

Marshall University
Department of Biological Sciences
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EDUCATION

- 2014 Ph.D. in Ecology, University of North Carolina at Chapel Hill (mentors: Robert Peet & Alan Weakley)
2006 B.S. in Biology, Environmental Studies minor, College of Charleston, *magna cum laude*

PROFESSIONAL EMPLOYMENT

- January 2019 – present: Assistant Professor at Marshall University, Department of Biological Sciences, Huntington, WV
June 2014 – December 2018: Postdoctoral Research Associate at the University of Wyoming, Laramie, WY (mentors: William Lauenroth & John Bradford)
August - December 2016: Instructor at the University of Wyoming, Laramie, WY
Instructor of record – Terrestrial Ecosystem Ecology
August - December 2015: Instructor at the University of Wyoming, Laramie, WY
Instructor of record – Vegetation Ecology Lab
January - May 2014: Adjunct Instructor at High Point University, High Point, NC
Instructor of record – Introduction to Biology and Environmental Science Labs

PUBLICATIONS (* denotes student author)

Peer-reviewed Publications

- In press Lindquist, L.W.*, **K.A. Palmquist**, S.E. Jordan* & W.K. Lauenroth. Climate change impacts on groundwater recharge in Wyoming big sagebrush ecosystems are contingent on elevation. *Western North American Naturalist*.
- 2019 Pennington, V.E.*, J.B. Bradford, **K.A. Palmquist** & W.K. Lauenroth. Patterns of big sagebrush community composition and stand structure in the Western US. *Rangeland Ecology and Management* 72(3): 505-514.
- 2018 **Palmquist, K.A.**, T.E. Martyn*, D.R. Schlaepfer, J.B. Bradford & W.K. Lauenroth. STEPWAT – a modeling framework for exploring the joint influence of climate change and altered disturbance regimes on dryland plant communities. *Ecosphere* 9(8): e02394.
- 2018 Rottler, C.M.*, I.C. Burke, **K.A. Palmquist**, J.B. Bradford & W.K. Lauenroth. Reclamation after oil and gas development does not speed up succession or plant community recovery in big sagebrush ecosystems in Wyoming. *Restoration Ecology* 26: 114-123.
- 2018 Peet, R.K., **K.A. Palmquist**, T.R. Wentworth, M.P. Schafale, A.S. Weakley & M.T. Lee. Carolina Vegetation Survey: an initiative to improve regional implementation of the U.S. National Vegetation Classification. *Phytocoenologia* 48(2): 171-179 (invited paper).

