

Curriculum Vitae
Loren Bruce Railsback
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Academic Degrees:

B.A. with High Distinction (History), University of Iowa, 1980.
B.S. with Highest Distinction (Geology), University of Iowa, 1981.
M.S. (Geology), University of Iowa, 1983.
Ph.D. (Geology), University of Illinois, 1989.

Professional Experience:

Professor, Department of Geology, University of Georgia, Athens, GA, 2002 to present (Assistant Professor 1989-1994; Associate Professor 1994-2002).
Appointed as provisional member to Graduate Faculty, October, 1990, promoted to full membership in Graduate Faculty, April, 1993.
Doctoral reviewer, University of Newcastle, New South Wales, Australia, 2013.
Correlatore (secondary doctoral advisor), Università degli Studi di Cagliari (University of Cagliari), Italy, 2009 to 2010.
Temporary member of the Graduate Faculty, University of Alabama, 2006 to 2009.
Visiting Associate Professor, University of New Orleans - Innsbruck, summer 1997, 1998, and 2002, teaching Physical Geology and Alpine & Glacial Geology in Innsbruck, Austria. Visiting Professor, summer 2003, 2004, 2007, and 2008.
Assistant Professor, Department of Marine Sciences, University of Georgia, March, 1993 to August 1994 (while also Assistant Professor of Geology – see above).
Geologist with Shell Oil Company from June, 1983, to August, 1985, in the Onshore Exploration Division (New Orleans, LA). Received Special Recognition Award March 26, 1985; promoted to Exploration Geologist June 1, 1985. Resigned August, 1985, to pursue a doctoral degree at the University of Illinois.

Awards and Honors:

Honor Scholar, Wabash College, 1976-1978.
W.A. Tarr Award, University of Iowa, 1981.
G.C. Wilkins - Iowa Geology Department Scholarship, 1982.
Phi Beta Kappa and Sigma Gamma Epsilon, ~1981.
Special Recognition Award, Shell Oil Company, 1985
University of Illinois University Fellow, 1985-1988.
Professor of the Year, Department of Geology, University of Georgia, 1992, 1993, 1994, 1998, 2006, and 2011.
Teacher of the Year, Department of Geology, University of Georgia, 1993.
Nominee, UGA Creative Research Medal, 2003 and 2011.
Nominee, UGA Graduate School Outstanding Mentor Award, 2015.
Fellow, Geological Society of America.

Publications

Publications in Journals:

Refereed articles, Invited Articles, and Comments:

1. Railsback, L. Bruce, 1984, Carbonate diagenetic facies in the Upper Pennsylvanian Dennis Formation in Iowa, Missouri, and Kansas: *Journal of Sedimentary Petrology*, v. 54, p. 986-999.
2. Railsback, L. Bruce, and Anderson, Thomas F., 1987, Control of Triassic seawater chemistry and temperature on the evolution of post-Paleozoic aragonite-secreting faunas: *Geology*, v. 15, p. 1002-1005.
3. Railsback, L. Bruce, Anderson, Thomas F., Ackerly, Spafford C., and Cisne, John L., 1989, Paleoceanographic modeling of temperature-salinity profiles from stable isotope data: *Paleoceanography*, v. 4, 585-591. A figure from this paper was reproduced in Jochen Hoefs's *Stable Isotope Geochemistry*.
4. Railsback, L. Bruce, Ackerly, Spafford C., Anderson, Thomas F., and Cisne, John L., 1990, Paleontological and isotope evidence for warm saline deep waters in Ordovician oceans: *Nature*, v. 343, p. 156-159.
5. Railsback, L. Bruce, 1990, Influence of changing deep ocean circulation on the Phanerozoic oxygen isotopic record: *Geochimica et Cosmochimica Acta*, v. 54, p. 1501-1509.
6. Railsback, L. Bruce, 1990, Comment on "Method of Multiple Working Hypotheses: a chimera": *Geology*, v. 18, p. 917-918.
7. Railsback, L. Bruce, 1991, A model for teaching the dynamical theory of tides: *Journal of Geological Education*, v. 39, p. 15-18.
8. Railsback, L. Bruce, 1992, A geological numerical model for Paleozoic global evaporite deposition: *Journal of Geology*, v. 100, p. 261-277.
9. Woo, K.-S., Anderson, T.F., Railsback, L.B., and Sandberg, P.A., 1992, Oxygen isotope evidence for high-salinity surface seawater in the Mid-Cretaceous Gulf of Mexico: implications for warm, saline deepwater formation: *Paleoceanography*, v. 7, p. 673-685.
10. Railsback, L. Bruce, 1993, Contrasting styles of chemical compaction in the Upper Pennsylvanian Dennis Formation in the Midcontinent region, U.S.A.: *Journal of Sedimentary Petrology*, v. 63, p. 61-72.
11. Brook, G.A., Railsback, L.B., Cooke, J., Chen, J., and Culp, R.A., 1993, Annual growth layers in a stalagmite from Drotsky's Cave, Ngamiland: Relationship between growth layer thickness and precipitation: *Botswana Notes and Records*, v. 24, p. 151-163.
12. Railsback, L. Bruce, 1993, Stability of carbonate minerals: a thermodynamic perspective and its implications for carbonate petrology: *Journal of Geological Education*, v. 41, p. 12-14.

13. Railsback, L. Bruce., 1993, Lithologic controls on morphology of pressure dissolution surfaces (stylolites and dissolution seams) in Paleozoic carbonate rocks from the mideastern United States: *Journal of Sedimentary Petrology*, v.63 p. 513-522.
14. Railsback, L. Bruce, 1993, Effect of acidic buffers on clay minerals recovered from calcareous soils: an X-ray diffraction study: *Soil Science*, v. 155, p. 206-210.
15. Ackerly, S.C., Cisne, J.L., Railsback, L.B., and Anderson, T.F., 1993, Punctal density in the Ordovician orthide brachiopod *Paucicrura rogata*: anatomical and paleoenvironmental variation: *Lethaia*, v. 26, p. 17-24.
16. Railsback, L. Bruce, 1993, Original mineralogy of Carboniferous worm tubes: Evidence for changing marine chemistry and biomineralization: *Geology*, v. 21, p. 703-706.
17. Railsback, L. Bruce, 1993, A geochemical view of weathering and the origin of sedimentary rocks and natural waters: *Journal of Geological Education*, v. 41, p. 404-411. A figure from this paper was used in Arthur H. Brownlow's *Geochemistry* (second edition, p. 348).
18. Railsback, L. Bruce, 1993, Control of crystal shape and size on formation of twin lamellae in calcite: implications for deep burial diagenetic fabrics in limestones: *Carbonates and Evaporites*, v. 8, p. 156-162.
19. Railsback, L. Bruce, 1993, Intergranular pressure dissolution and compaction in a Plio-Pleistocene grainstone buried no more than 30 meters: Shoofly oolite, southwestern Idaho: *Carbonates and Evaporites*, v. 8, p. 163-169.
20. Railsback, L. Bruce, Brook, George A., Chen, Jian, Kalin, Robert, and Fleisher, Christopher J., 1994, Environmental controls on the petrology of a Late Holocene speleothem from Botswana with annual layers of aragonite and calcite: *Journal of Sedimentary Research*, v. A64, p. 147-155.
21. Railsback, L. Bruce, and Andrews, Lynn M., 1995, Tectonic stylolites in the "undeformed" Cumberland Plateau of southern Tennessee: *Journal of Structural Geology*, v. 17, p. 911-915.
22. Brook, G.A., Railsback, L.B., Cooke, J., Chen, J., and Culp, R.A., 1995, Precipitation data from annual growth layers in speleothems: some preliminary results from Drotsky's Cave in the Kalahari Desert of Botswana: *Studia Carsologica*, v. 6, p. 65-80.
23. Railsback, L. Bruce, 1995, Geological controls on global rates of coal deposition: A numerical model and its geochemical implications, in Haq, B.U., ed., *Sequence Stratigraphy and Depositional Response to Eustatic, Tectonic, and Climatic Forcing*: Dordrecht, Kluwer Academic Press p. 137-159.
24. Railsback, L. Bruce, 1996, Stylolites in limestones that lacked significant primary aragonite: *Bulletin de la Société Géologique de France*, t. 167, No. 1, p. 181-183.
25. Railsback, L. Bruce, Bouker, Polly A., Feeney, Thomas P., Goddard, Ethan A., Goggin, Keith E., Hall, A. Shawn, Jackson, Brian P., McLain, Angela A., Orsega, Michael C.,

