PROMOTION RECOMMENDATION

The University of Michigan
School of Natural Resources and Environment

Daniel Brown, associate professor of natural resources and environment, with tenure, School of Natural Resources and Environment, is recommended for promotion to Professor of Natural Resources and Environment, with tenure, School of Natural Resources and Environment.

Academic Degrees:

1992	Ph.D. Geography, University of North Carolina at Chapel Hill
1989	M.A. Geography, University of North Carolina at Chapel Hill
1987	B.A. Geoenvironmental Studies, Shippensburg University

Professional Record:

2005-present	Research Affiliate, Population Studies Center, U. Michigan
2005-present	Faculty Affiliate, Center for Sustainable Systems, U. Michigan
2003-present	Faculty Associate, Program in the Environment, U. Michigan
2001-present	Faculty Associate, Center for the Study of Complex Systems, U. Michigan
2000-present	Director, Environmental Spatial Analysis Laboratory, SNRE, U. Michigan
2000-present	Director, Certificate of Graduate Studies in Spatial Analysis, U. Michigan
1999-present	Associate Professor, SNRE, U. Michigan
1998-1999	Associate Professor, Michigan State University
1992-1998	Assistant Professor, Michigan State University

Summary of Evaluation:

Teaching – Professor Brown co-led an overhaul of SNRE's quantitative course offerings, and he has done an outstanding job of invigorating this important area of teaching. As part of this curriculum, Professor Brown has taught courses in Principles of GIS, Environmental Spatial Data Analysis, GIS and Landscape Modeling and several graduate seminars on advanced topics in these areas. He also has taught Introduction to Environmental Analysis (NRE 239), the undergraduate gateway course to quantitative offerings in SNRE. The majority of his classroom teaching is conducted at the advanced undergraduate/graduate level (i.e., 400-to 500 level). Teaching analytical and technical courses at this level is a challenge, and Professor Brown implemented many mechanisms that have improved his classroom effectiveness and student learning, especially this past academic year. These courses form the core curriculum in analytical approaches in the School of Natural Resources and Environment, and they have well prepared our students for the challenges of a wide range of natural resources professions. Professor Brown has chaired, or is chairing, six doctoral student committees and 17 Masters' thesis committees; he served on a further 20 Ph.D. committees and six Masters' committees.

Research – Professor Brown's research focuses on understanding, explaining, and modeling landscape patterns and dynamics. His research has brought analytical rigor to the areas of land-use and land-cover change. Professor Brown has an extraordinary ability to work across disciplinary boundaries, engage colleagues in research across a wide range of areas, and to obtain extramural support for this innovative and integrative work. Professor Brown is a highly productive scholar. He has six refereed papers and a book chapter in 2005, plus three 2005 conference proceedings; these follow three articles in refereed journals and four book chapters in 2004. On average, he has produced 1 refereed-book chapter and 2 refereed papers per year since receiving his degree, and he articulates a clear trajectory for future research that integrates GIS and agent-based modeling, indicating sustained scholarly productivity. Professor Brown has been successful in

broadly engaging SNRE faculty as well as those in other Michigan academic units in his work. He has received significant external funding (e.g., NSF and NASA) for his research efforts, and has demonstrated effective leadership in spatial science for the University of Michigan and SNRE.

Recent and Significant Publications:

Brown, D. G., R Riolo, D. T. Robinson, M. North, and W. Rand. 2005. Spatial processes and data models: Toward integration of agent-based models and GIS. *Journal of Geographical Systems* 7(1):25-47.

Hansen, A. J., and D. G. Brown (eds.). 2005. Land-Use Change in Rural America: Rates, Drivers, and Consequences. Guest Editors for Special Issue. *Ecological Applications*. 15(6): 1849-1850.

Fernandez, L., D. G. Brown, R. Marans, and J. Nassauer. 2005. Characterizing location preferences in an exurban population: Implications for agent based modeling. *Environment and Planning B*. 32(6): 799-820.

