**JEFFREY DANIEL MUEHLBAUER**



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# **EDUCATION**

University of North Carolina-Chapel Hill (UNC), Chapel Hill, North Carolina

Masters of Science in Ecology *in progress, expected defense date 1/2010*

Northern Arizona University (NAU), Flagstaff, Arizona, May 2007

Bachelor of Science in Biology with an emphasis in Ecology

Bachelor of Science in Chemistry

Honors Program

GPA: 4.0; *Summa cum laude*

**RESEARCH & EMPLOYMENT**

Graduate Fellow, UNC Rivers Group (Dr Martin Doyle). Chapel Hill, NC 6/2007-Present

* Ph.D. research in development, to focus on foodweb responses to floodplain morphology/hydrology and the presence of lateral biological stream signatures on the terrestrial environment.
* M.S. thesis research focused on macroinvertebrate community, sediment, and hydrologic heterogeneity surrounding knickpoints in NC Piedmont as well as macroinvertebrate community responses to an experimental drought/rewetting at a wetland mitigation site on the NC Outer Coastal Plain.
* Spent one summer field season in Adirondacks measuring velocities and calculating shear stress during 4x-weekly recreational flood releases, identifying macroinvertebrate communities, and surveying river channels.
* Carried out suspended sediment monitoring above and below an urban stream restoration, from pre-restoration to current.
* Oversaw work of multiple undergraduate field assistants.
* Facilitated laboratory setup and management.

Research Associate, NAU Aquatic Ecology Lab (Dr Jane Marks). Flagstaff, AZ 8/2003-5/2007

* Measured aquatic ecosystem effects of a diversion dam in Fossil Creek, AZ.
* Designed an independent research project studying ecological impacts of dam decommissioning.
* Analyzed leaf litter decomposition, invertebrate abundance, and fungal biomass using a Before-After Control-Impact (BACI) design.

Research Assistant, Ecological Restoration Institute. Flagstaff, AZ 3/2004-5/2007

* Promoted to Assistant Crew Leader and supervised field research teams.
* Collected ecological field data during summer field seasons.
* Applied ecological, statistical, and basic scientific skills while working in a lab.

Intern, Duke University. Durham, NC 5/2005-8/2005

* Conducted biomedical/chemical research in an academic lab.
* Independently-researched enzymes affecting Diabetic β-cell function.

Ropes Instructor, BSA Camp Raymond. Parks, AZ 6/2003-8/2003

* Led Boy Scout patrols through outdoor physically and mentally challenging, team-building activities.

Americorps team, Northland Youth Conservation Corps. Flagstaff, AZ 6/2002-8/2002

* Worked with a team of other Americorps volunteers in invasive weed removal and forest restoration thinning projects.

**PEER-REVIEWED PUBLICATIONS**

Muehlbauer J.D., LeRoy C.J., Lovett J.M., Flaccus K.K., Vlieg J.K. & Marks J.C. (2009) Short-term responses of decomposers to flow restoration in Fossil Creek, Arizona, USA. *Hydrobiologia* **618**:35-45*.*

Joseph, J.W., Odegaard, M.L., Ronnebaum, S.M., Burgess, S.C., Muehlbauer, J., Sherry,

A.D. & Newgard, C.B. (2007) Normal flux through ATP-citrate lyase or fatty acid

synthase is not required for glucose-stimulated insulin secretion. *Journal of Biological Chemistry* **282**:31592-31600. *DOI:10.1074/jbc.M706080200.*

Fuller, R.L., Griego, C., Muehlbauer, J.D., Dennison, J. & Doyle M.W. (2009) Response of stream macroinvertebrates in flow refugia and high-scour areas to a series of floods: A reciprocal replacement study. *In revision for the Journal of the North American Benthological Society*.

Muehlbauer, J.D. & Doyle, M.W. (2009) Knickpoint effects on macroinvertebrates, sediment, and discharge in urban and forested streams: Urbanization outweighs micro-scale heterogeneity. *In preparation for the Journal of the North American Benthological Society.*

Jobe, R.T., Anton, A., Bidgood, E.P., Breckheimer, I., Caplow, S.C., Evans, B., Faestel, M., Muehlbauer, J.D., Palmquist, K., Seiter, S.A., Seymour, S.D., Tessel, S.M. & Moody, A. (2009) An assessment of the All-Taxa Biodiversity Inventory: Putting the science back in citizen-science. *In preparation for Ecological Applications.*

Muehlbauer, J.D., Duncan, J. & Doyle, M.W. (2009) Benign usage of salt tracers concurrent with aquatic ecology studies. *In preparation for Canadian Journal of Fisheries & Aquatic Sciences.*

Muehlbauer, J.D., Doyle, M.W. & Bernhardt, E.S. (2009) Community responses to an experimental, spatio-temporal drought gradient. *In preparation for Oecologia*.

