

Norman J. Wickett

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Current Position

Associate Conservation Scientist
Chicago Botanic Garden
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Education

PhD Ecology and Evolutionary Biology, University of Connecticut 2007
Dissertation: Plastid genome evolution of the non-photosynthetic liverwort *Aneura mirabilis* (Malmb.) Wickett & Goffinet (Aneuraceae).
University of Connecticut, April 2007. **Advisor:** Bernard Goffinet

BSc Biology (Botany), University of British Columbia 2001

Professional Appointments

Associate Editor, Applications in Plant Sciences June 2016 - present
Committee on Evolutionary Biology, University of Chicago, IL Feb. 2016 - present
Adjunct Professor, Northwestern University, Evanston IL Sept. 2013 - present
Research Associate, Field Museum of Natural History, Chicago IL Jan. 2010 - present

Previous Positions

Assistant Conservation Scientist, Chicago Botanic Garden Sept. 2011 - Aug. 2014
Assistant Professor of Instruction, Northwestern University Sept. 2015 - Jan. 2016
Lecturer, Biological Sciences, Northwestern University Sept. 2011 - Aug. 2015
First-year Advisor, Northwestern University Sept. 2011 - Dec. 2015

Postdoctoral Positions

Parasitic Plant Genome Project Sept. 2008 - Aug. 2011
Penn State University (Advisor: Claude dePamphilis)
Role: Led the bioinformatics for a large-scale transcriptome sequencing project in Orobanchaceae.

1KP Initiative and iPlant Jan. 2011 - Aug. 2011
University of Georgia (Advisor: Jim Leebens-Mack)
Role: Led the development of computational resources to sort transcriptomes into a gene family classification.

Assembling the Liverwort Tree of Life May 2007 - Aug. 2008
University of Connecticut (Advisor: Bernard Goffinet)
Role: Initiated the sequencing of plastid genomes

Large Grants

National Science Foundation (DBI-1626407), 2016-2019. MRI: Acquisition of a Ploidy Analyzer at Chicago Botanic Garden. PI: J. Ault; Co-PIs: A. Kramer, N. Wickett, L. Egerton-Warburton, S. Wagenius. \$101,048 Chicago Botanic Garden.

National Science Foundation (DEB-1353152), 2014-2017. Collaborative Research: Evaluating the contributions of horizontally transferred bacterial genes and endogenous duplication events to the diversification of diatoms. PI: A. Alverson (University of Arkansas); PI: N. Wickett (Collaborative, Chicago Botanic Garden). \$739,584 (\$300,332 to Wickett).

National Science Foundation (DEB-1342873), 2014-2019. Dimensions: Collaborative Research: Scent-mediated diversification of flowers and moths across western North America. PI: K. Skogen; Co-PIs: N. Wickett, J. Fant (Chicago Botanic Garden); R. Raguso (Cornell University); R. Levin (Amherst College). \$1,988,555 (\$1,545,483 to Chicago Botanic Garden).

National Science Foundation (DEB-1239992), 2013-2017. Collaborative Research: AToL: Assembling the Pleurocarp Tree of Life: Resolving the rapid radiation using genomics and transcriptomics. PI: B. Goffinet (University of Connecticut), PI: N. Wickett (Collaborative, Chicago Botanic Garden), PI: J. Shaw (Duke University). \$1,364,397 (\$428,278 to Wickett).

Small Grants and Awards

Northwestern University, Arts and Sciences Alumni Teaching Award. *Nominated*, 2014.

National Science Foundation (DEB-0408043), 2004-2007. Doctoral Dissertation Improvement Grant. PIs: N. Wickett, B. Goffinet (University of Connecticut). \$11,430.

American Bryological and Lichenological Society, A.J. Sharp Award (outstanding paper presented by a student at the annual meeting). *Awarded*, 2006; *Hon. mention*, 2003 & 2005.

University of Connecticut, Doctoral Dissertation Fellowship, 2006. \$2000.

National Geographic Society, Committee for Research and Exploration Grant, 2004. \$5000.

University of Connecticut, Bamford Research Awards, 2002 – 2006. \$4632.

Collaborations

Open Green Genomes: A framework for comparative plant genomics. Joint Genome Institute (Community Science Program) project to sequence 35 plant genomes across land plants. Lead Investigator: Jim Leebens-Mack

Plant and Fungal Trees of Life (PaFToL). Project at the Royal Botanic Gardens, Kew to reconstruct plant and fungal phylogenies that include all genera. Lead Investigator: William Baker.

The 1000 Plants Initiative (oneKP or 1KP). Project at BGI Shenzhen and University of Alberta to sequence the transcriptomes of over 1000 green plants (Viridiplantae).

