

Xanthe J Walker
Assistant Professor
Center for Ecosystem Science and Society
Department of Biological Sciences
School of Informatics, Computing, and Cyber Systems
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Education

Ph.D., Department of Biology, University of Saskatchewan, Saskatoon, SK, Canada, 2015

- Thesis topic: Tree ring responses to climate: drought stress signals decreased resilience of northern boreal forests to disturbance from fire.
- Supervisor: Dr. Jill Johnstone

M.Sc., Department of Geography, University of British Columbia, Vancouver, BC, Canada, 2011

- Thesis topic: The reproduction, establishment, and growth of white spruce throughout the forest-tundra ecotone in the NWT, Canada.
- Supervisor: Dr. Gregory Henry

B.Sc. High Honors, Department of Biology, University of Saskatchewan, Saskatoon, SK, Canada, 2008

- Thesis topic: Post-fire seed rain of black spruce in forests of Interior Alaska.
- Supervisor: Dr. Jill Johnstone

Professional Appointments

Assistant Professor (January 2022– Present)

Department of Biological Sciences, School of Informatics, Computing, and Cyber Systems, Center for Ecosystem Science and Society, Northern Arizona University, Flagstaff, AZ, USA

Assistant Research Professor (January 2021– December 2021)

Department of Biological Sciences and Center for Ecosystem Science and Society, Northern Arizona University, Flagstaff, AZ, USA

Senior Research Associate (October 2019 – December 2020)

Center for Ecosystem Science and Society, Northern Arizona University, Flagstaff, AZ, USA

Post-doctoral Research Fellow (October 2015 – September 2019)

Center for Ecosystem Science and Society, Northern Arizona University, Flagstaff, AZ, USA

Post-doctoral Research Fellow (May 2015 – September 2015)

Department of Biology, University of Saskatchewan, Saskatoon, SK, Canada

Research Technician and Administrator (2010)

Department of Geography, University of British Columbia, Vancouver, BC, Canada

Laboratory Assistant (2007 – 2008)

College of Agriculture, University of Saskatchewan, Saskatoon, SK, Canada

Research Assistant (2007)

Department of Biology, University of Saskatchewan, Saskatoon, SK, Canada

Teaching and Supervisory Experience

Courses Taught

- Biology 599: Ecological Data Analysis (Northern Arizona University – 2023, 2024, 2025)
- Biology 365W: Writing for the Biological Sciences (Northern Arizona University – 2025)
- Biology 367: Global Change Biology (Northern Arizona University – 2022, 2023, 2024)
- Biology 373: Community Ecology (University of Saskatchewan – 2012)

Teaching Assistant Positions

- Geography 307: Biogeography and Global Change (University of British Columbia – 2010)

- Geography 102: Introduction to Physical Geography (University of British Columbia – 2010)
- Biology 121: The Diversity of Life (University of Saskatchewan – 2008)
- Biology 205: Survey of Land Plants (University of Saskatchewan – 2008)
- Biology 204: Survey of Bacteria, Algae, and Fungi (University of Saskatchewan – 2007)

Graduate Students Advised

- Abby Hayes (Northern Arizona University, Ph.D. expected 2030)
- Maya Chandar-Kouba (Northern Arizona University, Ph.D. expected 2030)
- Bjorn Larson (Northern Arizona University, Ph.D. expected 2029)
- Anastasia Pulak (Northern Arizona University, Ph.D. expected 2027)
- Nicholas Link (Northern Arizona University, Ph.D. expected 2027)
- Felecia Armstrong (Northern Arizona University, M.S. expected 2026)
- Matthew Behrens (Northern Arizona University, M.S. December 2025): Fire's footprint: understanding soil heating and fire effects in Denali National Park & Preserve's prescribed pile burns
- Savannah Wilson (Northern Arizona University, M.S., May 2025): Plant understory community diversity and composition 20 years after fire
- Jonas Noomah (Northern Arizona University, M.S. 2024): Do fuel reduction treatments in Alaska affect tree health?
- Elizabeth Black (Northern Arizona University, M.S. 2023): Increasing broadleaf tree dominance slows the feedback between climate and wildfire in boreal forest
- Ellery Vaughn (Northern Arizona University, M.S. 2023): Nutrient limitation of ecosystem carbon cycling across post-fire succession in an Alaskan boreal forest
- Lauren Kemper (Northern Arizona University, M.S. 2022): Short Interval Wildfires and Post-Fire Resilience in Interior Alaska

Undergraduate Students Advised

- Andrew Haverdink (Northern Arizona University, B.Sc. expected 2026): Does dNBR reflect burn severity in boreal forests?
- Julia Burnside (Northern Arizona University, B.Sc. expected 2026): Wildfires and deciduous trees; shaping carbon dynamics in deciduous forests
- Jacob Nunn (Northern Arizona University, B.Sc. 2025): Observing Earth from Above- Using NASA Satellite Data for Real-Time Environmental Monitoring
- Isabel Munoz (Northern Arizona University, B.Sc. 2024): Drivers of moss accumulation in a post-wildfire boreal ecosystem
- Elishka Pierce (Northern Arizona University, B.Sc. 2024): Examining Impacts of Alaskan Fuel Treatments on Soil Characteristics & Seedling Recruitment
- Michael Pisano (Northern Arizona University, B.Sc. 2017): Assessing secondary growth of Cajander larch (*Larix cajanderi*) in northeast Siberia
- Nicolas Boldt (University of Saskatchewan, B.Sc. 2013): Productivity and growth rate differences between black spruce trees based on its co-dominance with paper birch and trembling aspen
- Scott Dudiak (University of Saskatchewan, B.Sc. 2012): Evaluating the variation between basal and breast height ring-widths of black spruce trees from Interior Alaska
- Sarah-Anne Armstrong (University of Saskatchewan, B.Sc. 2012): Climate growth response in jack pine across a spatial gradient in groundwater availability at the southern range limit of the boreal forest in Saskatchewan

Graduate Student Committee Member

- Alicia Formanack (Northern Arizona University, PhD expected 2027)
- Julia Warren (Northern Arizona University, PhD expected 2028)
- Matthew Miller (Northern Arizona University, M.S. expected 2026)
- Brian Howard (Northern Arizona University, M.S. 2019): Post-fire tree recruitment at a boreal-tundra ecotone: interactions between wildfire, topography, and substrate

- Melissa Boyd (Northern Arizona University, M.S. 2017): Impacts of climate and insect defoliators on productivity and function of trembling aspen in Alaskan boreal forests

Awards and Fellowships

- Best Doctoral Thesis Award in Water Security and Research, 2015 (\$500)
- Alexander Graham Bell Canada Graduate Scholarship 2012-2015 (\$35,000/year)
- University of Saskatchewan Arts & Science Graduate Catalyst Award 2015 (\$3,500)
- Taylor A. Steeves Graduate Award in Botany 2014 (\$1,000)
- Teacher-Scholar Doctoral Fellowship 2011-2012 (\$18,000)
- Northern Scientific Training Program 2008 (\$3,100), 2009 (\$4,000), 2012 (\$3,000)
- IPY Montreal Conference Outstanding Poster Award 2012 (\$400)
- Northern Scientific Training Program 2011 (\$2,600)
- Jared Stanley Memorial Prize for M.Sc. thesis 2011 (\$250)
- University of Saskatchewan Undergraduate Scholarship 2008 (\$1,500)
- Undergraduate Student Research Award 2007 (\$4,500)

