

## Adam M. Berland

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### **Education**

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**Ph.D. University of Minnesota-Twin Cities, Geography, in progress**

*Project title:* Twin Cities urbanization and implications for ecosystem services: a study of the urban forest

*Advising committee:* Steven Manson (adviser), Kurt Kipfmueeller, Katherine Klink, Marvin Bauer

*Graduate Minor:* Natural Resources Science & Management

**M.A. University of Minnesota-Twin Cities, Geography, 2007**

*Project title:* Modeling past forest change in the Big Woods of Minnesota

*Advisers:* Steven Manson and Bryan Shuman

**B.A. University of St. Thomas, St. Paul, MN, 2005, *Summa cum laude***

*Majors:* Geography and Environmental Studies

### **Research Interests**

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**Landscape ecology, spatial modeling, geographic information science, and remote sensing**

My research fuses spatially explicit computer models, remotely sensed imagery, and field data to understand spatiotemporal dynamics of ecosystem provision in the Twin Cities Metropolitan Area. In particular, I am interested in ecosystem services provided by the urban forest along an urban-to-rural gradient. This work seeks to expand our understanding of changing coupled human-environment systems. My previous research employed a forest model to test several key hypotheses about the ecological history of the Big Woods forest of Minnesota. By studying the interplay among vegetation, climate, and fire at the regional scale, I was able to isolate several mechanisms driving historical changes in this region, in hopes that this knowledge will better prepare us for future climate-driven vegetation changes.

### **Professional Research Presentations**

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Bauer, M., **A. Berland**, J. Whitmore, and T. Erickson. 2008. Land Cover and Impervious Surface Classifications of the Twin Cities Metropolitan Area and St. Croix River Basin. *Minnesota GIS/LIS Conference*. Rochester, MN.

- Bauer, M., **A. Berland**, and T. Erickson. 2008. Land Cover and Impervious Classifications of the Minneapolis-St. Paul Metropolitan Statistical Area. *Minnesota Water Resources Conference*. St. Paul, MN.
- Berland, A.M.** 2008. Modeling past forest expansion in the Big Woods region of Minnesota. *Ecological Society of America Annual Meeting*. Milwaukee, WI.
- Berland, A.M.** 2008. Past vegetation change in the Big Woods region of Minnesota: interactions among climate, vegetation, disturbance, and landscape. *Association of American Geographers Annual Meeting*. Boston, MA.
- Berland, A.M.** 2007. Modeling vegetation change in the Big Woods of Minnesota. *Association of American Geographers Annual Meeting*. San Francisco, CA.
- Berland, A.M.** 2005. A simple model for explaining fish community structure in western Minnesota's prairie potholes using lake size and hydrologic connectivity. *Undergraduate Midwestern Geography Symposium*. Macalester College, St. Paul, MN.
- Berland, A.M.** 2004. National wetlands inventory data compared with current wetland coverage in Eden Prairie, MN. *Minnesota GIS/LIS Consortium Annual Conference*. St. Cloud, MN.
- Berland, A.M.** and D.W. Kelley. 2004. GIS analysis of lake characteristics and fish community structure. *Bush Foundation Program Grant Collaborative Inquiry Poster Session*. University of St. Thomas, St. Paul, MN.
- Berland, A.M.** and D.W. Kelley. 2004. Recent change in wetland coverage in Eden Prairie, MN. *Bush Foundation Program Grant Collaborative Inquiry Poster Session*. University of St. Thomas, St. Paul, MN.
- Berland, A.M.**, D.W. Kelley, K.D. Zimmer, B. Herwig, M. Hanson, R. Wright, and J. Younk. 2004. Using GIS to analyze fish populations in shallow lakes in western Minnesota. *West Lakes Division of the Association of American Geographers Annual Meeting*. Oshkosh, WI.

## **Invited Presentations**

- Bauer, M., **A. Berland**, and J. Whitmore. 2008. Landsat Land Cover Classification: St. Croix River Basin and Twin Cities Metropolitan Area. Presented to the Minnesota Pollution Control Agency and US Environmental Protection Agency, St. Paul, MN.
- Bauer, M., **A. Berland**, J. Whitmore, and T. Erickson. 2008. Landsat Classification of Land Cover and Impervious Surfaces of the St. Croix River Basin—A progress report. Presented to the Minnesota Pollution Control Agency and Wisconsin Dept of Natural Resources. Taylors Falls, MN.
- Lorah, P.A. and **A.M. Berland**. 2005. GIS at UST and the Buffalo Commons Project. Presented to the Board of Trustees, University of St. Thomas, St. Paul, MN.

## **Research Experience**

**Graduate Research Assistantship, University of Minnesota (May 2008 - )**  
*Advisor: Steven Manson, Dept. of Geography*

Manage spatial data sets and agent-based model components for an interdisciplinary project investigating the social and ecological impacts of multifunctional agriculture systems.