Publications

(Total: 37, citations: 2598, h-index: 21, i10-index: 29, per Google Scholar; †student author)

Briscoe, LRE[†], NJC Zerega, HT Lumbsch, M Stech, E Kraichak, MJ Von Konrat, JJ Engel, **NJ Wickett**. 2017. Molecular, morphological, and biogeographic perspectives on the classification of Acrobolboideae (Acrobolbaceae, Marchantiophyta). *Phytotaxa* 319(1): 056-070.

Carvalho-Silva, M, M Stech, LH Soares-Silva, WR Buck, **NJ Wickett**, Y Liu, PEAS Camara. 2017. A molecular phylogeny of the Sematophyllaceae s.l. (Hypnales) based on plastid, mitochondrial, and nuclear markers, and its taxonomic implications. *Taxon* 66(4): 811-831.

Johnson, MG, EM Gardner[†], Y Liu, R Medina, B Goffinet, AJ Shaw, NJC Zerega, **NJ Wickett**. 2016. HybPiper: Extracting coding sequence and introns for phylogenetics from high-throughput sequencing reads using target enrichment. *Applications in Plant Sciences* 4(7): 1600016.

Gardner, EM[†], MG Johnson, D Ragone, **NJ Wickett**, NJC Zerega. 2016. Low-coverage, whole-genome sequencing of *Artocarpus camansi* (Moraceae) for phylogenetic marker development and gene discovery. *Applications in Plant Sciences* 4(7): 1600017.

Johnson, MG, C Malley[†], B Goffinet, AJ Shaw, **NJ 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.

Honaas, LA, EK Wafula, **NJ Wickett**, JP Der, Y Zhang, PP Edger, NS Altman, JC Pires, JH Leebens-Mack, CW dePamphilis. 2016. Selecting superior de novo transcriptome assemblies: lessons learned by leveraging the best plant genome. *PLoS ONE* 11(1): e0146062.

Das, M, M Fernández-Aparicio, Z Yang, K Huang, **NJ Wickett**, S Alford, EK Wafula, CW dePamphilis, H Bouwmeester, MP Timko, JI Yoder, JH Westwood. 2015. Parasitic plants *Striga* and *Phelipanche* dependent upon exogenous strigolactones for germination have retained genes for strigolactone biosynthesis. *American Journal of Plant Sciences* 6(8): 1151-1166.

Wilson, A, **NJ Wickett**, P Grabowski, J Fant, J Borevitz, G Mueller. 2015. Examining the efficacy of a genotyping-by-sequencing technique for population genetic analysis of the mushroom *Laccaria bicolor* with either a reference genome or simple *denovo* analysis. *Mycologia* 107(1): 217-226.

Wickett, NJ, S Mirarab, N Nguyen, T Warnow, E Carpenter, N Matasci, S Ayyampalayam, M Barker, JG Burleigh, MA Gitzendanner, BR Ruhfel, E Wafula, JP Der, SW Graham, S Mathews, M Melkonian, DE Soltis, PS Soltis, NW Miles, CJ Rothfels, L Pokorny, AJ Shaw, L DeGironimo, DW Stevenson, B Surek, JC Villarreal, B Roure, H Philippe, CW dePamphilis, T Chen, MK Deyholos, RS Baucom, TM Kutchan, MM Augustin, J Wang, Y Zhang, Z Tian, Z Yan, X Wu, X Sun, G Ka-Shu Wong, J Leebens-Mack. 2014. A phylotranscriptomics analysis of the origin and diversification of land plants. *Proceedings of the National Academy of Sciences of the United States of America* 111(14): E4859-E4868.

Matasci, N, LH Hung, Z Yan, EJ Carpenter, **NJ Wickett**, S Mirarab, N Nguyen, T Warnow, S Ayyampalayam, M Barker, JG Burleigh, MA Gitzendanner, E Wafula, JP Der, CW dePamphilis, B Roure, H Philippe, BR Ruhfel, NW Miles, SW Graham, S Mathews, B Surek, M Melkonian, DE Soltis, PS Soltis, C Rothfels, L Pokorny, AJ Shaw, L DeGironimo, DW Stevenson, JC

Villarreal, T Chen, TM Kutchan, M Rolf, RS Baucom, MK Deyholos, R Samudrala, Z Tian, X Wu, X Sun, Y Zhang, J Wang, J Leebens-Mack, G Ka-Shu Wong. 2014. Data access for the 1000 Plants (1KP) pilot. *Gigascience* 3:17.

