

Rebecca H. Walker

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EDUCATION

2023 Ph.D., Science, Technology, and Environmental Policy, University of Minnesota
(*anticipated*)

2018 M.S., Ecology, University of California, Davis

2015 B.S.*, Environmental Sciences & Anthropology, University of Virginia

*with highest honors (*Summa Cum Laude*)

PROFESSIONAL RECORD

- 2018- present Doctoral student, Science, Technology, and Environmental Policy, Humphrey School of Public Affairs, U. of Minnesota — *Dimensions of equity in urban green infrastructure*; supervised by Dr. Bonnie Keeler
- 2018 Field Technician, Dept. of Wildlife, Fish, and Conservation Biology, University of California Davis — *phenological interactions between plants and large herbivores in arctic ecosystems under a rapidly changing climate*; supervised by Dr. Eric Post
- 2015-2018 Master's student, Dept. of Land, Air, and Water Resources, University of California Davis — *reducing uncertainty in global nitrogen cycling models by constraining the isotope effect of denitrification*; supervised by Dr. Ben Houlton
- 2015 Intern, Sierra Nevada Meadow Restoration Program, National Fish and Wildlife Foundation
- 2014-2015 Research Associate, Dept. of Plant Sciences and Agriculture, Hebrew University of Jerusalem — *sociopolitical impacts on biogeochemical cycling as mediated by the Aleppo pine (*Pinus halepensis*)*; supervised by Dr. Jose Grunzweig
- 2013-2014 Research Experience for Undergraduates, Harvard Forest, Harvard University — *spatial analysis of early successional forest community structure*; supervised by Dr. Christopher Williams

- 2012-2013 Research Assistant, Dept. of Environmental Sciences, University of Virginia — *controls on nitrogen cycling through forest succession*; supervised by Dr. Howard Epstein and Dr. Aaron Mills
- 2012 Field Technician, Smithsonian Conservation Biology Institute, Front Royal, Virginia — *quantification of carbon sequestration in temperate old-growth forests*; supervised by Dr. Jonathan Thompson
- 2012 Lab Technician, Dept. of Environmental Sciences, University of Virginia — *significance of dust inputs to the tropical forest phosphorous cycle*; supervised by Dr. Deborah Lawrence
- 2011 Intern, Land Protection and Revitalization Office, Virginia Department of Environmental Quality

RESEARCH INTERESTS

urban environmental planning, urban sustainability policy, intersections of environmental justice and housing justice; urban ecology and green infrastructure; urban political ecology; green gentrification; community-engaged research

HONORS and AWARDS

- Human in the Data Graduate Fellow, Univ. of Minnesota (2020)
- Interdisciplinary Doctoral Fellowship, Univ. of Minnesota [*declined*] (2020)
- CREATE (Co-Developing Research and Engaged Approaches to Transforming Environments) Doctoral Fellow, Univ. of Minnesota (2018-9)
- National Sustainability, Environmental Achievement, and Leadership Award (2018)
- National Science Foundation Graduate Research Fellow (2017-22)
- National Science Foundation East Asia and Pacific Summer Institute Fellow (2017)
- Graduate Group in Ecology Fellowship, Univ. of California, Davis (2017)
- Outstanding Student Presentation, School of Advanced Science on nitrogen cycling, environmental sustainability, and climate change, Sao Pedro, SP Brazil (2016)
- Ecology Student Endowment, Graduate Group in Ecology, Univ. of California, Davis (2016)
- Mahlon G. Kelly Prize in Ecology, Dept. of Environmental Sciences, Univ. Virginia (2015)
- Raven Society Member (academic honor society), University of Virginia (2014)
- E.B. Phillips Memorial Scholarship (2014)
- Undergraduate Interdisciplinary Award, Dept. of Environmental Sciences, Univ. Virginia (2014)

Thomas Jefferson Soil and Water Conservation District Scholarship (2013)

Fary Memorial Scholarship (2011)

College Science Scholar, University of Virginia (2011-15)

Echols Scholar, University of Virginia (2011-15)

PROFFICIENCIES

Research Skills: research design and implementation | academic writing | qualitative interview skills | analysis of quantitative data | policy analysis | community-engaged research methods

Analytical Skills: environmental data analysis including climatic, air and water quality, hydrological, carbon and nutrient fluxes | data management and statistical analysis using Excel | statistical analysis using R and Matlab | geospatial analysis and data modeling using R | geospatial analysis using ARCGIS and QGIS | remote sensing techniques | analysis of qualitative data using NVivo and Atlas software

Personnel Management: Adept at managing research teams in the field, laboratory, and analytical stage of research. Teams managed have ranged from one to 21 research assistants.

