

# Jonathan Paul Wilson, Ph.D.

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## Education:

**Harvard University** June 2009  
**Ph.D., Earth and Planetary Sciences**  
**Dissertation:** *Reconstructing the physiology of extinct plants*  
**Advisor:** Professor Andrew H. Knoll

**Johns Hopkins University** May 2003  
**B.A., Computer Science and Earth and Planetary Sciences**  
**Thesis:** *Effects of ambient Mg/Ca ratios on the growth and calcification of the  
codiacean alga Penicillus capitatus*  
**Advisor:** Professor Steven M. Stanley

## Employment:

Postdoctoral Scholar in Geobiology: Fall 2010–Present  
Division of Geological and Planetary Sciences, Caltech  
O. K. Earl Postdoctoral Scholar in Geology: Fall 2009–Present  
Division of Geological and Planetary Sciences, Caltech  
Sophomore Advising Coordinator: Fall 2008–Spring 2009  
Winthrop House, Harvard College  
Resident Tutor in Earth and Planetary Sciences: Fall 2007–Spring 2009  
Winthrop House, Harvard College  
Visiting Researcher in Plant Physiology May–August 2003  
Institute of Molecular Biology, University of Copenhagen  
Laboratory Assistant: Stable Isotope Lab September 2001–May 2003  
Johns Hopkins University  
Laboratory Assistant: Surface Geochemistry Lab May 2001–May 2003  
Johns Hopkins University

## Awards:

San Andreas Visiting Fellow, The Huntington Library and Botanical Garden 2010–2011  
Geological Society of America Student Travel Award 2008  
International Organisation of Palaeobotany Student Travel Award 2008  
Deland Award for dissertation research, Arnold Arboretum 2008  
Certificate of Distinguished Teaching: Science A-54, 2007  
Life as a Planetary Phenomenon  
Certificate of Distinguished Teaching: Biology 107, 2006  
Evolution of Plant Life in Geologic Time  
Certificate of Distinguished Teaching: EPS 8: History of the Earth 2005  
NSF Graduate Fellowship Honorable Mention 2004  
Yellowstone-Bighorn Research Association Field Mapping Award 2002

## Publications:

**Jonathan P. Wilson** and Woodward W. Fischer. Geochemical support for a climbing habit within the Paleozoic seed plant Medullosa. In press, *International Journal of Plant Sciences*.

**Jonathan P. Wilson** and Woodward W. Fischer. Hydraulics of *Asteroxylon mackei*, an early Devonian vascular plant, and the early evolution of water transport tissue in terrestrial plants. In press, *Geobiology*.

**Jonathan P. Wilson** and 18 others (2010). Geobiology of the Late Paleoproterozoic Duck Creek Formation, Western Australia. *Precambrian Research*, v. 179(1-4) p. 135–149.

**Jonathan P. Wilson** and Andrew H. Knoll (2010). A physiologically explicit morphospace for tracheid-based water transport in modern and extinct seed plants. *Paleobiology*, v. 36(2) p. 335–355.

**Jonathan P. Wilson**, Andrew H. Knoll, N. Michele Holbrook, Charles R. Marshall (2008). Modeling fluid flow in Medullosa, an anatomically unusual Carboniferous seed plant. *Paleobiology*, v. 34(4) p. 472–493.

**Jonathan P. Wilson**. A model for whole-plant ecophysiology of fossil plants applied to the Late Paleozoic seed plant Medullosa. In review. Available at <http://its.caltech.edu/~jpwilson/preprints>.

**Jonathan P. Wilson** and Andrew H. Knoll. Physiological limits of the Gondwanan seed plant Glossopteris and Permian-Triassic extinction selectivity on land. Manuscript in preparation. Available at <http://its.caltech.edu/~jpwilson/preprints>.

**Jonathan P. Wilson** et al. Incised valleys at the Precambrian-Cambrian boundary in southern Namibia and their control on the occurrence and distribution of the trace fossil Treptichnus pedum. Manuscript in preparation. Available at <http://its.caltech.edu/~jpwilson/preprints>.

**Jonathan P. Wilson**, Kevin P. Hand, Woodward W. Fischer. A diverse and abundant assemblage of the trace fossil Treptichnus pedum from incised valleys at the Precambrian-Cambrian boundary, southern Namibia. Manuscript in preparation. Available at <http://its.caltech.edu/~jpwilson/preprints>.

P. Cohen, A. Bradley, A. H. Knoll, J. P. Grotzinger, S. Jensen, J. Abelson, K. Hand, G. Love, J. Metz, N. McLoughlin, P. Meister, R. Shepard, M. Tice, **Jonathan P. Wilson** (2009). Tubular Compression Fossils from the Ediacaran Nama Group, Namibia. *Journal of Paleontology*, v. 83(1) p. 110–122.

## Communications, book reviews, and field guides:

**Jonathan P. Wilson** (2009). Green Life Through Time: Review of Taylor, Taylor, and Krings' *Paleobotany: The Biology and Evolution of Fossil Plants*, 2<sup>nd</sup> ed. *Science*, v. 325 p. 36.

**Jonathan P. Wilson** and Karin L. Louzada (2006). Field trip guidebook: Geology of Newfoundland and Nova Scotia. Department of Earth and Planetary Sciences field trip, September 1–15, 2006.  
Available upon request.

**Professional Talks:**

(\* denotes invited talk)

2010:

**Jonathan P. Wilson\***. Reconstructing environmental history through the physiology of fossil plants. Jet Propulsion Laboratory, Pasadena, CA.