**Graduate Research Assistantship, University of Minnesota (January 2008 – January 2009)**

*Advisor: Marvin Bauer, Dept. of Forest Resources*

Performed land cover classification of remotely sensed imagery of the Twin Cities metropolitan area. Key tasks included imagery preprocessing, various land cover classification techniques, impervious surface classification, accuracy assessment, and communicating results.

**Graduate Research Assistantship, University of Minnesota (June 2006 – August 2007)**

*Advisors: Steven Manson and Bryan Shuman, Dept. of Geography*

Investigated past vegetation change mechanics in the Big Woods of Minnesota using the LANDIS-II forest landscape model.

**Field Research Assistant, University of Minnesota (February 2008, July 2008, September 2008)**

Assisted with dissertation fieldwork for Julia Rauchfuss (2/08), Evan Larson (7/08) , and Grant Elliott (9/08) in Minnesota, Idaho, and Wyoming, respectively. Gained experience with dendroecological techniques, sampling design, and inventorying vegetation.

**GIS Intern, Minnesota Department of Natural Resources (Sept. 2005 – May 2006)**

*Advisor: Mark Hanson, Wetland Wildlife Populations & Research Group*

Led GIS analysis and performed ecological field-based research on the role of landscape characteristics and food chains in determining ecosystem characteristics in shallow lakes of western Minnesota.

**Undergraduate Researcher, University of St. Thomas (June 2004 – August 2005)**

*Advisors: Kyle Zimmer, Dept. of Biology, and David Kelley, Dept. of Geography*

Led GIS analysis and performed ecological field-based research on the role of landscape characteristics and food chains in determining ecosystem characteristics in shallow lakes of western Minnesota.

**GIS Lab Consultant, University of St. Thomas (January 2004 – May 2005)**

*Advisor: Paul Lorah, Dept. of Geography*

Conducted various GIS-based research projects in collaboration with groups from the university and the neighboring community.

**Awards and Grants**

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Thesis Research Grant, Univ. of Minnesota Graduate School	\$1,500	2009
Graduate Research Partnership Program, Univ. of Minnesota College of Liberal Arts	\$4,000	2009

Travel Award, Univ. of Minnesota College of Liberal Arts	\$300	2008
Summer Fellowship, Univ. of Minnesota Dept. of Geography	\$3,500	2007
Intercollegiate Tennis Association Scholar-Athlete		2005
Young Scholars Research Program Grant, Univ. of St. Thomas	\$3,000	2004
Bob Garhart Award for Undergraduate Research, Univ. of St. Thomas	\$1,000	2004
GIS Internship, Minnesota Department of Natural Resources		2004-2005
St. Thomas Environmental Studies Program Scholarship	\$5,000	2004
Minnesota GIS/LIS Consortium Scholarship		2003, 2004
AustraLearn Director's Award (\$1,000)	\$1,000	2003

## **GIS, Remote Sensing, and Spatial Analysis Software Skills**

ArcGIS versions 3.3 through 9.2  
 ERDAS IMAGINE 9.2  
 IDRISI Andes and Kilimanjaro  
 Crimestat  
 GeoDa  
 Statistical Packages: Surfer, Systat, SPSS  
 LANDIS 4.0, LANDIS-II vegetation models

## **Teaching Assistantships**

### **University of Minnesota**

GEOG 1403: Biogeography of the Global Garden, Head TA (F2007)

Developed laboratory exercises, created exams, assisted with course organization and syllabus design, resolved student issues, and held office hours for 520+ students. Instructed laboratory sections and graded assignments and exams for 50+ students.

GEOG 1403: Biogeography of the Global Garden (Sp2006, F2006)

Instructed laboratory sections, graded assignments and exams, led study sessions, and held office hours for 50+ students per term.

GEOG 3401: Environmental Sys. & Global Change (Sp2006, Sp2007, Sp2008)

Graded assignments, gave guest lectures, provided laboratory assistance, and held office hours for 50-70 students per term.

GEOG 3561: Principles of GIS (F2005)

Instructed laboratory sections, graded assignments and exams, and held office hours for 40+ students.

### **University of St. Thomas**

GEOG 321: Geographic Information Systems (S2004)

Graded assignments and provided laboratory assistance for 20 students.

## **Professional Memberships**

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Association of American Geographers  
    Biogeography Specialty Group  
    Spatial Analysis and Modeling Specialty Group  
Ecological Society of America  
Minnesota GIS/LIS Consortium

## **Service Activities**

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Facilitator, New TA Orientation Break-Out Session, The Graduate School,  
    University of Minnesota, 2008.  
Coffee Hour/Brown Day Committee, Department of Geography, University of  
    Minnesota, 2006-2007.  
Grievances Committee, Department of Geography, University of Minnesota,  
    2006-2008.

## **References**

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Available upon request