RESEARCH GRANTS

Critical cartography for urban environmental planning, University of Minnesota, Institute on the Environment, *Mini Research Grant*, PI, 06/01/2020 – 12/31/2021, \$3,000

Constraining the isotope effect of denitrification to improve global models of N fluxes, National Science Foundation, *East Asia and Pacific Summer Institute*, PI, 02/01/2017 – 02/01/2018, \$10,988.81

Estimates of nitrogen gas loss via an isotopically-constrained model, University of California, Davis, Department of Land, Air, and Water Resources, *Henry A. Jastro Graduate Research Award*, PI, 06/01/2017 – 06/01/2018, \$3,000

Lab and field estimates of isotopic fractionation during denitrification, University of California, Davis, Department of Land, Air, and Water Resources, *Ecology Student Endowment*, PI, 06/01/2016 – 06/01/2017, \$2,500

Analysis of feedbacks between phosphorous dust deposition and canopy cover in dry-tropical forests, UVA College Science Scholars Program, Semester Research Grant, Co-I, 1/1/2012 - 5/1/2012, \$1,200

Comparison of nitrogen cycling between old growth and secondary growth forests in the Mid-Atlantic, UVA college of Arts and Sciences, *Travel Award*, PI, 11/01/14 - 1/1/15, \$1,500

Social ecology of the Israeli landscape: a multi-disciplinary analysis, The Raven Society, *Raven Society Research Fellowship*, PI, 04/15/14 - 04/15/15, \$2,500

Naturalizing a nation: ecological implications of Israeli state formation, UVA College of Arts and Sciences, Small Research Grant, PI, 03/15/14 - 09/01/2014, \$750

Social ecology of the Aleppo pine (*Pinus halepensis*) in Israeli state formation, UVA Center for Undergraduate Excellence, Harrison Undergraduate Research Award, PI, 11/15/13 - 4/15/15, \$3,000

Spatial analysis of early-successional, temperate forest community structure, UVA College of Arts and Sciences, Travel Award, PI, 11/15/13 - 1/15/14, \$1,100

Quantifying nitrogen cycling in Eastern deciduous old growth forests through field measurements, UVA College Science Scholars Program, Summer Research Grant, PI, 5/15/2012 - 8/15/2012, \$5,000

PUBLICATIONS

Walker, R. H., H. E. Epstein, J. McGarvey, and A. L. Mills. Variability in organic horizon nitrogen pools driven by regional-scale factors -- not forest succession. (2015). *The Oculus, The Virginia Journal of Undergraduate Research*. 13: 57-79.

Walker, R. H., S. S. Perakis, and B. Z. Houlton. Reaction kinetics determine isotope effect expression by terrestrial denitrification. (2019), *Ecological Applications*. *In submission*.

Bremer, L., B. Keeler, **R.H. Walker**, B. Vira, P. Pascua. Nature-based Solutions, Sustainable Development, and Equity. (2020). *In submission*.

Keeler, B. L., Derickson, K. D., Waters, H., & **Walker, R.H.** (2020). Advancing Water Equity Demands New Approaches to Sustainability Science. *One Earth*, 2(3), 211-213.

PRESENTATIONS and TALKS

Walker, R. H., B.L. Keeler. M.R. Klein. *Popular Education through Mapping for Environmental and Racial Justice in Minneapolis*, Anti-Green Gentrification Toolkit Showcase, Minneapolis, MN. 2020.

