

14 May 2012

Michael Foote
University of Chicago

**Professor, Geophysical Sciences, Committee on Evolutionary Biology,
Committee on Conceptual and Historical Studies of Science,
and the College**

Born: June 7, 1963, West Islip, New York
A.B.: 1985, Geological Sciences, Harvard University
S.M.: 1988, Evolutionary Biology, University of Chicago
Ph.D.: 1989, Evolutionary Biology, University of Chicago

Principal Professional Positions

2006- Chairman, Department of the Geophysical Sciences
2003-06 Master, Physical Sciences Collegiate Division
Associate Dean, Physical Sciences Division and the College
1994- Associate Professor (1994-2000) and Professor, Geophysical Sciences,
The Committee on Evolutionary Biology,
The Committee on Conceptual and Historical Studies of Science (2004-), and the College
1990-1994 Assistant Curator, Museum of Paleontology and Assistant Professor, Geological Sciences,
University of Michigan
1989-1990 Assistant Professor, Biology, Wake Forest University

Other Professional Positions

1996- Research Associate, Geology, Field Museum of Natural History
1987-1988 Teaching Assistant, University of Chicago

Honors and Awards

2005- Fellow of the Paleontological Society
2000 Charles Schuchert Award of the Paleontological Society
1988-89 Searle Fellowship, University of Chicago
1985-88 National Science Foundation Graduate Fellowship

Research Grants

National Aeronautics and Space Administration: 2010-
National Science Foundation: 1992-99, 2001-2005
NSF DDIG program: Hallie Sims (1998-2000), Gene Hunt (2001-03), Brian Sidlauskas (2004-06)
American Chemical Society (Petroleum Research Fund): 1990-94, 2004-06
Geological Society of America: 1988
Society of Sigma Xi: 1987

Departmental Activities (selected)

1995-2006 Committee on new appointments (chair 2002-2004)
1995-2006 Chair, Student affairs committee
1999-2001 Graduate advisory committee
1995-1998 Steering committee, NSF biodiversity training grant
1991-1994 Curriculum committee

University Activities (selected)

2011- Physical Sciences Division Diversity Committee
2006 College ad hoc committee for periodic review of Dean of Students
2005-2006 Chair, College ad hoc committee for review of undergraduate Environmental Studies Program
2005-2006 Chair, Physical Sciences Division ad hoc committee for the revision of postdoctoral hiring practices

2005-2006 College ad hoc Committee for review of interdisciplinary teaching
2001-2004 Board of University Publications

Other Professional Activities (selected)

2005-06 Steering Committee, Paleobiology Database (PBDB), National Center for Ecological Analysis and Synthesis
2005-07 Co-instructor, PBDB-sponsored short course in analytical paleobiology
2004-2008 Editorial Committee, *Annual Review of Ecology, Evolution, and Systematics*
2004 NSF Panelist (Graduate Fellowships in Geosciences)
2001-2003 Associate Editor, *Evolution*
1998-2006 Advisory Board, Paleobiology Database, National Center for Ecological Analysis and Synthesis

Courses Regularly Taught

Mathematical modeling (graduate)
Multivariate data analysis (graduate)
Principles of Paleontology (advanced undergraduate and graduate)
Environmental History of the Earth (undergraduate general education)

Graduate Students Supervised

Lisa L. Churchill (M.S. 1994, U.Mich.), Selectivity in trilobite extinction
Hallie J. Sims (M.S. 1996; Ph.D. 2000), Evolution of seed plants
Melinda S. Brady (Ph.D. 2000), Angiosperm development and evolution
S. Kathleen Lyons (Ph.D. 2001), Evolution of Pleistocene communities
Shanan E. Peters (Ph.D. 2003), Evolution of early Paleozoic communities
Gene Hunt (Ph.D. 2003), Covariance structure and morphological evolution in ostracodes
Carl Simpson (Ph.D. 2006), Mechanisms of evolutionary trends in camerate crinoids
Emily King (M.S. 2011), Models of morphological diversification
David Bapst (Ph.D. in progress), Functional evolution and diversification of graptoloids

