

---

CONTACT INFORMATION	Biological Sciences Box 43131 Lubbock, TX 79409	Texas Tech University matt.johnson@ttu.edu website: mossmatters.com
RESEARCH INTERESTS	Genomic approaches to the origin and maintenance of bryophyte biodiversity.	
EDUCATION	<b>Ph.D.</b> Duke University, Durham, NC	May, 2013
	Dissertation: "Evolution of Mating Systems in <i>Sphagnum</i> peatmosses"	
	<b>B.S. with distinction</b> , Duke University, Durham, NC	May 2006
	Honors Thesis: "Genetic relationships within <i>Sphagnum cribrosum</i> Lind. "wave form" and "normal form" in southeastern North Carolina using three anonymous nuclear genes."	
PROFESSIONAL APPOINTMENTS	<b>Assistant Professor</b> Biological Sciences Texas Tech University	September 2017 to present
	<b>Director</b> E.L. Reed Herbarium Texas Tech University	September 2017 to present
	<b>Postdoctoral Research Associate</b> Plant Science and Conservation Research Center Chicago Botanic Garden Supervisor: Norman Wickett, Ph.D	June 2013 to August 2017
PUBLICATIONS	<b>Journal Articles</b> (17 total, 7 first-author)	
	<ol style="list-style-type: none"> <li>1. D.J. Weston, MR Turetsky <b>M.G. Johnson</b>, G Granath, Z Lindo, L.R. Beleya, S.K. Rice, D.T. Hanson, K.A.M. Engelhardt, J. Schmutz, E. Dorrepaal, E.S. Euskirchen, H.K. Stenoiien, P. Szovenyi, M. Jackson B.T. Piatkowski, W. Muchero, R.J. Norby, J.E. Kostka, J.B. Glass, H. Rydin, J. Limpens, E. Tuittila, K.K. Ulrich, A. Carrell, B.W. Benscoter, J. Chen, T.A. Oke, M.B. Nilsson, P. Ranjan, D. Jacobson, E.A. Lileskov, R.S. Clymo, and A.J. Shaw. 2017. "The Sphagnome Project: enabling ecological and evolutionary insights through a genus-level sequencing project." <i>New Phytologist Accepted, in press</i></li> <li>2. <b>M.G. Johnson</b>, E.M. Gardner, Y. Liu, R. Medina, B. Goffinet, A.J. Shaw, N.J.C. Zerega, and N.J. Wickett. 2016. "HybPiper: Extracting coding sequence and introns for phylogenetics from high-throughput sequencing reads using target enrichment." <i>Applications in Plant Sciences</i>. 4(7):1600016 doi:10.3732/apps.1600016.</li> <li>3. E.M. Gardner, <b>M.G. Johnson</b>, D. Ragone, N.J. Wickett, and N.J.C. Zerega. 2016. "Low-coverage, whole-genome sequencing of <i>Artocarpus camansi</i> (Moraceae) for phylogenetic marker development and gene discovery." <i>Applications in Plant Sciences</i> 4(7):1600017. doi:10.3732/apps.1600017.</li> <li>4. N. Brandley, <b>M.G. Johnson</b>, and S. Johnsen. 2016. "Aposematic signals in North American black widows are more conspicuous to predators than to prey." <i>Behavioral Ecology. Published Online 27 February 2016</i>. doi:10.1093/beheco/arw014</li> <li>5. <b>M.G. Johnson</b> and A.J. Shaw. 2016. "The effects of quantitative fecundity in the haploid stage on reproductive success and diploid fitness in the aquatic peat moss <i>Sphagnum macrophyllum</i>." <i>Heredity</i>. 116:523-530. doi:10.1038/hdy.2016.13.</li> </ol>	