**Jonathan P. Wilson\***. Ecological and evolutionary insights from the physiology of fossil plants. Department of Biology, Haverford College.

**Jonathan P. Wilson\*** and Woodward W. Fischer. Geochemical support for a climbing habit in the Paleozoic seed fern genus Medullosa. Delivered at Annual Meeting of the Geological Society of America, Denver, CO.

**Jonathan P. Wilson\***. Ecological and evolutionary insights from the physiology of fossil plants. Division of Geological and Planetary Sciences, Caltech.

**Jonathan P. Wilson\***. Ecological insights from the physiology of fossil plants. Department of Earth and Planetary Sciences, Washington University in St. Louis.

2009:

**Jonathan P. Wilson\***. Reanimating extinct plants. Public lecture for Science for the Public, Boston, MA.

**Jonathan P. Wilson\***. Reconstructing the physiology of extinct plants using mathematical modeling. Biological Networks Modeling Center, Caltech.

**Jonathan P. Wilson\***. Estimating fossil plant crown size using scaling laws. Delivered at 2009 Leaf Summit, Smithsonian Institution.

**Jonathan P. Wilson\***. Reconstructing the physiology of extinct plants. Department of Paleobiology, Smithsonian Institution.

**Jonathan P. Wilson\***. Reconstructing the physiology of extinct plants. Department of Earth Sciences, Oxford University.

2008:

**Jonathan P. Wilson\***. Reconstructing the physiology of extinct plants. CIRAD AMAP: botAnique et bioinforMatique de l'Architecture des Plantes, Montpellier, France.

**Jonathan P. Wilson\***, A. H. Knoll, N. M. Holbrook. Hydraulics of Medullosa, an anatomically unusual Carboniferous seed plant. International Association of Palaeobotany Congress VIII.

**Jonathan P. Wilson.** A model for assimilation and transpiration in fossil plants. Delivered at Annual Meeting of the Geological Society of America, Houston, TX.

2007:

**Jonathan P. Wilson,** N. M. Holbrook, A. H. Knoll. A physiological interpretation of the Late Paleozoic seed plant Medullosa. Delivered at Annual Meeting of the Botanical Society of America, Chicago, IL.

2006:

**Jonathan P. Wilson,** A. H. Knoll. A physiologically explicit morphospace for water transport in vascular plants. Delivered at Annual Meeting of the Geological Society of America, Philadelphia, PA.

2005:

**Jonathan P. Wilson,** N. M. Holbrook, C. R. Marshall, A. H. Knoll. Modeling fluid flow in an extinct seed plant. Delivered at Annual Meeting of the Geological Society of America, Salt Lake City, UT.

### **Posters:**

2010:

**Jonathan P. Wilson,** Andrew H. Knoll, N. Michele Holbrook, Woodward W. Fischer, Charles R. Marshall. The Evolutionary History of Water Transport in Living and Fossil Plants. Presented at 7<sup>th</sup> Annual Southern California Geobiology Symposium, Pasadena, CA.

2008:

**Jonathan P. Wilson** and others. Geobiology of the Late Paleoproterozoic Duck Creek Dolomite, Western Australia. Presented at Annual Meeting of the Geological Society of America, Houston, TX.

2006:

J. Grotzinger, M. Tice, J. Metz, J. Abelson, K. Hand, S. Jensen, A. Knoll, N. McLoughlin, B. Shepard, and **Jonathan P. Wilson.** Incised valleys, Treptichnus pedum, and the Precambrian-Cambrian boundary in Namibia. Presented at Annual Meeting of the Geological Society of America, Philadelphia, PA.

### **Field Work:**

Field mapping and stratigraphy: Paleoproterozoic of Western Australia	June 2007
Field mapping and stratigraphy: Neoproterozoic of Namibia	May–June 2006
Field mapping, sampling, and palynology: Early Ordovician shales, Dingle Peninsula, SW Ireland	December 2002, 2001

### **Field Courses:**

Agoroun Institute Advanced Geobiology Field Course: Western Australia	June 2007
Agoroun Institute Advanced Geobiology Field Course: Namibia	May–June 2006
Tropical Botany: Fairchild Tropical Botanic Garden	Summer 2004
Geology Field School: Yellowstone-Bighorn Research Association	Summer 2002

### **Teaching Experience:**

**Recurring Guest Lecturer:**

OEB 212r: Advanced Topics in Plant Physiology Fall 2007

**Graduate Teaching Assistant (Harvard):**

Science A-54: Life as a Planetary Phenomenon Spring 2007

OEB 107: Evolution of Plant Life in Geologic Time Fall 2006

EPS 8: History of the Earth Spring 2005

**Undergraduate Teaching Assistant (Johns Hopkins):**

270.101: Introduction to Geology Fall 2002

**Guest Lectures:**

Caltech, Introduction to Geobiology (Ge104) Fall 2010

Pomona College, History of the Biosphere (GEOL 20D) Spring 2010

Caltech, Earth and the Biosphere (Ge11b) Spring 2010

Harvard University, Biology of Plants (OEB 52) Spring 2009, 2008

Smith College, Invertebrate Paleontology and Evolution (Geo 231) Fall 2008, 2007

**Professional Affiliations:**

Geological Society of America, International Organisation of Palaeobotany, Botanical Society of America, American Geophysical Union, Yellowstone-Bighorn Research Association