**OTHER PUBLICATIONS**

Muehlbauer, J.D. (2009) Physical controls on aquatic macroinvertebrate community structure. MS Thesis, UNC *in preparation.*

Muehlbauer, J.D. (2007) Getting all wet at the ERI: A study of how riparian restoration

influenced the aquatic ecosystem in Fossil Creek, Arizona. Ecological Restoration

Institute Newsletter, Spring 2007. 3pp. Available at http://www.eri.nau.edu.

Muehlbauer, J.D. (2004) Bridges, Beer Cans, and Bulldozers: In Search of Answers along

Abbey’s Road. *A Celebration of Ideas,* NAU Honors Publication Fall 2004: 14 pp.

Muehlbauer, J.D. (2004) Superhumans: Raskolnikov, Meursault, Napoleon, and Beyond. *A*

*Celebration of Ideas,* NAU Honors Publication Spring 2004: 10-12.

**PRESENTATIONS**

Seiter, S., Jobe, R.T., Anton, A., Bidgood, E.P., Breckheimer, I., Caplow, S.C., Evans, B., Faestel, M., Muehlbauer, J.D., Palmquist, K., Seymour, S.D., Tessel, S.M., & Moody, A. (2009) The Great Smoky Mountains All-Taxa Biological Inventory: Lessons for sampling design, management, and citizen science (Poster). Ecological Society of America (ESA); Albuquerque, NM.

Muehlbauer, J.D., Bernhardt, E.S. & Doyle, M.W. (2009) Macroinvertebrate community responses to an experimental drought gradient on the outer coastal plain of North Carolina (Oral Presentation). North American Benthological Society (NABS); Grand Rapids, MI.

Fuller, R., Griego, C., Dennison, J., Muehlbauer, J.D. & Doyle, M.W. (2009) Response of stream macroinvertebrates in flow refugia and high scour areas to a series of floods: A reciprocal replacement study (Oral Presentation). North American Benthological Society (NABS); Grand Rapids, MI.

Muehlbauer, J.D. & Doyle, M.W. (2008) Knickpoint effects on habitat and the macroinvertebrate community (Oral Presentation). Stream Restoration in the Southeast Conference; Asheville, NC.

Muehlbauer, J.D., LeRoy, C.J., Lovett, J.M., Vlieg, J.K. Flaccus, K.K. & Marks, J.C. (2007) Short-term effects of dam decommissioning and flow restoration in Fossil Creek (Oral Presentation). Ecological Society of America (ESA)/Society for Ecological Restoration (SER) Joint Conference; San Jose, CA.

Muehlbauer, J.D., LeRoy, C.J., Lovett, J.M., Vlieg, J.K., Flaccus, K.K. & Marks, J.C. (2007) Short-term effects of diversion dam decommissioning and flow restoration on decomposition, fungal biomass, and the macroinvertebrate community in Fossil Creek, AZ, USA (Poster). Undergraduate Research and Design Day; NAU, Flagstaff, AZ.

Muehlbauer, J.D., Lovett., J.M., LeRoy, C.J., Vlieg, J.K., Flaccus, K.K., Bennett, S.E., Delaney, I.A., Jones, K.L., Norman, P.A., Patrick, M.M., Plichta, J.R. & Marks, J.C. (2005) Diversion Dam Reduces Decomposition, Fungal Biomass and Macroinvertebrate Abundance and Diversity (Poster). North American Benthological Society (NABS)/American Geophysicists Union (AGU) Joint Conference; New Orleans, LA. Undergraduate Research & Design Day; NAU, Flagstaff, AZ. Undergraduate Showcase; NAU, Flagstaff, AZ.

Muehlbauer, J.D. (2004) Bridges, Beer Cans, and Bulldozers: In Search of Answers along Abbey’s Road (Oral Presentation). Fall Honors Symposium; NAU, Flagstaff, AZ.

Muehlbauer, J.D. (2004) Superhumans: Raskolnikov, Meursault, Napoleon, and Beyond (Oral Presentation). Spring Honors Symposium; NAU, Flagstaff, AZ.

**TEACHING**

ENST 201: Environment & Society. UNC, Chapel Hill, NC 8/2009-12/2009.

* Course for underclassmen on (inter)national environmental issues and policies
* Taught 3 recitation sections ~60 students; lectured, graded, led discussions.

ECOL 569: Current Issues in Ecology. UNC, Chapel Hill, NC 1/2009-5/2009.