6. **M.G. Johnson**, C. Malley, A.J. Shaw, B. Goffinet, and N.J. Wickett. 2016. "A phylotranscriptomic analysis of gene family expansion and evolution in the largest order of pleurocarpous mosses (Hypnales, Bryophyta)." *Molecular Phylogenetics and Evolution*. 98:29-40. doi:10.1016/j.ympev.2016.01.008
  7. N. Devos, P. Szovenyi, D. Weston, C. Rothfels, **M.G. Johnson**, and A.J. Shaw. 2016. Analyses of transcriptome sequences reveal multiple ancient large-scale duplication events in the ancestor of Sphagnopsida (Bryophyta). *New Phytologist* 211(1):300-318. doi:10.1111/nph.13887.
  8. **M.G. Johnson**, K. Lang, P. Manos, G.H. Golet, and K.A. Schierenbeck. 2016. "Evidence for genetic pollution of a California native tree, *Platanus racemosa*, via recent, ongoing introgressive hybridization with an introduced ornamental species." *Conservation Genetics*. 17(3):593-602. doi:10.1007/s10592-015-0808-z.
  9. **M.G. Johnson** and A.J. Shaw. 2015. "Genetic diversity, sexual condition, and microhabitat preference determine mating patterns in *Sphagnum* (Sphagnaceae) peat-mosses." *Biological Journal of the Linnean Society*. 115(1):96-113. doi:10.1111/bij.12497
  10. **M.G. Johnson**, G. Granath, T. Tahvanainen, R. Pouliot, H. Stenoien, L. Rochefort, H. Rydin, and A.J. Shaw. 2015. "Evolution of niche preference in *Sphagnum* peat mosses" *Evolution*. 69(1) 90-103. doi:10.1111/evo.12547
  11. E. Mikulaskova, M. Hajek, A. Veleba, **M.G. Johnson**, T. Tomas, and A.J. Shaw. 2015. "Local adaptations in bryophytes revisited: the genetic structure of the calcium-tolerant peatmoss *Sphagnum warnstorfi* along geographic and pH gradients." *Ecology and Evolution*. 5(1) 229-242. doi:10.1002/ece3.1351
  12. A.J. Shaw, B. Shaw, **M.G. Johnson**, N. Devos, H. Stenoien, K.I. Flatberg, and B.E. Carter. 2015. "Phylogenetic structure and biogeography of the Pacific Rim clade of *Sphagnum* subgen. *Subsecunda*: haploid and allopolyploid taxa." *Biological Journal of the Linnean Society*. 116(2): 295-311. doi:10.1111/bij.12586
  13. A.J. Shaw, B. Shaw, **M.G. Johnson**, M. Higuchi, T. Arikawa, Y. Hirayama, and N. Devos. 2013. "Origins, genetic structure, and systematics of the narrow endemic peatmosses (*Sphagnum*): *S. triseriporum* and *S. calymmatophyllum* (Sphagnaceae)". *American Journal of Botany*. 100(6) 1202-1220. doi:10.3732/ajb.1200630
  14. **M.G. Johnson**, B. Shaw, P. Zhou, and A.J. Shaw. 2012. "Genetic analysis of the peatmoss *Sphagnum cribrosum* indicates independent origins of an extreme infraspecific morphology shift." *Biological Journal of the Linnean Society*. 106(1):137-153. doi:10.1111/j.1095-8312.2012.01842.x
  15. A.J. Shaw, K.I. Flatberg, P. Szovenyi, M. Ricca, **M.G. Johnson**, H. Stenoien, and B. Shaw. 2012. "Systematics of the *Sphagnum fimbriatum* complex: phylogenetic relationships, morphological variation, and allopolyploidy." *Systematic Botany*. 37:36-50. doi:10.1600/036364412X616585
  16. M. Ricca, P. Szovenyi, E. Temsch, **M.G. Johnson**, and A.J. Shaw. 2011. "Interploidal hybridization and mating patterns in *Sphagnum subsecundum* complex. *Molecular Ecology*. 20(15): 3202-3218. doi:10.1111/j.1365-294X.2011.05170.x
  17. M. Ramaliya\*, **M.G. Johnson**, J. Heinrichs, J. Hentschel, M. von Konrat, P. Davison, B. Shaw, and A.J. Shaw. 2010. "Morphologically cryptic biological species within the liverwort *Frullania asagrayana*." *American Journal of Botany*. 97:1707-1718. doi:10.3732/ajb.1000171
- (\*Undergraduate Student)