- 2017 Pennington, V.E.*, **K.A. Palmquist**, J.B. Bradford & W.K. Lauenroth. Climate and soil texture influence patterns of forb species richness and composition in big sagebrush plant communities across their spatial extent in the western US. *Plant Ecology* 218: 957-970.
- 2016 **Palmquist, K.A.**, D.R. Schlaepfer, J.B. Bradford & W.K. Lauenroth. Spatial and ecological variation in dryland ecohydrological response to climate change: Implications for management. *Ecosphere* 7(11): 1-20.
- 2016 Pennington, V.E.*, D.R. Schlaepfer, J.L. Beck, J.B. Bradford, **K.A. Palmquist** & W.K. Lauenroth. Sagebrush, greater sage-grouse, and the occurrence and importance of forbs. *Western North American Naturalist* 76(3): 298-312.
- 2016 **Palmquist, K.A.**, D.R. Schlaepfer, J.B. Bradford & W.K. Lauenroth. Mid-latitude shrub steppe plant communities: Climate change consequences for soil water resources. *Ecology* 97(9): 2342-2354.
- 2016 Lopez, B.L., K.R. Burgio, M.B. Carlucci, **K.A. Palmquist**, A. Parada, V.P. Weinberger & A.H. Hurlbert. A new framework for inferring community assembly processes using phylogenetic information, relevant traits, and environmental gradients. *One Ecosystem* 1 (e9501): 1-24.
- 2016 Tessel, S.M., **K.A. Palmquist** & R.K. Peet. Species-Area Relationships. In Oxford Bibliographies Online: Ecology. Ed. David Gibson. New York: Oxford University Press.
- 2016 **Palmquist, K.A.**, R. K. Peet & S.C. Carr. Xeric longleaf pine vegetation of the Atlantic and East Gulf Coast Coastal Plain: an evaluation and revision of Associations within the U.S. National Vegetation Classification. *Proceedings of the US National Vegetation Classification* 1(1): 1-70.
- 2015 Mitchell, S.M, **K.A. Palmquist**, S. Cohen & N.L. Christensen. Patterns of vegetation composition and diversity in pine-dominated ecosystems of the lower Coastal Plain of North Carolina: Implications for ecosystem restoration. *Forest Ecology and Management* 356: 64-73.
- 2015 Martyn, T.*, C.W. Beltz*, **K.A. Palmquist**, V.E. Pennington*, C.M. Rottler* & W.K. Lauenroth. Daubenmire versus line-point intercept: a response to Thacker et al. (2015). *Rangelands* 37(4): 158-160.
- 2015 **Palmquist, K.A.**, R.K. Peet & S.R. Mitchell. Scale-dependent responses of longleaf pine vegetation to fire frequency and environmental context across two decades. *Journal of Ecology* 103: 998-1008.
- 2014 **Palmquist, K.A.**, R.K. Peet & A.S. Weakley. Reduced fire frequency and long-term drought drive species loss in one of the most species-rich longleaf pine savannas in the United States. *Journal of Vegetation Science* 25: 1426-1437.
- 2014 +Coyle, J.R., F.W. Halliday, B.E. Lopez, **K.A. Palmquist**, P.A. Wilfahrt & A.H. Hurlbert. Using trait and phylogenetic diversity to evaluate the generality of the stress-dominance hypothesis in eastern North American tree communities. *Ecography* 37: 1-13 (editor's choice). †all authors contributed equally.

Book Chapters

- 2018 Reeves, M.C., M.E. Manning, J.P. DiBenedetto, **K.A. Palmquist**, W.K. Lauenroth, J.B. Bradford, & D.R. Schlaepfer. Effects of climate change on rangeland vegetation in the northern Rockies. In: J.E. Halofsky, J.E. and D.L. Peterson, eds. *Climate Change and Rocky Mountain Ecosystems*, Chapter 7, First edition. Springer International Publishing, Switzerland. Pages 97-114.
- 2014 Peet, R.K., **K.A. Palmquist** & S.M. Tessel. Herbaceous layer species richness of southeastern forests and woodlands: patterns and causes. In: F.S. Gilliam, ed. *The Herbaceous Layer in Forests of Eastern North America*, Chapter 10, Second edition. Oxford University Press, New York, New York. Pages 255-276.

Manuscripts in Review or Revision

- Jordan, S.E.* , **K.A. Palmquist**, J.B. Bradford & W.K. Lauenroth. Soil water availability shapes species richness in dryland plant communities. *Journal of Ecology* (*in review*).
- Renne, R.R.* , D.R. Schlaepfer, **K.A. Palmquist**, J.B. Bradford, I.C. Burke & W.K. Lauenroth. Soil and stand characteristics explain patterns of shrub mortality following global change type-drought and extreme precipitation. *Ecology* (*in revision*).
- Bradford, J.B., D.R. Schlaepfer, W.K. Lauenroth, **K.A. Palmquist**, J. Chambers, J. Maestas & S. Campbell. Shifting soil temperature and moisture regimes suggest opportunities to enhance dryland vulnerability assessment. *Frontiers in Ecology and Evolution* (*in revision, invited paper*).

Manuscripts in Preparation

- Palmquist, K.A.**, J.B. Bradford, D.R. Schlaepfer, W.K. Lauenroth, S Torbit, G. Watson, K. Doherty & R. Renne. Climate change impacts on shrub steppe plant communities are contingent on climate and geography (*in prep*). Target journal: *Global Change Biology*.
- Palmquist, K.A.**, R. Renne, J.B. Bradford, D.R. Schlaepfer, W.K. Lauenroth, S Torbit, G. Watson & K. Doherty. Grazing intensity interacts with climate to determine future dryland plant community composition (*in prep*). Target journal: *Ecological Applications*.