Additional Certifications and Workshops

- CPR certification (2025)
- Entering Mentoring, Northern Arizona University (2024)
- Anti-racism Community of Practice, Northern Arizona University (2023)
- Mentoring Graduate Students Workshop, Northern Arizona University (2022)
- Arctic Field Safety, Polar Field Services (2022, 2023, 2024)
- Inclusion Zone 101, Northern Arizona University (2019)
- Safe Zone 101, Northern Arizona University (2019)
- Wilderness First Aid, National Outdoor Leadership School (2018)
- School of Environment and Sustainability Professional Skills Certificate, University of Saskatchewan (2015)
- Supervisor Safety Training, University of Saskatchewan (2011)
- Laboratory Safety, University of Saskatchewan (2011)
- Canadian Firearm Safety Course (2009)
- Work Safe, BC Occupational First Aid Level 1 (2009)
- Bio-safety, University of Saskatchewan (2007)

Other Professional Activities

- Lead of the Bonanza Creek Long Term Ecological Research (BNZ LTER) Wildfire Working Group, 2022-Present.
- Founder and Lead of the Legacy Carbon Collaborative (LCC), 2021-Present.
- Department of Biological Sciences Graduate Student Recruitment Committee, 2024-Present.
- School of Informatics, Computing, and Cyber Systems Graduate Student Recruitment Committee, 2023-Present.
- Department of Biological Sciences Academic Excellence Committee, 2023-2024.
- Department of Biological Sciences Curriculum Committee, 2022-2022.
- Center for Ecosystem Science and Society (ECOSS) Committee member, 2021-2023.
- Bonanza Creek Long Term Ecological Research (BNZ LTER) Justice, Equity, Diversity, and Inclusion Committee member, 2021-2023
- Bonanza Creek Long Term Ecological Research (BNZ LTER) Information Management Committee member, 2021-2023
- Center for Ecosystem Science and Society (ECOSS) Diversity, Equity, and Inclusion Committee member, 2021-2023.

- Reviewer for National Science Foundation (NSF) proposals in the Office of Polar Programs
- Panelist for reviews of National Science Foundation (NSF) proposals in the Office of Polar Programs
- Reviewer for Biogeosciences, Canadian Journal of Forest Research, Ecosystems, Environmental Research Letters, Forests, Forest Ecology and Management, Frontiers in Ecology and the Environment, Global Change Biology, Global Ecology and Biogeography, International Journal of Wildland Fire, Nature, and Nature Climate Change.
- Chair IBFRA session: “Increasing fire activity, fire-vegetation interactions and ecosystem resilience in the Boreal biome” *International Boreal Forest Research Association Meeting*, 2021
- Chair ESA session: “Fire–Vegetation Interactions and Ecosystem Resilience in a Warmer World” *Ecological Society of America Annual Meeting*, 2021
- Chair AGU session: “Fire–Vegetation Interactions and Ecosystem Resilience in a Warmer World” *American Geophysical Union Fall Meeting*, 2020
- Co-chair AGU session: “The Role of Fire in the Earth System: Understanding Drivers, Feedbacks, and Interactions with the Land, Atmosphere, and Society” *American Geophysical Union Fall Meetings*, 2018 and 2019
- Organizing committee member for the Symposium for Women Entering Ecology and Evolution Today (SWEET) *Canadian Society for Ecology and Evolution Conference*, 2015
- Administrator for Climate Change Impacts on the Canadian Arctic Tundra (CiCAT) and the International Tundra Experiment (ITEX), University of British Columbia, 2009-2010
- Co-organizer for the International Workshop on Tundra Vegetation Change, Loon Lake Research Center, BC, Canada, 2010
- Coordinator for BIOSCAN Science Fair, University of Saskatchewan, 2008 and 2012

Grants Funded

Department of Defense. The Strategic Environmental Research and Development Program. Mack MC (PI), **Walker XJ**, Schuur EAG. Disturbance impacts on permafrost soil organic matter stability in the black spruce forests of Interior Alaska 01/26 – 12/30. \$2,101,419

National Science Foundation. ARCSS-Arctic System Science. **Walker XJ** (PI), Mack MC, Schuur EAG, Leigh MB, Goralsnik L. Interacting effects of increasing Wildfire severity and Abrupt permafrost Thaw on the Carbon balance of High-latitude ecosystems (WATCH) 01/24 – 12/28. \$1,973,162.

National Science Foundation. Long-term Ecological Research. Mack MC (PI), **Walker XJ** (NAU-PI), Berner LT, Hollingsworth T, Jones J (Co-Is). Changing disturbances, ecological legacies, and the future of the Alaskan boreal forest. 04/24-04/29 \$7,650,000 (\$946,476 to NAU)

Bureau of Land Management – Joint Fire Science Program – Managing carbon emissions in ecosystems with deep organic soils. **Walker XJ** (PI), Mack MC, Schuur EAG. Impacts of fire severity, permafrost thaw, and succession on the boreal forest carbon balance. 08/24-07/27. \$476,322.

International Network for Terrestrial Research and Monitoring in the Arctic – Transnational Access support. **Walker XJ** (PI). Influence of tree species on soil carbon cycling across boreal forest ecosystems 09/24-09/24 \$7,498.

Bureau of Land Management. **Walker XJ** (PI). Projecting Long-Term Impacts of Management Actions and Climate on Boreal Forest Fuel Characteristics. 8/23-7/24. \$48,192

National Aeronautics and Space Administration. Terrestrial Ecology. **Walker XJ** (PI), Berner LT, Goetz SA, Johnstone JF, Mack MC, Rogers BM (Co-Is), Baltzer J, Jean M, Hollingsworth T. (Collaborators). Drivers and impacts of reburning in boreal forest Ecosystems (DIRE). 09/22 – 09/25. \$895,498

National Science Foundation. ANS-Arctic Natural Sciences. **Walker XJ** (PI), Mack MC, Rogers BM. Collaborative Research: Increasing wildfires and the loss of legacy carbon from boreal and tundra ecosystems. 01/21-01/24. \$823,500 (\$675,799 to NAU)

National Science Foundation. ARCSS-Arctic System Science. Mack MC (PI), **Walker XJ**, Goetz SJ, Berner LT, Foster AC, Hansen WD, Rogers BM. Collaborative research: Climate warming and increasing wildfire in the boreal forests of Northwestern North America: Will vegetation change slow the feedback? 11/21-11/24. \$2,098,094 (\$1,099,399 to NAU)

National Science Foundation. NNA-Navigating the New Arctic. Schmidt JI (PI), Mack MC, **Walker XJ**, Little JM, Brenkert-Smith H, Berman MD, Keirn F. Collaborative Research: Socio-ecological considerations for sustainable fuel treatments to reduce wildfire risk (SAFRR). 12/21-12/25. \$1,812,820 (\$956,009 to NAU)

National Aeronautics and Space Administration. Terrestrial Ecology. Mack MC (PI), Schuur EAG, Johnstone JF, Goetz SA, **Walker XJ** (Postdoctoral Associate). Increasing fire severity and the loss of legacy carbon from forest and tundra ecosystems of Northwestern North America. 08/15-07/19. \$900,000.

Publications *Students or postdocs for whom I served as primary supervisor.

In Review:

Hessilt TD, Veraverbeke S, Mack MC, Olsen R, Turetsky M, **Walker XJ**, Baltzer J (In Review) Reburning from overwintering fires in boreal North America: insights from a Landsat time series analysis. International Journal of Wildland Fire.

