J Grey Monroe

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Assistant Professor
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University of California Davis
Department of Plant Sciences
Davis, California

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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   July 2020
University of California, Davis
Department of Plant Sciences, Davis, USA

Post Doctoral Fellow, Advisor - Detlef Weigel   2019-2020
Max Planck Institute for Developmental Biology
Department of Molecular Biology - Adaptation to changes, Tubingen, 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

Pre-Prints

Monroe JG, Cai H, Des Marais DL. 2020. Trait plasticity and covariance along a continuous soil moisture gradient. *bioRxiv.* doi:10.1101/2020.02.17.952853

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 Pascua1 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, Hufbauer 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-Altman 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

Co-PI, Aligning the Food System Symposium, UCD World Food Center ($25,000) 2020
   Title: Catalyzing Adaptive and Resilient Food Systems

PI, Research Mentoring to Advance Inclusivity in STEM, CSU ($1,160)   2018

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

PI, 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

Rising Star in Organismal Botany, SICB	2020
Graduate Degree Program in Ecology Travel Award, CSU	2018
Graduate Degree Program in Ecology Travel Award, CSU	2017
Ralph Baker Graduate Student Award for Research Excellence, CSU	2017
NSF Graduate Research Fellowship Honorable Mention	2016
Ralph Baker Graduate Student Award for Research Excellence, CSU	2016
PMPB Research and Scholarly Excellence Award, CSU	2015
NSF Graduate Research Fellowship Honorable Mention	2015
GDPE Research and Scholarly Excellence Award, CSU	2014
Frontiers and Techniques in Plant Science Workshop Scholarship, Cold Spring Harbor Laboratory	2014

WORKSHOPS, WORKING GROUPS AND TRAINING

Research Intern, Drought Physiology group   2018
   International Rice Research Institute, Los Banos, Philippines

Genotype × Environment Interactions Workshop, participant   2015
   Wageningen University, Wageningen, Netherlands

microMORPH Phenotypic Plasticity Workshop, invited participant   2015

Harvard University Arnold Arboretum, Boston, MA

Plasticity and Novel Environments Working Group, invited participant   2015
National Evolutionary Synthesis Center, Durham, NC

Frontiers and Techniques in Plant Science, invited participant   2014
Cold Spring Harbor Laboratory, Cold Spring Harbor, NY

PRESENTATIONS

Society for Integrative and Comparative Biology   2020
Austin, Texas

Climate Summit of Generations   2019
Hamburg, Germany

Plant Genome Evolution   2019
Sitges, Spain

International Center for Tropical Agriculture   2019
Palmira, Colombia

International Plant and Animal Genome Conference   2019
San Diego, California

Max Planck Institute of Plant Breeding   2018
Cologne, Germany

Department of Biology, University of Cologne   2018
Cologne, Germany

Max Planck Institute of Developmental Biology   2018
Tubingen, Germany

Lasky Lab, Department of Biology, Pennsylvania State Univeristy   2018
State College, PA

Emerging Technologies to Prevent Future Famines Symposium   2018
Fort Collins, CO

Breeding and Strategic Innovation Seminar, International Rice Research Institute 2018
Los Banos, Philippines

Department of Biology, Australian National University   2018
Canberra, Australia

Population Biology Seminar, Duke University   2017
Durham, NC

Department of Biology. Appalachian State University   2017
Boone, NC

Dupont-Pioneer Drought Tolerance Symyposium   2017
Fort Collins, CO

Evolution   2017

Portland, OR

Front Range Student Ecology Symposium	2017
Fort Collins, CO	
Three Minute Thesis Competition	2017
Fort Collins, CO.	
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 Paolo, 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 Enviroment, The Plant Journal, Genes

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