

MELINDA D. DANIELS

Assistant Professor
Department of Geography, Kansas State University
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RESEARCH INTERESTS

Process-based analysis of fluvial systems; three-dimensional flow in streams; stream ecosystem restoration; linkages between stream ecology and fluvial geomorphology; large woody debris dynamics; human impacts in fluvial systems; integration of scientific information with management and planning processes

EDUCATION

University of Illinois, Urbana-Champaign, Illinois.

Ph.D. in Geography, 2003. Supervisor: Dr. Bruce L. Rhoads

University College London, London, United Kingdom.

Master of Research in Environmental Science, 1997. Supervisor: Dr. N.J. Clifford

Cornell University, Ithaca, New York.

Bachelor of Science with Honors in Natural Resources and Environmental Science, 1996.

APPOINTMENTS

Assistant Professor, Kansas State University, Department of Geography, August 2008-Present

Assistant Professor, University of Connecticut, Department of Geography, August 2002-August 2008

PUBLICATIONS

Peer-Reviewed Manuscripts

1. Wade, R.J., Rhoads, B.L., Rodriguez, J., **Daniels, M.D.**, Wilson, D., Herricks, E.E., Bombardelli, F., Garcia, M., and Schwartz, J. 2002. Integrating Science and Technology to Support Stream Naturalization near Chicago, Illinois. *Journal of the American Water Resources Association*, 38, 931-944.
2. **Daniels, M.D.** and Rhoads, B.L. 2003. Influence of a large woody debris obstruction on three-dimensional flow structure in a meander bend. *Geomorphology*, 51, 159-173.
3. **Daniels, M.D.** and Rhoads, B.L. 2004. Spatial patterns of turbulence kinetic energy and shear stress in a meander bend with large woody debris. Chapter in the American Geophysical Union Monograph volume entitled "Riparian Vegetation and Fluvial Geomorphology: Hydraulic, Hydrologic and Geotechnical Interactions", S. Bennett and A. Simon (eds.).
4. **Daniels, M.D.** and Rhoads, B.L. 2004. Effect of LWD Configuration on Spatial Patterns of Three-Dimensional Flow in Two Low-Energy Meander Bends at Varying Stages. *Water Resources Research*, 40 (11) W11302 10.1029/2004WR003181 25 November 2004
5. Urban, M.A. and **Daniels, M.D.**, 2006. Exploring the links between geomorphology and ecology. *Geomorphology*, 77(3-4): 203-206.
6. **Daniels, M.D.** 2006. Distribution and dynamics of large woody debris and organic matter in a low-energy meandering stream. *Geomorphology*, 77(3-4): 286-298.

7. **Daniels, M.D.** 2006. Grain size sorting in meander bends containing large woody debris. *Physical Geography*, 24(7): 348-362.
8. **Daniels, M.D.** and Rhoads, B.L. 2007. Influence of experimental removal of large woody debris on spatial patterns of three-dimensional flow in a low-energy meander bend: A LWD removal experiment. *Earth Surface Processes and Landforms*, 32: 460-474.
9. Rhoads, B.L., Garcia, M.H., Rodriguez, J., Bombardelli, F., Abad, J., and **Daniels, M.** 2008. Methods for evaluating the geomorphological performance of naturalized rivers: examples from the Chicago metropolitan area. *Uncertainty in River Restoration*, Sears, D. and Darby, S. (editors). Wiley, Chichester, pp. 209-228.
10. Chin, A., **Daniels, M.D.**, Urban, M., Piegay, H., Gregory, K.J., Gregory, S.V., Wohl, E., Laurencio, L., Bigler, W., Boyer, K., Grable, J., LaFrenz, M. 2008. Perceptions of Wood in Rivers and Challenges for Stream Restoration in the United States, *Environmental Management*, 41(6): 893-903.
11. **Daniels, M.D.**, Boardman, G.C., and Woodworth, P.M. 2008. Assessing dam removal impacts on downstream geomorphic stability using hydrodynamic modeling. *Papers of the Applied Geography Conference*, 31: 133-141.
12. McCusker, M.H., and **Daniels, M.D.** 2009. The potential influence of small dams on basin sediment dynamics and coastal erosion in Connecticut. *Middle States Geographer*, 41:82-90.
13. **Daniels, M.D.** and McCusker, M.H. 2010. Operator bias characterizing stream substrates using Wolman pebble counts with a standard measurement template, *Geomorphology*, 115: 194–198

Editorship of Peer Reviewed Journals

- Co-Guest Editor, with M. Urban and M. Doyle, of a special issue of the journal *Geomorphology* entitled “*Linking Geomorphology and Ecology*” Volume 77, Issues 3-4, 2006
- Editorial Board Member, *Geomorphology*

Book Reviews

- A.M. Gurnell and D.R. Montgomery (Editors). 2000. “Hydrological Applications of GIS”, John Wiley and Sons, Chichester, 173 pages. *Geomorphology*, 54, 347-351.

