

MATTHEW R. FULLER

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EDUCATION

Ph.D. Environmental Science and Policy	Duke University	2017
M.S. Zoology	University of Wisconsin-Madison	2009
B.S. Biology - Ecology and Evolution	Cornell University	2006

RESEARCH AND WORK EXPERIENCE

U.S. E.P.A. Atlantic Coastal Environmental Sciences Division <i>Oak Ridge Institute for Science and Education postdoc</i> Research using a range of data sources/types (e.g., <i>in situ</i> logger time series and aerial/satellite remote sensing imagery) and model types (e.g., statistical spatial stream network [SSN] and mechanistic [SWAT] models) for scenario planning cold-water habitat restoration in stream networks.	2017-present
Duke University Nicholas School of the Environment Durham, NC <i>Graduate Research and Teaching Assistant</i> Dissertation: Habitat loss, alteration, and fragmentation in river networks: Implications for freshwater mussels and their landscape genomics.	2012-2017
ESS Group, Inc. East Providence, RI <i>Environmental Scientist</i> Member of Ecological and Environmental Permitting group. Evaluated New England freshwater and coastal marine systems through biomonitoring programs for watershed/lake associations and offshore transmission cable installation and wind turbine construction projects.	2010 - 2012
Siena College Loudonville, NY; Asa Wright Nature Center Trinidad, West Indies <i>Field and Lab Technician</i> PIs Dr. Steve Thomas and Dr. Alex Flecker used stable isotopes to evaluate nutrient fluxes through tropical stream foodwebs as part of a larger project to determine links and feedbacks between evolution and ecosystem processes.	2010
University of Wisconsin-Madison; Dept. of Zoology and Center for Limnology; Rocky Mountain Biological Laboratory Gothic, CO <i>Graduate Research and Teaching Assistant</i> Thesis: Beaver pond morphology as a tool for predicting changes in downstream reaches	2006-2009
University of Wisconsin-Madison; Dept. of Zoology; Rocky Mountain Biological Laboratory Gothic, CO <i>Field and Lab Technician</i> PIs Dr. Barbara Peckarsky and Dr. Angus McIntosh evaluated the strength of trophic interactions across high altitude streams of varying disturbance regimes in the Rocky Mountains in CO.	2006

RESEARCH AND WORK EXPERIENCE (*continued*)

Nyanza Project; Kigoma, Tanzania; Cornell University Ithaca, NY <i>Research Experience for Undergraduate Student</i>	2005, 2006
Mentor Dr. Catherine O'Reilly; Report Title: Characterization and comparison of stream macroinvertebrate communities of forested and deforested catchments bordering Lake Tanganyika during wet and dry seasons.	
EcoQuest New Zealand; Kaiaua, New Zealand <i>Directed research project for study abroad program</i>	2005
Characterization and comparison of stream macroinvertebrate communities along a forest-pasture interface (the border of Maungatautari Scenic Reserve, a mainland island reserve).	
Cornell University; Dept. of Ecology and Evolutionary Biology Ithaca, NYf <i>Field and Lab Technician</i>	2004
PIs Dr. Alex Flecker and Dr. Steve Thomas were working on an ecological stoichiometry project in streams of central New York State.	

GRANTS, FELLOWSHIPS, AND AWARDS

Hydro Research Foundation Fellowship (two-year graduate stipend support)	2014-2016
Garden Club of America Fellowship in Ecological Restoration (\$8000)	2014
Society for Freshwater Science Simpson Fund Award (\$1000)	2014
Nannerl Keohane Distinguished Visiting Professorship Graduate Student Award (\$1000)	2013
University of Wisconsin-Madison John Jefferson Davis Travel Award (\$400)	2009
University of Wisconsin-Madison Meyer Fund Fellowship (\$4500)	2008
Rocky Mountain Biological Laboratory Lee R.G. Snyder Memorial Fellowship (\$400)	2008
Center for Limnology Anna Grant Birge Memorial Award (\$2300)	2008
University of Wisconsin-Madison John Jefferson Davis Travel Award (\$400)	2008
Colorado Mountain Club Foundation Neal B. Kindig Award for best research proposal of the year (\$2400)	2007
American Museum of Natural History Theodore Roosevelt Memorial Award (\$1000)	2007
University of Wisconsin-Madison Graduate Research Fellowship (\$1750)	2007
Center for Limnology Anna Grant Birge Memorial Award (\$1000)	2007
Cornell University College of Agriculture and Life Sciences undergraduate research grant (\$250)	2006

PUBLICATIONS

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- Fuller, M.R.**, N.E. Detenbeck, P. Leinenbach, R. Labiosa, and D. Isaak. (in review). Spatial and temporal variability in stream thermal regime drivers for three river networks during the summer growing season. (in review at Journal of the American Water Resources Association).
- Fuller, M.R.**, P. Leinenbach, N.E. Detenbeck, R. Labiosa, and D. Isaak. 2022. Riparian shade restoration effects on present and future stream temperatures. *Restoration Ecology*, e13626. doi: 10.1111/rec.13626