- Walker, R. H., B.L. Keeler, M.R. Klein. *Sharing the Benefits of a Greening City*, National Science Policy Symposium, Madison, WI. 2019
- Walker, R. H., B.Z. Houlton, E. Bai, Y.P. Wang. *Accounting for isotopic under-expression increases gaseous nitrogen losses from the terrestrial biosphere* (oral presentation), American Geophysical Union 2018 Fall Meeting, Washington D.C., 2018
- Walker, R. H., B.Z. Houlton, Y.P. Wang. *Estimates of Nitrogen Gas Loss via an Isotopically-Constrained Model*, Geochemical Society Goldschmidt 2017, Paris, IDF France. 2017
- Walker, R. H. and B.Z. Houlton. *Constraining Isotope Effect of Denitrification to Improve Global Models of N Fluxes*, School of Advanced Science on nitrogen cycling, environmental sustainability, and climate change, São Pedro, SP Brazil. 2016
- Walker, R. H., B.Z. Houlton, S. S. Perakis. *Isotopic Expression of Soil Denitrification Across Gradients in Carbon and Nitrogen Availability*, American Geophysical Union 2016 Fall Meeting, San Francisco, CA. 2016
- Walker, R. H., F. H. Damon, J. M. Gruenzewig. *Nature, History, and Nationalism in Israel*. Center for Undergraduate Excellence Research Symposium (invited talk), Charlottesville, VA. 2015
- Walker, R. H., F. H. Damon, J. M. Gruenzewig. *Nature, History, and Nationalism in Israel*. University of Virginia, President's Symposium at Public Day, Charlottesville, VA. 2015
- Walker, R. H., H. E. Epstein, J. McGarvey, A. L. Mills, J. Thompson. *Comparison of soil nitrogen between secondary and old growth forests of the Mid-Atlantic*, American Geophysical Union 2014 Fall Meeting, San Francisco, CA. 2014
- Walker, R. H., H. E. Epstein, J. McGarvey, and A. L. Mills. *Variability in organic horizon nitrogen pools driven by regional-scale factors -- not forest succession*, College Science Scholars 2014 Research Symposium (invited), Charlottesville, VA. 2014
- Walker, R. H., H. E. Epstein, J. McGarvey, and A. L. Mills. *Comparison of soil nitrogen between secondary and old growth forests of the Mid-Atlantic*, Dept. of Environmental Science 2014 Undergraduate Thesis Symposium, Charlottesville, VA.
- Walker, R. H., C. A. Williams, R. G. MacLean, H. E. Epstein, and M. E. Vanderhoof. *Spatial analysis of early successional, temperate forest community structure*, Virginia Energy and Sustainability Conference, Richmond, VA, 2014.

Walker, R. H., C. A. Williams, R. G. MacLean, H. E. Epstein, and M. E. Vanderhoof. *Spatial analysis of early successional, temperate forest community structure*, Dept. of Environmental Sciences Annual Symposium, Charlottesville, VA, 2014.

Walker, R. H., C. A. Williams, R. G. MacLean, H. E. Epstein, and M. E. Vanderhoof. *Spatial analysis of early successional, temperate forest community structure*, American Geophysical Union 2013 Fall Meeting, San Francisco, CA.

Walker, R. H., C. A. Williams, R. G. MacLean, and M. E. Vanderhoof. *Two-dimensional analysis of forest community structure following a disturbance*, 21st annual Harvard Forest Summer Program Research Symposium, Petersham, MA, 2013.

Walker, R. H., H. E. Epstein, and J. McGarvey. *Nitrogen cycling through forest succession -- field and laboratory methodology*, Environmental Science Organization 2012 Research Symposium, Charlottesville, VA.

Walker, R. H., H. E. Epstein, and J. McGarvey. *Comparison of soil nitrogen in secondary and old growth forests of the Mid-Atlantic*, College Science Scholar 2012 Research Symposium, Charlottesville, VA.

COMMUNITY ENGAGEMENT and OUTREACH and MENTORSHIP

Community spatial data analysis for *Parks and Power*. Conduct environmental and spatial data analysis to inform activism around environmental and housing justice in Minneapolis. Jun. 2019 – present.

Organizer with *Science for the People*. Translating scientific research into common language to empower local environmental and social justice movements with scientific data. May. 2019 – present.

Volunteer with the *City of Minneapolis Green Zones Initiative*. The Green Zones Initiative works to advance social and environmental justice for communities of color and indigenous communities in North and South Minneapolis through initiatives to reduce pollution and improve environmental and community health. Nov. 2018 – present.

Docent at the *Sacramento Powerhouse Science Discovery Museum*. Plan and lead outreach programs and science lessons on topics including climate change, natural history, and ecology to students and adults. Aug. 2016 – Aug 2017.

Founding member and Co-Chair UCD chapter of *Girls Outdoor Adventure and Leadership in Science (GOALS)* promoting women in scientific research. Aug. 2017 – June 2018.

