Institute of Ghana, Kumasi, Ghana, October 1. (i)
46. ***Burton, A.J.*** 2013. Lectures and field presentations on: acid rain, N deposition and N saturation; climate change, temperature and moisture; the soil warming experiment, and

- designing global change experiments to high school teachers attending Global Change Teacher Institute. Houghton, Michigan, July 8-12.
45. **Burton, A.J.** 2013. Lectures and field presentations on geology, landforms and soils, at the Michigan Tech sponsored National Advanced Silviculture Program Ecological Systems Module for U.S. Forest Service personnel. Houghton, Michigan, May 7-8. (i)
  44. **Burton, A.J.** 2013. Northern hardwood ecosystem resilience in the face of climatic change. Forestry Research Institute of Ghana, Kumasi, Ghana, June 5. (i)
  43. **Burton A.J.** 2013. An introduction to the scientific method and ecology research. Presentation to Lake Linden Hubbell Elementary School students (5<sup>th</sup> grade), Lake Linden, Michigan, Jan 17. (i)
  42. **Burton, A.J.** 2012. Lectures and field presentations on: acid rain, N deposition and N saturation; climate change, temperature and moisture; the soil warming experiment, and designing global change experiments to high school teachers attending Global Change Teacher Institute. Houghton, Michigan, June 18-22.
  41. **Burton, A.J.** 2012. Lectures and field presentations on weather and climate, site quality and productivity, at the Michigan Tech sponsored National Advanced Silviculture Program Lake States Silviculture Module for U.S. Forest Service personnel. Houghton, Michigan, July 11-12. (i)
  40. **Burton, A.J.** 2012. Lectures and field presentations on geology, landforms and soils, at the Michigan Tech sponsored National Advanced Silviculture Program Ecological Systems Module for U.S. Forest Service personnel. Houghton, Michigan, May 1-2. (i)
  39. **Burton, A.J.** 2012. Root system and carbon allocation responses to global change manipulations in temperate forests. Forestry Research Institute of Ghana, Kumasi, Ghana, June 8. (i)
  38. **Burton, A.J.** 2011. Carbon sequestration and sustainability considerations for tropical forest plantations. Forestry Research Institute of Ghana, Kumasi, Ghana, Nov 24. (i)
  37. **Burton A.J.** 2011. Global Change and Forest Management. Seminar for Southwest Michigan DNR personnel. Plainwell, Michigan, July 21. (i)
  36. **Burton, A.J.** 2011. Lectures and field presentations on geology, landforms and soils, at the Michigan Tech sponsored National Advanced Silviculture Program Ecological Systems Module for U.S. Forest Service personnel. Houghton, Michigan, May 17-18. (i)
  35. **Burton, A.J.** 2010. Lectures and field presentations on: acid rain, N deposition and N saturation; climate change, temperature and moisture; the FACE experiment, and designing global change experiments to high school teachers attending Global Change Teacher Institute. Houghton, Michigan, July 19-23.
  34. **Burton, A.J.** 2010. Lectures and field presentations on weather and climate, site quality and productivity, at the Michigan Tech sponsored National Advanced Silviculture Program Lake States Silviculture Module for U.S. Forest Service personnel. Houghton, Michigan, Jun 9-10. (i)

