

Eric Keeling

SUNY New Paltz, Department of Biology
Associate Professor

Education

| <u>Degree</u> | <u>Date Received</u> | <u>Institution & Location</u> | <u>Major Field</u> |
|---------------|----------------------|---|------------------------------------|
| PhD | 2009 | University of Montana Missoula, MT | Organismal Biology and Ecology |
| MM | 1993 | San Diego State University San Diego, CA | Music Performance |
| BS | 1987 | University of California, Berkeley, Berkeley, CA | Conservation & Resource Studies |

Doctoral Dissertation: *Wildfire responses and tree longevity in old-growth ponderosa pine/Douglas-fir forests*. May, 2009, University of Montana.

Professional Academic Appointments

| <u>Year</u> | <u>Institution & Location</u> | <u>Title/Rank</u> |
|-------------|---|------------------------------|
| 2018 - | State University of New York, New Paltz, New Paltz, NY | Associate Professor |
| 2012 – 2018 | State University of New York, New Paltz, New Paltz, NY | Assistant Professor |
| 2011 – 2012 | Bard College Biology Dept. & Center for Environmental Policy, Annandale-on-Hudson, NY | Visiting Assistant Professor |
| 2009 – 2012 | Cary Institute of Ecosystem Studies Millbrook, NY | Post-doctoral Associate |
| 2006 – 2008 | University of Montana Missoula, MT | Graduate Teaching Assistant |
| 2003 – 2008 | University of Montana Missoula, MT | Graduate Research Assistant |

Awards and Distinctions

University of Montana Graduate Assistant Teaching Award, 2008

Outstanding Graduate Teaching Assistant, UM Organismal Biology and Ecology, 2008

Jack E. Schmautz Graduate Scholarship, 2008

Peer reviewed Publications (* Undergraduate student author.)

Roskilly B., **Keeling EG**, Hood S, Giuggiola A., & Sala A. 2019. Conflicting functional effects of xylem pit structure relate to the growth-longevity trade-off in a conifer species. *Proceedings of the National Academy of Sciences*, 116(30), 15282-15287.

Belinsky K, **Keeling EG**, Snyder*, D. 2019. Bird communities at the suburban-rural interface: The role of low-intensity, small-scale urbanization. *Urban Naturalist*. 28: 1-20.

Keeling EG, O'Connell* W. 2018. Divergent tree communities across ridge, cliff and talus relate to an association between diaspore weight and micro-topography at Mohonk Preserve, NY. *Natural Areas Journal*. 38 (2), 154-167

Keeling EG. 2018. Plant community composition, tree physiology, and bark-beetle mortality in relation to open and enclosed irrigation channels: A case study within a wildland-urban interface forest in western Montana. *Ecoscience*. 25 (2), 163-177

Schramm JW, Jin H, **Keeling EG**, Johnson M, and Shin HJ. 2017. Improved student reasoning about carbon-transforming processes through inquiry-based learning activities derived from an empirically validated learning progression. *Research in Science Education*. Published online: doi:10.1007/s11165-016-9584-0.

Naficy CE, **Keeling EG**, Landres P, Hessburg P, Veblen T, Sala A. 2016. Wilderness in the 21st Century: A framework for testing assumptions about ecological intervention in wilderness using a case study of fire ecology in the Rocky Mountains. *Journal of Forestry*. 114 (3), 384-395 (Special print issue on wilderness.)

Keeling EG, and Sala A. 2012. Changing growth response to wildfire in old-growth ponderosa pine trees in montane forests of north central Idaho. *Global Change Biology*. 18, 1117–1126.

Keeling EG, Sala A, DeLuca TH. 2011. Lack of fire has limited physiological impact on old-growth ponderosa pine in dry montane forests of north central Idaho, USA. *Ecological Applications*. 21 (8), 3227 - 3237

Lloret F, **Keeling EG**, Sala A. 2011. Components of tree resilience: effects of successive low-growth episodes in old ponderosa pine forests. *Oikos*. (12), 1909-1920

Naficy CE, Sala A, **Keeling EG**, Graham J, Deluca TH. 2010. Interactive effects of historical logging and fire exclusion on ponderosa pine forest structure in the Northern Rockies. *Ecological Applications*. 20 (7), 1851-1864

Keeling EG, Sala A, DeLuca TH. 2006. Effects of fire exclusion on forest structure and composition in unlogged ponderosa pine/Douglas-fir forests. *Forest Ecology and Management*. 237, 418-428.