- Rafter, Margaret A., and Webster, James W., 1996, A survey of the major-element geochemistry of Georgia groundwater: *Southeastern Geology*, v. 36, p.99-122.
26. Andrews, Lynn M., and Railsback, L. Bruce, 1997, Controls on stylolite development: morphologic, lithologic, and temporal evidence from bedding-parallel and transverse stylolites from the US Appalachians: *Journal of Geology*, v. 105, p. 59-73. (This paper was highlighted in *Geotimes*, February 1998, v. 43, p. 33)
 27. Railsback, L. Bruce, 1997, Dependence of the pH of acid rain on lightning: Evidence from sampling within 14 showers and storms in the Georgia Piedmont in summer 1996: *Science of the Total Environment*, v. 198, p. 233-241. (This paper was featured in *New Scientist*, 31 May 1997, v. 154, No. 2084, p. 17, and in *The Bakken Library and Museum Newsletter*, v. 19, No. 2, Fall 1997).
 28. Railsback, L. Bruce, Sheen, Shaw-Wen, Rafter, Margaret A., Brook, George A. and Kelloes, Cathy, 1997, Diagenetic replacement of aragonite by aragonite in speleothems: criteria for its recognition from Botswana and Madagascar: *Speleochronos*, No. 8, p. 3-11.
 29. Railsback, L. Bruce, 1998, Evaluation of spacing of stylolites, and its implications for self-organization of pressure dissolution: *Journal of Sedimentary Research*, v. 68, p. 2-7.
 30. Railsback, L. Bruce, 1998, Comment on and statistical analysis of " $\delta^{18}\text{O}$ values of mudrocks: More evidence for an ^{18}O -buffered ocean" by L.S. Land and L.F. Lynch, Jr.: *Geochimica et Cosmochimica Acta*, v. 62, p. 325-326.
 31. Railsback, L. Bruce, 1999, Patterns in the compositions, properties, and geochemistry of carbonate minerals: *Carbonates and Evaporites*, v. 14, p. 1-20.
 32. Brook, George A., Rafter, M.A., Railsback, L. Bruce, Sheen, Shaw-Wen, and Lundberg, Joyce, 1999, A high-resolution proxy record of rainfall and ENSO since AD 1550 from layering in stalagmites from Anjohibe Cave, Madagascar: *The Holocene*, v. 9, p. 695-705.
 33. Railsback, L. Bruce, Brook, G.A., and Webster, J.W., 1999, Petrology and paleo-environmental significance of detrital sand and silt in a stalagmite from Drotsky's Cave, Botswana: *Physical Geography*, v. 20, p. 331-347.
 34. Railsback, L. Bruce, and Hood, Edward C., 2001, A survey of multi-stage diagenesis and dolomitization of Jurassic limestones along a regional shelf-to-basin transect in the Ziz Valley, Central High Atlas Mountains, Morocco: *Sedimentary Geology*, v. 139, p. 285-317.
 35. Cox, Julia E., Railsback, L. Bruce, and Gordon, E.A., 2001, Evidence from Catskill pedogenic carbonates for a rapid Late Devonian decrease in atmospheric carbon dioxide concentrations: *Northeastern Geology and Environmental Science*, v. 23, p. 91-102.
 36. Railsback, L. Bruce, Dabous, Adel A., Osmond, J.K., and Fleisher, C.J., 2002, Petrographic and geochemical screening of speleothems for U-series dating: an

example from recrystallized speleothems from Wadi Sannur Cavern, Egypt: *Journal of Cave and Karst Studies*, v. 64, p. 108-116.

37. Sheen, Shaw-wen, Brook, George A., Railsback, L. Bruce, and Thill, Jean-Claude, 2003, Stalagmite annual layer thickness as a proxy for ENSO and rainfall: Evidence from Drotzky's Cave, Botswana, in *Desertification in the Third Millennium* (eds. A.S. Alsharhan, W.W. Wood, A. Goudie, K.W. Glennie and E.M. Abdellatif), A.A. Balkema, p. 27-44. (ISBN: 90 5809 571 1).
38. Railsback, L. Bruce, Holland, Steven M. , Hunter, Daniel E., Jordan, E. Michael, Díaz, Jennifer R., and Crowe, Douglas E., 2003, Controls on geochemical expression of subaerial exposure in Ordovician limestones from the Nashville Dome, Tennessee, U.S.A.: *Journal of Sedimentary Research*, v. 73, p. 790-805.
39. Railsback, L. Bruce, 2003, An earth scientist's periodic table of the elements and their ions: *Geology*, v. 31, p. 737-740 + insert. This work was featured in *Nature* (v. 425, p.115), as the cover story of *Science News* (v. 164, No. 17), in *Discover Magazine* (v. 25, No. 1, p. 73) as one of the 100 Top Science Stories of 2003, in *New Scientist* (v. 171, No. 2298, p. 11), in *Natural History* (11/3/2003), in *Today's Science on File* (v. 12, No. 3, p. 88-91), in *Sciences et Avenir*, on Nature Science Update, in *The Guardian* (UK), in TCEtoday (The Chemical Engineer - UK), on Earthscope, on About.com, by Kip Ingram Online, on atcybertopia.com, and on Mac.com. The Geological Society of America Bookstore sold 1000 reprints of this article. It was the subject of a scio-literary analysis by Hodder, P., 2020, Developing a periodic table for earth scientists: Chemistry in New Zealand, January 2020, pp. 31-38.
40. Railsback, L. Bruce, 2004, An Earth Scientist's Periodic Table of the Elements and Their Ions: Geological Society of America Map and Chart Series item MCH 092. The table underwent revision and full peer review prior to this re-issue. The revised table was also published in 2004 by McGraw Hill as a supplement to Plummer et al.'s *Physical Geology* (10th edition) and Sverdrup and Duxbury's *Introduction to the World's Oceans*. The table was featured in *Current Science* (March 4, 2005) and on Geology.com (September 10, 2005). The table was translated into Chinese to accompany the following article: Chiyue Jin, 2006, Understanding "An Earth Scientist's Periodic Table of the Elements and Their Ions": *Journal of Jinhua College of Profession and Technology*, vol. 6, no. 1, p. 71-75. It was later also translated into Spanish, Portuguese, Catalan, and German.
41. Railsback, L. Bruce, 2004, T. C. Chamberlin's "Method of Multiple Working Hypotheses": An encapsulation for modern students: *Houston Geological Society Bulletin*, v. 47, no. 2, p. 68-69. (published at the request of the editor)
42. Railsback, L. Bruce, 2005, A synthesis of systematic mineralogy: *American Mineralogist*, v. 90, p. 1033-1041. This manuscript underwent accelerated publication and was specially featured on the Mineralogical Society of America's website.
43. Baldini, J.U.L., F. McDermott, F., Baker, A., Baldini, L.M., Matthey, D.P. and Railsback, L. Bruce, 2005, Biomass effects on stalagmite growth and isotope ratios: A 20th

century analogue from Wiltshire, England: *Earth and Planetary Science Letters*, v. 240, p. 486-494.

44. Brook, George A., Ellwood, Brooks B., Railsback, L. Bruce, and Cowart, J.B., 2006, A 164 ka record of environmental change in the American Southwest from a Carlsbad Cavern speleothem: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 237, p. 483-507.
45. Elkins, Joe T., and Railsback, L. Bruce, 2006, Evaluation of the effect of oven roasting at 340°C, bleach, 30% H₂O₂, and distilled/deionized water on the $\delta^{13}\text{C}$ value of speleothem carbonate: *Journal of Cave and Karst Studies*, v. 68, p. 137-143.
46. Xiao, Hong-Lin, Brook, G., Railsback, B., and Ping, Lei, 2006, A historical event in a stalagmite from Yangzipo Cave, Guizhou, China: *Quaternary Sciences*, v. 26 no.5 p. 808-813.
47. Baldini, Lisa M., Walker, Sally E., Railsback, L. Bruce, Baldini, James U.L., and Crowe, Douglas E., 2007, Isotopic ecology of the modern land snail *Cerion*, San Salvador Bahamas: Preliminary advances toward establishing a low-latitude island palaeoenvironmental proxy: *Palaios*, v. 22, p. 174-187. This paper was featured on the BioOne website at www.bione.org.
48. Railsback, L. Bruce, 2007, Patterns in the compositions of oxysalt and sulfosalt minerals, and the paradoxical nature of quartz: *American Mineralogist*, v. 92, p. 356-369.
49. Theiling, Bethany P., Railsback, L. Bruce, Holland, Steven M., and Crowe, Douglas E., 2007, Heterogeneity in geochemical expression of subaerial exposure in limestones, and its implications for sampling to detect exposure surfaces: *Journal of Sedimentary Research*, v. 77, p. 159-169.
50. James W. Webster, George A. Brook, L. Bruce Railsback, Hai Cheng, R. Lawrence Edwards, Clark Alexander, and Philip P. Reeder, 2007, Stalagmite evidence from Belize indicating significant droughts at the time of Preclassic Abandonment, the Maya Hiatus, and the Classic Maya Collapse: *Palaeogeography, Palaeoclimatology, Palaeoecology*.v. 250, p. 1-17.
51. Railsback, L. Bruce, 2007, T. C. Chamberlin's "Method of Multiple Working Hypotheses": An encapsulation for modern students: *The Outcrop*, v. 56, no. 11, p. 25 & 32 (Requested by the editor of this publication of the Rocky Mountain Association of Geologists).
52. Condit, Celeste M., and Railsback, L. Bruce, 2007, Generalization through similarity: motif discourse in the discovery and elaboration of Zinc Finger Proteins: *Journal of Biomedical Discovery and Collaboration*, v. 2, item 4.
53. Bernal, Juan Pablo, y Railsback, L. Bruce, 2008, Introducción a la Tabla Periódica de los Elementos y sus Iones para Ciencias de la Tierra: *Revista Mexicana de Ciencias Geológicas*, v. 25, p. 236-246. This paper was the cover article for Volumen 25 número 2.

