Joshua H. Miller

Department of Biological Sciences Wright State University 3640 Colonel Glenn Highway Dayton, OH 45435

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PROFESSIONAL APPOINTMENTS

2009- Postdoctoral Research Fellow, Department of Biological Sciences,		
	Wright State University. "Integrating spatial and ecological analyses of modern and fossil	
	death assemblages." Advisor: Dr. Volker Bahn	
2010-2011	Adjunct Professor, Department of Biological Sciences, Wright State University.	

EDUCATION

2009	Ph.D., Evolutionary Biology, The University of Chicago.
	Dissertation Research: The Large-Mammal Death Assemblage of Yellowstone National
	Park: Historical Ecology, Conservation Biology, Paleoecology
	Advisor: Dr. Susan Kidwell
	Committee: Dr. Michael LaBarbera, Dr. Kevin Boyce, Dr. Lawrence Heaney (Field
	Museum), Dr. Anna K. Behrensmeyer (National Museum of Natural History)
2005	S.M., Evolutionary Biology, The University of Chicago.
	Advisor: Dr. Susan Kidwell
	Committee: Dr. Michael LaBarbera, Dr. Kevin Boyce, Dr. Lawrence Heaney (Field
	Museum)
2000	B.A. (Magna cum Laude), Geology.
	Honors Research: Paleosols as indicators of paleoclimate in the Upper Cretaceous
	Maevarano Formation, Mahajanga Basin, northwestern Madagascar
	Advisor: Dr. Raymond Rogers
Field Cour	
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2004	Olorgesailie, Kenya Field Course in Taphonomy and Microstratigraphy Instructors: A K Behrensmeyer (Smithsonian) & R Potts (Smithsonian)
1999	Geology Field Course, Macalester/Beloit Colleges

PROFESSIONAL ACTIVITIES

Field/Research Experience	
Bone and antler surveys of the Arctic National Wildlife Refuge, AK.	Summer, 2010
Collaborator: Pat Druckenmiller (University of Alaska)	
Bone and antler surveys of Denali National Park, AK.	Summer, 2010
Collaborator: Pat Druckenmiller (University of Alaska)	

Bone surveys of a mass mortality event, Amboseli, Kenya.	Summer, 2010
PI. A.K. Demensineyel (Simusonian)	Summara 2004 2009
Disservation Fleuwork, Tellowstone National Fark, w I	Summer 2007
Microstrational territory of the rapidly method wind River Glaciers, with	Summer, 2007
Microstratigraphy and Taphonomy of Fram Form., Ellesmere Island, Canada	Summer, 2006
taphonomy transects, Amboseli National Park, Kenya	Summer, 2004
Field Assistant to P. Sereno (University of Chicago); fossil prospecting, collecting, stratigraphic and taphonomic analyses, Sahara Desert, Niger	Fall, 2003
Field Assistant to P. Sereno (University of Chicago); fossil prospecting, collecting_stratigraphic and taphonomic analyses_Wyoming/South Dakota	Summer, 2003
Visiting Researcher. The University of Natal South Africa	May-Dec 2002
Thomas Watson Fellow (ethnomusicalogical research in Australia & Ireland)	Aug 2000-'01
Field Assistant to R Rogers (Macalester College): stratigraphy and tanhonomy	v Summer 1998
of Maevarano Formation; Berivotra, Madagascar	y Summer, 1990
Grants, Fellowships, and Other Funding	
U.S. Fish & Wildlife (Arctic National Wildlife Refuge)	2010-2011
National Geographic (co-wrote with K Behrensmeyer [PI] & C Badgley)	2010
National Science Foundation Doctoral Dissertation Improvement Grant	2006-2008
National Science Foundation Graduate Research Fellowship	2004-2007
GAANN Fellow in Evolutionary Environmental Biology (U.S. Dept. of Educa	ation) $2007-2009$
Patterson Award (Society of Vertebrate Paleontology)	2008
Theodore Roosevelt Fund (American Museum of Natural History)	2008
Paleontological Society Yochelson Student Research Award	2008
Hinds Fund (University of Chicago)	2008
¹⁴ C-Dating Fund Smithsonian Institution	2007
Goodfriend Fund (University of Chicago)	2007
Exploration Fund Grant (The Explorer's Club)	2006
American Society of Mammalogists Grant-in-Aid	2006
American Society of Mammalogists Grant-in-Aid	2000
Theodore Roosevelt Fund (American Museum of Natural History)	2005
Geological Society of America Grant-in-Aid	2005
Paleontological Society "Steven I Gould" Grant-in-Aid	2005
Sigma Xi Grant-in-Aid (#3040192)	2003
Berkman Fellowshin: University of Chicago (Stinend support)	2004
Thomas I. Watson Fellowshin: Thomas I. Watson Foundation: "In search	2003-2004
of the Cultural Rosatta Stone: linking cultures through their folk music"	2000-2001
Minnesota Space Grant Consortium (NASA) Research Fellowshin	2000
Reltmann Fallowship (Magalastar Collaga)	2000
Definialini Fenowship (Macalester Conege) Desearch Experience for Undergraduates (NSE)	1999
Research Experience for Ondergraduates (INSF)	1998
Academic Awards and Other Accomplishments	
Alfred Sherwood Romer Prize (Soc. Vert. Paleo. – Best student presentation)	2008
Graduate Student Teaching Award (Bio Sci Division – Univ of Chicago)	2007-2008

