

**WARD CHRISTOPHER WHEELER**  
CURATOR AND PROFESSOR  
DIVISION OF INVERTEBRATE ZOOLOGY

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**HIGHEST DEGREE EARNED**

Ph.D.

**AREA OF SPECIALIZATION**

Molecular Systematics, Systematic Theory

**EDUCATIONAL EXPERIENCE**

Ph.D., Harvard University, 1985-1988

B.A., Yale College, 1981-1985

**PREVIOUS EXPERIENCE IN DOCTORAL EDUCATION**

FACULTY APPOINTMENTS

Adjunct Professor, Columbia University, 1991-present

Adjunct Professor, New York University, 1991-present

Adjunct Professor, City University of New York, 1989-present

COURSES TAUGHT

Systematics and Biogeography, Richard Gilder Graduate School, 2008-2011

Molecular Evolution, Molecular Systematics, Tutorial in Molecular Evolution, Theory  
and Use of POY

Phylogenomics--Aveiro, Portugal, 2007

Systematics—Copenhagen, Denmark, 2007

Systematics-Prohonice, Czech Republic, 2006

Systematics and Sequence Analysis, Helsinki, Finland, 2004

Molecular Systematics, Tucumán, Argentina, 2002

Computational Systematics, Espoo, Finland, 2001

Computational Systematics, Copenhagen, Denmark, 2000

DNA Sequence alignment et seq, Helsinki, Finland, 1999

Molecular Systematics, Uppsala Sweden; Helsinki, Finland, 1998

Molecular Systematics, Helsinki, Finland, 1995

Molecular Character Analysis, Tulgarn, Sweden, 1993

GRADUATE ADVISEES

Louise Crowley City University of New York , 2007-2009

Andres Varon, City University of New York, 2003-2010

Robert Schelly, Columbia University, 2000-2006

Taran Grant, Columbia University, 2000-2005

Julian Faivovich, Columbia University, 2000-2005

William Leo Smith, Columbia University, 2000-2005

Aloyisius Philips, Columbia University, 2002

Paul Vrana, Columbia University, 1994  
Michael Whiting, Cornell University, 1995  
Cheryl Hayashi, Yale University, 1996  
Amy Litt, City University of New York, 1999

#### GRADUATE COMMITTEES

##### **CHAIR**

Louise Crowley, City University of New York , 2007-2009  
Andres Varon, City University of New York, 2003-2010

##### **SERVED**

Pedro Peloso, Richard Gilder Graduate School, 2010-present  
John Denton, Richard Gilder Graduate School, 2009-present  
Alejandro Grajales, Richard Gilder Graduate School, 2009-present  
Isabelle Vea, Richard Gilder Graduate School, 2009-present  
Robert Schelly, Columbia University, 2000-2006  
Taran Grant, Columbia University, 2000-2005  
Julian Faivovich, Columbia University, 2000-2005  
William Leo Smith, Columbia University, 2000-2005  
Aloyisius Philips, Columbia University, 2002  
Amy Litt, City University of New York, 1999  
Daniel Thornton, Columbia University, 1997  
Benjamin Evans, Columbia University, 1997  
Cheryl Hayashi, Yale University, 1996  
Michael Whiting, Cornell University, 1995  
Paul Vrana, Columbia University, 1994

#### **RESEARCH GRANT SUPPORT**

##### FEDERAL SOURCES

Department of Defense-DARPA “Viral phylogenetics and pathogenicity.” 2012 to 2013  
Department of Defense-DARPA “Novel analytical and empirical approaches to the origin and prediction of pathogenicity” 2010-2012  
National Science Foundation, “Crow-Omaha Kinship Systems” (with Peter Whitely) 2009-2011  
Department of Defense-DARPA, Novel analytical and empirical approaches to the origin and prediction of pathogenicity, 2009 - 2010  
Google.org. The Supramap project: Linking and Google Earth and Genomics to Fight Emergent Infectious Diseases”, 2008  
Army Research Office, Novel Analytical and Empirical Approaches to the Origin and Prediction of Pathogenicity, June 1, 2005-May 31, 2009.  
National Science Foundation, Building the Tree of Life: A National Resource for Phyloinformatics and Computational Phylogenetics, October 1, 2004-September 30, 2008.

- National Science Foundation, Collaborative Research: Assembling the Tree of Life: An Integrated Approach to the Origin and Diversification of Protostomes, January 1, 2004-December 31, 2005.
- National Aeronautics and Space Administration, A Proposal to Train the Next Generation and to Enhance the Infrastructure for Education and Research at the Frontiers of Science, March 1, 2003-August 31, 2005.
- National Science Foundation, ATOL: Assembling the Tree of Life: Phylogeny of Spiders, October 1, 2002-September 30, 2007.
- National Science Foundation, Supplement: ATOL: Phylogeny of Spiders, October 1, 2002-September 30, 2007.

