Melissa S. Lucash
Research Assistant Professor
Department of Geography
University of Oregon
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PROFESSIONAL APPOINTMENTS

Research Assistant Professor   2020- present
Department of Geography, University of Oregon

Interim Director of the InfoGraphics Lab   2022
Department of Geography, University of Oregon

Research Assistant Professor   2016-2020
Department of Geography, Portland State University

Research Faculty/Postdoctoral Associate   2011-2016
Advisor: Dr. Robert Scheller, Department of Environmental Science and Management,
Portland State University

Stay-at home mom, two daughters   2005-2010

Graduate Teaching Assistant, Graduate Research Assistant   2001-2004
Department of Forest and Natural Resource Management,
State University of New York College of Environmental Science and Forestry

Instructor   2001
Department of Forest and Natural Resource Management,
State University of New York College of Environmental Science and Forestry

Plant Physiologist   1996-2000
Dynamac Corporation at the Western Ecology Division of the US EPA Laboratory

Webber Outreach Program Supervisor and Chemistry Lab Instructor   1996-1997
Department of Chemistry, Willamette University

Graduate Teaching Assistant, Graduate Research Assistant   1993-1996
Department of Biology, Oregon State University

EDUCATION

Ph.D. in Forest and Natural Resources Management   2005
Advisor: Dr. Ruth Yanai. SUNY College of Environmental Science and Forestry, Syracuse, NY

M.S. in Environmental Science   1996
Advisor: Dr. Bill Winner. Oregon State University, Corvallis, OR

B.S. in Environmental and Forest Biology 1993
Magna Cum Laude. SUNY College of Environmental Science and Forestry, Syracuse, NY

RESEARCH GRANTS

*Postdoc with Lucash

In review	Fahey, R, C Gough, and **MS Lucash.** Collaborative Research: Unraveling the mechanistic underpinnings of compounding disturbance effects on forest production stability using coupled field-modeling experiments. **NSF DEB $1,074,000.**
In review	Gray, A and **MS Lucash**. Projecting wildfire across current and future landscapes: comparison of model approaches. **USDA Forest Service $50,000.**
2023-present	Mack M, T Brinkman, H Genet, T Hollingsworth, J Johnstone, J Jones, T Schuur, and X Walker. Senior Personnel: B Buma, W Hansen, J Hewitt, **MS Lucash**, M Muscarella, J Schmidt and M Turetsy. Bonanza creek LTER 7: Changing disturbances, ecological legacies, and the future of the Alaskan boreal forest. **NSF LTER.** Total grant: **$1,275,000.**
2022-present	Betts, M, T Levi, **MS Lucash**, D Maguire, J Sessions, K Kavanagh, D Mainwaring, S Harris, and C Wolf. Reconciling timber production and biodiversity conservation: Testing the Triad approach to providing ecosystem services. **US Department of Agriculture. $649,912.**
2022-present	**Lucash MS** and N Williams*. Spatially optimizing forest management at the landscape scale to conserve endangered species, preserve old growth stands, store carbon, and produce timber. **Oregon Department of State Lands. $100,000**
2021-present	Buma B, **MS Lucash,** and RS Scheller. An analysis of the impact of historical spatial patterns of forest harvesting practices for carbon management. **NSF Geospatial Science. $476,254.**
2019-present	**Lucash MS**, EJ Gustafson, BR Sturtevant, F Hoffman, and J Fu. Quantifying rates of biome shifts under climate change in the arctic and boreal ecosystems of Siberia. **NSF Arctic Natural Sciences. $870,000**.
2018-present	**Lucash MS,** B Buma, T Link, V Romanovsky, and J Vogel. Collaborative Research: Regional impacts of increasing fire frequency on carbon dynamics and species composition in the boreal forest. **NSF Arctic Natural Sciences. $1,400,000**.
2016-2022	Smithwick E, C Caldwell, A Klippel, RM Scheller, and N Tuana. Senior Personnel: K Keller, **MS Lucash**, R Nicolas, and R Bird. CNH-L: Visualizing forest futures under climate uncertainty: Integrating indigenous knowledge into

decision-support tools for collaborative decision making. **NSF Coupled Human and Natural Systems. $1,700,000**.

2018-2019   **Lucash MS,** J Fried, and A Holz. Modeling economic drivers and restoration strategies on forest resilience. **USDA Forest Service. $111,000**.

2016-2020   **Lucash MS** and B Gravenmeier. Climate change and ecosystem services. **USDA Forest Service. $423,029.**

2017-2019   Scheller RM, N Strigul, **MS Lucash,** and J Lienard. Ecosystem model comparison at multiple scales and sites. **Department of Defense SERDP. $535,000.**

2014-2018   Thompson J, H Epstein, K Anderson-Teixeira, A Miller, R Scheller, **MS Lucash,** and T Spies. Understanding the potential for a climate change-driven critical transition from forest to chaparral. **NSF Department of Environmental Biology. $965,000.**

2017-2018   **Lucash MS**, J Fried, and A Holz. Modeling forest resilience, biomass and carbon management potential. **USDA Forest Service. $121,000.**

2017-2019   **Lucash MS** and E Gustafson. LANDIS-II software enhancements. **USDA Forest Service. $1,700.**

2012-2016   Scheller RM, EJ Gustafson, **MS Lucash,** and BR Sturtevant. Integrating climate science into forest management decision-making using a collaborative network approach. **USDA Agricultural Food and Research Institute. $717,031.**

2012-2014   Scheller RM, M Johnson, S LeDuc, and **MS Lucash**. Extrapolating LIDAR and carbon data to predict and manage the consequences of climate change in Pacific Northwest Forests. **Environmental Protection Agency and Bureau of Land Management. $192,000.**