PUBLICATIONS (*continued*)

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- Fuller, M.R.**, J. Ebersole, N.E. Detenbeck, P. Leinenbach, R. Labiosa, and C.E. Torgersen. 2021. Integrating thermal infrared stream temperature data and spatial stream network models to understand natural spatial thermal variability in streams. *Journal of Thermal Biology* 100:103028. doi: 10.1016/j.jtherbio.2021.103028
- Torgersen, C.E., **M.R. Fuller**, R.N. Faux, N.J. Poage, and F.H. Mejia. 2021. Airborne thermal infrared remote sensing of summer water temperature in the Middle Fork John Day River (Oregon) in 1994-2003: U.S. Geological Survey data release, doi:10.5066/P9UQBZ2X.
- Seybold, E.C., M.L. Fork, A.E. Braswell, J.R. Blaszcak, **M.R. Fuller**, K.E. Kaiser, J.M. Mallard, and M.A. Zimmer. 2021. A Classification Framework for Assessing Ecological, Biogeochemical, and Hydrological Synchrony and Asynchrony. *Ecosystems*. doi: 10.1007/s10021-021-00700-1
- Mims, M., C. Day, J. Burkhart, **M.R. Fuller**, J. Hinkle, A. Bearlin, J. Dunham, P. DeHaan, Z. Holden, and E. Landguth. 2019. Simulating demography, genetics, and spatially-explicit processes to inform reintroduction of a threatened char. *EcoSphere* **10**(2):e02589.
- Langhorst, T., T.M. Pavelsky, R.Pd.M. Frasson, R. Wei, A. Domeneghetti, E.H. Altenau, M.T. Durand, J.T. Minear, K.W. Wegmann, and **M.R. Fuller**. 2019. Anticipated improvements to river surface elevation profiles from the Surface Water and Ocean Topography mission. *Front. Earth Sci.* **7**:102. doi: 10.3389/feart.2019.00102
- Fuller, M.R.** and M.W. Doyle. 2018. Gene flow simulations demonstrate resistance of long-lived species to genetic erosion of habitat fragmentation. *Conservation Genetics* **19**:1439-1448. doi: 10.1007/s10592-018-1112-5
- Fuller, M.R.**, Doyle, M.W., and D.L. Strayer. 2015. Causes and consequences of habitat fragmentation in river networks. *Ann. N. Y. Acad. Sci.* **1355**:31–51.
- Ficken, C., Fork, M., and **M.R. Fuller**. 2015. Patterns and process in Landscape Ecology: Physical template, biotic interactions, and disturbance regime. *TIEE* 10: Figure Set #1.
- Fuller, M.R.** and B.L. Peckarsky. 2011. Effects of ecosystem engineering by beavers on mayfly life histories. *Freshwater Biol.* **56**:969-979.
- Fuller, M.R.** and B.L. Peckarsky. 2011. Does the morphology of beaver ponds alter food webs of downstream reaches? *Hydrobiologia* **668**(1):35-48.
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- Fuller, M.R.**, N.E. Detenbeck, P. Leinenbach, R. Labiosa, and D. Isaak. (in prep). Scenario planning management actions to restore cold water stream habitat. (in prep for *Water Resources Research*).
- Fuller, M.R.**, Doyle, M.W., and T. Schultz. (in prep) Overcoming fragmentation history in a highly dammed river network. (in prep for *Mol Ecol*)
- Fuller, M.R.** and M.W. Doyle. (in prep) River fragmentation causes reach-scale physical, biogeochemical, and biological habitat change (in prep for *Freshw Sci*)
- Fuller, M.R.** and M.W. Doyle. (in prep) Modification of annual ecosystem metabolism rates along a river-impoundment-river transect. (in prep for *Ecosystems*)
- Fuller, M.R.**, O'Reilly, C.M., and A.S. Flecker. (in prep) Deforestation and season alter tropical benthic macroinvertebrate communities of East Africa. (in prep for *Freshw Sci*)

PRESENTATIONS (*invited)

