STUART F. MCDANIEL, PHD

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PROFESSIONAL EXPERIENCE

Assistant Professor, Biology Department, University of Florida, 2009 - present

Postdoctoral Research Fellow, Washington University, 2005 - 2009

Research Associate, Missouri Botanical Garden, 2005-present

Teaching Assistant, Biology Department, Duke University, 1998-2005

Agroforester, Peace Corps Paraguay, 1994-1996

EDUCATION AND FELLOWSHIPS

NIH National Research Service Award Postdoctoral Fellowship, 2005-2008, "The molecular basis of reproductive isolation" Sponsors: Ralph S. Quatrano, James M. Cheverud

Postdoctoral support, 2005, MORPH Evolution of plant development NSF-RCN administered by William Friedman

PhD, Duke University, 2005 (Botany) "The genetics of population divergence in *Ceratodon purpureus*" Advisors: A. Jonathan Shaw and John H. Willis

A. W. Mellon Plant Systematics Graduate Fellow, Duke University, 1999-2005

Intern, Biological Survey, New York State Museum, 1997-1998, Mentor: Norton G. Miller

BA, Oberlin College, 1994 (Biology) Advisor: David H. Benzing

NSF-REU Fellowship, Mountain Lake Biological Station, 1993, Advisors: Henry M. Wilbur and Miles Silman.

PUBLICATIONS (undergraduate or *graduate student work supervised by SFM)

McDaniel, SF, C Henriquez, AP Powell, GT Gennis, EY Walker, KS Jones, and AC Payton. Male-driven local adaptation in *Ceratodon purpureus. Submitted to* ***Evolution****.*

Magdy, M, O Werner, **SF McDaniel,** B Goffinet, RM Ros. 2015. A genomic scanning using AFLP to detect loci under selection in the moss *Funaria hygrometrica* along a climatic gradient in Sierra Nevada Mountains (Spain). ***Plant Biology***, in press.

*Neubig, KM, OJ Blanchard, WM Whitten, and **SF McDaniel**. 2015. Molecular phylogenetics of *Kosteletzkya* (Malvaceae, Hibisceae) reveals multiple independent and successive polyploid speciation events. ***Botanical Journal of the Linnean Society***, in press.

Carey, SB, AC Payton, and **SF McDaniel**. A method for eliminating bacterial contamination from in vitro moss cultures. 2015. ***Applications in Plant Science*** 3: 1400086.

Szövenyi, P, AC Cuming, RS Quatrano, P-F Perroud, SA Rensing, S Stevenson, K Symeonidi, and **SF McDaniel**. 2015. De novo assembly and comparative analysis of the *Ceratodon purpureus* transcriptome. ***Molecular Ecology Resources*** DOI: 10.1111/1755-0998.12284

Laenen B, B Shaw, H Schneider, B Goffinet, E Paradis, A Désamoré, J Heinrichs , JC Villarreal, SR Gradstein, **SF McDaniel**, D Long, L Forrest, M Hollingsworth, B Crandall-Stotler, EC Davis, J Engel, M VonKonrat, ED Cooper, J Patiño, A Vanderpoorten, and AJ Shaw. 2014. Extant diversity of bryophytes emerged from successive post-Mesozoic diversification bursts. ***Nature Communications*** 5: 5134.

TE Norrell, KS Jones, AC Payton, and **SF McDaniel**. 2014. Meiotic sex ratio variation in natural populations of *Ceratodon purpureus.* ***American Journal of Botany*** 101:1572-1576.

Beike, A, M von Stackleberg, S Hanke, M Follo, D Quandt, **SF McDaniel**, R Reski, B Tan, J-P Frahm, and SA Rensing. 2014. *Physcomitrella patens* should be *Physcomitrium patens*: molecular evidence for parapatric, resp. sympatric speciation through allopolyploidization, within the Physcomitrium-Physcomitrella species complex. ***BMC Evolutionary Biology*** 14: 158

Szövényi, P, N Devos, DJ Weston, X Yang, Z Hock, AJ Shaw, KK Shimizu, **SF McDaniel**, A Wagner. 2014. Efficient purging of deleterious mutations in plants with haploid selfing. ***Genome Biology and Evolution*** 6: 1238-1252.