#### **RECENT ARTICLES IN REFEREED JOURNALS (2006-2011)**

- Wheeler, W. C., P. M. Whiteley, and T. Powers. 2011. Phylogenetic Analysis of Socio-Cultural Data: Identifying Transformation Vectors for Kinship Systems. *Transformative Kinship: Engaging the Crow-Omaha Transition*. ed. P. Whiteley. University of Arizona Press, in press.
- Sharkey, M. J., J. M. Carpenter, L. Vilhelmsen, J. Heraty, D. Hawks, A. P. G. Dowling<sup>5</sup>, S. Schulmeister, D. Murray, A. R. Deans, F. Ronquist, L. Krogmann, and W. C. Wheeler. Phylogenetic Relationships Among Superfamilies of Hymenoptera. *Cladistics*, in press.
- Heraty, J., F. Ronquist, J. M. Carpenter, D. Hawks, S. Schulmeister, A. P. Dowling, D. Murray, J. Munro, W.C. Wheeler, and N. Schiff. Evolution of the Hymenopteran Megaradiation. *Mol. Phyl. And Evol.*, in press.
- Janies, D. A., T. Treseder, B. Alexandrov, F. Habib, J. J. Chen R. Ferreira, Ü. Catalyürek, A. Varón, W. C. Wheeler. 2011. The Supramap project: Linking pathogen genomes with geography to fight emergent infectious diseases. *Cladistics* 27:61-66.
- Wheeler, W. C. 2010. Distinctions between optimal and expected support. *Cladistics* 26:657-663.
- Varón, A., Vinh, L. S., and W. C. Wheeler. 2010. POY version 4: phylogenetic analysis using dynamic homologies. *Cladistics* 26:72-85.
- Faivovich, J., C. Haddad, D. Baeta, K-H. Jungfer, G. Álvares, R. Brandão, C. Sheil, L. S. Barrientos, C. Barrio- Amorós, C. A. G. Cruz, and W. C. Wheeler. The phylogenetic relationships of Phyllomedusinae (Anura, Hylidae): A group of poster frogs. 2010. *Cladistics* 26:227-261.
- Hejnol, A., M. Obst, A. Stamatakis, M. Ott, G. W. Rouse, G. D. Edgecombe<sup>5</sup>, P. Martinez, J. Bagnà, X. Bailly, U. Jondelius, M. Wiens., W. E.G. Müller., E. Seaver, W. C. Wheeler, M. Q. Martindale, G. Giribet, and C. W. Dunn. 2009. Assessing the root of bilaterian animals with scalable phylogenomic methods. *Proc. Royal. Soc. B.* 276:4261 - 4270.
- Wheeler, W. C. and G. Giribet. 2009. "Phylogenetic hypotheses and the utility of multiple sequence alignment," pp 95-104, in M. Rosenberg eds., *Sequence Alignment: Methods, Models, Concepts, and Strategies*. University of California Press: Berkeley, CA.
- Schuh, R.T., C. Weirauch, and W.C. Wheeler. 2009. Phylogenetic analysis of family

