

Curriculum Vitae

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Education	Ph.D., Geography, University of North Carolina at Chapel Hill, 1992 M.A., Geography, University of North Carolina at Chapel Hill, 1989 B.A., <i>Summa Cum Laude</i> , Geoenvironmental Studies, Shippensburg University, PA, 1987
Positions Held	Professor, School of Natural Resources and Environment (SNRE), University of Michigan, 2006-present Associate Dean for Research, SNRE, University of Michigan, 2006-present. Director, Certificate of Graduate Studies in Spatial Analysis, University of Michigan, 2000 - present Director, Environmental Spatial Analysis Laboratory, SNRE, University of Michigan, 2000 - present Faculty Associate/Affiliate, Center for the Study of Complex Systems, Program in the Environment, Univ. of Michigan, Population Studies Center, Center for Sustainable Systems, University of Michigan Associate Professor, SNRE, Univ. of Michigan, 1999 - 2006 Associate Professor, Department of Geography, Michigan State University, 1998 - 1999 Assistant Professor, Department of Geography, Michigan State University, 1992 - 1998 Resource Assistant / Naturalist, Theodore Roosevelt National Park, Medora, ND, 1987
Selected Professional Activities	Member, Board of Directors, University Consortium for Geographic Information Science, 2007-2009. Member, National Research Council (NRC) Panel on Human Health & Security, "Earth Science and Applications from Space," Space Studies Board, 2005-2006. Chair, Land-Use/Land-Cover Change (LULCC) Steering Group for LULCC Interagency Working Group of the U.S. Climate Change Science Program, 2004-present. Exec. Comm. Member, Sch. of Natural Resources & Environment, University of Michigan, 2001-2005. Editorial Board Member, <i>Applied Spatial Analysis and Policy</i> , Springer, 2007-present Editorial Board Member, <i>Journal of Land Use Science</i> , Taylor and Francis, 2005-present. Science Team Member, Land Cover Land Use Change (LCLUC) Program, NASA, 1997-present.
Professional Memberships	American Association for the Advancement of Science (AAAS) Association of American Geographers (AAG): Remote Sensing, GIS, and Biogeography Specialty Groups American Society for Photogrammetry and Remote Sensing (ASPRS) International Association for Landscape Ecology (IALE)
Honors/Awards	Who's Who in America (2001) Laureate Computerworld Honors Program (2001) Xi Sigma Pi, Forestry honorary society (2001) ASPRS ESRI Award for Best Scientific Paper in GIS, Third Prize (1995) ASPRS ERDAS Award Best Scientific Paper in Remote Sensing, Third Prize (1995) NASA Graduate Student Fellowship in Global Change Research (1991-92) Gamma Theta Upsilon, Geography honorary society (1986) Who's Who Among Students in American Colleges and Universities (1986)
Research Interests	Research focuses on linking landscape patterns with ecological and social processes. Particular focus is on land-use and land-cover dynamics and makes use of multiple methods, including GIS, remote sensing, digital terrain analysis, ecological mapping, social surveys and statistics, and computer simulation.

RESEARCH AND SCHOLARLY ACTIVITIES

Edited Special Issues

2007. Xie, Y. and Brown, D.G. (eds.) Simulation for Spatial Analysis and Application. Special Issue. *Computers, Environment and Urban Systems*, 31(3): 229-231.
2006. Brown D.G. and Xie, Y. (eds.) Spatial Agent-Based Modeling. Special Issue. *International Journal of Geographical Information Science*, 20(9): 941-944.
2005. Hansen, A.J. and Brown, D.G. (eds.) Land-Use Change in Rural America: Rates, Drivers, and Consequences. Invited Feature. *Ecological Applications*, 15(6): 1849-1850.
2001. Brown, D.G. (ed.) Remote Sensing and Spatial Analysis Applications. Special Issue. *Plant Ecology*, 156(1).
1997. Brown, D.G. and Quattrochi, D.A (eds.). Geographical Applications of Satellite Remote Sensing. Special Issue. *Geocarto International*, 12(1).