54. Brook, George A., Scott, Louis, Railsback, L. Bruce, and Goddard, Ethan A., 2010, A 35 ka pollen and isotope record of environmental change along the southern margin of the Kalahari from a stalagmite and animal dung deposits in Wonderwerk Cave, South Africa: *Journal of Arid Environments*, v. 74, p. 870-884.
55. Brook, George A., Railsback, L. Bruce, and Marais, Eugene, 2011, Reassessment of carbonate ages by dating both carbonate and organic material from an Etosha Pan (Namibia) stromatolite: Evidence of humid phases during the last 20 ka: *Quaternary International*, v. 229, p. 24-37.
56. Brook, George A., Railsback, L. Bruce, Campbell, Alec C., Robbins, Lawrence H., Murphy, Michael L., Hodgins, Greg, and McHugh, Joseph, 2011, Radiocarbon ages for cupules carved in quartzite bedrock at Rhino Cave in the Kalahari Desert of Botswana, and their paleoclimatic implications: *Geoarchaeology*, v. 26, p. 61-82.
57. Railsback, L. Bruce, Fuyuan Liang, Juan Ramón Vidal Romani, Aurora Grandal d'Anglade, Marcos Vaqueiro Rodríguez, Luisa Santos Fidalgo, Daniel Fernández Mosquera, Hai Cheng, and R. Lawrence Edwards, 2011, Petrographic and isotopic evidence for Holocene long-term climate change and shorter-term environmental shifts from a stalagmite from the Serra do Courel of northwestern Spain, and implications for climatic history across Europe and the Mediterranean: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 305, p. 172-184.
58. Railsback, L. Bruce, 2011, An Earth Scientist's Periodic Table of the Elements and Their Ions: Geological Society of America Map and Chart Series item MCH 092Rev. Having sold all their reprints of the 2003 Table and all their copies of the 2004 poster in their Map and Chart Series, GSA printed a revised version to resume their sales of the Table.
59. Caddeo, Guglielmo Angelo, De Waele, Jo, Frau, Franco, and Railsback, L. Bruce, 2011, Trace-element and stable isotope data from a flowstone in a natural cave of the mining district of SW Sardinia (Italy): evidence for Zn²⁺-induced aragonite precipitation in comparatively wet climatic conditions: *International Journal of Speleology*, v. 40, p. 181-190.
60. Raquel Franco de Souza Lima e L. Bruce Railsback, 2012, Uma Tabela Periódica dos Elementos e seus Íons para Cientistas da Terra: *Terrae Didactica*. v. 8, p. 73-82.
61. Railsback, L. Bruce, Layou, Karen M., Heim, Noel A., Holland, Steven M., Trogdon, M.L., Jarrett, M.B., Izsak, Gabriel M., Bulger, Daniel E., Wysong, Eric J., Trubee, Kenton S., Fiser, Julie M., Cox, Julia E., and Crowe, Douglas E., 2012, Geochemical evidence for meteoric diagenesis and cryptic surfaces of subaerial exposure in subtidal carbonates from the Upper Ordovician of the Nashville Dome, central Tennessee, U.S.A., in Ketzer, Marcelo, and Morad, Sadoon, eds., *Linking Diagenesis to Sequence Stratigraphy of Sedimentary Rocks*: International Association of Sedimentologists Special Publication 45, p. 257-270.
62. Railsback, L. Bruce, 2013, Depth and nature of giant petroleum discoveries through time as an indicator of resource depletion: *Journal of Industrial Ecology*, 17, 345-351.

63. Brook, George A., A. Cherkinsky, L. Bruce Railsback, Eugene Marais, and Martin H.T. Hipondoka, 2013, ^{14}C dating of organic residue and carbonate from stromatolites in Etosha Pan, Namibia: ^{14}C reservoir effect, correction of published carbonate ages, and evidence of >8m deep lake during the Late Pleistocene: *Radiocarbon*. 55, 1156-1163.
64. Sletten, H.R., Railsback, L.B., Liang, F., Brook, G.A., Marais, E., Hardt, B.F., Cheng, H., Edwards, R.L., 2013, A petrographic and geochemical record of climate change over the last 4600 years from a northern Namibia stalagmite, with evidence of abruptly wetter climate at the beginning of southern Africa's Iron Age. *Palaeogeography, Palaeoclimatology, Palaeoecology* 376, 149-162.
65. Caddeo, Guglielmo Angelo, De Waele, Jo, Frau, Franco, and Railsback, L. Bruce, 2013, Contrasting genesis and environmental significance of aragonite inferred from minor and trace element variation in speleothems: *Memorie dell'Istituto Italiano di Speleologia* s. II, 28, 157-175.
66. Railsback, L.B., Akers, P.D., Wang, L., Holdridge, G.A., and Voarintsoa, N.R., 2013, Layer-bounding surfaces in stalagmites as keys to better paleoclimatological histories and chronologies. *International Journal of Speleology* 42, 167-180.
67. Railsback, L.B., Xiao, H., Liang, F., Akers, P.D., Brook, G.A., Dennis, W.M., Lanier, T.E., Cheng, H., and Edwards, R.L., 2014, A stalagmite record of abrupt climate change and possible Westerlies-derived atmospheric precipitation during the Penultimate Glacial Maximum in northern China: *Palaeogeography, Palaeoclimatology, Palaeoecology* 393, 30-44.
68. Guglielmo Angelo Caddeo, L. Bruce Railsback, Jo De Waele, and Franco Frau, 2015, Stable isotope data as constraints on models for the origin of coralloid and massive speleothems: the interplay of substrate, water supply, degassing, and evaporation: *Sedimentary Geology*, v. 318, p. 130-141.
69. L. Bruce Railsback, Philip L. Gibbard, Martin J. Head, Ny Riavo G. Voarintsoa, and Samuel Toucanne, 2015, An optimized scheme of lettered marine isotope substages for the last 1.0 million years, and the climatostratigraphic nature of isotope stages and substages: *Quaternary Science Reviews*, v. 111, p. 94-106.
70. Liang, F., Brook, G.A., Kotlia, B.S., Railsback, L.B., Hardt, B., Cheng, H., Edwards, R.L., and Kandasamy, S., 2015, Panigarh cave stalagmite evidence of climate change in the Indian Central Himalaya since AD 1256: monsoon breaks and winter southern jet depressions: *Quaternary Science Reviews*, v. 124, p. 145-161.
71. Railsback, L.B., Brook, G.A., Ellwood, B.B., Liang, F., Cheng, H., and Edwards, R.L., 2015, A record of wet glacial stages and dry interglacial stages over the last 560 kyr from a standing massive stalagmite in Carlsbad Cavern, New Mexico, USA: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 438, p. 256-266.
72. Brook, George A., Railsback, L. Bruce, Scott, Louis, Voarintsoa, Ny Riavo, and Liang, Fuyuan, 2015, Late Holocene stalagmite and tufa climate records for Wonderwerk Cave: Relationships between archaeology and climate in southern Africa: *African Archaeological Review*, v. 32, p. 669-700.

73. L. Bruce Railsback, 2016, Five entries in *The Geoscience Handbook* (American Geosciences Institute, Alexandria, Virginia), pp. 69–78. (Requested by the editors)
74. Akers, Pete D., Brook, George A., Railsback, L. Bruce, Liang, Fuyuan, Iannone, Gyles, Webster, James W., Reeder, Philip P., Cheng, Hai, and Edwards, R. Lawrence, 2016, An extended and higher-resolution record of climate and land use from stalagmite MC01 from Macal Chasm, Belize, revealing connections between major dry events, overall climate variability, and Maya sociopolitical changes: *Palaeogeography, Palaeoclimatology, Palaeoecology*, 459, 268–288.
75. L. Bruce Railsback, George A. Brook, Fuyuan Liang, Eugene Marais, Hai Cheng, and R. Lawrence Edwards, 2016, A multi-proxy stalagmite record from northwestern Namibia of regional drying with increasing global-scale warmth over the last 47 kyr: the interplay of a globally shifting ITCZ with regional currents, winds, and rainfall: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 461, p. 109-121.
76. L. Bruce Railsback, Fuyuan Liang, Juan Ramón Vidal-Romani, Katelynn Blanche Garrett, Rachel C. Sellers, Marcos Vaquero-Rodríguez, Aurora Grandal-d'Anglade, Hai Cheng, and R. Lawrence Edwards, 2017, Radiometric, isotopic, and petrographic evidence of changing interglacials over the past 550,000 years from six stalagmites from the Serra do Courel in the Cordillera Cantábrica of northwestern Spain: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 466, p. 137-152.
77. Ny Riavo G. Voarintsoa, George A. Brook, Fuyuan Liang, Eugene Marais, Ben Hardt, Hai Cheng, R. Lawrence Edwards, and L. Bruce Railsback, 2017, Stalagmite multi-proxy evidence of wet and dry intervals in northeastern Namibia: linkage to latitudinal shifts of the Inter-Tropical Convergence Zone and changing solar activity from AD 1400 to 1950: *The Holocene*, v. 27, p. 384-396.
78. Ny Riavo Gilbertinie Voarintsoa, Lixin Wang, L. Bruce Railsback, George A Brook, Fuyuan Liang, Hai Cheng, and R. Lawrence Edwards, 2017, Multiple proxy analyses of a U/Th-dated stalagmite to reconstruct paleoenvironmental changes in northwestern Madagascar between AD 370 and AD 1300. *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 469, p. 138–155.
79. L. Bruce Railsback, 2017, Rain, riches, and empire: the relationship between nations ruling distant lands, nations of great wealth, and regions of regular moderate atmospheric precipitation: *Weather, Climate, and Society*, v. 9, p. 455-469.
80. Ny Riavo G. Voarintsoa, L. Bruce Railsback, George A. Brook, Lixin Wang, Gayatri Kathayat, Hai Cheng, Xianglei Li, R. Lawrence Edwards, Amos Fety Michel Rakotondrazafy, and Marie Olga Madison Razanatseheno, 2017. Three distinct Holocene intervals of stalagmite deposition and nondeposition revealed in NW Madagascar, and their paleoclimate implications. *Climate of the Past*, v. 13, p. 1771–1790.
81. L. Bruce Railsback, Fuyuan Liang, G.A. Brook, Ny Riavo G. Voarintsoa, Hillary R. Sletten, Eugene Marais, Ben Hardt, Hai Cheng, R. Lawrence Edwards, 2018, The timing, two-pulsed nature, and variable climatic expression of the 4.2 ka event: a

- review and new high-resolution stalagmite data from Namibia: *Quaternary Science Reviews* 186, 78–90.
82. Railsback, L. Bruce, 2018, A comparison of growth rate of late Holocene stalagmites with atmospheric precipitation and temperature, and its implications for paleoclimatology: *Quaternary Science Reviews* 187, 94–111.
 83. L. Bruce Railsback, 2018, The Earth Scientist's Periodic Table of the Elements and Their Ions: a new periodic table founded on non-traditional concepts, in Scerri, E., and Restrepo, G., eds., *Mendeleev to Oganesson: A Multidisciplinary Perspective on the Periodic Table*: Oxford University Press, pp. 206–218 (ISBN 9780190668532).
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1. Railsback, L. Bruce, 2013ff, Fundamentals of Quaternary Science (<http://www.gly.uga.edu/railsback/FQS/FQS.html>) ≥50 pages.
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7. Railsback, L. Bruce, 2002, An Atlas of Pressure Dissolution Features. A web-based atlas of 40 images of pressure dissolution features, each accompanied by an explanatory caption. The atlas also includes an introduction and bibliography. (<http://www.gly.uga.edu/railsback/PDFindex1.html>). It has since been incorporated in the Online Microstructure Course of the University of Tübingen & Université Paul

Sabatier at <http://www.microstructure.uni-tuebingen.de> and cited in the published geological literature.