PEER REVIEWED PUBLICATIONS

**PhD student with Lucash
****NSF REU (undergraduate) student with Lucash

36   **Lucash MS**, S Weiss**, MJ Duveneck, and RM Scheller. 2022. Managing for red-cockaded woodpeckers is more complicated under climate change. Journal of Wildlife Management. https://doi.org/10.1002/jwmg.22309

35   Shuman JK, JK Balch, RT Barnes, PE Higuera, CI Roos, DW Schwilk, E Stavros, T Banerjee, MM Bela, J Bendix, S Bertolino, S Bililign, KD Bladon, P Brando, RE Breidenthal, B Buma, D Calhoun, LMV Carvalho, ME Cattau, KM Cawley, SChandra, ML Chipman, J Cobian-Iñiguez, E Conlisk, JD Coop, A Cullen, KT Davis, A Dayalu, F De Sales, M Dolman, LM Ellsworth, S Franklin, CH Guiterman, M Hamilton, EJ Hanan, WD Hansen, S Hantson, BJ Harvey, A Holz, T Huang, MD Hurteau, NT Ilangakoon, M

Jennings, C Jones, A Klimaszewski-Patterson, LN Kobziar, J Kominoski, B Kosovic, MA Krawchuk, P Laris, J Leonard, S Marcela Loria-Salazar, **M Lucash**, H Mahmoud, E Margolis, T Maxwell, JL McCarty, DB McWethy, RS Meyer, JR Miesel, W Keith Moser, R Chelsea Nagy, D Niyogi, H M Palmer, A Pellegrini, B Poulter, K Robertson, AV Rocha, M Sadegh, F Santos, F Scordo, JO Sexton, AS Sharma, A.M.S Smith, AJ Soja, C Still, T Swetnam, AD Syphard, MW Tingley, A Tohidi, AT Trugman, M Turetsky, J M Varner, Y Wang, T Whitman, S Yelenik, X Zhang 2022. Reimagine fire for the anthropocene. PNAS Nexus, 1(3), 115. https://doi.org/10.1093/pnasnexus/pgac115

34 Shabaga JA, R Bracho, PA Klockow, **MS Lucash**, and JG Vogel 2022. Shortened fire intervals stimulate carbon losses from heterotrophic respiration and reduce understorey plant productivity in boreal forests. Ecosystems. https://doi.org/10.1007/s10021-022-00761-w

33. Buma B, K Hayes, S Weiss**, and **MS Lucash**. 2022. Short-interval fires increasing in the Alaskan boreal forest as fire self-regulation decays across forest types. Scientific Reports 12(1): 1-10. doi.org/s41598-022-08912-8

32. Marshall AM, TE Link, GN Flerchinger, and **MS Lucash**. 2021. Importance of parameter and climate data uncertainty for future changes in boreal hydrology. Water Resources Research 57 (8), e2021WR029911. doi.org/10.1029/2021WR029911

31. Huang J, **MS Lucash**, RM Scheller, and A Klippel. 2021. Walking through the forests with virtual reality: Using data-driven iVR to visualize forests under climate change. International Journal of GIS 35 (6), 1155-1178. doi.org/10.1080/13658816.2020.1830997

30. Marshall AM, TE Link, GN Flerchinger, DJ Nicolsky, and **MS Lucash**. 2021. Ecohydrological modelling in a deciduous boreal forest: Model evaluation for application in non-stationary climates. Hydrological Processes 35 (6), e14251. doi.org/10.1002/hyp.14251

29. Olson SK, EAH Smithwick, **MS Lucash**, RM Scheller, RE Nicholas, and KL Ruckert. 2021. Landscape-scale forest reorganization following insect invasion, harvest, and climate change. Ecosystems 1-19. doi.org/10.1007/s10021-021-00616-w

28. Schrum P, RM Scheller, **MS Lucash,** and Matthew Duveneck. 2020. Base-Hurricane: A new extension for the Landis-II forest landscape model. Ecological Modeling and Software. doi.org/10.1016/j.envsoft.2020.104833

27. Buma B, S Weiss**, K Hayes, and **MS Lucash**. 2020. Wildland fire reburning trends across the US West suggest only short-term negative feedback and differing climatic effects. Environmental Research Letters 15 034026. doi.org/10.1088/1748-9326/ab6c70

26. Cassell B, RM Scheller **MS Lucash**, M Hurteau, and EL Loudermilk. 2019. Widespread severe wildfires under climate change lead to increased forest homogeneity in dry mixed conifer forests. Ecosphere 10(11): e02934. doi.org/10.1002/ecs2.2934

25. **Lucash MS**, K Ruckert, R Nicholas, RM Scheller, and EAH Smithwick. 2019. Complex interactions among successional trajectories and climate govern spatial resilience after severe windstorms in central Wisconsin, USA. Landscape Ecology 34(12): 2897–2915. doi.org/10.1007/s10980-019-00929-1

24. Lopez MJL, T Marcey****, **MS Lucash**, D Hibbs, JPA Shatford, and JR Thompson. 2019. Post-fire vegetation dynamics with and without management intervention. Forest Ecology and Management. doi.org/10.1016/j.foreco.2018.10.030

23. **Lucash MS**, RM Scheller, BR Sturtevant, EJ Gustafson, AM Kretchun, and JR Foster. 2018. More than the sum of its parts: how disturbance interactions shape forest dynamics under climate change. Ecosphere. doi.org/10.1002/ecs2.2293