Liang W, *Bauck K, Maloney D, Hoy E, Wang J, Montesano P, Lara MJ, Yang D, *Forsythe J, Duncanson L, **Walker XJ**. (In Review) Meta-analysis of North American Arctic and Boreal Aboveground Biomass Datasets: Assessing Accuracy, Dynamics, and Similarities. Environmental Research Letters

Potter S, Yang Y, Burrell A, Talucci A, Veraverbeke S, Randerson JT, Goetz S, Berner L, Mack MC, **Walker XJ**. (In Review) Mapping Arctic-Boreal Burned Area in North America Using a Convolutional Neural Network with Landsat and Sentinel-2 Imagery. Available at SSRN 4803815.

2026

*Black E, **Walker XJ**, Mack MC (2026) Increasing deciduous tree dominance slows the feedback between climate and wildfire in boreal forest. Nature Climate Change. 16:187–192

2025

Baltzer J, **Walker XJ**, Veraverbeke S, Hessilt TD, Alfaro-Sanchez R, Gerrevink MJ, Mack MC, Ogden EL, Olsen R, Scholten RC, Turetsky MR (2025) Overwintering fires can occur in both peatlands and upland forests with varying ecological impacts. Nature Ecology Evolution. 4:559-564.

Gould E, Fraser HS, Parker TH, et al. (2025) Same data, different analysts: variation in effect sizes due to analytical decisions in ecology and evolutionary biology. BMC Biology, 23, 35
<https://doi.org/10.1186/s12915-024-02101-x>

Izbicki B, **Walker XJ**, Alexander HD, Borth E, Hewitt RE, Zimov N, Mack MC (2025) Wildfire and permafrost thaw reduce C pools and diminish carbon sequestration potential in Yedoma surface soils. Journal of Geophysical Research: Biogeosciences 130.8: e2024JG008631.

Lathrop E, See C, **Walker XJ**, Favlo G, Axler Z, Ebert C, Kadej S, Kelley A, Ledman J, Opfergelt S, Rodenhizer H, Schuur E. (2025) Permafrost Thaw Accelerates Old Soil Carbon Release, Outpacing New Plant Inputs During a 13-Year Tundra Warming Experiment. Global Change Biology 31, no. 12: e70609.

*Link NT, Johnstone JF, **Walker XJ**, *Amundsen F, Berrios HK, Bibeau L, Cooley D, Erickson ACV, Johnston C, Little JM, Lojewski N, Philips CA, Rees DC, Saperstein LB, Sousa EE, Spellman KV, Spring A, Mack MC (2025) Mitigating Increasing Wildfire Risk Through Fuel Break Innovations. iScience doi.org/10.1016/j.isci.2025.114391

*Noomah J, Walker XJ, Mack MC (2025) Do Fuel Reduction Treatments In Alaska Affect Tree Health? Environmental Research: Ecology 4 045002

Walker XJ, *Black E, Berner LT, Dean J, *Kemper L, Mack MC, Potter S, Rogers BM, *Truettner C (2025). Short-interval fires decrease long-term carbon storage and lead to regeneration failure in boreal forest ecosystems. *Fire Ecology*. 21 (1), 57

2024

Burrell AL, Cooperdock S, Potter S, Berner LT, Hember R, Macander MJ, **Walker XJ** et al. (2024). The Predictability of Near-Term Forest Biomass Change in Boreal North America. *Ecosphere* 15(1): e4737.

Izbicki B, **Walker XJ**, Baltzer JF, Day NC, Ebert C, Johnstone JF, Pegoraro E, Schuur EA, Turetsky MT, Mack MC. (2024) Drivers of legacy soil organic matter decomposition after fire in boreal forests. *Ecosphere*.

Liu Z, Rogers BM, Keppel-Aleks G, Helbig M, Ballantyne AP, Kimball JS, Chatterjee A, Foster A, Kaushik A, Virkkala A-M, et al. (2024) Seasonal CO₂ amplitude in northern high latitudes. *Nature Reviews Earth & Environment* 5.11: 802–817.

Massey R, Rogers BM, Berner LT, Cooperdock S, Mack MC, **Walker XJ**, Goetz S. Changes in forest composition and associated biophysical climate feedbacks across boreal North America (2023). *Nature Climate Change*.

Walker XJ, Hart S, Hansen WD, Jean M, Brown C, Chapin FS, Hewitt R, Hollingsworth T, Mack MC, Johnstone J (2024). Factors limiting the potential range expansion of lodgepole pine in Interior Alaska. *Ecological Applications*.

2023

Bill KE, Baltzer JL, Dieleman CM, Degré-Timmons GE, Mack MC, Day NJ, Cumming SG, **Walker XJ**, Turetsky MT. (2023) Post-fire recovery of soil organic layer carbon in Canadian boreal forests. *Ecosystems*. <https://doi.org/10.1007/s10021-023-00854-0>

Boyd MA, **Walker XJ**, Melvin AM, Barnes J, Celis G, Johnstone JF, Saperstein L, Schuur EAS, Mack MC (2023) Decadal impacts of wildfire fuel reduction treatments on ecosystem structure and fire behavior in Alaskan boreal forests. *Forest Ecology and Management*. <https://doi.org/10.1016/j.foreco.2023.121347>

Day NJ, Johnstone JF, Reid KA. Cumming SG, Mack MC, Turetsky MT, **Walker XJ**, Baltzer JB. Material Legacies and Environmental Constraints Underlie Fire Resilience of a Dominant Boreal Forest Type. *Ecosystems* 26, 473–490 (2023). <https://doi.org/10.1007/s10021-022-00772-7>

Jorgenson A, Dieleman CM, Degré-Timmons GE, Mack MC, Day NJ, Cumming SG, **Walker XJ**, Alfaro-Sánchez R, Turetsky MT, Baltzer JL. (2023) The influence of post-fire recovery and environmental conditions on boreal wildlife forage. *Ecosphere*. <https://doi.org/10.1002/ecs2.4605>

Massey R, Rogers BM, Berner LT, Cooperdock S, Michelle MC, **Walker XJ**, Goetz S. (2023) Changes in forest composition and associated biophysical climate feedbacks across boreal North America. *Nature Climate Change*. 13, 1368–1375, <https://doi.org/10.1038/s41558-023-01851-w>

Potter S, Cooperdock S, Veraverbeke S, **Walker XJ**, Mack MC, Goetz SJ, Baltzer J, Bourgeau-Chavez L, Burrell A, Dieleman C, French N, Hantson S, Hoy EE, Jenkins L, Johnstone JF, Kane ES, Natali SM, Randerson JT, Turetsky MR, Whitman E, Wiggins E, Rogers BM. (2023) Burned area and carbon emissions across northwestern boreal North America from 2001–2019. *Biogeosciences*. 20, 2785–2804, <https://doi.org/10.5194/bg-20-2785-2023>

Reid K, Johnstone JF, Cumming SG, Day NJ, Mack MC, **Walker XJ**, Baltzer JL (2023). Black spruce seed availability and viability in boreal forests after large wildfires. *Annals of Forest Science*. <https://doi.org/10.1186/s13595-022-01166-4>

Walker XJ, Okono K, Berner LT, Johnstone JF, Massey R, Goetz S, Mack MC (2023) Shifts in ecological legacies support hysteresis of stand type conversions in boreal forests. *Ecosystems*. <https://doi.org/10.1007/s10021-023-00866-w>

