

# MICHELE S. BUONANDUCI

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## EDUCATION

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- 2020 - 2023*    **Ph.D.**, Quantitative Ecology and Resource Management, University of Washington  
Dissertation title: *Spatio-temporal patterns of forest disturbance in western North America: implications for forest resilience*
- 2017 - 2019*    **M.S.**, Quantitative Ecology and Resource Management, University of Washington  
Thesis title: *Modeling individual lodgepole pine mortality from mountain pine beetle outbreak in a spatially explicit framework*
- 2008 - 2012*    **B.A.**, Environmental Science, Boston University

## ACADEMIC EXPERIENCE

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- 2023 -*        Postdoctoral Researcher, The Nature Conservancy in Washington & University of Washington
- 2017 - 2023*    Graduate Research Assistant, Quantitative Ecology and Resource Management & School of Environmental and Forest Sciences, University of Washington
- 2010*        Undergraduate Research Assistant, Department of Geography and Environment, College of Arts and Sciences, Boston University

## TEACHING EXPERIENCE

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- Winter 2023*    Teaching Assistant, ESRM 101 Forests, Fire & Society, School of Environmental and Forest Sciences, University of Washington
- Winter 2021*    Teaching Assistant, QSCI 381 Introduction to Probability and Statistics, Center for Quantitative Science, University of Washington
- Spring 2020*    Teaching Assistant, ESRM 315 Old-Growth Forest Ecology & Management, School of Environmental and Forest Sciences, University of Washington
- Spring 2019*    Teaching Assistant, QSCI 381 Introduction to Probability and Statistics, Center for Quantitative Science, University of Washington
- Winter 2019*    Teaching Assistant, QSCI 381 Introduction to Probability and Statistics, Center for Quantitative Science, University of Washington

## RESEARCH GRANTS & FELLOWSHIPS

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- 2021 - 2022*    Northwest Climate Adaptation Science Center Research Fellowship: *Potential impacts of future fires in the western Cascades: insights from spatial metrics of burn severity* (\$46K - Fellow).
- 2021 - 2022*    Joint Fire Science Program Graduate Research Innovation Award: *Does high-severity patch structure scale consistently with fire size across the Northwest US?* (\$25K – PI).
- 2017 - 2018*    UW Quantitative Ecology & Resource Management First Year Fellowship (3 quarters graduate tuition + stipend).

## PROFESSIONAL EXPERIENCE

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- 2017 - 2020*    Staff Scientist *Part Time as Needed*, Arcadis U.S., Inc.
- 2015 - 2017*    Staff Scientist, Arcadis U.S., Inc.
- 2013 - 2015*    Scientist II, Arcadis U.S., Inc.
- 2012 - 2013*    Scientist I, Arcadis U.S., Inc.

## PUBLICATIONS

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**Buonanduci, M.S.**, D.C. Donato, J.S. Halofsky, M.C. Kennedy, and B.J. Harvey. 2023. Consistent spatial scaling of high-severity wildfire can inform expected future patterns of burn severity. *Ecology Letters*. [10.1111/ele.14282](https://doi.org/10.1111/ele.14282)

Harvey, B.J., S.J. Hart, P.C. Tobin, T.T. Veblen, D.C. Donato, **M.S. Buonanduci**, A.M. Pane, H.D. Stanke, K. Rodman. 2023. Emergent hotspots of biotic disturbances and their consequences for forest resilience. *Frontiers in Ecology and the Environment*. [10.1002/fee.2659](https://doi.org/10.1002/fee.2659)

Morris, J.E., **M.S. Buonanduci**, M.C. Agne, M.A. Battaglia, and B.J. Harvey. 2023. Fuel profiles and biomass carbon following bark beetle outbreaks: Insights for disturbance interactions from a historical thinning experiment. *Ecosystems*. [10.1007/s10021-023-00833-5](https://doi.org/10.1007/s10021-023-00833-5)

Harvey, B.J., **M.S. Buonanduci**, and M.G. Turner. 2023. Spatial interactions among short-interval fires reshape forest landscapes. *Global Ecology and Biogeography* 32:586–602. [10.1111/geb.13634](https://doi.org/10.1111/geb.13634)

**Buonanduci M.S.**, J.E. Morris, M.C. Agne, M.A. Battaglia, and B.J. Harvey. 2023. Fine-scale spatial heterogeneity shapes compensatory responses of a subalpine forest to severe bark beetle outbreak. *Landscape Ecology* 38:253-270. [10.1007/s10980-022-01553-2](https://doi.org/10.1007/s10980-022-01553-2)

Morris, J.E., **M.S. Buonanduci**, M.C. Agne, M.A. Battaglia, and B.J. Harvey. 2022. Does the legacy of historical thinning treatments foster resilience to bark beetle outbreaks in subalpine forests? *Ecological Applications* 32(1):e02474. [10.1002/eap.2474](https://doi.org/10.1002/eap.2474)

**Buonanduci, M.S.**, J.E. Morris, M.C. Agne, and B.J. Harvey. 2020. Neighborhood context mediates probability of host tree mortality in a severe bark beetle outbreak. *Ecosphere* 11(8):e03236. [10.1002/ecs2.3236](https://doi.org/10.1002/ecs2.3236)

Judd, N., Y. Lowney, P. Anderson, S. Baird, S.M. Bay, J. Breidt, **M. Buonanduci**, Z. Dong, D. Essig, M.R. Garry, R.C. Jim, G. Kirkwood, S. Moore, C. Niemi, R. O'Rourke, B. Ruffle, L.A. Schaidt, D.E. Vidal-Dorsch. 2015. Fish consumption as a driver of risk-management decisions and human health-based water quality criteria. *Environmental Toxicology and Chemistry* 34(11):2427-2436. [10.1002/etc.3155](https://doi.org/10.1002/etc.3155)

