

Visiting Assistant Professor
Department of Geology
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Education

Ph.D. Environmental Studies, September 2006

M.A. Environmental Studies, August 2005

University of California, Santa Cruz, California

Dissertation: *Plant Control of Soil Organic Carbon Accumulation*

Advisor: Dr. Weixin Cheng

M.S. Geosciences, August 1999

University of Arizona, Tucson, Arizona

Thesis: *Pollen Analysis of Death Valley Sediments Deposited Between 166 and 114 ka*

Advisor: Dr. Owen Davis

B.A. Geology, May 1997 (College Honors)

Earlham College, Richmond, Indiana

Publications

Wegmann, K.W., K.L. Frankel, R.J. Carson, N.E. Bader, A. Bayasgalan, K. Dundon, K. Ladig, R.J. Leary, G. Matzinger, G. Mortka, A. Seymour, T. Colbert, 2010. Timing and extent of Late Pleistocene glaciation in the central Mongolian Altai. **Quaternary Research**, in review.

Frankel, K.L., K.W. Wegmann, A. Bayasgalan, R.J. Carson, N.E. Bader, T. Adiya, E. Bolor, C.C. Durfey, J. Otgonkhuu, J. Sprajcar, K.E. Sweeney, R.T. Walker, and T.L. Colbert, 2010. Late Pleistocene slip rate of the Höh Serh-Tsagaan Salaa fault system, Mongolian Altai and intra-continental deformation in central Asia. **Geophysical Journal International**, in review.

Bader, N.E., A. Bayasgalan, R.J. Carson, K.L. Frankel, and K.W. Wegmann, 2009. Geology of the Höh Serh Range, Mongolian Altai. In A.P. DeWet (ed.) **Keck Geology Consortium: Proceedings of the Twenty-Second Annual Keck Research Symposium in Geology**. Lancaster, Keck Geology Consortium, p. 219–225.

Dijkstra F.A., N.E. Bader, W. Cheng, and D.W. Johnson, 2009. Does accelerated soil organic matter decomposition in the presence of plants increase net N mineralization? **Soil Biology and Biochemistry** 41: 1080–1087.

Gershenson, A., N.E. Bader, and W. Cheng, 2009. Effects of substrate availability on the temperature sensitivity of soil organic matter decomposition. **Global Change Biology** 15: 176–183.

- Schook, D.M., M.D. Collins, W.E. Jensen, P.J. Williams, N.E. Bader, and T.H. Parker, 2008. Geographic patterns of song similarity in the Dickcissel, *Spiza americana*. **The Auk** 125: 953–964.
- Bader N.E. and W. Cheng, 2007. Rhizosphere effect of *Populus fremontii* roots masks the temperature sensitivity of soil organic carbon respiration. **Soil Biology and Biochemistry** 39: 600–606.
- Bader N.E., 2000. Pollen analysis of Death Valley sediments deposited between 166 and 114 ka. **Palynology** 24: 49–61.
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Presentations