2022

- Alfaro-Sánchez R, Johnstone JF, Cumming SG, Day NJ, Mack MC, **Walker XJ**, Baltzer JL. (2022) What drives reproductive maturity and efficiency in serotinous boreal conifers? *Frontiers in Ecology and Evolution* 662.
- Foster A, Shuman JK, Rogers BM, **Walker XJ**, Mack MC, Bourgeau-Chavez L, Veraverbeke SN, Goetz S. (2022) Implications for shifting fire regimes under higher temperatures and increased deciduous fraction in the North American boreal forest. *Environmental Research Letters*. 17 025006
- Hewitt RE, Alexander HA, Izbicki B, Loranty MA, Natali SM, **Walker XJ**, Mack MC (2022) Scale-dependent effects of tree density on aboveground and belowground nitrogen cycling at the taiga-tundra ecotone. *Ecosphere*. 13(7): e4175.
- Jasinski B, Hewitt RH, Mauritz M, Miller SN, Schuur EAS, Taylor M, **Walker XJ**, Mack MC (2022) Foliar and canopy nutrients respond to permafrost thaw and fluctuating water tables in natural thermokarst and a warming experiment. *Journal of Ecology*, 00, 1– 16.
<https://doi.org/10.1111/1365-2745.13864>

2021

- Baltzer JL, Day N, Johnstone JF, Mack, MC, **Walker XJ**, Rogers BM, Veraverbeke S, Alexander H, Jian Y, Bourgeau-Chavez L, Brown C, Carriere S, Green DF, Howard B, Gauthier S, Parisien MA, Whitman E, Thompson D, Arseneault D, Turetsky M, Roland C, Barnes J, Stehn S, Boucher Y (2021) Increasing fire and the decline of fire adapted black spruce in the boreal forest. *PNAS* 118 (45) e2024872118
- Boyd MA, Berner LT, Foster AC, Goetz SJ, Rogers BM, **Walker XJ**, Mack MC (2021) Historic declines in growth portend trembling aspen death during a contemporary leaf miner outbreak in Alaska. *Ecosphere* 12.6: e03569.
- Mack MC, **Walker XJ**, Johnstone JF, Alexander HD, Melvin AM, Jean M, Miller, SN (2021) Carbon loss from boreal forest wildfires offset by increased dominance of deciduous trees. *Science* 372 (6539), 280-283.
- Veraverbeke S, Delcourt CJ, Kukavskaya E, Mack M, **Walker XJ**, Hessilt T, Rogers B, Scholten RC. (2021) Direct and longer-term carbon emissions from arctic-boreal fires: a short review of recent advances. *Current Opinion in Environmental Science & Health*. 100277.
- Walker XJ**, Alexander HD, Berner L, Boyd M, Loranty MM, Natali S, Mack MC (2021) Positive response of tree productivity to warming is reversed by increased tree density at the Arctic tundra-taiga ecotone. *Canadian Journal of Forest Research*. doi:10.1139/cjfr-2020-0466
- Walker XJ**, Howard BK, Jean M, Johnstone JF, Roland C, Rogers BM, Schuur EAG, Solvik KK, Mack MC (2021) Impacts of pre-fire conifer density and wildfire severity on ecosystem structure and function at the forest-tundra ecotone. *PLOS ONE* <https://doi.org/10.1371/journal.pone.0258558>
- Wieder WR, Pierson D, Earl S, Lajtha K, Baer SG, Ballantyne F, Berhe AA, Billings SA, Brigham LM, Chacon SS, Fraterrigo J, Frey SD, Georgiou K, de Graaff M-A, Grandy AS, Hartman MD, Hobbie SE, Johnson C, Kaye J, Kyker-Snowman E, Litvak ME, Mack MC, Malhotra A, Moore JAM, Nadelhoffer K, Rasmussen C, Silver WL, Sulman BN, **Walker XJ**, Weintraub S. (2021) SoDaH: the SOils DAta Harmonization database, an open-source synthesis of soil data from research networks, version 1.0. *Earth System Science Data*, 13 (5), 1843-1854.

2020

- Day NJ, White AL, Johnstone JF, Degré - Timmons GÉ, Cumming SG, Mack MC, Turetsky MR, **Walker XJ**, Baltzer JL (2020) Fire characteristics and environmental conditions shape plant communities via regeneration strategy. *Ecography* 43: 1464-1474. doi:10.1111/ecog.05211.
- Day NJ, Cumming SG, Dunfield KE, Johnstone JF, Mack MC, Reid KA, Turetsky MR, **Walker XJ**, Baltzer JL (2020) Identifying functional impacts of heat-resistant fungi on boreal forest recovery after wildfire. *Frontiers in Forests and Global Change* 3, 68.

- Dieleman CM, Rogers BM, Potter S, Veraverbeke S, Johnstone JF, Laflamme J, Solvik K, **Walker XJ**, Mack MC, Turetsky MR (2020) Wildfire combustion and carbon stocks in the southern Canadian boreal forest: Implications for a warming world. *Global Change Biology* 26, 6062– 6079. doi:10.1111/gcb.15158.
- Potter S, Solvik K, Erb A, Goetz SJ, Johnstone JF, Mack MC, Randerson JT, Román MO, Schaaf CL, Turetsky MR, Veraverbeke S, **Walker XJ**, Wang Z, Massey R, Rogers BM (2020) Climate change decreases the cooling effect from postfire albedo in boreal North America. *Global Change Biology* 26, 1592– 1607. doi:10.1111/gcb.14888
- Walker XJ**, Rogers BM, Veraverbeke S, Johnstone JF, Baltzer JL, Barrett K, Bourgeau-Chavez L, Day NJ, de Groot WJ, Dieleman CM, Goetz S, Hoy E, Jenkins LK, Kane ES, Parisien MA, Potter S, Schuur EAG, Turetsky M, Whitman E, Mack MC (2020) Fuel availability not fire weather controls boreal wildfire severity and carbon emissions. *Nature Climate Change*. 1–7. doi:10.1038/s41558-020-00920-8.
- Walker XJ**, Baltzer JL, Bourgeau-Chavez L, Day NJ, Dieleman CM, Johnstone JF, Kane ES, Rogers BM, Turetsky MR, Veraverbeke S, Mack MC (2020) Patterns of Ecosystem Structure and Wildfire Carbon Combustion Across Six Ecoregions of the North American Boreal Forest. *Frontiers in Forests and Global Change* 3, 87.

2019

- Boyd MA, Berner LT, Doak P, Goetz SJ, Rogers BM, Wagner D, **Walker XJ**, Mack MC (2019) Impacts of climate and insect herbivory on productivity and physiology of trembling aspen (*Populus tremuloides*) in Alaskan boreal forests. *Environmental Research Letters* 14, 085010. doi:10.1088/1748-9326/ab215f.
- Brown CD, Dufour - Tremblay G, Jameson RG, Mamet SD, Trant AJ, **Walker XJ**, Boudreau S, Harper KA, Henry GHR, Hermanutz L, Hofgaard A, Isaeva L, Kershaw GP, Johnstone JF (2019) Reproduction as a bottleneck to treeline advance across the circumarctic forest tundra ecotone. *Ecography* 42, 137–147. doi:10.1111/ecog.03733.
- Day NJ, Dunfield KE, Johnstone JF, Mack MC, Turetsky MR, **Walker XJ**, White AL, Baltzer JL (2019) Wildfire severity reduces richness and alters composition of soil fungal communities in boreal forests of western Canada. *Global Change Biology* 25, 2310–2324. doi:10.1111/gcb.14641.
- Lantz TC, Moffat ND, Fraser RH, **Walker XJ** (2019) Reproductive limitation mediates the response of white spruce (*Picea glauca*) to climate warming across the forest-tundra ecotone *Arctic Science* 5, 167–184. doi:10.1139/as-2018-0012.
- Walker XJ**, Baltzer JL, Day NJ, Ebert C, Goetz SJ, Johnstone JF, Potter S, Rogers BM, Schuur EAG, Turetsky MR, Mack MC (2019) Increasing wildfires threaten historic carbon sink of boreal forest soils. *Nature*. 572, 520–523. doi:10.1038/s41586-019-1474-y

2018

- Walker XJ**, Rogers BM, Baltzer JL, Cumming SG, Day NJ, Goetz S, Johnstone JF, Schuur EAG, Turetsky MR, Mack MC (2018) Cross-scale controls on carbon emissions from boreal forest megafires. *Global Change Biology*, 24, 4251– 4265. doi:10.1111/gcb.14287
- Walker XJ**, Baltzer JL, Cumming SG, Day NJ, Johnstone JF, Rogers BM, Solvik K, Turetsky MR, Mack MC (2018) Soil organic layer combustion in boreal black spruce and jack pine stands of the Northwest Territories, Canada. *International Journal of Wildland Fire* 27, 125–134. doi:10.1071/WF17095.

