

Steven Mamet

Department of Soil Science

College of Agriculture & Bioresources, University of Saskatchewan, Saskatoon, SK, S7N 5A8
Phone: (306) 966-6857 | Fax: (306) 966-4461 | steven.mamet@usask.ca | www.stevenmamet.com

RESEARCH INTERESTS

I am a terrestrial ecologist focused on edaphology or how soil influences plant pattern and process. I am interested in plant-microbe interactions, biogeography, and ecological change in managed and marginal environments.

ACADEMIC POSITIONS

Research Associate. *Department of Soil Science, University of Saskatchewan, Saskatoon, SK. Advisors: Drs. Bobbi Helgason and Steven Siciliano.* 2017–Present

- As part of a Canada First Research Excellence Funded project, Plant Phenotyping and Imaging Research Centre (P²IRC), I explore novel means of isolating ecologically important microbial taxa in soil microbiomes. See publication 22 and submitted manuscripts 1–3, 5.

Program Coordinator. *Department of Soil Science, University of Saskatchewan, Saskatoon, SK. Advisor: Dr. Steven Siciliano.* 2017–Present

- As part of the NSERC CREATE in Sustainable Applied Fertilizer Remediation (SAFER), I am responsible for the coordination of the training program structure and content.

Postdoctoral Research Fellow. *Department of Soil Science, University of Saskatchewan, Saskatoon, SK. Advisor: Dr. Steven Siciliano.* 2015–2017

- Here I study how microbes interact along plant invasion gradients and track ecologically active microbial communities in natural and anthropogenically disturbed sites. See publications 10, 13, 16, 18, and 19.

Lecturer. *Department of Soil Science, University of Saskatchewan, Saskatoon, SK* Fall 2015, Winter 2019

- Winter 2019: *Multivariate Statistics*. Provides training in multivariate approaches used in microbial and soil science experiments. Topics include metric and non-metric ordination analysis, techniques used to assess environmental gradients or treatment effects, and non-ordination approaches.
- Fall 2015: *First-Year Research Experience (FYRE) Program*. I taught Renewable Resources and Environment, which introduced students to renewable resources and their management, with emphasis on human use of surface water, groundwater, land and plant resources.

Garfield Weston Postdoctoral Fellow. *Cross-appointment between the Biology Department and Global Institute for Water Security, University of Saskatchewan, Saskatoon, SK. Advisor: Dr. Jill Johnstone.* 2012–2015

- I quantified how plant growth and demographics responded to climate along environmental gradients at the northern and southern limits of the boreal forest. See publications 6, 8, 9, and 11.

EDUCATION

Ph.D. Thesis: *Dendrochronology & treeline dynamics: arctic & alpine environments, Western & Central Canada.* Earth & Atmospheric Sciences Department, University of Alberta, Edmonton, AB. Advisor: Dr. G. Peter Kershaw 2007-2012

Steven Mamet

July 2019

CV-2

- M.Sc.** Thesis: *Treeline dendroecology & dendroclimatology, northeastern Manitoba, Canada*. Earth & Atmospheric Sciences Department, University of Alberta, Edmonton, AB. Advisor: Dr. G. Peter Kershaw 2005-2007
- B.Sc.** Thesis: *Dendroclimatological variations at the treeline near Churchill, Manitoba, Canada*. Specialization in Environmental Earth Sciences, University of Alberta, Edmonton, AB. Advisor: Dr. G. Peter Kershaw 2001-2004
- B.A. University transfer program. Grant MacEwan College, Edmonton, AB. 1999-2000

RESEARCH EXPERIENCE

I have extensive experience coordinating and executing field and laboratory studies in collaboration with universities, NGOs, and governments.

- PRINCIPAL INVESTIGATOR** 2013-Present
Earthwatch International (see manuscripts 1–5, 7, 12, 14, 15, 17, 20, 21, and submitted manuscript 4).
- SCIENTIFIC AND TECHNICAL ADVISOR: ECOLOGICAL FUNCTIONS OF WETLANDS** 2019
Yukon Territorial Government
- GIS/REMOTE SENSING TECHNICIAN** 2004-2006
Earth Observation Systems Laboratory, University of Alberta
- RESEARCH ASSISTANT** 2003-2004
Department of Earth and Atmospheric Sciences, University of Alberta
- RESEARCH TECHNICIAN** 2002-2003
Department of Biology, University of Alberta

GRANTS OBTAINED FOR RESEARCH AND TRAVEL (≥\$1,000 CAD; 8)

8. Global Water Futures Summer Student Award (\$8,000) 2018
7. University of Saskatchewan International Travel Award (\$2,000) 2017
6. Shell Earthwatch Stakeholder Engagement Fund (£30,800) 2017
5. Aurora Research Institute – Research Assistantship (\$2,500) 2017, 2018
4. Earthwatch International (\$188,000 / yr) 2013–2018
3. Wapusk National Park Authority (\$6,000 / yr) 2013–2018
2. W. Garfield Weston Postdoctoral Travel Fellowship (\$10,000 / yr) 2013–2015
1. Northern Scientific Training Program Grant (\$3,500) 2008

SCHOLARSHIPS, AWARDS, AND PRIZES (11)

11. University of Saskatchewan Images of Research Competition (\$300) 2018
10. Shortlist for the Ecography Award for Excellence in Ecology and Evolution – E4 Award (1000€) 2016
9. Nominated for the Teaching Excellence Award, UofS, EVSC 110 2015
8. Changing Cold Regions-Early Career Researcher Network Presentation Award 2014
7. W. Garfield Weston Postdoctoral Fellowship in Northern Research (\$50,000/yr) 2013-2015
6. Queen Elizabeth II Graduate Student Scholarship (\$15,000) 2009/2011
5. Profiling Alberta's Graduate Students Award (\$1,500) 2010
4. S.M. Blair Polar Research Scholarship (\$15,000) 2008-2009
3. Harington Paleoenvironmental Award (\$4,500) 2007
2. Advanced Education Achievement Award (\$2,000) 2006