33. **Burton, A.J.** 2010. Lectures and field presentations on geology, landforms and soils, at the Michigan Tech sponsored National Advanced Silviculture Program Ecological Systems Module for U.S. Forest Service personnel. Houghton, Michigan, May 11-12. (i)
32. **Burton, A.J.** 2010. Observable evidence of a warming climate. Ottawa National Forest Earth Day Symposium. Gogebic Community College, Ironwood, Michigan, Apr 22. (i)
31. **Burton, A.J.** 2010. Ecosystem responses to global change. TACCT: Training in Advanced Climate Change Topics. Pyle Center, Madison, WI, Mar 17. (i)
30. **Burton A.J.** 2009. An introduction to global change issues. Lecture presentation to Jeffers High School science and math teachers, Painesdale, Michigan, Dec 23. (i)
29. **Burton, A.J.** 2009. Belowground responses to climate. Hanover Forest Science Seminar Series, Michigan State University, Department of Forestry, East Lansing, Nov 10. (i)
28. **Burton, A.J.**, K.S. Pregitzer, D.F. Karnosky, K.S. Pregitzer, K.E. Percy, N.D. Nelson, A. Rogers, J. Nagy, M.E. Kubiske, R.L. Lindroth and D.R. Zak. 2009. Impacts of elevated CO<sub>2</sub> and O<sub>3</sub>, alone and in combination, on the structure and functioning of a northern forest ecosystem: Aboveground tree responses. U.S. Department of Energy Program for Ecosystem Research (PER) 2009 Investigator Meeting, Arlington, VA, Nov 17-18. (i)
27. **Burton, A.J.** 2009. Lectures and field presentations on: acid rain, N deposition and N saturation; climate change, temperature and moisture; the FACE experiment, and designing global change experiments to high school teachers attending Global Change Teacher Institute. Houghton, Michigan, July 13-17.
26. **Burton, A.J.** 2009. Lectures and field presentations on geology, landforms and soils, at the Michigan Tech sponsored National Advanced Silviculture Program Ecological Systems Module for U.S. Forest Service personnel. Houghton, Michigan, May 12-13. (i)
25. **Burton, A.J.** 2008 Tree physiology and carbon allocation responses to climate change. Xi Sigma Pi Symposium on Ecosystems and Climate Change. Michigan Technological University, Houghton, MI. April 4, 2008. (i)
24. **Burton, A.J.** 2008. Lectures and field presentations on weather and climate, site quality and productivity, at the MTU sponsored National Advanced Silviculture Program Lake States Silviculture Module for U.S. Forest Service personnel. Houghton, Michigan, July 9. (i)
23. **Burton, A.J.** 2008. Lectures and field presentations on geology, landforms and soils, at the Michigan Tech sponsored National Advanced Silviculture Program Ecological Systems Module for U.S. Forest Service personnel. Houghton, Michigan, May 21-22. (i)
22. **Burton, A.J.** 2008. Lectures and field presentations on: acid rain, N deposition and N saturation; climate change, temperature and moisture; the FACE experiment, and designing global change experiments to high school teachers attending Global Change Teacher Institute. Houghton, Michigan, July 14, 16, 17 and 18.
21. **Burton, A.J.** 2007. Altered forest C cycling in a changing world: acclimation, productivity and feedback mechanisms. School of Forest Resources and Environmental Science, Michigan Technological University, Houghton, Michigan, Oct 10. (i)

20. **Burton, A.J.** 2007. Lectures and field presentations on geology, landforms and soils, at the Michigan Tech sponsored National Advanced Silviculture Program Ecological Systems Module for U.S. Forest Service personnel. Houghton, Michigan, May 15-16. (i)
19. **Burton, A.J.** 2007 Lectures and field presentations on: acid rain, N deposition and N saturation; climate change, temperature and moisture; the FACE experiment, and designing global change experiments to high school teachers attending Global Change Teacher Institute. Houghton, Michigan, June 26-28.
18. **Burton, A.J.** 2006. Lectures and field presentations on weather and climate, site quality and productivity, and hydrology at the Michigan Tech sponsored Program of Advanced Studies in Silviculture for U.S. Forest Service personnel. Houghton, Michigan, May 16 and 24. (i)
17. **Burton, A.J.** 2006. Lectures and field presentations on: acid rain, N deposition and N saturation; climate change, temperature and moisture; and designing global change experiments to high school teachers attending Global Change Teacher Institute. Houghton, Michigan, July 18, 19 and 21.
16. **Burton, A.J.** 2005. Lectures and field presentations on soils, tree physiology (root growth and crown growth), nutrient cycling, and climate and air quality at the Michigan Tech sponsored Program of Advanced Studies in Silviculture for U.S. Forest Service personnel. Alberta, Michigan, July 18 and 19. (i)
15. **Burton, A.J.** 2005. Lectures and field presentations on: acid rain, N deposition and N saturation; climate change, temperature and moisture; and designing global change experiments to high school teachers attending Global Change Teacher Institute. Alberta, Michigan, July 11, 12, 14 and 15.
14. **Burton, A.J.** 2005. Lectures and field presentations on plant identification and forest measurements to high school teachers attending Forest Resources and Environmental Science Teacher Institute. Alberta, Michigan, June 27. (i)
13. **Burton, A.J.** 2004. Lectures and field presentations on plant identification and forest measurements to high school teachers attending Forest Resources and Environmental Science Teacher Institute. Alberta, Michigan, July 12. (i)
12. **Burton, A.J.** 2003. Lecture and field presentation on forest measurements to visiting Korean high school teachers. Alberta, Michigan, August 5 and 8. (i)
11. **Pregitzer K.S., and Burton A.J.** 2003. The influence of physiology and phenology on soil respiration. Oral presentation at DOE-NIGEC Workshop on Soil Respiration, Boulder, Colorado, Oct 13.
10. **Burton, A.J.** 2002. Lecture and field presentation on nutrient cycling and population, community and ecosystem ecology at the Michigan Tech sponsored Program of Advanced Studies in Silviculture for U.S. Forest Service personnel. Alberta, Michigan, September 13. (i)
9. **Burton, A.J.** 2002. Alteration of Belowground Carbon Cycling by Chronic Nitrate Additions to Northern Hardwood Forests. School of Forest Resources and Environmental Science, Michigan Technological University, Houghton, Michigan. April 30. (i)