- group relationships in the Cimicomorpha (Hemiptera). *Systematic Entomology* 34:15-48.
- Varón, A., and W. C. Wheeler. 2008. Application note: on extension gap in POY version 3. *Cladistics* 24:1070.
- Wheeler, W. C. and K. M. Pickett. 2008. Topology-Bayes versus Clade-Bayes in Phylogenetic Analysis. *Mol. Biol. Evol.* 25:447-453.
- Dunn, C. W., A. Hejnol, D. Q. Matus, K. Pang, W. E. Browne, S. A. Smith, E. Seaver, G.W. Rouse, M. Obst, G. D. Edgecombe, M. V. Sørensen, S. H.D. Haddock, A. Schmidt-Rhaesa, A. Okusu, R. M. Kristensen, W. C. Wheeler, M. Q. Martindale, and G. Giribet. 2008. Broad phylogenomic sampling improves resolution of the Animal Tree of Life. *Nature* 452:745-749.
- Murienne, J., R. Pellens, R. B. Budinoff, W. C. Wheeler, and P. Grandcolas. 2008. Phylogenetic analysis of the endemic New Caledonian cockroach *Lauraesilpha*. Testing competing hypotheses of diversification." *Cladistics* 24:1-11.
- Pickett, K. M., G. L. Tolman, W. C. Wheeler, and J. W. Wenzel. (In press) Parsimony overcomes statistical inconsistency with the addition of more data from the same gene. *Cladistics*.
- Smith, W. L. and W. C. Wheeler. (In press) Venom evolution widespread in fishes: A phylogenetic roadmap for the bioprospecting of piscine venoms. *J. Heredity*. In press.
- Pickett, K. M., J. M. Carpenter, J. Kojima, J. W. Wenzel, and W. C. Wheeler. (In press) The ancestor of paper wasps was not solitary. *Science*.
- Ogden, T. H., M. F. Whiting, and W. C. Wheeler. (In press) Poor taxon sampling, poor character sampling, and non-repeatable analyses of a contrived dataset do not provide a more credible estimate of insect phylogeny: a reply to Kjer. *Cladistics*.
- Arango, C.A., and W.C. Wheeler. 2007. Phylogeny of the sea spiders (Arthropoda, Pycnogonida) based on direct optimization of six loci and morphology. *Cladistics* 23:1-39.
- Giribet, G., and W.C. Wheeler. 2007. The case for sensitivity: response to Grant and Kluge. *Cladistics* 23: 1-3.
- Janies, D., A. W. Hill, E. Waltari, R. Guralnick, F. Habib, and W.C. Wheeler. 2007. Genomic analysis and geographic visualization of the spread of avian influenza. *Systematic Biology* 56: 31-39.
- Frost, D. R., T. Grant, J. Faivovich, R. Bain, A. Haas, C.F.B. Haddad, R.O. de Sá, S. C. Donnellan, C.J. Raxworthy, M. Wilkinson, A. Channing, J.A. Campbell, B.L. Blotto, P. Moler, R.C. Drewes, R.A. Nussbaum, J.D. Lynch, D. Green, and W. C. Wheeler. 2006. The amphibian tree of life. *Bulletin of the American Museum of Natural History* 297: 1-370.
- Ly Se, V., A. Varon, and W.C. Wheeler. 2006. Pairwise alignment with rearrangement. *Genome Informatics* 17: 141-151.
- Pellens, P., C. D'Haese, X. Bellés, M.-D. Piulachs, F. Legendre, W.C. Wheeler, and P. Grandcolas. 2007. The evolutionary transition from subsocial to eusocial behavior in Dictyoptera: phylogenetic evidence for modification of the "shift-dependent-care" hypothesis with a new subsocial cockroach. *Molecular Phylogenetics and Evolution* 46: 616-627.

- Ramírez, M.J., J.A. Coddington, W.P. Maddison, P. Midford, L. Prendini, J. Miller, C.E. Griswold, G. Hormiga, P. Sierwald, N. Scharff, S.P. Benjamin, and W.C. Wheeler. (2007). Linking of digital images to phylogenetic data matrices using a morphological ontology. *Systematic Biology* 56: 283–294.
- Richter, S., J. Olesen, and W.C. Wheeler. 2007. Phylogeny of Branchiopoda (Crustacea) based on a combined analysis of morphological data and six molecular loci. *Cladistics* 23: 1-36.
- Wheeler, W.C. 2007. The analysis of molecular sequences in large data sets: where should we put our effort? *In* R. Hodkinson and J. A. N. Parnell (editors), *Reconstructing the Tree of Life: Taxonomy and Systematics of Species Rich Taxa*, 113-128 Oxford: Oxford University Press.
- Pickett, K.M., J.M. Carpenter, and W.C. Wheeler. 2006. Systematics of *Polistes* (Hymenoptera: Vespidae), with a phylogenetic consideration of Hamilton's haplodiploidy hypothesis. *Annales Zoologici Fennici* 43: 390-406.
- Wheeler, W.C. 2006. Dynamic homology and the likelihood criterion. *Cladistics* 22: 157-170.
- Wheeler, W.C. , M.J. Ramírez, L. Aagesen, and S. Schulmeister, 2006. Partition-free congruence analysis. *Cladistics* 22: 256-263.
- Wheeler, W.C., L. Aagesen, C.P. Arango, J. Faivovich, T. Grant, C. D'Haese, D. Janies, W.L. Smith, A. Varon, and G. Giribet. 2006. Dynamic Homology and Phylogenetic Systematics: a Unified Approach Using POY. *American Museum Novitates*. Pp 445.

#### **SPECIAL RECOGNITION/AWARDS**

- Honorary Professorship “Bingzhi Forum,” Institute of Zoology, Chinese Academy of Sciences, 2010
- Who’s Who in America, 2007-2010
- US Patent “A method for search-based optimization” #7043371, 2006
- University of Helsinki Bronze Medallion, 1995
- Sloan Foundation Postdoctoral Fellow, 1988-1989
- National Institutes of Health Graduate Fellow, 1988
- Willi Hennig Society: Don Rosen Award for best student paper, 1986
- National Science Foundation Graduate Fellow, 1985-1988