

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

2004-2006	Research Assistant, University of Minnesota
2006-2007	Undergraduate Teaching Assistant, University of Minnesota
2007-2008	Research Fellow, Brown University
2008-2013	Graduate Research/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 (\$2,000)
2011 Hinds Fund Grant, University of Chicago (\$2,000)
2011 NSF Doctoral Dissertation Improvement Grant (\$15,000)
— NSF DEB Invited Full Proposal *Currently In Review* (\$996,515)

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, *summa cum laude*, 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 **Eaton, D.A.R.**, Fenster, C.B., Hereford, J., Huang, S-Q. and R.H. Ree (2012). "Floral diversity and community structure in *Pedicularis* (Orobanchaceae)", *Ecology*, 93: S182-S194.
- 2013 Fournier-Level A., Wilczek, A.M., Cooper, M.D., Roe, J.L, Anderson, J.A., **Eaton, D.A.R.**, 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 *Arabidopsis thaliana*". *Molecular Ecology*, 22: 3552-3566.
- 2013 Wang, X., Zhao, L., **Eaton, D.A.R.** and Z. Guo (2013). "Identification of SNP markers for inferring phylogeny in temperate Bamboos (Poaceae: Bambusoideae) using RAD tag sequencing". *Molecular Ecology Resources*, 13: 938-945.
- 2013 **Eaton, D.A.R.** and R.H. Ree (2013). "Inferring Phylogeny and Introgression using genomic RADseq Data: An Example from Flowering Plants (*Pedicularis*: Orobanchaceae)". *Systematic Biology*, 62: 689-706.
- 2014 Hipp, A., **Eaton, D.A.R.**, 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". *PLoS ONE* 9(4): e93975.
- 2014 **Eaton, D.A.R.** (2014). "PyRAD: *de novo* Assembly of RAD/GBS data for phylogenetic and introgression analyses". *Bioinformatics*, 30(13): 1844-1849.
- 2014 **Eaton, D.A.R.** (2014). "On the Evolutionary Consequences of Interspecific Reproductive Interactions". *PhD dissertation*.
- 2014 Escudero, M., **Eaton, D.A.R.**, 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). “Parsing metagenomic RAD seq data from a coral holobiont reveals phylogenetic structure in 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 University of Minnesota
Inference of Phylogeny and Introgression Across Evolutionary Scales using RADseq
- 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 Guest Lecturer – Ecology and evolution of southwest deserts: “plant adaptation and C₃/C₄ photosynthesis”. University of Chicago

- 2009 Teaching Assistant – Field course in desert ecology and evolution, 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. Hawaii institute of Marine Biology.
- 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 *simrrls* – 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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