8. Railsback, L. Bruce, 2000, An Atlas of Speleothem Microfabrics. A web-based atlas of 103 images of spelean and related materials, each accompanied by a descriptive caption. The atlas also includes an introduction, a glossary, and a bibliography. (<http://www.gly.uga.edu/speleoatlas/SAindex1.html>) The atlas was featured in *Science* (27 April 2001, v. 292, p. 607).
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11. Railsback, L. Bruce, "The Geology of Georgia". A Web-based document outlining the geology, geologic history, and geological resources of the state of Georgia. (<http://www.gly.uga.edu/railsback/GAGeology.html>)
12. Railsback, L. Bruce, "Creation Stories from around the World". A 47-page hard-copy collection of 20 stories from a diverse sample of the world's cultures. This collection is designed to remind students that, if they reject the scientific understanding of earth history and instead accept a traditional account, they must choose from a remarkably diverse array of such traditional accounts of the origin of the earth and its life. The book has been used in several high school and college classes. It is on the Web at <http://www.gly.uga.edu/railsback/CS/CSIndex.html>.
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**Permissions, adaptations, and re-uses
of Railsback's images, illustrations, and text:**

Use of two figures from Railsback's Earth Scientist's Periodic Table of the Elements and Their Ions in Introduction to the Biogeochemistry of Soils by Professor Ronald Amundson of the Department of Environmental Science, Policy, and Management of the University of California at Berkeley, to be published by Cambridge Press (2020).

Use of illustrations from Railsback's Petroleum Geoscience and Subsurface Geology

website in classes taught by Dr. Haralambos D. Kranis, Assistant Professor in the Department of Dynamic, Tectonic & Applied Geology of National and Kapodistrian University of Athens in Athens, Greece.

Use of Railsback's illustration of "Sutured to concavo-convex intergranular contacts between ooids in a calcite-cemented grainstone from the Jurassic of Morocco" in a proposal to the DOE Basic Energy Science (Geoscience) program by Benjamin Gilbert and Marco Voltolini of the Energy Geoscience Division of the Lawrence Berkeley National Laboratory in April 2020.

Use of Railsback's illustration "Volcanic Chains: a propagating crack model" in Prof. Carlos Barragan's 2020 book "Plate Tectonics: A New Vision".

Use of Railsback's illustration "The temporal extent of Quaternary records and dating methods" in a forthcoming textbook by Robert Gastaldo and co-authors (2020).

Use of Railsback's illustration "Heat flow, geothermal gradient, and the thermal conductivity of sedimentary rocks" in a publication by Dr. Paul de Groot (Director of dGB Earth Sciences) and Dr. Edo Veenstra (2019-2020).

Use of Railsback's illustrations "An explanation of "point of zero charge" – Part I" and "An explanation of "point of zero charge" – Part II" in a paper in *Letters in Applied NanoBioSciences* by Dr. Ajaya Bhattarai (2019)

Use of two of Railsback's illustrations in a chapter by Hideki Miura (National Institute of Polar Research, Japan) in a book entitled "The Soils of Japan" (Editor: H. Shinjo, R. Hatano, Y. Takata) to be published by Springer (2019)

Use of Railsback's diagram showing "A Genealogy of the Oil Industry" at the Drake Well Museum in Titusville, Pennsylvania (2019).

Use of Railsback's sketches of soil profiles in a book on Earth materials by Dexter Perkins and Kevin Henke ~2019

Use of Railsback's diagram on "Variation in hydrated radius of ions" as Figure 14 in a paper on "Water in rechargeable multivalent-ion batteries: an electrochemical Pandora's box" by William Jr Wang Manalastas, Sonal Kumar, Vivek Verma, Liping Zhang, Du Yuan, and Madhavi Srinivasan published in *ChemSusChem* 10.1002/cssc.201801523 ~2018.

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Use of Railsback's image of a quartz sand cemented by quartz and calcite in the textbook "Historical Geology, 8e" by Wicander © 2016 published by Cengage Learning.

Use of Railsback's image of pressure dissolution features in a carbonate rock sampled from a roadcut on the US 322 bypass outside State College, Pennsylvania; (Sample PA4-2; thin section S-1-146) by IHRDC (International Human Resources

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- Use of Railsback's document "1121Stress&Deformation.jpeg" in educational materials produced by Campbell Scientific Australia in 2015.
- Use of Railsback's Earth Scientist's Periodic Table of the Elements and Their Ions in the book "Chemical Evolution - The Biological System of Elements" by Markert, Fränzle, and Wünschmann and published by Springer Press in 2015.
- Use of illustrations from Railsback's "Petroleum Geoscience and Subsurface Geology" website by Easton Wren of Americas Petrogas in courses taught for the Petroleum Institute for Continuing Education (PEICE).
- Use of Railsback's "Concentrations and residence times of solutes in seawater III: a combined perspective" from the Some Fundamentals of Mineralogy and Geochemistry website by the American Geological Institute in its Geoscience Handbook.
- Use of part or all of Railsback's document "What is Science and What Science Isn't" in 3650 copies of "Thinking about Modern Psychology" in copyright year 2014 by Pearson Learning Solutions of Pearson North America.
- Use of Railsback's field photographs of root wedging in North Georgia and of the Gladeville Roadcut in central Tennessee in the college textbook *Physical Geology Today*, by Damian Nance and Brendan Murphy and published by Oxford University Press.
- Use of Railsback's field photographs at www.gly.uga.edu/railsback/FieldImages.html in video lectures prepared and distributed by the University of Illinois.
- Translation of Railsback's "Some thoughts on writing a scientific paper or thesis" into Czech by Natalie Marek.
- Use of a Railsback diagram about maps and cross-sections in an article on "Utilização de recursos de ambiente CAD em Geologia Estrutural" (CAD resources for resolving structural geology problems) published by Celso Dal Ré Carneiro and Ancilla Maria Almeida de Carvalho in the journal *Terrae Didactica* v. 8. p. 51-57 in 2012.
- Use of Railsback's *SFMG* document on "Variation in concentration of solutes in the oceans II: Dissolved oxygen (O₂)" in an Earth science textbook by Prof. Hisashi Nakamura of the University of Tokyo to be published in 2014.
- Use of a Railsback diagram on columnar jointing in basalts in the field guide for the Fall Field Conference of the National Association of Geoscience Teachers-Far West Section (NAGT-FWS) in September 2012.
- Use of an image of the Earth Scientist's Periodic Table of the Elements and Their Ions in an article entitled "Periodicity, Visualization, and Design" by Prof. Francis T. Marchese of Pace University to be published the journal *Foundations of Chemistry*.
- Use of a Railsback photograph of a clearcut area near Martin, Georgia, in a book with the title "Natural Communities of Georgia" by Drs. Leslie A. Edwards, Kay Kirkman, and Jon Ambrose to be published by the University of Georgia Press in 2012 or 2013.
- Use of a Railsback diagram showing "meander cut-off and formation of an ox-bow lake" in educational materials distributed at Big Thicket National Preserve in Kountze, Texas, as requested by Leslie E. Dubey, Chief of Interpretation, Education and

Partnerships for the Preserve.

- Use of a Railsback photomicrograph of a sandstone cemented by quartz and calcite in the seventh edition of *Historical Geology* by Reed Wicander and James S. Monroe to be published in 2012.
- Use of an image from Railsback's and Beth Kennair's *Beach and Shoreline Sands From Around the World* by Dr. Colin D. Hills of the University of Greenwich in a presentation at WASCON 2012, the 8th International Conference on the Environmental and Technical Implications of Construction with Alternative Materials, to be held in Gothenburg, Sweden. Image also used in a post-conference report.
- Use of an image from Railsback's *Atlas of Pressure Dissolution Features* in Katsman, R., 2010, Extensional veins induced by self-similar dissolution at stylolites: analytical modeling: *Earth and Planetary Science Letters*, v. 209, p. 33-41. The same image was used by Dr. Katsman at a meeting of the American Geophysical Union.
- Use of images from Railsback's Changing the World website in an exhibit on desertification at the Dayton International Peace Museum in Dayton, Ohio, in Spring 2011.
- Use of images from Railsback's Gallery of Stone Buildings and Their Building Stone in the development of educational materials by CSCOPE, a Texas state program for curriculum development.
- Use of the page on Holocene Ice Core Records, Climatic Events, and Human History from Railsback's *Some Fundamentals of Mineralogy and Geochemistry* in *Evolutionary Paleocology: Linking Land and Marine Ecosystems through Time* by S.A. Walker and A. Raymond, published by Cambridge University Press.
- Use of a Railsback image of an intensely compacted sandstone from the Atlas of Pressure Dissolution Fabrics in a 2010 article by S.A. Ali et al. on Diagenesis and Reservoir Quality in Volume 22 Number 2 of Schlumberger's *Oilfield Review*.
- Use of Railsback's illustrations of rotating tide waves on the website of the Unione Astrofili Italiani at divulgazione.uai.it/index.php/Le_maree.
- Use of a diagram designated "The Size of Things" from Railsback's *Some Fundamentals of Mineralogy and Geochemistry* as Figure 1.1 in a book by Professor Cleas G. Granqvist of Uppsala University in Sweden on *Green Nanotechnology: Solutions for Sustainability and Energy in the Built Environment* to be published by Taylor and Francis Group.
- Use of a diagram illustrating speciation of dissolved inorganic carbon from Railsback's *Some Fundamentals of Mineralogy and Geochemistry* in a book on *Speleothems and Palaeoenvironmental Analysis* by Ian J. Fairchild and Andrew Baker to be published in 2011.
- Use of a diagram illustrating styles of rock deformation in the book *Earth Materials* by Drs. Kevin Hefferan and John O'Brien published by Wiley/Blackwell.
- Use of a photomicrograph of a calcite-cemented sandstone from Railsback's *Atlas of Speleothem Microfabrics* in the book *Earth Materials* by Drs. Kevin Hefferan and John O'Brien published by Wiley/Blackwell.
- Use of a Railsback diagram about particle size and surface area in a forthcoming book on *Adaptive and functional polymers, textiles and their applications* edited by Prof. Jinlian Hu of Hong Kong Polytechnic University and to be published by Imperial

College Press.