Postdoctoral Scholars

Sylvain Gerber (co-advised with Mark Webster)

Bibliography

Books

1. Foote, M., and A. I. Miller. 2007. *Principles of Paleontology*, Third edition. W. H. Freeman, New York.

Research Articles

† denotes an official publication of the Paleobiology Database (paleodb.org)

1. Foote, M. 1988. Survivorship analysis of Cambrian and Ordovician trilobites. *Paleobiology* 14:258-271.
2. Foote, M. and R. H. Cowie. 1988. Developmental buffering as a mechanism for stasis: evidence from the pulmonate *Theba pisana*. *Evolution* 42:396-399.
3. Foote, M. 1989. Perimeter-based Fourier analysis: a new morphometric method applied to the trilobite cranidium. *Journal of Paleontology* 63:880-885.
4. Foote, M. 1990. Nearest-neighbor analysis of trilobite morphospace. *Systematic Zoology* 39:371-382.
5. Foote, M. 1991. Morphologic patterns of diversification: examples from trilobites. *Palaeontology* 34:461-485.
6. Foote, M. 1991. Morphologic and taxonomic diversity in a clade's history: the blastoid record and stochastic simulations. *Contributions from the Museum of Paleontology, University of Michigan* 28:101-140.

7. Foote, M. 1991. Analysis of morphological data. Pp. 59-86 in N. L. Gilinsky and P. W. Signor (eds.), *Analytical Paleobiology* (Short Courses in Paleontology, Number 4). University of Tennessee, Knoxville.
8. Foote, M. 1992. Rarefaction analysis of morphological and taxonomic diversity. *Paleobiology*, 18:1-16.
9. Foote, M. 1992. Paleozoic record of morphological diversity in blastozoan echinoderms. *Proceedings, National Academy of Sciences, U.S.A.* 89: 7325-7329.
10. Foote, M. 1993. Discordance and concordance between morphological and taxonomic diversity. *Paleobiology* 19:185-204.
11. Foote, M. 1993. Contributions of individual taxa to overall morphological disparity. *Paleobiology* 19:403-419.
12. Foote, M. 1994. Morphological disparity in Ordovician-Devonian crinoids and the early saturation of morphological space. *Paleobiology* 20: 320-344.
13. Foote, M. 1994. Morphology of Ordovician-Devonian crinoids. *Contributions from the Museum of Paleontology, University of Michigan* 29:1-39.
14. Foote, M. 1994. Temporal variation in extinction risk and temporal scaling of extinction metrics. *Paleobiology* 20:424-444.
15. Foote, M. 1995. Morphological diversification of Paleozoic crinoids. *Paleobiology* 21:273-299.
16. Foote, M. 1995. Morphology of Carboniferous and Permian crinoids. *Contributions from the Museum of Paleontology, University of Michigan* 29:135-184.
17. Foote, M. 1996. Perspective: Evolutionary patterns in the fossil record. *Evolution* 50:1-11.
18. Foote, M., and D. M. Raup. 1996. Fossil preservation and the stratigraphic ranges of taxa. *Paleobiology* 22:121-140.
19. Foote, M. 1996. On the probability of ancestors in the fossil record. *Paleobiology* 22:141-151.
20. Miller, A.I. and M. Foote. 1996. Calibrating the Ordovician radiation of marine life: implications for Phanerozoic diversity trends. *Paleobiology* 22:304-309.
21. Foote, M. 1996. Models of morphological diversification. Pp. 62-86 in D. Jablonski, D. H. Erwin, and J.H. Lipps, eds. *Evolutionary paleobiology*. University of Chicago Press, Chicago.
22. Foote, M. 1996. Ecological controls on the evolutionary recovery of post-Paleozoic crinoids. *Science* 274:1492-1495.
23. Foote, M. 1997. Sampling, taxonomic description, and our evolving knowledge of morphological diversity. *Paleobiology* 23:181-206.
24. Roy, K., and M. Foote. 1997. Morphological approaches to measuring biodiversity. *Trends in Ecology and Evolution* 12:277-281.
25. Foote, M. 1997. Estimating taxonomic durations and preservation probability. *Paleobiology* 23:278-300.
26. Foote, M. 1997. The evolution of morphological diversity. *Annual Review of Ecology and Systematics* 28:129-152.
27. Foote, M., J. P. Hunter, C. M. Janis, and J. J. Sepkoski, Jr. 1999. Evolutionary and preservational constraints on origins of biologic groups: divergence times of eutherian mammals. *Science* 283:1310-1314.
28. Foote, M., and J. J. Sepkoski, Jr. 1999. Absolute measures of the completeness of the fossil record. *Nature* 398:415-417.
29. Foote, M. 1999. Morphological diversity in the evolutionary radiation of Paleozoic and post-Paleozoic crinoids. *Paleobiology Memoir* 1 (supplement to vol. 25, no. 2), 115 pp.
30. Foote, M. 2000. Origination and extinction components of taxonomic diversity: general problems. *Paleobiology* 26 (supplement to No. 4): 74-102.
31. Foote, M. 2000. Origination and extinction components of taxonomic diversity: Paleozoic and post-Paleozoic dynamics. *Paleobiology* 26:578-605.