Steven Mamet

July 2019

CV-3

1. Paul Simpson-Housley Canadian Association of Geographers Award for Undergraduate Conference Presentation (\$80)

2004

PUBLICATIONS

Articles published, in press, or accepted in peer-reviewed journals (22)

2019 (6)

22. **MAMET, S.D.**, REDLICK, E., BRABANT, M., LAMB, E.G., HELGASON, B.L., STANLEY, K., & SICILIANO, S.D. (2019) Structural equation modelling of a winnowed soil microbiome identifies how invasive plants re-structure microbial networks. *The ISME Journal* doi:10.1038/s41396-019-0407-y.
21. **MAMET, S.D.**, BROWN, C.D., TRANT, A.J., & LAROQUE, C. (2019) Shifting global *Larix* distributions: northern expansion and southern retraction as species respond to changing climate. *Journal of Biogeography* 46(1): 30–44.
20. BROWN, C.D., DUFOUR TREMBLAY, G., JAMESON, R.G., **MAMET, S.D.**, TRANT, A.J., WALKER, X., BOUDREAU, S., HARPER, K.A., HENRY, G.H.R., HERMANUTZ, L., HOFGAARD, A., ISAEVA, L., KERSHAW, G.P., & JOHNSTONE, J.F. (2019) Reproduction as a bottleneck to treeline advance across the circumarctic forest tundra ecotone. *Ecography* 42(1): 137–147. *I assisted with the field data collection, interpretation, writing, and revision of the manuscript.*
19. HYDE, K., MA, W., OBAL, T., BRADSHAW, K., CARLSON, T., **MAMET, S.D.**, & SICILIANO, S. (2019) Evaluating the Incremental Sampling Methodology for petroleum hydrocarbon plume estimates and remediation strategies. *Soil and Sediment Contamination* 28(1): 51–64. *I assisted an MSc student with the crafting of this manuscript. Specifically, I led the spatial analyses (GIS) and contributed to the writing.*
18. KARPPINEN, E.M., **MAMET, S.D.**, STEWART, K.J., & SICILIANO, S.D. (2019) The charosphere promotes mineralization of ¹³C-phenanthrene by psychrotrophic microorganisms in northern soil. *Journal of Environmental Quality* 48(3): 559–567. *I assisted with analysis conceptualization, data analyses, figure development, writing, and revision of the manuscript.*
17. TIMONEY, K.P., **MAMET, S.D.**, CHENG, R., LEE, P., ROBINSON, A.L., DOWNING, D., & WEIN, R.W. (2019) Tree cover response to climate change in the forest-tundra of north-central Canada: fire-driven decline, not northward advance. *Écoscience* 26(2): 133–148. *I assisted with data analyses, interpretation, figure generation, and helped to write and revise the manuscript.*

2018 (3)

16. **MAMET, S.D.**, MA, B., ULRICH, A., SCHRYER, A., & SICILIANO, S.D. (2018) Who is the rock miner and who is the hunter? The use of heavy-oxygen labelled phosphate (P¹⁸O₄) to differentiate between C and P fluxes in a benzene-degrading consortium. *Environmental Science and Technology* 52(4): 1773–1786.
15. FREI, E.R., BIANCHI, E., BERNAREGGI, G., BEBI, P., DAWES, M.A., BROWN, C.D., TRANT, A., **MAMET, S.D.**, & RIXEN, C. (2018) Biotic and abiotic drivers of tree seedling recruitment across an alpine treeline ecotone. *Scientific Reports* 8: 10894. doi:10.1038/s41598-018-28808-w. *I contributed to development of the experimental design, data analyses, interpretation, writing, and revision of the manuscript.*

14. LORANTY, M.M., ABBOTT, B.W., BLOK, D., DOUGLAS, T.A., EPSTEIN, H.E., FORBES, B.C., JONES, B.M., KHOLODOV, A.L., KROPP, H., MALHOTRA, A., **MAMET, S.D.**, MYERS-SMITH, I.H., NATALI, S.M., O'DONNELL, J.A., PHOENIX, G.K., ROCHA, A.V., SONNENTAG, O., TAPE, K.D., & WALKER, D.A. (2018) Changing ecosystem influences on soil thermal regimes in northern high-latitude permafrost regions. *Biogeosciences* 15: 5287–5313. doi:10.5194/bg-15-5287-2018. *I led the writing of the section on vegetation change in response to climate, as well as revision of the rest of the manuscript.*

2017 (4)

13. **MAMET, S.D.**, LAMB, E.G., PIPER, C.L., WINSLEY, T., & SICILIANO, S.D. (2017) Archaea and bacteria mediate the effects of native species root loss on fungi during plant invasion. *The ISME Journal*. doi:10.1038/ismej.2016.205.
12. **MAMET, S.D.**, CHUN, K.P., KERSHAW, G.G.L., LORANTY, M.M., & KERSHAW, G.P. (2017) Recent increases in permafrost thaw rates and areal loss of palsas in the western Northwest Territories, Canada. *Permafrost and Periglacial Processes*. 619–633. doi:10.1002/ppp.1951.
11. CHUN, K.P., **MAMET, S.D.**, METSARANTA, J., BARR, A., JOHNSTONE, J.F., & WHEATER, H. (2017) A novel stochastic method for reconstructing daily precipitation times-series using tree-ring data from the western Canadian boreal forest. *Dendrochronologia* 4: 9–18. *I provided the tree ring data and chronology analysis, wrote the sections on boreal forest ecology, and contributed to manuscript conceptualization and figure design.*
10. MULLER, A., HARDY, S., **MAMET, S.D.**, OTA, M., LAMB, E., & SICILIANO, S.D. (2017) *Salix arctica* changes root distribution and nutrient uptake in response to subsurface nutrient patches in high arctic deserts. *Ecology* 98(8): 2158–2169. doi:10.1002/ecy.1908. *To assist with the amalgamation of data sets from two graduate students, I contributed to data analysis, writing of the manuscript, and developed two of three figures.*

2016 (1)

9. **MAMET, S.D.**, YOUNG, N., CHUN, K.P., & JOHNSTONE, J.F. (2016) What is the most efficient and effective method for long-term monitoring of alpine tundra vegetation? *Arctic Science* 2(3): 127–141.