Non-peer-reviewed publications

Keeling EG; Naficy C. 2015. More Intervention in Wilderness? The Case of Forests, Fire and Climate in the Northern Rockies. In Fox, Susan; Phillippe, Chelsea; Hoover, Vicky; Lambert, Lee. 2015. *Celebrating the 50th Anniversary of the Wilderness Act. October 15-19, 2014. Albuquerque, NM. Proceedings of the National Wilderness Conference.* 364-p

Bechtold HA, Durán J, Strayer DL, Weathers KC, Alvarado A, Bettez ND, Hersh MH, Johnson RC, **Keeling EG**, Morse JL, Previtali MA, Rodríguez A. 2012. Chapter 17: Frontiers in Ecosystem Science. In: Fundamentals of Ecosystem Science (eds) K.C. Weathers, D.L. Strayer, G.E. Likens. Academic Press. ISBN 978-0-12-088774-3.

Keeling EG, Bettez N, Harris C, Hersh M, Notin K, Previtali MA, Rosi-Marshall E, Strayer D, and Wildova R. 2010. Book review of Dodds, WK. 2009. Laws, Theories, and Patterns in Ecology. *Ecoscience* 17(2) 225-228.

Invited Talks (* Undergraduate student author)

Keeling EG. Mapping and studying campus trees for education and sustainability benefits. Arbor Society's Tree Campus USA Recognition Ceremony, Albany NY, March 29, 2018.

Keeling EG, Baker-Urzuu* R. Responses to prescribed fire in chestnut oak and red maple at Mohonk Preserve. Shawangunk Ridge Biodiversity Partnership Joint Steering/Research and Management Meeting. Mohonk Preserve Visitor Center. December 11, 2015.

Keeling EG. Forest ecology and plant ecophysiology: Studies in Mohonk Preserve. SUNY New Paltz - Mohonk Preserve Institutional Agreement - Faculty Forum. SUNY New Paltz. September 10, 2014

Keeling EG. Carbon and Climate: An essential focus of environmental literacy. Bard College. March 3, 2011.

Presentations (* Undergraduate student author)

Salaway, Patrick*, **Keeling EG**. Using tree rings to study tree growth and succession across the the lost ski slopes of Minnewaska. SUNY New Paltz Student Research Symposium. Poster Presentation. May 20, 2020.

Schiafo* R, Reker J, Davis L, **Keeling EG**. Dwarf pitch pine survival, regeneration, and understory plant community response to wildfire at Sam's Point Preserve, NY . Ecological Society of America conference, Louisville KY, Poster Presentation. August 12, 2019.

Heineman* E, **Keeling EG**. Tree community composition and diversity across varying topography, soil conditions, and land-use history at Peterskill, Minnewaska State Park. SUNY New Paltz Student Research Symposium. Poster Presentation. May 3, 2019.

Schiafo* R, Reker J, Davis L, **Keeling EG**. Dwarf pitch pine survival, regeneration, and understory plant community response to wildfire at Sam's Point Park Preserve, NY. SUNY New Paltz Student Research Symposium. Poster Presentation. May 3, 2019.

Schiafo* R, Reker J, Davis L, **Keeling EG**. Post-wildfire plant community responses in a dwarf pitch pine forest at Sam's Point Preserve, NY. Catskills Environmental Monitoring Conference, Highmount, NY., October 24, 2018. Poster presentation.

Reker J, Schiafo* R, Davis L, **Keeling EG**. Dwarf pitch pine growth response post wildfire in a globally rare ecosystem. Catskills Environmental Monitoring Conference, Highmount, NY., October 24, 2018. Poster presentation.

Keeling, EG. Vegetation changes, tree physiology, and bark beetle mortality in relation to open and closed irrigation channels: A case study within a wildland-urban interface forest in western Montana. Oral presentation. The Fire Continuum Conference: Preparing for the future of wildland fire. Missoula, MT, May 24, 2018.

Kaminski* H, Eschel G (Bard College), **Keeling EG**. Environmental Impact of Plant Foods versus Animal Foods. SUNY New Paltz Student Research Symposium. Poster Presentation. May 4, 2018.

