

Curriculum Vitae

NAME Richard Matthew McCourt

ADDRESS Associate Curator of Botany
Academy of Natural Sciences
19th and the Parkway
Philadelphia, PA 19103
Office: 215-299-1139
Email: mccourt@ansp.org

Country of citizenship: USA

EDUCATION

Ph.D., 1983, University of Arizona, Tucson; Ecology and Evolutionary Biology
M.S., 1979, University of Arizona, Tucson; Ecology and Evolutionary Biology
B.A., 1974, summa cum laude, Lewis & Clark College, Portland, Oregon; Biological Sciences

PROFESSIONAL EXPERIENCE

National Science Foundation, Program Director, Division of Graduate Education, August 2010-present; Division of Biological Infrastructure 2005-08; Division of Environmental Biology 2008-09. 4201 Wilson Blvd., Arlington, VA 22230; 703-292-5199.

Coordinating review panels, recruiting scientists, evaluating and recommending proposals for funding in numerous programs (GK-12 Biological Research Collections, Major Research Instrumentation, Interdisciplinary Education and Research Traineeships, Frontiers in Biological Research, Microbial Genome Sequencing, Systematic Biology, Biodiversity Inventories, Assembling the Tree of Life, Partnerships for Enhancing Expertise in Taxonomy, Minority Postdoctoral Fellowships, Living Stocks Collections); Interagency Working Group on Scientific Collections (conducted survey and prepared report for NSF and OSTP); Microbial Systems in the Biosphere working group.

Academy of Natural Sciences, Associate Curator of Botany, 1997-to present. 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103
On leave 2005-2009. Curator for plant collection of over 1 million specimens; conducted externally funded research; published peer-reviewed articles and book chapters; publications for the public; consulted on exhibit design for national touring exhibit on Lewis and Clark Bicentennial; adjunct faculty and teaching at Drexel University; lecturing to Women in Natural Science Program for teenage inner-city girls; lectured a Barnes Foundation on molecular systematics of plants.

DePaul University, Chicago. 1 E. Jackson Blvd., Chicago, IL 60604; 312-362-8000.
Assistant Professor (1989-96); Associate Professor with tenure (1996-97).
Taught classes (Introductory Biology; Ecology; Evolution; Algal Biology; Aquatic Biology; Biology for Non-Majors); supervised Master's graduate student research; conducted externally funded research on molecular systematics and

evolution of algae; published articles and chapters on algal research; co-edited book on science writing.

HONORS, AWARDS OR RECOGNITION

Lewis and Clark College Distinguished Alumnus Award, 2004
 Sloan Sabbatical Grant in Molecular Systematics (1993-94)
 AAAS Westinghouse Award for Science Journalism (for series on National Public Radio)

PROFESSIONAL SOCIETIES

Botanical Society of America
 Phycological Society of America
 European Phycological Society
 International Phycological Society
 Society for Systematic Biology
 National Association of Science Writers

SELECTED GRANTS AND AWARDS

National Science Foundation

2010-2015. \$518,000. ATOL: Collaborative Research: Assembling the Green Algal Tree of Life (GRAToL). (I am the Lead PI for five institution grant for \$3M)
 2010-2013. \$30,000. Collaborative Research: Phylogeny and Systematics of the Characeae (Charales). (I am co-PI with a grant to the New York Botanical Garden for \$350,000)
 *2004-2007. \$499,972. "Curation of Aquatic Survey Collections at the Academy of Natural Sciences." Co-PI with Dr. Gary Rosenberg.
 1999-2004, \$747,169. "PEET: A unified approach to systematics of basal streptophytes (Charophycean green algae)." Co-PI with Dr. C. F. Delwiche, University of Maryland.
 2002-2003. \$462,018. BRC program, "Behind closed doors: New cabinetry for the Herbarium at the Academy of Natural Sciences, Philadelphia (PH)." Co-PIs Dr. L. A. McDade and J. A. Macklin.
 1997-2000, 2000-2003; 2004-2009. \$240,000 for first two, \$355,409 for most recent. REU site awards: "Collections-Based Research Experiences for Undergraduates at The Academy of Natural Sciences." Co-PI with Dr. D. D. Dagit and Dr. Jon Gelhaus.
 1994-1997, \$215,000. Systematics Program, "Molecular and morphological phylogenetic systematics of extant and fossil Characeae." (Principal Investigator); 1995-1996, 1996-1997.
 Research Experience for Undergraduates (REU) supplements to REU Sites grant for 2004; Research Experience for Teachers for BRC award.
 *Withdrew as co-PI upon taking position as Program Director with NSF, June 2005.