2015 (3)

8. **MAMET, S.D.**, CHUN, K.P., METSARANTA, J.F., BARR, A., & JOHNSTONE, J. (2015a) Tree rings provide early warning signals of jack pine mortality across a moisture gradient in the southern boreal forest. *Environmental Research Letters* 10(8): 084021.
7. **MAMET, S.D.**, CAIRNS, D.M., BROOK, R.K., & KERSHAW, G.P. (2015b) Modeling the spatial distribution of subarctic forest in northern Manitoba using GIS-based terrain & climate data. *Physical Geography* 36(2): 93–112.
6. IRESON, A.M., BARR, A.G., JOHNSTONE, J.F., **MAMET, S.D.**, VAN DER KAMP, G., WHITFIELD, C., MICHEL, N.L., NORTH, R., WESTBROOK, C., DEBEER, C., CHUN, K.P., NAZEMI, A. & SAGIN, J. (2015) The Changing Water Cycle: The Boreal Plains Ecozone of Western Canada. *WIREs Water* 2(5): 505–521. *I led the writing on vegetation response to climate change, and contributed to manuscript conceptualization and figure design.*

2013 (3)

Steven Mamet

July 2019

CV-5

5. **MAMET, S.D.** & KERSHAW, G.P. (2013a) Multi-scale analysis of environmental conditions & conifer seedling distribution across the forest-tundra ecotone of northern Manitoba, Canada. *Ecosystems* 16(2): 295–309.
4. **MAMET, S.D.** & KERSHAW, G.P. (2013b) Age-dependency, climate & environmental controls of recent tree growth trends at subarctic & alpine treelines. *Dendrochronologia* 31(2): 75–87.
3. **MAMET, S.D.** & KERSHAW, G.P. (2013c) Environmental influences on winter desiccation of *Picea glauca* foliage at treeline, & implications for treeline dynamics in northern Manitoba. *Arctic, Antarctic, and Alpine Research* 45(2): 219–228.

2012 (1)

2. **MAMET, S.D.** & KERSHAW, G.P. (2012) Subarctic & alpine treeline dynamics during the last 400 yrs in northwestern & central Canada. *Journal of Biogeography* 39(5): 855–868.

2011 (1)

1. **MAMET, S.D.** & KERSHAW, G.P. (2011) Radial-growth response of forest-tundra trees to climate in the western Hudson Bay Lowlands. *Arctic* 64(4): 446–458.

Other published notes and articles (editor-review only; 4)

4. TALEBITAHER, A., CHANG, Y.-F., THOMPSON, K., PAPANDREOU, Z., TEYMURAZYAN, A., **MAMET, S.D.**, & SICILIANO, S.D. (2018) Dedicated plant positron emission tomography system. 38th Annual Conference of the Canadian Nuclear Society and 42nd Annual CNS/CNA Student Conference, Saskatoon, Saskatchewan, June 3–6, 2018. Conference Proceedings.
3. CHANG, Y.-F., SICILIANO, S.D., MAMET, S.D., TALEBITAHER, A., THOMPSON, K., PAPANDREOU, Z., & TEYMURAZYAN, A. (2018) Applying a modular PET system to investigate subsurface contamination bioremediation: A proof-of-principle study. IEEE International Instrumentation & Measurement Technology Conference, Houston, Texas, 14–17 May 2018. Conference Proceedings.
2. KERSHAW, G.G.L., QUINTON, W., **MAMET, S.D.**, & KERSHAW, G.P. (2017) A remote assessment of ice-rich permafrost loss across a ~500m elevation gradient in the Mackenzie and Selwyn Mountains, Canada. 21st International Northern Research Basins Symposium and Workshop, Yakutsk, Russia, August 5–12, 2017. Conference Proceedings.
1. BROWN, C.D., **MAMET, S.D.**, & TRANT, A.J. (2013). The Global Treeline Range Expansion Experiment. *Mountain Views* 7(2): 6–7.

Articles submitted/in revision for publication in peer-reviewed journals (5)

5. BELL, J.K., MAMET, S.D., MORALES, Z.M., WILLIAMS, S., DOWHY, T., TAYE, Z., LAMB, E., LINKS, M., SHIRTLIFFE, S., ARCAND, M., VAIL, S., HELGASON, SICILIANO, S., & NORRIS, C. A temporally intensive survey of root and rhizosphere bacterial communities of diverse *Brassica napus* genotypes grown in different environments. *Microbiome*. Submitted 4 July 2019. MS. ID: MBIO-D-19-00599. I developed and ran the bioinformatic pipeline, created three figures, wrote the related methods, and contributed to the writing and revision of the rest of the manuscript.
4. FITZPATRICK, O.T., BLADE, M., FISHBACK, L.A., KERSHAW, G.P., & **MAMET, S.D.** Snowpack, tree size, and ecological legacies promote seedling establishment in tree