PROFESSIONAL PRESENTATIONS

Conference Papers

- Kansas Natural Resources Conference, Wichita, KS, February 4-5, **2010**, Documenting the historical spatial extent and character of riparian forests in Kansas using General Land Office Survey Records, co-author with Eric Banner
- GSA Northeastern Section – 44th Annual Meeting, March **2009**, Portland, ME. “Including beavers in the river restoration baseline” co authors: Denise Burchsted and Robert Thorson
- GSA Northeastern Section – 44th Annual Meeting, March **2009**, Portland, ME. “Footwall geometry and topography in the Taiwan arc-continent collision” co authors: Timothy Byrne and Jason Miller
- 26th Water and the Future of Kansas Conference, March **2009**, Topeka, KS. “The spatial and temporal dynamics of secondary channels complexes on the Kansas River” co author: Robert Daniels
- Applied Geography Conference, October **2008**, Wilmington, DE. “Assessing dam removal impacts on downstream geomorphic stability using hydrodynamic modeling”
- Annual Meeting of the Association of American Geographers, April **2008**, “Dam Removal Decision Making: Using Hydraulic and Geomorphologic Assessment to Present Management Alternatives to Dam Owners” co authors: Graham Boardman and Paul Woodworth

- Annual Meeting of the Association of American Geographers, April **2007**, “Perceptions of Wood by River Managers: Challenges for Stream Restoration in the United States” co authors: Anne Chin, Wendy Bigler, Kathryn Boyer, Anya Butt, Stan Gregory, Martin Lafrenz, Michael Urban, Ellen Wohl, Herve Piegay, Kenneth Gregory, and Yves Le Lay
- Annual Meeting of the Association of American Geographers, April **2007**, “Passive Restoration of Floodplain Forest Patches along the Connecticut River”
- NESTVAL Meeting of the Association of American Geographers, October **2006**, Burlington, Vermont. “Historic Planform Dynamics of the Housatonic River, Massachusetts”
- Annual Meeting of the Geological Society of America, October **2006**, Philadelphia, Pennsylvania. “Historic Planform Dynamics Of The Connecticut River: Implications For Alluvial Geoarchaeology”
- 37th International Binghamton Geomorphology Symposium: The Human Role in Changing Fluvial Systems, October **2006**, Columbia, South Carolina. “Reconciling Anthropogenic Impacts on Large Rivers”
- International Conference on Riverine Hydroecology: Advances in Research and Applications, August **2006**, Stirling, Scotland, UK. “Perceptions Of Wood by River Managers: Challenges For Stream Restoration In The United States”
- Annual Meeting of the Association of American Geographers, March **2006**. Chicago, Illinois. “Historic Planform Dynamics of the Housatonic River: Secondary Channels and Response to Human Impacts ”
- Annual Meeting of the Association of American Geographers, March **2006**. Chicago, Illinois. “Riffle Microhabitats: Linking the Fluvial Geomorphology and Hydrodynamics to Aquatic Macroinvertebrate Community Compositions within Riffle Systems” co-authors: Elizabeth Spencer and Jason Vokoun
- Annual Meeting of the Association of American Geographers, March **2006**. “Perceptions of wood in rivers and challenges for stream restoration” co-authors: Anne Chin, Herve Piegay, Kenneth J. Gregory, Stanley V. Gregory, Michael A. Urban, Wendy Bigler, Anya Butt, Judith L. Grable, and Ellen E. Wohl
- Annual Meeting of the Association of American Geographers, March **2006**. “An Evaluation of the Wolman Pebble Count Method in Small Streams” co-author with Megan McCusker
- Annual Meeting of the Association of American Geographers, March **2006**, Chicago, Illinois. “Using Remotely Sensed Data to Evaluate Stream Habitat Conditions in Connecticut” co-author with Krystal Kliger
- INVITED: Symposium on Large Woody Debris in European Rivers: Dynamics, Human Perception, Challenge for Restoration and Application to Other Areas, Lyon, France, October 17-21, **2005**. “Perception of Wood in River Channels: A Survey of American Students.” Co-authors: Anne Chin, Stanley Gregory, Michael A. Urban, Wendy Bigler, Anya Butt, Judith Grable
- Annual Meeting of the Association of American Geographers, March **2005**, Denver, CO. “Three-dimensional hydraulic habitats and large woody debris”
- Annual Meeting of the Association of American Geographers, March **2005**, Denver, CO. “Downstream effects of low-head dams on river morphology in Connecticut” co-authors: Megan McCusker and Grant Gritzmacher
- American Geophysical Union, December **2004**, San Francisco, CA. “Planform Dynamics on an Urbanizing New England River”
- Annual Meeting of the Association of American Geographers, March **2004**, Philadelphia, PA. “Historic Channel Planform Change on the Pomperaug River, Connecticut” (Second author with Megan McCusker)
- Annual Meeting of the Association of American Geographers, March **2004**, Philadelphia, PA. “Linking Geomorphology and Ecology: A Call for Breadth and Diversity in Research”

