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

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

Undergraduate

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