32. Foote, M. 2001. Estimating the completeness of the fossil record. Pp. 504-507 in D. E. G. Briggs and P. R. Crowther, eds. *Paleobiology II*. Blackwell Scientific, Oxford.
33. Foote, M. 2001. Evolutionary rates and the age distributions of living and extinct taxa. Pp. 245-294 in J. B. C. Jackson, S. Lidgard, and F. K. McKinney, eds. *Evolutionary patterns: growth form and tempo in the fossil record*. University of Chicago Press, Chicago.
- †34. Alroy, J., C.R. Marshall, R.K. Bambach, K. Bezusko, M. Foote, F.T. Fürsich, T.A. Hansen, S.M. Holland, L.C. Ivany, D. Jablonski, D.K. Jacobs, D.C. Jones, M.A. Kosnik, S. Lidgard, S. Low, A.I. Miller, P.M. Novack-Gottshall, T.D. Olszewski, M.E. Patzkowsky, D.M. Raup, K. Roy, J.J. Sepkoski Jr., M.G. Sommers, P.J. Wagner, and A. Webber. 2001. Effects of sampling standardization on estimates of Phanerozoic marine diversification. *Proceedings of the National Academy of Sciences, USA* 98:6261-6266.
35. Peters, S.E., and M. Foote. 2001. Biodiversity in the Phanerozoic: a reinterpretation. *Paleobiology* 27:583-601.
- †36. Foote, M. 2001. Inferring temporal patterns of preservation, origination, and extinction from taxonomic survivorship analysis. *Paleobiology* 27:602-630.
37. Peters, S.E., and M. Foote. 2002. Determinants of extinction in the fossil record. *Nature* 416:420-424.
- †38. Foote, M. 2003. Origination and extinction through the Phanerozoic: a new approach. *Journal of Geology* 111:125-148.
- †39. Miller, A. I., and M. Foote. 2003. Increased longevities of post-Paleozoic marine genera after mass extinctions. *Science* 302:1030-1032.
40. Foote, M. 2005. Pulsed origination and extinction in the marine realm. *Paleobiology* 31:6-20.
41. Crampton, J.S., M. Foote, A.G. Beu, R. A. Cooper, I. Matcham, C. M. Jones, P.A. Maxwell, and B.A. Marshall. 2006. Second-order sequence stratigraphic controls on the quality of the fossil record at an active margin: New Zealand Eocene to Recent shelf molluscs. *Palaios* 21:86-105.
- †42. Foote, M. 2006. Substrate affinity and diversity dynamics of Paleozoic marine animals. *Paleobiology* 32:345-366.
43. Crampton, J.S., M. Foote, A. G. Beu, P.A. Maxwell, R.A. Cooper, I. Matcham, B. A. Marshall, and C.M. Jones. 2006. The ark was full! Constant to declining Cenozoic shallow marine biodiversity on an isolated mid-latitude continent. *Paleobiology* 32:509-532.
- †44. Foote, M. 2007. Extinction and quiescence in marine animal genera. *Paleobiology* 33:262-273.
- †45. Foote, M. 2007. Symmetric waxing and waning of marine animal genera. *Paleobiology* 33:517-529.
46. Foote, M., J.S. Crampton, A.G. Beu, B.A. Marshall, R.A. Cooper, P. A. Maxwell, and I. Matcham. 2007. Rise and fall of species occupancy in Cenozoic marine molluscs. *Science* 318:1131-1134.
- †47. Alroy, J., M. Aberhan, D. J. Bottjer, M. Foote, F. T. Fürsich, and 30 others. 2008. Phanerozoic trends in the global diversity of marine invertebrates. *Science* 321:97-100.
- †48. Foote, M., J. S. Crampton, A. G. Beu, and R. A. Cooper. 2008. On the bidirectional relationship between geographic range and taxonomic duration. *Paleobiology* 34:421-433.
- †49. Miller, A. I., and M. Foote. 2009. Epicontinental seas versus open-ocean settings: the kinetics of mass extinction and origination. *Science* 326:1106-1109.
- †50. Kiessling, W., C. Simpson, and M. Foote. 2010. Reefs as cradles of evolution and sources of biodiversity in the Phanerozoic. *Science* 327:196-198.
51. Crampton, J.S., R. A. Cooper, A.G. Beu, M. Foote, and B.A. Marshall. 2010. Factors that influence species duration—interactions between traits in marine molluscs. *Paleobiology* 36:204-223.
- †52. Foote, M. 2010. The geologic history of biodiversity. Pp. 479-510 in M. A. Bell, D. J. Futuyma, W. F. Eanes and J. S. Levinton, eds. *Evolution since Darwin: The First 150 Years*. Sinauer Associates, Sunderland, MA.
53. Crampton, J.S., M. Foote, R. A. Cooper, A. S. Beu, and S. E. Peters. 2011. The fossil record and spatial structuring of environments and biodiversity in the Cenozoic of New Zealand. *Geological Society of London Special Publication* 358:105-122.