Kessenich, CR, EC Ruck, AM Schurko, **NJ Wickett**, AJ Alverson. 2014. Transcriptomic insights into the life history of bolidophytes, the sister lineage to diatoms. *Journal of Phycology* 50(6): 977-983.

Wicke, S, KF Müller, CW dePamphilis, D Quandt, **NJ Wickett**, Y Zhang, SS Renner, GM Schneeweiss. 2013. Mechanisms of Functional and Physical Genome Reduction in Photosynthetic and Nonphotosynthetic Parasitic Plants of the Broomrape Family. *The Plant Cell* 25(10): 3711-3725.

Villarreal, JC, LL Forrest, **NJ Wickett**, B Goffinet. 2013. The plastid genome of the hornwort *Nothoceros aenigmaticus* (Dendrocerotaceae): Phylogenetic signal in inverted repeat expansion, pseudogenization, and intron gain. *American Journal of Botany* 100(3): 467-477.

Zhang, Y, M Fernandez-Aparicio, EK Wafula, M Das, Y Jiao, **NJ Wickett**, LA Honaas, PE Ralph, MF Wojciechowski, MP Timko, JI Yoder, JH Westwood, CW dePamphilis. 2013. Evolution of a horizontally acquired legume gene, albumin 1, I the parasitic plant *Phelipanche aegyptiaca* and related species. *BMC Evolutionary Biology* 13:48.

Bliss, BJ, S Wanke, A Barakat, S Ayyampalayam, **NJ Wickett**, PK Wall, Y Jiao, L Landherr, PE Ralph, Y Hu, C Heinhuis, J Leebens-Mack, K Arumuganathan, SW Clifton, SN Maximova, H Ma, CW dePamphilis. 2013. Characterization of the basal angiosperm *Aristolochia fimbriata*: a potential experimental system for genetic studies. *BMC Plant Biology* 13:13.

Honaas, LA, EK Wafula, Z Yang, JP Der, **NJ Wickett**, NS Altman, CG Taylor, JI Yoder, MP Timko, JH Westwood, CW dePamphilis. 2013. Functional genomics of a generalist parasitic plant: Laser microdissection of host-parasite interface reveals host-specific patterns of parasite gene expression. *BMC Plant Biology* 13:9.

Merckx, VSFT, JV Freudenstein, J Kissling, MJM Christenhusz, RE Stotler, B Crandall-Stotler, **NJ Wickett**, PJ Rudall, HM de Kamer, PJM Maas. 2013. Taxonomy and Classification In Merckx, V (Ed.) *Mycoheterotrophy: The Biology of Plants Living on Fungi*. Springer, 356pp.

Fernández-Aparicio, M, K Huang, EK Wafula, LA Honaas, **NJ Wickett**, MP Timko, CW dePamphilis, JI Yoder, JH Westwood. 2013. Application of qRT-PCR and RNA-Seq analysis for the identification of housekeeping genes useful for normalization of gene expression values during *Striga hermonthica* development. *Molecular Biology Reports* 40(4): 3395-3407.

Jiao, Y, J Leebens-Mack, S Ayyampalayam, JE Bowers, MR McKain, J McNeal, M Rolf, DR Ruzicka, E Wafula, **NJ Wickett**, X Wu, Y Zhang, J Wang, Y Zhang, EJ Carpenter, MK Deyholos, TM Kutchan, AS Chanderbali, PS Soltis, DW Stevenson, R McCombie, JC Pires, G Wong, DE Soltis, CW dePamphilis. 2012. A genome triplication associated with early diversification of the core eudicots. *Genome Biology* 13: R3.

McKain, MR, **NJ Wickett**, Y Zhang, S Ayyampalayam, WR McCombie, MW Chase, JC Pires, CW dePamphilis, J Leebens-Mack. 2012. Phylogenomic analysis of transcriptome data elucidates co-occurrence of a paleopolyploid event and the origin of bimodal karyotypes in Agavoideae (Asparagaceae). *American Journal of Botany* 99(2): 397-406.