GRANTS AND FELLOWSHIPS (\$535,271 awarded, \$418,921 external)

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| 2019 | West Virginia NASA EPSCoR Rsearch Seed Grant, “Quantifying the vulnerability of longleaf pine woodlands to drought” (lead PI) | \$20,000 |
| 2018 | North-Central Climate Science Center, “Big sagebrush plant community response to wildfire and invasive annual grasses in the 21 st century” (lead PI) | \$200,000 |
| 2017 | US Geological Survey, “Modeling the response of big sagebrush plant communities to altered climate and disturbance” (co-PI) | \$24,000 |
| 2016 | WWISE travel grant, Wyoming-EPSCoR, University of Wyoming | \$1,000 |
| 2015 | University of Basel, Switzerland, “Albedo modification impact on global temperate dryland ecosystem water balance” (co-PI) | \$73,612 |
| 2015 | Biodiversity Institute, University of Wyoming, “Soil water dynamics and plant biodiversity in big sagebrush ecosystems across space” (lead PI) | \$50,000 |
| 2015 | US Geological Survey, “Analysis, revision, and documentation of longleaf pine | \$79,955 |

associations of the National Vegetation Classification (Group 007) occurring in the Carolinas, Georgia, and Florida” (co-author)

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| 2015 | WWISE travel grant, Wyoming-EPSCoR, University of Wyoming | \$1,600 |
| 2015 | INBRE Bioinformatics Training Travel Grant, University of Wyoming | \$1,800 |
| 2014 | International Association for Vegetation Scientist Young Scientist Travel Award | \$2,300 |
| 2013 | Graduate Professional School Travel Award, University of North Carolina | \$400 |
| 2013 | Dr. William Coker Fellowship, University of North Carolina | \$11,500 |
| 2013 | Alma Holland Beers Scholarship, University of North Carolina | \$1,500 |
| 2013 | North Carolina Native Plant Society Shin Grant | \$1,000 |
| 2013 | Graduate Student Transportation Grant, University of North Carolina | \$250 |
| 2012 | US Geological Survey, Subcontract to the University of North Carolina through the Ecological Society of America. “U.S. National Vegetation Classification peer review testing” (co-author) | \$33,054 |
| 2012 | Alma Holland Beers Scholarship, University of North Carolina | \$1,500 |
| 2012 | Dr. William Coker Fellowship, University of North Carolina | \$1,500 |
| 2012 | Caldwell Travel Scholarship, University of North Carolina | \$500 |
| 2011 | Dr. William Coker Fellowship, University of North Carolina | \$1,850 |
| 2010 | Alma Holland Beers Scholarship, University of North Carolina | \$2,950 |
| 2008 | Mrs. Coker Botany Fellowship, University of North Carolina | \$20,000 |
| 2005 | SURF, Effects of Irrigation Timing and Water Quality on Cotton Physiology and Development, College of Charleston | \$5,000 |

TEACHING EXPERIENCE

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| 2019 | Instructor of record, Marshall University, Plant Ecology Lecture and Lab |
| 2016 | Instructor of record, University of Wyoming, Terrestrial Ecosystem Ecology Lecture |
| 2015 | Instructor of record, University of Wyoming, Vegetation Ecology Lab |
| 2015 | Guest lecturer, University of Wyoming, Vegetation Ecology Lecture |
| 2014 | Guest lecturer, University of Wyoming, Terrestrial Ecosystem Ecology |
| 2014 | Instructor of record, High Point University, Introduction to Biology Lab and Introduction to Environmental Science Lab |
| 2010-12 | Teaching Assistant, University of North Carolina, Introductory Biology |
| 2009-10 | Teaching Assistant, University of North Carolina, Ecology and Evolution |
| 2010 | Teaching Assistant, University of North Carolina, Comparative Vertebrate Anatomy |
| 2006 | Teaching Assistant, College of Charleston, Plant Taxonomy |

STUDENT MENTORING

- 2019 - present **Adviser** of Rebekah Shupe’s Master’s degree in Biological Sciences. Marshall University.
- 2015 - present **Co-adviser** of Samuel Jordan’s Master’s degree in Forestry and Environmental Studies entitled “Impacts of grazing and ecohydrology on plant biodiversity patterns in big sagebrush ecosystems”. Yale University.