- Frankel, K.L., K.W. Wegmann, N.E. Bader, R.J. Carson, A. Bayasgalan, C.C. Durfey, J. Sprajcar, K.E. Sweeney, T. Colbert, 2009. Late Pleistocene slip rate of the Höh Serh-Tsagaan Salaa fault zone, Mongolian Altai and intracontinental transpressional deformation in central Asia. *Geological Society of America Annual Meeting*, Portland, Oregon. (Poster)
- Wegmann, K.W., K.L. Frankel, R.J. Carson, N.E. Bader, A. Bayasgalan, K. Dundon, K. Ladig, R.J. Leary, G. Matzinger, G. Mortka, A.M. Seymour, and T. Colbert, 2009. Timing and extent of Late Pleistocene glaciation in the central Mongolian Altai. *Geological Society of America Annual Meeting*, Portland, Oregon. (Poster)
- Bader, N.E., R.J. Carson, K.W. Wegmann, K.L. Frankel, A. Bayasgalan, K.M. Dundon, K.L. Ladig, R.J. Leary, G.R. Matzinger, and A.M. Seymour, 2008. Late Quaternary Glacier Retreat in the Mongolian Altai. *American Geophysical Union Fall Meeting*. San Francisco, California. (Poster)
- Wegmann, K.W., K.L. Frankel, A. Bayasgalan, R.J. Carson, N.E. Bader, C.C. Durfey, B. Erdenebat, J. Otgonhun, J.J. Sprajcar, K.E. Sweeney, A. Tsolmon, 2008. Structure and geomorphic expression of the Delüün fault and late Cenozoic transpressional mountain building in the Mongolian Altai. *American Geophysical Union Fall Meeting*. San Francisco, California. (Poster)
- Bader, N.E., 2008. Carbon Sequestration in Soils. *Focus the Nation National Teach-In, January 29th*. Walla Walla, Washington.
- Bader, N.E., F.A. Dijkstra, and Weixin Cheng, 2006. Using stable isotopes to measure the effect of live roots on soil C decomposition and gross N mineralization. *Biogeomon: 5th International Symposium on Ecosystem Behavior, June 29*. Santa Cruz, California. (Honorable Mention, Best Student Presentation)
- Bader, N.E., 2005. Rapid transpiration accompanies rapid soil carbon loss in the rhizosphere of *Populus fremontii*. *Kearney Foundation of Soil Science Meeting*. University of California, Davis, California. (Poster)
- Bader, N.E., 2004. Assessing the influence of *Populus fremontii* roots on soil carbon stocks. *Ecological Society of America, 2004 Annual Meeting*. Portland, Oregon. (Poster)
- Bader, N.E., 2004. Predicting Soil Carbon Stocks. *PrecipNet/STEPS Workshop on Climate Change Science and Policy, First Annual Workshop*. Santa Cruz, California.
- Bader, N.E., 1999. Preliminary results from a pollen analysis of Death Valley core DV93-1: a

closeup of Marine Oxygen Isotope Stage 6 and Glacial Termination II. *Arizona-Nevada Academy of Sciences, 43rd Annual Meeting*. Flagstaff, Arizona.

Bader, N.E., 1998. Preliminary results from a pollen analysis of Death Valley core DV93-1: a closeup of Marine Oxygen Isotope Stage 6 and Glacial Termination II. *American Association of Stratigraphic Palynologists, 31st Annual Meeting*. Ensenada, Baja California, Mexico. (Poster)

Teaching Experience

WHITMAN COLLEGE, VISITING ASSISTANT PROFESSOR

Applied Hydrology	2010
Introduction to Environmental Studies	2009–2010
Earth History	2007–2010
Introduction to Geographic Information Systems	2007–2010
Environmental Geology	2009
Hydrology	2008
Regional Geology	2008
Soil Ecology	2008
The Physical Earth	2007

UNIVERSITY OF CALIFORNIA AT SANTA CRUZ, TEACHING ASSISTANT

GIS and Environmental Applications Lab	2003–2004
General Ecology	2003
The Physical and Chemical Environment	2001–2002
Plant Physiological Ecology Lab	2002

UNIVERSITY OF ARIZONA, TEACHING ASSISTANT

Historical Geology Lab	1997–1998
Physical Geology Lab	1998

Current Research Projects

Quaternary glacial retreat in the Mongolian Altai

The glaciated Mongolian Altai range preserves moraine complexes and other landforms from extensive late Pleistocene glaciations. With undergraduate students from the Keck Geology Consortium, we are studying ancient and modern glacial features in six valleys draining into the Delüün Valley in Mongolia's far western Bayan-Ölgiy province.

Geographic patterns in song patterns of the Dickcissel

The song of the male Dickcissel, *Spiza americana*, is geographically variable. Individual song elements from nearby males are spatially autocorrelated at scales below about 10 km. These patterns of song dissimilarity may be tied to changes in habitat type, and degree of habitat fragmentation.

Remote sensing of soil organic carbon

Remote sensing of soil carbon stocks will be a critical means of gathering global datasets useful for assessing the success of soil sequestration activities. I am currently researching a system to use the Palouse wheat region to improve the usefulness of this technique in semiarid landscapes.

Professional Memberships

American Geophysical Union
Ecological Society of America
Geological Society of America
Oregon Academy of Science

Scholarships and Grants

Kearney Foundation Fellowship	2004–2006
Graduate Program Committee summer scholarships	2001–2004
Regents' Fellowship	2001
Cranwell-Smith Scholarship	1998
Chevron Summer Field Scholarship	1998
Sulzer Graduate Scholarship	1997