

# Deren A. R. Eaton

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## Current position

*Postdoctoral Researcher*, Yale University, New Haven

## Areas of specialization

Evolution • Ecology • Bioinformatics • Botany

## Appointments held

2004-2005	Research Technician, University of Minnesota
2005-2006	Research Assistant, University of Minnesota
2006-2007	Undergraduate Teaching Assistant, University of Minnesota
2007-2008	Research Fellow, Brown University
2008-2013	Graduate Teaching Assistant, University of Chicago
2014-2015	Postdoctoral Researcher, Yale University

## Education

2007	BSc in Ecology, Evolution and Behavior, University of Minnesota
2007	BSc in Plant Biology, University of Minnesota
2013	PhD in Evolutionary Biology, University of Chicago

## Fellowships, Grants and awards

### FELLOWSHIPS

2010	NSF East Asian Pacific Summer Institutes Fellowship
2011	Lester Armour Graduate Student Fellowship, Field Museum

## GRANTS

2009	Pritzker Laboratory Grant, Field Museum
2011	Hinds Fund Grant, University of Chicago
2011	NSF Doctoral Dissertation Improvement Grant
—	NSF DEB Invited Full Proposal <i>Currently In Review</i>

## AWARDS

2004-2007	Soil, Water, Climate Department scholarship, U Minnesota
2004-2006	College of Agriculture, Food and Environmental Sciences scholarship, U Minnesota
2005-2007	Dean's list scholarship, U Minnesota
2007	Ernst Abbe Award for Plant Biology Majors, U Minnesota
2007	Honors, <i>summa cum laude</i> , U Minnesota
2008	NSF Graduate Research Fellowship, honorable mention
2012	Micromorph workshop travel award, Harvard University
2015	Postdoctoral Scholars Travel Award, Yale University

## Publications and talks

### JOURNAL ARTICLES

2012	<b>Eaton, D.A.R.</b> , Fenster, C.B., Hereford, J., Huang, S-Q. and R.H. Ree (2012). "Floral diversity and community structure in <i>Pedicularis</i> (Orobanchaceae)", <i>Ecology</i> , 93: S182-S194.
2013	Fournier-Level A., Wilczek, A.M., Cooper, M.D., Roe, J.L., Anderson, J.A., <b>Eaton, D.A.R.</b> , Moyers, B.T., Petipas, R.H., Schaeffer, R.N., Pieper, B., Reymond, M., Koorneef, M., Welch, S.M., Remington, D.L. and J.S. Schmitt (2013). "Paths to selection on life-history loci in different natural environments across the native range of <i>Arabidopsis thaliana</i> ". <i>Molecular Ecology</i> , 22: 3552-3566.
2013	Wang, X., Zhao, L., <b>Eaton, D.A.R.</b> and Z. Guo (2013). "Identification of SNP markers for inferring phylogeny in temperate Bamboos (Poaceae: Bambusoideae) using RAD tag sequencing". <i>Molecular Ecology Resources</i> , 13: 938-945.
2013	<b>Eaton, D.A.R.</b> and R.H. Ree (2013). "Inferring Phylogeny and Introgression using genomic RADseq Data: An Example from Flowering Plants ( <i>Pedicularis</i> : Orobanchaceae)". <i>Systematic Biology</i> , 62: 689-706.
2014	Hipp, A., <b>Eaton, D.A.R.</b> , Cavender-Bares, J., Fitzek, E., Nipper, R. and P. Manos (2014). "A framework phylogeny of the New World oak clade based on sequenced RAD data". <i>PLoS ONE</i> 9(4): e93975.
2014	<b>Eaton, D.A.R.</b> (2014). "PyRAD: <i>de novo</i> Assembly of RAD/GBS data for phylogenetic and introgression analyses". <i>Bioinformatics</i> , 30(13): 1844-1849.
2014	<b>Eaton, D.A.R.</b> (2014). "On the Evolutionary Consequences of Interspecific Reproductive Interactions". <i>PhD dissertation</i> .
2014	Escudero, M., <b>Eaton, D.A.R.</b> , Hahn, M. and A. Hipp (2014). "Genotyping-by-sequencing