- Bandaranayake, PCG, A Tomilov, NB Tomilova, QA Ngo, **NJ Wickett**, CW dePamphilis, JI Yoder. 2012. The TvPirin gene is necessary for haustorium development in the parasitic plant *Triphysaria versicolor*. *Plant Physiology* 158(2): 1046-1053.
- Westwood, JW, CW dePamphilis, M Das, M Fernandez-Aparicio, LA Honaas, MP Timko, **NJ Wickett**, JI Yoder. 2012. The Parasitic Plant Genome Project: New tools for understanding the biology of *Orobanche* and *Striga*. *Weed Science* 60(2): 295-306.
- Wickett, NJ**, LA Honaas, EK Wafula, M Das, K Huang, B Wu, L Landherr, MP Timko, J Yoder, JH Westwood, CW dePamphilis. 2011. Transcriptomes of the parasitic plant family Orobanchaceae reveal surprising conservation of chlorophyll synthesis. *Current Biology* 21(24): 2098-2104.
- Wickett, NJ**, LL Forrest, JM Budke, B Shaw & B Goffinet. 2011. Frequent pseudogenization and loss of the plastid-encoded, sulfate transport gene *cysA* throughout the evolution of liverworts. *American Journal of Botany* 98(8): 1263-1275.
- Hsu CY, JP Adams, H Kim, K No, C Ma, SH Strauss, J Drnevich, L Vandervelde, JD Ellis, BM Rice, **NJ Wickett**, LE Gunter, GA Tuskan, AM Brunner, GP Page, A Barakat, JE Carlson, CW dePamphilis, DS Luthe & C Yuceer. 2011. FT Duplication Coordinates Reproductive and Vegetative Growth. *Proceedings of the National Academy of Sciences of the United States of America* 108(26): 10756-10761.
- Jiao Y, **NJ Wickett**, S Ayyampalayam, A Chanderbali, L Landherr, PE Ralph, LP Tomsho, Y Hu, H Liang, PS Soltis, DE Soltis, SW Clifton, SE Schlarbaum, SC Schuster, H Ma, J Leebens-Mack & CW dePamphilis. 2011. Ancestral polyploidy in seed plants and angiosperms. *Nature* 473: 97-100.
- Der JP, MS Barker, **NJ Wickett**, CW dePamphilis & PG Wolf. 2011. De novo Characterization of the gametophyte transcriptome in bracken fern, *Pteridium aquilinum*. *BMC Genomics* 99:12.
- Forrest LL, **NJ Wickett**, CJ Cox & B Goffinet. 2011. Deep sequencing of *Ptilidium pulcherrimum* suggests evolutionary stasis in liverwort chloroplast structure. *Plant Ecology and Evolution* 144(1): 29-43.
- Liang H, S Ayyampalayam, **NJ Wickett**, A Barakat, Y Xu, L Landherr, P Ralph, T Xu, SE Schlarbaum, H Ma, JH Leebens-Mack & CW dePamphilis. 2011. Generation of a large-scale genomic resource for functional and comparative genomics in *Liriodendron tulipifera* L. *Tree Genetics and Genomes* 7(5): 941-954.
- Preußing M, S Olsson, A Schäfer-Verwimp, **NJ Wickett**, S Wicke, D Quandt & M Nebel. 2010. New insights in the evolution of the liverwort family Aneuraceae (Metzgeriales, Marchantiophyta) with an emphasis on the genus *Lobatiriccardia*. *Taxon* 59(5): 1424-1440.
- Cox CJ, B Goffinet, **NJ Wickett**, SB Boles & AJ Shaw. 2010. Moss diversity: a molecular phylogenetic analysis of genera. *Phytotaxa* 9:175-195.
- Wickett NJ**, Y Fan, PO Lewis & B Goffinet. 2008. Distribution and evolution of pseudogenes, gene losses and a gene rearrangement in the plastid genome of the non- photosynthetic liverwort, *Aneura mirabilis* (Metzgeriales, Jungermanniopsida). *Journal of Molecular Evolution* 67: 111-122.

Wickett NJ, Y Zhang, SK Hansen, JM Roper, JV Kuehl, SA Plock, PG Wolf, CW dePamphilis, JL Boore & B Goffinet. 2008. Functional gene losses occur with minimal size reduction in the plastid genome of the parasitic liverwort *Aneura mirabilis*. *Molecular Biology and Evolution* 25(2): 393-401.

Wickett, NJ, & B Goffinet. 2008. Origin and relationships of the myco-heterotrophic liverwort *Cryptothallus mirabilis* Malmb. (Metzgeriales, Marchantiophyta). *Botanical Journal of the Linnean Society* 156: 1-12.

Goffinet B, **NJ Wickett**, O Werner, RM Ros, AJ Shaw & CJ Cox. 2007. Distribution and phylogenetic significance of the 71 kb inversion in the chloroplast genome in the Funariidae (Bryophyta). *Annals of Botany* 99: 747-753.

Goffinet, B, **NJ Wickett**, AJ Shaw, & CJ Cox. 2005. Phylogenetic significance of the RpoA loss in the chloroplast genome of mosses. *Taxon* 54 (2): 353-360.

Goffinet B, AJ Shaw, CJ Cox, **NJ Wickett** & S Boles. 2004. Phylogenetic inferences in the Orthotrichoideae (Orthotrichaceae: Bryophyta) based on variation in four loci from all genomes. *Monographs in Systematic Botany from the Missouri Botanical Garden* 98:270-289.