Dillen, S.Y., M. Op de Beeck, K. Hufkens, **M. Buonanduci**, and N.G. Phillips. 2012. Seasonal patterns of foliar reflectance in relation to photosynthetic capacity and color index in two co-occurring tree species, *Quercus rubra* and *Betula papyrifera*. *Agricultural and Forest Meteorology* 160:60-68. [10.1016/j.agrformet.2012.03.001](https://doi.org/10.1016/j.agrformet.2012.03.001)

*In prep, review, or revision*

**Buonanduci, M.S.**, D.C. Donato, J.S. Halofsky, M.C. Kennedy, and B.J. Harvey. *In prep*. Scaling of severe fire patterns across a range of fire sizes and forest ecosystems yields insights for data-sparse and infrequent-fire regimes.

**Buonanduci, M.S.**, S.J. Hart, P.C. Tobin, and B.J. Harvey. *In prep*. Spatio-temporal patterns and drivers of biotic disturbance hotspots in western United States coniferous forests.

## PRESENTATIONS (†INVITED, \*POSTER)

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**Buonanduci, M.S.**, D.C. Donato, J.S. Halofsky, M.C. Kennedy, and B.J. Harvey. 2023. Examining wildfires from other regions and fire regimes yields insights into future patterns of burn severity in western Cascadia. Post-Fire Research and Monitoring Symposium, Corvallis, OR, February 7-9.

†**Buonanduci, M.S.**, D.C. Donato, J.S. Halofsky, M.C. Kennedy, and B.J. Harvey. 2022. Western Cascadia wildfire: spatial patterns of burn severity and implications for future ecological impacts. University of Washington School of Aquatic and Fishery Sciences Quantitative Seminar Series, May 20.

**Buonanduci, M.S.**, D.C. Donato, J.S. Halofsky, and B.J. Harvey. 2021. Potential impacts of future fires in western Cascadia: scaling spatial patterns of burn severity. International Fire Ecology and Management Congress, November 30.

**Buonanduci, M.S.**, J.E. Morris, M.C. Agne, and B.J. Harvey. 2020. Tree neighborhood characteristics affect growth responses of host and non-host trees following a severe mountain pine beetle outbreak. Ecological Society of America Annual Meeting, August 3-6.

**Buonanduci, M.S.**, J.E. Morris, M.C. Agne, and B.J. Harvey. 2019. Individual tree and local tree neighborhood factors affecting mountain pine beetle-induced lodgepole pine mortality. Annual Meeting of the U.S. Regional Association of the International Association for Landscape Ecology, Fort Collins, CO, April 7-11.

**Buonanduci, M.S.**, J.E. Morris, M.C. Agne, and B.J. Harvey. 2019. Within-stand factors affecting survival of lodgepole pine following a severe mountain pine beetle outbreak. University of Washington School of Environmental and Forest Sciences Graduate Student Symposium, Seattle, WA, March 1.

\***Buonanduci, M.**, P. Anderson, and V. Houck. 2016. Probabilistic human health water quality criteria calculator. Annual Meeting of the Society of Environmental Toxicology and Chemistry, Orlando, FL, November 6-10.

\*Francisco, A., **M. Buonanduci**, J. Gravenmier, J. Iannuzzi, T. Negley and S. Selden. 2015. Moving beyond risk quotients: Comparing dose-response effects to reproductive natural variability. Annual Meeting of the Society of Environmental Toxicology and Chemistry, Salt Lake City, UT, November 1-5.

\***Buonanduci, M.** and P.D. Anderson. 2014. Effect of probabilistic methods on human health ambient water quality criteria. Annual Meeting of the Society for Risk Analysis, Denver, CO, December 7-11.

\***Buonanduci, M.** and N. Phillips. 2010. The effect of urbanization on vegetation function. Annual Boston University Undergraduate Research Symposium, Boston, MA, October 22.

## INVITED GUEST LECTURES

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<i>Autumn 2021</i>	University of Washington, ESRM 490/SEFS 501: Forest Community Ecology
<i>Spring 2021</i>	University of Washington, ESRM 490/SEFS 501: Forest Community Ecology
<i>Spring 2020</i>	University of Washington, ESRM 315: Old Growth Forest Ecology and Management

## HONORS & AWARDS

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2021	Quantitative Ecology and Resource Management Student Travel Award, University of Washington
2019	Honorable Mention for Best Student Presentation, Annual Meeting of the U.S. Regional Association of the International Association for Landscape Ecology
2019	Honorable Mention, National Science Foundation Graduate Fellowship
2019	College of the Environment Student Travel Award, University of Washington
2019	Quantitative Ecology and Resource Management Student Travel Award, University of Washington
2012-	Phi Beta Kappa
2012	College Prize for Excellence in Geography & Environment, Boston University
2009	Prize Essay Winner, Journal of the College of Arts and Sciences Writing Program, Boston University
2008-09	College of Arts and Sciences College Scholar, Boston University

## VOLUNTEER & SERVICE ACTIVITIES

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2022-	Manuscript reviewer for: <i>Fire Ecology, Ecology</i>
2020-21	Graduate Student Representative, Diversity, Equity, and Inclusion Committee, Center for Quantitative Sciences, University of Washington
2020-21	Peer Mentor, Quantitative Ecology and Resource Management Program, University of Washington
2020	Graduate Student Representative, Grants Specialist Hiring Committee, School of Environmental and Forest Sciences, University of Washington
2018-20	Organizer, Graduate Student Symposium, School of Environmental and Forest Sciences, University of Washington
2018-20	Graduate Student Representative, Research Committee, School of Environmental and Forest Sciences, University of Washington

Updated July 2023