- Fuller, M.R., J. Ebersole, N. Detenbeck, R. Labiosa, P. Leinenbach, and D. Isaak. 2019. Integrating thermal infrared imagery and spatial stream network models to understand spatial variability in stream temperature across river networks. Fall Meeting of the American Geophysical Union 2019 (Poster).*
- Fuller, M.R., N. Detenbeck, P. Leinenbach, R. Labiosa, and D. Isaak. 2019. Relative controls on stream temperature from shade, land use, and water management in basins of the Pacific Northwest, USA. Pacific Northwest Chapter of the Society for Freshwater Science Meeting.*
- Fuller, M.R., P. Leinenbach, and R. Labiosa. 2019. Introduction to spatial stream network models. One-day workshop for PNW state and federal agencies held at U.S. E.P.A. Region 10.*
- Snyder, M., J. Ebersole, and M.R. Fuller. 2019. Water Temperature Mapping from a Fish Population Modeling Perspective. River Analytics Symposium.
- Fuller, M.R., N. Detenbeck, P. Leinenbach, R. Labiosa, and D. Isaak. 2019. Relative controls on stream temperature from shade, land use, and water management in basins of the Pacific Northwest, USA. Society for Freshwater Science Annual Meeting No. 66.
- Fuller, M.R., N. Detenbeck, P. Leinenbach, R. Labiosa, and D. Isaak. 2018. Riparian shade controls on stream temperature now and in the future across tributaries of the Columbia River, USA. Society for Freshwater Science Annual Meeting No. 66.
- Langhorst, T., T. Pavelsky, R.P.M. Frasson, R. Wei, A. Domeneghetti, E.H. Altenau, M.T. Durand, J.T. Minear, K.W. Wegmann, and M.R. Fuller. 2018. Anticipated improvements to in-river DEMs from the Surface Water and Ocean Topography mission. American Geophysical Union Fall Meeting.
- Fuller, M.R. and M.W. Doyle. 2017. Gene flow simulations demonstrate resistance of long-lived species to genetic erosion of habitat fragmentation. 5th Biennial Symposium of the International Society of River Science.*
- Fuller, M.R. and M.W. Doyle. 2016. Using landscape genomics to locate dispersal barriers in river networks. HydroVision International Annual Meeting.
- Fuller, M.R. and M.W. Doyle. 2016. Riverscape genomics of a freshwater invertebrate. Society for Freshwater Science Annual Meeting No. 64.
- Fuller, M.R. and M.W. Doyle. 2015. Optimizing restoration efforts for endangered species by locating dispersal restriction sites in river networks. HydroVision International Annual Meeting.
- Fuller, M.R. and M.W. Doyle. 2015. Gene flow across a fragmented river network: freshwater mussel landscape genetics. Society for Freshwater Science Annual Meeting No. 63 (poster).
- Fuller, M.R. and M.W. Doyle. 2014. Spatial and temporal ecosystem metabolism change along a river-impoundment-river system. Society for Freshwater Science Annual Meeting No. 62
- Fuller, M.R. and B.L. Peckarsky. 2009. Do beaver ponds alter mayfly fitness? North American Benthological Society Annual Meeting No.57.
- Fuller, M.R. and B.L. Peckarsky. 2008. All beaver dams are not created equal. Rocky Mountain Biological Lab Graduate Student Summer Seminar Series.

PRESENTATIONS (continued)

- Fuller, M.R. and B.L. Peckarsky. 2008. All beaver dams are not created equal. North American Benthological Society Annual Meeting No.56.
- Fuller, M.R. 2008. Biogeochemistry of alpine beaver ponds. University of Wisconsin-Madison Center for Limnology Seminar.
- Fuller, M.R. 2007. Groundwater movement around beaver impoundments: Effects on stream biogeochemistry and biology. Rocky Mountain Biological Lab Graduate Student Summer Seminar Series.
- Fuller, M.R. 2007. Beaver impoundments as discontinuities of stream networks. University of Wisconsin-Madison Center for Limnology Seminar.
- Fuller, M.R., O'Reilly, C.M., and A.S. Flecker. 2006. Benthic macroinvertebrate communities in tropical streams of forested and deforested catchments, Tanzania. North American Benthological Society Annual Meeting No. 54. (poster).
- Fuller, M.R. and C.M. O'Reilly. 2005. A study of stream macroinvertebrates in forested and deforested catchments bordering Lake Tanganyika. Presentation to the Tanzania Fisheries Research Institute-Kigoma and local government officials.*
- Fuller, M.R. and E. Maroni. 2005. A study of aquatic macroinvertebrates on Mount Maungatautari. Presentation to the Mount Maungatautari Ecological Land Trust and New Zealand Department of Conservation.*

TEACHING EXPERIENCE

Workshops

Introduction to spatial stream network models at US EPA Region 10 Nov 2019

Teaching Assistantships

Basic Applied Statistics for Environmental Science	Fall 2016
River Processes (ENVIRON 626) Duke University	Spring - 2013, 2015
Animal Biology (Zoology 102) University of Wisconsin-Madison	Fall - 2008 Spring - 2008, 2009 Summer - 2009
Limnology (Zoology 316) University of Wisconsin-Madison	Fall - 2006, 2007
Stream Ecology (EEB 456) Cornell University	Fall - 2005

Graduate projects supervised

Sherman, M. 2013. Potential impacts of small dam removal on fish and mussel communities in North Carolina. Duke University MEM Masters Project.

Undergraduate projects supervised

Stone, N.R. 2007. Effects of single and terraced beaver ponds on benthic macroinvertebrate communities. Rocky Mountain Biological Laboratory REU project