McDaniel, SF, ***KM Neubig, AC Payton, RS Quatrano, and DJ Cove. 2013.** Recent gene capture on the UV sex chromosomes of the moss *Ceratodon purpureus.* ***Evolution*** 67: 2811-2822

McDaniel, SF, MJ van Baren, KS Jones, AC Payton, and RS Quatrano. Estimating the nucleotide diversity in *Ceratodon purpureus* (Hedw.) Brid. from 208 conserved intron-spanning nuclear loci. ***Applications in Plant Sciences*** doi:10.3732/apps.1200387

McDaniel, SF, J Atwood, and JG Burleigh. 2013. Recurrent evolution of dioecy in bryophytes. ***Evolution*** 67: 567-572.

Stech, M, **SF McDaniel,** R Hernández-Maqueda, RM Ros, O Werner, J Muñoz, and D Quandt. 2012. Phylogeny of haplolepideous mosses – challenges and perspectives. ***Journal of Bryology*** 34: 173-186.

McDaniel, SF and P-F Perroud. 2012. Invited perspective: Bryophytes as models for understanding the evolution of sexual systems. ***Bryologist*** 115:1-11.

Bachtrog, D, M Kirkpatrick, J Mank, **SF McDaniel**, JC Pires, W Rice, N Valenzuela. 2011. Are all sex chromosomes created equal? ***Trends in Genetics*** 27: 350-357.

Perroud, P-F, DJ Cove, RS Quatrano, and **SF McDaniel**. 2011. An experimental method to facilitate the identification of hybrid sporophytes in the moss *Physcomitrella patens* using fluorescent tagged lines. ***New Phytologist*** 191: 301-306 (cover photo).

McDaniel, SF, M von Stackelberg, S. Richardt, R Reski, RS Quatrano and SA Rensing. 2010. The speciation history of the *Physcomitrella – Physcomitrium* complex, ***Evolution*** 64: 217-231.

---------- *Fall 2009 joined UF Biology* ----------

Cove, DJ, P-F Perroud, AJ Charron, **SF McDaniel**, A Khandelwal and RS Quatrano. 2009. The moss *Physcomitrella patens*: a novel model system for plant development and genomic studies, in Emerging Model Organisms, Cold Spring Harbor Laboratory Press, NY.

McDaniel, SF. 2009. The genetic basis of natural variation in bryophyte model systems, in The Moss *Physcomitrella*, eds. Knight, C, P-F Perroud, and DJ Cove. Blackwell Publishing, London. Pp 16-41.

Hoang, QT, SH Cho, **SF McDaniel**, RS Quatrano, and JS Shin. 2009. An actinoporin plays a key role in drought tolerance in *Physcomitrella patens*, ***New Phytologist*** 184: 502-510.

McDaniel, SF, JH Willis, and AJ Shaw. 2008. The genetic basis of abnormal development in interpopulation hybrids of the moss *Ceratodon purpureus*. ***Genetics*** 179: 1425-1435.

Quatrano, RS, **SF McDaniel**, A Kandelwhal, P-F Perroud, and DJ Cove. 2007. *Physcomitrella patens*: mosses enter the genomics age. ***Current Opinion in Plant Biology*** 10: 1-8.

McDaniel, SF, JH Willis, and AJ Shaw. 2007. A linkage map reveals a complex basis for segregation distortion in an interpopulation cross in the moss *Ceratodon purpureus*. ***Genetics*** 176: 2489-2500.

Zartman, CE, **SF McDaniel**, and AJ Shaw. 2006. Experimental habitat fragmentation alters linkage disequilibrium but does not affect genetic diversity or population structure in the Amazonian liverwort *Radula flaccida*. ***Molecular Ecology*** 15: 2305-2315.

McDaniel, SF. 2005. Genetic correlations do not constrain the evolution of sexual dimorphism in the moss *Ceratodon purpureus*. ***Evolution*** 59: 2353-2361.

McDaniel, SF and AJ Shaw. 2005. Selective sweeps and intercontinental migration in the cosmopolitan moss *Ceratodon purpureus*, (Hedw.) Brid. ***Molecular Ecology*** 14: 1121-1132.