< 2017

- Walker XJ**, Frey MD, Conway AC, Jean M, Johnstone JF (2017) Impacts of fire on non-native plant recruitment in black spruce forests of Interior Alaska. *PLoS ONE* 12(2): e0171599. doi:10.1371/journal.pone.0171599
- Walker XJ**, Johnstone JF, Mack MC (2016) Predicting ecosystem resilience to fire from tree ring analysis in black spruce forests. *Ecosystems*, 20, 1137–1150. doi:10.1007/s10021-016-0097-5
- Walker XJ**, Mack MC, Johnstone JF (2015) Stable carbon isotope analysis reveals widespread drought stress in boreal black spruce forests. *Global Change Biology* 21, 3102–3113. doi:10.1111/gcb.12893.
- Walker XJ**, Johnstone JF (2014) Widespread negative correlations between black spruce growth and temperature across topographic moisture gradients in the boreal forest. *Environmental Research Letters* 9, 064016.
- Walker XJ**, Henry GHR, McLeod K, Hofgaard A (2012) Reproduction and seedling establishment of *Picea glauca* across the northernmost forest-tundra region in Canada. *Global Change Biology* 18, 3202–3211. doi:10.1111/j.1365-2486.2012.02769.x.
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Other Publications:

- Johnstone JF, Alexander HA, Mack MC, **Walker XJ** (2021) As extreme fires transform Alaska's boreal forest, deciduous trees put a brake on carbon loss and how fast the forest burns, *The Conversation*. Available from: <https://theconversation.com/as-extreme-fires-transform-alaskas-boreal-forest-deciduous-trees-put-a-brake-on-carbon-loss-and-how-fast-the-forest-burns-158995>
- Johnstone JF, Brown C, **Walker XJ** (2019) More frequent fires could dramatically alter boreal forests and emit more carbon. *The Conversation*. Available from: <https://theconversation.com/more-frequent-fires-could-dramatically-alter-boreal-forests-and-emit-more-carbon-122355>

Presentations

Invited Talks:

- Walker XJ (2024) Drivers and Impacts of Reburning in boreal forest Ecosystems (DIRE). NASA ABoVE 10th Science Team Meeting, Boulder, CO. May 18, 2024.
- Walker XJ (2024) Increasing wildfire disturbance alters the long-term carbon balance of boreal forests. Northwest Territories Wildfire Management Meeting. Hay River, NWT. April 9, 2024.
- Walker XJ (2023). Wildfires alter the long-term carbon balance of boreal forests. Laurier Research Webinar Series: Wildfire in the North, Impacts and Adaptations. Wilfred Laurier Online, October 17, 2023.
- Walker XJ (2023) Project Report: Drivers and Impacts of Reburning in boreal forest Ecosystems (DIRE). NASA ABoVE 9th Science Team Meeting, San Diego, CA. January 24, 2023.

- Walker XJ (2023). Increasing wildfire disturbance alters the long-term carbon balance of boreal forests. American Meteorological Society's 11th Symposium on the Weather, Water, and Climate Enterprise. Denver, CO, January 8, 2023.
- Walker XJ (2022) Wildfires and the carbon balance of boreal forests. *School of Informatics, Computing, and Cyber Systems Seminar, Northern Arizona University*.
- Walker XJ (2022) Changes in the long-term carbon balance of boreal forests following wildfire. *Universite de Moncton Seminar*. Virtual.
- Walker XJ (2021) Wildfires and the carbon balance of boreal forests ecosystems. *Cary Institute Scientific Seminar Series*. Virtual.
- Walker XJ (2021) Increasing wildfires and the carbon balance of boreal forests. *Arctic-Boreal Vulnerability Experiment NWT-focus webinar*. Virtual.
- Walker XJ (2019) Increasing fire frequency and the carbon balance of boreal forests. *Ecological Society of America Annual Meeting*, Louisville, KY.
- Walker XJ (2019) Increasing wildfire disturbance and the carbon balance of boreal forests. *NASA Arctic-Boreal Vulnerability Science Team Meeting*, La Jolla, CA.
- Walker XJ (2019) Cross-scale control on carbon emissions from boreal wildfires. *BNZ creek -LTER annual meeting*, Fairbanks, AK.
- Walker XJ (2018) Wildfire disturbance at the forest-tundra boundary in Denali National Park. *Denali National Park and Preserve*, Denali, AK.

Oral Presentations (first author) at Conferences:

- Walker XJ, et al. (2025) Legacy Carbon. *American Geophysical Union Fall Meeting*, New Orleans, Louisiana, USA.
- Walker XJ, Rogers BM, Kemper L, Okono K, Johnstone JF, Massey R, Goetz S, Mack MC (2022) Increased fire frequency and tree regeneration strategies reinforce boreal forest biome shift, oral presentation, *American Geophysical Union Fall Meeting*, Chicago, IL
- Walker XJ, Baltzer JL, Barrett K, Bourgeau-Chavez L, Day NJ, de Groot WJ, Goetz S, Hoy E, Johnstone JF, Kane ES, Natali S, Parisien M.-A, Rogers BM, Schuur T, Turetsky M, Veraverbeke S, Whitman E, Mack MC (2019) Bottom-up control of carbon combustion from boreal wildfires. *American Geophysical Union Fall Meeting*, San Francisco, California, USA.
- Walker XJ, Baltzer JL, Barrett K, Bourgeau-Chavez L, Day NJ, de Groot WJ, Goetz S, Hoy E, Johnstone JF, Kane ES, Natali S, Parisien M.-A, Rogers BM, Schuur T, Turetsky M, Veraverbeke S, Whitman E, Mack MC (2019) Bottom-up control of carbon combustion from boreal wildfires. *North American Forest Ecology Workshop*, Flagstaff, AZ.
- Walker XJ, Baltzer J, Cumming S, Day N, Goetz S, Johnstone JF, Rogers B, Turetsky M, Mack MC (2018) Shortened fire return intervals increase the vulnerability of legacy carbon to combustion in boreal wildfires. *American Geophysical Union Fall Meeting*, Washington D.C., USA.
- Walker XJ, Alexander H, Boyd M, Loranty M, Mack MC (2018) Density dependent dendro-climatic responses of Siberian Larch. *10th WorldDendro Conference*, Thimphu, Bhutan.
- Walker XJ, Baltzer J, Cumming S, Day N, Goetz S, Johnstone JF, Rogers BM, Turetsky M, Mack MC (2017) Carbon combustion in boreal black spruce and jack pine stands of the Northwest Territories Canada. *American Geophysical Union Fall Meeting*, New Orleans, Louisiana, USA.
- Walker XJ, Baltzer J, Cumming S, Day N, Goetz S, Johnstone JF, Rogers BM, Turetsky M, Mack MC (2016) Fire severity and carbon combustion in boreal ecosystems. *American Geophysical Union Fall Meeting*, San Francisco, California, USA.
- Walker XJ, Mack MC, Johnstone JF (2015) Can tree ring analysis predict resilience of black spruce forests to fire in Interior Alaska? *American Geophysical Union Fall Meeting*, San Francisco, California USA.
- Walker XJ, Johnstone JF, Mack MC (2013) Regional variability of black spruce climate growth responses in interior Alaska. *16th annual International Boreal Forest Research Association Conference* Edmonton, Alberta, Canada.