8. *Pregitzer, K.S., and A.J. Burton.* 2002. The Michigan gradient study – Evaluation of nutrient cycling processes along a gradient of temperature and N deposition. Oral presentation at the Terrestrial Ecosystem Responses to Atmospheric and Climatic Change (TERACC) workshop: From Transient to Steady State Response of Ecosystems to CO<sub>2</sub>-Enrichment and Global Warming, Durham, New Hampshire, Apr. 28 – May 1.
7. *Burton, A.J.* 2002. Report on the MTU School of Forestry and Wood Products' soils related research activities at the Michigan Soil Survey Cooperators Meeting. East Lansing, Michigan, March 5.
6. *Burton, A.J.* 2001. Belowground C and N fluxes along a climatic gradient in Olympic NP. Oral presentation at PRIMENet annual meeting, Hawaii Volcanoes National Park, Nov. 5-8.
5. *Burton, A.J.* 2001. Field presentation on the NSF Cross-Biome study to the Board of Trustees of the Great Lakes Forestry Alliance, Oct. 10. (i)
4. *Burton, A.J.* 2000. Field presentation on the Michigan Gradient Study to attendees of IUFRO's 19<sup>th</sup> International Meeting for Specialists in Air Pollution Effects on Forest Ecosystems: Air Pollution, Global Change and Forests in the New Millennium. Twin Lakes, Michigan, May 31. (i)
3. *Burton, A.J.* 2000. Forest ecology training for Trees for Tomorrow high school students from Wisconsin. Houghton, Michigan, April 21. (i)
2. *Burton, A.J.* 1999. Lecture on effects of forest management on soil properties at the MTU sponsored Program of Advanced Studies in Silviculture for U.S. Forest Service personnel. Alberta, Michigan, October 21. (i)
1. *Burton, A., D. Urie, and J.B. Hart, Jr.* 1985. Nitrogen cycling and potential nitrate groundwater pollution. Oral presentation and published summary at Conference on Forest Land Application of Wastewater Sludge, Grayling, Michigan, Sep. 11-12.

## **Professional Service**

### ***University Committee and College Administrative Service:***

Director, MicroAnalytical Facility (a shared facility), September 2018 to present

Leader of the Natural Resources, Water, and Energy Initiative of Michigan Tech's Tech Forward program, December 2018 to present

Supervisor of the Laboratory for Ecological Analyses in Forests (LEAF, managed by Jennifer Eikenberry), which provides analytical services within and outside the University on a fee per sample basis. Analytical capabilities include elemental analysis of solids (C, N, S, O), stable isotopes of C and N in solid, liquid and gas samples, gas chromatography (CO<sub>2</sub>, CH<sub>4</sub>, PLFAs), rapid flow analysis of NO<sub>3</sub><sup>-</sup>, NH<sub>4</sub><sup>+</sup>, and PO<sub>4</sub><sup>3-</sup> in liquids. In 2014, LEAF became part of the MicroAnalytical Facility. June 2007 to present

Faculty Rep on the Michigan Tech Alumni Board of Directors, 2016 to 2022

Served on new faculty Early Career Mentoring teams, 2019-present

Served on Michigan Tech's Research Excellence Funds internal grant review panels, 2018 to present

Director, Ecosystem Science Center, December 2008 to 2021

Served on ADVANCE Faculty Equity Query Tool Pilot Group, 2021

Served on Performance Management small group reviewing and recommending changes to the format and competencies for Michigan Tech's Performance Management tool, 2020-2021

Senior guide for Advanced Career Mentoring leadership group, 2020-2021

Prepared Annual Project Report for CFRES/SFRES for MICZ-Climate project, "Effects of Air Pollution and Climate Change on Forest Ecosystems", 2010 to 2020

Advisory Committee for the Distinguished Professor Award and the University Professor Award at Michigan Tech, 2017 to 2019

Research Advisory Council, 2017 to 2019

Internal member of external review team for Biological Sciences department, October to December, 2018

Member of the University Safety Advisory Council (formerly Presidential Committee on University Safety and Environmental Health), 1998 to 2018.

