

Nathan R. De Jager

Landscape Ecologist
Upper Midwest Environmental Sciences Center
United States Geological Survey
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Interests

My work focuses on understanding the ecological causes and consequences of spatial heterogeneity in populations and ecosystems. Current projects include studies of the interactions among large herbivore foraging behavior, population dynamics, and spatial patterns of vegetation and soil fertility. Research in this area has focused on the interactions between moose and the boreal forest ecosystems of northern coastal Sweden, Isle Royale National Park USA, and most recently on the interactions between white-tailed deer and bottomland hardwood forests along the Upper Mississippi River USA.

My main role at the Upper Midwest Environmental Sciences Center (UMESC) is to support the Long-Term Resources Monitoring Program (LTRMP) by carrying out studies related to the causes and consequences of landscape patterns along the floodplains of the Upper Mississippi and Illinois Rivers. Specific studies include quantifying spatial patterns of submersed aquatic vegetation, unionid mussels, forest, grassland and wetland cover, and aquatic habitat diversity. I am currently seeking collaboration with scientists interested in the causes and consequences of the above patterns for various species and ecosystem processes across multiple spatial scales.

Education

- 2008 PhD in Ecology, Evolution, and Behavior with a minor in Conservation Biology
University of Minnesota, St. Paul Minnesota, USA 55108
 - 2005 MS in Biology with a minor in Applied and Computational Mathematics
University of Minnesota, Duluth, Minnesota, USA 55811
 - 2001 BA in Biology/Environmental Science
Northwestern College, Orange City, Iowa, USA 51041
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Teaching Experience

- University of Wisconsin-LaCrosse, LaCrosse, WI
2009-Present, Adjunct Graduate Faculty, Department of Biology
- University of Minnesota-Duluth, Duluth, MN
2002-2004 Teaching Assistant, Department of Biology
2002-2003 Laboratory Instructor: General Biology I, Fall and Spring Semesters
2003-2004 Laboratory Instructor: Ecology, Fall and Spring Semesters
- Au Sable Institute of Environmental Studies, Mancelona, MI
2002 Teaching Assistant, Aquatic Ecology

Duluth East High School, Duluth, MN
3/06-1/08 Coach, Baseball

Research Experience

Upper Midwest Environmental Sciences Center, US Geological Survey, La Crosse, WI
7/08-Present Landscape Ecologist

University of Minnesota-Duluth, Duluth, MN
8/07-7/08 Doctoral Dissertation Fellow

Natural Resources Research Institute, Duluth, MN
5/04-8/07 Graduate Research Assistant

Swedish University of Agricultural Sciences (SLU), Umeå, Sweden
5/03-8/03 Graduate Research Assistant

Technical Experience

US Department of Agriculture, Natural Resources Conservation Service, Orange City, IA
5/99-8/00 Soil Conservation Technician

US Department of Agriculture, Natural Resources Conservation Service, Boone, IA
5/01-5/02 Soil Conservation Technician

Publications

De Jager, N.R. and Pastor, J. 2009. Declines in moose population density at Isle Royale National Park, MI, USA and accompanied changes in landscape patterns. *Landscape Ecology*. DOI 10.1007/s10980-009-9390-4.

De Jager, N.R., Pastor, J., Hodgson, A.L. 2009. Scaling the effects of moose browsing on forage distribution from plant canopies to landscapes. *Ecological Monographs*. 79(2): 281-297.

De Jager, N.R. and Pastor, J. 2008. Effects of moose population density and site productivity on the canopy geometries of birch (*Betula pubescens* and *B. pendula*) and Scots pine (*Pinus sylvestris*). *Wildlife Biology* 14. 251-262.

Van Dyke, F., B. Darby, S.E. Bowdish, J. D. Schmeling, and N.R. De Jager. 2002. Ecosystem Management and Moose: Creating a Coherent Concept with Functional Management Strategies. *Alces* 38: 55-72.

De Jager, N.R. and Pastor, J. *In Review*. Effects of simulated moose browsing on the growth and morphology of Rowan (*Sorbus aucuparia*). *Wildlife Biology*.

De Jager, N.R. and Yin, Y. *In Review, USGS*. Temporal changes in spatial patterns of submersed aquatic macrophytes in the Upper Mississippi River, USA.

De Jager, N.R., Rohweder, J.J, Nelson, J.C. *In Review, USGS*. Area-density scaling of the floodplain forests of the Upper Mississippi River System. USGS

De Jager, N.R., Rohweder, J.J, Nelson, J.C. *In Review, USGS*. Spatiotemporal changes in land cover composition of the Upper Mississippi River System floodplain: 1890-2050. USGS

De Jager, N.R., Rohweder, J.J, Nelson, J.C. *In Review, USGS*. Aquatic habitat richness-area scaling relationships along the Upper Mississippi and Illinois Rivers, USA.

De Jager, N.R., Rohweder, J.J, Nelson, J.C. *In Prep*. Longitudinal patterns in terrestrial and semi-aquatic habitat fragmentation of the Upper Mississippi River System, USA.

De Jager, N.R. *In Prep*. Quantifying changes in landscape patterns of the Upper Mississippi River System in space and time.

Technical Reports

Steingraeber, M.T., J.J. Rohweder, S.T. Yess, and N.R. De Jager. 2009. Fishers and Farmers Partnership Program for the Upper Mississippi River Basin: assessment team report. U.S. Fish and Wildlife Service, Onalaska, Wisconsin. 30 pp. Available on-line at <http://www.fishersandfarmers.org/documents.html>

Funded Project Proposals and Grants

De Jager, N.R. 2009. Development of landscape pattern indices for the Upper Mississippi River System. U.S. Army Corps of Engineers. 2010-2012 (\$330,616).

Guntenspergen, GR, Rohweder, JJ, De Jager, NR. 2009. Development of a decision support system to examine how habitat corridors could ameliorate the impact of habitat fragmentation at Acadia National Park caused by development. National Park Service. 2010-2011 (\$152,567).

De Jager, N. and Nelson, J.C. 2008. Quantifying changes in landscape patterns of the Upper Mississippi River System in space and time. US Army Corps of Engineers/US Geological Survey Long Term Resource Monitoring Program Additional Program Element. 2009. (\$63,000)

De Jager, N. 2006. Multiple-scale spatial dynamics of the moose-forest-soil ecosystem of Isle Royale National Park, MI, USA. Dissertation Fellowship, University of Minnesota. 2006-2007 (\$21,500)

De Jager, N. and F. Van Dyke. 1999. Riparian Habitat and Prairie Restoration Project Proposal to Northwestern College President and Farm Committee. (commitment of 20 acres for 20 years and funding totaling \$5,000)

De Jager, N. 1999. Application for Northwestern College to the Iowa Financial Incentive Program for Soil Erosion Control. Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation (\$7,000)