Brown, D. G., K. M. Johnson, T. R. Loveland, and D. M. Theobald. 2005. Rural land use change in the conterminous U.S., 1950-2000. *Ecological Applications*. 15(6): 1851-1863).

Brown, D. G. 2003. Land use and forest cover in private prairies in the Upper Midwest USA 1970-1990. *Landscape Ecology* 18: 777-790.

Service – Professor Brown's service to the School, the University and his profession is outstanding in all aspects, and we are impressed by his degree of engagement on these fronts. Professor Brown has shown great initiative in service work within SNRE, across the University, and in his scholarly discipline. He is a two-term member of the SNRE Executive Committee, he directs the Environmental Spatial Analysis Lab, and chairs the Global Change Research Theme. At the University level, he chairs the Spatial Analysis Certificate Program. He has been a panel member and contributor to the Intergovernmental Working Group on Land-Use Change, he is a member of NASA's Land-Cover and Land-Use Change Science Team, and he has served on several review panels for NSF and NASA. Professor Brown is actively involved with professional societies and served until recently as subject-matter editor for *Landscape Ecology*. He is a leader in service.

External Reviewers:

Reviewer (A)
" Dr. Brown's research is at the forefront of what I think is a revolution in the environmental and Earth sciences as well as social sciences, namely, bottom-up approaches to understanding complex systems such as humans and the environment. "
"Dr. Brown's research is fundamental, high-quality and consequently influential."

Reviewer (B)
"Dr. Brown is among a very small number of the best, visible, productive researchers in Geographic Information Science in his cohort of advanced Associate Professors."
"Dan Brown is an internationally recognized researcher who has a sustained record of funding from competitive sources and who publishes in prestigious venues."

Reviewer (C)
"Working with the complexity researchers at Michigan as well as architects and planners, he has developed a series of extremely innovative models of urban sprawl and growth which are built from the bottom up and which generate emergent patterns close to those that we see in North American cities."

Reviewer (D)
"His skills in spatially explicit land use change, GIS and environmental modeling make him one of the leading scientists (top 5%) in his field."

Reviewer (E)

" Through his methodological expertise in GIS and his background in remote sensing applications, he has spearheaded the development and application of GIS in landscape ecology and land use change; he has held a long series of large and high profile research grants in a series of important cognate areas, ranging form climate change to health . . ."

"Dan Brown is a '[of his cohort]', but without any doubt internationally leading, academic who is in the top flight of researchers in his fields of interest."

Reviewer (F)

"He has made significant contribution to understanding land-use/land-cover change as well as the effects of climate change. A key strength of Dr. Brown's current research is the combination of multiple approaches, including remote sensing and geographic information science, empirical study of biophysical processes, and social science."

Reviewer (G)

"Dan develops and uses a wide range of methodologies for this science, including remote sensing, GIS, terrain modeling, spatial analysis, ecological mapping and a variety of modeling methods including agent-based models."

"Overall, Dan's research record is outstanding. Among his peers within Geography he ranks at the top—and by some distance."

"I would also rank him at the top among his peers pursuing interdisciplinary and collaborative research."

Summary of Recommendation:

Dan Brown's work is respected nationally and internationally. He is a highly productive scholar. His work demonstrates how to employ disciplinary expertise in geographic information science (GIS), an emerging multidisciplinary field of scholarship that encompasses geography, computer science, cartography, surveying, planning, natural resources, and other application areas. He has made agent-based modeling a powerful tool by both tackling its drawbacks and drawing on its strengths. He also has been an active leader in working to build a truly interdisciplinary research agenda and academic program within the School of Natural Resources and Environment and the University of Michigan. He is clearly recognized nationally and internationally as being at the top of his field, and likely to continue being extremely productive. He successfully teaches rigorous courses in geographic information science, and is a strong, committed graduate mentor. His service record is exemplary. It is with the support of the Promotion and Tenure Committee that I recommend him for promotion to Professor of Natural Resources and Environment with tenure.

Rosina M. Bierbaum, Dean
School of Natural Resources and Environment

May 2006