PAPERS IN  
REVIEW

(\*\* Co-first authors)

1. H.R. Kates\*\*, **M.G. Johnson\*\***, E. Gardner, N.J.C. Zerega, and N.J. Wickett. “Allele phasing has minimal impact on phylogenetic reconstruction from targeted nuclear gene sequences in a case study of *Artocarpus* (Moraceae).” Submitted to: *American Journal of Botany*
2. R. Medina, **M.G. Johnson**, N. Wilding, T. Hedderson, N.J. Wickett, and B. Goffinet. “Evolutionary dynamism in bryophytes: Phylogenomic inferences confirm rapid radiation in the moss family Funariaceae.” Submitted to: *Molecular Phylogenetics and Evolution*
3. K. LaRicca, **M.G. Johnson**, D. Ragone, N.J.C. Zerega, and N.J. Wickett. “Transcriptome analysis of domesticated breadfruit and its wild relatives.” Submitted to: *American Journal of Botany*.

AWARDS

**Academic Awards**

- Harold Sanford Perry Prize (\$5,500) May 2013  
– Annual departmental cash award for the best dissertation in Plant Sciences.  
– Students are nominated and selected by Duke Biology faculty.
- Duke Biology Department Grant-in-Aid of Research (\$500) June 2012  
E. Bayard Halsted Scholarship (\$19,836) August 2010  
Sigma Xi Grant-in-Aid of Research (\$1,000) December 2009

PRESENTATIONS

**Invited Seminars**

- Phylotranscriptomic analysis reveals widespread gene duplication associated with the radiation of pleurocarpous mosses  
XIX International Botanical Congress, Shenzhen, China July 2017
- Building a better tree and using it wisely: Phylogenomic approaches in non-model organisms  
Chicago Plant Science Symposium, Field Museum April 2017
- Building a better tree and using it wisely: Phylogenomic approaches in non-model organisms  
University of Connecticut Biology Forum March 2017
- Targeted Exon Sequencing in Non-Model Organisms: Best Practices for Probe Design and Data Analysis with HybPiper  
PAG XXV, MycroArray Session January 2017
- Introns, Paralogs, and Ditching the Bootstrap: Targeted Sequencing with HybPiper  
University of Florida PopBio Seminar Series September 2016
- Phylotranscriptomic insights into the radiation of mosses  
2nd International Symposium on Pleurocarpous Mosses. Bonn, Germany June 2016
- Evolution of niche preferences in *Sphagnum*  
New Phytologist *Sphagnum* genomics meeting, invited participant April 2016
- Ecological genomics in peatlands: the rise of *Sphagnum* as a model system  
University of Chicago *Darwin's Weekly* Seminar Series February 2016
- Reconstructing the ancestral gene set of bryophytes from comparative transcriptomes  
PAG XXIV, Non-Seed Plant Section, San Diego, CA January 2016
- Another abominable mystery: using phylogenomics to explore the radiation of mosses  
University of Wisconsin Biology Colloquium March 2015

Scaling evolution from genomes to ecosystem in peatmosses (*Sphagnum*)  
NESCent Catalysis Meeting, invited participant October 2014

What can phylogenetics teach us about peatland ecology?  
*Symposium: The evolution and ecology of aquatic bryophytes.*  
American Bryological and Lichenological Society Botany Conference, July 2014

### Scientific Meetings

Botanical Society of America, Savannah, GA July 2016  
*Colloquium Presentation: A re-evaluation of ancient horizontal transfer in bryophytes using comparative transcriptome data.*