- 2016 - 2018 **Co-adviser** of Lukas Lindquist's Wyoming Research Scholars undergraduate research project entitled "Sagebrush, climate change, and groundwater recharge in Wyoming". University of Wyoming.
- 2014 - 2016 **Co-adviser** of Victoria Pennington's Master's degree in Botany entitled "Greater Sage-Grouse Habitat in the Western United States: Plant Species Composition and the Importance of Forbs". University of Wyoming.
- 2014 - present Additional students and computer programmers mentored at the University of Wyoming, Yale University, and Marshall University: Trace Martyn (MS, UWY), Caitlin Rottler (PhD, UWY), Rachel Renne (MS, Yale), Lexi Smith (MS in progress, Yale), Ashish Tiwari (MS, UWY), Chandler Hakaup (BS, UWY), and Frederick Pierson (BS, MU).

INVITED PRESENTATIONS

- 2019 **Palmquist, K.A.** Plant biodiversity and climate change impacts in temperate ecosystems. Department of Biology Seminar Series, Miami University of Ohio. Oxford, OH. (October 10, 2019)
- 2019 **Palmquist, K.A.** The effects of fire and climate change in temperate plant communities. US Forest Service Northern Research Station. Delaware, OH. (April 21, 2019)
- 2017 **Palmquist, K.A.** How high-performance computing can benefit ecological research at the University of Wyoming. Advanced Research Computing Center workshop at the University of Wyoming. Laramie, WY.
- 2013 **Palmquist, K.A.** & R.K. Peet. Small-scale species richness in longleaf pine savannas: patterns and drivers. Botanical Society of America Annual Meeting. New Orleans, LA.
- 2012 **Palmquist, K.A.**, R.K. Peet, J.M. White & K. Israel. Long-term vegetation change in contrasting North Carolina ecosystems. ESA Annual Meeting, Portland Oregon.
- 2011 **Palmquist, K.A.**, R.K. Peet & A.S. Weakley. Species richness patterns, compositional shifts, and turnover in the longleaf pine ecosystem across 18 years. College of Charleston Biology Lecture Series, Charleston, SC.

SELECTED PRESENTATIONS

- 2019 **Palmquist, K.A.**, J.B. Bradford, D.R. Schlaepfer, R.R. Renne & W.K. Lauenroth. Climate change impacts on shrub steppe plant communities vary with environmental context and geography. ESA Annual Meeting, Louisville, KY.
- 2019 **Palmquist, K.A.** & R.K. Peet. Plant species richness patterns are shaped by multiple ecological processes across space in the longleaf pine ecosystem. Association for Southeastern Biologists Annual Meeting, Memphis TN.
- 2018 Lauenroth, W.K., **K.A. Palmquist**, D.R. Schlaepfer & J.B. Bradford. Climate change, ecohydrology, and the plant functional type composition of North American mid-latitude shrub steppe ecosystems. AGU Annual Meeting, Washington, D.C.