Use of two images from Railsback's *Atlas of Speleothem Microfabrics* in *Les Archives paléoclimatiques dans le Karst*, part of an educational DVD prepared by Dr. Sophie Verheyden of the Université Libre de Bruxelles (a.k.a. the Vrije Universiteit Brussel) for the Union Internationale de Speleologie.

Use of a diagram on marine nutrients from Railsback's *Some Fundamentals of Mineralogy and Geochemistry* in the Alaska SeaLife Center's distance learning curriculum dealing with marine ecosystems.

Use of text from Railsback's *What is Science?* in a module called "Critical Thinking in Psychology" in the curriculum for a Specialist Diploma in Applied Psychology awarded by the Asia-Pacific Centre for Management Leadership. The module was developed by Benedict Lim of Republic Polytechnic (University) in Singapore.

Use of a Railsback image of Waxeggkees Glacier in a publication on climate change by Aniko Kern of the Department of Meteorology at the Eotvos Lorand University in Budapest, Hungary, and the Hungarian Academy of Sciences.

Use of a Railsback image of root wedging in northern Georgia in a middle school earth science textbook generated by Sally Ride Science.

Use of Railsback images of reverse faults and other structural features on a website constructed by PD Dr. Claudio Rosenberg of the Institut für Geologische Wissenschaften of the Freie Universität in Berlin.

Inclusion of Railsback's drafted diagram about the ecology of alpine plants by Editor Ginny Moore in *Borealis*, the newsletter of the Alaska Native Plant Society, in early 2008.

Use of a figure from Railsback (1993) above in Arthur H. Brownlow's *Geochemistry* (second edition, p. 348).

Use of Railsback's drafted diagram about particle size and weathering in a paper by Richard Kelly, EH&S Manager, Materials Sciences Division, Lawrence Berkeley National Laboratory, on "Occupational Medicine Implications of Engineered Nanoscale Particulate Matter" submitted to the *Journal of Chemical Health and Safety*.

Inclusion of Railsback's *What is Science?* in *Psychology* by Andrew Peck, published by Pearson Custom Publishing.

Use of a Railsback photograph of a soil profile near Gainesville, Georgia, by the International Code Council in a video on the International Residential Code entitled "Soils and Footing Provisions of the IRC".

Use of Railsback's photograph of root-wedging in northern Georgia by Continental Press in a lesson about weathering for a workbook titled "Maryland School Assessment Finish Line Science".

Use of two of Railsback's photographs of paleosols in the Massachusetts Institute of Technology (MIT) OpenCourseWare program for a course by Professor Edward Boyle entitled 12.301 - Past and Present Climate.

- Use of illustrations from Railsback's web-based presentation on the Earth Scientist's Periodic Table of the Elements and Their Ions in geochemistry classes at the University of Durham, U.K.
- Use of Railsback's geological figures in course materials for general geology and mineral exploration courses taught by Robert Stevens, Head of the Mining Program at the British Columbia Institute of Technology in Burnaby, British Columbia.
- Use of a Railsback photograph of a cut bank on the East Fork of the San Juan River in Colorado for an exhibit at the Science Museum of Minnesota in St. Paul, Minnesota.
- Use of four images of Illinois an exhibit on the geology of Illinois by the Elgin Public Museum of Natural History and Anthropology in Elgin, Illinois.
- Use of a Railsback-modified physiographic image of Georgia and accompanying text by the Historic Piedmont Scenic Byway Corporation and Rock Hawk Development Committee for educational purposes as part of an interpretive center classroom.
- Inclusion of diagrams illustrating plate-processes in articles by Ms. Rajani Priya of the Department of Geology of ICFAI University in Hyderabad, India, to be published in *Science Reporter*, which is published by the (Indian) National Institute of Science Communication and Information Resources (NISCAIR).
- Use of a Railsback diagram illustrating differential erosion on an informational sign along the Virginia Creeper Trail near Abingdon, Virginia.
- Inclusion of nine Railsback illustrations (Differential Erosion; Drainage Patterns; Meandering vs. Braided Streams; Meander cut-off and formation of an ox-bow lake; River Meanders; Cross-section of an alpine glacier; Cross-section of continental glaciation; Depositional features of continental glaciation II; An esker now, and then) in credit courses/learning resources published by the Ontario Ministry of Education.
- Inclusion of twelve Railsback web pages or websites in DLESE, the Digital Library for Earth System Education, and online resource for scientists, teachers, and learners sponsored by the National Science Foundation.
- Use of images of black prairie soil (mollisol) near Blooming Prairie in southern Minnesota, U.S.A. and a white sandy soil exposed along a Georgia highway as part of a Māori language educational resource by Rautaki Ltd of New Zealand.
- Use of a figure showing four soil profiles (www.gly.uga.edu/railsback/1121SoilHorizonsFour.jpeg) in a Powerpoint presentation distributed to high school science teachers in Kansas by the College of Education of Wichita State University.
- Use of fourteen images of Hawaiian sand in Scholastic Inc.'s *The Ultimate Beach Book*, part of Scholastic's Undersea University series.
- Inclusion of diagram showing different styles of mass wasting in an online textbook for an introductory environmental geology course constructed by the Department of Geological Sciences of Southern Illinois University
- Use of a diagrammatic explanation of formation of karst sinkholes on a park interpretive panel at Manatee Springs State Park in Chiefland, Florida.
- Use of an image of Waxeggkees Glacier and Berliner Hütte in the Zillertal, Tirol, from Railsback's Tirol Glacier Image Collection Project in the *Marine Climate Change*

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27. Cerajewski, Rebecca J., Crisp, R. Eric, Kucinskis, Jennifer A., Baldini, Lisa M., Stroik, Frank E., Summers, Katherine R., Xiao, H.-L., Railsback, L. Bruce, and Holland, S.M., 2000, Evidence for meteoric diagenesis and subaerial exposure at the Trenton Transgression flooding surface, Middle Ordovician, Carthage, Tennessee: *Geological Society of America Abstracts with Programs*, v. 32, p. A178-A179.
28. Brook, George A., and Railsback, L. Bruce, 2001, Climate and human activities in Southern Africa since AD 500: Evidence from Botswanan stalagmites: American Association of Geographers Annual Meeting, New York, NY, February 2001.
29. Railsback, L. Bruce, 2001, An Earth Scientist's Periodic Table of the Elements and their Ions: *Earth System Processes - a global meeting*, Edinburgh, Scotland, sponsored by the Geological Society of London and the Geological Society of America, June 25-28, 2001, p. 73-74.
30. Brook, G.A., and Railsback, L.B., 2001, Climate in southern Africa since AD 500: evidence from Botswana stalagmites. Invited presentation, Fifth International Conference on Geomorphology, Tokyo, Japan Aug. 23-28, 2001, published in *Transactions (Chikei) of the Japanese Geomorphological Union*, v. 22, p. C-32.
31. Elkins, Joe. T., and Railsback, L. Bruce, 2001, Paleoclimatic implications of the $\delta^{13}\text{C}$ values of humic substances in karst terrains in the southern United States: *Geological Society of America Abstracts with Programs*, v. 33, p. A341.
32. Baldini, L.M., Walker, S.E., Railsback, L.B., and Crowe, D.E., 2001, Cyclicity and environmental variation in the carbon and oxygen isotopic composition of the modern land snail *Cerion* on San Salvador, Bahamas: *Geological Society of America Abstracts with Programs*, v. 33, p. A158-159.
33. Xiao, H., Brook, G.A. and Railsback, L.B., 2001, Climate and human activities in a stalagmite from Guizhou, China: Annual Meeting of Southern Division of Association of American Geographers.
34. Elkins, Joe. T., and Railsback, L. Bruce, 2002, $\delta^{13}\text{C}$ value of soil organic matter in speleothems: a new proxy to determine paleovegetation and interpret paleoclimate: Geological Society of America Combined North-Central Southeastern Meeting, Lexington, Kentucky, April 2002.
35. Heim, N.A., Layou, K.M., Railsback, L.B., Holland, S.M., Cox, J.E., and Crowe, D.E., 2004, Geochemical evidence of subaerial exposure at parasequence boundaries in

Middle Ordovician limestones from the Nashville Dome, Tennessee, U.S.A.:
Geological Society of America Abstracts with Programs, v. 36, No. 5, p. 76.