22. Serra-Diaz JM, C Maxwell, **MS Lucash**, RM Scheller, DM Laflower, AD Miller, AJ Tepley, HE Epstein, KJ Anderson-Teixeira, and JR Thompson. 2018. Disequilibrium of fire-prone forests sets the stage for a rapid decline in conifer dominance during the 21st century. Scientific Reports 8:6749. doi.org/10.1038/s41598-018-24642-2

21. Cantarello E, AC Newton, PA Martin, PM Evans, A Gosal, and **MS Lucash**. 2017. Quantifying resilience of multiple ecosystem services and biodiversity in a temperate forest landscape. Ecology and Evolution 7(22): 9961-9675. doi.org/10.1002/ece3.3491

20. **Lucash MS**, RM Scheller, EJ Gustafson, and BS Sturtevant. 2017. Spatial resilience of forested landscapes under climate change and management. Landscape Ecology dx.doi.org/10.1007/s10980-017-0501-3

19. Creutzburg MK, RM Scheller, **MS Lucash**, SD LeDuc, and MG Johnson. 2017. Forest management scenarios in a changing climate: tradeoffs between carbon, timber, and old forest. Ecological Applications 27: 503-518. dx.doi.org/10.1002/eap.1460

18. Creutzburg MK, RM Scheller, **MS Lucash**, LB Evers, SD LeDuc, and MG Johnson. 2015. Bioenergy harvest, climate change, and forest carbon in the Oregon Coast Range. Global Change Biology- Bioenergy. doi.org/10.1111/gcbb.12255

17. Smithwick E, **MS Lucash**, ML McCormack, and G Sivandran. 2014. Improving the representation of roots in climate change models. Ecological Modeling 291: 193-204. dx.doi.org/10.1016/j.ecolmodel.2014.07.023

16. Wang F, D Mladenoff, J Forrester, JA Blanco, R Scheller, S Peckham, C Keough, **MS Lucash**, and ST Gower. 2014. Multi-model simulations of long-term effects of forest harvesting on ecosystem productivity and C/N cycling. Ecological Applications dx.doi.org/10.1890/12-0888

15. Kretchun A, RM Scheller, **MS Lucash**, KL Clark, J Hom, and S Van Tuyl. 2014. Predicted effects of gypsy moth defoliation and climate change on forest carbon dynamics in the New Jersey Pine Barrens. PLoS ONE. dx.doi.org/10.1371/journal.pone.0102531

14. Jenny H, J Liem, **MS Lucash**, and RM Scheller. 2014. 4-D statistical surface method for visual change detection in forest ecosystem simulation time series. IEEE J-STARS. 7(11): 4505-4511. dx.doi.org/ 10.1109/JSTARS.2014.2324972

13. **Lucash MS**, RM Scheller, AM Kretchun, K Clark, and J Hom. 2014. Impacts of climate change and fire on long-term nitrogen cycling and forest productivity in the New Jersey Pine Barrens. Canadian Journal of Forest Research 44: 402-412. doi.org/10.1139/cjfr-2013-0383

12. Scheller RM, AM Kretchun, S Van Tuyl, KL Clark, **MS Lucash**, and J Hom. 2012. Divergent carbon dynamics under climate change in forests with diverse soils, tree species, and land use histories. Ecosphere 3(11):110. dx.doi.org/10.1890/ES12-00241.1

11. **Lucash MS**, RD Yanai, JD Blum, and BB Park. 2012. Foliar nutrient concentrations related to soil sources across a range of sites and tree species in the northeastern USA. Soil Science Society of America Journal 76: 674–683. dx.doi.org/10.2136/ssaj2011.0160

10. Yanai RD, KJ McFarlane, **MS Lucash**, JD Joslin, and SE Kulpa. 2009. Similarity of nutrient uptake and root dimensions of Engelmann spruce and subalpine fir at two contrasting sites

in Colorado. Forest Ecology and Management 258: 2233-2241. doi.org/10.1016/j.foreco.2009.04.035

9. **Lucash MS**, RD Yanai, and JD Joslin. 2008. Nitrogen uptake in intact and disturbed roots of loblolly pine seedlings. Environmental and Experimental Botany 64:15-20. doi.org/10.1016/j.envexpbot.2008.05.013

8. **Lucash MS**, DM Eissenstat, RD Yanai, and JD Joslin. 2007. Estimating nutrient uptake by mature tree roots under field conditions: challenges and opportunities. Trees 21:593-603. doi.org/10.1007/s00468-007-0160-0

7. **Lucash MS**, JD Joslin, and RD Yanai. 2005. Temporal variation in nutrient uptake capacity by intact roots of mature loblolly pine. Plant and Soil 272:253-262. doi.org/10.1007/s11104-004-5296-8

6. **Lucash MS**, B Farnsworth, and WE Winner. 2005. Response of sagebrush steppe species to elevated CO_2 and soil temperature. Western North American Naturalist 65:80-86.

