

Sarah B. Carey

Curriculum vitae

Department of Biology
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Education

Expected 2020 **University of Florida, Gainesville, Florida**
Ph.D., Botany

2014 **University of Florida, Gainesville, Florida**
B.S., Biology, *Summa cum laude*

2012 **Saint Johns River State College, St. Augustine, Florida**
A.A., *Summa cum laude*

Research Experience

2014-present **Doctoral Research, University of Florida**
Advisor: Stuart McDaniel
Dissertation topic: *Sex chromosome evolution and sex-biased processes in mosses*

- Transcriptomics, comparative genomics, phylogenomics

2016-present **Research Assistant, University of Florida**
Genealogy of Flagellate Plants Project
Advisors: J. Gordon Burleigh, Emily Sessa, Stuart McDaniel, and E. Christine Davis

- Molecular lab work, phylogenomics

2013-2014 **Undergraduate Research Assistant, University of Florida**
Advisor: Stuart McDaniel

- Sterile-tissue culture, molecular lab work

2011-2012 **Chemistry Lab Assistant, Saint Johns River State College**
Advisor: Nell Freeman

- Maintain lab inventory, prep chemicals

Publications

Pereira, M.R., P.E.A.S. Câmara, B.S. Amorim, S.F. McDaniel, A.C. Payton, **S.B. Carey**, A.M. Sierra, and C.E. Zartman. Advances in Calymperaceae (Dicranidae, Bryophyta): Phylogeny, divergence times and pantropical promiscuity. *The Bryologist* 122, (2), 183-196. 2019

Lewis, L.R., E.M. Biersma, **S.B. Carey**, K. Holsinger, S.F. McDaniel, R. Rozzi, B. Goffinet. Resolving the northern hemisphere source region for the long-distance dispersal event that gave rise to the South American endemic dung moss *Tetraplodon fuegianus*. *American Journal of Botany* 104 (11), 1651-1659. 2017

Carey, S.B., A.C. Payton, and S.F. McDaniel. A method for eliminating bacterial contamination from in vitro moss cultures. *Applications in Plant Sciences* 3(1):1400086. 2015
doi:/10.3732/apps.1400086

Publications in Progress

Shortlidge, E.E., S.F. McDaniel, **S.B. Carey**, A.C. Payton, T.N. Rosenstiel, S.M. Epply. Microarthropods increase fitness and promote sexual selection in the moss *Ceratodon purpureus*. *Submitted*

Valle, N., P. Anonenko, L. Endara, E.C. Davis, G. Somarriba, E. Sessa, F. Luo, **S. Carey**, S. Dogan, G. Burleigh, M. von Konrat and S. McDaniel. Inquiry learning, storytelling or community science? Exploring affective outcomes and the role of gender in online botany learning. *Submitted*

Carey, S.B., M.G. Johnson, A.C. Payton, J.G. Burleigh, S. Rensing, F. Maumus, N.F. Pozo, G. Tiley, N. Wickett, S. Olsen, S. Huttunen, L.M. Kollar, R. Conrad, J. McBreen, K. Barry, S. Shu, J. Grimwood, J. Jenkins, J. Schmutz, S.F. McDaniel, et al. The *Ceratodon purpureus* genome uncovers ancient but highly dynamic bryophyte sex chromosomes. *In prep*

McDaniel, S.F., A.C. Payton, **S.B. Carey**. Sexual selection drives local adaptation in male maturation rate in a moss. *In prep*

Nieto-Luilde, M., O. Werner, **S.B. Carey**, S.F. McDaniel, R.M. Ros. Testing the evolutionary history of the mosses *Ceratodon amazonum*, *C. purpureus*, and recombinant *C. x conicus*. *In prep*

Breinholt, J., G. Tiley, **S.B. Carey**, L. Neves, E.C. Davis, E. Sessa, S.F. McDaniel, J.G. Burleigh. A targeted sequence capture approach for the flagellate plant phylogeny. *In prep*

Grants Awarded

2018	Botanical Society of America Genetics Section Student Award (\$1000)
2016	Sigma Xi Grant-In-Aid of Research (\$1000)
2015	Society for the Study of Evolution Rosemary Grant Award (\$2500)
2015	microMORPH Cross-Disciplinary Training Grant (\$3254)
2015	Mildred Mason Griffith Botany Grant, UF (\$1000)

Honors and Awards

2018	Best talk iMoss Meeting, St. Petersburg, FL
2016	NSF GRFP Honorable Mention
2015	Runner-up best graduate student talk, South Eastern Population Ecology and Evolutionary Genetics Meeting, Eaton, GA
2014	Runner-up best talk, UF URAP, Gainesville, FL
2012	Saint Johns River State College Hall of Fame
2012	Dr. Gary B. Lott Memorial Scholarship (\$750)

Travel Funding

2018	Wellcome Genome Campus 30 Year Anniversary Award (\$300)
2017	International Botanical Congress Outstanding Student Award (\$300)
2017	Botanical Society of America IBC Travel Award (\$2400)

- 2016 UF Graduate Student Council Travel Grant (\$350)
 2016 UF College of Liberal Arts and Sciences Travel Award (\$200)

Invited Conference Presentations

- 2019 *Phylogenomic analyses uncover ancient but highly dynamic moss sex chromosomes*. Plant and Animal Genome Conference. San Diego, CA
 2017 *An ancient UV sex chromosome system in mosses*. International Botanical Congress. Shenzhen, China