- as a tool for phylogenetic inference and testing ancestral hybridization: A case study in *Carex* (Cyperaceae)". *Molecular Phylogenetics and Evolution* 79: 359-367.
- 2015 Cavender-Bares, J., Gonzalez-Rodriguez, A., **Eaton, D.A.R.**, Hipp, A., Buelke, A., and P. Manos (2015). "Phylogeny and biogeography of the American live oaks (*Quercus* subsection Virentes): A genomic and population genetic approach". *Molecular Ecology*, 24(14): 3668-3687.
- 2015 **Eaton, D.A.R.**, Hipp, A., Gonzalez-Rodriguez, A. and J. Cavender-Bares (2015). "Historical introgression among the American live oaks and the comparative nature of tests for introgression". *Evolution*. Accepted, In Press.

#### JOURNAL ARTICLES IN PREP

- **Eaton, D.A.R.**, Huang S-Q. and R.H. Ree (In Prep). "Interspecific reproductive character displacement promotes intraspecific floral divergence in a widespread alpine plant species".
- **Eaton, D.A.R.**, Ree, R.H. and S-Q. Huang (In Prep). "Evolutionary constraint and pollen-pistil relationships above and below the species-level in Chinese *Pedicularis*".
- **Eaton, D.A.R.**, Spriggs, E., Park, B. and M.J. Donoghue (In Prep). "Misconceptions on missing data in RADseq phylogenetics with a deep-scale example from flowering plants (*Viburnum*: Adoxaceae)".
- Forsman, Z.H., Knapp, I.S.S., **Eaton, D.A.R.**, Belcaid, M. and R.J. Toonen (In Prep). "Identifying loci from metagenomic RAD seq data; whole mitochondrial genomes, ribosomal genes, and other large contigs from the coral holobiont provides insights into the *Porites lobata/compressa* species complex".

#### POPULAR WRITING

- 2013 Hipp, A.L., Manos, P.S., Cavender-bares, J.C., **Eaton, D.A.R.**, and R. Nipper. "Using Phylogenomics to infer the evolutionary history of Oaks". *The Journal of International Oaks*. International Oak Journal, 24: 61-71.
- 2015 **Eaton, D.A.R.** Personal writing/blog posts at <http://www.dereneaton.com>

#### INVITED TALKS

- 2012 Shangri-la Alpine Botanic Garden, Yunnan, China, S-Q. Huang Lab  
*Floral diversity and phylogenetic community ecology in Pedicularis*
- 2012 University of Illinois at Chicago – EEB Department Seminar  
*Introgression, isolation and interference: reproductive conflict in a diverse clade of flowering plants*
- 2012 Arnold Arboretum, Harvard University – MicroMorph workshop  
*Introgression, isolation and interference: reproductive conflict in a diverse clade of flowering plants*
- 2013 Field Museum – Chicago Plant Sciences Symposium  
*Isolation, introgression and floral divergence in Pedicularis as revealed through genomic*

### *RAD sequences”*

- 2013 Yale University – Donoghue/Near lab Seminar  
*Evolutionary consequences of interspecific reproductive interactions in Pedicularis.*
- 2013 Ernst Mayr Symposium – Evolution meeting, Snowbird, Utah  
*Detecting genomic introgression at the phylogenetic scale*
- 2014 Yale University – EEB Department Seminar  
*Inferring phylogeny and introgression from genomic RADseq data*
- 2015 Hawaii Institute of Marine Biology – Department Seminar  
*Insights from clade-level phylogenomics across evolutionary scales*
- 2015 University of Hawaii at Manoa – EEB Department Seminar  
*Insights from clade-level phylogenomics across evolutionary scales*
- 2015 Harvard University – C. Davis Lab Seminar  
*Insights from clade-level phylogenomics across evolutionary scales*
- 2015 Universidad Nacional Autonoma de Mexico  
*An introduction to RADseq Phylogenomics*
- 2015 American Museum of Natural History – Comparative Biology Seminar  
*Phylogeny, Introgression, and adaption as revealed through genomic RADseq analyses*
- 2015 University of Massachusetts, Amherst – EEB Department Seminar  
*Insights from clade-level phylogenomics across evolutionary scales*