- islands at the treeline. *Journal of Ecology*. Submitted 21 June 2019. MS. ID: JEcol-2019-0538. *I helped design the field protocol, lead the data collection, develop the statistical analysis pipeline, and co-lead the writing and revision of the manuscript.*
3. TAYE, Z.M., HELGASON, B., NORRIS, C.E., VAIL, S., ROBINSON, S., PARKIN, I., ARCAND, M., **MAMET, S.**, LINKS, M., DOWHY, T., SICILIANO, S., & LAMB, E. Core and differentially abundant bacterial taxa in the rhizosphere of field grown *Brassica napus* genotypes: Implications for canola breeding. *Frontiers in Microbiology, section Terrestrial Microbiology*. Submitted 15 June 2019. MS. ID: 478841. *I assisted with conceptualization of the analysis pipeline, and contributed to the writing and revision of the manuscript.*
 2. BISSETT, A., **MAMET, S.**, LAMB, E.G., & SICILIANO, S. Bacterial environmental traits: linking niche size, and phylogenetic signals to predict future soil microbial abundances and ecosystem service provision. *Soil Biology and Biochemistry*. Submitted 4 June 2019. MS. ID: SBB-S-19-00954. *I assisted with data analyses, developed two key figures, and contributed to the writing and revision of the manuscript.*
 1. OTA, M., **MAMET, S.D.**, MULLER, A., LAMB, E. DHILLON, G., PEAK, D., & SICILIANO, S. Could cryoturbid diapirs be key for understanding ecological feedbacks to climate change in High Arctic polar deserts? *Journal of Geophysical Research: Biogeosciences*. Submitted 29 May 2019. MS. ID: 2019JG005263. *I assisted with data analyses, interpretation, conceptual figure generation, and helped to write and revise the manuscript.*

Non-refereed publications (10)

10. **MAMET, S.D.** & FISHBACK, L.A. (2017) Microclimate, snowpack, treeline dynamics, and permafrost degradation in Wapusk National Park, Manitoba. Report on Research and Monitoring in Wapusk National Park 2016-2017. 2 pp.
9. **MAMET, S.D.** & FISHBACK, L.A. (2016) Microclimate, snowpack, treeline dynamics, and permafrost degradation in Wapusk National Park, Manitoba. Report on Research and Monitoring in Wapusk National Park 2015-2016. 2 pp.
8. **MAMET, S.D.** (2011) Mapping shorebird habitat quality on Victoria and King William Islands using Normalized Difference Vegetation Indices derived from Landsat 7 Enhanced Thematic Mapper imagery. Report for Environment Canada, Canadian Wildlife Service. Report no. K4E21-09-0904. 7 pp.
7. BROWN, C. D., JOHNSTONE, J. F., **MAMET, S.D.**, & TRANT, A. J. (2013) Global Treeline Range Expansion Experiment Field Protocols. Website: <http://www.treelineresearch.com>.
6. KERSHAW, G.P. & **MAMET, S.D.** (2012) Microclimate, snowpack, dendroclimatology and permafrost degradation in Wapusk National Park. Report on Research and Monitoring in Wapusk National Park 2011-2012. 2 pp.
5. KERSHAW, G.P., **MAMET, S.D.** & SUTER, J.A. (2009) Climatological, snowpack & dendroclimatological investigations, Wapusk National Park. Report for Wapusk National Park Authority. 52 pp.
4. KERSHAW, G.P. & **MAMET, S.D.** (2008) Climatological, snowpack, & dendroclimatological investigations, Wapusk National Park, Final Report (FY2007-8). 50 pp.
3. KERSHAW, G.P. & **MAMET, S.D.** (2006) Dendroclimatological investigations, Wapusk National Park. Report for Wapusk National Park Authority. 18 pp.
2. KERSHAW, G.P. & **MAMET, S.D.** (2005) Dendroclimatological investigations in Wapusk National Park and adjacent Churchill Wildlife Management Area. Report for Wapusk National Park Authority. 8 pp.

Steven Mamet

July 2019

CV-7

1. SÁNCHEZ-AZOFEIFA, G.A., CHONG, M., SINKWICH, J., & **MAMET, S.D.** (2004) Alberta ground cover characterization (AGCC) training and procedures manual. Earth Observations System Laboratory, Department of Earth and Atmospheric Sciences, University of Alberta, Edmonton, AB. 67 pp.

TEACHING EXPERIENCE (*University, §Non-university)

Course development

- | | |
|---|-----------|
| §Schools on Board/Schools on Tundra, ArcticNet Outreach Program | 2013 |
| *Earth & Atmospheric Sciences 354 – Earth Science Field school | 2010-2012 |

Teaching

- | | |
|--|-----------|
| * Plant Science/Computer Science 898 – Applied Bioinformatics
Instructor | 2019 |
| * Soil Science 852 – Multivariate Statistics in Soil Science
Instructor | 2019 |
| * Environmental Sciences 110 – Renewable Resources & Environment, U of SK
Instructor | 2015 |
| § Schools on Board/Schools on Tundra, ArcticNet Outreach Program, Churchill Northern Studies Centre
Instructor | 2013 |
| * Earth & Atmospheric Sciences 354 – Environmental Earth Science Field School, U of AB
2011/2012 – Instructor
2010 – Teaching assistant | 2010-2012 |
| * Earth & Atmospheric Sciences 458 – Cold Regions Geoscience, U of AB
Teaching assistant | 2012 |
| * Earth & Atmospheric Sciences 250 – Biogeography, U of AB
Teaching assistant | 2009-2011 |
| * Earth & Atmospheric Sciences 100 – Planet Earth, U of AB
Teaching assistant | 2006-2011 |
| * Earth & Atmospheric Sciences 102 – Introduction to Environmental Earth Science, U of AB
Teaching assistant | 2005-2006 |

Guest Lectures

- ***Environment, Resources and Sustainability 431 – Ecological Responses to Climate Change, University of Waterloo**
2016-2017 – Winter semester (via Skype)
- ***Biology 228 – Introduction to Ecology & Ecosystems, U of SK**
2013-2014 – Fall semester
- ***Earth & Atmospheric Sciences 458 – Cold Regions Geoscience, U of AB**
2011-2012 – Winter semester
- ***Earth & Atmospheric Sciences 250 – Biogeography, U of AB**
2010-2011 – Winter semester
2009-2010 – Winter semester

Steven Mamet

July 2019

CV-8

2006-2007 – Winter semester

***Earth & Atmospheric Sciences 102 – Introduction to Environmental Earth Science, U of AB**

2005-2006 – Fall semester

Mentoring and Co-supervision

Kirsten Reid	PhD	2018–	Department of Geography	Memorial University	Supervisory Committee
Jason Maillet	MSc	2015	School of Environment and Sustainability	University of Saskatchewan	External Examiner
Jake Muffly	BSc	2011	Department of Earth and Atmospheric Sciences	University of Alberta	Co-supervisor

During my time as a PhD student at the University of Alberta (2008–2012), and PDF (2015–2017) and Research Associate (2017 onwards) at the University of Saskatchewan, I contributed to the training and mentorship of 23 assistants and graduate students, including six field/lab technicians, five undergraduate research students, five MSc students, and seven PhD students.