Botanical Society of America, Edmonton, AB July 2015  
*Oral Paper: Phylotranscriptomic insights into the radiation of pleurocarpous mosses.*

Botanical Society of America, Boise, ID July 2014  
*Oral Paper: Constructing phylogenetic datasets with bait-capture data without a genome: strategies and challenges.*

Botanical Society of America, New Orleans, LA July 2013  
*Oral Paper: The relationship between mating patterns, sexual condition, and microhabitat preference in *Sphagnum**

American Society of Human Genetics, San Francisco, CA November 2012  
*Poster: Comparison of phylogenetic and haplotype methods for the study of genotype-phenotype association in genome-wide studies.*

Botanical Society of America, Columbus, OH July 2012  
*Poster: Evolution of microhabitat preference in *Sphagnum**

Evolution Meeting, Norman, OK June 2011  
*Oral Paper: Fitness and fecundity variance in a natural *Sphagnum* population: potential for sexual selection?*

### TEACHING EXPERIENCE

**Co-instructor**, Northwestern University Fall 2013-present  
Field and Lab Methods in Plant Biology and Conservation (PSC 450)  
*Phylogenetics and Genomics Section*  
Nyree Zerega, Course Coordinator

### Guest Lectures

“Introduction to Phylogenetics” January 2014, 2015, and 2016  
*Functional Genomics* (BIOL 378, Northwestern University)  
Norman Wickett, Instructor

“Species Trees: Methods and Considerations” November 2012  
*Systematic Biology* (BIO 556L, Duke University)  
David Swofford and Francois Lutzoni, Instructors

“Introduction to R” October 2012  
*Practical Bioinformatics* (BIO 313, Duke University)  
Carrie Olson-Manning, Instructor

**Teaching Assistant**, Duke University Biology Department  
BIO 212L Microbiology Spring 2009, Fall 2012, Spring 2013  
BIO 26L Organismal Diversity Summer 2010

MENTORING

**Thesis Committees**

- Claire Malley, Northwestern University M.S. 2015
- Colby Witherup, Northwestern University Ph.D. Student

**Students Mentored**

- Marissa Ashner, Illinois Institute of Technology REU 2016
- Lindsey Bechen, Amherst College REU 2015
- Elliot Gardner, Northwestern University Ph.D. Candidate
- Kristen Laricchia, Northwestern University M.S. 2014

SERVICE

**Freely available bioinformatics pipelines and programming tutorials**

<http://github.com/mossmatters>

**Organizer**, HybSeqWorkshop, Royal Botanical Gardens, Kew May 2017

- Invited workshop on wet lab and dry lab approaches in targeted sequencing.
- Tutorials and presentations freely available:  
<http://github.com/mossmatters/KewHybSeqWorkshop>

**Organizer**, Seed-Free Plants at the Genomic Scale July 2016

- Colloquium focusing on the applications of genomic data in non-model plant systems, with an emphasis on work of early-career scientists.
- Sponsored by the American Bryological and Lichenological Society and the American Fern Society at Botany 2016.

**Organizer and Instructor**, Bioinformatics Workshop October 2013  
Pleurocarpous Tree of Life Meeting and Workshop Chicago Botanic Garden

**Organizer**, Species Tree Discussion Group Fall 2012 and Spring 2014

- Prepared literature list, annotated bibliography, and software demonstrations.
- Held at Duke University (2012) and Chicago Botanic Garden (2014).

**Reviewer**

- *Annals of Botany*, *American Journal of Botany*, *Biological Journal of the Linnaean Society*, *The Bryologist*, *Heredity*, *International Journal of Plant Sciences*, *Molecular Phylogenetics and Evolution*, *Organismal Diversity and Evolution*, *Taxon*.

**Professional Organizations**

- American Bryological and Lichenological Society, American Society of Naturalists, Botanical Society of America