Miller, NG and **SF McDaniel**. 2004. Bryophyte dispersal capabilities inferred from colonization of an introduced substrate on Whiteface Mountain, New York. ***American Journal of Botany*** 91: 1173-1182. (cover photo)

McDaniel, SF and AJ Shaw. 2003. Phylogeographic structure and cryptic speciation in the trans-Antarctic moss *Pyrrhobryum mnioides*. ***Evolution*** 57: 205-215.

Shaw, AJ, **SF McDaniel**, O Werner, and RM Ros. 2002. New frontiers in bryology and lichenology: phylogeography and phylodemography. ***Bryologist*** 105: 373-383.

McDaniel, SF and NG Miller. 2000. Winter dispersal of bryophyte fragments in the Adirondack Mountains, New York. ***Bryologist*** 103: 592-600.

CURRENT GRANT SUPPORT

Dimensions: Collaborative Research: Community genomic drivers of moss microbiome assembly and function in rapidly changing Alaskan ecosystems (NSF-DEB 1542609); role: PI; 2015-2020; $1.8M total, $851,840 to UF-CLAS.

GoLife: Collaborative Research: Building a comprehensive evolutionary history of flagellate plants (NSF-DEB 1541506); role: coPI (PI J. Gordon Burleigh, UF Biology); 2016-2019; $2.2M total, $1.8M to UF CLAS.

EAGER: The evolutionary consequences of subtle biases in the outcome of meiosis (NSF-DEB 1541005); role: PI; 2015-2017; $150,000 to UF-CLAS.

Adaptación molecular en briófitos: estudios en el musgo *Funaria hygrometrica* en diferentes condiciones climáticas mediante técnicas de secuenciación de nueva generación (CGL2014-52579-R, Ministerio Español de Economía y Competitividad, Dirección General de Investigación Científica y Técnica); role: key personnel (PI Rosa María Ros Espín, Universidad Murcia, Spain), 2015-2017; no funds directly to UF.

Joint Genome Institute Community Sequencing Program 2010, Department of Energy, "The moss *Ceratodon purpureus*" 2009-2016 role: PI (with Ralph S. Quatrano), allocation of sequencing capacity, no funds directly to UF.

COMPLETED PROJECTS

UF-Research Opportunity Seed Fund: Efficient structure-function analysis of proteins required to control cell proliferation; role: co-PI (PI Mark Settles, UF Horticulture); 2014; $83,000 total, $17,000 to McDaniel.

UF-SECIM Pilot and Feasibility Project: Sexual antagonism in exuded non-volatile metabolites in *C. purpureus*; role: PI; 2014; $5,000

Los briófitos como modelo de estudio del cambio climático, Ministerio de Educación y Ciencia, Spain; role: key personnel (PI Rosa María Ros Espín, Universidad Murcia, Spain), 2011-2014; no funds directly to UF.

Washington University Genome Sequencing Center, Pilot Sequencing Grant: Whole genome shotgun sequencing of a *P. patens* wild isolate; role: coPI (PI Ralph S. Quatrano, Washington University in St. Louis); 2006, $50,000.

NSF Doctoral Dissertation Improvement Grant, "Genetic architecture of correlated evolution between gametophytes and sporophytes of *C. purpureus*" 2002-2005, $10,000 coPI (PI A. Jonathan Shaw, Duke Univeristy)

A. W. Mellon Research Support (administered by the Duke University Plant Systematics Program), 1999-2002, $8,000.

INVITED TALKS AND WORKSHOPS

Plant Animal Genome 2015, San Diego, California, January 2015 (two talks)

Plant Animal Genome 2014, San Diego, California, January 2014

UF Genetics Symposium, October, 2013

Symposium coordinator, "The causes and consequences of dioecy across the land plants" Botanical Society of America annual meeting, New Orleans, LA July 2013

Plant Animal Genome, San Diego California, January, 2013

Third International Bryophyte Systematics Meeting, New York Botanical Garden, Bronx NY, June 2012

Plant Animal Genome, San Diego California, January, 2012

Journal of Systematics and Evolution Symposium, 2011. Linzhi, Tibet, China, August, 2011

International Botanical Congress, XVI. Melbourne, Australia, July 2011

NESCent Catalyst Meeting: Emergence of gender and sex chromosomes: evolutionary insights from a diversity of taxa. Coordinated by Richard Moore and Tia-Lynn Ashman, November 2010

