CURRICULUM VITAE

NORMAN J. WICKETT

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EDUCATION:

PhD	Ecology and Evolutionary Biology, University of Connecticut	2007
BSc	Biology (Botany), University of British Columbia	2001

APPOINTMENTS:

Research Associate, The Field Museum of Natural History, Chicago, IL. 2010 – present.

Freshman Adviser, Northwestern University, Evanston, IL. September, 2011 – present.

POSTDOCTORAL POSITIONS:

Postdoctoral Research Fellow, Penn State University. Parasitic Plant Genome Project (Bioinformatics). September 2008 – August 2011.

Postdoctoral Research Fellow, iPlant Collaborative/University of Georgia. 1KP (1000 plant transcriptomes) Initiative, computational and phylogenomics team. January 2011 – August 2011.

Postdoctoral Research Fellow, University of Connecticut. Assembling the Liverwort Tree of Life, chloroplast genome sequencing. May 2007 – August 2008.

GRANTS:

National Science Foundation (DEB-0408043), 2004-2007. Doctoral Dissertation Improvement Grant. PIs NW Wickett and B Goffinet. $11,430.

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

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

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

COURSES TAUGHT:

Functional Genomics, Northwestern University.
Winter, 2013 (BIOL SCI 378).

The Nature of Plants. Northwestern University.
Spring, 2012 (BIOL SCI 109-0).

Understanding Evolution from Seaweed to Salad. Freshman Seminar, Northwestern University.
Fall, 2011 (BIOL SCI 101-6, 16 students); Winter, 2012 (BIOL SCI 104-6, 12 students).

Current Topics in Biology. Undergraduate Seminar, University of Connecticut (BIOL 296).
Fall, 2004; Fall, 2006.

GRADUATE STUDENTS – PRIMARY ADVISOR:

Laura Briscoe, Northwestern University, MS student. Completed, August 2012.

GRADUATE STUDENTS – COMMITTEE MEMBER:

Benjamin Morgan, Northwestern University, PhD student.

Aleks Radosavljevic, Northwestern University, PhD student.

VISITING RESEARCHER:

University of Texas, R. Jansen lab: plastid isolations and sequencing, November, 2006.
Utah State University, P. Wolf lab: assembly and annotation of plastid genomes, May, 2006.
Penn State University, C. dePamphilis lab: genomic fosmid libraries, Summer 2004 and 2005.

PHD DISSERTATION:

Plastid genome evolution of the non-photosynthetic liverwort *Aneura mirabilis* (Malmb.) Wickett & Goffinet (Aneuraceae), University of Connecticut, Storrs. April 2007. Dissertation advisor: B Goffinet.

PUBLICATIONS:

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 *cys*A 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 pthe 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:

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

Wickett NJ, LA Honaas, EK Wafula, MP Timko, J Yoder, J Westwood & CW dePamphilis. Using stage-specific transcriptome sequencing to explore the causes and consequences of parasitism in plants. Duke University, April 29, 2010.

Wickett NJ. 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.

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

Wickett NJ & B Goffinet. Genes, Genomes and Gametophytes: Progress and problems in

molecular systematics of bryophytes. 58º Congresso Nacional Botânica, São Paulo, Brazil. November 2, 2007.

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

PUBLISHED ABSTRACTS:

(oral presentations unless otherwise noted; * indicates presenting author)

Wickett N*, 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. Meeting abstract in *Botany 2012 Abstracts*, Columbus, OH.

Wicke, S*, K Mueller, D Quandt, N Wickett, C dePamphilis & G Schneeweiss. 2012. Broomrape plastid genomes reveal distinct patterns of functional and physical gene deletion under relaxed selective constraints. Meeting abstract in *Botany 2012 Abstracts*, Columbus, OH.

dePamphilis, C, N 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. Meeting abstract in *Botany 2012 Abstracts*, Columbus, OH.

McKain, M*, N Wickett, Y Zhang, S Ayyampalayam, R McCombie *et al*. 2012. The effect of paleopolyploidy on genome evolution in Agavoideae. Meeting abstract in *Botany 2012 Abstracts*, Columbus, OH.

Honaas, L, E Wafula, N Wickett, Y Zhang, Z Zhang *et al*. 2012. The Parasitic Plant Genome Project. Meeting abstract in *Botany 2012 Abstracts*, Columbus, OH.

Jiao Y,* NJ Wickett, S Ayyampalayam, A Chanderbali, L Landherr, PE Ralph, LP Tomsho, Y Hu, H Liang, DE Soltis, SW Clifton, SE Schlarbaum, SC Schuster, H Ma, J Leebens-Mack & CW dePamphilis. 2011. Ancestral polyploidy in seed plants and angiosperms. Meeting abstract in *Plant & Animal Genomes XIX Conference*, San Diego, CA, January 15-19.

Westwood J*, M Fernandez-Aparicio, M Das, S Alford, V Stromberg, NJ Wickett, K Huang, B Wu, J Yoder, M Timko & CW dePamphilis. 2011. The evolution of weediness in parasitic plants of the Orobanchaceae. Meeting abstract in *Plant & Animal Genomes XIX Conference*, San Diego, CA, January 15-19.

Wickett NJ*, LA Honaas, EK Wafula, MP Timko, J Yoder, J Westwood & CW dePamphilis. 2010. Exploring the causes and consequences of parasitism through stage specific transcriptome sequencing in the parasitic plant family Orobanchaceae. Meeting abstract in *Botany 2010 Abstracts*, Providence, RI.