National Park Service-Saving America's Treasures. \$300,000. Upgrading storage conditions for the Lewis and Clark Herbarium at the Academy of Natural Sciences.

Sloan Foundation Sabbatical Fellow in Molecular Systematics, 1993-94.

USDA/NSF. "Deep Green: The Origins and phylogeny of green plants: A research coordination group." (PI's Mark Buchheim, Russell Chapman, and Brent Mishler). 5-year grant from Joint Program on Collaborative Research in Plant Biology.

PUBLICATIONS

2010. McCourt, R. M. A Brief Natural History of Algae in the Gulf of California. In R. C. Brusca, , Ed. *Biodiversity and Conservation in the Gulf of California*. University of Arizona Press, Tucson, Arizona.
2009. Skog, J., McCourt, R.M., Corman, J. *The NSF Scientific Collections Survey: A Brief Overview of Findings*. [NSF Report](#)
2008. Hall, J. D., McCourt, R. M., and Delwiche, C. F. Patterns of cell division in the filamentous Desmidiaceae, close green algal relatives of land plants. *Amer. Journal of Botany* 95: 643-654.
2008. Hall, J. D., Karol, K. G., McCourt, R. M., and Delwiche, C. F. Phylogeny of the conjugating green algae based on chloroplast and mitochondrial nucleotide sequence data. *Journal of Phycology* 44:467-477.
2006. Hausner G, Olson R, Simon D, Johnson I, Sanders ER, Karol KG, McCourt RM, Zimmerly S. Origin and evolution of the chloroplast trnK (matK) intron: A model for evolution of group II intron RNA structures. *Molecular Biology and Evolution*. 23(2):380-391.
2005. Drummond CS, Hall J, Karol KG, Delwiche CF, McCourt RM. Phylogeny of *Spirogyra* and *Sirogonium* (Zygnematophyceae) based on *rbcL* sequence data. *Journal of Phycology*. 41(5):1055-1064.
2005. Adl SM, Simpson A. G. B., Farmer M. A., Andersen R. A., Anderson O. R., Barta J. R., Bowser S. S., Brugerolle G., Fensome R. A., Fredericq S., James T. Y., Karpov S., Kugrens P., Krug J., Lane C. E., Lewis L. A., Lodge J., Lynn D. H., Mann D. G., McCourt R. M., Mendoza L., Moestrup Ø., Mozley-Standridge S. E., Nerad T. A., Shearer C. A., Smirnov A. V., Spiegel F. W., Taylor M. F. J. R. The new higher level classification of eukaryotes with emphasis on the taxonomy of protists. *Journal of Eukaryotic Microbiology*. 52(5):399-451.
2005. Feist, M. Grambast-Fessard, N., Guerlesquin M., Karol, K.G., McCourt, R.M, Lu Hui-nan, Zhang Shan-zen & Wang Qi-fei. *Treatise on Invertebrate Palaeontology*, Part B, Protista, Vol.1, Charophyta. Geological Society of America & The University of Kansas Press.
2004. Woo, H., Glenn, E., Brusca, R. C., and McCourt, R. M. Algae. *In* Seashore Guide to the Northern Gulf of California. R. C. Brusca, E. Kimrey, and W. Moore, Eds. Arizona-Sonora Desert Museum, Tucson, AZ.
2004. McCourt, R. M. and Spamer, E. E. On the paper trail in the Lewis & Clark Herbarium. *Bartonia* 62:1-24.
2004. Spamer, E. E. and McCourt, R. M. The second two hundred years are better: the endearing enduring plants of Lewis and Clark. *Bartonia* 62:93-100.
2004. McCourt RM, Delwiche CF, Karol KG. Charophyte algae and land plant origins. *Trends in Ecology and Evolution*. 19(12):661-666.