- Walker XJ, Johnstone JF (2013) Regional variability in climate growth responses of northern black spruce forests. *8th annual Canadian Society for Ecology and Evolution Meeting* Kelowna, British Columbia, Canada.
- Walker XJ, Johnstone JF (2012) Dendroclimatic responses in northern black spruce forests *3rd annual CONFORWest conference* Canmore, Alberta, Canada.
- Walker XJ, Henry G (2010) The reproduction establishment and growth of white spruce in the forest tundra ecotone of the Inuvik-Tuktoyaktuk region Canada *7th annual ArcticNet Scientific Meeting* Ottawa, Ontario, Canada.
- Walker XJ, Henry G (2010) The reproduction establishment and growth of white spruce at its northern range limit. *Canada IPY Meeting*, Edmonton, Alberta, Canada.
- Walker XJ, Henry G (2009) The dynamics of white spruce at its northern range limit Canada. *9th annual ACUNS conference*, Whitehorse, Yukon, Canada.

Poster Presentations (first author) at Conferences:

- Walker XJ, Mack CM (2021) The Legacy Carbon Collaborative: a network to assess the impacts of wildfires on the long-term carbon storage of boreal and tundra ecosystems. *International Boreal Forest Research Association Meeting*. Virtual.
- Walker XJ, Mack CM (2021) The Legacy Carbon Collaborative: a network to assess the impacts of wildfires on the long-term carbon storage of boreal and tundra ecosystems. *Ecological Society of America Conference*. Virtual.
- Walker XJ, Mack CM (2020) The Legacy Carbon Collaborative: a network to assess the impacts of wildfires on the long-term carbon storage of boreal and tundra ecosystems. *American Geophysical Union Fall Meeting*. Virtual.
- Walker XJ, Johnstone JF (2014) Radial growth and $\Delta^{13}\text{C}$ responses of black spruce to climate. *Ecological Society of America Conference*, Sacramento, California, USA.
- Walker XJ, Henry GH, McLeod K, Hofgaard A (2012) Growth and reproduction of white spruce at its northern limit in Canada. *IPY conference*, Montreal, Quebec, Canada.
- Walker XJ, Johnstone JF (2011) Assessing climate-growth relationships and resilience in black spruce forests: proposed research. *BNZ-LTER Symposium*, Fairbanks, Alaska, USA.
- Walker XJ, Henry GH (2010) The reproduction establishment and growth of white spruce at its northern range limit Canada. *5th annual Canadian Society for Ecology and Evolution Meeting*, Quebec City, Quebec, Canada.
- Walker XJ, Henry GH (2009) The dynamics of white spruce at its northern range limit Canada, *6th annual ArcticNet Scientific Meeting*, Victoria, British Columbia, Canada.

Presentations by Advised Students and Postdocs:

- Andrade-Munoz I, Walker XJ, Pulak A (2024) Patterns of moss reaccumulation in post-wildfire boreal forest ecosystems using mixed effects models in R, poster presentation, Northern Arizona University Undergraduate Research Symposium, Flagstaff, AZ
- Andrade-Munoz I, Truettner CM, Walker XJ (2023) Validation of stand age at wildfire year from aerial surveillance data through tree-ring analysis, poster presentation, Northern Arizona University Undergraduate Research Symposium, Flagstaff, AZ
- Behrens M, Walker XJ, Stehn S, Mack MC (2025) Fire's footprint: soil heating and fire effects at Denali National Park & Preserve prescribed pile burns, oral presentation, Alaska Fire Science Consortium Interagency Fuels Workshop, Fairbanks, AK
- Behrens M, Walker XJ, Stehn S, Mack MC (2025) Fire's footprint: soil heating and fire effects at Denali National Park & Preserve prescribed pile burns, oral presentation, International Fire Ecology and Management Congress, New Orleans, LA
- Black B, Walker XJ, Berner LT, Dean J, Goetz SJ, Hansen WD, Potter S, Rogers BM, Talucci AC, Mack MC (2025) Increased deciduous tree dominance reduces wildfire carbon losses in boreal forests, oral presentation, American Geophysical Union Fall Meeting, New Orleans, LA

Black B, Walker XJ, Berner LT, Dean J, Goetz SJ, Hansen WD, Potter S, Rogers BM, Talucci AC, Mack MC (2025) Increased deciduous tree dominance reduces wildfire carbon losses in boreal forests, oral presentation, International Fire Ecology and Management Congress, New Orleans, LA

Black B, Mack MC, Walker XJ (2022) Drivers of fire in boreal deciduous forests, poster presentation, Northern Arizona University Graduate Student Government Poster Symposium, Flagstaff, AZ

Black B, Walker XJ, Berner LT, Rogers BM, Goetz SJ, Hansen WD, Dean J, Foster AC, Mack MC (2022) Species composition drives combustion in boreal forests, oral presentation, American Geophysical Union Fall Meeting, Chicago, IL

Black B, Walker XJ, Berner LT, Rogers BM, Goetz SJ, Hansen WD, Dean J, Foster AC, Mack MC (2022) Drivers of fire severity in boreal deciduous forests, public presentation, Flagstaff Festival of Science, Flagstaff, AZ

Black B, Walker XJ, Berner LT, Rogers BM, Goetz SJ, Hansen WD, Dean J, Foster A, Mack MC (2022) Canopy combustion in boreal deciduous forests, oral presentation, Long Term Ecological Research Network All Scientists' Meeting, Pacific Grove, CA

Burnside J, Walker XJ (2025) Wildfires and deciduous trees: shaping carbon storage in Alaska's boreal forest, poster presentation, Northern Arizona University Undergraduate Research Symposium, Flagstaff, AZ

Forsythe J, Potter S, Rogers B, Berner L, Hansen W, Goetz S, Johnstone J, Mack MC, Walker XJ (2025) Quantifying the controls on boreal forest reburning with interpretable machine learning, oral presentation, American Geophysical Union Fall Meeting, New Orleans, LA

Forsythe J, Rogers B, Berner L, Goetz S, Johnstone J, Mack MC, Walker XJ (2025) Drivers and impacts of reburning in boreal forest ecosystems (DIRE), oral presentation, NASA ABoVE Science Team Meeting, College Park, MD

Forsythe J, Mack MC, Walker XJ (2025) Decades of discovery: how NSF's Long Term Ecological Research program is advancing Arctic understanding, invited oral presentation, Interagency Arctic Research Policy Committee Meeting, Washington, DC

Forsythe J, Potter S, Rogers B, Berner L, Goetz S, Johnstone J, Mack MC, Walker XJ (2025) Mapping top-down and bottom-up controls on wildfire in boreal forest ecosystems, invited oral presentation, Interagency Arctic Research Policy Committee Meeting, Washington, DC

Forsythe J, Potter S, Rogers B, Berner L, Goetz S, Johnstone J, Mack MC, Walker XJ (2024) Top-down and bottom-up controls on short-interval wildfire in boreal forest ecosystems, oral presentation, American Geophysical Union Fall Meeting, San Francisco, CA

