

Cooper Kimball-Rhines

Data Science, Genomics, Conservation
PhD Candidate, Environmental Biology

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I study how plants with limited genetic variation adapt to their environment. My research applies genomics and causal statistics to review and inform plant biodiversity policy, especially those related to at-risk species and crop breeding.

Education

Ph.D., Environmental Biology, Sept. 2021-present

University of Massachusetts Boston

NSF Graduate Research Fellow

Dissertation: The Seeds of Restoration: genomics-informed recommendations for pine barren and salt marsh restorations

Committee: Brook Moyers, Mayra C. Vidal, Georgia Mavrommati, Alex Harkess

B.Sc., Microbiology and Immunology, 2021

McGill University, School of Biomedical Sciences

Dean's Multidisciplinary Research List

Thesis: The PFAS package in *enviPath*: a resource for the prediction of AFFF biotransformation

Advisor: Jinxia Liu

Research Grants and Fellowships

2023-2028	NSF Graduate Research Fellowship	\$159,000
2023-2025	Nantucket Biodiversity Initiative Climate Change and Island Resilience	\$5,506
2023-2025	DOE Joint Genome Institute Community Science Program	RNA-seq Services
2023	UMB Transdisciplinary Dissertation Proposal Development Program	\$3,000
2023	UMB Nancy Goranson Endowment Fund	\$735
2022	New England Botanical Society Graduate Student Research Award	\$1,500

Work Experience

Pathways Intern, United States Environmental Protection Agency, Oct. 2021-Aug. 2024

EPA Student Intern of the Year 2023

Enforcement intern, GS4

Region 1 Superfund and Emergency Management Division

Assisted on-scene coordinators in assessing contamination at emergency removals

Roadside Pollinator Assistant, New Hampshire Fish and Game, May-Sept. 2019-2021

Performed monarch butterfly surveys to inform NH DOT policy on habitat management

Planned and performed over 700 annual environmental program surveys

Contributed to ongoing projects supporting three endangered insect species

Educational Experience

Curriculum Maintainer, The Carpentries, Intro to R Geospatial Data, May 2025-present

Instructor, iTCGA Computation for Cancer Genomics Workshop, June 2-20, 2025

Instructor, The Command Line for Genomics Workshop, July 15-17, 2024

Instructor, GIS in R for Casco Bay, Jan. 10-12, 2024

Certified Instructor, The Carpentries, Dec. 2023-present

Teaching Assistant, UMass Boston, Biostatistics and Experimental Design, Sept-Dec. 2023

Invited Workshops

NCEAS Environmental Data Science Summit: AI and Conservation Management, Feb. 4-6, 2025, Santa Barbara, CA

AIBS Policy Communication Bootcamp and Congressional Visits Day, April 28-30, 2025, Washington, DC

Publications In Review

3. Comerford, M., Nash, K., St. Germaine, A., Andrews, C., Barr, T., Dain, J., Gonçalves, A., Jones, A., **Kimball-Rhines, C.**, Maguire, B., Richards, A., Schneider, E., Wilkes, L., Vidal, M. C. Quantitative synthesis of the effects of drought on community composition and species interactions in terrestrial ecosystems. In review, *Oikos*.
2. **Kimball-Rhines, C.**, Taveras-Guzman, S., Kaisla, A., Mello, E., Rojas Ramirez, K., Harkess, A., Moyers, B. The annotated, chromosome-scale *Salicornia depressa* (American pickleweed) genome. In review, *Journal of Heredity*.
1. **Kimball-Rhines, C.**, Moyers, B. Missing the forest for the trees: A review and case study of state conservation law. In review, *Oryx*.

Presentations

9. Poster: **Kimball-Rhines C.**, Moyers B. "Divergence and Diversity Decoupled: A Population Methyloomic Approach." Harvard Plant Biology Initiative Meeting; May, 2025, Boston, MA.
8. Poster: **Kimball-Rhines C.** "Drowning to Diverse: A causal analysis of salt marsh sediment placement." Northeast Estuarine Research Society Meeting; April, 2025, Provincetown, MA.
7. Oral Presentation: **Kimball-Rhines C.**, Palmer A., Harkess A., Guzman-Taveras S., Mello E., Rojas V., Moyers B. "Six Hot Tips learned from assembling a tetraploid halophyte genome." Third Joint Congress on Evolutionary Biology; July, 2024, Montreal, QC, CA.
6. Oral Presentation: **Kimball-Rhines C.**, Palmer A., Moyers B. "Genetics for Marsh Conservation." Nantucket Biodiversity Initiative Meeting; November, 2023, Nantucket, MA.
5. Seminar: **Kimball-Rhines C.**, Palmer A., Moyers B. "Live Demonstration of DNA Sequencing for Marsh Conservation." Nantucket Field Station; August 15, 2023, Nantucket, MA.
4. Poster: **Kimball-Rhines C.**, Moyers B. "One Fish, Two Fish, Sea Fish, Bee Fish: Assessing State-Level Biodiversity Policy." Evolution in Small Population Meeting; July, 2023, Princeton, NJ.
3. Poster: **Kimball-Rhines C.**, Moyers B. "One Fish, Two Fish, Sea Fish, Bee Fish: Assessing State-Level Biodiversity Policy." Society for the Study of Evolution; June, 2023, Albuquerque, NM.
2. Poster: **Kimball-Rhines C.**, Palmer A., Moyers B. "Genome Profiling of *Salicornia depressa*." Ecological Society of America Meeting; August, 2023; Montreal, QC, CA.

1. Lightning Talk: **Kimball-Rhines C.**, “Genome Profiling of *Salicornia depressa*” UMass Boston Earth Day Symposium; March 2022; Boston, MA.

References

Dr. Brook Moyers, Assistant Professor, University of Massachusetts Boston

Ph.D. Advisor, brook.moyers@umb.edu

Stacy Greendlinger, Enforcement Coordinator, U.S. Environmental Protection Agency

Former Supervisor, stacy.greendlinger@epa.gov

Heidi Holman, Wildlife Biologist, New Hampshire Fish and Game

Collaborator and Former Supervisor, heidi.l.holman@wildlife.nh.gov