Forrest LL*, NJ Wickett, B Goffinet. 2010. Liverwort chloroplasts – into the next generation. Meeting abstract in *Botany 2010 Abstracts*, Providence, RI.

Wicke S*, D Quandt, KF Muller, NJ Wickett, CW dePamphilis & GM Scheeweiss. 2010. Plastid genome evolution – What's so different between autotrophs, semi- and non-autotrophic flowering plants? Meeting abstract in *Botany 2010 Abstracts*, Providence, RI.

Wickett NJ*, Y Zhang, Y Jiao, S Ayyampalayam, AS Chanderbali, PK Wall, H Liang, L Landherr-Shaeffer, P Ralph, S Schuster, H Ma, PS Soltis, DE Soltis, S Clifton, JE Carlson, J Leebens-Mack & CW dePamphilis. 2010. Evolution of floral development genes and gene families in basal angiosperms. Plant & Animal Genome Conference XVIII, San Diego, CA.

Wickett NJ*, PK Wall, J Yoder & CW dePamphilis. 2009. Genome evolution in the Orbanchaceae: evidence from large-scale EST studies and the Parasitic Plant Genome Project. Meeting abstract in *Botany 2009 Abstracts*, Snowbird, UT.

Wickett NJ*, CA Huizenga, LL Forrest, E Wafula & B Goffinet. 2009. Plastid genomes on the liverwort tree of life: challenges and progress. Meeting abstract in *Botany 2009 Abstracts*, Snowbird, UT.

Huizenga CA*, NJ Wickett, JM Budke, LE Parry & B Goffinet. 2008. Evolution of two chloroplast-encoded sulfate import genes, *cys*A and *cys*T, in liverworts. Poster abstract in *Botany 2008 Abstracts*, Vancouver, BC.

Wickett NJ*, Y Fan, PO Lewis & B Goffinet. 2007. Plastid genome decay in parasitic plants: insight from the non-photosynthetic liverwort *Aneura mirabilis*. Meeting abstract in *Botany 2007 Abstracts*, Chicago, IL.
Budke JM*, NJ Wickett & B Goffinet. 2007. Multiple losses of the *cys*A gene from the chloroplast genome of liverworts (Marchantiophyta). Meeting abstract in *Botany 2007 Abstracts*, Chicago, IL.

Wickett NJ*, Y Zhang, SK Hansen, JM Roper, JV Kuehl, SA Plock, B Goffinet, CW dePamphilis, PG Wolf, JL Boore. 2006. Towards a complete chloroplast genome sequence of the non-photosynthetic liverwort *Cryptothallus mirabilis* (Metzgeriales, Marchantiophyta). Meeting abstract in *Botany 2006 Abstracts*, *Bryological and Lichenological section,* Chico, CA.

Goffinet B, NJ Wickett*, AJ Shaw, RM Ros Espin, O Werner. 2006. Refining the circumscription of the Funariales (Bryophyta) bsed on chloroplast genome structure. Meeting abstract in *Botany 2006 Abstracts*, *Bryological and Lichenological section,* 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.

Wickett NJ* & B Goffinet. 2005. Relationships of the non-photosynthetic liverwort

Cryptothallus mirabilis Malmb. (Metzgeriales; Aneuraceae) inferred from seven loci. Meeting abstract in *Botany 2005 Abstracts*, *Bryological and Lichenological section,* Austin, TX.

Wickett NJ* & B Goffinet. 2004. Phylogenetics and genomics of the non-photosynthetic liverwort, *Cryptothallus mirabilis*. Meeting abstract in *Bryophylogeny 2004*, Göttingen, Germany (poster).

Goffinet, B*, NJ Wickett, CJ Cox & AJ Shaw. 2004. The evolution of the rpoA (cpDNA) region in mosses. *Bryophylogeny 2004*, Göttingen (Germany); (unpaginated abstract).

Cox CJ*, B Goffinet, AJ Shaw, NJ Wickett & WR Buck. 2004. The Moss Diversity Project. Meeting abstract in *Botany 2004 Abstracts*, *Bryological and Lichenological section,* Snowbird, UT.

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 achlorophylly on the structure and function of the chloroplast genome of *Cryptothallus mirabilis* (Aneuraceae). Meeting abstract in *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*. Meeting abstract *In Botany 2003 Abstracts, Bryological and Lichenological section,* p. 20. Outlaw Convention Center, 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. Meeting abstract *In Botany 2003 Abstracts, Bryological and Lichenological section,* p. 20. Outlaw Convention Center, Mobile, AL.

SERVICE:

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

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

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

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

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

OUTREACH:

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, Two Rivers Magnet School, East Hartford, CT: Bryophyte Team

Bioblitz 2003, New London, CT: Bryophyte Team

UNDERGRADUATE MENTORING

Barry Liu, bioinformatics, Penn State Univesity (undergraduate at Cornell University)
Jonathan Paulson, bioinformatics, Penn State University (State College High School student)
Michael Chips, large insert DNA libraries Penn State University
Cassandra Huizenga, PCR and sequencing, University of Connecticut
Lauren Parry, PCR and sequencing, University of Connecticut
Christopher Labreck, PCR and sequencing, University of Connecticut

PROFESSIONAL AFFILIATIONS:

Member, American Bryological and Lichenological Society
Member, Botanical Society of America
Member, Union of Concerned Scientists

PEER REVIEWER:

Molecular Biology and Evolution, Molecular Phylogeny and Evolution, Journal of Molecular Evolution, American Journal of Botany, Systematic Biology, Trends in Plant Science, Phytotaxa, Bryophyte Biology (2nd Edition, Cambridge University Press).