

Wade Roberts

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Research interests

Ecological and evolutionary genomics of species diversity; genetics of flower development; evolutionary-developmental biology; phylogenetics and comparative biology; species boundaries and hybridization; biogeography and conservation

Education

Washington State University, Pullman, WA | Aug 2012 – May 2018

Ph.D., Molecular Plant Sciences

Dissertation title: Evolutionary genomics of flower diversification in the magic flowers (*Achimenes*, Gesneriaceae)

Major supervisor: Dr. Eric H. Roalson

Committee: Drs. Amit Dhingra, Joanna L. Kelley, and Andrew McCubbin

Whitworth University, Spokane, WA | Sep 2007 – May 2012

B.S., Biology

B.A., Art

Advisors: Dr. Lee Anne Chaney and Ms. Katie Creyts

Appointments

Postdoctoral Fellow, University of Arkansas | Jun 2018 – present

PI: Dr. Andrew Alverson, Department of Biological Sciences

Skills + expertise

Research – comparative genomics and transcriptomics, phylogenetic inference, biological network analysis

Computational – R/Python/Perl/Git, genomic data processing, data visualization, parallel computing, multivariate statistics, Bayesian statistics

Management – experimental design, grant application preparation, interdisciplinary collaboration

Laboratory – molecular biology, RNA-seq and DNA-seq library preparation, qPCR, micropropagation and tissue culture, genetic transformation, microscopy, biochemistry

Field – plant identification (Pacific Northwest and Palouse region), fieldwork in floristics, herbarium processing and databasing, greenhouse plant growth and maintenance

Other – K-12 STEM outreach, student education and mentoring, public speaking, scientific writing

Publications

3. **Roberts, W.R.**, and E.H. Roalson. 2018. Phylogenomic analyses reveal extensive gene flow within the magic flowers (*Achimenes*, Gesneriaceae). *American Journal of Botany* in Press.

2. **Roberts, W.R.**, and E.H. Roalson. 2017. Comparative transcriptome analyses of flower development in four species of *Achimenes* (Gesneriaceae). *BMC Genomics*. 18(1): 240. DOI: 10.1186/s12864-017-3623-8

1. Roalson, E.H., and **W.R. Roberts**. 2016. Distinct processes drive diversification in different clades of Gesneriaceae. *Systematic Biology*. 65(4): 662-684. *Cover Image* DOI: 10.1093/sysbio/syw012

Manuscripts in prep

Roberts, W.R., and E.H. Roalson. Co-expression network connectivity is an important determinant of selective constraint during flower diversification in *Achimenes* (Gesneriaceae). (In prep)

Roberts W.R., Crabb J.L., Dhingra A., Roalson E.H. Micropropagation and *Agrobacterium*-mediated genetic transformation of *Achimenes erecta* (Gesneriaceae). (In prep)

Oral presentations

Genomic evidence for gene flow between species of magic flowers (*Achimenes*, Gesneriaceae)

Roberts, W.R., and E.H. Roalson

Evolution, Portland, OR | Jun 2017 (contributed)

Evolutionary genomics in the magic flowers (*Achimenes*, Gesneriaceae)

Roberts, W.R.

Molecular Plant Sciences Seminar, Pullman, WA | Apr 2017 (departmental seminar)

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Oral cont'd

Dissecting floral diversification in the magic flowers (*Achimenes*, Gesneriaceae)
Roberts, W.R., and E.H. Roalson
SBS Graduate Student Symposium, Pullman, WA | Mar 2017 (invited)

Floral diversification in Gesneriaceae: macroevolutionary and genomics approaches
Roberts, W.R.
Molecular Plant Sciences Seminar, Pullman, WA | Oct 2016 (departmental seminar)

Using comparative transcriptomics to understand flower diversification: an example from *Achimenes* (Gesneriaceae)
Roberts, W.R., and E.H. Roalson
SBS Graduate Student Symposium, Pullman, WA | Mar 2016 (invited)

Understanding flower diversification in *Achimenes* (Gesneriaceae) using a comparative transcriptomics approach
Roberts, W.R., and E.H. Roalson
Botany, Edmonton, AB | Jul 2015 (contributed)

Poster presentations

Phylogenomic analyses reveal extensive gene flow within the magic flowers (*Achimenes*, Gesneriaceae)
SBS Graduate Student Symposium, Pullman, WA | Mar 2018
WSU Academic Showcase, Pullman, WA | Mar 2018
WSU Plant Sciences Retreat, Pullman, WA | Mar 2018

Exploring phylogenetic relationships in *Achimenes* (Gesneriaceae) using transcriptome sequencing
SBS Graduate Student Symposium, Pullman, WA | Mar 2017
WSU Plant Sciences Retreat, Pullman, WA | Mar 2017

Using comparative transcriptomics to understand flower diversification: an example from *Achimenes* (Gesneriaceae)
Inland Northwest Genomics Research Symposium, Moscow, ID | May 2016 *Poster award*
WSU Academic Showcase, Pullman, WA | Mar 2016
WSU Plant Sciences Retreat, Pullman, WA | Mar 2016