54. Foote, M. 2012. Evolutionary dynamics of taxonomic structure. *Biology Letters* 8:135-138.

Other publications (notes, reviews, popular articles, etc.)

1. Foote, M., and S. J. Gould. 1992. Cambrian and Recent morphological disparity. *Science* 258:1816.
2. Foote, M. 1993. Speciation in the fossil record. *American Paleontologist* 1(2):9-12.
3. Foote, M. 1993. Human cranial variability: a methodological comment. *American Journal of Physical Anthropology* 90:377-379.
4. Foote, M. 1993. A specimen of *Timoroblastus coronatus* Wanner (Blastoidea: Fissiculata; Permian) with inverted basals. *Journal of Paleontology* 67: 681-682.
5. Foote, M. 1994. [review of “Paleobiology of Climactichnites, an Enigmatic Late Cambrian Fossil,” by E. L. Yochelson and M. A. Fedonkin.] *Quarterly Review of Biology* 69:394-395.
6. Foote, M., and K. Roy. 1997. Descriptive and predictive approaches to biodiversity measurement [Reply]. *Trends in Ecology and Evolution* 12:444.
7. Foote, M. 1998. Contingency and convergence. *Science* 280:2068-2069.
8. Foote, M. 1998. Biodiversity. *McGraw-Hill Yearbook of Science and Technology* 1999:56-58.
9. Foote, M., and J. A. Hopson. 1999. J. John Sepkoski Jr. (1948-1999): In memoriam. *Acta Palaeontologica Polonica* 44:235-236.
10. Foote, M., J. P. Hunter, C. M. Janis, and J. J. Sepkoski, Jr. 1999. Origin of eutherian mammals [reply to critics]. *Science* 285:2031a.
11. Foote, M. 2000. Addendum to “Crustacean biodiversity through the marine fossil record” by J. John Sepkoski, Jr. *Contributions to Zoology* 69:221-222.
12. Foote, M. 2001. Response [to Schuchert Award citation]. *Journal of Paleontology* 75:924-925.
13. Fisher, D.C., M. Foote, D. L. Fox, and L. R. Leighton. 2002. Stratigraphy in phylogeny reconstruction—comment on Smith (2000). *Journal of Paleontology* 76:585-586.
14. Jablonski, D., and M. Foote, eds. 2002. A Compendium of fossil marine animal genera by J. J. Sepkoski, Jr. *Bulletins of American Paleontology* 363:1-560.
15. Foote, M., and D. Jablonski. 2002. Introduction [to A Compendium of fossil marine animal genera by J. J. Sepkoski, Jr.]. *Bulletins of American Paleontology* 363:5-9.
16. Foote, M. 2004. The inside view from outsiders [review of *Modeling Extinction* by M. E. J. Newman and R. G. Palmer]. *Conservation Biology* 18:857-858.