36. Purdin, Bethany J., Railsback, L. Bruce, Holland, Steven M., and Crowe, Douglas E., 2005, Significance and variation in $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ across surfaces of subaerial exposure in Ordovician limestones of the Nashville Dome, TN: GSA Southeastern Section Meeting.
37. Harris, R.S., Railsback, L.B., Roden, M.F., and Holland, S.M., 2005, Sedimentary petrology of Upper Eocene ejecta-bearing sands from the southeastern coastal plain: SEPM Research Conference.
38. Purdin, Bethany J., Railsback, L. Bruce, Holland, Steven M., and Crowe, Douglas E., 2005, Significance of $\delta^{13}\text{C}$, $\delta^{18}\text{O}$ and strontium content in the identification of surfaces of subaerial exposure in Ordovician limestones of the Nashville Dome, Tennessee, U.S.A.: Geological Society of America Annual Meeting Abstracts with Programs v. 37, no. 7, p. 356-357.
39. George A. Brook, Louis Scott, and L. Bruce Railsback, 2008, A 35 ka Pollen and Isotope Record of Environmental Change from a Speleothem in Wonderwerk Cave, South Africa: 3rd Southern Deserts Conference: Climate change and the peopling of the Southern deserts Kalahari 2008, Molopo Lodge, Northern Cape, South Africa, September 16-19, 2008.
40. George A. Brook, Louis Scott, and L. Bruce Railsback, 2008, A 35 ka Pollen and Isotope Record of Environmental Change from a Speleothem in Wonderwerk Cave, South Africa: 5th International Conference of Climate Change: The Karst Records (KR5), Southwest University of China, Chongqing, June 2-5, 2008.
41. Eric Hogan, Kevin Meazell, Miles Henderson, Sally Walker, Chris Fleisher, L. Bruce Railsback and Sandra Wyld, 2008, Tectonics, taphonomy, and trilobites: The Cambrian Conasauga Shale lagerstätte: Geological Society of America Annual Meeting (Houston, Texas), Presentation 315-3.
42. Walker S, Hogan E, Meazell K, Henderson M, Railsback L, Wyld S., 2009, Trilobite transport, taphonomy, and turbidites: The Cambrian Conasauga Shale Lagerstätte Revisited: International Conference on the Cambrian Explosion, Walcott 2009. 95.
43. Caddeo, G.A., Railsback, L.B., De Waele, J. & Frau, F., 2010, High-resolution trace-element data from a Sardinian flowstone as evidence of environmental change: 20th General Meeting of the International Mineralogical Association, Budapest, Hungary, 21-27 August 2010.
44. Lundy, D.A., Dowd, J., Railsback, L.B., and Rasmussen, T., 2011, The Relationship of lateral spreading to mass depletion rates for LNAPL in contact with groundwater: International Symposium on Bioremediation and Sustainable Environmental Technologies, Reno, NV, June 27 -30, 2011.
45. Sletten, H.R., Railsback, L.B., Brook, G.A., Cheng, H., and Edwards., R.L., 2011, A 4600-yr high-resolution stalagmite paleoclimate record for northeastern Namibia: Geological Society of America Southeastern Section Meeting, Wilmington, NC, March 2011: *Geol. Soc. Amer. Abstracts w. Programs*, v. 43, No. 2.
46. Railsback, L.B., Akers, P., Babcock, L.N., Fraley, T.K., Holdridge, G.A., McMullen, S.K., Ostrowicki, K., Sletten, H.R., Wang, L., and Cox, J.E., 2011, Origin and potential

- significance of caliche crusts on basalt and limestone substrates in and near the Snake River Plain, southeastern Idaho: Geological Society of America Southeastern Section Meeting, Wilmington, NC, March 2011: *Geol. Soc. Amer. Abstracts w. Programs*, v. 43, No. 2.
47. Brook, G.A., and Railsback, L.B., 2012, Botswana stalagmite BC97-14 records a significant wet period in the eighteenth century A.D. that suggests a link between solar activity, ENSO, climate and human activities in southern and eastern Africa over the last millennium: 32nd International Geographical Congress, Cologne, Germany, 26-30 August 2012.
 48. Guglielmo Angelo Caddeo, L. Bruce Railsback, Jo De Waele, and Franco Frau, 2012, Contrasting genesis and environmental significance of aragonite inferred from comparison of minor and trace element variation across calcite layers in speleothems from a mine cave and an ordinary cave of southwestern Sardinia (Italy): Second International Symposium on Mine Caves, Iglesias, Sardinia, Italy, 26-29 April 2012.
 49. L. Bruce Railsback and Rolando Alfaro Ramírez, 2012, An Earth Scientist's Periodic Table of the Elements and Their Ions: Third International Conference on the Periodic Table, Cusco, Peru, 14-16 August 2012.
 50. L. Bruce Railsback, Pete D. Akers, and Lixin Wang, 2012, Layer-bounding surfaces in stalagmites as keys to better chronologies and paleoclimate records: Geological Society of America Annual Meeting, Charlotte, North Carolina, 4-7 November, 2012.
 51. Sellers, R.C., Railsback, L.B., Liang, F., Vidal Romani, J.R., Vaquero, M., Grandal, A., Edwards, R.L., and Cheng, H., 2013, Isotopic and petrographic evidence for Quaternary long-term climate change from a stalagmite from the Serra do Courel of Spain: Geological Society of America Annual Meeting, Denver, Colorado, October 2013.
 52. Voarintsoa, Ny Riavo G., L. Bruce Railsback, Fuyuan Liang, George A. Brook, Hai Cheng , and R. Lawrence Edwards, 2013, Evidence of past climate change in the Little Ice Age and of the Pacific Decadal Oscillation periodicity in Africa: comparison between two neighbor stalagmites from Namibia and Botswana (preliminary results): American Geophysical Union Annual Meeting, San Francisco, California, December 2013.
 53. Lundy, D.A., Dowd, J., Railsback, L.B., and Rasmussen, T., 2013, A Flowtube Discharge and Mass Depletion Model for Testing LNAPL Source Zone Stability: 24th National Tanks Conference, Denver, Colorado, September 16-18, 2013.
 54. Voarintsoa, Ny Riavo G., L. Bruce Railsback, Fuyuan Liang, George A. Brook, Hai Cheng , and R. Lawrence Edwards, 2014, Control of solar radiation over climate variability in southern Africa: isotopic and petrographic evidence from Namibia and Botswana stalagmites. Geological Society of America Annual Meeting, Vancouver, British Columbia, October 2014.
 55. Akers, Pete D., George A. Brook, Fuyuan Liang, Xianfeng Wang, Augusto S. Auler, L. Bruce Railsback, Hai Cheng, R. Lawrence Edwards, and Carlos Benedetto, 2014, A 48,000 year record of climate change in west-central Argentina from stalagmites in

- Caverna de Las Brujas, Mendoza Province. Climate Change: The Karst Record VII (KR7) Conference, Melbourne, Australia, September-October 2014.
56. Katelynn Blanche Garrett, Fuyuan Liang, Rachel C. Sellers, L. Bruce Railsback, Juan Ramón Vidal Romani, Marcos Vaqueiro Rodríguez, Aurora Grandal-d'Anglade, Hai Cheng, and R. Lawrence Edwards, 2015, Radiometric and isotopic evidence for changing interglacial climate over the last 550,000 years from six stalagmites from northwestern Spain: Geological Society of America Southeastern Section Meeting, Chattanooga, Tennessee, March 2015.
 57. Voarintsoa, Ny Riavo G., L. Bruce Railsback, Xianglei Li, Gayatri Kathayat, Hai Cheng, George A. Brook, and R. Lawrence Edwards, 2015, Stalagmite records revealing extensive drier period in northwestern Madagascar between the early and late Holocene (8-1.5 ka B.P.): Summer School on Speleothem Science, Department of Earth Sciences, Oxford, UK, August 2015.
 58. Voarintsoa, Ny Riavo G., George A. Brook, Fuyuan Liang, Eugene Marias, Hai Cheng, R. Lawrence Edwards, and L. Bruce Railsback, 2015, Stronger monsoon during southward migration of the ITCZ recorded in a Namibian stalagmite, presented at Monsoons & ITCZ: the annual cycle in the Holocene and the future, a workshop at Columbia University (New York, NY) September 15-19, 2015.
 59. Voarintsoa, Ny Riavo G., L. Bruce Railsback, George A. Brook, Lixin Wang, Fuyuan Liang, Hai Cheng, and R. Lawrence Edwards, 2015, Late Holocene (ca. AD 370-1210) ecosystem changes inferred from a stalagmite from northwestern Madagascar: the role of the ITCZ and human activity: American Geophysical Union Fall Meeting, San Francisco, December 2015.
 60. Don A. Lundy, John F. Dowd, and L. Bruce Railsback, 2015, Evaluating LNAPL body stability at a crude oil release site: American Institute of Professional Geologists, Georgia Section meeting on "Innovative Environmental Assessment and Remediation Technology", Kennesaw, GA, September 30, 2015.
 61. Voarintsoa, N. R. G., Railsback, L. B., Brook, G. A., Wang, L., Kathayat, G., Cheng, H., Li, X., Edwards, R. L., Rakotondrazafy, A. F. M., and Madison Razanatseheno, M. O., 2016, Distinct early-, mid-, and late-Holocene climate in NW Madagascar: evidence from two stalagmites, Southern Hemisphere Assessment of PalaeoEnvironments (SHAPE) International Focus Group Workshop: Southern Hemisphere climate of the present and past, Universidad de Chile, Santiago.
 62. Laura A. Dupont, L. Bruce Railsback, George A. Brook, Fuyuan Liang, Hai Cheng, R. Lawrence Edwards, 2017, Evaluating Human-Driven Environmental Change Using a Madagascar Stalagmite: Summer School on Speleothem Science, Burgos, Spain, August 2017.
 63. Dupont, L.A., Railsback, L.B., Brook, G.A., Liang, F., Cheng, H., Edwards, R.L., 2019, Investigating paleoenvironmental change during the Holocene using a stalagmite from Matupi Cave, equatorial Africa: Geological Society of America Annual Meeting, Phoenix, Arizona.