PRESENTATIONS (50)

Invited talks (11)

- 11. MAMET, S.D.** (2016) Monitoring terrestrial ecosystem change in the Subarctic using citizen science: observations in a rapidly changing climate. Biology Seminar Series, University of Saskatchewan. Oct. 20th, 2016. Saskatoon, SK.
- 10. MAMET, S.D.** (2016) The Road to Oz: Tree rings and Water and Soil! Oh My! Soil Science Seminar Series. University of Saskatchewan. Jan. 25th, 2016. Saskatoon, SK.
- 9. FISHBACK, L. & MAMET, S.D.*** (2014) How citizen scientists support long-term monitoring of environmental change in a really “cool” place: Observations of arctic ecosystems in a rapidly shifting climate. Earthwatch Summit 2014: Citizens for Science Exposition. Nov. 6-8th, 2014. Boston, MA. ***Co-presenting author.**
- 8. MAMET, S.D., JOHNSTONE, J.F., & TRUCHON-SAVARD, A.** (2012) Tree-ring analysis of ecosystem productivity & resilience across the southern boreal forest in central Saskatchewan. Northern Ecology Symposium, Geography Department, University of British Columbia. Nov. 14th, 2012. Vancouver, BC.
- 7. MAMET, S.D. & KERSHAW, G.P.** (2012) Looking through the wooden time machine: tree-ring investigations of terrestrial ecosystem change in the western Hudson Bay Lowlands. Biology Seminar Series, University of Saskatchewan. Nov. 2nd, 2012. Saskatoon, SK.
- 6. MAMET, S.D. & KERSHAW, G.P.** (2011) Looking through the wooden time machine: tree-ring investigations of terrestrial ecosystem change in the western Hudson Bay Lowlands. Understanding & Sustaining the North into the Future: A Celebration of the Life & Legacy of Bob Jefferies. Aug. 24-28th, 2011. Churchill, MB.
- 5. MAMET, S.D. & KERSHAW, G.P.** (2011) Subarctic treeline advance during the 20th century in northern MB. Churchill Northern Studies Centre-Parks Canada Science Symposium. Jan. 19-20th, 2011. Winnipeg, MB.
- 4. MAMET, S.D. & KERSHAW, G.P.** (2009). Climate & tree growth in Wapusk: local vs. synoptic influences. Wapusk National Park Annual Meeting. Jan. 28-30th, 2009. Winnipeg, MB.

3. **MAMET, S.D. & KERSHAW, G.P.** (2007). Dendrochronology & tree colonization: wetlands vs. uplands, northern Manitoba. Churchill Northern Studies Centre Research Symposium. Dec. 5th, 2007. Winnipeg, MB.
2. **MAMET, S.D. & KERSHAW, G.P.** (2006). Tree ring radial growth response to climate, Wapusk National Park, Manitoba Canada. Churchill Northern Studies Centre Research Symposium. Dec. 7th, 2006. Winnipeg, MB.
1. **MAMET, S.D. & KERSHAW, G.P.** (2005). Using tree ring growth to understand past climates: preliminary results of a dendroclimatological study in the Hudson Bay Lowlands. Churchill Northern Studies Centre Research Symposium. Dec. 9th, 2005. Brandon, MB.

Conferences and meetings (37)

