Michele S. Buonanduci

Postdoctoral Researcher

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Education

University of Washington *Seattle, WA*

PhD Quantitative Ecology *2020 - 2023*

- Advisor: Dr. Brian J. Harvey
- Dissertation: *Spatio-temporal patterns of forest disturbance in western North America: implications for forest resilience*

University of Washington *Seattle, WA*

MS Quantitative Ecology *2017 - 2019*

- Advisor: Dr. Brian J. Harvey
- Thesis: *Modeling individual lodgepole pine mortality from mountain pine beetle outbreak in a spatially explicit framework*

Boston University *Boston, MA*

BA Environmental Science *2008 - 2012*

- Undergrad research advisor: Dr. Nathan G. Phillips

Research Experience

2024- **Postdoctoral Researcher**, The Nature Conservancy & University of Washington

2023-2024 **Postdoctoral Researcher**, The Nature Conservancy

2018-2023 **Graduate Research Assistant**, School of Environmental and Forest Sciences, University of Washington

2010 **Undergraduate Research Assistant**, Department of Geography and Environment, Boston University

Professional Experience

2017-2020 **Staff Scientist, *Part Time as Needed***, Arcadis

2015-2017 **Staff Scientist**, Arcadis

2013-2015 **Scientist II**, Arcadis

2012-2013 **Scientist I**, Arcadis

Publications

Published

Collins, L., K. Morrison, **M.S. Buonanduci**, L. Guindon, B.J. Harvey, M.-A. Parisien, S. Taylor, and E. Whitman. 2025. Extremely large fires shape fire severity patterns across the diverse forests of British Columbia, Canada. *Ecosphere* 16(8):e70364.

Buonanduci, M.S., S.J. Hart, P.C. Tobin, and B.J. Harvey. 2025. Patterns and drivers of biotic disturbance hotspots in western United States coniferous forests. *Ecography* e07680.

Buonanduci, M.S., E.R. Buhle, M.J. Case, E.R. Howe, J.C. Robertson, N. VanBuskirk, and A.K. Ettinger. 2025. Forest restoration can bolster salmon population persistence under climate change. *Biological Conservation* 305:111099.

Buonanduci, M.S., D.C. Donato, J.S. Halofsky, M.C. Kennedy, and B.J. Harvey. 2024. Few large or many small fires: Using spatial scaling of severe fire to quantify effects of fire-size distribution shifts. *Ecosphere* 15(6):e4875.

Dobrowski, S., M.M. Aghai, A. Chichilnisky du Lac, R. Downer, J. Fargione, D.L. Haase, T. Hoecker, O.A. Kildisheva, A. Murdoch, S. Newman, M. North, P. Saksa, M. Sjoholm, T. Baribault, **M.S. Buonanduci**, M.E. Chambers, L. Gonzales-Kramer, B.J. Harvey, M.D. Hurteau, J. Loevner, H.D. Safford, and J. Sloan. 2024. 'Mind the Gap'— Reforestation needs vs. reforestation capacity in the western United States. *Frontiers in Forests and Global Change* 7:1402124.

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* 26:1687-1699.

Harvey, B.J., S.J. Hart, P.C. Tobin, T.T. Veblen, D.C. Donato, **M.S. Buonanduci**, A.M. Pane, H.D. Stanke, and K. Rodman. 2023. Emergent hotspots of biotic disturbances and their consequences for forest resilience. *Frontiers in Ecology and the Environment* 21(8):388-396.

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* 26:1290–1308.

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.

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.

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.

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.

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. Schaider, 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.

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.

In Prep

Buonanduci, M.S., K.H. Braziunas, M.M. Laughlin, G.W. Meigs, A.L. Reiner, S.J. Saberi, and B.J. Harvey. Ecological burn severity atlas for forests of the western United States.

Research Grants & Fellowships

2024-2026	**Research Fellowship**, Science for Nature & People Partnership	*$ 85,000*
2021-2022	**Graduate Research Fellowship**, Northwest Climate Adaptation Science Center	*$ 46,000*
2021-2022	**Graduate Research Innovation Award**, Joint Fire Science Program	*$ 25,000*
2017-2018	**First Year Graduate Fellowship**, Quantitative Ecology & Resource Management Program, University of Washington	*Tuition & stipend*

Selected Presentations

† *invited*

†**Buonanduci, M.S.**, K.H. Braziunas, M.M. Laughlin, G.W. Meigs, A.L. Reiner, S.J. Saberi, and B.J. Harvey. December 2025. Ecological burn severity atlas for forests of the northwest United States. *International Fire Ecology and Management Congress, New Orleans, LA.*