- NESTVAL Meeting of the Association of American Geographers, October **2003**, East Hartford, CT. "River Restoration in Connecticut: The Last Ten Years"
- Annual Meeting of the Association of American Geographers, March **2003**, New Orleans, LA. "Grain Size Sorting In Meander Bends Containing Large Woody Debris."
- Annual Meeting of the Association of American Geographers, March **2003**, New Orleans, LA. "Beneficial Stream Management: Exploring the What, Where and Why of Stream Restoration." (Second author with Michael Urban)
- American Geophysical Union, December **2002**, San Francisco, CA. "Incorporating Large Woody Debris into River Restoration and Management Plans for Low-energy Streams."
- Binghamton International Geomorphology Symposium, October **2002**, Bloomsburg, PA. "Influence of a Large Woody Debris Dam on Flow Structure, Bed Morphology and Sediment in a Low-energy Meandering Stream."
- Annual Meeting of the Association of American Geographers, March **2002**, Los Angeles, CA. "Variability of Flow Structure Through Meander Bends Containing Large Woody Debris: Implications for Stream Management."
- American Geophysical Union, December **2001**, San Francisco, CA. "Influence of a Large Woody Debris Obstruction on Three-dimensional Flow Structure in a Meander Bend."
- Annual Meeting of the Association of American Geographers, February **2001**, New York, NY. "Influence of Large Woody Debris on Three-dimensional Flow Structure in a Low-energy Meandering Stream."
- The Ecology and Management of Logjams in Prairie Rivers, November **2000**, Monticello, IL. "Research on the Geomorphology and Ecology of Large Woody Debris at Poplar Creek."
- Annual Meeting of the Association of American Geographers, March **2000**, Pittsburgh, PA. Illustrated Paper: "The Role of Large Woody Debris in the Dynamics of a Low-Energy Meandering Stream in the Midwest: Implications for Stream Naturalization."
- Annual Meeting of the Association of American Geographers, March **1999**, Honolulu, HI. "Characterization of Channel Dynamics for Stream Naturalization: A Case Study of Madden Creek, IL."
- Illinois GIS Association Annual Meeting, April **1999**, Champaign, IL. "Characterization of Channel Dynamics for Stream Naturalization: A GIS Analysis of Channel Planform Change."
- The 50th Annual Meeting of the West Lakes Division of the Association of American Geographers, October **1999**, DeKalb, IL. "Characteristics of Bar Forms in Straight and Meandering Reaches: Implications for Theories of Bar Development, Planform Change, and Physical Habitat."

Panel Discussant

- Gulf Of Maine River Barrier Removal Monitoring Symposium, University of Maine, Orono, ME, June 20-21, 2006.
- Annual Meeting of the Association of American Geographers, March 2004, Philadelphia, PA. "What is this grad school thing, anyway: Preparing Undergraduates"
- NESTVAL Meeting of the Association of American Geographers, October 2003, East Hartford, CT. "The Future of NESTVAL"

GRANTS AWARDED

1. (Co-PI) Kansas Department of Wildlife and Parks: Seasonal Fish Assemblages and Habitat Effects near Bowersock Dam: Implications for Fish Passage, \$195,249
2. (Co-PI) Kansas Department of Wildlife and Parks: Sand Dredging Effects on Fishes and Fish Habitat in the Kansas River, \$181,983
3. (PI) KSU-USRG: Hydraulic, Geomorphologic and Thermal Dynamics at Small Tributary Confluences, \$1,500