Graduate Student Teaching Award (Bio. Sci. Division – Univ. of Chicago)2007-2008Geological Society of America Outstanding Research Proposal2005

NDSEG Graduate Fellowship Honorable Mention	2003
Rhodes Scholarship Competition, Washington State Finalist	2001
First Non-Aboriginal to live with the Yolngu Aboriginals of Galiwin'ku	2000
Island; Arnhem Land, Australia. Adopted into the group.	
Phi Beta Kappa	2000
High S. Alexander Endowed Prize (Macalester College)	

Invited Talks

Testing recent surficial mammalian bone assemblages for high-quality historical community data: A new resource for conservation and management. 2010. *Denali National Park, AK*

Death in Yellowstone: Paleoecology meets conservation biology. 2008. *California Academy of Sciences, CA*

The bones of Yellowstone: Ecological insight from skeletal remains. 2007. Yellowstone Center for Resources, Yellowstone National Park, WY.

TEACHING & OUTREACH

Undergraduate Courses Taught	
"The fossil record of species' originations, interactions, and extinctions" (Wright State University)	Spring, 2011
"Ecosystems through Time" (Wright State University)	Spring, 2010
"Stones & Bones" (University of Chicago, co-Instructor with Dr. Paul Sereno)	Summer, 2003
Teaching Assistantships	
"Environmental Ecology" – University of Chicago, instructor: Dr. T. Price	Winter, 2008
"Biodiversity" – University of Chicago, instructor: Dr. M. LaBarbera	Fall, 2007
"Evolution and the Scientific Method" – Northwestern University, instructor: Dr. B. Sageman	Winter, 2006
"Analytical Paleobiology" - University of Chicago, instructor: Dr. M. Foote	Fall, 2006
"Paleontology" – Macalester College, instructor: Dr. R. Rogers	Spring, 1999
"Biology and Geology of the Hawaiian Islands" – Macalester College, instructors: Dr. J. Craddock, Dr. K. Wirth	Winter, 1999
"Sedimentology and Stratigraphy" – Macalester College, instructor: Dr. R. Rogers	Fall, 1998
Intro. geology classes, evening lab supervisor - Macalester College	Fall, '98 – Spring, '00
Other Teaching & Outreach	
St. Louis Science Museum Resident Scientist for Museum Tours (Field Museum Chicago: American Museum of Natural History, New York)	2010-2011
Obje teacher continuing education program: "The ecology of hones"	2010
Education Consultant & Teacher "Project Exploration" (Chicago-based	2010
non-profit for science education of minorities and girls)	2003-2009
High school biology tutor	Fall, 2007
Earth Science Instructor, 8 th grade, The Northwest School (Seattle, WA)	JanApril, 2003

Commentary on Miller's Outreach & Project Exploration

Fenichel, M and H. A. Schweingruber. 2010. Surrounded by Science: Learning Science in Informal Environments. National Resource Council, National Academic Press. 240pp.