SFRES Academic Advisor Search Committee, spring 2016

Strategic Plan Ad Hoc Committee, SFRES, August 2016 to March 2017

Tenure, Promotion and Review (TPR) Committee, August 2015 to May 2018, Chair in 2017/18 academic year

Ford Center and School Research Forest Committee, August 2015 to May 2018

Curriculum Committee, School of Forest Resources and Environmental Science, August 2012 to May 2016 (Chair in 2015/2016 academic year)

Facilities Engineer Search Committee, December 2014 to May 2015  
Forest Management Faculty Search Committee, October 2014 to April 2015  
Shared Research Equipment and Core Facilities Working Group, Office of the Vice President for Research, December 2012 to June 2013  
Interschool Tenure, Promotion & Reappointment Committee, January 2013 to April 2014  
University Assessment Council Member, December 2010 to May 2012  
Cognate Review of six Strategic Faculty Hiring Initiative candidates, November 2011  
Graduate Dean Review Committee, Spring 2011  
Graduate Studies Committee, School of Forest Resources and Environmental Science, August 2008 to May 2011 (Chair in 2010/2011 academic year)  
Member of Host Committee for two candidates for the Strategic Hiring Initiative in Sustainability (Spring 2008)  
Chemical Hygiene Officer, School of Forest Resources and Environmental Science, 1998 to 2004

***National Committee and Administrative Service:***

Ecological Society of America Board of Professional Certification (January 2011 to December, 2013, Chair in 2012)  
Aspen FACE co-Director and member of Aspen FACE Steering Committee (November 2008 to December 2012)  
Director of the Midwestern Regional Center of the DOE National Institute for Climatic Change Research (June 2007 to December 2012)  
Assistant Director of the Midwestern Regional Center of the DOE National Institute for Climatic Change Research (December 2005 to June 2007)  
Moderated session at the North American Forest Biology Workshop (July 13, 2004)  
Moderated session at Carbon in Northern Forests meeting, Traverse City (June 11, 2009)  
Co-organizer for Carbon in Northern Forests meeting and field in Traverse City, Michigan, June 10-12, 2009

***Member of professional societies:***

Society of American Foresters (2000 to present)  
Ecological Society of America (1995 to present)  
Soil Science Society of America (1985 to present)  
Agronomy Society of America (1985 to 2014)  
Council on Undergraduate Research (2005 to 2017)

***Proposal reviews proposals for: (I have performed 130 proposal reviews for funding agencies. Note that 81 of these reviews were performed for the NICCR Midwestern Regional Center panel)***

- 2002: USDA NRI Soils and Soil Biology  
NSF DEB
- 2003: USDA NRI Soils and Soil Biology (2)  
USDA NRI Plant Responses to the Environment  
NSF DEB  
NSF BE: Coupled Biogeochemical Cycles
- 2004: NSF DBI Undergraduate mentoring in biology  
US Civilian Research and Development Foundation
- 2005: NSF DBI-REU  
NSF DEB (2)  
NSF OISE (Global Scientists and Engineers)
- 2006 NSF DEB  
NICCR Midwestern Regional Center (RFP01: 24 proposals, 260 preproposals)
- 2007 NSF DEB  
NICCR Midwestern Regional Center (RFP02: 17 proposals, 141 preproposals)  
NICCR Midwestern Regional Center (RFP03: 15 proposals, 211 preproposals)
- 2008 NSF DEB  
NSF DEB-RUI  
NICCR Midwestern Regional Center (RFP04: 14 proposals, 217 preproposals)
- 2009 NSF DEB  
NICCR Midwestern Regional Center (RFP05: 11 proposals, 151 preproposals)  
NSF IOS
- 2010 FWF (Austrian Science Fund)  
NSF IOS
- 2011 NASA ICVC11 (2)
- 2012 NSF IOS (2)
- 2013 DOE BER (9 – also panel member)
- 2014 DOE BER SBIR (3)
- 2019 DOE BER (10)
- 2020 NSF RCN