37. **MAMET, S.D., REDLICK, E., DOWHY, T., BELL, J., TAYE, Z., ARCAND, M., BISSETT, A., HELGASON, B.L., LAMB, E.G., LINKS, M., STANLEY, K., & SICILIANO, S.D.** (2019) Structural equation modelling of a winnowed soil microbiome identifies how invasive plants re-structure microbial networks. Rhizosphere 5 - Shining light on the world beneath our feet. Jul. 7–11th, 2019. Saskatoon, SK. *Oral presentation.*
36. **MAMET, S.D., BAZGHALEH, N., BELL, J., DOWHY, T., MORALES, Z., TAYE, Z., WILLIAMS, S., ARCAND, M., LAMB, E., LINKS, M., PARKIN, I., SICILIANO, S.D., VAIL, S., & HELGASON, B.** (2019) Bacterial microbiomes and plant genotypes: what drives phenotypic variation among canola lines? Rhizosphere 5 - Shining light on the world beneath our feet. Jul. 7–11th, 2019. Saskatoon, SK. *Oral presentation.*
35. **MAMET, S.D., REDLICK, E., DOWHY, T., BELL, J., TAYE, Z., ARCAND, M., BISSETT, A., HELGASON, B.L., LAMB, E.G., LINKS, M., STANLEY, K., & SICILIANO, S.D.** (2018) Multivariate and graphic based assessment of microbial influence in soils: a new approach for separating the wheat from the chaff? 103rd Annual Meeting of the Ecological Society of America. Aug. 5-10th, 2018. New Orleans, LA. *Oral presentation.*
34. **MAMET, S.D., REDLICK, E., DOWHY, T., BELL, J., TAYE, Z., ARCAND, M., BISSETT, A., HELGASON, B.L., LAMB, E.G., LINKS, M., STANLEY, K., & SICILIANO, S.D.** (2018) Multivariate and graphic based assessment of microbial influence in soils: can we separate the wheat from the chaff? Canadian Society for Ecology and Evolution - 2018 Annual Meeting, Jul. 18-21st, 2018. Guelph, ON. *Oral presentation.*
33. **MAMET, S.D., MA, B., ULRICH, A., SCHRYER, A., & SICILIANO, S.D.** (2018) Who is the rock miner and who is the hunter? The use P¹⁸O₄ to differentiate between C and P fluxes in a benzene-degrading consortium. Sustainable In-Situ Remediation Co-operative Alliance (SIRCA) Technical Meeting. Apr. 20th, 2018. Saskatoon, SK. *Oral Presentation.*
32. **MAMET, S.D., BROWN, C.D., TRANT, A.J., JOHNSTONE, J.F., CONWAY, A.J., BERNARD, J., FISHBACK, L.A., KERSHAW, G.G.L., & KERSHAW, G.P.** (2018) Non-climatic constraints on treeline advance in western Canada. 48th International Arctic Workshop. Apr. 5–6, 2018. Boulder, CO. *Oral Presentation.*
31. **MAMET, S.D., SCHEBEL, A., MA, B., ULRICH, A., & SICILIANO, S.D.** (2017) Identifying active microbial communities during in-situ hydrocarbon degradation in cold soils using heavy oxygen-labelled phosphate. Battelle's Fourth International Symposium on Bioremediation and Sustainable Environmental Technologies. May 22–25th, 2017. Miami, FL. *Oral Presentation.*
30. **MAMET, S.D., FISHBACK, L., & KERSHAW, G.P.** (2016) Long-term monitoring of snowpack in Wapusk National Park. Wapusk Research & Monitoring Symposium. Dec. 1–2nd, 2016. Winnipeg, MB. *Oral presentation.*

29. **MAMET, S.D.**, WINSLEY, E., HARDY, S., ULRICH, A., & SICILIANO, S.D. (2016) A new stable isotope probe for bioremediation. Sustainable In-Situ Remediation Co-operative Alliance (SIRCA) Annual Meeting. Oct. 26th, 2016. Saskatoon, SK. *Oral presentation.*
28. **MAMET, S.D.**, LAMB, E., PIPER, C., WINSLEY, T., & SICILIANO, S.D. (2016) The microbe telephone game: archaea and bacteria as smooth brome to fungi messengers. Canadian Society for Ecology and Evolution - 2016 Annual Meeting, Jul. 7-11th, 2016. St. John's, NL. *Oral presentation.*
27. **MAMET, S.D.**, CHUN, K.P., BROWN, C.D., BERNARD, J., SINGH, K.K., & JOHNSTONE, J.F. (2015) A sensitive slope at treeline: Do substrate and environmental characteristics determine tree sensitivity to climate? Canadian Society for Ecology and Evolution - 2015 Annual Meeting, May 21-25th, 2015. Saskatoon, SK. *Oral presentation.*
26. **MAMET, S.D.**, SINGH, K.K., BROWN, C.D., & JOHNSTONE, J.F. (2015) Pattern & process in a multi-species treeline environment: cross-scale analysis of treeline dynamics within the Wolf Creek Research Basin, southwestern YK, Canada. AGM, American Association of Geographers, Apr. 21-25th, 2015. Chicago, IL. *Oral presentation.*
25. **MAMET, S.D.**, HARPER, K.A., PELTON, J., ALBERTSEN, E., KERSHAW, G.P. & MUFFLY, J. (2014) Spatiotemporal patterns & processes within a latitudinal ecotone: How has the forest-tundra transition responded to climate change in northern MB? Earthwatch Summit 2014: Citizens for Science Exposition. Nov. 6-8th, 2014. Boston, MA. *Poster presentation.*
24. **MAMET, S.D.** & JOHNSTONE, J.F. (2014) Population demographics & tree-growth dynamics across treeline, Wolf Creek Research Basin, Yukon Territory. Changing Cold Regions Network, AGM. Oct. 18-22nd, 2014. Waterloo, ON. *Poster presentation.*
***Awarded the CCRN-Early Career Researcher Network Award for Best Poster.**
23. **MAMET, S.D.**, JOHNSTONE, J.F., METSARANTA, J.M., HOGG, E.H., BARR, A., BLACK, A., & VAN DER KAMP, G. (2013) Tree ring analysis of ecosystem productivity across moisture gradients in the boreal forest of central SK. 16th Annual Boreal Forest Research Association Conference. Oct. 7-10th, 2013. Edmonton, AB. *Oral presentation.*
22. **MAMET, S.D.** & JOHNSTONE, J.F. (2013) Tree rings & ecosystem productivity across moisture gradients in the boreal forest of central Saskatchewan. 98th Annual Meeting of the Ecological Society of America. Aug. 4-9th, 2013. Minneapolis, MN. *Oral presentation.*
21. **MAMET, S.D.** & JOHNSTONE, J.F. (2013) Tree-ring analysis of ecosystem productivity across hydrological gradients in the southern boreal forest. 1st Scientific Congress of CMOS, CGU, & CWA. May 26-30th, 2013. Saskatoon, SK. *Oral presentation.*
20. **MAMET, S.D.** & JOHNSTONE, J.F. (2013) Tree-rings & ecosystem productivity across moisture gradients near the southern boreal forest limit. 8th Annual Meeting of the Canadian Society for Ecology & Evolution, May 12-15th, 2013. Kelowna, BC. *Poster presentation.*
19. **MAMET, S.D.** & KERSHAW, G.P. (2012) Should I stay or should I go? Stagnant & advancing treelines in subarctic & alpine localities. MtnClim 2012. Oct. 1-4th, 2012. Estes Park, CO. *Poster presentation.*
18. **MAMET, S.D.**, HARPER, K.A., PELTON, J., ALBERTSEN, E., KERSHAW, G.P. & MUFFLY, J. (2012) Spatiotemporal patterns & processes within a latitudinal ecotone: How has the forest-tundra transition responded to climate change in northern MB, Canada? IPY 2012: From Knowledge to Action. Apr. 22-27th, 2012. Montréal, QC. *Poster presentation.*
17. **MAMET, S.D.**, CHAN, S., DANBY, R.K., JACOBS, J.D. & KERSHAW, G.P. (2012) Temperature & Snowpack Characteristics Across Treeline. IPY 2012: From Knowledge to Action. Apr. 22-27th, 2012. Montréal, QC. *Poster presentation.*