Invited Lectures:

October 12, 1989, University of Georgia Geology Department seminar series: C-S-Fe Chemistry of Ordovician Shales in the Taconic Foreland Basin of New York: Relationships between Organic Carbon, Diagenetic Sulfides, and Sulfur Isotopes.

January 12, 1996, Georgia Southern University Geology Department Seminar Series: Carbonate mineralogy: Some insights from basic chemistry and some insights into carbonate petrology.

September 15, 1999, Appalachian State University Geology Department Seminar Series: A Simple Geologist's View of the Northern Alps near Innsbruck, Austria.

February 2, 2001, University of Georgia Department of Geology Geochemistry Seminar: An Earth Scientist's Periodic Table of the Elements and Their Ions.

March 15, 2001, University of Georgia Department of Geology Journal Club Seminar Series: An Earth Scientist's Periodic Table of the Elements and Their Ions: One heretic's journey from minerals and igneous rocks to soils to groundwater and to the oceans.

February 22, 2002, University of Georgia Department of Crop and Soil Sciences Lecture Series: An Earth Scientist's Periodic Table of the Elements and Their Ions.

July 5, 2002, University of New Orleans - Innsbruck Lecture Series: A Geological Introduction to Innsbruck and the Tirolean Alps.

July 8, 2003, University of New Orleans - Innsbruck Lecture Series: A Geological Introduction to Innsbruck and the Tirolean Alps.

July 14, 2003, University of New Orleans - Innsbruck Lecture Series: Alpine Glaciers, and Glaciers of the Alps.

July 21, 2003, University of New Orleans - Innsbruck Lecture Series: Glaciation, Greenhouse Gases, and Global Climate: one scientist's relatively objective analysis of an ongoing socioeconomic controversy.

January 22, 2004, University of Georgia: Evidence for unexpected surfaces of subaerial exposure at tops of parasequences in Ordovician strata of the Nashville Dome.

February 5, 2004, University of Georgia: A Systematic Explanation of Systematic Mineralogy.

April 22, 2004, University of California at Los Angeles Department of Earth and Space Sciences Colloquium: An Earth Scientist's Periodic Table of the Elements and Their Ions.

April 23, 2004, California Institute of Technology Earth and Planetary Sciences Colloquium: An Earth Scientist's Periodic Table of the Elements and Their Ions.

October 26, 2004, Central Savannah River Area Geological Society: An Earth Scientist's Periodic Table of the Elements and Their Ions.

April 7, 2005, University of North Carolina - Chapel Hill Department of Geological Sciences Colloquium: An Earth Scientist's Periodic Table of the Elements and Their Ions.

April 8, 2005, East Carolina University Department of Geology Colloquium: An Earth Scientist's Periodic Table of the Elements and Their Ions.

October 12, 2005, University of Alabama Department of Geological Sciences
Graduate Seminar Series Special Lecture: An Earth Scientist's Periodic Table of the Elements and Their Ions.

October 4, 2007, Georgia Southern University Department of Geology and
Geography Seminar Series: A Simple Geologist's View of the Northern Alps near
Innsbruck, Austria.

August 26, 2010, University of Georgia Department of Geology Geosciences
Colloquium: A record of Holocene long-term climate change and shorter-term
environmental shifts from a stalagmite from the Sierra del Caurel of northwestern
Spain.

October 13, 2010, University of Alabama Department of Geological Sciences
Graduate Seminar Series Special Lecture: A record of Holocene long-term climate
change and shorter-term environmental shifts from a stalagmite from the Sierra del
Caurel of northwestern Spain.

November 11, 2010, Georgia Southern University Department of Geology and
Geography Seminar Series: A record of Holocene long-term climate change and
shorter-term environmental shifts from a stalagmite from the Sierra del Caurel of
northwestern Spain.

May 2, 2014: Featured/keynote speaker at the Spring Retreat of the Bioenergy
Systems Research Institute of the University of Georgia: Technical, economic, and
environmental aspects of hydraulic fracturing in the exploitation of unconventional
hydrocarbon resources.

September 2014: Featured/keynote speaker at the Best of Karst event held by the
Karst Research Group of the University of South Florida (invitation declined
because of schedule conflicts).

April 17, 2015, University of Georgia Department of Geology Geosciences
Colloquium: Tales from the Pleistocene: records of glacial and interglacial stages in
stalagmites from China, Spain, and New Mexico.

January 13, 2020: University of Georgia GEOL 4020 guest lecture: An Earth
Scientist's Periodic Table of the Elements and Their Ions.

February 5, 2020: Osher Lifelong Learning Institute at the University of Georgia
(OLLI@UGA) guest lecture: Anthropogenic Global Climate Change: Questions a
skeptic might ask, and answers.

March 4, 2020: Osher Lifelong Learning Institute at the University of Georgia
(OLLI@UGA) guest lecture: Global Warming and Sea Level Change: Fact or Fiction?.

Research Grants funded:

- Mineralogical controls on stylolite development in limestones: funded by University of Georgia Research Foundation (Faculty Research Grant) for one year beginning January 1, 1991 (\$4,500).
- Contributor to proposal for acquisition of a gas-source mass spectrometer (D. Crowe, P.I.; awarded by National Science Foundation 1992)
- Jurassic paleoceanography: Oxygen isotope study of Lower to Middle Jurassic carbonate strata in the Central High Atlas Mountains of Morocco: Funded by National Science Foundation for one year beginning June 1, 1992 (\$42,215).
- Contributor to proposal for construction of a laser-ablation microsampling device for a gas-source mass spectrometer (D. Crowe, P.I.; awarded by National Science Foundation 1998)
- Contributor to grant for upgrading of an electron microprobe (A. Patiño Douce, P.I.; awarded by National Science Foundation 1998)
- A high-resolution environmental record for southern Africa from annual layers, pollen, and microscopic charcoal in cave speleothems: funded by National Oceanographic and Atmospheric Administration Climate and Global Change Program for 1.5 years beginning May, 1995 (Co-P.I. with G.A. Brook, and J.-C. Thill) (\$60,000).
- High-resolution ENSO and other paleoenvironmental data for the last 20 ka from cave speleothems in Madagascar and Botswana: funded by National Science Foundation ESH/ATM Program for 3 years beginning July 1, 1999 (Co-P.I. with G.A. Brook) (\$380,392).
- Publication of An Earth Scientist's Periodic Table of the Elements and Their Ions: funded by National Science Foundation Education Directorate July 1, 2002 to June 30, 2004 (\$4,344)
- Contributor to a proposal for a Laminated Stalagmite Network, an international network of seven researchers, including Railsback, to hold workshops in the laboratories of each. (awarded to organizer Dr. Andy Baker of the University of Birmingham (UK) by the Leverhulme Trust, March 2006)

Editorial and Review Work

Review of manuscripts for

American Mineralogist (Mineralogical Society of America)
American Journal of Science (Yale University)
Annales Societatis Geologorum Poloniae (Geological Society of Poland)
Arabian Journal for Science and Engineering
ASMOSIA (Association for Study of Marbles and Other Stones used In Antiquity)
Basin Research (International Association of Sedimentologists)
Canadian Journal of Earth Sciences (National Research Council Canada)
Chemical Geology (Elsevier)
Climate of the Past (European Geosciences Union)
Earth and Planetary Sciences Letters
Engineering (Elsevier)
Geochimica et Cosmochimica Acta (Geochemical Society)
Geological Magazine (Cambridge University, UK)
Geological Society of America Bulletin (GSA)
Geological Society of America Special Papers (GSA)
Geology (GSA)
The Holocene
International Association of Sedimentologists Special Publications (IAS)
International Journal of Speleology (International Union of Speleology)
Journal of Asian Earth Sciences
Journal of Cave and Karst Research (National Speleological Society)
Journal of Geophysical Research (American Geophysical Union)
Journal of Quaternary Science
Journal of Sedimentary Petrology (SEPM - Society for Sedimentary Geology)
Journal of Sedimentary Research (SEPM - Society for Sedimentary Geology)
Journal of Structural Geology (Elsevier)
Nature (Macmillan)
Ore Geology Reviews (International Assoc'n on the Genesis of Ore Deposits)
Palaeogeography, Palaeoclimatology, Palaeoecology (Elsevier)
Paleoceanography (American Geophysical Union)
Quaternary Geochronology (Elsevier)
Quaternary Research (University of Washington)
Quaternary Science Reviews (Elsevier)
Science Advances (American Association for the Advancement of Science)
Sedimentology (International Association of Sedimentologists)
Sedimentary Geology (Elsevier)
SEPM Special Publications (SEPM - Society for Sedimentary Geology)

Evaluation of grant proposals for

National Science Foundation (U.S. government)
Natural Sciences and Engineering Research Council (Canadian government)
Natural Environment Research Council (U.K. government)
Netherlands Foundation for the Advancement of Tropical
Research – WOTRO (Dutch government)
German Research Foundation (Deutsche Forschungsgemeinschaft - DFG)
(German government)
FWF Austrian Science Fund (Austrian government)
Israel Science Foundation (Israeli government)
Petroleum Research Fund (American Chemical Society)

Review of book proposals for
Cambridge University Press
Chapman and Hall

Review of faculty members for promotion for
University of South Florida (USA)
Durham University (UK)

Teaching Activity:

Teaching Awards:
See above

Courses Taught:

Dynamic Earth (UNO GEOL 1000)
Earth Processes and Resources (UGA GEOL 1121)
Historical Geology / Earth's History of Global Change (UGA GLY 116 / GEOL 1122)
Alpine and Glacial Geology (UNO GEOL 2096)
Elementary Oceanography (UGA GLY 303 / GEOL 3030)
Petrology II (UGA GLY 323)
Geology (Departmental Weekly) Seminar (UGA GLY 404/604)
Petroleum Geology (GEOL 4320/6320)
Sedimentary Petrology (UGA GLY 800)
Earth-Surface Geochemistry (Sed. Geochem.) (UGA GLY 815 / GEOL 8150)
Sandstone Petrology (UGA GLY 818 / GEOL 8180)
Carbonate Petrology (UGA GLY 820 / GEOL 8020)
Special Topics Courses:
 Geochemistry of Sedimentary Sulfides (as GLY 700)
 Pressure Dissolution and Stylolitization (as GLY 802A)
 Mineralogy of Sedimentary Carbonates (as GLY803A)
 Meteoric Diagenesis of Carbonate Rocks (as GLY 803B)
 Mineralogy of Sedimentary Carbonates: Applications to Speleothems
 (as GLY803A)

B.S. Thesis Supervision:

Rachel C. Sellers (Thesis topic: Isotopic and petrographic evidence for Quaternary long-term climate change from a stalagmite from the Serra do Courel of Spain)
Katelynn B. Garrett (Thesis topic: Radiometric and isotopic evidence for changing interglacial climate over the last 550,000 years from six stalagmites from northwestern Spain)
Laura A. Dupont (Thesis topic: Stalagmite evidence for environmental change associated with human activities in Madagascar over the last 2000 years)

M.S. Thesis Supervision:

Julia E. Cox (Thesis topic: Isotopic investigation of pedogenic and other carbonates in the Devonian Catskill Group of New York)
Edward C. Hood (Thesis Topic: Diagenesis of Jurassic limestones in the Central High Atlas Mountains of Morocco)
Lynn M. Andrews (Thesis Topic: Controls on stylolitization in carbonate rocks from the Appalachians)
Jennifer R. Diaz (Thesis Topic: Meteoric diagenesis at sequence boundaries in the Ordovician strata from the Nashville Dome)

- Margaret A. Rafter (Thesis Topic: Paleoclimatic records from annually layered speleothems from southern Africa)
- E. Michael Jordan (Thesis Topic: Geochemical indicators of diagenesis at sequence boundaries in the Ordovician strata from the Nashville Dome)
- James U.L. Baldini (Thesis Topic: Relationships between speleothem morphology and drip rate)
- Bethany Purdin (Thesis Topic: Reliability of indicators of meteoric diagenesis below sequence boundaries)
- Hillary R. Sletten (Thesis Topic: Paleoclimate records and their anthropological implications)
- Laura A. Dupont (Thesis Topic: Paleoclimate of eastern Africa from two stalagmites from the eastern Democratic Republic of the Congo).

Ph.D. Dissertation Supervision:

- Joe T. Elkins (Dissertation topic: Isotopic studies of organic acids in speleothems as potential paleoenvironmental tools)
- Ny Riavo G. Voarintsoa (Dissertation topic: Climate history in southern Africa and Madagascar as recorded in stalagmites)

M.S. Advisory Committee Service:

- R. Andrew Lowe (Thesis topic: Diagenesis of Cretaceous kaolins in central Georgia)
- Jeffrey Clippard (Geophysical research in east-central Georgia)
- David Heller (Weathering, dedolomitization, and patina development on archaeological marbles)
- Eric Thoman (Oxygen isotopic study of auriferous quartzites from South Africa)
- Jian Chen (Paleoclimatological analysis of Botswanan speleothems)
- Robert Kuhn (Taphonomy of salt-marsh foraminifera on the Georgia coast)
- Jae-Gon Kim (Biotite alteration and soil development on the Sparta Granite in the Georgia Piedmont)
- John Jordan (Sequence stratigraphic study of a carbonate-clastic transition at the Mississippian-Pennsylvanian boundary, southeastern Tennessee)
- Lara Leverett (Geophysical studies in Georgia)
- Robert Jones (Hydrologic Studies of karst)
- Alan Peoples (Sequence stratigraphy, Dakota Group, Cañon City, CO)
- Shawn Hall (C isotope study of dissolved organic matter in Georgia rivers)
- Angela McLain (Nitrogen fixation in illites from the Texas Gulf Coast)
- Shaw-Wen Sheen (Annual layers in speleothems)
- Polly A. Bouker (Quantitative analysis of tempestites)
- Ethan A. Goddard (Isotopic study of speleothems from Wonderwerk Cave, South Africa)
- Joshua B. Sternberg (Diagenetic recognition of a major sequence boundary in the Ordovician of the Midcontinent)
- Andrew Benson (Isotopic stratigraphy of Ordovician Limestones from southwest Virginia)
- Daniel Hunter (Meteoric diagenesis at Cincinnati sequence boundaries near Nashville)
- John LeGolvan (Fate of magnetite and ilmenite in the weathering of igneous rocks)
- Lisa Miller Baldini (Environmental Isotopic studies of the gastropod *Cerion* from the Bahamas).

Katherine Summers (Paleoclimatology and paleobiogeography of Lake Ngami, Botswana).
Torsten Ernst (Detection and analysis of acid mine drainage via remote sensing).
Vanese Flood (Sedimentation and coral reef ecology in a disturbed bay in Bermuda).
Matthew Jarrett (Paleoclimatological study of estuarine molluscs using C & O stable isotopes)
Eleanor Gardiner (Taphonomy of avian remains)
Justin Miller (Paleocology of Eocene echinoderms from Florida and Georgia)
Peter D. Akers (Stalagmite evidence of climate change from Belize)
Sharon McMullen (Paleontology and stratigraphy of Mesozoic strata in Wyoming)
Annaka Clement (Geochemistry and stratigraphy of Mesozoic strata in Wyoming)
Bolton Howes (Stratigraphy of Jurassic strata in western Wyoming)
Cullen LaPointe (Miocene molluscs as evidence of climate change)
Sydney Lee (Stratigraphy of the Jurassic of Alberta)

Ph.D. Advisory Committee Service:

William R. McClain (Dissertation Topic: Archaeological geology of a site in Turkey)
Nathan Melear (Mineralogical transformations in soil genesis)
Scott Pike (Mapping and analysis of marbles from Mt. Pentelikon, Athens, Greece)
Sang-Hwan Gwak (Diagenetic study of Cretaceous Limestones, Western Atlantic)
Thomas Feeney (Origin of glacially eroded grasslands, western New York)
James W. Webster (Paleoclimatological evidence from speleothems in Belize)
Stephen B. Harper (Controls on development of debris flows in a catastrophic storm in Thailand)
Elizabeth Gardiner (Stability of communities across a sequence boundary in Quaternary Caribbean limestones)
Shaw-Wen Sheen (Soils and groundwater at karstic sites in the southeastern United States)
Colleen Stapleton (Geochemical studies of archeological glasses)
Hong-lin Xiao (Paleoclimatological studies of karst in China)
Karen Layou (Regional extinction and recovery in the Ordovician of Tennessee)
Noel Heim (Regional biodiversity in the Mississippian of the southwestern U.S.)
Fuyuan Liang (Records of monsoons in stalagmites, and karst development)
Dan Bulger (Geochemical and mineralogical indicators of sequence stratigraphic boundaries)
Genevieve Holdridge (Studies of the paleoenvironmental context of archaeological materials from Oaxaca)
Don Lundy (Weathering of the margins of a subsurface hydrocarbon plume from a pipeline break in Minnesota)
Pete D. Akers (Paleoclimate in southern Indiana during the last glaciation)
Lixin Wang (Paleoclimate in southern Africa and Madagascar)

Other advising of students:

Year-long visit in 2009-2010 by Ph.D. student Guglielmo Angelo Caddeo of the University of Cagliari (Sardinia, Italy) for research on speleothems.
External reviewer of the dissertation of Romina Belli for the University of Newcastle, New South Wales, Australia, in 2013.

Departmental Service

Member, Geology Department Metamorphic Petrology Search Committee (1990)
Member, Geology Department Clay Mineralogy Search Committee (1990-1991)
Member, Geology Department Undergraduate Curriculum Committee (1991)
Member, Geology Department Student Placement Committee (1992; 1998)
Member, Geology Department Hydrology Search Committee (1992)
Member, Geology Department Admissions and Awards Committee (1992)
Member, Geology Department Paleontology Search Committee (1992-1993)
Chair, Geology Department Student Placement Committee (1992-1995)
Departmental Liaison with University Center of Georgia (1992-1996)
Departmental Liaison with Science Library (1992-1998)
Departmental Liaison with American Association of Petroleum Geologists (1992-8)
Departmental Scribe (1994-1998)
Member, Geology Department Ad-Hoc Committee on Course Evaluations (1999)
Member, Geology Department Admissions Committee (2000-2001)
Chair, Geology Department Space Committee (2000-2006)
Member, Geology Department Graduate Curriculum Committee (2002-3)
Chair, Geology Department Admissions and Awards Committee (1993-6, 2004-5)
Member, Geology Department Computer Committee (2006-2007)
Member, Geology Department Committee on Committees (2010-2011)
Member, Geology Department Admissions Committee (2013-2014, 2018)
Member, Geology Department Marine Geology Committee (2014-2015)
Member, Geology Department Space Committee
(1989-1991; 1994-1998; 2014-2015)
Member, Geology Department Levy and Berg Committees (repeatedly)
Member, Geology Department Watts-Wheeler Committee (2016-)
etc.
Member, Geology Department Awards Committee (2019-)

Parliamentarian of Geology Department faculty meetings (2009-present)

University Service

Member, Faculty Senate (1993-1996)
Member, Faculty Senate Professional Concerns Committee (1993-1995)
Member, Franklin College Promotion & Tenure Review Committee (2006-2008)

Professional Societies (present and past):

Fellow, Geological Society of America.
Past Member, American Association of Petroleum Geologists.
Past Member, Geochemical Society.
Past Member, Georgia Geological Society.
Past Member, International Association of Sedimentologists.
Past Member, National Speleological Society.
Past Member, SEPM - Society for Sedimentary Geology.
Past Member, Sigma Xi, the Scientific Research Society.

End of Curriculum Vitae