Invited Seminars

Revisiting the relationships among bryophyte lineages with increased taxon and gene sampling, and phylogenomic approaches. International Botanical Congress 2017, Shenzhen, China, July 23-29, 2017. Session: Building and exploring the green plant tree of life.

Phylogeny and uncertainty in the genomic age: An example from mosses (and more). Rancho Santa Ana Botanic Garden, April 28, 2017. Named '**Best Seminar Speaker**' by the graduate students for the 2016-17 academic year.

Bryophyte evolution in the era of high-throughput phylogenetics and transcriptomics. University of Florida, **graduate student invited speaker**, November 29, 2016.

Bryophyte relationships in the era of high-throughput phylogenetics. Oklahoma State University, **graduate student invited speaker**, November 2, 2016.

Resolving bryophyte relationships: New (old) hypotheses and fruitless searches. Smithsonian National Museum of Natural History, 2016 Frontiers in Phylogenetics Symposium, September 9, 2016.

A transcriptomic approach to understanding the origin and diversification of early land plants and their descendents. Ohio State University, April 23, 2015.

Seaweed to salad: The origin and evolution of the earliest land plants and their descendents. Oberlin College, March 12, 2015.

An RNA-Seq approach to understanding the origin and diversification of land plants. University of Connecticut, April 17, 2014.

An RNA-Seq approach to understanding the origin and diversification of land plants. University of British Columbia, March 25, 2014.

Shifting hypotheses at the base of land plants: evidence from high throughput transcriptome sequencing. University of Missouri, April 30, 2013.

How high throughput sequencing and bioinformatics are changing our hypotheses of early land plant evolution. University of Massachusetts, Amherst, **graduate student invited speaker**, March 14, 2013.

Revisiting the origin of land plants using a transcriptome mining approach. Westfälische Wilhelms-Universität Münster, December 6, 2012.

Revisiting the origin of land plants: Reconstructing the relationships of embryophytes and their sisters using a transcriptome mining approach. University of Zurich, December 4, 2012.

Who got there first? Revisiting the origin of land plants using genomic data. Hosted by the Botanical Society of America Student Chapter at Bucknell University, October 18, 2012.

New insights in the evolution of parasitic plants. Chicago Plant Science Symposium 2012. The Field Museum, Chicago IL, April 20, 2012.

Using stage-specific cDNA sequencing to understand the evolution of parasitism in the plant family Orobanchaceae. San Francisco State University, March 1, 2011.

Using stage-specific transcriptome sequencing to explore the causes and consequences of parasitism in plants. Duke University, April 29, 2010.

Comparative evolutionary studies of non-model plants in the high-throughput era: An example from the parasitic plant family Orobanchaceae. The Field Museum, Chicago, IL. October 21, 2009.

Comparative plastid genomics of the gametophyte dominated: examples from the Bryophytes. Institute of Molecular Evolutionary Genetics seminar series, Penn State University. September 10, 2008.

Genes, Genomes and Gametophytes: Progress and problems in molecular systematics of bryophytes. 58^o Congresso Nacional Botânica, São Paulo, Brazil, November 2, 2007.

It's easy not being green: plastid genome evolution of a parasitic liverwort. New York Botanical Garden. October 9, 2007.

Teaching and Mentoring

Courses Taught

Functional Genomics, Northwestern University.

Winter quarter, 2013, 2014, 2015, 2016, 2017 (BIOL SCI 378, enrollment: 35).

The Nature of Plants. Northwestern University.

Spring quarter, 2012, 2013, 2014, 2015 (BIOL SCI 109-0, enrollment: 105).

Understanding Evolution from Seaweed to Salad. Freshman Seminar, Northwestern University.

Fall quarter, 2011, 2012, 2013, 2014, 2015 (BIOL SCI 101-6, enrollment: 15); Winter quarter, 2012 (BIOL SCI 104-6, enrollment: 12).

Current Topics in Biology. Undergraduate Seminar, University of Connecticut (BIOL 296).

Fall, 2004; Fall, 2006.

Graduate Students (Primary Advisor)

Colby Witherup, PhD candidate. September 2014 – present.
Evolution of gene families pre- and post-polyploidy in angiosperms.

Claire Malley, MS student. Completed: April 2016.
A comparison of ortholog detection methods and their application to the moss phylogeny.

Kristen Laricchia, MS. Co-advised with Nyree Zerega. Completed, December 2014.
Transcriptome analysis of domesticated breadfruit and its wild relatives.