5. Lewis JD, **MS Lucash**, DM Olszyk, and DT Tingey. 2003. Relationships between needle nitrogen concentration and photosynthetic responses of Douglas-fir seedlings to elevated CO_2 and temperature. New Phytologist 162:355-365. doi.org/10.1111/j.1469-8137.2004.01036.x

4. Lewis JD, **MS Lucash**, DM Olszyk, and DT Tingey. 2002. Stomatal responses of Douglas-fir seedlings to elevated CO_2 and temperature during the third and fourth years of exposure. Plant Cell and Environment 25:1411-21. doi.org/10.1046/j.1365-3040.2002.00923.x

3. Lewis JD, **MS Lucash**, DM Olszyk, and DT Tingey. 2000. Seasonal patterns of photosynthesis in Douglas-fir seedlings during the third and fourth year of exposure to elevated CO_2 and temperature. Plant Cell and Environment 24:539-548. doi.org/10.1046/j.1365-3040.2001.00700.x

2. Apple ME, **MS Lucash**, DL Phillips, DT Tingey, and D Olszyk. 1999. Elevated temperature and the morphology of *Pseudotsuga menziesii* vegetative buds. Environmental and Experimental Botany 41:25-30. doi.org/10.1016/S0098-8472(98)00046-X

1. Apple ME, **MS Lucash**, DM Olszyk, and DT Tingey. 1998. Morphogenesis of Douglas-fir buds is altered at elevated temperature but not at elevated CO_2. Environmental and Experimental Botany 40:159-175. doi.org/10.1016/S0098-8472(98)00031-8

OTHER PUBLICATIONS

Huang J, MS Lucash, M Simpson, C Helgeson, and A Klippel. 2019. Visualizing Natural Environments from Data in Virtual Reality: Combining Realism and Uncertainty. In Proceedings of the 26th IEEE Conference on Virtual Reality and 3D User Interfaces.

Smithwick EAH, C Caldwell, A Klippel, RM Scheller, N Tuana, R Bird, K Keller, **MS Lucash**, R Nicholas, S Olson, K Ruckert, J Oyler, C Helgeson, and J Huang. 2019. Transdisciplinary collaborative learning for triangulating ways of knowing across traditional and Western knowledge systems concerning future climate and forests. In: Collaboration across Boundaries, Perz Stephen G. ed., Palgrave.

Huang J, **MS Lucash**, RM Scheller, and A Klippel. 2019. Visualizing ecological data in virtual reality. Proceedings of the 26th IEEE Conference on Virtual Reality and 3D User Interfaces.

Domke G, CA Williams, R Birdsey, J Coulston, A Finzi, C Gough, B Haight, J Hicke, M Janowiak, B de Jong, WA Kurz, **MS Lucash**, S. Ogle, M. Olguín-Álvarez, Y Pan, M Skutsch, C Smyth, C. Swanston, P Templer, D Wear and CW Woodall. 2018: Chapter 9: Forests. In Second State of the Carbon Cycle Report (SOCCR2): A Sustained Assessment Report. [Cavallaro, N, G Shrestha, R Birdsey, M. Mayes, RG Najjar, SC Reed, P Romero-Lankao and Z Zhu (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 365-398 doi.org/10.7930/SOCCR2.2018.Ch9

Gustafson EG, **MS Lucash**, J Liem, H Jenny, RM Scheller, K Barrett, and BR Sturtevant. 2016. Seeing the future impacts of climate change and forest management: a landscape visualization system for forest managers. USFS General Technical Report NRS-164. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 18 p.

LANDIS-II Foundation. 2014-2018. Forecasting forested landscapes: An introduction to LANDIS-II with exercises. Self-published training manual.

Jenny H, J Liem, RM Scheller, and **MS Lucash**. 2013. Enhancing cartographic time-series animation. Proceedings of the 26th International Cartographic Conference, Dresden, Germany.

Jenny H, J Liem, **MS Lucash,** and RM Scheller. 2013. Visualization of alternative future scenarios for forest ecosystems using animated statistical surfaces. Proceedings of the 2nd International Conference on Agro-Geoinformatics, IEEE Xplore.

Cloyd ET, **MS Lucash**, NE Hotaling, JH Hornbeck, HN Jensen, BJ Norelius, SH Reynolds, and JD Wickham. 2004. Book Review: Diversity and productivity. Con. Bio. 18:1171.

Yanai RD, P Sollins, and **MS Lucash**. 2003. Book Review: Ecosystem ecology: in pursuit of principles. Ecology 84: 1640.

TEACHING

2022	**Geographic Data Analysis** (GEOG 495),	*University of Oregon*
2022	**The Natural Environment** (GEOG 141),	*University of Oregon*
2016	**Environmental Systems II** (ESM 321),	*Portland State University*
2010	**Investigating Forest Ecosystems** (SCI 338),	*Portland State University*
2010-2011	**Energy and Society** (SCI321),	*Portland State University*
2003-2004	**Global Environment** (EFB 120), Co-Instructor*, SUNY-ESF*
2002	**Introductory Soils Labs** (FOR 345/545),	*SUNY-ESF*
2001	**Introductory Soils** (FOR 345/545),	*SUNY-ESF*
1996-1997	**Introductory Chemistry Labs (CHEM 101)** *Willamette University*
1996-1996	**Introductory Biology Labs (BIO 101),** *Oregon State University*

MENTORING

Postdocs advised:
Neil Williams, Research Associate, 2021- present
Tom Brussel, Research Associate, 2020- 2022

Graduate students advised:
Colin Mast, M.S. student, 2022- present
Gabriel Abreu-Vigil, M.S. student, 2022- present
Hana Matsumoto, M.S. student, 2022- present
James Lamping, Ph.D. student, 2021- present

Shelby Weiss, Ph.D. Candidate, 2018- present
Stuart Steidle, M.S. Student, 2020- 2022

Undergraduate students advised:
Jannike Allen, Honor's College, 2019- 2021
Terry Marcey, REU student, 2017-2018
Jessica Mazzi, Honor's College, 2015-2016