16. **MAMET, S.D.** & KERSHAW, G.P. (2012) Contrasting responses of alpine & latitudinal treelines to warming across the forest-tundra ecotone. IPY 2012: From Knowledge to Action. Apr. 22-27th, 2012. Montréal, QC. *Poster presentation.*
15. **MAMET, S.D.** & KERSHAW, G.P. (2011) Stability versus fastness: contrasting responses of treeline to climate change in subarctic & alpine communities. 41st Arctic Workshop. Mar. 2-4th, 2011. Montréal, QC. *Poster presentation.*
14. **MAMET, S.D.**, BASLER, C., & KERSHAW, G.P. (2010) Mid-winter snowpack characteristics and feedbacks with Arctic treeline dynamics. Understanding circumpolar ecosystems in a changing world. Nov. 3-6th, 2010. Edmonton, AB. *Poster presentation.*
13. **MAMET, S.D.** & KERSHAW, G.P. (2010) Forest-tundra dynamics during the last 400 years: is treeline advancing in northern Manitoba? Understanding circumpolar ecosystems in a changing world. Nov. 3-6th, 2010. Edmonton, AB. *Oral presentation.*
12. **MAMET, S.D.** & KERSHAW, G.P. (2010). The influence of climate on needle health of conifers at treeline. International Polar Year, Oslo Science Conference. Jun. 8-12th, 2010. Oslo, Norway. *Poster presentation.*
11. **MAMET, S.D.**, KERSHAW, G.P. & BROOK, R.K. (2010). Is the spatial distribution of subarctic forest in northern Manitoba in equilibrium with present environmental conditions? A GIS-based terrain & climate data perspective. Annual Meeting of the CAG. Western Division. Mar. 25-27th, 2010. Edmonton, AB. *Poster presentation.*
10. **MAMET, S.D.** & KERSHAW, G.P. (2009). Recent seedling establishment & survival at treeline. 9th ACUNS Conference. Oct. 2-5th, 2009. Whitehorse, YK. *Poster presentation.*
9. **MAMET, S.D.** & KERSHAW, G.P. (2009). Modeling the spatial distribution of forest in northern MB using terrain & climate data. 4th Annual Meeting of the Canadian Society for Ecology & Evolution. May 14-17th, 2009. Halifax, NS. *Oral presentation.*
8. **MAMET, S.D.** & KERSHAW, G.P. (2009). Growth response of *Picea* spp. & *L. laricina* to climate in northern MB. AGM of the Canadian Association of Geographers. Western Division. Mar. 5-7th, 2009. Nanaimo, BC. *Poster presentation.*
7. **MAMET, S.** & KERSHAW, G.P. (2008). Spatial & temporal patterns of treeline dynamics in subarctic & alpine localities; preliminary analyses. AGM of the Canadian Association of Geographers, Prairie Division. Sep. 26-28th, 2008. Boissevain, MB. *Oral presentation.*
6. **MAMET, S.D.** & KERSHAW, G.P. (2008). Winter desiccation & recent recruitment of conifers at treeline. PPS Arctic International. Apr. 5-8th, 2008. St. John's, NL. *Poster presentation.*
5. **MAMET, S.D.** & KERSHAW, G.P. (2008). Climate forcing of tree growth across the forest-tundra of northeastern MB. 38th Annual International Arctic Workshop. Mar. 4-7th, 2008. Boulder, CO. *Poster presentation.*
4. **MAMET, S.D.** & KERSHAW, G.P. (2005). Reconstructing historical climatic conditions within Wapusk as inferred from tree rings. AGM of the Canadian Association of Geographers, Prairie Division. Sep. 23-25th, 2005. Winnipeg, MB. *Oral presentation.*
3. **MAMET, S.D.** & KERSHAW, G.P. (2005). Reconstructing climate as inferred from tree rings near Churchill, MB. 35th Annual International Arctic Workshop. Mar. 9-12th, 2005. Edmonton, AB. *Poster presentation.*
2. **MAMET, S.D.** & KERSHAW, G.P. (2004). Dendroclimatological variations within the Subarctic zone at the treeline near Churchill, MB. AGM of the Canadian Association of Geographers, Prairie Division. Oct. 1-2nd, 2004. Muenster, SK. *Oral presentation.*
***Awarded the Paul Simpson-Housley Canadian Association of Geographers Award for Undergraduate Conference Presentation.**

Steven Mamet

July 2019

CV-12

1. **MAMET, S.D.** & KERSHAW, G.P. (2004). Dendroclimatological studies at treeline near Churchill, MB. 5th Circumpolar Ecosystems Workshop. Feb. 25-29th, 2004. Churchill, MB. *Poster presentation.*

Webinars (2)

2. **MAMET, S.D.** (2017) Citizen Science and Ecological Change in the Mackenzie Mountains. Canadian Mountain Network, International Mountain Day Livestream. Dec. 11th, 2017.
1. **MAMET, S.D.** (2017) In Defense of Climate Science in an Era of Alternative Facts: Q&A with Dr. Steve Mamet. Earthwatch International Webinar. Feb. 15th, 2017.