Roskilly B, **Keeling EG**, Hood S, Sala A. Xylem anatomy mediates growth and longevity in ponderosa pine. Poster presentation. Ecological Society of America conference, Portland, OR, August, 2017.

Becker* J. Engel-DiMauro S. **Keeling EG**. An exploratory study: The influence of soil pH, organic carbon and inorganic carbonate on tree community structure. SUNY New Paltz Environmental Geo-chemical Science (EGS) Student Research Seminar. Oral Presentation. May 11, 2017

Manno* S. The trade-off between oak mast and acorn size. Honors thesis presentation. SUNY New Paltz Honors Thesis, Oral Presentation. April 19, 2017.

Baker-Urzua* R, **Keeling EG**. Effects of prescribed fire on chestnut oak and red maple seedling abundance, gas exchange and leaf physiology at Mohonk Preserve, NY. Ecological Society of America conference, Fort Lauderdale, FL, Oral Presentation. August 12, 2016.

Simard – Moore*G, **Keeling EG**. SUNY New Paltz South Forest - Analysis of Forest Carbon Content, Distribution and Change Over Time. SUNY New Paltz Environmental Geo-chemical Science (EGS) Student Research Seminar. Oral Presentation. Dec. 9, 2015.

Byam* J, **Keeling EG**, Thompson J. Wilkinson C. A novel method for rapid understory plant community assessment across large areas of difficult terrain at Mohonk Preserve, NY. Ecological Society of America conference, Baltimore, MD. Oral Presentation. August 14, 2015.

Snyder* D, **Keeling EG**, Rietsma C, Simons J, Mitten L. Mapping Campus Trees for Education/Sustainability Benefits. Hudson River Science Symposium. Poster Presentation. May 6, 2015.

Richards* M, **Keeling EG**. Forest Edge/Interior Effects on Animal Relative Abundance. SUNY New Paltz Student Research Symposium. Poster Presentation. May 1, 2015.

Ma* Y, Manno* S, Ouedrago* N, **Keeling EG**. Masting and Acorn Size Trade-offs in Red and White Oak. SUNY New Paltz Student Research Symposium. Poster Presentation. May 1, 2015.

Snyder* D, **Keeling EG**, Rietsma C, Simons J, Mitten L. Mapping Campus Trees for Education/Sustainability Benefits. SUNY New Paltz Student Research Symposium. Poster Presentation. May 1, 2015.

Keeling EG, Naficy CE. More intervention in Wilderness? The case of forests, fire and climate in the Northern Rockies. Wilderness 50th Anniversary Conference, October 16, 2014, Albuquerque, NM.

Keeling EG, Naficy CE. Wilderness as a conservation tool. How much intervention is needed? North America Congress for Conservation Biology. July 14, 2014. Missoula, MT.

Keeling EG. Linking research and education in an undergraduate ecology course: Measuring edge vs. interior tree species composition and abundance in a hardwood forest near SUNY New Paltz, NY. Poster presentation. EREN (Ecological Research as Education Network) All members meeting. June 26, 2014.

Jakubek* A, **Keeling EG**. Effects of No-Till and Organic Fertilizer on Physiology of Sweet Corn. SUNY New Paltz Student Research Symposium. Poster Presentation. May 2, 2014.

Dill* J, **Keeling EG**. Flowering and Leaf-Out Varies By Tree Species, Site and Year. SUNY New Paltz Student Research Symposium. Poster Presentation. May 2, 2014.

Young* J, Dill* J, Jakubek* A, Hoen* W, **Keeling EG**. 2013. Differences in tree species composition and abundance between the edge and interior of a hardwood forest near SUNY New Paltz. New Paltz Student Research Symposium. Poster presentation. May 3, 2013.

Frank* A, Morrow M, **Keeling EG**, Ho H. Identification of fungal species in local deadwood. New Paltz Student Research Symposium. Poster presentation. May 3, 2013.

Peterschild* J, **Keeling EG**, Keesing F. 2013. Patterns of growth decline in dead and surviving eastern hemlock trees infested with the hemlock woolly adelgid. Hudson River Science Symposium. New Paltz, NY. Poster presentation. April 24, 2013.

Henry* L, **Keeling EG**, Kiviat E. 2013. Decline of eastern hemlock and other vegetation changes over a 35 year period in a rare, old-growth mixed hardwood forest. Hudson River Science Symposium, NY. Poster presentation. April 24, 2013.