Graduate student committee member:
Carmen Ebel, Ph.D. Department of Biology, University of Oregon, ENVS, 2021- present
Rebecca Hayes, Ph.D. Department of Biology, University of Oregon, IEE, 2022- present
Alison Deak, M.S., Department of Geography, University of Oregon, 2021- 2022
Ignacio Falcon-Dvorksy, Department of Geography, M.S. Portland State University 2020
Laura Platt, M.S. Department of Geography, Portland State University 2020.
Lauren Sharwood, M.S. Department of Geography, Portland State University 2020
Paul Pettus, M.S. Department of Environmental Science. Portland State University 2014- 2015
Sebastian Busby M.S. Department of Geography, Portland State University 2018- 2019

MEDIA

CQ, Can better forest management solve the problem? Nov. 6 2020.
Https://library.cqpress.com/cqresearcher/document.php?id=cqresrre2020110600

OPB. We know climate change set the conditions for Oregon fires. Did it stoke the flames, too?
Sept. 21, 2020. https://www.opb.org/article/2020/09/21/oregon-wildfires-climate-change-role/

OPB Radio. Study: NW forests will weather climate change better than others in the west. Nov. 19,
2018. https://www.opb.org/news/article/not-enough-wildfires-study/

Jefferson Public Radio, Guest on call-in radio show. After the fire: Douglas firs grow back without
help. Nov. 13, 2018. https://www.ijpr.org/show/the-jefferson-exchange/2018-11-13/after-the-fire-douglas-firs-grow-back-without-help#stream/0

OPB radio. Replanting trees after wildfires may not be necessary. Nov. 9, 2018.
https://www.opb.org/news/article/wildfire-trees-study-research-replanting/#.w-y8xagvsqf.twitter

OPB radio. The problem with wildfires: There aren't enough of them, study finds. Nov. 14, 2017.
https://www.opb.org/news/article/not-enough-wildfires-study/

OPB radio. Climate change, wildfires transforming NW Forests. Oct. 2015. Link no longer
available.

AWARDS AND SERVICE

Awards
Research Excellence Award, Portland State University, 2018. Top award given to research
professors at PSU.

Wilburforce Fellow, Prestigious fellowship in conservation science given to only twenty scientists in western North America. http://tinyurl.com/zlfebpd, 2015- 2017.

NSF GK-12 Graduate Student Fellowship, NSF, 2003- 2004. $30,000.

Scientific Community Service

Invited Panelist, NSF, 2022 (program confidential)

Invited External Peer Reviewer, Polar Programs 2018, 2021

Invited Expert Reviewer, IPCC AR6, 2021

Invited Panelist, NSF Earth Systems Science, Washington D.C. 2019

Invited Panelist NSF Polar Programs 2017

Invited Panelist, NSF GFRP, 2017

Invited External Peer Reviewer, NSF DEB 2015

Invited External Peer Reviewer, National Science Center, Poland. 2002

President of the LANDIS-II Foundation, 2021- present.

Board member of the LANDIS-II Foundation, 2017- present.

LTER Graduate Student Representative for Hubbard Brook Experimental Forest, 2000-2002

Graduate Student Association at SUNY-ESF, Vice-President and Secretary, 2002- 2004

Journal Peer Reviewer
- Biodiversity and Conservation
- Canadian Journal of Forest Research
- Carbon Management
- Climatic Change
- Ecography
- Ecological Applications
- Ecological Modelling
- Ecological Monographs
- Ecosphere
- Environmental Modelling and Software
- Environmental Research Letters
- Forest Ecology and Management
- Forests
- Frontiers in Forests and Global Change
- Global Change Biology
- Global Change Biology-Bioenergy
- iScience
- Journal of Applied Ecology
- Journal of Sustainability Science
- Landscape Ecology
- New Phytologist
- Oecologia
- Oikos
- PLOS One
- Science of the Total Environment
- Scientific Reports
- Soil Science Society of America Journal
- Sustainability Science

Memberships in Professional Societies
- American Geophysical Union
- International Association of Landscape Ecologists
- Ecological Society of America

University Service

Academic Advisory Council for the President of PSU, Invited, 2017-2018

Graduate Admissions and Awards Committee, Geography Department, PSU: 2017-2018

Community Service

Speaker, There's wildfire in Alaska? After-school girls STEM club, Groner Middle School, May 2019.

Science Fair Judge. State Science Fair, Beaverton, OR; Ridgewood Elementary School, Portland, OR; City View Charter School, Hillsboro, OR; Ed Smith Elementary School, Syracuse, NY, 2002-2003, 2011-present.

Secretary and Board Member of Your World Rocks, a nonprofit organization providing hands-on science activities to local public schools, Hillsboro, OR, 2015- 2018.

Speaker, Career series: What is a forest ecologist? 5th graders at Ridgewood Elementary, May 2017.

Speaker, Insects are everywhere, kindergarteners at City View Charter School, May 2017.

Co-organizer of National Climate Assessment (NCA) PNW Regional Town Hall. 2013. Co-organized event with US Global Change Research Program (Washington DC) to encourage public participation in the evaluation of the NCA, the official report on climate change to the President and Congress.

Panelist for Pacific University's Center for Gender Equity and the Hillsboro/Forest Grove branch of the American Association of University Women (AAUW) Annual Banquet, Feb. 2012.

Co-instructor of Science at the Center for Inquiry Program, Beaverton, OR, 2012-2013.

Participant in Portland Metro STEM Partnership Intel STEMposium. Apr 2012 and Apr 2015.

Co-organizer of after school science club. City View Charter School, Hillsboro, OR; 2012.

Summer Camp Counselor, SMILE (Science and Math Investigative Learning Experiences) Summer Camp for middle school students typically underrepresented in science and math. Oregon State University, Corvallis, OR, June 1992.

Volunteer, Center for Nature Education, Marcellus, NY, June- Aug 1991.