Forsythe J, Potter S, Rogers B, Berner L, Goetz S, Johnstone J, Mack MC, Walker XJ (2024) Evidence of reburning in boreal forest ecosystems from Landsat observations, poster presentation, NASA ABoVE Science Team Meeting, Pasadena, CA

Izbicki BJ, Walker XJ, Mack MC (2022) Post-fire drivers of decomposition of legacy organic matter in boreal forest, oral presentation, American Geophysical Union Annual Meeting, San Francisco, CA

Izbicki BJ, Walker XJ, Mack MC (2021) Post-fire drivers of decomposition of legacy organic matter in boreal forest, poster presentation, International Boreal Forest Research Association Annual Meeting, remote

Link NT, Hansen WD, Walker XJ, Mack MC (2025) Projecting long-term impacts of management actions and climate on boreal forest fuel reduction treatments, oral presentation, American Geophysical Union Annual Meeting, New Orleans, LA

Link NT, Walker XJ, Mack MC (2025) Green fuel break development and modeling over 100 years of regrowth, oral presentation, Alaska Fire Science Consortium Fall Fire Science Workshop, virtual

Link NT, Walker XJ, Mack MC (2025) Simulating the long-term impacts of management actions and climate on boreal forest fuel characteristics, oral presentation, Alaska Interagency Fuels Workshop, virtual

Link NT, Walker XJ, Mack MC (2024) Field research updates following the 2024 McDonald Fire, oral presentation, Alaska Interagency Fall Fire Review, Fairbanks, AK

- Link NT, Walker XJ, Amundsen F, Berrios H, Bibeau L, Cooley D, Erickson A, Johnston C, Little J, Lojewski N, Phillips C, Potter S, Rees D, Saperstein L, Sousa E, Spellman KV, Spring A, Mack MC (2024) The future of fuel breaks: reimagining community adaptation strategies to wildfires in the boreal forest to maximize socioecological benefits, oral presentation, Ecological Society of America Annual Meeting, Long Beach, CA
- Link NT, Walker XJ, Mack MC (2022) Socio-ecological considerations for sustainable fuel treatments to reduce wildfire risk, oral presentation, National Science Foundation Navigating the New Arctic Annual Community Meeting, Anchorage, AK
- Pulak AM, Mack MC, Walker XJ (2025) Changes in soil organic layer carbon over twenty years of post-wildfire succession in interior Alaska, oral presentation, American Geophysical Union Fall Meeting, New Orleans, LA
- Okano K, Walker XJ, Massey R, Goetz SJ, Mack MC (2020) Pre-fire deciduous tree species drive forest regeneration after wildfire in interior Alaska, oral presentation, American Geophysical Union Fall Meeting, San Francisco, CA
- Vaughan E, Miller S, Walker XJ, Mack MC (2022) Investigating the effects of 20 years of nitrogen and phosphorus fertilization on boreal forest plant and soil carbon pools, oral presentation, American Geophysical Union Fall Meeting, Chicago, IL
- Vaughan E, Miller S, Walker XJ, Mack MC (2022) Nutrient limitation, wildfire, and ecosystem carbon balance: effects of long-term nutrient fertilization in an Alaskan boreal forest, poster presentation, Long Term Ecological Research Network All Scientists' Meeting, Pacific Grove, CA

Published Datasets

2025

- Black BC, Mack MC, **Walker XJ.** (2025) Fire Self-Limitation (FiSL) Experiment: Quantifying Wildfire Carbon Combustion Losses in boreal Deciduous and Mixed Forests in Interior Alaska and the Boreal Cordillera I: Site Attribute Data 2022. Bonanza Creek LTER – University of Alaska Fairbanks. BNZ:837. <http://www.lter.uaf.edu/data/data-detail/id/837>. doi:10.6073/pasta/72cb6cfbb9eea9ee6353b0f7c645510c
- Black BC, Mack MC, **Walker XJ.** (2025) Fire Self-Limitation (FiSL) Experiment: Quantifying Wildfire Carbon Combustion Losses in boreal Deciduous and Mixed Forests in Interior Alaska and the Boreal Cordillera II: Tree Inventory Data 2022. Bonanza Creek LTER – University of Alaska Fairbanks. BNZ:838. <http://www.lter.uaf.edu/data/data-detail/id/838>. doi:10.6073/pasta/0aad7b4ce615a93ddeb3e9c73386bb
- Black BC, Mack MC, **Walker XJ.** (2025) Fire Self-Limitation (FiSL) Experiment: Quantifying Wildfire Carbon Combustion Losses in boreal Deciduous and Mixed Forests in Interior Alaska and the Boreal Cordillera III: Shrub Inventory Data 2022. Bonanza Creek LTER – University of Alaska Fairbanks. BNZ:839. <http://www.lter.uaf.edu/data/data-detail/id/839>. doi:10.6073/pasta/4ec088618c83c9258937bf3020cf356e
- Black BC, Mack MC, **Walker XJ.** (2025) Fire Self-Limitation (FiSL) Experiment: Quantifying Wildfire Carbon Combustion Losses in boreal Deciduous and Mixed Forests in Interior Alaska and the Boreal Cordillera IV: Organic Soil Carbon and Nitrogen Content from Organic Soil Samples 2022. Bonanza Creek LTER – University of Alaska Fairbanks. BNZ:840. <http://www.lter.uaf.edu/data/data-detail/id/840>. doi:10.6073/pasta/5576635bb8051b84b7cada7e0bc5294f
- Black BC, Mack MC, **Walker XJ.** (2025) Fire Self-Limitation (FiSL) Experiment: Quantifying Wildfire Carbon Combustion Losses in boreal Deciduous and Mixed Forests in Interior Alaska and the Boreal Cordillera V: Organic Soil Depth 2022. Bonanza Creek LTER – University of Alaska Fairbanks. BNZ:841. <http://www.lter.uaf.edu/data/data-detail/id/841>. doi:10.6073/pasta/7f8ed51990e896cf8c4278533b8e1b5a

- Black BC, Mack MC, **Walker XJ**. (2025) Fire Self-Limitation (FiSL) Experiment: Quantifying Wildfire Carbon Combustion Losses in boreal Deciduous and Mixed Forests in Interior Alaska and the Boreal Cordillera VI: Mineral Soil Sample and pH Data 2022. Bonanza Creek LTER – University of Alaska Fairbanks. BNZ:842. <http://www.lter.uaf.edu/data/data-detail/id/842>. doi:10.6073/pasta/e84d39def278aecbf0d2b15226dc8b4b
- Black BC, Mack MC, **Walker XJ**. (2025) Fire Self-Limitation (FiSL) Experiment: Quantifying Wildfire Carbon Combustion Losses in boreal Deciduous and Mixed Forests in Interior Alaska and the Boreal Cordillera VII: Coarse and Fine Woody Debris Inventory 2022. Bonanza Creek LTER – University of Alaska Fairbanks. BNZ:843. <http://www.lter.uaf.edu/data/data-detail/id/843>. doi:10.6073/pasta/b6137550d056b073c2f69fd9f5c834c2
- Black BC, Mack MC, **Walker XJ**. (2025) Fire Self-Limitation (FiSL) Experiment: Quantifying Wildfire Carbon Combustion Losses in boreal Deciduous and Mixed Forests in Interior Alaska and the Boreal Cordillera VIII: Seedling Inventory 2022. Bonanza Creek LTER – University of Alaska Fairbanks. BNZ:844. <http://www.lter.uaf.edu/data/data-detail/id/844>. doi:10.6073/pasta/0b942785d8ad551b9492fc39e55a4f56
- Black BC, Mack MC, **Walker XJ**. (2025) Fire Self-Limitation (FiSL) Experiment: Quantifying Wildfire Carbon Combustion Losses in boreal Deciduous and Mixed Forests in Interior Alaska and the Boreal Cordillera IX: Metrics Derived from All Raw Data Collected Plus Data from Previous Studies on the 2004 Alaska Wildfires Included in Analysis 2022. Bonanza Creek LTER – University of Alaska Fairbanks. BNZ:845. <http://www.lter.uaf.edu/data/data-detail/id/845>. doi:10.6073/pasta/2c370c64d2d815b897846116f1a34efe
- Noomah S, Link NT, **Walker XJ**, Mack MC. (2025). Tree health conditions (mortality, damage, disease, bark beetles) in fuel reduction treatments located near communities in Interior Alaska and the Cook Inlet Region of Alaska – observations from July–August 2023. Bonanza Creek LTER – University of Alaska Fairbanks. <https://doi.org/10.6073/pasta/85fb71916dd6c65f0291852a317585a5>
- Walker XJ** (2025). Increasing wildfire frequency decreases carbon storage and leads to regeneration failure in boreal forests 2015-2023. Arctic Data Center. doi:10.18739/A2BV79X68.

