

# Wade Roberts

## Ph.D. Candidate

School of Biological Sciences  
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## Education

Washington State University, Pullman, WA | Aug 2012 – May 2017

Ph.D. in Molecular Plant Sciences

Dissertation title: Evolutionary genomics of flower diversification in *Achimenes* (Gesneriaceae)

Chair: Dr. Eric Roalson

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

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

B.S. with Honors in Biology

B.A. with Honors in Art, sculpture and ceramics

Cumulative GPA: 3.60; Laureate Society

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

## Publications

Roalson E.H., **Roberts W.R.** 2016. Distinct processes drive diversification in different clades of Gesneriaceae. *Systematic Biology*. In press. DOI: 10.1093/sysbio/syw012

**Roberts W.R.**, Roalson E.H. Characterization and comparative analyses of floral transcriptomes in four species of *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)

## Presentations

Using comparative transcriptomics to understand flower diversification: an example from *Achimenes* (Gesneriaceae)

Inland Northwest Genomics Research Symposium, Moscow, ID | May 2016 [poster]

WSU SBS Graduate Student Symposium, Pullman, WA | Mar 2016 [invited talk + poster]

WSU Academic Showcase, Pullman, WA | Mar 2016 [poster]

WSU Plant Sciences Retreat, Pullman, WA | Mar 2016 [poster]

Understanding flower diversification in *Achimenes* (Gesneriaceae) using a comparative transcriptomics approach

Pan-Am Evo Devo, Berkeley, CA | Aug 2015 [poster]

Botany, Edmonton, AB | Jul 2015 [invited talk]

Geographic processes drive diversification in different clades of Gesneriaceae

WSU Plant Sciences Retreat, Pullman, WA | Mar 2015 [poster]

WSU SBS Graduate Student Symposium, Pullman, WA | Feb 2015 [poster]

## Research

**Research Assistant** Roalson Lab, Washington State University | Aug 2012 – Present

PI: Dr. Eric Roalson, School of Biological Sciences

Comparative RNAseq and evolutionary genomics in *Achimenes* (Gesneriaceae)

Developmental genetics and biochemistry of flower color in *Achimenes* (Gesneriaceae)

Phylogenetics, biogeography, and diversification of Gesneriaceae

Global *Carex* Project, contributor

Construction and maintenance of high performance computational server

**Undergraduate Research** Pond Lab, Whitworth University | Sep – Dec 2011

PI: Dr. Finn Pond, Biology Department

Bioinformatics and cloning of putative R-body genes from *Rhodospirillum rubrum*

**NSF REU Fellow** Xiang Lab, North Carolina State University | May – Aug 2011

PI: Dr. Jenny Xiang, Department of Plant and Microbial Biology

Research Experience for Undergraduates Fellowship in Synthetic Biology

Cloning and phylogenetic analysis of *SEP3* genes from dogwood flowers

## Teaching

**Graduate Teaching Assistant** Washington State University | Aug 2013 – Present

Biol 332 Systematic Botany (x2)

Biol 120 Introductory Botany (x2)

Biol 106 Introductory Biology: Organismal Biology (x5)

**Teaching Assistant / Supplemental Instructor** Whitworth University | Feb 2010 – May 2012

Bio 363 Genetics

Bio 153 Plant Biology (x2)

Bio 141 General Biology I: Organismal Biology

## Service + Outreach

**Faculty Representative** MPS Graduate Student Organization | April 2016 – Present

Student liaison for MPS fellows at annual faculty meetings

Voice concerns, suggestions, comments, and grievances to faculty

**Co-Lead** Palouse Discovery Science Center Committee | Nov 2014 – Present

Organize hands-on workshops in plant science and biology for children and families

Creation and implementation of permanent plant biology exhibit

**Exhibit Lead** Plant Science Day | Apr 2016

Organize and lead hands-on exhibits in science and plant biology for children and families

**Native Plant / Greenhouse Guide** Palouse Outdoor Science Day | Oct 2015, Apr 2015, Oct 2014

Organized and lead short hikes for children and families to identify and collect wildflowers

Lead tours of living plant collection at Washington State University

## Freelance

**Consulting**

Derek Denney, Washington State University [genomics, bioinformatics]

## Skills

**Programming**

Languages: proficient in R, Python, Perl, Bash

Operating systems: Unix, Linux, MacOS, Windows

**Bioinformatics and Genomics**

Sequencing platforms: Illumina, Ion Torrent, Roche 454, Sanger

Assembly + Alignment: Trinity, Velvet, Oases, CLC, samtools, BWA, Cufflinks

Analysis: BLAST, Bioconductor, GATK, KEGG, OrthoMCL, WGCNA

Phylogenetics: RAxML, ExaML, MrBayes, BEAST, PAML, HyPhy

Machine learning: clustering, PCA, HMMER

**Molecular Biology**

DNA: extraction, purification, PCR, Southern blotting, cloning

RNA: extraction, purification, cDNA preparation, qPCR, RT-PCR, RNAseq library construction

Culture: bacterial cell culture, plant tissue culture, micropropagation

Biochemistry: HPLC, TLC, pigment extraction and purification

**Data Visualization**

R (ggplot2), Python (matplotlib), Adobe Suite

## Selected Awards

2016 Best Poster presentation, Inland Northwest Genomics Research Symposium

2016 NSF Doctoral Dissertation Improvement Grant (\$19,323)

2016 Elvin McDonald Research Endowment Fund, The Gesneriad Society (\$1,750)

2015 Student Travel Grant, American Society of Plant Taxonomists (\$300)

2012 Global Plant Sciences Initiative Fellowship, Washington State University (\$10,000)

2011 NSF REU Fellowship in Synthetic Biology, North Carolina State University (\$5,000)

2007 Trustee Scholarship, Whitworth University (\$18,000 x4)

## **Memberships**

Botanical Society of America (2012 – present)  
The Gesneriad Society (2012 – present)  
International Society for Computational Biology (2016 – present)  
Pan-American Society for Evolutionary Developmental Biology (2015 – present)

## **Student Mentoring**

### **Undergraduates**

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