***Manuscript reviews for: (I have performed 147 manuscript reviews for 42 refereed journals and four pre-submission reviews for U.S. Forest Service personnel. In the list below, numbers in parentheses indicate multiple reviews for that year.)***

Agricultural and Forest Meteorology 2022  
American Midland Naturalist 2002  
Annals of Forest Science 2009  
Arctic, Antarctic and Alpine Research 2017  
Biogeochemistry 2014, 2017  
Canadian Journal of Botany 2014  
Canadian Journal of Forest Research 1993(2), 2001  
Ecological Applications 2010, 2012  
Ecology/Ecological Monographs 1999, 2006, 2014  
Ecology Letters 2012, 2021  
Ecosphere 2017  
Ecosystems 2016(2), 2017  
European Journal of Forest Research 2015  
Forest Ecology and Management 2005(3), 2015  
Forest Science 1993(2), 2002, 2003(2), 2004(2), 2006, 2007, 2009(4), 2010(4), 2012, 2013, 2014  
Forests 2015, 2018, 2022(2)  
Functional Ecology 2011, 2012, 2015, 2017  
Global Change Biology 2003(3), 2004(6), 2005, 2006, 2007, 2009, 2010, 2011  
Global Ecology and Biogeography 2012  
Journal of Applied Entomology 2007(2)  
Journal of Ecology 2007, 2012(2)  
Journal of Geophysical Research – Biogeosciences 2010  
Journal of Integrative Plant Biology 2008(2)  
Journal of Forest Research (Japan) 2006  
Journal of the Torrey Botanical Society 1999, 2005, 2016  
New Phytologist 2003(2), 2004(2), 2007, 2009, 2012(2), 2013, 2014  
Northern Journal of Applied Forestry 2009  
Oecologia 2012, 2015(2)  
Oikos 2021  
The Ohio Journal of Science 1999  
Physiologia Plantarum 2017  
Plant, Cell and Environment 2021  
Plant Ecology 2001

Plant and Soil 2000, 2002, 2003, 2004, 2007, 2009, 2010, 2011, 2015, 2018, 2019, 2021  
PLoS ONE 2015(3), 2017  
Scientific Reports 2017  
Silva Fennica 2013  
Soil Biology and Biochemistry 2010, 2014, 2015, 2017, 2018  
Soil Science 2011  
Soil Science Society of America Journal 2002, 2003, 2007  
Studies in Conservation 2020  
Tree Physiology 2000, 2001(3), 2002, 2005, 2008, 2012, 2013(2), 2014, 2015, 2017,  
2019(2)  
USFS Internal Review 2003, 2011, 2018(2)

Subject Editor, *Ecological Processes*, 2021-present (15 manuscripts handled)  
Associate Editor, *Ecological Processes*, 2016 - 2020 (14 manuscripts handled)  
Editorial Review Board of *Tree Physiology*, 2000 - 2002  
Guest Editor for Special Issue of *Forest Science*, 2011

## **Public Service**

Co-developer and primary instructor for the Global Change Teachers Institute held each summer at Michigan Tech. From 2004 through 2016, one hundred and forty-five middle and high school teachers have learned the latest in global change news and research techniques during the one-week summer institute. Topics include climate change consequences, mitigation and adaptation and impacts on terrestrial systems of elevated atmospheric CO<sub>2</sub> and O<sub>3</sub>, acid rain/chronic N deposition, and invasive species. Participants receive three graduate credits towards recertification or a Master's degree and visit active global change research locations as part of the Institute, extending knowledge of the research into many classrooms in the Lake States as well as locations in California, New York, Maryland, Missouri, Ohio, Illinois, Connecticut, and Mexico. One participant, Jenn Carlson, highlighted her experience in the Institute in a paper entitled "Thinking Like an Ecologist", published in 2008 in the National Science Teachers Association journal *The Science Teacher*.

Judge at the Western UP Science Fair for grade 7 and 8 science projects (March 2003, 2004 and 2005).

Taught forest measurements to visiting Korean High School teachers, August 5 and 8, 2003.

Taught middle and secondary school teachers plant ID and forest measurements as part of a Forestry Institute for secondary school teachers (July 2004 and 2005).

Arranged for participants at the REU Site that I directed to spend 8 person-days assisting the Summer Youth Program (SYP) at Michigan Tech during the summer of 2004. The REU students assisted SYP instructors in teaching ecology and environmental science to SYP students and also presented results of their research to the students.