Refereed Book Chapters

In Press. Walsh, S.J., Malanson, G.P., Messina, J.P., Brown, D.G., and Mena, C.F. Biocomplexity. In: Blumler, M., Millington, A., Schickoff, U., and MacDonald, G., Eds. *Handbook of Biogeography*, Sage.

(Advisees)

- _____. Parker, D.C. Brown, D.G. Polhill, J.G., Deadman, P.J., and Manson, S.M. Illustrating a new "conceptual design pattern" for agent-based models of land use via five case studies – the MR POTATOHEAD framework. In A.L. Paredes and C.H. Iglesias, eds. *Agent-Based Modelling in Natural Resource Management*.
2005. Duh, J.-D., and Brown, D.G. Generating prescribed patterns in landscape models. In D. Maguire, M. Goodchild, and M. Batty, Eds. *GIS, Spatial Analysis, and Modeling*. Redlands, CA: ESRI Press, pp. 423-444.
2004. Lam, N., Catts, D., Quattrochi, D., Brown, D., and McMaster, R. Chapter 4: Scale. In R.B. McMaster and E.L. Userly, Eds. *A Research Agenda for Geographic Information Science*. Boca Raton, FL: CRC Press, pp. 93-128.
- _____. Brown, D.G., Walker, R., Manson, S., Seto, K. Chapter 23: Modeling land use and land cover change. In G. Gutman, A.C. Janetos, C.O. Justice, E.F. Moran, J.F. Mustard, R.R. Rindfuss, D.L. Skole, B.L. Turner, and M.A. Cochrane, Eds. *Land Change Science: Observing, Monitoring and Understanding Trajectories of Change on the Earth's Surface*. New York: Springer, pp. 395-409.
- _____. Brown, D.G., Addink, E.A., Duh, J.D., and Bowersox, M.A. Assessing uncertainty in spatial landscape metrics derived from remote sensing data. In R. Lunetta, J.G. Lyon, Eds. *Remote Sensing and GIS Accuracy Assessment*, Boca Raton, FL: CRC Press, pp. 221-232.
- _____. Brown, D.G., Elmes, G., Kemp, K.K., Macey, S., and Mark, D. Geographic information systems. In G. Gaile and C.J. Wilmott, Eds., *Geography in America at the Dawn of the 21st Century*, New York: Oxford University Press, pp. 353-375.
2002. Drzyzga, S.A. and Brown, D.G. Spatial and temporal dynamics of ownership parcels and forest cover in three counties of Northern Lower Michigan USA, ca. 1970 to 1990. In S.J. Walsh and K.A. Crews-Meyer, Eds., *Linking People, Place, and Policy: A GIScience Approach*, Dordrecht: Kluwer, p. 155-185.
2001. Brown, D.G. Chapter 27: Characterizing the human imprint on landscapes for ecological assessment. In M. Jensen, and P. Bourgeron, Eds. *A Guidebook for Integrated Ecological Assessments*. New York: Springer, p. 404-415.