Meeting Oral Presentations

- 2019 *An ancient, dynamic sex chromosome system in plants*. UF HiPerGator Symposium
 2019 *Genomic consequences of UV sex chromosomes*. Botany Conference. Tucson, AZ
 2019 *Genomic consequences of UV sex chromosomes*. Evolution Meeting. Providence, RI
 2018 *Genome analysis in a polymorphic moss with large, ancient sex chromosomes*. Genome Informatics. Hinxton, UK
 2018 *Ancient sex chromosomes in plants*. Botany Conference. Rochester, MN
 2018 *Ancient sex chromosomes in bryophytes*. iMoss Meeting, St. Petersburg, FL
 2017 *An ancient UV sex chromosome system in mosses*. Evolution Meeting. Portland, OR
 2016 *Sex-biased gene expression in 6 day old *Ceratodon purpureus**. South Eastern Population Ecology and Evolutionary Genetics Meeting. Madison, FL
 2016 *Using a SNP-corrected genome-guided approach to infer transcriptional dimorphism in *Ceratodon purpureus**. Evolution Meeting. Austin, TX
 2016 *Transcriptional dimorphism in juvenile tissue of the moss *Ceratodon purpureus**. UF Plant Molecular and Cellular Biology Meeting. Daytona, FL
 2015 *The genetic basis of spore production in the moss *Ceratodon purpureus**. South Eastern Population Ecology and Evolutionary Genetics Meeting. Eaton, GA
 2014 *A method for eliminating bacterial contamination from in vitro moss cultures*. UF URAP. Gainesville, FL

Meeting Poster Presentations

- 2019 *Near universal sex-linked marker in mosses*. Botany Conference. Tucson, AZ
 2019 *Transcriptional dimorphism driven by large sex chromosomes in fire moss*. Evolution Meeting. Providence, RI
 2017 *An ancient UV sex chromosome system in mosses*. Evolution Meeting. Portland, OR
 2014 *A method for eliminating bacterial contamination from in vitro moss cultures*. UF Undergraduate Research Symposium Poster Session
 2013 *A method for eliminating bacterial contamination from in vitro moss cultures*. UF Chemistry Department Alumni Weekend Poster Session

Teaching Experience

Teaching Assistant

Fall semesters 2015-present

Introductory Botany

- Wrote three labs for doing semester-long growth experiments in mosses (1. Setting up experiments, 2. Image analyses using ImageJ, 3. Statistical analyses using R)
- Wrote a lab to learn mitosis and meiosis

Spring semesters 2015-present

Plant Diversity

- Edited lab manual, developed new questions

Fall 2014, Summer 2015

Principles of Biology II Lab

Non-refereed Publications

F.E. Putz, E.C. Davis, and **S.B. Carey**. University of Florida Introductory Botany Laboratory Manual. 2016-2019.

G. Ionta, M. Blanco, B. Knorr, S. Allen, **S. Carey**, and S. McDaniel. University of Florida Plant Diversity Lab Manual. 2016-2018.

Guest Lectures

2019 **Orthofinder**. Bioinformatic Users Group Series. Texas Tech University. Lubbock, TX

2018 **Genetic Frontiers**. Introductory Botany. University of Florida

Mentoring

Undergraduates

2016-present

Wes Burcher. *Sexual dimorphism in juvenile tissue across mosses*

- Now lab assistant in McDaniel lab

2018-2019

Tikahari Khanal. *Mapping improvement in polymorphic *Ceratodon purpureus**

- REU recipient

2016-2019

Emily Lockwood. *Species-level phylogeny of *Equisetum**

- UF University Scholars Program recipient
- Now Master's Student, UF

Summer 2018

Joan Glenny-Pescov. *Sex-biased gene expression in *Ceratodon purpureus**

- UF Summer Undergraduate Research Fellow visiting from Florida International University

Summer 2018

Jordan McBreen. *Tissue perturbations and RNA extractions for *Ceratodon purpureus* genome annotation*

- Now PhD student, UF

2017-2018

Kaylee Hoffman. *Trained on molecular lab techniques*

2017-2018

Kristen Gaines. *Testing a near-universal sex-linked marker in mosses*

2015-2016

Marna List. *Evaluating methods for growth analyses in mosses*

- UF University Scholars Program recipient
- Now UF Medical Honors Student

2014-2016 **Roth Conrad.** *Transcriptomic analyses in Ceratodon purpureus*

- UF University Scholars Program recipient
- Now PhD Candidate, Georgia Tech

Academic Service and Outreach

Summer 2019	Co-organizer Population Biology Summer Seminar Series
2016	Invited scientist at <i>She's a Scientist!</i> , FL Museum of Natural History
2015-2018	UF Biology Department URAP Committee
2015-2016	Organizer of Art of Biology Art Exhibition, UF Dept. of Biology
2015-2016	UF Biology Department Awards Committee
2014, 2019	Poster judge, UF Biology Department URAP Symposium
2014-2016	Graduate Student Advisor, GROW Botany
2013, 2014	Undergraduate Researcher Panelist, UF FYI Biology
2013-2014	Vice-President & Founding Member, GROW Botany (Recipients of Champions for Change Award, Campus Organization of the Year)
2013-2014	Vice-President, Botanical Society of America UF Student Chapter

Professional Affiliations

2015-present	Society for the Study of Evolution
2013-present	Botanical Society of America

Additional Roles

Manage the lab's research computing account
Maintain the lab's genome/transcriptome lines