2004. Lewis LA, McCourt RM. Green algae and the origin of land plants. *American Journal of Botany* 91(10):1535-1556.2005.
2004. Delwiche, C. F., Andersen, R.A. Bhattacharya, D. Mishler, B. D., and McCourt, R. M. 2004. Algal evolution and the early radiation of green plants. Pp. 121-137. IN: Cracraft, J. and Donoghue, M. J. *Assembling the Tree of Life*. Academic Press. New York.
2003. Sanders, E. R., Karol, K. G., and McCourt, R. M. Occurrence of *matK* in a *trnK* group II intron in charophyte green algae, and phylogeny of the Characeae. *American Journal of Botany*. 90:628-633.
2002. Spamer, E. E., and McCourt, R. M. 2002. *The Lewis and Clark Herbarium, Academy of Natural Sciences of Philadelphia (PH-LC): Digital imagery study set*. Academy of Natural Sciences of Philadelphia, Special Publication 19, CD-ROM.
2002. Spamer, E. E., and McCourt, R. M. 2002. The Lewis and Clark Herbarium of the Academy of Natural Sciences. Part 1. History. *Notulae Naturae*, no. 475, 46 pp.
2002. McCourt, Richard M., Catharine Hawks, and Earle E. Spamer. 2002. The Lewis and Clark Herbarium of the Academy of Natural Sciences. Part 2. Saving an American Treasure: Preservation of the herbarium on the bicentennial of the expedition. *Notulae Naturae*, no. 476, 16 pp.
2002. Teece, M. A., Fogel, M. L., Tuross, N., McCourt, R. M., and Spamer, E. E.. 2002. The Lewis and Clark Herbarium of the Academy of Natural Sciences. Part 3. Modern environmental applications of a historic nineteenth century botanical collection. *Notulae Naturae*, no. 477, 20 pp.
2001. Karol, K. G., McCourt, R. M., Cimino, M. T., Delwiche, C. F. The closest living relatives of land plants. *Science* 294: 2351-2353
2000. McCourt, R. M., Karol, K. G., Bell, J., Helm-Bychowski, K., Grajewska, A., Wojciechowski, M. F., and Hoshaw, R. W. Phylogeny of the conjugating green algae (Zygnemophyceae: Desmidiaceae, Zygnematales) based on *rbcl* sequences. *Journal of Phycology* 36:747-758.
2000. Spamer, E. E., McCourt, R. M., Middleton, R., Gilmore, E., Duran, S. B. A national treasure: Accounting for the natural history specimens from the Lewis and Clark Expedition (western North America 1803-1806) in the Academy of Natural Sciences of Philadelphia. *Proc. Acad. Nat. Sci. Phil.* 150:47-58.
1999. McCourt, R.M., Karol, K.G., and Casanova, M.T. Monophyly of genera and species of Characeae based on *rbcl* sequences, with special reference to Australian and European *Lychnothamnus barbatus* (Characeae: Charophyceae). *Australian Journal of Botany* 47 (1):361-369.
1998. Chapman R.L., Buchheim M.A., Delwiche C.F., Friedl T., Huss V.A.R., Karol K.G., Lewis L.A., Manhart J., McCourt R.M., Olsen J.L., and Waters D.A. 1998. Molecular systematics of the green algae. pp. 508-540. In Soltis P., Soltis D., & Doyle, J.J. (Eds.) *Molecular Systematics of Plants II*. Chapman and Hall.
1998. Circumscription of the Malvales and relationships to other Rosidae: Evidence from *rbcl* sequence data. In press *American Journal of Botany* 85:876-887.
1996. Park, N.E., Karol, K.G., Hoshaw, R.W., and McCourt, R.M. Phylogeny of *Gonatozygon* and *Genicularia* (Gonatozygaceae, Desmidiaceae) based on *rbcl* sequences. *European Journal of Phycology* 31:309-313.