Founding member of *Science Informed Leadership*, a graduate student-led effort to promote scientific evidence-based governance in state and federal policy and regulatory issues, particularly in regard to energy and the environment, education, and public health. Jan. 2017– present.

Teacher for the *Insight Garden Program*. Program volunteers facilitate holistic classes in local prisons and mental health facilities on meditation, ecotherapy, organic gardening, and basic work and life skills. July 2016 – Aug 2017.

Volunteer with the *Students for Environmental Education in Davis Schools* organization. Conduct environmental education and outreach programs in Davis public elementary schools. Sept. 2015 – June 2018.

Mentor with the UC Davis chapter of *EnvironMentors*. Program aims to nurture and enhance opportunities in environmental sciences, technology, mathematics, and engineering for underrepresented minority high school students. Graduate student mentors guide high school mentees through a hands-on science research project. Sept. 2015 – June 2018.

Crafting for Conservation, member. A student-run organization aimed at promoting waste reduction through the reuse of waste materials and through educational events. Aug. 2013 – May 2015.

Volunteer with *the Science Fair Mentoring Program* at UVA. Work to help middle school students design, implement, and present original science fair projects to promote interest in science and an understanding of the scientific method. Aug. 2012 - May 2013.

UVa *Environmental Science Organization*. Responsible for organizing lectures, career forums, and social activities in order to promote undergraduate research and fellowship within the department. Aug. 2011 – May 2015

ACADEMIC SERVICE

Co-Chair UMN Ecology, Evolution, and Biology (EEB) Graduate Student Ethics and Aesthetics Committee. Plan seminars, speakers, panels, and student discussions on topics in ethics in careers in science. Aug. 2016 – June 2018.

UMN Council of Graduate Students, EEB representative. Represent the opinions of ecology students to the graduate student governing-body and to university-wide committees. Sept. 2018 – present.

Co-Chair UCD Ecology Graduate Student Association. Provide ecology graduate students with support through administration of professional and social programs and represent the graduate students to university. Aug. 2016 – June 2018.

Chair of the 2015-16 UCD GGE Symposium Committee. Responsible for managing committee activities to prepare for and run the annual Symposium in Ecology. Sept. 2015 – June 2018.

UC Davis Graduate Student Association, Ecology representative. Represent the opinions of ecology students to the graduate student governing-body and to university-wide committees. Sept. 2015 – June 2018.

UVa Student Council's Sustainability Committee. Co-Chair from April 2013 - April 2014. Responsible for planning and managing the committee's activity to promote sustainability on grounds through institutional reform and grassroots student efforts. Sept. 2011 – May 2015.

UVa College Council Research Grant Chair. Responsible for organizing the structure and implementation of the grant program and for heading the recipient selection process. Apr. 2013 – Mar. 2015.

UVa Honor Committee Member. Administered the Honor System at UVa, an entirely student-run judiciary organization. Duties included investigating cases, advising accused students, serving as advocates in Honor trials, and educating the University community about the Honor System. Sept. 2011 – May 2015.

UVa Dept. Of Environmental Sciences Student Representative to the College Council. Responsible for representing the needs of the department to the Council and for organizing educational events to create a sense of unity within the Environmental Sciences Department and within the College of Arts and Sciences as a whole. Sept. 2012 – Mar. 2013.

TEACHING EXPERIENCE

Graduate Student Teacher (primary course instructor, supervised by faculty member) for 'Ecological Implications of Soil Chemistry' (ECL 290), 10 students graduate seminar, led planned and prepared course material and guided group discussions, University of California, Davis, Spring 2017.

Teaching Assistant for 'Global Environmental Interactions' (ESM 120), 140 students in the class, led 5 sections of 20 students each. Led discussion sections on atmosphere and

climate, biogeochemical cycles, geology, and hydrology emphasizing student problem-solving. University of California, Davis, taught Winter 2017 and Winter 2018.

Teaching Assistant for 'Taxonomy and Ecology of Environmental Plant Families' (ENH 105), 80 students in the class, 20 students in lab section. Field-based lab emphasized plant botanical identification and taxonomic classification. University of California, Davis, taught Spring 2016 and Spring 2018.

Teaching Assistant for 'Introduction to Climate Change' (EVSC 1450), 200 students, University of Virginia, Spring 2015.