2000. Brown, D.G. A spectral unmixing approach to leaf area index (LAI) estimation at the alpine treeline ecotone. In A.C. Millington, S.J. Walsh and P.E. Osborne, Eds., *GIS and Remote Sensing Applications in Biogeography and Ecology*, Dordrecht: Kluwer, p. 7-21.
- _____. Fried, J.S., Brown, D.G., Zweifler, M.O., and Gold, M.A. Mapping contributing areas for stormwater discharge to streams using terrain analysis. In J.P. Wilson and J. Gallant, Eds. *Terrain Analysis: Principles and Applications*. New York: John Wiley and Sons, pp. 183-203.
- _____. Brown, D.G., Jacquez, G.M., Duh, J.-D., Maruca, S. Accuracy of remotely sensed estimates of landscape change using patch- and edge-based pattern statistics. In M.J.P.M. Lemmens, G. Heuvelink et al., Eds., *Spatial Accuracy 2000*, Delft University Press, Amsterdam: 75-82.
1999. Duh, J.-D. and Brown, D.G. Local reduction of systematic error in 7-1/2 minute DEMs by detecting anisotropy in derivative surfaces. In K. Lowell and A. Jaton, Eds. *Spatial Accuracy Assessment: Land Information Uncertainty in Natural Resources*. Chelsea, MI: Ann Arbor Press, pp. 281-292.
1997. Walsh, S.J., Moody, A., Allen, T.R., and Brown, D.G. Scale dependence of NDVI and its relationship to mountainous terrain. In D.A. Quattrochi and M.F. Goodchild, Eds. *Scaling in Remote Sensing and GIS*. Boca Raton, FL: CRC/Lewis Publishers Inc., p. 27-55.
1996. Brown, D.G. Spatial statistics and GIS applied to internal migration in Rwanda, Central Africa. In D.A. Griffith and S.L. Arlinghaus, Eds. *Practical Handbook of Spatial Statistics*. Boca Raton, FL: CRC Press, Inc., p. 149-173.
1994. Walsh, S.J., Butler, D.R., Brown, D.G., and Bian, L. Form and pattern in the alpine environment: an integrated approach to spatial analysis and modelling in Glacier National Park, USA. In M. Price and I. Heywood, Eds., *Mountain Environments and Geographic Information Systems*. London: Taylor and Francis, p. 189-216.
- _____. Brown, D.G., Cairns, D.M., Malanson, G.P., Walsh, S.J., Butler, D.R. Remote sensing and GIS techniques for spatial and biophysical analyses of alpine treeline through process and empirical models. In W.K. Michener, J. Brunt, and S. Stafford, Eds., *Environmental Information Management and Analysis: Ecosystem to Global Scales*. London: Taylor and Francis, p. 453-481.
- In Press. Auchincloss, A., Diez-Roux, A., Brown, D.G., and Erdmann, C. Filling the gaps: Methods for spatial interpolation of residential survey questionnaire data. *Epidemiology*.
- _____. Brown, D.G., Robinson, D.T., An, L., Nassauer, J.I., Zellner, M., Rand, W., Riolo, R., Page, S.E., and Low, B. Exurbia from the bottom-up: Confronting empirical challenges to characterizing complex systems. Special Issue of *GeoForum*.
- _____. Taylor, J.J., Brown, D.G., Larsen, L.S. Preserving natural features: A GIS-based evaluation of a local open-space ordinance. *Landscape and Urban Planning*. doi:10.1016/j.landurbplan.2007.01.013
- _____. Zhao, T., Brown, D.G., and Bergen, K.M. Effects of changes in housing-unit density and land cover on increasing ecological productivity in Southeastern Michigan. *Photogrammetric Engineering and Remote Sensing*, 73(10).
2007. Duh, J.D., and Brown, D.G. Knowledge-informed Pareto simulated annealing for multi-objective spatial allocation. *Computers, Environment and Urban Systems*, 31(3): 253–281. doi:10.1016/j.compenvurbsys.2006.08.002.