1996. McCourt R.M., Karol K.G., Guerlisquine M., and Feist M. Phylogeny of extant genera in the Family Characeae (Division Charophyta) based on *rbcL* sequences and morphology. *American Journal of Botany* 83(1): 125-131.
1996. McCourt, R.M., Meiers S., Karol K.G., and Chapman, R.L. Molecular systematics of the Charales. pp. 323-336. *In* Chaudhary B.R. and Agrawal S.B. [Eds.] *Cytology, Genetics and Molecular Biology of Algae*. SPB Publishing, Amsterdam.
1996. McCourt R.M. Robert W. Hoshaw. pp. 318-326. *In* Garbary D. and Wynne M. [Eds.] *Prominent Phycologists of the 20th Century*. Phycological Society of America. Lawrence, KS.
1995. McCourt R. M., Karol K., Kaplan S., and Hoshaw R.W. Using *rbcL* sequences to test hypotheses of chloroplast and thallus evolution in conjugating green algae (Zygnematales, Charophyceae). *Journal of Phycology* 31:989-995.
1995. McCourt, Richard M. Green algal phylogeny. *Trends in Ecology and Evolution* 10: 159-163.
1993. Clayton K.L., Hoshaw R.W. & McCourt R.M. Effects of acidic growth conditions on systematic characters in the conjugating green algae (Zygnemataceae, Chlorophyta). pp. 119-127. *In*: W.G. Landis, J.S. Hughes & M.A. Lewis [eds.] *Environmental Toxicology and Risk Assessment*, ASTM STP1179, American Society for Testing and Materials, Philadelphia.
1992. Manhart J.R. & McCourt R.M. Molecular data and species concepts in the algae. *Journal of Phycology* 28:730-737.
1990. McCourt R. M. & Hoshaw R.W. Noncorrespondence of morphology, breeding groups, and monophyly in *Spirogyra* and the application of species concepts. *Systematic Botany* 15:69-78.
1990. Hoshaw R.W., McCourt R.M., & Wang J.C. Conjugaphyta. pp. 119-131. *In*: L. Margulis, J. O. Corliss, M. Melkonian, & D. Chapman [Eds] *Handbook of Protoctista*. Jones and Bartlett Publishers, Inc., Boston, MA.
1990. McCourt, R.M. *Laboratory Manual to Accompany Biology by Wessels and Hopson*. McGraw-Hill Co., New York.
1990. McCourt R.M. Algal cladistics: A report on the 1989 Willi Hennig Meeting. *Phycological Newsletter*: 4:8-9.
1989. Wang J.C., McCourt R.M. & Hoshaw R.W. Diversity of *Spirogyra* (Chlorophyta) morphotypes on an elevational gradient in a southern Arizona stream. *British Phycological Journal* 24:367-373.
1988. Hoshaw R.W. & McCourt R.M. The Zygnemataceae (Chlorophyta): A twenty-year update of research. *Phycologia* 27:511-548.
1987. Hoshaw R.W., Wells C.V. and McCourt R.M. A polyploid species complex in *Spirogyra maxima* (Chlorophyta, Zygnemataceae), a species with large chromosomes. *Journal of Phycology* 23:267-273.
1986. McCourt R.M., Hoshaw R.W. & Wang J.C. Distribution, morphological diversity and evidence for polyploidy in North American Zygnemataceae (Chlorophyta). *Journal of Phycology* 22:307-313.
1986. Wang J.C., Hoshaw R.W. & McCourt R.M. A polyploid species complex of *Spirogyra communis* (Chlorophyta) occurring in nature. *Journal of Phycology* 22:102-107.

- 1985 McCourt R.M. Biomass allocation patterns in three species of intertidal *Sargassum*. *Oecologia* 67:113-117.
- 1984a. McCourt R.M. Niche differences between sympatric *Sargassum* species in the northern Gulf of California. *Marine Ecology Progress Series* 18:139-148.
- 1984b. McCourt R.M. Seasonal patterns of abundance, distributions, and phenology in relation to growth strategies of three *Sargassum* species. *Journal of Experimental Marine Biology and Ecology* 74:141-156.
- 1984c. McCourt R.M., Michaels A.F. and Hoshaw R.W. Seasonality of symbiotic *Prochloron* (Prochlorophyta) and its Didemnid host in the northern Gulf of California. *Phycologia* 23:95-101.
- 1984d. McCourt R.M. and Thomson D.A. Cleaning behavior of the juvenile Panamic sergeant major, *Abudefduf troschelii* (Gill), with a résumé of cleaning associations in the Gulf of California and adjacent waters. *Calif. Fish and Game* 70: 234-239.
1979. McCourt R.M. and Kerstitch A.N. Mating behavior and sexual dimorphism in dentition in the stingray *Urolophus concentricus* from the Gulf of California. *Copeia* 1980:900-901.

