

Dan Breneman

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EDUCATION

Masters, 1992, Biology. University of Northern Iowa, Cedar Falls, Iowa. Thesis title: *Microcosm Toxicity Tests: Colonizing Test Organisms and Predicting the Effects of Fenvalerate on Riffle Insect Communities.*

Major Professor: Dr. Kurt W. Pontasch.
Concentration: Ecotoxicology

Bachelors, 1988, Mortuary Science, University of Minnesota, Minneapolis, Minnesota.

Bachelors, 1987, Biology/Gen. Science, Buena Vista College, Storm Lake, Iowa.

University of Minnesota Duluth (UMD). Additional graduate course work in Toxicology, Water Pollution Biology, Experimental Design, and Ichthyology.

PROFESSIONAL EMPLOYMENT

1993- Present Research Fellow, Natural Resources Research Institute (NRRI), UMD, Duluth, MN 55811

Responsibilities at NRRI range from securing project funding through competitive grant proposals, coordinating field surveys, data collection and analysis, manuscript preparation, and disseminating results at public meetings and national conferences. Besides administrative duties and logistics, a majority of my effort involves generating work-plan estimates on contracts with consulting firms and governmental agencies, establishing study designs for TMDL and EIS projects, and technical assistance for long-term aquatic monitoring efforts conducted by tribal and county environmental programs. Additional duties at NRRI involve database technical support and managing NRRI's Microscopy Laboratory and support staff. I continue to conduct, and am instrumental in all facets of the on-going aquatic research program at NRRI's Center for Water and the Environment. Proficient with Microsoft, programming SAS, PCORD, and CANOCO statistical software, and graphical packages including Sigma Plot. Extensive experience operating research vessels, electrofishing, and calibrating water quality instrumentation. Laboratory qualifications involve sample processing for DOC, TSS, etc., vertebrate and invertebrate taxonomy, and establishing biomass, AFDW, and Cha content estimates.

2004-present: Project Coordinator; Weber Stream Restoration Initiative: a multi-agency/community based consortium established in 2004 with the objective of mitigating human impact on North Shore streams and Lake Superior coastal habitats. Project objectives involve community education regarding watershed issues, providing local units of government with development alternatives to mitigate human impacts on water quality, implementation of best management plans (BMPs), and monitoring stream conditions to evaluate the cost-benefit of project activities.

2001-2004: Great Lake Environmental Indicators: establishing ecological indicators for wetlands and near shore zones within the Great Lakes using fish and macroinvertebrate communities. Responsible for coordinating all phases of field sampling, laboratory procedures, data analysis, and data achieving.

2000-2001: Vernal Pools; determine the impact of forest fragmentation on macroinvertebrate communities and habitat quality associated with temporary wetlands in Northeastern Minnesota.

1998-1999: Indicators: determine the influence of landscape-scale factors on stream communities in the Cannon River watershed of southeastern MN. The objective of this projects was to quantifying landscape and landuse impacts on aquatic habitats, water chemistry, and the resulting fish, macroinvertebrate, and periphytic communities.

1995-1997: REMAP; Responsible for the biological component of an EPA funded study on the St. Louis River Area Of Concern (AOC) under the R-EMAP program. The study was designed to evaluate the benthic community structure, sediment toxicity, and surficial sediment chemistry associated with harbor and embayment class sediments. Evaluated body burdens of PAHs in benthic invertebrates associated with impacted and non-impacted sediments.

1993-1995: Ecological Criteria; precursor study to the above Indicators project with data collection focusing on stream communities in the Saginaw Bay watershed of Michigan.

Additional experience and projects involved a Long Term Ecological Research (LTER) study evaluating and modeling the trophic structure of arctic lakes and streams. The LTER study is currently conducted at the Toolik Field Station located on the North Slope of Alaska. Earlier research evaluated the benthic macroinvertebrate community indigenous to two designated Superfund sites within the Duluth/Superior Harbor.

1992-93 Laboratory Technician, Ecosystem Simulation Laboratory (ESL), University of Northern Iowa, Cedar Falls, Iowa 50614.

Cultured and maintained *Daphnia magna*, *Ceriodaphnia dubia*, and *Pimephales promelas* for ESL testing. Conducted acute and chronic toxicity tests with various agricultural pesticides. Additional duties included collecting and processing benthic macroinvertebrate samples and evaluating chlorophyll *a* content and biomass of periphytic assemblages.