* First-year Ecology graduates’ core class on researching and publishing a paper
* Led discussions, graded, provided writing assistance as Teaching Assistant.

GEOG 110: Environmental Systems. UNC, Chapel Hill, NC 8/2008-12/2008.

* Freshman-level lecture class in geography, ~150 students
* Lectured occasionally, graded, and held office hours as Teaching Assistant.

HON 399: Beyond the Bachelors. NAU, Flagstaff, AZ 1/2006-5/2007.

* Honors class for students considering graduate school
* Assisted with course creation process: Syllabus/schedule planning
* Designed, supervised, and maintained online (Blackboard) class component
* Served as Teaching Assistant.

**PROFESSIONAL AFFILIATIONS**

Student Member, American Society of Limnology and Oceanography (ASLO), 2009-Pres.

Student Member, North American Benthological Society (NABS), 2008-Present

Student Member, American Geophysicists Union (AGU), 2007-Present

Student Member, Ecological Society of America (ESA), 2005-Present

Student Member, Society for Ecological Restoration (SER), 2005-Present

Member, Honor Society of Phi Kappa Phi, 2005-Present

Chapter President & VP, Student Affiliates of the American Chemical Society (SAACS)

* Organized meetings and recruitment, planned service activities and professional development opportunities, 2003-2007.

**PROFESSIONAL SERVICE**

Author Help Volunteer, Ecological Society of America (ESA), 10/2006-Present

* Assist international ecologists with improving the English grammar and fluidity of their manuscripts prior to submission for peer-review.

Seminar Search Committee, UNC Curriculum in Ecology, 5/2008-5/2009

* Invited, coordinated, and hosted speakers for weekly seminar program.

Peer-reviewer: Journal of the American Water Resources Association, Water Resources Research

**COMMUNITY INVOLVEMENT**

Eagle Scout & Assistant Scoutmaster, Boy Scouts of America (BSA), 1991-2007

* Mentored and instructed scouts in outdoor skills and character building.

Coordinator, Sierra Student Coalition (SSC), 2002-2007

* Directed students in environmental lobbying events and adventure outings.

Organizer, Society of Environmental Communicators (SEC), 2005-2007

* Facilitated planning and coordination of campus-wide Earth Day celebration.

Coach, Sinagua High School Envirothon team, 2006-2007

* Trained students in aquatic ecology, forestry, and climate change issues.

Volunteer, The Nature Conservancy, 2002-2005

* Assisted with service and ecological projects at Hart Prairie Nature Preserve.

**AWARDS & RECOGNITIONS**

Binghamton Symposium Student Travel Award, 10/2009. $75

* For travel to the Binghamton Geomorphology Conference in Blacksburg, VA.

NABS President’s Award, 5/2009. $900

* Endowment award for MS research proposal for an experimental drought study.

Graduate Professional Student Federation Travel Award, UNC, 4/2009. $400 (Declined)

* Applied for grant to attend 2009 NABS meeting (declined due to other funding)

Pogue Fellow, UNC, 8/2007-Present.

* Five-year fellowship tuition/assistantship within the University Fellows program.

Gold Axe Award, NAU, 4/2007

* University-wide award given to seniors who have exhibited strong scholastic achievement and extracurricular/community involvement while at NAU.

Bayless Biology Scholarship, NAU, 4/2007

* + Biology departmental scholarship awarded for completing a significant research project that is in preparation for publication in a peer-reviewed journal and presentation at a national conference.

Senior Scholastic Award, NAU, 4/2007

* + Biology Departmental award given to senior student with the highest GPA.

Senior Scholar Award, NAU, 4/2007

* + - Chemistry departmental award given to a senior student with strong scholastic achievement who has made a significant contribution to the Chemistry Department.

Raymond Scoutmaster Scholarship, NAU, 4/2006

* + - University-wide scholarship given to an NAU student who is active with the Boy Scouts of America.

Kirk Smith Scholarship, NAU, 4/2005

* + - Awarded by the Ecological Restoration Institute to outstanding Undergraduate Research Assistants.

Provost’s Scholarship, NAU, 8/2003-5/2007

* + - Four-year scholarship awarded to NAU students who graduated in the top two percent of their high school classes.

Exchange Club Chapter and Regional Scholarships, 5/2003 and 7/2003

* + - Scholarship given to the winner of chapter and region-wide essay competition on American patriotism.

First place in Aquatics section, Canon International Envirothon, Frederick, MD, 7/2003

* + - * Served as captain of five-person team; competition involved field and written tests.

State Champions, Arizona Envirothon, Casa Grande, AZ, 4/2003

* + - * Won all-around competition and individual competitions in aquatics, forestry, soils, wildlife, and agriculture involving field, written, and oral tests.