- _____. Burnicki, A., Brown, D.G., and Goovaerts, P. Error propagation in land-cover change analysis: The implications of temporal dependence. *Computers, Environment and Urban Systems*, 31(3):282-302. doi:10.1016/j.compenvurbsys.2006.07.005
- _____. Bergen, K.M., Gilboy, A.M., and Brown, D.G. Multi-dimensional vegetation structure in modeling avian habitat. *Ecological Informatics*, 2: 9-22. doi:10.1016/j.ecoinf.2007.01.001
- _____. Robinson, D.T., Brown, D.G., Parker, D.C., Schreinemachers, P., Janssen, M.A., Huigen, M., Wittmer, H., Gotts, N., Promburom, P. Irwin, E., Berger, T., Gatzweiler, F., and Barnaud, C. 2007. Comparison of empirical methods for building agent-based models of land and resource use. *Journal of Land Use Science*, 2(1): 31-55.
- _____. Auchincloss, A.H., Diez Roux, A.V., Brown, D.G., O'Meara, E.S., Raghunathan, T.E. Insulin resistance is positively associated with area poverty and distance to wealthy areas: the Multi-Ethnic Study of Atherosclerosis. *American Journal of Epidemiology*, 165: 389-397. doi:10.1093/aje/kwk028
- _____. Diez-Roux, A.V., Evenson, K., McGinn, A., Brown, D.G., Moore, L., Brines, S.J., Jacobs, D. Density of recreational resources and physical activity in a sample of adults. *American Journal of Public Health*, 97(3):493-499. doi:10.2105/AJPH.2006.087734
2006. Brown, D.G., Aspinall, R. and Bennett, D.A. Landscape models and explanation in landscape ecology: A space for generative landscape science? *Professional Geographer*, 58, 369-382.
- _____. Brown, D.G., Robinson, D.T. Effects of heterogeneity in preferences on an agent-based model of urban sprawl. *Ecology and Society*, 11(1): 46. [online] URL: <http://www.ecologyandsociety.org/vol11/iss1/art46/>
2005. Brown, D.G., Johnson, K.M., Loveland, T.R., and Theobald, D.M. Rural land use change in the conterminous U.S., 1950-2000. *Ecological Applications*, 15(6): 1851-1863.
- _____. Fernandez, L., Brown, D.G., Marans, R, and Nassauer, J. Characterizing location preferences in an exurban population: Implications for agent based modeling. *Environment and Planning B*, 32(6): 799-820.
- _____. Bergen, K.M., Brown, D.G., Rutherford, J.F., and Gustafson, E.J. Change detection with heterogeneous data using ecoregional stratification, statistical summaries and a land allocation algorithm. *Remote Sensing of Environment*, 97: 434-446.
- _____. Geddes, C., Brown, D.G., and Fagre, D.B. Topography and vegetation as predictors of snow water equivalent (SWE) across the alpine treeline ecotone at Lee Ridge, Glacier National Park, Montana. *Arctic, Antarctic, and Alpine Research*. 37(2): 197-205.
- _____. Brown, D.G., Riolo, R., Robinson, D.T., North, M., and Rand, W. Spatial process and data models: Toward integration of agent-based models and GIS. *Journal of Geographical Systems*, 7(1): 25-47.
- _____. Brown, D.G., Page, S.E., Riolo, R.L., Zellner, M., and Rand, W. Path dependence and the validation of agent-based spatial models of land-use. *International Journal of Geographical Information Science*, 19(2): 153-174.
2004. Brown, D.G., Page, S.E., Riolo, R.L., and Rand, W. Agent based and analytical modeling to evaluate the effectiveness of greenbelts. *Environmental Modelling and Software*, 19(12): 1097-1109.
- _____. Cifaldi, R., Allan, J.D., Duh, J.D., and Brown, D.G. Spatial patterns in land cover of exurbanizing watersheds in Southeastern Michigan. *Landscape and Urban Planning*, 66(2): 107-123.
- _____. Brown, D.G. and Duh, J.-D. Spatial simulation for translating between land use and land cover. *International Journal of Geographical Information Science*, 18(1): 35-60.