Colloquium: Moss – from deep phylogeny to model organisms. Botany 2010, Providence RI, July 2010

Molecular systematics of bryophytes: progress, problems and perspectives, Missouri Botanical Gardens, July 2003

DEPARTMENT TALKS

LANGEBIO, Irapuato, Guanajuato, Mexico. 3 March 2015

California State Los Angeles Biology Department seminar, January 2014

University of Nevada, Los Vegas, Biology Department, December 2013

University of Zurich, EEB, September 2013

Kent State University Biology Department, April 2013

Indiana University Biology Department EEB seminar, March 2013

Colorado State University, Fort Collins, Department Bioagricultural Sciences and Pest Management Seminar, February 2009

University of Connecticut, Storrs, Ecology and Evolutionary Biology Department Seminar, January 2009

Miami University, Oxford Ohio, Botany Department Seminar, November 2007
Washington University Bioforum Seminar Series, 2007
University of Missouri, St. Louis, Biolunch, March 2007
Southern Illinois University, Carbondale, Plant Biology Department Seminar, November 2006

Meeting Presentations

Society for the Study of Evolution, Raleigh NC, 2014
Botany 2013, New Orleans, LA, July 2013
Joint Evolution Meeting, Ottawa, Canada, 2012 (poster)
MOSS2012, New York Botanical Garden, Bronx NY, June 2012
MOSS2009, St. Louis MO, 2009
Society for the Study of Evolution, Minneapolis, MN, 2008
Ecological Genomics Symposium, Kansas City KS, 2007 (poster)
AGA, Mechanisms of Genome Evolution, Bloomington IN, 2007 (poster)
Ecological Genomics Symposium, Kansas City KS, 2006 (poster)
Washington University Plant Biology Seminar Series, 2006
MOSS2006, Berkeley CA, 2006
AGA, Genetics of Speciation, Vancouver, Canada, 2006 (poster)
Ecological Genomics Symposium, Kansas City KS, 2005 (poster)
Washington University Population Biology Seminar Series, 2005
MOSS2004, Freiburg, Germany, 2004
Society for the Study of Evolution, 2004
Duke University Population Biology Seminar Series, 2004
Society for the Study of Evolution, 2003
Southeastern Population Genetics and Ecology Conference, 2002
Duke University Systematic Biology Seminar Series, 2002
American Bryological and Lichenological Society, 2002
Duke University Population Biology Seminar Series, 2000
American Bryological and Lichenological Society, 2000
New York State Natural History Conference, 1998

Teaching

University of Florida—

Lead Instructor (teaching evaluations available upon request):

BOT2011 Plant Diversity (every Spring semester, 2010-2015)
BOT5225/4935 Plant Anatomy (Fall 2010-2012)

PCB6685 Population Genetics; formerly ZOO6935 Evolutionary Processes (odd fall semesters, starting 2013)

BSC2010 / 2011 Introductory Biology (four of six subsections: Cells and Biochemistry (3x); Genetics (3x); Evolution (1x); Ecology (1x), summer 2013-2015)

PCB6695 Seminar in Evolutionary Biology – PopBio (every semester, 2011-2015)

Guest lectures:

Introductory Botany, Plant phylogenetics and life cycle (2009, 2011)

Washington University—

Guest lectures:

Plant Development, Analyzing natural variation (2008)

Duke University—

Teaching assistant:

Introductory Biology I and II (1998-2000)
Microbiology (2000-2003)
Bryolology (2001)
Genetics (2004)
Evolutionary Genetics (2004)
Experimental Methods in Development (2005)

Guest lectures:

Cuban-American Scientific Exchange, Taller en métodos filogenéticos (2001)
Bryology, Bryophyte biogeography (2001)

MENTORING

University of Florida—

Visiting research scholars:

Marta Nieto Luglide, Universidad Murcia, Spain, 2014, 2015

Sophia Ahmed, Leeds University, England, 2014 (MicroMORPH-RCN postdoc research exchange)

Jenna Baughman, California State University, Los Angeles, 2014 (EDEN-RCN Graduate student research exchange)