Laura Briscoe, MS. Completed, August 2012.
Untangling *Tylimanthus*: Using molecules and morphology to better understand the liverwort family Acrobolbaceae E.A. Hodgson (Marchantiophyta).

Graduate Students (Committee member)

Benjamin Cooper, MS; Benjamin Morgan, PhD candidate; Aleks Radosavljevic, PhD candidate; Elliot Gardner, PhD candidate; Rui Zhang, PhD candidate; Lynnaun Johnson, PhD student.

Post-Doctoral Researchers Mentored

Matthew Parks, PhD Oregon State, 2011 (Project: NSF - Diversification of Diatoms)

Tania Jogesh, PhD University of Illinois, 2014 (Project: NSF - Dimensions of Biodiversity)

Matthew Johnson, PhD Duke, 2013 (Project: NSF - Assembling the Tree of Life)
Currently an Assistant Professor at Texas Tech University

Rick Overson, PhD University of Arizona, 2011 (Project: NSF - Dimensions of Biodiversity)
Currently Researcher at Arizona State University

Undergraduate Students Mentored

Anni Wang, REU student, Florida State University (diatom protein conservation)
Marissa Ashner, REU student, Illinois Institute of Technology (diatom intron evolution)
Nina Denne, high school student (diatom transposable element annotation)
Lindsey Bechen, REU student, Amherst College (transcriptome analysis)
Amanda Patsis, REU student, Amherst College (sequence capture methods)
Raudel Cabral, Davee Fellow*, Northwestern University (GBS sequencing)
Lisa Kim, Posner Fellow*, Northwestern University (bioinformatics)
Arianna Farmer, Davee Fellow*, Northwestern University (bioinformatics)
Ryan Anderson, independent research (phylogenetics), Northwestern University
Brian Cacioppo, independent research (gene family evolution), Northwestern University
Barry Liu, Penn State University (bioinformatics; undergraduate at Cornell University)
Jonathan Paulson, Penn State University (bioinformatics; State College High School student)
Michael Chips, Penn State University (large insert DNA libraries)
Cassandra Huizenga, University of Connecticut (PCR and sequencing)
Lauren Parry, University of Connecticut (PCR and sequencing)
Christopher Labreck, University of Connecticut (PCR and sequencing)

* The Davee and Posner Fellowships at Northwestern University are designed to give first-year students from underrepresented groups opportunities in Humanities and Natural Science research.

Conference Presentations

(oral presentations unless otherwise noted; *presenting author; †student author)

Patsis, A*†, R Overson, MG Johnson, KA Skogen, WL Wagner, RA Raguso, NJ Wickett, RA Levin. Elucidating the evolutionary history of *Oenothera* sect. *Pachylophus* using phylogenomics. *Botany 2017*, Fort Worth, TX.

Overson, R*, MG Johnson, J Fant, R Levin, M Moore, WL Wagner, RA Raguso, KA Skogen, NJ Wickett. A phylogeny of the evening primrose family (Onagraceae) using a target enrichment approach for 322 nuclear loci. *Botany 2016*, Savannah, GA.

Johnson, MG*, B Goffinet, AJ Shaw, NJ Wickett. A re-evaluation of ancient horizontal gene transfer in bryophytes using comparative transcriptome data. *Botany 2016*, Savannah, GA.

Malley, C†, MG Johnson, B Goffinet, AJ Shaw, NJ Wickett*. Circumscribing a core set of conserved orthologous genes for moss phylogenetics. *Botany 2016*, Savannah, GA.

Parks, MB*, MG Johnson, E Ruck, AJ Alverson, NJ Wickett. Hitting the century mark in an understudied, hyper-diverse lineage: Transcriptome-based phylogenomic analyses across the diatoms (Bacillariophyta). *Botany 2016*, Savannah, GA.

Bechen, L*†, R Overson, MG Johnson, J Fant, R Levin, RA Raguso, KA Skogen, NJ Wickett. Organ-specific transcriptomes of *Oenothera harringtonii* (Onagraceae) and associated variation in floral scent. *Botany 2016*, Savannah, GA.

E Gardner*†, MG Johnson, JT Pereira, RA Raguso, KA Skogen, NJ Wickett, NJC Zerega. Phylogenomics of *Artocarpus* (Moraceae) from 333 nuclear genes: insights into pollination transitions. *Botany 2016*, Savannah, GA.

Liu, Y*, MG Johnson, R Medina, N Devos, NJ Wickett, AJ Shaw, B Goffinet. Resolving the backbone phylogeny of mosses using targeted NGS data from plastid, mitochondrial and nuclear genomes. *Botany 2016*, Savannah, GA.