Organized Conference Sessions

Synergistic effects of climate and management on biodiversity. International Association for Landscape Ecology- World Congress, Milan, Italy. July 2019. Co-organized with R Scheller and M Betts.

Simulating climate change, management and disturbances on forested landscapes using LANDIS-II. International Association for Landscape Ecology- US Chapter, Portland, Oregon. August 2015. Co-organized with M Duveneck.

Leader or Co-Organizer of the LANDIS-II Trainings in Portland, OR; Madison, WI; and Harvard Forest, MA, 2013-2018.

PROFESSIONAL CONFERENCE PRESENTATIONS

Marshall, A, T Link, **MS Lucash**, G Flerchinger, D Nicolsky, and S Weiss**. 2022. Hydrologic modeling in discontinuous boreal permafrost: Model sensitivity and uncertainty in non-stationary climates. American Geophysical Union Frontiers in Hydrology. San Juan, Puerto Rico.

Hayes K, C Hoffman, J Ziegler, **M Lucash**, and B Buma. 2022. Continued short-interval reburning changes carbon storage and future fire behavior of boreal forests regardless of forest resilience. American Geophysical Union. New Orleans, LA.

Brussel T*, E Gustafson, A Shvidenko, D Shchepashchenko, N Williams*, S Weiss**, B Sturtevant, B Miranda, and **MS Lucash**. 2022. Simulating Siberia's response to global change through the lens of tipping points. International Association of Landscape Ecology, Riverside, CA. Virtual.

Lucash MS, A Deak, J Lamping, and N Williams*. 2022. Too much and not enough: Challenges of using remote sensing to inform forest modeling. International Association of Landscape Ecology, Riverside, CA. Virtual.

Steidle S**** and **MS Lucash**. 2022. Testing presence, assessing attitudes: Study of a virtual tour in an "aesthetically challenged" landscape. International Association of Landscape Ecology, Riverside, CA. Virtual.

Williams N*, **MS Lucash**, M Ouellette, EJ Gustafson, B Sturtevant, AZ Shvidenko, and D Schepaschenko. 2022. Simulating dynamic fire regime - Vegetation interactions across a latitudinal gradient in central Siberia. International Association of Landscape Ecology, Riverside, CA. Virtual.

Weiss S**, **MS Lucash,** B Buma, and K Hayes. 2022. Contexts mediating future shifts in vegetation composition in interior Alaskan boreal forests under climate change. International Association of Landscape Ecology, Riverside, CA. Virtual.

Williams N* and **MS Lucash**. 2021. Exploring interactions between vegetation, fire, and climate change across a latitudinal gradient in Siberia. Global Land Programme Asia Conference, Sapporo, Japan. Virtual

Lucash MS, A Marshall, S Weiss**, D Nicolsky, T Link, J Vogel, and V Romanovsky. 2021. Simulating feedbacks between fire, vegetation, soil and hydrology on C dynamics in the boreal forests of Alaska. International Boreal Forest Research Association. Fairbanks, AK, Virtual.

Weiss SA** and MS Lucash. 2020 How increasing fire frequency will change the forests of interior Alaska. Ecological Society of America. Virtual.

Lucash MS, B Buma, T Link, V Romanovsky, J Vogel, D Nicolsky, R Scheller, A Marshall, J Shabaga, K Hayes, and SA Weiss**. 2020. You've got me going in circles: Feedbacks in the boreal forests of Alaska. Ecological Society of America. Virtual.

Buma B, K Hayes, S Weiss**, and **MS Lucash**. 2019. Overlapping and interacting fires, a double whammy: Short-interval burns are becoming more frequent across the US West but pace suggests negative feedbacks and spatial patterning. American Geophysical Union. San Francisco, CA.

Lucash MS, RM Scheller, EJ Gustafson, and BR Sturtevant. 2019. Negative feedbacks among multiple disturbances in north-central Minnesota. American Fire Ecology Conference. Tucson, AZ. Invited Speaker.

Hayes K, B Buma, **MS Lucash**, and S Weiss**. 2019. Continued repeat burning in the boreal causes continued ecosystem transformation. American Fire Ecology Conference. Tucson, AZ.

Buma B, K Hayes, S Weiss**, and **MS Lucash**. 2019. Rates of short-interval fires increasing across the U.S. West. American Fire Ecology Conference. Tucson, AZ.

Scheller RM, **MS Lucash**, and M Duveneck. 2019. Managing forests for change: Simulations suggest radical innovations in management will be necessary. Ecological Society of America. New Orleans, LA.

Lucash MS, J Huang, V Srikrishnan, K Keller, A Klippel, RM Scheller, R Nicholas, and EAH Smithwick. 2019. Using robust decision-making and virtual reality to analyze management tradeoffs under climate change. International Association of Landscape Ecologists World Congress. Milan, Italy. Symposium Organizer, Invited speaker.

Lucash MS, J Huang, A Klippel, RM Scheller, R Nicholas, and EAH Smithwick. 2019. A glimpse into the future: Using spatial modeling and virtual reality to visualize forests under climate change. International Association of Landscape Ecologists. Denver, CO.

Scheller RM, **MS Lucash**, and MJ Duveneck. 2019. Landscape trajectories of ecosystem services under climate change and climate adapted management. Ecological Society of America. New Orleans, LA.

Keller K, EAH Smithwick, A Klippel, R Nicholas, C Helgeson, **M Lucash**, and N Radke. 2018. How do biodiversity and human values shape forest management under climate change? Some preliminary lessons from an interesting (read hard) problem. Society for Decision Making Under Deep Uncertainty Meeting. Culver City, CA.

Lucash MS and RM Scheller. 2018. Spatial resilience under climate change. International Association of Landscape Ecologists. Chicago, IL. Invited speaker.

