

# Wade Roberts

School of Biological Sciences  
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## Education

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

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*. 65(4): 662-684. [Cover Image]

**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

Comparative evolutionary genomics of floral diversification

WSU Molecular Plant Sciences Seminar, Pullman, WA | Oct 2016 [invited talk]

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

Genomics, RNAseq, bioinformatics, and phylogenetics in Gesneriaceae

Molecular systematics, taxonomy, and population genetics in Cyperaceae and Gesneriaceae

Native flora survey, Hudson Biological Reserve, WSU

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 molecular biology in *Rhodospirillum rubrum*

**NSF REU Fellow** Xiang Lab, North Carolina State University | May – Aug 2011  
PI: Dr. Jenny Xiang, Department of Plant and Microbial Biology  
Bioinformatics, phylogenetics, and molecular biology in dogwoods (*Cornus*)

## Teaching

**Graduate Teaching Assistant** Washington State University | Aug 2013 – Present  
Biol 332 Systematic Botany (x2, rating: 4.9 / 5)  
Biol 120 Introductory Botany (x2, rating: 4.8 / 5)  
Biol 106 Introductory Biology: Organismal Biology (x5, rating: 4.7 / 5)

**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  
Organized 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**  
Joshua Brindley, Washington State University [phylogenetics, bioinformatics]  
Derek Denney, Washington State University [genomics, bioinformatics]

## Skills

**Programming**  
Languages: proficient in R, Python, Perl, Bash  
Operating systems: Unix, Linux, MacOS, Windows

**R [very proficient]**  
Scientific: Bioconductor, dplyr, ape, diversitree  
Visualization: ggplot2

**Python [proficient]**  
Scientific: SciPy, Pandas, NumPy, scikit-learn, biopython, snakemake  
Visualization: matplotlib  
Web: Django

**Bioinformatics and Genomics [extremely proficient]**  
Analysis: BLAST, GATK, KEGG, OrthoMCL, WGCNA  
Assembly + Alignment: Trinity, Velvet, Oases, CLC, samtools, BWA, Cufflinks  
Phylogenetics: RAxML, MrBayes, BEAST, PAML, HyPhy  
Sequencing platforms: Illumina, Roche 454, Sanger

**Molecular Biology [very proficient]**  
Biochemistry: HPLC, TLC  
Culture: bacterial cell culture, plant tissue culture, micropropagation  
DNA: extraction + purification, PCR, Southern blotting, cloning  
RNA: extraction + purification, cDNA preparation, qPCR, RT-PCR, RNAseq library construction

### **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)