PAPERS SUBMITTED OR IN PREPARATION

- Hall, J.D. and McCourt, R.M. (Submitted) Conjugaphyta. In *Handbook of Protoctista*, Vol.2. L. Margulis, editor.
- Hall, J.D., McCourt, R.M., and Karol, K.G. (Submitted) Charophyta. In *Phylocode Companion Volume*. DeQueiroz, K. (Ed.)
- McCourt, R. M., Karol, K. G., Feist, M., Casanova, M., Delwiche, C. F., and Procter, V. Phylogeny of *Chara*.
- Karol, K. G., McCourt, R. M., Feist, M., Casanova, M., and Delwiche, C. F. Phylogeny of *Nitella*.

BOOKS AND SCIENCE JOURNALISM

2006. Readdie, M., Ranalletti, M., and McCourt, R. M. *Gulf of California Marine Algae*. Sea Challengers Press, California.
2004. McCourt, R.M. and Spamer, E.E. *Jefferson's Botanists: Lewis & Clark Discover the Plants of the West*. Academy of Natural Sciences.
2003. McCourt, R. M. and Spamer, E. E. The botanical legacy of Lewis and Clark: The most famous collection you never heard of. *Plant Science Bulletin*, December, pp. 126-130. (<http://www.botany.org/bsa/psb/2003/psb49-4.html#Lewis>)
1995. Anton, T. and McCourt, R.M. *The New Science Journalists*. Ballantine Books.
1991. McCourt, R.M. "Some Like it Hot." *Discover Magazine*. August.
1990. McCourt, R.M. "Model Patients." *Discover Magazine*. August 1990.

INTERNET AND MEDIA

2006. Spamer, E.S. and McCourt, R. M. *Lewis and Clark's Lost World: Paleontology and the Expedition*. Discovering Lewis and Clark Web Site. Joseph Mussulman,

Editor. (<http://www.lewis-clark.org/content/content-channel.asp?ChannelID=372>).

2002. Spamer, E.S. and McCourt, R. M. *The Lewis and Clark Herbarium, The Academy of Natural Sciences (PH-LC): Digital Imagery Study Set*. CD-ROM. Academy of Natural Sciences Special Publication No. 19.
2004. Interviewed on National Public Radio's *Talk of the Nation Science Friday*. April 2, 2004. (http://www.sciencefriday.com/pages/2004/Apr/hour2_040204.html)

TEACHING

DePaul University, Introductory Biology, Ecology, Aquatic Biology, Phycology, Evolution, Biology for nonmajors.
Drexel University, course in Phycology, spring 2002.
University of Pennsylvania, invited lecturer in environmental studies, 1999.
Millersville University, invited lecturer in phycology and plant biology courses, 2002-03
Barnes Foundation, invited lectures on plant molecular systematics, 2001-04.
Swarthmore College, invited lecture on molecular systematics and the origin of angiosperms.
Panel discussion participant, Harvard University, "Plants in the historic landscape," 2002.