Abstracts

1. Williamson, P.G. and M. Foote. 1984. Global selection patterns in the prosobranch *Melanoides tuberculata*: implications for stasis and speciation. *Geological Society of America Abstracts with Programs* 16:695-696.
2. Foote, M. 1987. Survivorship analysis of Cambrian and Ordovician trilobite genera: evidence for significant differences in turnover rates. *Geological Society of America Abstracts with Programs* 19:666.
3. Foote, M. 1988. Changing patterns of morphospace occupation among Cambrian and Ordovician trilobites. *Geological Society of America Abstracts with Programs* 20:A46.
4. Foote, M. 1989. Taxon-free analysis of trilobite morphospace. *Geological Society of America Abstracts with Programs* 21:A288.
5. Foote, M. 1990. Morphologic versus taxonomic diversity in a clade’s history. *Geological Society of America Abstracts with Programs* 22:A266.
6. Foote, M. 1992. Early morphological diversity in blastozoan echinoderms. *Fifth North American Paleontological Convention, Abstracts and Program*, p. 102.
7. Foote, M. 1992. Detecting morphological selectivity in trilobite extinction: a comparison of taxonomic and morphological diversity patterns. *Geological Society of America Abstracts with Programs* 24:A45.

8. Foote, M. 1993. Morphological disparity in Ordovician through Devonian crinoids. *Geological Society of America Abstracts with Programs* 25:A103-A104.
9. Swiderski, D. L., M. Foote, and B. E. Bodenbender. 1993. Integrated shape change in elliptical globose blastoids. *American Zoologist* 33(5):71A.
10. Foote, M. 1994. How (not) to measure taxonomic extinction intensity. *Geological Society of America Abstracts with Programs* 26:A396.
11. Foote, M., and D. M. Raup 1995. Inferring taxonomic durations and preservation probability from the stratigraphic ranges of fossil taxa. *Geological Society of America Abstracts with Programs* 27:A372.
12. Miller, A. I., and M. Foote. 1995. Calibrating the Ordovician radiation: implications for Phanerozoic diversity trends. *Geological Society of America Abstracts with Programs* 27:A53.
13. Foote, M. 1996. Morphological diversification of Mesozoic crinoids. *Sixth North American Paleontological Convention Abstracts of Papers*, p. 124.
14. Foote, M. 1997. Age distributions of living and extinct taxa. *Geological Society of America Abstracts with Programs* 29:A168.
15. Foote, M., J. J. Sepkoski, Jr., C. M. Janis, and J. P. Hunter. 1998. Evolutionary and preservational constraints on the timing of clade origins. *Geological Society of America Abstracts with Programs* 30:A326.
16. Sepkoski, J. J., Jr., and M. Foote. 1998. Paleontologic databases, taxonomic literature, and tests of consistency. *Geological Society of America Abstracts with Programs* 30: A264.
17. Marshall, C. R., J. Alroy, and the NCEAS Phanerozoic Diversity Working Group. 1999. Towards a sample-standardized Phanerozoic diversity curve. *Geological Society of America Abstracts with Programs* 31:A336.
18. Foote, M. 1999. Relative importance of origination and extinction in Paleozoic and post-Paleozoic diversity dynamics. *Geological Society of America Abstracts with Programs* 31:A397.
