

ROSE A. KEITH

Biology Department ■ St Mary's College of Maryland ■ St Mary's City, MD
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EDUCATION

- 2011-2017 **Duke University**, Durham, NC
Ph.D., Genetics and Genomics
Advisor: Thomas Mitchell-Olds
Genetic constraints the evolution of chemical defenses in multiple tissues of *Boechera stricta*.
- 2007-2011 **Mount Holyoke College**, South Hadley, MA
Bachelor of Arts in Biological Sciences, *summa cum laude*

TEACHING EXPERIENCE

- 2018-2019 **Visiting Assistant Professor**, Biology Department
St. Mary's College of Maryland
Courses:
 - Genetics (co-taught)
 - Evolutionary Genetics of Complex Traits (upcoming)
 - Plants and Food (upcoming)
- 2017-2018 **Visiting Assistant Professor**, Biology Department
Knox College
Courses:
 - Ecology, Evolution and Biodiversity (co-taught)
 - Introduction to Research
 - Plant Physiology and Development
 - Genetics
- 2016 **Instructor of Record**, Genetics of Species Interactions
Duke University
 - An advanced undergraduate seminar, focusing on how the genetics underlying species interactions affect the ecological and evolutionary dynamics of those interactions.
 - Designed a new course in the department
 - Received the Bass Instructional Fellowship as Instructor of Record
- 2017, 2016 **Teaching Assistant**, Evolutionary Genetics
2015, 2014 Duke University
 - A large introductory course, using a flipped classroom format
 - Taught two lab sections
 - Assisted students working on problems during class

TEACHING DEVELOPMENT

- 2015-2016 **Certificate in College Teaching**
The Graduate School, Duke University
- Completed coursework in pedagogy
 - Participated in reciprocal peer teaching observations
- 2015-2016 **Preparing Future Faculty**
The Graduate School, Duke University
- Shadowed a faculty member at Guilford College
 - Attended faculty and committee meetings
 - Observed classes, advising meetings, and other daily activities
- 2014 **An Introduction to Evidence-Based Undergraduate STEM Teaching**
The Center for the Integration of Research and Learning

RESEARCH

- 2011-2017 **Duke University**
Advisor: T. Mitchell-Olds
- Evolution of within-plant variation in defensive compounds in *Boechra stricta*
 - Measuring evolutionary constraints in a common garden experiment
 - GWAS mapping of variation in glucosinolates in fruits
- 2010-2011 **Mount Holyoke College**
Advisor: A. Frary
- Honors thesis: “Occurrence of hybridization in *Quercus* section *Lobatae*: morphological and genetic analysis of local trees”
- 2009 **Kansas State University**
Research Experience for Undergraduates
Supervisor: M. Ungerer
- Microsatellite development and a common garden Qst-Fst experiment in *Helianthus maximilianii*

PUBLICATIONS

Keith, R. and T. Mitchell-Olds. 2017. Testing the optimal defense hypothesis in nature: variation for glucosinolate profile within plants. *PLOS One* 12(7).

Keith, R. and T. Mitchell-Olds. 2013. Genetic variation for resistance to herbivores and plant pathogens; hypotheses, mechanisms, and evolutionary implications. *Plant Pathology* 62:122-132.

Kawakami, T., T.J. Morgan, J.B. Nippert, T.W. Ocheltree, **R. Keith**, P. Dhakal, and M.C. Ungerer. 2011. Natural selection drives clinal life history patterns in the perennial sunflower species, *Helianthus maximiliani*. *Molecular Ecology* 20:2318-2328.

Kawakami, T, P. Dhakal, **R.A. Keith**, N.C. Kane, and M. Ungerer. 2010. Development and characterization of 13 polymorphic EST-SSR loci for the perennial sunflower species, *Helianthus maximiliani*. In: Aurelle et al. 2010. Permanent genetic resources added to the Molecular Ecology Resources Database 1 February 2010-31 March 2010. *Molecular Ecology Resources* 10:751-754.

AWARDS AND FELLOWSHIPS

2016 Teaching Assistant award, Biology Department, Duke University
2016 Bass Instructor of Record Fellowship, the Graduate School, Duke University
2013 Graduate Research Fellowship, honorable mention, National Science Foundation
2012 Graduate Research Fellowship, honorable mention, National Science Foundation
2011-2015 James B. Duke Fellowship, the Graduate School, Duke University

GRANTS

2016 Travel award, Society for the Study of Evolution
2014 Grant-in-aid of Research, Biology Department, Duke University
2014 Doctoral Dissertation Improvement Grant, National Science Foundation
2013 Grant-in-aid of Research, Biology Department, Duke University

PRESENTATIONS AT SCIENTIFIC MEETINGS

2017 Genetic constraints in the evolution of chemical defenses in multiple tissues of *Boechera stricta*
Keith and Mitchell-Olds
Evolution Conference

2016 Natural selection on secondary metabolites changes direction between tissues
Keith and Mitchell-Olds
Evolution Conference

2015 The genetic architecture of tissue-specific defenses in a wild mustard
Keith and Mitchell-Olds
Southern Ecology and Evolution Conference

INTERNAL TALKS

2016 Which part is tastiest? Variation within the plant for defenses against herbivores
Population Biology Seminar, Duke Biology Department

- 2015 Evolution of chemical defenses against herbivores in multiple plant tissues
Duke University Program in Genetics and Genomics, student seminar series
- 2014 The evolution of defenses in multiple plant tissues
Population Biology Seminar, Duke Biology Department
- 2013 Species interactions and the maintenance of genetic variation in *Boechera*
Duke University Program in Genetics and Genomics, student seminar series

PROFESSIONAL ACTIVITIES

- Member** Society for the Study of Evolution
Phi Beta Kappa
Sigma Xi
- Reviewer** Nature
Molecular Ecology
New Phytologist

OUTREACH

- 2016 **Carnivorous Plants**
Duke University
- 2014-2016 **What Is a Scientist?**
Colfax Elementary School, Denver, CO
- 2015 **Local adaptation and constraints: the evolution of tissue-specific defenses against herbivores**
North Carolina School of Science and Mathematics, Durham, NC
- 2014 **Food Fight!**
Lowe's Grove Middle School, Durham, NC
- 2012 **Early childhood college and career awareness**
McGlone Elementary School, Denver, CO
- 2011-2012 **Mentor**
Women and Math Mentoring, Durham, NC