Understanding flower diversification in *Achimenes* (Gesneriaceae) using a comparative transcriptomics approach
Pan-Am Evo Devo inaugural meeting, Berkeley, CA | Aug 2015

Geographic processes drive diversification in different clades of Gesneriaceae
SBS Graduate Student Symposium, Pullman, WA | Feb 2015
WSU Plant Sciences Retreat, Pullman, WA | Mar 2015

Cloning and evolutionary analyses of *SEPALLATA3* genes from dogwoods – deciphering the genetic links to bract petaloidy
NCSU Undergraduate Summer Research Symposium, Raleigh, NC | July 2011

Grants + awards

NSF Doctoral Dissertation Improvement Grant, Co-PI, (\$19,323) | 2016-2017
Global Plant Sciences Initiative Fellowship, Washington State University (\$10,000) | 2012-2017
Elvin McDonald Research Endowment Fund, The Gesneriad Society, (\$1,750) | 2016
Best Poster Presentation, Inland Northwest Genomics Symposium | 2016
Travel Award, American Society of Plant Taxonomists, (\$300) | 2015
NSF REU Fellow in Synthetic Biology, North Carolina State University (\$5,500) | 2011
Trustee Scholarship, Whitworth University (\$18,000 x4) | 2007-2012

Teaching

Graduate Teaching Assistant, Washington State University | Aug 2013 – current
Biol 332 Systematic Botany (3 semesters)
Biol 120 Introductory Botany (3 semesters)
Biol 106 Introductory Biology: Organismal Biology (5 semesters)

Guest Lecturer, Washington State University
Biol 332 Systematic Botany, “Berberidaceae, Papaveraceae, Saxifragaceae” | Mar 2018

Teaching Assistant / Supplemental Instructor, Whitworth University | Feb 2010 – May 2012
Bio 363 Genetics
Bio 153 Plant Biology (2 semesters)
Bio 141 General Biology I: Organismal Biology

Wade R. Roberts

Experience

Teaching Assistant, School of Biological Sciences, Washington State University | 2013 – current
Instructors: Drs. Lisa Carloye, Asaph Cousins, Hanjo Hellman, Ray Lee, Andrew McCubbin, and Sian Ritchie, Eric Roalson, School of Biological Sciences

Research Assistant, Roalson Lab, Washington State University | Aug 2012 – current
PI: Dr. Eric Roalson, School of Biological Sciences

Fieldwork + Floristics, Hudson Biological Reserve, Washington State University | 2016, 2017
Supervisor: Dr. Eric Roalson, School of Biological Sciences

Greenhouse worker, Biology Department, Whitworth University | Sep 2010 – May 2012
Supervisor: Dr. Lee Anne Chaney, Biology Department

Undergraduate Research Assistant, Whitworth University | Sep – Dec 2011
PI: Dr. Finn Pond, Biology Department

NSF Research Experience for Undergraduates, North Carolina State University | May – Aug 2011
PI: Dr. Jenny Xiang, Department of Plant and Microbial Biology

Service + outreach

Faculty Representative, MPS Graduate Student Organization | April 2016 – May 2018
Co-Lead Organizer, Plant Science Day | Apr 2017
Co-Lead, Palouse Discovery Science Center Committee | Nov 2014 – 2016
Exhibit Leader, Plant Science Day | Apr 2016
Native Plant Guide, Palouse Outdoor Science Day | Apr 2015
Greenhouse Tour Guide, Biology Open House | Oct 2015, Oct 2014

Scientific Peer Review *PhytoKeys, Plant Growth Regulation*

Training

Software Carpentry Workshop, Center for Environmental Research, Education, and Outreach
Washington State University | Aug 2017
Parallel Computing Workshop, Center for Institutional Research Computing
Washington State University | Jun 2017
Grant Writing Workshop, Graduate School
Washington State University | Apr 2013

Honorific names

'Wade Riley', M. Roberts, Tall Bearded Iris, The American Iris Society | 2007

Student mentoring

Graduates
Joseph Kleinkopf (Master's student; Fall 2016 – May 2018)
Nan Zhang (Sep 2017 – May 2018)
Raimundo Luciano Soares Neto (visiting scholar; Jul 2017 – Oct 2017)

Phoenix Conservancy
Mara Huang (fieldwork; May 2017 – Aug 2017)
Connor McLeod (fieldwork; May 2017 – Aug 2017)
Tia Prudholm (fieldwork; May 2017 – Aug 2017)
Bethany Tegt (fieldwork; May 2017 – Aug 2017)

Undergraduates
Julian Bennett-Ponsford (Fall 2015 – Spring 2016)
Becca Saunders (Spring 2016)

Society membership

Botanical Society of America (2012 – current)
The Gesneriad Society (2012 – current)
American Society of Plant Taxonomists (2014 – current)
Society for the Study of Evolution (2014 – current)

Wade R. Roberts

References

Dr. Eric H. Roalson
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Dr. Andrew McCubbin
Associate Professor, School of Biological Sciences
Washington State University
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Phone: 509-335-7916

Dr. Joanna L. Kelley
Assistant Professor, School of Biological Sciences
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