1990-92 Graduate Research Assistant, University of Northern Iowa.

Designed and constructed artificial stream microcosms to investigate the fate and effects of agricultural insecticides and sedimentation on riffle insect communities. Independently coordinated field research activities, laboratory testing, and statistical analyses. Gained expertise in aquatic macroinvertebrates taxonomy, summarizing water quality parameters, and supervising the activities of laboratory assistants.

Teaching Assistant: Entomology, Limnology and Ecotoxicology. Conducted guest lectures and was solely responsible for lab lectures and student field-based sampling.

RELEVANT PUBLICATIONS

- Crane, J.L., C. Richards, D. Breneman, S. Lozano, and J.A. Schuldt. 2005. Evaluating methods for assessing sediment quality in a Great Lakes embayment. *Aquatic Ecosystem Health & Management* 8(3):1-27.
- Grigorovich, I.A., E.L. Mills, C. Richards, D. Breneman, and J. J.H. Ciborowski. 2005. *European valve snail Valvata piscinalis (Müller) in the Laurentian Great Lakes basin. J. Great Lakes Res.* 31(2):135-143.
- Johnson, Lucinda B., Dan Breneman, and Carl Richards. 2003. *Macroinvertebrate community structure and function associated with large wood in low gradient streams. Rivers Res. Applic.* 19:199-218.
- Breneman, Dan, Carl Richards, and Steve Lozano. 2000. *Environmental influences on benthic community structure in a Great Lakes embayment. J. Great Lakes Res.* 26(3):287-304.
- Breneman, Dan H. and Kurt W. Pontasch. 1994. *Microcosm toxicity tests: predicting the effects of fenvalerate on riffle insect communities. Environ. Toxicol. and Chem.* 13(3):381-387.

SELECTED ABSTRACTS/PRESENTATIONS

- Breneman, Dan, Lucinda Johnson, and Catherine Johnson. *The effect of fragmentation on macroinvertebrate community composition in temporary pools.* Fifty-third Annual Meeting of the North American Benthological Society, New Orleans, LA, Contribution No. 662, May, 2005.
- Breneman, Dan. *Environmental Indicator Development.* Great Lakes Fisheries Commission Meeting, Milwaukee, WI. Contribution No. 6, March, 2003.
- Breneman, D.H., J.J. Hutchens, and L.B. Johnson. *Woody debris retention in an agricultural landscape.* North American Benthological Society 49th Annual Meeting, La Crosse, WI. Contribution No. 435. May 2001.
- Hutchens, J.J., J.A. Schuldt, D.H. Breneman, C. Richards, L.B. Johnson, and G.E. Host. 2001. *The relative influence of reach- and watershed-scale factors on nutrients and periphyton in an agricultural landscape.* North American Benthological Society 49th Annual Meeting, La Crosse, WI. Contribution No. 258.
- Breneman, D., J. Schuldt, C. Richards, L. Johnson, and G. Host. *Effects of geology and land use on periphyton accrual in midwestern streams.* Forty-eighth Annual Meeting of the North American Benthological Society, Keystone CO, Contribution No. 382, May, 2000.
- Breneman, Dan, Judy Crane, Steve Lozano, and Carl Richards. *Evaluating methods for assessing sediment quality in a Great Lakes embayment.* Forty-seventh Annual Meeting of the North American Benthological Society, Duluth, MN, Contribution No. 169, May, 1999.
- Breneman, Dan, Carl Richards, and Steve Lozano. *The use of benthic macroinvertebrates as sediment quality indicators in the Duluth/Superior Harbor and St. Louis River, MN.* Forty-fifth Annual Meeting of the North American Benthological Society, San Marcos, TX, Contribution No. 114, May, 1997.

HONORS and AWARDS

- 2003 Outstanding Service Award Nomination, UMD
- 1994 Outstanding Master's Thesis Award. Graduate College, University of Northern Iowa.
- 1990-92 Graduate Tuition Scholarship and Assistantship at the University of Northern Iowa.
- 1991-92 Graduate Student Organization Representative, Department of Biology, University of Northern Iowa.

PROFESSIONAL SOCIETIES

North American Benthological Society
Society of Environmental Toxicology and Chemistry
Midwest Regional Chapter of SETAC
American Fisheries Society, Minnesota Chapter

REFERENCES

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