Klippel A, J Hiawei, and **MS Lucash**. 2018. Immersive experiences for grounding environmental decision making. International Association of Landscape Ecologists. Chicago, IL.

Lucash MS and RM Scheller. 2017. Spatial resilience under climate change. Resilience Alliance Conference. Stockholm, Sweden. Invited speaker.

Lucash MS, RM Scheller, E Gustafson, and B Sturtevant. 2017. Spatial resilience under climate change. Ecological Society of America. Portland, OR

Smithwick EAH, A Klippel, N Tuana, R Bird, K Keller, R Nicholas, C Caldwell, RM Scheller, and **MS Lucash**. 2017. Visualizing forest futures under climate uncertainty by integrating multiple ways of knowing. Association of American Geographers. Boston, MA.

Scheller RM, **MS Lucash**, EJ Gustafson, and BR Sturtevant. 2017.Integrating climate science into forest management and policy using a collaborative approach. International Association for Landscape Ecology Meeting. Baltimore, Maryland.

Serra-Diaz JM, **MS Lucash**, C Maxwell, RM Scheller, and JR Thompson. 2016. Assessing critical vegetation transitions during climate change: Insights from Northwestern USA forests. Ecological Society of America. Ft. Lauderdale, Florida.

Scheller RM, MK Creutzburg, **MS Lucash**, SD LeDuc, and MG Johnson. 2016. Alternative policy scenarios under a changing climate: tradeoffs among ecosystem services in the Oregon Coast Range. Invited speaker at the International Association for Landscape Ecology Meeting. Asheville, North Carolina.

Lucash MS, RM Scheller, and E Gustafson. 2015. Scenario analysis in landscape-level modelling. Co-organizer of special session on Research Needs and Capabilities for the National Climate Assessment. Ecological Society of America. Baltimore, MD.

Creutzburg MK, RM Scheller, and **MS Lucash**. 2015. Climate change, fire, and timber harvest in forests of the Oregon Coast Range. International Association for Landscape Ecology World Congress. Portland, Oregon.

Lucash MS, RM Scheller, and E Gustafson. 2015. Latest advancements of LANDIS-II. International Association of Landscape Ecology. Portland, OR.

Lucash MS, RM Scheller, E Gustafson, and B Sturtevant. 2014. Interactive effects of wind and climate change on C sequestration of forests. Ecological Society of America. Sacramento, CA.

Creutzburg MK, RM Scheller, **MS Lucash**, SD LeDuc, and MG Johnson. 2014. Carbon and nitrogen dynamics under alternative climate change and management scenarios in the Oregon Coast Range. Ecological Society of America, Sacramento, California.

Creutzburg MK, R.M. Scheller, **MS Lucash**, SD LeDuc, and MG Johnson. 2014.Management and climate change in coastal Oregon forests: The Panther Creek watershed as a case study. International Association of Landscape Ecology. Anchorage, Alaska.

Lucash MS, RM Scheller, H Jenny, J Liem, and MK Creutzburg. 2014. Latest developments of Century Succession: New climate library and visualization tools. LANDIS-II Meeting. Madison, WI. Invited speaker.

Jenny H, RM Scheller and **MS Lucash**. 2013. Enhancing cartographic time-series animation using 3D statistical surfaces. International Cartographic Conference. Dresden, Germany.

Jenny H, **MS Lucash**, and RM Scheller. 2013. Visualization of alternative future scenarios using statistical surfaces. Agro-Geoinformatic. Fairfax, Virginia.

Lucash MS, RM Scheller, E Gustafson, and B Sturtevant. 2013. Evaluating the impact of climate change on midwestern forests. Next Generation Climate Data Products, Boulder, CO.

Scheller RM, **MS Lucash**, AM Kretchun, K Clark, and J Hom. 2012. Forests and climate change: Integrating spatial, temporal, and taxonomic heterogeneity. IUFRO Meeting, Concepción, Brazil.

Scheller RM, **MS Lucash**, H Jenny, E Gustafson, and B Sturtevant. 2012. Integrating climate change results into forest management plans using a scenario visualization tool. Harvard Forest, MA, Invited speaker.

Lucash MS, RM Scheller, AM Kretchun, KL Clark, J Hom, and SK Chapman. 2012. Nitrogen cycling in the New Jersey Pine Barrens as a consequence of insect outbreaks and wildfire. Ecological Society of America, Portland, OR.

Scheller RM, **MS Lucash**, AM Kretchun, K Clark, and J Hom. 2012. Modeling spatial, temporal and taxonomic heterogeneity: landscape-scale estimates of forest C dynamics. Ecol. Soc. Am. Annual Meeting, Portland, OR.

Lucash MS, RM Scheller, A Kretchun, K Clark, and J Hom. 2012. Improving N cycling and forest productivity: Application to the NJ Pine Barrens. LANDIS-II Meeting, Madison, WI. Invited.

Lucash MS, J Basta, RD Yanai, DM Eissenstat, and JM Scholberg. 2002. Nutrient uptake measured using SUM columns. Hubbard Brook Exp. Forest Cooperators Meeting, Millbrook, NY.

Lucash MS and D McLean. 2001. Methods for estimating nutrient uptake using intact roots of mature trees. Hubbard Brook Exp. Forest Annual Cooperators Meeting, Millbrook, NY.

PROFESSIONAL CONFERENCE POSTERS

Deak A, L Silva, and **MS Lucash**. 2022. Modeling prescribed fire in the Siskiyou Mountains, USA. International Association of Landscape Ecology, Riverside, CA. Virtual.

