

140 Gortner Labs
 1479 Gortner Avenue
 St. Paul, MN 55108

johnbenning.net

Education

University of Minnesota - Twin Cities

Ph.D., Plant & Microbial Biology
 Advisor: Dr. David Moeller

2013 - 2019

University of North Carolina at Chapel Hill

B.A. with Distinction, Anthropology
 Minor in Environmental Science and Studies

2006 - 2010

Awards & Fellowships

2018-2019	Philip C. Hamm Scholarship in the Plant Sciences , Univ. of Minnesota President's Student Leadership and Service Award , Univ. of Minnesota Best Student Talk Award , Plant & Microbial Biology Annual Symposium
2017-2018	Bernard and Jean Phinney Graduate Fellowship in Plant Biology , Dept. of Plant & Microbial Biology
2016-2017	Charles J. Brand Fellowship , Univ. of Minnesota
2015-2016	Outstanding Performance Award for Teaching Assistants , Univ. of Minnesota
2013-2014	Graduate Excellence Fellowship , CBS, Univ. of Minnesota

Research Funding

Total: \$40,741

2018-2019	Mini Grant ; UMN Institute on the Environment	\$2,720
2017-2018	Rosemary Grant Advanced Award , Society for the Study of Evolution	\$3,010
2016-2017	NSF Doctoral Dissertation Improvement Grant	\$19,921
2015-2016	Alexander & Lydia Anderson Grant , Univ. of Minnesota	\$2,990
	James J. Wilkie Fund for Natural History , Univ. of Minnesota	\$1,500
	Graduate Student Research Grant , Southern California Botanists	\$1,000
	Thesis Research Travel Grant ; Univ. of Minnesota	\$2,500
2014-2015	Carolyn Crosby Grant , Univ. of Minnesota	\$2,900
	Wallace and Mary Lee Dayton Natural History Grant , Bell Museum	\$1,300
	Rosemary Grant Award , Society for the Study of Evolution	\$2,500
	Doc Burr Grant , California Native Plant Society	\$1,300

Publications

5. **Benning, JW** and Moeller, DA. 2019. Maladaptation beyond a geographic range limit driven by antagonistic and mutualistic biotic interactions across an abiotic gradient. *Evolution*. in press.
4. **Benning, JW**, Eckhart, VM, Geber, MA, and Moeller, DA. 2019. Biotic interactions contribute to the geographic range of an annual plant: herbivory and phenology mediate fitness beyond a range margin. *American Naturalist*, 193:786-797.
3. Hargreaves, AL, Suárez, E, Mehlreter, K, Myers-Smith, I, Vanderplank, SE, Slinn, HL, Vargas, Y, Haeussler, S, David, S, Muñoz, J, Almazán-Núñez, RC, Loughnan, D, **Benning, JW**, Moeller, DA, Brodie, JF, Morales, PA. 2019. Seed predation increases from the Arctic to the Equator and from high to low elevations. *Science Advances*, 5:eaau4403.
2. Bolin, LG*, **Benning, JW**, and Moeller, DA. 2018. Mycorrhizal interactions do not influence plant-herbivore interactions in populations of *Clarkia xantiana* ssp. *xantiana* spanning from center to margin of the geographic range. *Ecology & Evolution*, 8:10743-10753. *Undergraduate mentee
1. **Benning, JW**. 2015. Odd for an ericad: nocturnal pollination of *Lyonia lucida* (Ericaceae). *American Midland Naturalist*, 174:204-218.

Presentations

- “Species interactions and the evolution of geographic range limits in *Clarkia xantiana*.”
Presentation, Annual Meeting of the Ecological Society of America, New Orleans, LA. 8 August 2018.
- “Microbes, lagomorphs, and the geographic range limit of a California endemic wildflower.”
Presentation, Annual Meeting of the Society for the Study of Evolution, Portland, OR. 27 June 2017.
- “Why do species stay still? Range limits in *Clarkia xantiana*.” Presentation, UMN Plant Biological Sciences Seminar, St. Paul, MN. 2 October 2015.
- “Exploring the pollination ecology of a common ericad and its nocturnal visitors.” Poster,
Annual Meeting of the Ecological Society of America, Minneapolis, MN. 9 August 2013.

Outreach, Service, & Professional Development

- **Market Science** - Board Member

marketsci.org

This science outreach initiative engages the public about topical science issues, promotes diversity in STEM fields, and provides interactive science activities for adults and children. Each Saturday from May through October, we work with volunteer graduate students, post-docs, faculty, and agency researchers to lead “science discovery” sessions at farmers markets, fairs, and other informal public venues around Minnesota. We cover a range of topics from photosynthesis to geology and reach more than 5,000 visitors each year. I serve as a project lead, logistical manager, and recruitment coordinator, and am a founding board member.

- **Backyard Science** - Principal Investigator

This recently funded project uses a network of widely distributed “plots” (raised beds) across South Minneapolis to increase urban plant diversity, provide resources for native arthropods, and engage community members in science. The beds will be located on boulevards near households that assist researchers in collecting data on plant growth, phenology, and pollinator visitation. As the number of plots increases, we will use them to answer questions about urban plant adaptation, links between plant diversity and insect diversity, and effects of soil microbial inoculation on plant performance.

- **Wallace Middle School** - Science Mentor

In 2018 I initiated a science outreach program with the Woodrow Wallace Middle School in southern California, where the bulk of my dissertation work occurs. During field work trips, I visit the Environmental Science classroom to introduce them to my research, guide them through laboratory methods, and explore the scientific method. For our first project, we explored leaf microbial endophytes. After an introduction and overview of endophytes, we used actual laboratory methods to culture endophytes from leaves I collected only a few miles from their school. We grew the cultures for a month, and I returned to assay them with the students and subculture them for identification at UMN. My colleagues and I have plans to continue this project as a corollary of our long-term research program in the area.

- **Reviewer for:** PLoS Biology; Global Change Biology; Northeastern Naturalist; Journal of the Torrey Botanical Society; Ecology & Evolution; Journal of Tropical Ecology

Teaching

Guest Lectures

“Biotic interactions and climate change.” Invited lecture, Carleton College. 2 November 2017.

Teaching Assistantships

2014 *General Botany*
2015 *General Botany*
2016 *General Botany*
2017 *Plant, Algal, and Fungal Diversity and Adaptation*

Mentoring

Undergraduates

2015 Soham Shah
UMN CBS Honors Thesis

2016 Lana Bolin
NSF Research Experience for Undergraduates program
Published directed research in *Ecology & Evolution* (Bolin, Benning, and Moeller 2018)
Received Philip C. Hamm Memorial Undergraduate Scholarship

2017 Alexai Faulkner
UMN Undergraduate Research Opportunities Program
Summer field technician

2018 Adam Kostanecki
Summer field technician