ACADEMIC SERVICE

- Session chair, Rhizosphere 5: Shining Light on the World Beneath our Feet (2019)
- Organizing committee, webmaster, and session chair, Joint Annual Meeting of the Canadian Society of Soil Science and the Canadian Society for Agricultural and Forest Meteorology (2019).
- Workshop organizer and chair, "NSERC CREATE: Scaling Science to Solutions" Joint Annual Meeting of the Canadian Society of Soil Science and the Canadian Society for Agricultural and Forest Meteorology (2019).
- Session chair, Canadian Society for Ecology & Evolution, Memorial University (2016).
- Session chair, Canadian Society for Ecology & Evolution, University of Saskatchewan (2015).
- Session chair, Annual 990 Biology Symposium, University of Saskatchewan (2014, 2015).
- Committee chair, Changing Cold Regions-Early Career Researcher Network (2014–2015).
- Moderator, "Crossing the Line - An Interdisciplinary Trip Through Climate Change Research at the Treeline Ecotone", Ignite Session at the Annual Meeting of the Ecological Society of America, Minneapolis, MN (2013).
- Contributing member of the Biology Department's Ecology and Evolution Discussion Group, University of Saskatchewan (2012-2013).
- Steering committee member of the North American Treeline Network (2012-2013).
- Organizing committees for the Annual Meeting of the Canadian Association of Geographers (2010) and Understanding Circumpolar Ecosystems in a Changing World: Outcomes of the International Polar Year (2010).
- Research grant reviews ($N = 3$):
 - Natural Sciences and Engineering Research Council Discovery Grant (2018)
 - Alberta Conservation Association's ACA Grants in Biodiversity Program (2017)
 - National Science Foundation (2015)
- Reviewer for (manuscripts reviewed, $N = 33$):
 - Arctic (4)
 - Arctic, Antarctic & Alpine Research (2)
 - Arctic Science (1)
 - Australian Journal of Botany (1)
 - Canadian Journal of Forest Research (2)
 - Cold Regions Science & Technology (1)
 - Ecological Applications (1)
 - Ecology Letters (1)
 - Ecosphere (1)
 - Forest Ecology & Management (1)
 - Global Change Biology (2)
 - Journal of Biogeography (3)
 - Journal of Ecology (2)
 - Journal of Plant Ecology (1)
 - Journal of Mountain Science (1)
 - Oikos (1)
 - PeerJ (1)
 - Permafrost & Periglacial Processes (1)

- Physical Geography (1)
- Plant and Soil (1)
- Plant Ecology and Diversity (1)
- Quaternary Science Reviews (1)
- Scientific Reports (2)
- Evaluator at:
 - 2017 First Year Research Experience (FYRE) Symposium, Saskatoon, SK – student poster judge
 - 2016 Canadian Society for Ecology & Evolution, St. John's, NL – student awards judge
 - 2013 Ecological Society of America, Minneapolis, MN – student awards judge
 - 2013 Canadian Society for Ecology & Evolution, Kelowna, BC – student awards judge
 - 2012 Atlas Research Symposium, Edmonton, AB – student awards judge
- Member of:
 - American Association for the Advancement of Science: <http://www.aaas.org/>
 - Arctic Institute of North America: <http://www.arctic.ucalgary.ca/index.php>
 - Association of American Geographers: <http://www.aag.org/>
 - Association of Polar Early Career Scientists: <http://www.apecs.is/>
 - Canadian Association of Geographers: <http://www.cag-acg.ca/en/index.html>
 - Canadian Society for Ecology & Evolution: <http://csee-scee.ca/>
 - Changing Cold Regions Network: <http://www.ccrnetwork.ca/>
 - Ecological Society of America: <http://www.esa.org/>
 - Global Institute for Water Security: <http://www.usask.ca/water/>
 - PPS Arctic: <http://ppsarctic.nina.no/>
 - Saskatchewan Chapter of The Wildlife Society: <http://wildlife.org/canada/>

COMMUNITY OUTREACH AND MEDIA

Canadian Geographic published an article on implications of permafrost thaw, which includes some tidbits from an interview I gave on the subject (Canadian Geographic, 2 January **2019**). Under National Geographic's Changing Planet blog, my Earthwatch colleague Alix Morris authored a post on my research in Churchill, Manitoba, in December **2017**. I recently contributed to a review article on the changing boreal forest entitled "The Great Global Species Shakeup" in the Toronto Star in December **2017**. In December **2017**, I participated in a live stream as part of International Mountain Day hosted by the Canadian Mountain Network. Earthwatch published a multimedia story based on my research in Churchill entitled "Trees in the Tundra" in April **2015**. National Geographic Explorer published an article in March **2015** based on citizen scientist research through my partnership with Earthwatch International. In **2013**, I co-organized and implemented field research activities for 'Schools on Board / Schools on Tundra' in Churchill, MB—a two-week field course introducing 15 high school students to ecological concepts, field methods, and data analysis. From **2003-present**, I led over 300 Earthwatch International citizen scientists through fieldwork, lectures, and workshops on environmental change in the Subarctic. I lectured students on arctic research at Camino Nuevo Middle School in Los Angeles, CA, during **2009**. In **2008**, CBC Radio North interviewed me on arctic 'citizen science'.

REFERENCES

Steven Siciliano, Professor
NSERC/COOP Industrial Research Chair
In Situ Remediation and Risk Assessment
Department of Soil Science
University of Saskatchewan
Saskatoon, Saskatchewan S7N 5A8
(306) 966-4035
steven.siciliano@usask.ca

Eric Lamb, Associate Professor
Department of Plant Sciences
University of Saskatchewan
Saskatoon, Saskatchewan S7N 5A8
(306) 966-1799
eric.lamb@usask.ca

Steven Mamet

July 2019

CV-14

Colin Laroque, Professor
School of Environment and
Sustainability
Department of Soil Science, College of
Agriculture and Bioresources
University of Saskatchewan
Saskatoon, Saskatchewan S7N 5A8
(306) 966-2493
colin.laroque@usask.ca