

# Michele S. Buonanduci

POSTDOCTORAL RESEARCHER

✉ mbuon@uw.edu | 🏷 <http://mbuonanduci.github.io/>

## Education

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### University of Washington

Seattle, WA

2020 - 2023

#### PHD QUANTITATIVE ECOLOGY

- 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

2017 - 2019

#### MS QUANTITATIVE ECOLOGY

- 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

2008 - 2012

#### BA ENVIRONMENTAL SCIENCE

- Undergrad research advisor: Dr. Nathan G. Phillips

## Research Experience

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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

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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

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### 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. Schaefer, 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

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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

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† 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*.

†textbf{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

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

## Invited Guest Lectures

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Wint. 2024	<b>Forests, Fire &amp; Society</b> , University of Washington
Fall 2021	<b>Forest Community Ecology</b> , University of Washington
Spr. 2021	<b>Forest Community Ecology</b> , University of Washington
Spr. 2020	<b>Old-Growth Forest Ecology &amp; Management</b> , University of Washington

## Professional Service

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- 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