Naficy C, **Keeling EG**. An evaluation for the scientific basis for greater management intervention in protected areas. George Wright Society Conference on Parks, Protected Lands, and Cultural Sites. Denver, CO. March 11, 2013

Keeling EG, Berkowitz AR, Anderson CW, Mayes RL, Schramm JW, Foot R. Teaching strategies for improving public understanding of the global carbon cycle. Ecological Society of America conference, Austin, TX, August 9, 2011.

Keeling EG, Berkowitz AR. Broadening the reach, closing the circle: Protected lands and environmental literacy in the 21st century. George Wright Society Conference on Parks, Protected Lands, and Cultural Sites. New Orleans, LA. March 14, 2011

Keeling EG, Anderson CW, Berkowitz AR. Carbon and Climate: An Essential Focus of Environmental Literacy. North American Association for Environmental Education (NAAEE) conference, Buffalo, NY, September 28, 2010

Keeling EG, Anderson CW, Berkowitz AR, Covitt B, Mayes RL. Carbon and Climate: An Essential Focus of Environmental Literacy. Ecological Society of America conference, Pittsburgh, PA, August 2, 2010.

Keeling EG, Sala A. Changing growth response to wildfire linked to climate variables in old-growth ponderosa pine trees. Ecological Society of America conference, Albuquerque, NM, August 5, 2009

Keeling EG, Sala A. Do Slow Trees Grow Old? Growth and Longevity in Old Growth Ponderosa Pine in the Inland Northwest. Ecological Society of America conference, Milwaukee WI, August 2008

Keeling EG, Sala A. Do Slow Trees Grow Old? Growth and Longevity in Old Growth Ponderosa Pine in the Inland Northwest. Ameridendro Conference, Vancouver B.C., June 2008

Keeling EG, Sala A, DeLuca TH. Tree growth and physiological responses to wildfire in unlogged ponderosa pine/Douglas-fir forests. 3rd International Fire Ecology and Management Congress in San Diego, November, 2006

Sala A, DeLuca TH, **Keeling EG**. Community structure in unlogged ponderosa pine/Douglas-fir forests along a fire-frequency gradient. Poster Presentation, Ecological Society of America, Portland OR, August, 2004

Significant Community Service and Outreach Activities

Reviewer for textbook: Conservation Biology (Oxford University Press), 2nd Edition, 2021

Invited speaker and panelist, Keeling Curve Prize award ceremony. Aspen, CO. June 29, 2018

Guest lecturer, Lifetime Learning Institute, SUNY New Paltz. "Forests of the Mid-Hudson River Valley: A Landscape of Biodiversity and Change". May 2, 2018.

Provided training in tree-ring field and lab techniques to staff at Sam's Point Preserve following a wildfire. May 10, 2017.

Invited workshop participant. Mohonk Preserve Strategic Visioning Workshop. SUNY New Paltz. November 16, 2016. Provided input into Mohonk Preserve's planning and grant writing activities.

Invited meeting participant. Shawangunk Ridge Biodiversity Partnership Joint Steering/Research and Management Meeting. Mohonk Visitor Center. Sept, 19 2014, December 11, 2015 and June

9, 2016. Gave formal presentations and professional advice regarding wildfire and prescribed fire in the Shawangunk Mountains.

Reviewer for peer-reviewed journal: Ecological Applications, 2013

Invited workshop participant, Framework for Assessing Environmental Literacy. July 13-14, 2011. Reviewed draft and participated in two-day review, critique and discussion of NSF-funded framework for assessing environmental literacy.

Invited panelist, The Wilderness Society Governing Council, Wash. DC, June 10, 2011. Topic: Wilderness management in a time of climate change. Made formal presentation and was panelist in Q & A and discussion with Wilderness Society governing council members.

Reviewer, National Science Foundation, Population & Community Ecology Program, 2011

Reviewer for peer-reviewed journal: Ecosphere, 2010.

Reviewer for textbook: Campbell's Biology (Pearson Press), 9th edition, 2009

Reviewed chapters "Introduction to Ecology and the Biosphere" and "History of Life on Earth"

Public Outreach Activities at the Cary Institute, 2009 – 2011. Led nature walks for public, demonstrated science learning activities in public events, judged science fair.

Bitterroot BioBlitz, Lee Metcalf Wildlife Refuge, MT, 2009. Contributed as registered scientist to intensive plant inventory study and community outreach and citizen science activities over 2-day period.