†**Buonanduci, M.S.**, E.R. Buhle, M.J. Case, E.R. Howe, J.C. Robertson, N. VanBuskirk, and A.K. Ettinger. November 2025. Willapa basin salmon responses to land management in the context of climate change. *Connecting the dots from forest and estuary management to climate-resilient salmon: Webinar hosted by Northwest Regional Invasive Species and Climate Change Network.*

†**Buonanduci, M.S.**, E.R. Buhle, M.J. Case, E.R. Howe, J.C. Robertson, N. VanBuskirk, and A.K. Ettinger. June 2025. Chum salmon responses to forest management in the context of climate change: an integrated population modeling approach. *University of Washington School of Aquatic and Fishery Sciences Quantitative Seminar.*

Ettinger, A.K., E. Harvey, and **M.S. Buonanduci**. March 2025. Integrating salmon restoration and forest resilience to fire in the West. *WA-BC Chapter of the American Fisheries Society Conference, Vancouver, BC, Canada.*

Buonanduci, M.S., E.R. Buhle, M.J. Case, E.R. Howe, J.C. Robertson, N. VanBuskirk, and A.K. Ettinger. November 2024. Land management practices can increase the resilience of salmon populations to climate change. *The Nature Conservancy One Conservancy Science Gathering, Mexico City, Mexico.*

†**Buonanduci, M.S.**, E.R. Buhle, M.J. Case, E.R. Howe, J.C. Robertson, N. VanBuskirk, and A.K. Ettinger. October 2024. Willapa Bay salmon responses to forest management in the context of climate change. *Forest Management as a Tool for Salmon Resilience: Webinar hosted by Coast Salmon Partnership.*

†**Buonanduci, M.S.**, D.C. Donato, J.S. Halofsky, M.C. Kennedy, and B.J. Harvey. December 2023. Harnessing spatial scaling relationships to inform expected future spatial patterns of burn severity across fire size distributions. *International Fire Ecology and Management Congress, Monterey, CA.*

†**Buonanduci, M.S.**, D.C. Donato, J.S. Halofsky, M.C. Kennedy, and B.J. Harvey. August 2023. Scaling burn severity patterns across regions and fire regimes yields insights into historically climate-limited fire regimes. *Ecological Society of America Annual Meeting, Portland, OR.*

Buonanduci, M.S., D.C. Donato, J.S. Halofsky, M.C. Kennedy, and B.J. Harvey. February 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.*

†**Buonanduci, M.S.**, D.C. Donato, J.S. Halofsky, M.C. Kennedy, and B.J. Harvey. May 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.*

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

Buonanduci, M.S., J.E. Morris, M.C. Agne, and B.J. Harvey. August 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.*

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

Buonanduci, M.S., J.E. Morris, M.C. Agne, and B.J. Harvey. March 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.*

Teaching Experience

Wint. 2023	**Forests, Fire & Society**, Teaching Assistant, University of Washington
Wint. 2021	**Introduction to Probability and Statistics**, Teaching Assistant, University of Washington
Spr. 2020	**Old-Growth Forest Ecology & Management**, Teaching Assistant, University of Washington
Spr. 2019	**Introduction to Probability and Statistics**, Teaching Assistant, University of Washington
Wint. 2019	**Introduction to Probability and Statistics**, Teaching Assistant, University of Washington

Invited Guest Lectures

Wint. 2024	**Forests, Fire & Society**, University of Washington
Fall 2021	**Forest Community Ecology**, University of Washington
Spr. 2021	**Forest Community Ecology**, University of Washington
Spr. 2020	**Old-Growth Forest Ecology & Management**, University of Washington

Professional Service

2020-2021	**Graduate Student Representative**, Diversity, Equity, and Inclusion Committee, Center for Quantitative Sciences, University of Washington
2020	**Peer Mentor**, Quantitative Ecology and Resource Management Program, University of Washington
2018-2020	**Organizer**, Graduate Student Symposium, School of Environmental and Forest Sciences, University of Washington
2018-2020	**Graduate Student Representative**, Research Committee, School of Environmental and Forest Sciences, University of Washington

Peer Review

Fire Ecology, Ecology, Ecosphere, PNAS, Nature Ecology & Evolution, Global Change Biology, Landscape Ecology, Biological Conservation, Regional Environmental Change

Professional Memberships

Ecological Society of America, Association for Fire Ecology