19. Foote, M. 2000. Rates of taxonomic evolution through the Phanerozoic. *Geological Society of America Abstracts with Programs* 32:A445.
20. Marshall, C.R. and the NCEAS Phanerozoic Diversity Working Group. 2000. Towards a sample standardized Phanerozoic diversity curve: comparing the Sepkoski and NCEAS databases. *Geological Society of America Abstracts with Programs* 32:A131.
21. Peters, S.E., and M. Foote. 2001. Large-scale heterogeneity in the stratigraphic record: a significant source of bias in global diversity estimates. *PaleoBios* 21(Suppl. to No. 2):102-103.
22. Foote, M. 2003. Evaluating discordances between molecular and paleontological divergence times. *Abstracts, 2003 Meeting of the Botanical Society of America*, p. 6.
23. Foote, M. 2003. Recalibrating Phanerozoic diversity using taxonomic rates. *Geological Society of America Abstracts with Programs* 34(7):416.
24. Foote, M. 2004. Substrate affinity and diversity dynamics in benthic marine animals. *Geological Society of America Abstracts with Programs* 36(5):457.
25. Alroy, J., M. Aberhan, D.J. Bottjer, M. Foote, F. Fürsich, L.C. Ivany, W. Kiessling, C.R. Marshall, A.I. Miller, and M.E. Patzkowsky. 2004. Improved estimates of Phanerozoic marine diversity. *Geological Society of America Abstracts with Programs* 36(5):456.
26. Peters, S.E. and M. Foote. 2006. Carbonates, silicilastics and the evolution of faunal composition. *Second International Paleontological Congress Proceedings, Beijing*.
27. Foote, M. 2006. Two populations of Phanerozoic extinction events. *Geological Society of America Abstracts with Programs* 38(7):170.
28. Foote, M., J.S. Crampton, A.G. Beu, B.A. Marshall, R.A. Cooper, and I. Matcham. 2007. King for a day: Rise and fall of site occupancy and geographic range in molluscan species and genera. *Geological Society of America Abstracts with Programs* 39(6):91.

29. Foote, M. J. S., Crampton, A. G., Beu, A. G., and Cooper, R. A. 2009. Evolution of geographic range within species and genera. NAPC 2009 Abstracts.
30. Crampton, J. S., R. A. Cooper, A. G. Beu, and M. Foote. 2009. The long and short of it: controls on species longevity in marine molluscs. NAPC 2009 Abstracts.
31. Miller, A. I., and M. Foote. 2009. Epicontinental seas versus ocean-facing settings: fundamental differences in the kinetics of origination and mass extinction. NAPC 2009 Abstracts.
32. Crampton, J. S., A. G. Beu, R. A. Cooper, and M. Foote. 2010. Diversity dynamics of endemic mollusks on a mobile margin: sorting the actual from the apparent. Third International Palaeontological Congress Abstracts: p. 132.
33. Foote, M. 2010. Evolutionary dynamics of genus size-frequency distributions. Geological Society of America Abstracts with Programs 42(5):140.
34. Miller, A. I., and M. Foote. 2011. Epicontinental seas versus ocean-facing settings: the kinetics of origination and extinction during the Paleozoic Era. Geological Society of America Abstracts with Programs 45(5):541.
35. Foote, M., and A. I. Miller. 2011. Geographic range and species richness of post-Paleozoic marine animal genera originating in recoveries from mass extinctions. Geological Society of America Abstracts with Programs 45(5):542.