Weiss S**, K Hayes, and **MS Lucash**. 2019. Modeling post-fire successional trajectories under climate change in black spruce forests of Interior Alaska. American Geophysical Union. San Francisco, CA.

Marshall AM, TE Link, and **MS Lucash**. 2019. Energy and water balances in boreal forest with discontinuous permafrost: Implementation of a physically-based hydrological model at sites with varying disturbance histories. American Geophysical Union. San Francisco, CA.

Lucash MS, J Vogel, and RM Scheller. 2019. Simulating soil carbon pools and fluxes in the boreal forests of Alaska using a new hybrid model of LANDIS-II and DAMM-MCNiP. American Geophysical Union. San Francisco, CA.

Lucash MS, Paul Pettus, and RM Scheller. 2019. Ecosystem model comparison at multiple scales and sites. International Association of Landscape Ecology, World Congress, Milan, Italy.

Weiss S** and **MS Lucash**. 2019. Using habitat suitability modeling to evaluate potential moose habitat and patterns of wildfire in interior Alaska. International Association of Landscape Ecologists. Denver, CO.

Smithwick E, **MS Lucash**, RM Scheller, and R Nicholas. 2018. Drivers of spatial resilience under climate change. American Geophysical Union, Washington, D.C.

Olson S, E Smithwick, **MS Lucash,** and RM Scheller. 2018. Modeling the spread of emerald ash borer with variable climate predictions in northeastern Wisconsin, USA using LANDIS-II. Association of American Geographers, New Orleans, LA.

Thompson JR, J Serra-Diaz, AJ Tepley, CJ Maxwell, KJ Anderson-Teixeira, RM Scheller, **MS Lucash**, HE Epstein, and L Morreale. 2017. Potential for forest to shrubland shift in the Klamath region of Oregon and California. Ecological Society of America. Portland, Oregon.

Lucash MS, RM Scheller, E Gustafson, and B Sturtevant. 2013. Winds of change: How will windstorms and forest harvesting affect C cycling under different climate scenarios? American Geophysical Union, San Francisco, CA.

Lucash MS, RM Scheller, AM Kretchun, K Clark, and J Hom. 2012. Forecasting changes in belowground productivity and nutrient cycling of soils in the New Jersey Pine Barrens as a consequence of climate change and wildfire. DOE Workshop on Scaling Root Processes: Global Impacts, Washington D.C.

Lucash MS and RM Scheller. 2012. Challenges of data assimilation for researchers and forest managers. NSF RCN Forecast Meeting, Boulder, CO.

Lucash MS, RD Yanai, and JD Blum. 2009. The importance of soil mineralogy to calcium availability in forests. NY State Energy Research and Development Authority (NYSERDA) Environmental Monitoring, Evaluation and Protection Conf. and Rochester Academy of Science Meeting.

Yanai RD, KJ McFarlane, **MS Lucash**, JD Joslin, and SE Kulpa. 2008. Similarity of nutrient uptake and root dimensions of Engelmann spruce and subalpine fir across two sites in Colorado. N. Am For. Soil Conf.

Lucash MS, RD Yanai, and JD Joslin. 2004. Respiratory costs of ammonium and nitrate uptake in intact roots of white pine seedlings. Ecol. Soc. Am. Annual Meeting.

Cloyd ET and **MS Lucash**. 2004. Incorporating research into high school science classrooms. Ecol. Soc. Am. Annual Meeting.

Yanai RD, **MS Lucash**, SE Kulpa, JD Joslin, and KJ McFarlane. 2003. Diameter distributions of fine roots of twelve tree species. Soil Sci. Soc. Am. Annual Meeting.

Lucash MS, JD Joslin, O Abelleira, RD Yanai, and JM Scholberg. 2003. Measuring nutrient uptake in intact plant-soil systems. Soil Sci. Soc. Am. Annual Meeting.

Lucash MS, O Abelleira, JD Joslin, RD Yanai, and JM Scholberg. 2003. Effects of disturbance on nitrate uptake of loblolly pine seedlings. Ecol. Soc. Am. Annual Meeting.

Lucash MS, RD Yanai, JD Joslin, and KJ McFarlane. 2002. Uptake capacity of loblolly pine roots measured in the field varies seasonally. Ecol. Soc. Am. Annual Meeting.

Yanai RD, RE Sherman, **MS Lucash**, KJ McFarlane, and JD Joslin. 2002. What root parameters best predict nutrient uptake? Ecol. Soc. Am. Annual Meeting.

McFarlane KJ, RD Yanai, and **MS Lucash**. 200

2. Nutrient uptake by Engelmann spruce and subalpine fir at two Colorado subalpine forests. Ecol. Soc. Am. Annual Meeting.

Yanai RD, JD Joslin, **MS Lucash**, and RE Sherman. 2001. Nutrient uptake estimated by ecosystem budgets and by root-scale models. Soil Sci. Soc. Am. Annual Meeting.

Joslin JD, MG Johnson, DT Tingey, MH Wolfe, DL Phillips, and **MS Lucash**. 2001. Studying forest root systems- an overview of methodological problems. Soil Sci. Soc. Am. Annual Meeting.

Apple ME, **MS Lucash**, DM Olszyk, and DT Tingey. 1997. Morphology and the internal temperature of *Pseudotsuga menziesii* vegetative buds grown at elevated temperature. Ecol. Soc. Am. Annual Meeting.

Apple ME, **MS Lucash**, DT Tingey, and DM Olszyk. 1997. Morphology, development, and temperature of *Pseudotsuga menziesii* vegetative buds at elevated CO_2 and temperature. Am. Assoc. Adv. Sci. Annual Meeting.