4. (Co-PI) CT-DEP: Integrating Fluvial Geomorphology and Stream Ecology: Processes Shaping the Distribution of Freshwater Mussels in Connecticut, \$16,185
5. (PI) National Science Foundation: Fluvial Dynamics of Large River Secondary Channels: Channel Morphology, Hydraulic Habitat, and Potential for Restoration , \$56,793
6. (PI) The Nature Conservancy: Post-Ice Control Structure Geomorphological Assessment of the Salmon River NOAA (through The Nature Conservancy): \$3500
7. (PI) The Nature Conservancy: Dam Removal Alternatives Assessment for Umpawaug Pond Brook, \$19,800
8. (PI) UCONN Research Foundation Large Faculty Grant: Thermal Dynamics At Tributary Confluences: Geomorphological And Hydraulic Research To Support Restoration Design And Management, \$10,573
9. (PI) National Park Service/Farmington River Alliance: Habitat and Flushing Flow Evaluation of the Farmington River Wild and Scenic Reach, CT, \$12,000
10. (CO-PI with Jason Vokoun) CT Institute for Water Resources: Development and evaluation of a multi-dimensional spatially and temporally dynamic mesohabitat classification model for stream management and water flow allocation planning in southern New England streams, \$24,996
11. NOAA (through The Nature Conservancy): Monitoring the Effects of Dam Removal, \$9,300
12. The Nature Conservancy: Pre-Ice Control Structure Geomorphological Assessment of the Salmon River, \$7,500
13. Pomperaug River Watershed Coalition: A preliminary study of the sediment dynamics of the Pomperaug River, Connecticut, \$2,000
14. UCONN Research Foundation Large Faculty Grant: Fluvial Dynamics of Large River Secondary Channels: Process, Form and Potential for Restoration, June 2003-May 2004, \$20,000
15. University of Connecticut Research Foundation Small Faculty Grant, June 2003-December 2003, \$961
16. National Science Foundation Dissertation Improvement Grant, August 2000-August 2001, \$9,274

AWARDS

- Provosts Award: Development of new undergraduate curriculum: Global Change and Natural Hazards, UCONN, 2006
- Environmental Leadership Certificate of Appreciation (Finalist for Faculty Environmental Leadership Award) UCONN Environmental Policy Advisory Council, 2005

SERVICE

Scholarly Reviews

- Proposal Reviewer for *The National Science Foundation: Geography and Regional Science Program, Hydrologic Science Program*
- Ad hoc article reviewer for the following journals: *Water Resources Research, Ecosystems, Environmental Management, Middle States Geographer, Geomorphology, The Professional Geographer, GeoForum, Earth Surface Processes and Landforms, The Northeastern Geographer, Papers of the Applied Geography Conference, California Agriculture, Journal of Geophysical Research-Earth Surface*
- Ad hoc article reviewer for American Geophysical Union Monograph: “*Riparian Vegetation and Fluvial Geomorphology: Hydraulic, Hydrologic and Geotechnical Interactions*”

Scholarly Organizations

- Awards Committee Member, Geomorphology Specialty Group, AAG, 2009-2012
- Co-organizer, special session “Linking Geomorphology and Ecology”, Association of American Geographers Annual Meeting, April 2005, Denver, CO.
- Co-organizer, special session “Linking Geomorphology and Ecology I”, Association of American Geographers Annual Meeting, March 2004, Philadelphia, PA.
- Co-organizer, special session “Linking Geomorphology and Ecology II”, Association of American Geographers Annual Meeting, March 2004, Philadelphia, PA.
- Co-organizer, special session “New Perspectives on River Processes: Fluid Dynamics, Wood Dynamics, and Morphologic Change”, American Geophysical Union meeting, December 2001, San Francisco, CA.

Student Advising

Primary Graduate Advisor:

Megan McCusker (UCONN, MA, Geography, 2005)
 Grant Gritzmacher (UCONN, MA, Geography, 2006)
 Elizabeth Spender (UCONN, MA, Geography, 2006)
 Heather Pierce (UCONN, MA, Geography, 2006)
 Jason Miller (UCONN, MA, Geography, 2007)
 Megan McCusker (UCONN, MS, Geosciences, 2008)
 Graham Boardman (UCONN, MA, Geography, 2008)
 Paul M. Woodworth (UCONN, MA, Geography, 2008)
 Natalie Vibert (UCONN, MA, Geography, 2008)
 Piyumi Obesekara (UCONN, MS, Geosciences, 2009)
 Denise Burchstead (UCONN, PhD, Geosciences, active)
 Lisa Hook (KSU, MA, Geography, active)

Secondary Graduate Committee Member:

Ph.D. Committees

Jonathan Gourley (UCONN, Ph.D. Geology and Geophysics, 2005)
 C. Patrick Heidkamp (UCONN, Ph.D. Geography, 2007)
 Rick Jacobson (UCONN, Ph.D. NRME, examination committee)
 Jeanne Thibeault (UCONN, Ph.D. Geography, active)
 Joe Gerkin (KSU, Ph.D. Biology, active)
 Mark Gossard (KSU Ph.D. Geography, active)

Masters Committees

Courtney Schott (UCONN, M.S. Geology and Geophysics, 2004)
 Martyn Smith (UCONN, M.A. Geography, 2004)
 Daniel Britton (UCONN, M.S. Environmental Conservation, 2006)
 Dustin Edwards (UCONN, M.S. NRME, 2007)
 Chris Dixon (UCONN, M.S. NRME, 2007)
 Krystal Kliger (UCONN, M.S. NRME, 2008)
 Jennifer Pagach (UCONN, M.S. Geology and Geophysics, 2008)

Committee Service

- KSU “Women of K-State” Dual Careers and Care Givers working groups, 2009-Present
- KSU Department of Geography, Graduate Committee Member, 2009-Present
- KSU GTU Faculty Advisor, 2008-2009
- UCONN Department of Geography, Graduate Program Committee, 2005 – 2007
- UCONN College of Liberal Arts and Sciences, Center for Integrative Geosciences Advisory Committee
- UCONN Department of Geography, Undergraduate Program Committee, 2005-2008
- UCONN Department of Geography, Visiting Assistant Professor in Residence Search Committee, 2005
- UCONN Department of Geography, Department Head Search Committee, 2005
- UCONN Department of Geography, Department Head Search Committee, 2004
- UCONN Department of Geography, Visiting Assistant Professor in Residence Search Committee, 2004-2005
- UCONN College of Liberal Arts and Sciences Geosciences Advisory Review Board, 2004-2005
- UCONN Environmental Policy Advisory Council, 2004-2007
- UCONN Environmental Policy Advisory Council Subcommittee on Land Use and Sustainable Development, Office of the Chancellor, University of Connecticut, 2003-2007
- UCONN Undergraduate Coordinator, Department of Geography, University of Connecticut, 2003-2004
- UCONN Environmental Science Major Program Advisory Committee, University of Connecticut, 2003 - 2007
- UCONN College of Liberal Arts and Sciences Undergraduate Education Council, University of Connecticut, 2002 – 2004
- UCONN Teale Nature and the Environment Lecture Series Organizing Committee, University of Connecticut, 2002 - 2007
- Faculty Search Committee, Department of Geography, University of Illinois, 2000-2001
- President, Geography Graduate Student Association, University of Illinois, 1999-2000
- Executive Committee, Geography Graduate Student Association, University of Illinois, 1998-1999
- Faculty Representative, Master of Research in Environmental Science Program, University College London, 1996-1997

Outreach

- Invited Participant, Northeast Salmon Commission meeting on Wood in Maine Rivers, Falmouth, ME
- Invited Participant, Gulf of Maine Council Stream Barrier Removal Monitoring Symposium, Orono, ME, May, 2006
- Southbury Land Trust, River Dynamics Walk Leader, April, 2006
- Invited Participant, Hollenbeck River Planning Session, The Nature Conservancy, 05/11/04
- Invited Participant, Connecticut River Conservation Planning Workshop, The Nature Conservancy, 04/07/04-04/08-04
- Scientific Advisor, The Trustees of Reservations
- Scientific Advisor, The CT office of the Natural Resource Conservation Service
- Scientific Advisor, Pomperaug River Watershed Coalition
- Scientific Advisor, The Connecticut Chapter of the Nature Conservancy
- Scientific Advisor, The Connecticut Department of Environmental Protection
- Geography Awareness Week Community Outreach Volunteer, University of Illinois, 1998-2001

COURSES TAUGHT

KANSAS STATE UNIVERSITY: 2008-

Environmental Geography

World Regional Geography

Fluvial Geomorphology

Geographic Information Systems I

UNIVERSITY OF CONNECTICUT: 2002-2008

Introduction to Physical Geography

Fluvial Geomorphology

Advanced Seminar in Fluvial Geomorphology

Environmental Evaluation and Assessment

Environmental Planning and Management

Environmental Restoration

Advanced Seminary in Environmental Restoration

UNIVERSITY OF ILLINOIS: 2002

Introduction to Physical Geography

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Association of American Geographers

American Geophysical Union

Geological Society of America