J Grey Monroe

USDA-NIFA National Needs Fellow
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Graduate Degree Program in Ecology
Colorado State University
Fort Collins, CO 80523

https://greymonroe.github.io

EDUCATION

PhD, Ecology (expected 2019) — Colorado State University, Fort Collins

Advisor: John Mckay
Dissertation: The biology, genetics, and evolution of drought tolerance in plants

BSc Biology, *cum laude* (2012) — Appalachian State University

Advisor: Matt Estep
Concentration: Evolution of centromeres in the *Andropogoneae*

FELLOWSHIPS

USDA-NIFA National Needs Fellowship ($138,000) 2015-2018

Program in Molecular Plant Biology Fellowship, CSU ($39,000) 2014

FUNDING

Doctoral Dissertation Improvement Grant, NSF ($19,760) 2017
Title: The evolution of plant drought tolerance and gene function across historic drought frequency gradients

Evo-Devo-Eco Network Grant, Harvard University ($3,000) 2016
Title: Variation in developmental and physiological responses to a gradient of water availability in *Brachypodium*

AWARDS AND HONORS

Ralph Baker Graduate Student Award for Research Excellence, CSU ($500) 2017

NSF Graduate Research Fellowship (*Honorable Mention*) 2016

Ralph Baker Graduate Student Award for Research Excellence, CSU ($500) 2016

PMPB Research and Scholarly Excellence Award, CSU ($10,000) 2015

NSF Graduate Research Fellowship (*Honorable Mention*) 2015

GDPE Research and Scholarly Excellence Award, CSU ($2,500) 2014

Frontiers and Techniques in Plant Science Workshop Scholarship, Cold Spring Harbor Laboratory ($750) 2014

PUBLICATIONS

Rockenbach K, Havrid JC, **Monroe JG**, Triant DA, Taylor DR, Sloan DB. 2016. Positive Selection in Rapidly Evolving Plastid?Nuclear Enzyme Complexes. *Genetics* 204:1507-1522.

Monroe JG, McGovern C, Lasky J, Beck J, Grogan K, McKay JK. 2016. Adaptation to warmer climates by parallel functional evolution of *CBF* genes in *Arabidopsis thaliana*. *Molecular Ecology* 15:3632-3644.

Mojica JP, Mullen J, Lovell JT, **Monroe JG**, Paul JR Oakley CG, McKay JK. 2016. Genetics of water use physiology in locally adapted *Arabidopsis thaliana*. *Plant Science* 251:12-22.

Zhu M, **Monroe JG**, Suhail Y, Villiers F, Mullen J, Pater D, Hauser F, Jeon BW, Bader JS, Kwak JM, Schroeder JI, McKay JK, Assman SM. 2016. Molecular and Systems Approaches towards Drought-tolerant Canola Crops. *New Phytologist* 210:1169-1189.

PRESENTATIONS

Monroe JG. 2016. Evolution of drought tolerance explored using global drought frequency map (poster). Graduate Student Showcase. Fort Collins, CO.

Monroe JG. 2016. A global map of drought frequency using the Vegetative Health Index (poster). Genomics of Adaptation to Human Contexts. Fort Collins, CO.

Monroe JG. 2016. Adaptation to warmer climates by parallel molecular evolution. Evolution 2016. Austin, TX.

Monroe JG. 2015. Patterns of locally adaptive altered function and divergence in cold response genes along a temperature gradient in Arabidopsis thaliana. Guild of Rocky Mountain Ecologists and Evolutionary Biologists. Boulder, CO.

Monroe JG. 2015. Evolution of the ABA signaling pathway in the Brassicaceae (poster). Evolution 2015. Sao Paolo, Brazil.

Monroe JG. 2015. Adaptation to warmer climates by parallel molecular evolution. Evolution 2016. Austin, TX.

Monroe JG. 2015. Environmental variability and the evolution of locally adaptive drought responses. MicroMOPRH Phenotypic Plasticity Workshop. Harvard Arnold Arboretum. Boston, MA.

Monroe JG. 2015. Teaching plasticity by experiment: "EnvironMentoring" of a high school student (lightening talk) National Evolutionary Synthesis Center Plasticity and Novel Environments Working Group. Durham, NC.

PROFESSIONAL EXPERIENCE

R Developer and Data Analyst, *2016 – 2017* — United States Geological Survey
John Wesley Powell Center for Analysis and Synthesis — Fort Collins, CO

CO-OP in Plant Breeding and Genetics, *2016 – 2017* — Cargill
Specialty Seeds and Oil Innovation Center — Fort Collins, CO

Research Assistant, *2013 – 2014* — Duke University
Herman Staats Lab, Pathology Dept — Durham, NC

TEACHING EXPERIENCE

Assistant Instructor — 2016
Software Carpentry Workshop — Colorado State University

Guest lecturer — 2016
Principles of Data Visualization Using R and ggplot2 — Colorado State University

MENTORSHIP

Julio Flores - awarded college scholarship at competition in Washington D.C. — 2014-2015
Poudre High School

SOFTWARE DEVELOPMENT

J Grey Monroe. genemodel: Gene Model Plotting in R. R package version 1.1.0. https://CRAN.R-project.org/package=genemodel

J Grey Monroe., Zachary Allen, Paul Tanger, Brook Moyers and Jack Mullen (2016). TSPmap: A Method Making Use of Traveling Salesperson Problem Solvers in the Construction of Genetic Linkage Maps. R package version 0.0.0.9000. https://github.com/mckaylab/tspmap