### TALKS AT MEETINGS/CONFERENCES

- 2009 Evolution meeting, Moscow, Idaho
- 2010 Graduate student seminar, University of Chicago
- 2010 Dissertation proposal, University of Chicago
- 2011 Graduate student seminar, University of Chicago
- 2012 Graduate student seminar, University of Chicago
- 2012 Pritzker Laboratory Seminar, Field Museum
- 2012 Evolution meeting, Ottawa, Canada
- 2013 Graduate student seminar, University of Chicago
- 2013 Evolution meeting, Snowbird, Utah
- 2014 Botany meeting, Boise, Idaho
- 2014 Evolution meeting, Raliegh, North Carolina
- 2015 Society for Systematic Biologists stand-alone meeting, Ann Arbor, Michigan
- 2015 Botany meeting, Edmonton, Alberta

### Teaching

- 2007 Teaching Assistant – Introduction to biochemistry, University of Minnesota (A. Hooper)
- 2009 Teaching Assistant – Ecology and evolution of southwest deserts, University of Chicago
- 2009 Teaching Assistant – Field course in desert ecology and evolution, University of Chicago
- 2009 Guest Lecturer – Ecology and evolution of southwest deserts: “plant adaptation and

C<sub>3</sub>/C<sub>4</sub> photosynthesis”. University of Chicago  
 2011 Teaching Assistant – Environmental Ecology, University of Chicago (T. Price)  
 2013 Teaching Assistant – Ecology and evolution of southwest deserts, University of Chicago  
 2015 An Introduction to RADseq Phylogenomics: *pyrad* workshop. Universidad Nacional Autonoma de Mexico.

## Service to the profession

### SCIENTIFIC SOFTWARE (GITHUB.COM/DERENEATON)

2015 *ipyrad* – Python module for interactive RADseq assembly, genomic analyses, and plotting.  
 2015 *simrrels* – Program for simulation of RADseq data with realistic locus dropout.  
 2014 *pyrad* – Program for assembly of RADseq data sets and analyses of introgression.

### OUTREACH

2009-2011 SERTS – Northwestern University  
 Mentored undergraduates in collection-based research at the Field Museum.  
 2012 Featured Scientist for the DNA Discovery Center – Field Museum of Natural History.  
 Talked with visitors and answered questions on the Pritzker Lab Facebook page.  
 2009-2013 Evolutionary Discussion Group Organizer – Field Museum of Natural History  
 Organized an evolution focused journal club for Chicago area researchers.  
 2009-2013 PlantingScience – Botanical Society of America  
 Mentored middle- and high-school students in plant science projects.  
 2013 Undergraduate Research Symposium Judge – University of Chicago  
 2008-2015 Member’s night – Field Museum of Natural History  
 Hosted a booth with videos, photos, and specimens to share collecting and herbarium research with Field Museum members behind the scenes.  
 2015 Yale Data Hack – Team leader and presenter.

### PROFESSIONAL SOCIETIES

Society for Systematic Biologists (SSB)  
 Botanical Society of America (BSA)

### PEER-REVIEW

NSF Department of Environmental Biology (DEB)  
 Proceedings of the National Academy of Sciences  
 Systematic Biology  
 PLOS One

Ecology  
Proceedings of the Royal Society: B  
American Journal of Botany  
Journal of Biogeography  
Molecular Ecology  
Molecular Ecology Resources  
Genome Research  
Methods in Ecology and Evolution  
BMC Research Notes  
Molecular Phylogenetics and Evolution  
Bioinformatics  
Plant species biology  
Heredity

#### MEDIA/PRESS COVERAGE

Yale Forestry Data Hack 2015 – Competition winner: Team flower hacks [\[link\]](#).  
Tale of Two Scientific Fields – Ecology and Phylogenetics – Offers New Views of  
Earth’s Biodiversity. [\[link\]](#).  
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