Christopher D. Muir - Quantitative Plant Scientist

302-1718 Venables St
Vancouver, BC V5L 2H4
778-228-4851 (Canada)
chrisdmuir@gmail.com

PROFILE

I am a quantitative plant scientist specializing in biostatistics, plant physiology, and evolution. I have worked in academics and as a statistical consultant. Now I am seeking to leverage my scientific knowledge and passion for the environment to make agriculture more sustainable through research and development. My statistical expertise, domain knowledge in plant science, and strong work ethic will enable me quickly and effectively find creative solutions to challenging problems. In short, I am a:

- Creative, quantitative plant biologist with 11 years of research experience in academia and consulting;
- Expert data analyst with 12 years experience using R;
- Productive scientist with $300,000 in extramural grants/fellowships and 14 peer-reviewed publications.
- U.S. citizen and Virginia native without need for sponsorship

EDUCATION

Indiana University, Bloomington, IN Ph.D. in Evolutionary Biology, 2013
Dissertation title: Ecophysiology and genetics of phenotypic diversification in *Solanum*
Advisor: Dr. Leonie C. Moyle

College of William & Mary, Williamsburg, VA B.S. in Biology ***magna cum laude*****, 2006**
Honors thesis advisor: Dr. George W. Gilchrist

EMPLOYMENT

Computational Biologist, Poisson Consulting, Ltd. 2017-present
I analyze large biological datasets for industrial and government clients using Bayesian (JAGS/Stan) and maximum likelihood (TMB/ADMB) methods in R. I clean, tidy, analyze, and visualize data to unpack complex biological datasets. I also develop open-source R packages to make more efficient workflows for data analysis.

Postdoctoral Researcher, University of British Columbia 2013-2017
My research uses physiological approaches to study whether plants will adapt to climate change. I independently conceived of important unanswered questions in biology. To address these questions, I analyze mathematical models, design and execute scientific

experiments to test theory, and use advanced computational approaches to integrate theory with large datasets. I conduct physiological experiments in both the greenhouse and in the field. I use statistical and mathematical software, especially R and Mathematica, extensively throughout this work.

Teaching Assistant, Indiana University 2008-9
I assisted undergraduate ecology and evolution classes by leading discussion sections and giving lectures to hundreds of students.

Postbaccalaureate Scholar, Brown University 2006-7
I managed a field site in Germany as part of a large international experiment on the molecular, genetic, and development bases of adaptation to climate. I was primarily responsible for all maintenance and data collection at my site. This project has resulted in numerous peer-reviewed publications appearing in journals such as *Science*.

SKILLS

- Conceiving, designing, and executing scientific research
- Extensive expertise with complex data analysis for basic and applied research using frequentist, likelihood, and Bayesian statistical approaches
- Expert plant physiologist and ecologist, especially quantifying genetic variation in photosynthesis, anatomy, growth, yield, and other traits in the greenhouse and field
- Experience using a broad range of analytical methods for fitting generalized (non-)linear mixed-models using maximum likelihood and Bayesian methods in R (lme4, TMB/ADMB, MCMCglmm, JAGS, and Stan)
- Statistical Software: R (expert, 12 years experience); Matlab and Mathematica (proficient); Python, Perl, Ruby, and Java (familiar). I have written many custom scripts to handle and automate analysis and visualization of large datasets.
- Other Software Expertise: LaTeX, SQLite, Microsoft Office Suite, Git, Adobe Creative Cloud
- Excellent oral and written communication skills including 17 invited seminars, 11 conference presentations, and 14 peer-reviewed scientific publications
- Mentored eleven undergraduate work-learn students
- Active, engaged, and collegial member of my workplace

GRANTS, FELLOWSHIPS & AWARDS

- Society for the Study of Evolution Symposium ($9000)
- Biodiversity Postdoctoral Fellowship (UBC, $100,000)
- Adaptation to Changing Environments Fellowship (ETH, $300,000, declined)
- Payne Dissertation Year Fellowship (IU, $20,000)

- Evo-Devo-Eco Network Research Exchange Experience ($3000)
- Rosemary Grant Award from the Society for the Study of Evolution ($2450)
- NSF Graduate Research Fellowship ($120,000)
- Charles B. Heiser Graduate Fellowship in Plant Evolution (IU, $1000)
- Indiana University Fellowship ($20,000)
- METACYT Fellowship (IU, $20,000)
- Society for Systematic Biology Graduate Research Award ($1650)

PUBLICATIONS

Author of 14 peer-reviewed publications from 2009-2017 in prestigious journals such as *Science, Proceedings of the Royal Society,* and *New Phytologist.* Please see my Google Scholar profile (www.goo.gl/ULzn3f) for a complete publication record.

PRESENTATIONS

17 invited seminar presentations at major universities from 2012-17 (British Columbia, Simon Fraser, Arizona, Arkansas, California, ETH Zürich, Harvard, Michigan State, Pittsburgh, Purdue, Rice, Texas, Virginia, Virginia Tech, Wyoming)

11 international conference presentations between 2012-16 including *Evolution* and *Botany* conferences