Olaf Werner, Universidad Murcia, Spain, 2013

Cody Edwards, University of New Brunswick, Fredrickton, Canada, 2013

Benjamin Laenen, Universite Liege, Belgium, 2012

Aurelie Desamoré, Universite Liege, Belgium, 2012

Pierre-François Perroud, Washington University in St. Louis, 2011 (EDEN-RCN Postdoc research exchange)

PhD committee chair:

Sarah Carey, Biology

Leslie Kollar, Biology

Masters committee chair:

Barry Kaminsky, Biology

PhD committee member:

Jerald Pinson, Biology

Peter Houlihan, Biology

Daniel Mancero, Horticulture

Verity Salmon, Biology

Matthew Palumbo, Biology

Caroline Storer, Forestry

Raquel Dias, Microbiology and Cell Science

Natasha Vitek, Biology and FLMNH

Masters committee member:

Kelly Speer, FLMNH

Undergraduate research mentorships:

Marna List, Undergraduate Researcher, 2015

Brandon Corder, Undergraduate Researcher, 2015

Anna Swygert, Undergraduate Researcher, 2015

Jarrod Kahre, Undergraduate Researcher, 2014-2015

Roth Conrad, Undergraduate Researcher and University Scholar, 2014-2015

Erin Holiman, Undergraduate Researcher, 2014-2015

Elizabeth Knorr, Undergraduate Researcher and Undergraduate Teaching Assistant, 2014-2015

Rauny Ramirez, Undergraduate Researcher, 2014

Stephen Pack, Undergraduate Researcher, 2013-2014

Jonathan Foster, Undergraduate Researcher, 2013

Sarah C. Carey, Undergraduate Researcher, 2013-2014 **won best student ppresentation in UF URAP symposium**

Christina Finnegan, Undergraduate Researcher, 2013-2014

Noah Dewitt, Undergraduate Researcher and University Scholar, 2014-2015

Abigail Hummell, Undergraduate Researcher and University Scholar, 2013-2015

Jared Miller, Undergraduate Researcher, 2012-2015

Kyle Miller, Undergraduate Researcher, 2012-2013

Karen Beaulieu, Undergraduate Researcher, 2012-2013

Michael Burns, Undergraduate Researcher, 2012-2013, senior thesis

Shawn Abrahams, Undergraduate Researcher, 2012-2013, University Scholar, 2013

Jasmine Meinke, Undergraduate Researcher, 2012-2013

Alex Powell, Undergraduate Researcher, 2012-2013; Highest honors for thesis

Tatum Norrell, Undergraduate researcher and University Scholar (2010-12) – **won best student poster at ABLS 2011 meeting (Roan Mt TN) and MOSS2012 at NYBG**

Daniel Doan, Undergraduate Researcher, 2012

Rebecca Gumptow, Undergraduate Researcher, 2011

Aubrey Carruthers, Undergraduate research volunteer (2011-2012)

James Thomas, Undergraduate research volunteer (2011)

Michael Sheridan, Undergraduate research volunteer (2010-11)

Mark Phillips, Undergraduate research volunteer (2010-11)

Claudia Henriquez, Undergraduate research volunteer (2010-13)

Washington University—

Undergraduate research mentorships:

George T. Gennis, Senior research project (2007)

Edgar Y. Walker, HHMI Summer Scholars Program (2006), work-study in Quatrano lab (2007-2008)

PROFESSIONAL SERVICE

Associate Editor, *Journal of Systematics and Evolution* (2011-2013)

Associate Editor, *Genetica* (2015)

Referee for *Evolution, Heredity, Molecular Ecology, PLoS Genetics, BMC Evolutionary Biology, Journal of Molecular Evolution, Plant Journal, Plant Physiology, BMC Plant Biology, New Phytologist, American Journal of Botany, International Journal of Plant Sciences, Gene, Diversity and Distributions, PLoS ONE, Fungal Genetics and Biology, Journal of Heredity, Preslia, Systematic Botany, Bryologist, Journal of Bryology, Journal of Biogeography, Annals of Botany*.

Panelist, NSF-DEB (DDIG twice, Evolutionary Genetics once)

Ad hoc reviewer for NSF (Organism – enviro interactions; Population and Evolutionary Processes; Systematic Biology and Biodiversity Inventories), NCERC, Belgian National Science Foundation (F.R.S.-FNRS), University of Puerto Rico Institutional Research Fund.