2003. Brown, D.G. Land use and forest cover in private parcels in the Upper Midwest USA, 1970-1990. *Landscape Ecology*, 18(8): 777-790.
- _____. Walsh, S.J., Bian, L., McKnight, S., Brown, D.G., and Hammer, E.S. Solifluction steps and risers, Lee Ridge, Glacier National Park, Montana, USA: A scale and pattern analysis. *Geomorphology*, 55(1-4): 381-398.
2002. Brown, D.G., Goovaerts, P., Burnicki, A., Li, M.Y. Stochastic simulation of land-cover change using geostatistics and generalized additive models. *Photogrammetric Engineering and Remote Sensing*, 68(10): 1051-1061.
- _____. Pijanowski, B.C., Brown, D.G., Shellito, B.A., and Manik, G.A. Using neural nets and GIS to forecast land use changes: a land transformation model. *Computers, Environment and Urban Systems*, 26(6): 553-575.
2001. Bowersox, M.A. and Brown, D.G. Measuring the abruptness of patchy ecotones: a simulation-based comparison of patch and edge metrics. *Plant Ecology*, 156(1): 89-103.
- _____. Brown, D.G. and Olson, J.M. Integrating material on geographic information science and physical geography through digital terrain analysis. *Journal of Geography*, 100(1): 4-13.
2000. Brown, D.G., Pijanowski, B.C., and Duh, J.-D. Modeling the relationships between land-use and land-cover on private lands in the Upper Midwest, USA. *Journal of Environmental Management*, 59: 247-263.
- _____. Brown, D.G., Duh, J.D., and Drzyzga, S. Estimating error in an analysis of forest fragmentation change using North American Landscape Characterization (NALC) Data. *Remote Sensing of Environment*, 71: 106-117.
1999. Brown, D.G., and Arbogast, A.F. Digital photogrammetric change analysis applied to active coastal dunes in Michigan. *Photogrammetric Engineering and Remote Sensing*, 65(4): 467-474.
1998. Brown, D.G. Classification and boundary vagueness in mapping presettlement forest types. *International Journal of Geographical Information Science*, 12(2): 105-129.
- _____. Brown, D.G. Mapping historical forest types in Baraga County, Michigan as Fuzzy Sets. *Plant Ecology*, 134(1): 97-111.
- _____. Brown, D.G., Lusch, D.P., and Duda, K.A. Supervised classification of glaciated landscape types using digital elevation data. *Geomorphology*, 21(3-4): 233-250.
1996. Schaetzl, R.J. and Brown, D.G. Forest associations and soil drainage classes in presettlement Baraga County, Michigan. *Great Lakes Geographer*, 3(2): 57-74.
1995. Barrett, L.R., Liebens, J., Brown, D.G., Schaetzl, R.J., Zuwernink, P., Cate, T.W., and Nolan, D.S. Relationships between soils and presettlement forests in Baraga County, Michigan. *American Midland Naturalist*, 134(2): 94-115.
1994. Brown, D.G. Predicting vegetation types at treeline using topography and biophysical disturbance variables. *Journal of Vegetation Science*, 5(4-5): 641-656.
- * _____ Krist, F.J. and Brown, D.G. GIS modeling of Paleo-Indian period caribou migrations and viewsheds in Northeastern Lower Michigan. *Photogrammetric Engineering and Remote Sensing*, 60(9): 1129-1137.
- _____. Brown, D.G. Comparison of vegetation-topography relationships at the alpine treeline ecotone. *Physical Geography*, 15(2): 125-145.