PUBLICATIONS

Miller, J.H., 2011. Ghosts of Yellowstone: Multi-decadal histories of wildlife populations captured by bones on a modern landscape. PLoS ONE, **6**(3) e18057. doi:10.1371/journal.pone.0018057 [released March 28th]

Selected Manuscripts in Preparation

- Miller, J.H., Druckenmiller, P., Jorgenson, J., and Bahn, V. (In prep.). Antlers of the Arctic Refuge: Capturing multi-generational patterns of calving ground use from bones on the landscape Miller, J.H., (In prep). Wintering grounds, calving grounds and the bones of Yellowstone elk:
- Testing the spatial fidelity of shed antlers and calf skeletons on the landscape
- Miller, J.H. and Bahn, V. (In prep.). Biogeography of extinction and the fall of the North American Pleistocene Megafauna.
- Miller, J.H. (In prep.). Bone weathering and survival on a temperate landscape.
- Miller, J.H. Shubin, N., Daeschler, T., A. Gillis, and J. Downs, (In prep). Stratigraphic context of *Tiktaalik roseae* (Late Devonian): Paleoenvironment of the fish-tetrapod transition.

Meeting Presentations

- **Miller, J.H.** 2010. On the spatial fidelity of arctic death assemblages: Caribou calving grounds and their skeletal indicators.
- Miller, J.H. and V. Bahn 2010. Spatial dynamics and structure of the North American Pleistocene megafaunal extinction. *Journal of Vertebrate Paleontology*, **29**(supplement to number 3), 135A.
- Bahn, V., **J.H. Miller**, P. McAfee, and J.L. Peters, 2010. Continental-scale variability in climate history since the last glacial maximum provide a natural experiment for the influence of climate on duck distributions (genus *Anas*). Ecological Society of America Annual Meeting, Pittsburg, PA.
- **Miller, J.H.**, 2009. Climatic and environmental controls on bone weathering: Time-averaging, accumulation histories, and ecological insight. Geological Society of America Annual Meeting, Portland, OR.
- **Miller, J.H.**, 2009. Testing recent surficial mammalian bone assemblages as sources of highquality historical community data: A new resource for conservation and management. Society of Conservation Biology North American Section Meeting, Flagstaff, AZ.
- Miller, J.H., 2009. Comparing ecological data from different depositional environments. Society of Vertebrate Paleontology Annual Meeting. *Journal of Vertebrate Paleontology*, **28**(supplement to number 3), 148A.
- Miller, J.H., 2009. Testing habitat-controls on ecological fidelity of terrestrial vertebrate death assemblages. North American Paleontological Conference, Cincinnati, OH.

Miller, J.H., 2008. Testing the ecological fidelity of Yellowstone National Park's large-Mammal Death Assemblage: Paleoecological implications and conservation applications. *Journal of Vertebrate Paleontology*, **28**(supplement to number 3), 116A.

