

# J Grey Monroe

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Department of Plant Sciences  
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## EDUCATION

PhD, Ecology 2014 - 2019  
Colorado State University, Fort Collins  
Advisor: John K. McKay  
Dissertation: Causes and consequences of plant climate adaptation

BSc Biology, *cum laude* 2008 - 2012  
Appalachian State University  
Advisor: Matt Estep  
Concentration: Evolution of centromeres in the *Andropogoneae*

## EMPLOYMENT

Assistant Professor of Climate Adaptation and Plant Genomics June 2020  
University of California, Davis  
Department of Plant Sciences, Davis, USA

Post Doctoral Fellow, Advisor - Detlef Weigel 2019  
Max Planck Institute for Developmental Biology  
Department of Molecular Biology - Adaptation to changes, Tübingen, Germany

Data Consultant 2017 - 2019  
New West Genetics, USA  
Max Planck Society, Germany  
United States Geological Survey, USA

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, Durham, NC  
Herman Staats Lab, Pathology Dept

## PUBLICATIONS

### *Published*

Togninalli M, Serren U, Freudenthal JA, **Monroe JG**, Meng D, Nordborg M, Weigel D, Borgwardt K, Korte A, Grimm DG. 2019. AraPheno and the AraGWAS Catalog 2020: A major database update including RNA-Seq and knockout mutation data for *Arabidopsis thaliana*. *Nucleic Acids Research*.

- Mason CM, Lascaleia M, De La Pascual D, **Monroe JG**, Goolsby EW. 2019. Learning from dynamic traits: Seasonal shifts and ecophysiological tradeoffs across scales from macroevolutionary to intra-individual. *International Journal of Plant Sciences*.
- Lawrence C, Beem-Miller J, Hoyt A, **Monroe JG**, 29 others. 2019. An open source database for the synthesis of soil radiocarbon data: ISRaD version 1.0. *Earth System Science Data Discussions*.
- Monroe JG**, Gill B, Turner KT, McKay JK. 2019. Drought regimens predict life history strategies in *Heliophila*. *New Phytologist*. doi.org/10.1111/nph.15919
- Monroe JG**, Powell T, Price N, Howard A, Evans K, Mullen JL, Lovell JT, McKay JK. 2018. Drought adaptation in *Arabidopsis thaliana* by extensive genetic loss-of-function. *eLife*. doi: 10.7554/eLife.41038
- Endriss SB, Vahsen ML, Bitume EV, **Monroe JG**, Turner KG, Norton AP, Hubbauer RA. 2018. The importance of growing up: juvenile environment influences dispersal of individuals and their neighbors. *Ecology Letters*. 22:45-55
- Dittberner H, Korte A, Mettler-Altmann T, Weber A, **Monroe JG**, de Meaux J. 2018. Natural variation in stomata size contributes to the local adaptation of water-use efficiency in *Arabidopsis thaliana*. *Molecular Ecology*. DOI 10.1111/mec.14838.
- Price N, Moyers BT, Lasky JR, **Monroe JG**, Mullen JL, Lopez L, Oakley CG, Lin J, Agren J, Schrider DR, Kern AD, McKay JK. 2018. Combining population genomics and fitness QTL to identify the genetics of local adaptation in *Arabidopsis thaliana*. *Proceedings of the National Academy of Sciences*. 115:5028-5033
- Monroe JG**, Markman DW, Beck WS, Felton AJ, Vahsen ML, Pressler Y. 2018. Eco-evolutionary Dynamics of Carbon Cycling in the Anthropocene. *Trends in Ecology and Evolution*. 33:213-225.
- Monroe JG**, Allen ZA, Tanger P, Mullen JL, Lovell JT, Moyers BT, Whitley D, McKay JK. 2017. *TSPmap*, a tool making use of traveling salesperson problem solvers in the efficient and accurate construction of high-density genetic linkage maps. *BioData Mining*. DOI 10.1186/s13040-017-0158-0.
- 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.

## FELLOWSHIPS

Vice President of Research Fellowship, CSU (\$4,000)	2017 - 2018
USDA-NIFA National Needs Fellowship (\$138,000)	2015 - 2018
Program in Molecular Plant Biology Fellowship, CSU (\$39,000)	2014 - 2015

## GRANTS

Research Mentoring to Advance Inclusivity in STEM, CSU (\$1,160)	2018
Doctoral Dissertation Improvement Grant, NSF (\$19,760) Title: The evolution of plant drought tolerance and gene function across historic drought frequency gradients	2017
Evo-Devo-Eco Network Grant, Harvard University (\$3,000) Title: Variation in developmental and physiological responses to a gradient of water availability in <i>Brachypodium</i>	2016