- 2018 Schlaepfer, D.R., W.K. Lauenroth, J.B. Bradford & **K.A. Palmquist**. Transpiration of dryland vegetation under a geoengineered future. AGU Annual Meeting, Washington, D.C.
- 2018 **Palmquist, K.A.** & W.K. Lauenroth. Herbarium specimens reveal shifts in the timing of big sagebrush reproduction over the last two centuries. ESA Annual Meeting, New Orleans, LA.
- 2017 **Palmquist, K.A.**, S.E. Jordan, J.B. Bradford, D.R. Schlaepfer & W.K. Lauenroth. Resource quantity and resource heterogeneity shape species richness and beta-diversity patterns in big sagebrush plant communities. ESA Annual Meeting, Portland, OR.
- 2016 **Palmquist, K.A.**, W.K. Lauenroth, J.B. Bradford & D.R. Schlaepfer. Spatial and ecological variation in big sagebrush ecohydrological responses to climate change: Implications for management and conservation. ESA Annual Meeting, Fort Lauderdale, FL.
- 2015 **Palmquist, K.A.**, W.K. Lauenroth, J.B. Bradford & D.R. Schlaepfer. Climate change impacts on future sagebrush ecohydrology across the western US. ESA Annual Meeting, Baltimore, MD.
- 2015 **Palmquist, K.A.**, W.K. Lauenroth, J.B. Bradford & D.R. Schlaepfer. Climate change impacts on future ecohydrology in sagebrush ecosystems across the western US. North Central Climate Science Center Meeting, Fort Collins, CO.
- 2015 **Palmquist, K.A.**, W.K. Lauenroth, J.B. Bradford & D.R. Schlaepfer. Climate change impacts on big sagebrush ecohydrology and vegetation dynamics across the western US. University of Wyoming Botany Seminar Series, Laramie WY.
- 2014 **Palmquist, K.A.** Fire and spatial scale mediate the strength of deterministic and stochastic processes in longleaf pine woodlands. International Association for Vegetation Science Annual Meeting (IAVS), Perth, Australia.
- 2013 **Palmquist, K.A.**, R.K. Peet & A.S. Weakley. Species diversity patterns are shaped by multiple ecological processes across the range of the longleaf pine (*Pinus palustris* Mill.) ecosystem. ESA Annual Meeting, Minneapolis, MN.
- 2012 **Palmquist, K.A.**, R.K. Peet & A.S. Weakley. Dramatic declines in small-scale species richness in longleaf pine savannas. Association for Southeastern Biologists Annual Meeting, Athens, GA.
- 2010 **Palmquist, K.A.**, R.K. Peet, A.S. Weakley & N.L. Christensen. Quantifying species turnover and compositional shifts of the longleaf pine ecosystem in North Carolina after 18 years. ESA Annual Meeting, Pittsburgh, PA.
- 2010 **Palmquist, K.A.**, R.K. Peet & N.L. Christensen. Species richness over time and space in the longleaf pine ecosystem. IAVS Annual Meeting, Ensenada, Mexico.

AWARDS

- 2016 Own It! Award Nominee, given by WY EPSCoR to honor outstanding women in STEM fields

- 2013 Eugene P. Odum Award, given by the SE Chapter of the Ecological Society of America for the best oral presentation on ecological research given by a student at the Association for Southeastern Biologists Annual Meeting, \$500
- 2012 University of North Carolina Impact Award, recognizes graduate students whose research contributes to the educational, economic, physical or social well-being of the citizens of North Carolina, \$500

PROFESSIONAL MEMBERSHIPS

Ecological Society of America – Member of Rocky Mountain Chapter, Rangeland Ecology Section, Early Career Ecologist Section, and Vegetation Section
International Association for Vegetation Science (IAVS)
Association of Southeastern Biologists (ASB)

PROFESSIONAL SERVICE

- 2019 – present Associate Editor, Southeast Coastal Plain Region, US National Vegetation Classification
- 2017 - present Vice Chair of the Vegetation Section of the Ecological Society of America
- 2015 - present IAVS Vegetation Classification Working Group
- 2014 - present Reviewer for *Journal of Vegetation Science* (7), *Western North American Naturalist* (4), *Community Ecology* (1), *American Journal of Botany* (1), *Plant Ecology* (2), *Functional Ecology* (1), *Ecology* (1), *Landscape Ecology* (1), *Fire Ecology* (1), *Wetlands* (1), *Southwestern Naturalist* (1)
- 2017 External reviewer for NSF, Division of Environmental Biology
- 2015 - 2017 IAVS Young Scientist's Section Steering Committee
- 2015, 2018 Judge for the Tom Damman Award, the best student oral presentation in Vegetation Science at the annual meeting of the Ecological Society of America (ESA)
- 2015, 2018 Judge for the Murray F. Buell Award and E. Lucy Braun Award, the best student oral presentation and best student poster presentation at the annual meeting of the ESA
- 2014 Judge for the Quatterman-Keever Award, the best student poster in ecology at the annual meeting of the Association for Southeastern Biologists
- 2011 Peer reviewer for the US National Vegetation Classification

UNIVERSITY SERVICE

- 2019 - present Member, Campus Tree Committee, Marshall University
- 2019 - present Thesis committee member: Katie Biggert (MS in Biological Sciences)
- 2016 Internal reviewer for the Biodiversity Institute Grants at the University of Wyoming
- 2012 - 2013 UNC Chapel Hill Biology Graduate Student Association Officer
- 2011 - 2013 UNC Chapel Hill Ecology Seminar Series Chair/Committee