2024

- Johnstone J, **Walker XJ**, Chapin FS. (2024) Alaska 2004 Burns: Counts of live and dead seedlings of lodgepole pine in a post-fire seeding experiment at 39 sites. Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:813. <http://www.lter.uaf.edu/data/data-detail/id/813>. doi:10.6073/pasta/d9c252935c8037e1edfca65d10905e43
- Walker XJ**, Mack MC. (2024) Overwintering Fires from 2009-2010 Burns near Fairbanks, Alaska: Residual Soil Organic Layer Depth, Burn Depth and Thaw Depth Collected 2023. Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:822. <http://www.lter.uaf.edu/data/data-detail/id/822>. doi:10.6073/pasta/8e628fc7868b891774062ef5a3c166ba
- Walker XJ**, Mack MC. (2024) Overwintering Fires from 2009-2010 Burns near Fairbanks, Alaska: Post-fire Seedling Recruitment Collected 2023. Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:821. <http://www.lter.uaf.edu/data/data-detail/id/821>. doi:10.6073/pasta/09228ba683a646d98cfbddd564ce879
- Walker XJ**, Mack MC. (2024) Overwintering Fires from 2009-2010 Burns near Fairbanks, Alaska: Pre-fire Tree Species Density and Combustion Collected 2023. Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:823. <http://www.lter.uaf.edu/data/data-detail/id/823>. doi:10.6073/pasta/f8abfc1f0a71f19b9a11d57ca6aa09ab

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- Bill KE, Dieleman C, Baltzer JL, Degre-Timmons GE, Mack MC, Cumming SG, **Walker XJ**, Turetsky MR. (2023) Post-fire Recovery of Soil Organic Layer Carbon in Canadian Boreal Forests, 2015-2018. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORN LDAAC/2235>

- Johnstone J, **Walker XJ**, Chapin FS. (2023) Alaska 2004 Burns: Growth and survival of tree seedlings in post-fire experimental transplant study across 39 sites. Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:812. <http://www.lter.uaf.edu/data/data-detail/id/812>. doi:10.6073/pasta/4be29d972e9ae19b571c836dab1f8fdf
- Massey R, Rogers BM, Berner LT, Cooperdock S, Mack MC, **Walker XJ**, Goetz SJ (2023) Arctic-Boreal Vulnerability Experiment (ABoVE). *ORNL Distributed Active Archive Center (DAAC) dataset* 10.3334/ORNLDAAC/2296: 2296.
- Walker XJ**, Mack MC. (2023) Pre and post-fire composition, density, basal area, and biomass for 212 sites that burned between 2004 and 2015 in Interior Alaska. Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:804. <http://www.lter.uaf.edu/data/data-detail/id/804>. doi:10.6073/pasta/b78161335e3edbd2393378b197735d85

2022

- Baltzer JL, Day NJ, **Walker XJ**, Greene DF, Mack MC, Arseneault D, Barnes J, Bergeron Y, Boucher Y, Bourgeau-Chavez LL, et al. (2022) Arctic-Boreal Vulnerability Experiment (ABoVE). *ORNL Distributed Active Archive Center (DAAC) dataset* 10.3334/ORNLDAAC/1955: 1955.
- Potter S, Veraverbeke S, **Walker XJ**, Mack MC, Goetz SJ, Baltzer JL, Dieleman C, French NHF, Kane ES, Turetsky MR, et al. (2022) Arctic-Boreal Vulnerability Experiment (ABoVE). *ORNL Distributed Active Archive Center (DAAC) dataset* 10.3334/ORNLDAAC/2063: 2063.

2021

- Mack MC, **Walker XJ**, Johnstone J, Alexander HD, Melvin AM, Jean M, Miller S. (2021) A Chronosequence of Biomass and Carbon and Nitrogen Stocks Across Boreal Deciduous, Mixed, and Black Spruce Forests in Interior Alaska. Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:772. <http://www.lter.uaf.edu/data/data-detail/id/772>. doi:10.6073/pasta/a36e7afe8105c766be300f96f8803363
- Mack MC, **Walker XJ**, Johnstone J, Alexander HD, Melvin AM, Jean M, Miller S. (2021) Estimates of Forest Structure, Successional Trajectory, and Carbon and Nitrogen Pools Across the 2004 Wildfire Network Sites. Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:773. <http://www.lter.uaf.edu/data/data-detail/id/773>. doi:10.6073/pasta/7367d64e999c830a508a7e012ad0824c

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- Boyd MA, Berner L, Foster A, Goetz SJ, Rogers B, **Walker XJ**, Mack MC. (2020) Annual maximum summer NDVI (NDVImax) at 22 plots (8 sites) that are a part of the Cooperative Alaska Forest Inventory (CAFI) from 1986 - 2015. Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:771. <http://www.lter.uaf.edu/data/data-detail/id/771>. doi:10.6073/pasta/17dd18c0a4f0e9c807c0220dd519313d
- Dieleman C, Rogers BM, Veraverbeke S, Johnstone JF, Laflamme J, Gelhorn L, Solvik K, **Walker XJ**, Mack MC, Turetsky MR (2020) Arctic-Boreal Vulnerability Experiment (ABoVE). *ORNL Distributed Active Archive Center (DAAC) dataset* 10.3334/ORNLDAAC/1740: 1740.
- Walker XJ**, Baltzer JL, Bourgeau-Chavez LL, Day NJ, De Groot WJ, Dieleman C, Hoy E, Johnstone JF, Kane E, Parisien M, Potter S. (2020) ABoVE: Synthesis of Burned and Unburned Forest Site Data, AK and Canada, 1983-2016. ORNL DAAC, Oak Ridge, Tennessee, USA. doi:10.3334/ORNLDAAC/1744

Wieder WR, Pierson D, Earl SR, Lajtha K, Baer S, Ballantyne F, Berhe AA, Billings S, Brigham LM, Chacon SS, et al. (2020) SOils DATA Harmonization database (SoDaH): An open-source synthesis of soil data from research networks. *Environmental Data Initiative*.

2019

Boyd MA, Mack MC, Wagner D, Doak P, Berner L, Rogers B, Goetz SJ, **Walker XJ**. (2019) Tree ring, leaf mining, climate, and remote sensing data from aspen leaf miner survey sites: I - Basal area increment and d13C. Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:713.

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