Wade Roberts

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wrroberts.github.io

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

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
RNAseq and genomics – library prep, bioinformatics and computational biology for assembly, analysis, and statistics using R, Bioconductor, Python, Perl, and Bash programs
Phylogenetics – data mining GenBank, sequence alignment, phylogenetic inference, predictive modeling using maximum likelihood and Bayesian inference in R and Bash
Taxonomy – query literature data, field collection, and identification of native flora
Computational – construction and maintenance of high performance computational server used for local genomics and phylogenetics applications

Undergraduate Research Pond Lab, Whitworth University | Sep – Dec 2011
PI: Dr. Finn Pond, Biology Department
Bioinformatics – data mining GenBank, sequence alignment, primer design
Molecular biology – cloning and sequencing

NSF REU Fellow Xiang Lab, North Carolina State University | May – Aug 2011
PI: Dr. Jenny Xiang, Department of Plant and Microbial Biology
Bioinformatics – data mining GenBank, sequence alignment, primer design, maximum likelihood phylogenetic inference
Molecular biology – cloning and sequencing

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

Projects

TACOCAT – **T**rim **A**nd **CO**nstruct **C**ombined **A**ssembly **T**ranscriptome
http://github.com/wrroberts/TACOCAT
Wrote a pipeline using Python and Bash that allows users to supply raw fastq files to create a de novo reference assembly using multiple assemblers

Rosalind
http://github.com/wrroberts/Rosalind
Wrote solutions using Python and R to various bioinformatics problems in combinatorics, graphs, assembly, phylogeny, and alignment

Skills

Programming
Proficient in R, Python, Bash
Exposure to Perl

R
Experience using: Bioconductor, dplyr, ape, diversitree, ggplot

Python
Experience using: SciPy, Pandas, NumPy, scikit-learn, biopython, snakemake, matplotlib

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]

Student Mentoring

Undergraduates

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

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)