INVITED PRESENTATIONS AND INVITED SEMINARS

Fort Clatsop National Memorial, Astoria, Oregon
Germantown Friends School (K-12)
Harvard University
Lewis and Clark College, Portland Oregon
Lexington Gardening Society
Millersville University, Lancaster, PA
Missouri Historical Society
Monticello Center for Historic Plants
Philadelphia University
Royal Botanical Gardens at Kew
Smithsonian Institution, Molecular Systematics Laboratory
Smithsonian Lecture Series on the Heritage of the Lewis and Clark Expedition
Springside Girl's School (K-12)
Stockton State College
University of California at Berkeley, CA
University of Connecticut
University of Kentucky Arboretum
University of Maryland
University of Pennsylvania (Depts. Of Biology and Geosciences)
W. Saul High School for Agricultural Sciences
Women in Natural Sciences Program at Academy of Natural Sciences

PROFESSIONAL SERVICE (INTERNAL TO DEPAUL UNIVERSITY AND ANSP)

DePaul University

Served on search committees in Environmental Science, Molecular Biology, Ecology
 Search committee, Dean of the College of Liberal Arts

ANSP Lewis and Clark Bicentennial

Academy-wide Coordinating Committee

Education Department—Lectures, writing and committee work to develop lesson plans for national education curriculum ([Missouri Historical Society Educator Site](#))

Coordinate Save America's Treasures grant

Behind the Scenes Tours of the Botany Department and Lewis and Clark Herbarium (40-50 per year)

Exhibit Design: Assist in design of exhibits for Republican National Convention, 2002 on Jefferson's Scientific Legacy; Curator's Corner; Genome; Biodiversity 911; Biodiversity Road Show; Philadelphia International Airport Lewis and Clark exhibit, 2004-2005.

Public speeches for groups visiting Academy from Lewis and Clark College, Ohio Wesleyan University, miscellaneous groups of students, etc.

Work with ANSP gift shop to develop pins, posters, hats, etc. with Academy connection to Lewis and Clark

Committee Work

Lewis and Clark Bicentennial preparation committee.

Chair, Ichthyology Search Committee

Chair, Internal Review Committee for Dr. Dominique Dagit; Member of Internal Review Committee for Dr. Theodore Daeschler

Strategic Planning Committees (Public Affairs, Databasing Infrastructure, Education)

Safety Committee

Information Committee, Center for Systematic Biology and Evolution

Organizing Committee, Symposium 300th Anniversary of John Bartram's Birth, May 1999, Academy of Natural Sciences.

Provide text and image information for venues exhibiting Lewis and Clark specimens, botany specimens.

Interviewed by reporters for stories on green algal research, Lewis and Clark, and miscellaneous natural history subjects.

PROFESSIONAL SERVICE (EXTERNAL)

Search Committee Member, Smithsonian, Department of Botany, 2004.

Phycological Society of America:

1997-1999. Vice-President, President, Past-President

2000-2005. Membership Director

2008-present. Chairman, Board of Trustees

Botanical Society of America

2001-2005. Secretary, Phycological Section of Botanical Society of America

Treasurer, Philadelphia Botanical Club (2003-2005)

Manuscript reviewer for *Journal of Phycology*, *Phycologia*, Royal Society of Edinburgh Rhynie Chert volume, *American Journal of Botany*, *New Zealand Journal of Botany*, *Plant Physiology*,
External reviewer for Australian Biological Resources Study program.

JOURNALISM EXPERIENCE

Free-lance science reporter, National Public Radio, 1980-1996.
1985 Westinghouse Science Writing Award for Science Journalism, Radio Division.

References

Dr. Judy Skog
 Department of Biology
 George Mason University
 Fairfax, VA 22030
 (703) 993-1026/1050; Fax (703)993-1046
 Email: JSKOG@GMU.EDU

Dr. Penny Firth
 Deputy Division Director
 Division of Environmental Biology
 National Science Foundation
 4201 Wilson Blvd.
 Arlington, VA 22230
 (703)292-8480
 Email: pfirth@nsf.gov

Dr. Muriel Poston
 Dean of Liberal Arts and Sciences
 Skidmore College
 815 North Broadway
 Saratoga Springs, NY 12866
 518-580-5079
 Email: mposton@skidmore.edu

Dr. Charles F. Delwiche
 Associate Professor
 Department of Cell Biology and Molecular Genetics
 2108 Biosciences Research Building
 University of Maryland at College Park
 College Park, MD 20742
 301-405-8286
 Email: delwiche@umd.edu

Dr. Machi Dilworth
 National Science Foundation
 4201 Wilson Blvd.
 Arlington, VA 22230
 (704)292-8480
 Email: mdilworth@nsf.gov