Witherup, C*†, MG Johnson, NJ Wickett. Testing hypotheses on the repeated origination of polyploidy in plants. *Botany 2016*, Savannah, GA.

Cooper, B*†, M Moore, NJ Wickett, R Overson, MG Johnson, KA Skogen. Using target enrichment to resolve the phylogeny of *Oenothera* sect. *Calylophus* (Onagraceae) with 322 nuclear loci. *Botany 2016*, Savannah, GA.

Medina, R*, MG Johnson, Y Liu, J Budke, N Wilding, T Hedderson, NJ Wickett, B Goffinet. Zooming in on the rapid radiation of the Funariaceae. *Botany 2016*, Savannah, GA.

Malley, C*†, MG Johnson, B Goffinet, AJ Shaw, NJ Wickett. 2015. Poster: A comparison of ortholog detection methods and their application to the moss phylogeny. *Botany 2015*, Edmonton, AB.

D Stevenson*, S Graham, NJ Wickett, G Wong. 2015. Linking 1KP back to plant biology: some evo/devo possibilities. *Botany 2015*, Edmonton, AB.

MG Johnson*, NJ Wickett, R Medina, Y Liu, N Devos, AJ Shaw, B Goffinet. 2015. Phylotranscriptomic insights into the radiation of mosses: gene family expansions and paleopolyploidy. *Botany 2015*, Edmonton, AB.

Wickett NJ*, MG Johnson, AJ Shaw, B Goffinet. 2014. Reconstructing gene family evolution in bryophytes: diversification, duplication, and horizontal transfer. *Botany 2014*, Boise, ID.

- MG Johnson*, NJ Wickett, N Devos, L Yang, R Medina, B Goffinet, AJ Shaw. 2014. Constructing phylogenetic datasets from bait-capture data without a genome: strategies and challenges. *Botany 2014*, Boise, ID.
- K Laricchia*[†], NJC Zerega, NJ Wickett. 2014. Poster: Transcriptome analysis of breadfruit (*Artocarpus altilis*) to reveal impacts of domestication. *Botany 2014*, Boise, ID.
- JP Der*, E Wafula, NJ Wickett, S Ayyampalayam, N Matasci, J Leebens-Mack, CW dePamphilis. 2014. Poster: A plant gene family classification and analysis pipeline for comparative genomics. *Botany 2014*, Boise, ID.
- Wickett NJ*. 2014. Inferring relationships of early land plants using 1KP data. *Plant & Animal Genome XXII*, San Diego, CA, January 11-15.
- Wickett NJ*, Y Liu, AJ Shaw, B Goffinet. 2013. Reconstructing the rapid radiation of pleurocarpous mosses using genomic approaches. *Botany 2013*, New Orleans, LA.
- Wickett NJ*, J Leebens-Mack, G Wong *et al.* 2013. Inferring relationships of early land plants using a transcriptome-based approach. *Plant & Animal Genome XXI*, San Diego, CA, January 12-16.
- Wickett NJ*, J Leebens-Mack, E Carpenter, S Mirarab, S Ayyampalayam *et al.* 2012. Scaling phylogenomics to over one thousand species: Relationships of Viridiplantae inferred from the 1KP (One Thousand Plants) Project pilot data set. *Botany 2012*, Columbus, OH.
- Wicke, S*, K Mueller, D Quandt, NJ Wickett, C dePamphilis & G Schneeweiss. 2012. Broomrape plastid genomes reveal distinct patterns of functional and physical gene deletion under relaxed selective constraints. *Botany 2012*, Columbus, OH.
- dePamphilis, C, NJ Wickett, J Duarte, J Der*, M Mckain *et al.* 2012. Large-scale transcriptome sequencing and phylogenetic hypotheses for monocots based on analyses of 970 (and up to 1888) low copy nuclear genes. *Botany 2012*, Columbus, OH.
- McKain, M*, NJ Wickett, Y Zhang, S Ayyampalayam, R McCombie *et al.* 2012. The effect of paleopolyploidy on genome evolution in Agavoideae. *Botany 2012*, Columbus, OH.
- Honaas, L*, E Wafula, NJ Wickett, Y Zhang, Z Zhang *et al.* 2012. The Parasitic Plant Genome Project. *Botany 2012*, Columbus, OH.
- Wickett NJ*, J Duarte, E Wafula, J Leebens-Mack & CW dePamphilis. 2011. Reconstructing plant phylogenies using the cDNA sequences of over 900 low copy nuclear genes. *Botany 2011*, St. Louis, MO.
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- Wickett NJ*, CA Huizenga, LL Forrest, E Wafula & B Goffinet. 2009. Plastid genomes on the liverwort of life: challenges and progress. *Botany 2009*, Snowbird, UT.
- Huizenga CA*†, NJ Wickett, JM Budke, LE Parry & B Goffinet. 2008. Poster: Evolution of two chloroplast-encoded sulfate import genes, *cysA* and *cysT*, in liverworts. *Botany 2008*, Vancouver, BC.
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- Goffinet B, NJ Wickett*, AJ Shaw, RM Ros Espin, O Werner. 2006. Refining the circumscription of the Funariales (Bryophyta) based on chloroplast genome structure. *Botany 2006*, Chico, CA.
- Wickett NJ* & B Goffinet. 2006. The phylogenetic significance of a large inversion in the chloroplast genome of a lineage of mosses. 16th annual Graduate Student Symposium. Ecology and evolutionary biology. University of Connecticut.
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- Wickett NJ* & B Goffinet. 2004. Poster: Phylogenetics and genomics of the non-photosynthetic liverwort, *Cryptothallus mirabilis*. *Bryophylogeny 2004*, Göttingen, Germany.
- Goffinet, B*, NJ Wickett, CJ Cox & AJ Shaw. 2004. The evolution of the *rpoA* (cpDNA) region in mosses. *Bryophylogeny 2004*, Göttingen (Germany).
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Wickett NJ*. 2004. Evolution of a non-photosynthetic liverwort, *Cryptothallus mirabilis*. 2nd annual Northeastern Ecology and Evolution Conference. University of Connecticut.