## AWARDS AND HONORS

Rising Star in Organismal Botany, SICB (\$1250)	2020
Graduate Degree Program in Ecology Travel Award, CSU (\$500)	2018
Graduate Degree Program in Ecology Travel Award, CSU (\$500)	2017
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

## WORKSHOPS, WORKING GROUPS AND TRAINING

Research Intern, Drought Physiology group International Rice Research Institute, Los Banos, Philippines	2018
Genotype × Environment Interactions Workshop, participant Wageningen University, Wageningen, Netherlands	2015
microMORPH Phenotypic Plasticity Workshop, invited participant Harvard University Arnold Arboretum, Boston, MA	2015
Plasticity and Novel Environments Working Group, invited participant National Evolutionary Synthesis Center, Durham, NC	2015
Frontiers and Techniques in Plant Science, invited participant Cold Spring Harbor Laboratory, Cold Spring Harbor, NY	2014

## PRESENTATIONS

Society for Integrative and Comparative Biology Austin, Texas	2020
Climate Summit of Generations Hamburg, Germany	2019
Plant Genome Evolution Sitges, Spain	2019
International Center for Tropical Agriculture Palmira, Colombia	2019
International Plant and Animal Genome Conference San Diego, California	2019
Max Planck Institute of Plant Breeding Cologne, Germany	2018
Department of Biology, University of Cologne Cologne, Germany	2018
Max Planck Institute of Developmental Biology Tubingen, Germany	2018
Lasky Lab, Department of Biology, Pennsylvania State Univeristy State College, PA	2018
Emerging Technologies to Prevent Future Famines Symposium Fort Collins, CO	2018
Breeding and Strategic Innovation Seminar, International Rice Research Institute Los Banos, Philippines	2018
Department of Biology, Australian National University Canberra, Australia	2018
Population Biology Seminar, Duke University Durham, NC	2017
Department of Biology. Appalachian State University Boone, NC	2017
Dupont-Pioneer Drought Tolerance Symyposium Fort Collins, CO	2017
Evolution Portland, OR	2017
Front Range Student Ecology Symposium Fort Collins, CO	2017
Three Minute Thesis Competition Fort Collins, CO.	2017
Graduate Student Showcase	2016

Fort Collins, CO	
Genomics of Adaptation to Human Contexts	2016
Fort Collins, CO	
Evolution	2016
Austin, TX	
Guild of Rocky Mountain Ecologists and Evolutionary Biologists	2015
Boulder, CO	
Evolution	2015
Sao Paulo, Brazil	
MicroMOPRH Phenotypic Plasticity Workshop. Harvard Arnold Arboretum	2015
Boston, MA	
NESCent Plasticity and Novel Environments Working Group	2015
Durham, NC	

## TEACHING

Guest lecturer	
Drought Tolerance Breeding Workshop, CSU	2018
Guest lecturer	
Ecosystem Ecology, CSU	2017
Teaching Assistant	
Molecular and General Genetics, CSU	2017
Assistant Instructor	
Software Carpentry Workshop, CSU	2016
Guest lecturer	
ECOL 592: Principles of Data Visualization Using R and ggplot2, CSU	2016

## MENTORSHIP

Sebastian Vorbrugg - genome graph construction and GWAS	2019
Max Planck Institute for Developmental Biology	
Thanvi Srikant - epigenetic impacts on genetic evolution	2019
Max Planck Institute for Developmental Biology	
Karter Johansen - theoretical population genetics of poly-allelic adaptation	2017
Colorado State University	
Tyler Powell - reverse genetics of adaptive loss-of-function alleles	2017
Colorado State University	
Julio Flores - awarded scholarship for research on plant ecotoxicology	2014 - 2015
Poudre High School	

## ACADEMIC SERVICE

Lecturer: Implicit Bias

CSU Research Mentoring to Advance Inclusiveness in Science 2018

Assistant organizer

BSURE Undergraduate Summer Mentorship Program 2017

Co-organizer

Drought Tolerance in Agriculture and Natural Ecosystems Symposium 2017  
DuPont-Pioneer and Colorado State University

Assistant Organizer

Front Range Student Ecology Symposium 2015, 2017  
Graduate Degree Program in Ecology and Colorado State University

Peer Review

Evolution, New Phytologist, Theoretical and Applied Genetics, Evolutionary Applications, Scientific Reports, PLoS One, Molecular Ecology, Nucleic Acids Research, Plant Cell and Environment, The Plant Journal

## SOFTWARE DEVELOPMENT

**J Grey Monroe.** ISRaD: R package for interacting with International Soil Radiocarbon Database

**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>