

CONTACT INFORMATION	Plant Science and Conservation 1000 Lake Cook Road Glencoe, IL 60022 847-835-6986 (office)	Chicago Botanic Garden mjohnson@chicagobotanic.org website: mossmatters.net 973-713-3582 (cell)
RESEARCH INTERESTS	Genomic approaches to the origin and maintenance of bryophyte biodiversity.	
EDUCATION	Ph.D. Duke University, Durham, NC Dissertation: “Evolution of Mating Systems in <i>Sphagnum</i> peatmosses”	May, 2013
	B.S. with distinction , Duke University, Durham, NC Honors Thesis: “Genetic relationships within <i>Sphagnum cribrosum</i> Lind. “wave form” and “normal form” in southeastern North Carolina using three anonymous nuclear genes.”	May 2006
PROFESSIONAL APPOINTMENTS	Postdoctoral Research Associate Plant Science and Conservation Research Center Chicago Botanic Garden Supervisor: Norman Wickett, Ph.D	June 2013 to present
PUBLICATIONS	Journal Articles (16 total, 7 first-author)	
	<ol style="list-style-type: none"> 1. M.G. Johnson, 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. 2. E.M. Gardner, M.G. Johnson, 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. 3. N. Brandley, M.G. Johnson, 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 4. M.G. Johnson 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. 5. 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).” <i>Molecular Phylogenetics and Evolution</i>. 98:29-40. doi:10.1016/j.ympev.2016.01.008 6. 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). <i>New Phytologist</i> 211(1):300-318. doi:10.1111/nph.13887. 7. M.G. Johnson, K. Lang, P. Manos, G.H. Golet, and K.A. Schierenbeck. 2016. “Evidence for genetic pollution of a California native tree, <i>Platanus racemosa</i>, via recent, ongoing introgressive hybridization with an introduced ornamental species.” <i>Conservation Genetics</i>. 17(3):593-602. doi:10.1007/s10592-015-0808-z. 	

8. **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
 9. **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
 10. 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 warnstorffii* along geographic and pH gradients." *Ecology and Evolution*. 5(1) 229-242. doi:10.1002/ece3.1351
 11. 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
 12. 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
 13. **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
 14. 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
 15. 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
 16. 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)

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

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| Introns, Paralogs, and Ditching the Bootstrap: Targeted Sequencing with HybPiper | September 2016 |
| University of Florida PopBio Seminar Series | |

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?*

Co-authored Conference Presentations *Presented by first author unless noted*

I.A. Liu, **M.G. Johnson**, and S. Nowicki. *Lightning presentation: Using targeted-sequence approaches to test for positive selection in reproductive proteins of *Agelaius* blackbirds.* North American Ornithological Conference VI (2016), Washington DC.

R. Overson, **M.G. Johnson**, J. Fant, R. Levin, M. Moore, W.L. Wagner, R.A. Raguso, K. Skogen, and N.J. Wickett. *Oral paper: A phylogeny of the evening primrose family (Onagraceae) using a target enrichment approach for 322 nuclear loci.* Botany 2016. Savannah GA.

- C. Malley, **M.G. Johnson**, B. Goffinet, A.J. Shaw, and N.J. Wickett. *Oral paper*: Circumscribing a core set of conserved, orthologous genes for moss phylogenetics. Botany 2016. Savannah, GA. (*Presented by N.J. Wickett*)
- M. Parks, **M.G. Johnson**, E. Ruck, A. Alverson, and N.J. Wickett. *Oral paper*: Hitting the century mark in an understudied, hyper-diverse lineage: Transcriptome-based phylogenetic analyses across the diatoms (Bacillariophyta). Botany 2016. Savannah, GA.
- L. Bechen, R. Overson, **M.G. Johnson**, J. Fant, R. Levin, R. Raguso, K. Skogen, and N.J. Wickett. *Oral paper*: Organ-specific transcriptomes of *Oenothera harringtonii* (Onagraceae) and associated variation in floral scent. Botany 2016. Savannah, GA.
- E. Gardner, **M.G. Johnson**, J.T. Pereira, R. Raguso, K. Skogen, N. Wickett, and N.J.C. Zerega. *Oral Paper*: Phylogenomics of *Artocarpus* (Moraceae) from 333 nuclear genes: insights into pollination transitions. Botany 2016. Savannah, GA.
- Y. Liu, **M.G. Johnson**, R. Medina, N. Devos, N.J. Wickett, A.J. Shaw, and B. Goffinet. *Colloquium presentation*: Resolving the backbone phylogeny of mosses, using target NGS data from plastid, mitochondrial, and nuclear genomes. Botany 2016. Savannah, GA.
- C. Witherup, **M.G. Johnson**, and N.J. Wickett. *Oral paper*: Testing hypotheses on the repeated origination of polyploidy in plants. Botany 2016. Savannah, GA.
- B. Cooper, M. Moore, N.J. Wickett, R. Overson, **M.G. Johnson**, and K. Skogen. Using target enrichment methods to resolve the phylogeny of *Oenothera* section *Calylophus* (Onagraceae) with 322 nuclear loci. Botany 2016. Savannah, GA.
- R. Medina, **M.G. Johnson**, Y. Liu, J. Budke, N. Wilding, T. Hedderson, N.J. Wickett, and B. Goffinet. *Colloquium presentation*: Zooming in on the rapid radiation of the Funariaceae. Botany 2016. Savannah, GA.
- L. Pokorny, **M.G. Johnson**, E. Gardner, R. Rina, S. Olsson, N.J. Wickett, and I. Sanmartin. *Poster*: Bridging the micro and macroevolutionary gap: Hyb-Seq helps disentangle the evolutionary origins of the Rand Flora pattern in the Sweet Tabaiba (*Euphorbia balsamifera*). Jaques Monod Conference on Molecular Evolution (2016). Roscoff, Brittany, France.
- C. Malley, **M.G. Johnson**, B. Goffinet, A.J. Shaw, and N.J. Wickett. *Poster*: A comparison of ortholog detection methods and their application to the moss phylogeny. Botany 2015. Edmonton, AB, Canada.
- B. Shaw, N. Devos, **M.G. Johnson**, and A.J. Shaw. *Symposium presentation*: Diversification of peatmosses: ecosystem engineers in northern wetlands. Botany 2015. Edmonton, AB, Canada.
- M.G. Johnson**, K. Lang, K. Schierenbeck, and P. Manos. *Oral paper*: Evidence for genetic pollution of a California native tree, *Platanus racemosa* via recent, ongoing introgressive hybridization with an introduced ornamental species. Botany 2015. Edmonton, AB, Canada. (*Presented by K. Schierenbeck*)
- N.J. Wickett, **M.G. Johnson**, A.J. Shaw, and B. Goffinet. *Oral paper*: Reconstructing gene family evolution in bryophytes: diversification, duplication, and horizontal transfer. Botany 2014. Boise, ID.

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, 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 Linnean 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

REFERENCES FOR A. Jonathan Shaw (Ph.D. Advisor)
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