Wickett NJ*. 2003. The consequences of achlorophyly on the structure and function of the chloroplast genome of *Cryptothallus mirabilis* (Aneuraceae). *Molecular systematics of bryophytes: Progress, problems and perspectives*. Missouri Botanical Garden, St. Louis, MO.

Wickett, NJ*. 2003. Molecular evolution of the achlorophyllous liverwort, *Cryptothallus mirabilis*. *Botany 2003*, Mobile, AL.

Goffinet, B, WR Buck, C Cox, AJ Shaw, and NJ Wickett*. 2003. Circumscription and affinities of the Sematophyllaceae (Bryophyta, Hypnales) based on multigenomic phylogenetic inferences. *In Botany 2003*, Mobile, AL.

Service and Outreach

Press & Public Outreach Bryodiversity: It's all about moss. Demonstration table at World Environment Day, Chicago Botanic Garden, June 3, 2017.

How did plants move to land? Chicago Botanic Garden scientist helps lead global effort to trace pivotal events in evolution.

http://www.chicagobotanic.org/pr/release/how_did_plants_move_to_land

Plant evolution infographic

http://my.chicagobotanic.org/science_conservation/plant-evolution-infographic/

Genomic discovery unearths new theories on plant evolution

http://my.chicagobotanic.org/science_conservation/genomic-discovery-unearths-new-theories-on-plant-evolution/

Teachers for a New Era Program: Implementation of a biodiversity curriculum, 2007, the Wilbert Snow School, Middletown, CT.

Summer workshop on biodiversity and forensic science, 2006, University of Connecticut: Assembling the tree of Life: the bryophyte branches.

Bioblitz 2005, , East Hartford, CT: Bryophyte Team

Bioblitz 2003, New London, CT: Bryophyte Team

Committee Membership

Technology Committee, Botanical Society of America, 2012 – 2016.

Member, PhD Admissions Committee, Plant Biology and Conservation Program, Northwestern University & Chicago Botanic Garden, 2012-2015.

Postdoc representative, Biology Climate Committee, Penn State University, 2008 – 2010.

Chair, publicity committee, Northeast Ecology and Evolution Conference 2004, University of Connecticut.

Senator, Graduate Student Senate, University of Connecticut, Spring 2002.

**Workshops &
Conferences**

Bioinformatics and Pleurocarp Systematics Workshop, Chicago Botanic Garden, October 4-6, 2013.

Co-organizer and instructor, Workshop on Phylogenetic Analysis, Penn State University, October 14 and 15, 2010.

Conference co-organizer, 13th Annual Graduate Student Symposium, Department of Ecology and Evolutionary Biology, University of Connecticut, March 2003.

**Society
Membership**

American Bryological and Lichenological Society

American Society of Plant Taxonomists

Botanical Society of America

**Peer
Reviewer**

New Phytologist, *Molecular Biology and Evolution*, *Molecular Phylogeny and Evolution*, *Journal of Molecular Evolution*, *BMC Evolutionary Biology*, *American Journal of Botany*, *Systematic Biology*, *Trends in Plant Science*, *Phytotaxa*, *Bryophyte Biology* (2nd Edition, Cambridge University Press), NSF-DEB (Phylogenetics Systematics Panel).