Reviewer for peer-reviewed journal: Ecological Modeling, 2007

Professional Works in Progress (* Undergraduate student author)

Henry * L, **Keeling EG**, Kiviat E. Decline of eastern hemlock in a rare mixed hardwood forest of Montgomery Place, NY. Manuscript in preparation.

Baker-Urzua* R, **Keeling EG**. Effects of prescribed fire on chestnut oak and red maple seedling abundance, gas exchange and leaf physiology at Mohonk Preserve, NY. Manuscript in preparation.

Grants Awarded

Student Undergraduate Research Experience (SURE), Summer, 2018. \$4,600.

Student Undergraduate Research Experience (SURE), Summer, 2015. \$4,600.

Campus Sustainability Seed Fund. Fall, 2015. \$2198

SUNY New Paltz Student Association Research Grant. Summer, 2015. \$750.

Campus Auxiliary Services Grant. Summer and fall, 2014. \$2818.

SUNY New Paltz Student Association Research Grant. Summer, 2014. \$750.

SUNY New Paltz research students mentored (2013-2023)

Birgitta Cockburn, 2022-2023 – Sustainability of paper products

Zachary Brown, 2022 – Red-maple seedling status 7-year post-fire in Mohonk Preserve
 Liliana Brown, 2020 - 2021 – Phenology of Campus Trees
 Katherine Shattuck, 2021 – Phenology of Campus Trees
 Jenna Jachcinski, 2021 – Phenology of Campus Trees
 Christian Fierek, 2020 – Tree Campus USA student representative, Campus Ecology Walk
 Cheyenne Reinhart, 2020 – Phenology of Campus Trees
 Patrick Salaway, 2019 - 2020 – Conifer growth rates and ages at Peterskill, Minnewaska St. Park
 Rory Schiafo*, 2018 - 2019 – Forest responses to wildfire at Sam’s Point Preserve
 Ethan Heineman, 2019 – Shawangunk tree community composition
 William Reilly, 2019 – Campus Tree Walk map/brochure
 (Co-advised with Lawrence McGlenn, Geography)
 Ryan Usai, 2018 – Campus Tree Survey/Arboretum
 Helena Kaminski, 2017 - 2018 – Environmental footprint of food choices
 (Co-advised with Gidon Eshel, Bard College)
 Dejea Green, 2017 – Campus Tree Survey/Carbon sequestration
 Laura Wyeth, 2016 – Salt tolerance of Japanese Knotweed
 Samantha Manno, 2016 – Oak Masting
 Jennifer Becker 2016 – Shawangunk soils and tree community composition
 (Co-advised with Salvatore Engel-Demauro, Geography)
 Avril Kumar, 2016 – Edge/Interior Effects in Northern Hardwood Forests
 Ryan Baker-Urzua*, 2014 - 2016 – Fire Effects on Chestnut Oak Forest Ecophysiology
 Gabrielle Simard-Moore, 2015 – Edge/Interior Effects; Campus tree survey/carbon sequestration
 Yanjing Ma, 2015 – Oak masting
 Matt Richards, 2015 – Edge/Interior Effects in Northern Hardwood Forests
 James Byam**, 2014 – Plant community ecology of Mohonk Preserve
 Bill O’Connell, 2014 – Cliff ecology in Mohonk Preserve
 Dakota Snyder, 2014 – Ecophysiology of Ponderosa Pine in Montana; Campus Tree Survey
 Madeline Fisher, 2014 – Soil Moisture and Organic Carbon in Shawangunk Soils
 Justine Dill, 2013 – Phenology of Northern Hardwood Forest tree species
 Leyla Horne, 2013 – Online mapping application development
 Nadia Ouedraogo†, 2013 – Oak Masting
 Wes Hoen, 2013 – Cliff ecology in Mohonk Preserve
 Anna Jakubek, 2013 – No-till and organic fertilizer effects on physiology of corn
 John Young, 2013 – Edge/Interior Effects in Northern Hardwood Forest

* SURE grant award recipient, ** Recipient of Mohonk Preserve Schaefer Research Internship 2014 and 2015 and Mohonk Preserve Traverso Internship, 2014; †Recipient of NSF Research Experience for Undergraduate (REU) internship, 2016

(Not included in this list are additional students who I supervised in greenhouse maintenance and plant propagation.)