Alfred Sherwood Romer Prize-winning contribution

- **Miller, J.H.**, 2008. Richness, Population Structure, and Habitat-Specific Sampling Patterns of Yellowstone National Park's Large-Mammal Death Assemblage: Paleoecological and Neontological Implications. Geological Society of America Annual Meeting, Houston, TX.
- **Miller, J.H.**, 2008. Testing Yellowstone National Park's multigenerational large-mammal death assemblage as a source of historical and contemporary data on ungulate habitat utilization. American Society of Mammalogists Annual Meeting. Brookings, SD.
- Miller, J.H., Shubin, N., Daeschler, T., and J. Downs, 2007. Stratigraphic context of *Tiktaalik roseae* (Late Devonian): Paleoenvironment of the fish-tetrapod transition. Geological Society of America Meeting, Abstracts and Programs, **39**(6), 417.
- **Miller, J.H.**, 2007. Habitat differentiation based on taxon-free analysis of skeletal representation in Yellowstone National Park, WY. *Journal of Vertebrate Paleontology*, **27**(supplement to number 3), 117A.
- **Miller, J.H.**, 2007. The living and dead ungulates of Yellowstone National Park: Testing recent surficial bone assemblages as a source of high-quality historical insight. Ecological Society of America Annual Meeting. San Jose, CA.
- **Miller, J.H.**, 2007. Testing Yellowstone National Park's multi-generational large-mammal death assemblages as sources of historical community data. American Society of Mammalogists Annual Meeting. Albuquerque, NM.
- Miller, J.H., 2006. Taphonomy of temperate large-mammal death assemblages: a live-dead analysis of Yellowstone National Park. *Journal of Vertebrate Paleontology*, **26** (supplement to number 3): 90A.
- **Miller, J.H.**, 2005. The death assemblage of Yellowstone National Park: a live-dead analysis of a temperate mammalian community. Geological Society of America Annual Meeting, Abstracts and Programs, **37**(7): 116.
- **Miller, J.H.** and A. K. Behrensmeyer, 2005. Skeletal distributions across time: A multivariate approach to the changing taphonomy of Amboseli Park, Kenya. *Journal of Vertebrate Paleontology*, **25** (supplement to number 3): 92A.
- Miller, J.H., 2005. Taphonomic biases and signatures of macrofloral fusain. *PaleoBios*. **25** (supplement to number 2): 86.
- Rogers, R.R., and **Miller, J.H.**, 2002. Paleoenvironmental and taphonomic perspectives on the Late Cretaceous world of the abelisaurid theropod *Majungatholus atopus*. *Journal of Vertebrate Paleontology*, **22** (supplement to number 3): 100A.
- Miller, J.H., Rogers, R.R., Wirth, K.R., and Dunn. R.K., 2000. Preliminary analyses of paleosols in the Upper Cretaceous Maevarano Formation (Mahajanga Basin), northwestern Madagascar: Paleoclimatic implications: Geological society of America, Annual Meeting, Abstracts and Programs, 32, A-305.

SERVICE

Organized Professional Symposia	
"Taphonomic fidelity and infidelity in modern and ancient communities" –	
North American Paleontological Congress; Cincinnati, OH	June, 2009
Reviews (Grants & Manuscripts) Conservation Biology Leakey Foundation	
<u>Committees Served</u> SVP Education and Outreach Committee Member	2008-present
Registrar Search Committee (Univ. of Chicago) – student board	Fall, 2007

SYNERGISTIC ACTIVITIES

- a. **Promoting Undergraduate Research:** Provided field-based research experience for thirteen undergraduate, graduate students and recent B.A. recipients demonstrating promise and interest in paleobiology and/or mammal conservation (2005-2008).
- b. **Integrating Research & Education:** Presented current research at Yellowstone National Park to Yellowstone educators and scientists (2008). Helped run a paleontology awareness festival in Agadez, Niger with P. Sereno (2003)
- c. Curricular Development & Enhancing Diversity: Curricular development and implementation for Project Exploration's "All Girl's Expedition" (2004, 2007-09) and "Junior Paleontologists" (2003, 2007-08) education/outreach programs. <u>Project Exploration</u> is a non-profit organization promoting science education of minority middle- and high school students, with an emphasis on girls. Curricular development with Dr. Paul Sereno (University of Chicago) for a classroom and field-based undergraduate geology/paleontology course (2003); Curricular development for middle school Earth Science (The Northwest School, Seattle, WA) (2003).

PROFESSIONAL SOCIETIES (In alphabetical order)

American Society of Mammalogists, Geological Society of America, The Paleontological Society, Society of Conservation Biology, Society of Vertebrate Paleontology