Articles &
Chapters in
Preparation

- * _____ Brown, D.G. and Bara, T.J. Recognition and reduction of systematic error in elevation and derivative surfaces from 7-1/2 minute DEMs. *Photogrammetric Engineering and Remote Sensing*. 60(2): 189-194.
1993. Brown, D.G., Bian, L., and Walsh, S.J. Response of a distributed watershed erosion model to variations in input data aggregation levels. *Computers and Geosciences*. 19(4): 499-509.
1992. Brown, D.G. and Walsh, S.J. Relationships between sub-alpine basin morphometry and remotely-sensed lake turbidity estimates, Glacier National Park, Montana, USA. *Physical Geography*. 13(3): 250-272.
1991. Butler, D.R., Walsh, S.J., and Brown, D.G. Three-dimensional displays for natural hazards analysis using Landsat Thematic Mapper digital data and large-scale digital elevation models. *Geocarto International*, 6(4): 65-69
- _____ Brown, D.G. and Walsh, S.J. Compatibility of non-synchronous in-situ water quality data and remotely-sensed spectral information for assessing lake turbidity levels in complex and inaccessible terrain. *Geocarto International*, 6(2): 5-11.
1990. Walsh, S.J., Butler, D.R., Brown, D.G., and Bian, L. Cartographic model of snow avalanche path location within Glacier National Park, Montana: data integration and factor weighting through GIS. *Photogrammetric Engineering and Remote Sensing*, 56(5): 615-621.
1989. Walsh, S.J., Bian, L., and Brown, D.G. Image enhancement of Landsat Thematic Mapper digital data for terrain evaluation, Glacier National Park, Montana, USA. *Geocarto International*, 3: 55-58.
- In Review. Zellner, M.L., Page, S.E., Rand, W., Brown, D.G., Robinson, D.T., Nassauer, J., and Low, B. The emergence of zoning policy games in exurban jurisdictions. Revised and re-submitted to *Land Use Policy*.
- In Review. An, L., Brown, D.G., Nassauer, J.I., and Low, B. Timing, location, and determinants of residential development types in exurban Southeast Michigan. Revised and resubmitted to *Landscape Ecology*.
- In Review. An, L., and Brown, D.G. Survival analysis in land-change science: Integrating with GIS and remote sensing in Southeastern Michigan. Submitted to *Annals of the Association of American Geographers*.
- In Review. Malanson, G.P., Brown, D.G., Butler, D.R., Cairns, D.M., Fagre, D.B., and Walsh, S.J. Ecotone dynamics: Invasibility of alpine tundra by tree species from the subalpine forest. In Butler, D.R., G.P. Malanson, S.J. Walsh, D.B. Fagre, editors. *The Changing Alpine Treeline of Glacier National Park, Montana, USA*. Elsevier, The Netherlands.
- In Review. Walsh, S.J., Brown, D.G., Geddes, C.A., Weiss, D.J., Hammer, E.S., Tuttle, J.P. Pattern-process relations in the alpine and sub-alpine environments, Glacier National Park, Montana, USA: A remote sensing and GIScience perspective. In Butler, D.R., G.P. Malanson, S.J. Walsh, D.B. Fagre, editors. *The Changing Alpine Treeline of Glacier National Park, Montana, USA*. Elsevier, The Netherlands.
- In Review. Bergen, K.M., Zhao, T.T., Kharuk, V., Blam, Y., Brown, D.G. Peterson, L., Miller, N. Changing Regimes: Forested Land-Cover Dynamics in Central Siberia 1974-2001. *Photogrammetric Engineering and Remote Sensing*.
- In Preparation. Addink, E. and Brown, D.G. Object-oriented classification of urban land use. For submission to *Photogrammetric Engineering and Remote Sensing*.
- In Preparation. Luguang J., Bergen, K.M., Brown, D.G., Tian, Q., Shuhua, Qi, Zhao, T. Vertical distribution of land-cover change near Poyang Lake, Jiangxi Province, China: Implications for vulnerability to flooding. For submission to *Photogrammetric Engineering and Remote Sensing*.

Papers in
Conference
Proceedings

- In Preparation. Zhao, T., Bergen, K.M., Brown, D.G., Shugart, H. H. Scale-dependent estimates of forest biomass change in Siberia. For submission to *International Journal of Remote Sensing*.
2006. Auchincloss, A.H., Diez-Roux, A.V., Brown, DG, Raghunathan, T.E., O'Meara, E.S. (Abstract) Insulin resistance is positively associated with area poverty: The multi-ethnic study of atherosclerosis. *Circulation*, 113 (8): E303-E304.
2005. Rand, W., Brown, D.G., Riolo, R.L., and Robinson, D.T. Toward a graphical ABM toolkit with GIS integration. *Proceedings, Agent 2005*, Chicago, IL, October 2005.
- _____. Zhao, T., Brown, D.G., Bergen, K.M., and Powers, A.C. Landscape and productivity changes in Southeastern Michigan, USA. *Proceedings, 9th International Symposium on Physical Measurements and Signature in Remote Sensing (ISPMSRS) Beijing, China*, October 2005.
- _____. An, L., Brown, D.G., Rand, W., and Page, S. Can statistical methods on land-use change patterns calibrate agent-based models? *Proceedings, Geocomputation 2005 Conference*, Ann Arbor, MI, August 2005.
- _____. Duh, J.-D., and Brown, D.G. Knowledge-informed Pareto simulated annealing for multi-objective spatial allocation. *Proceedings, Geocomputation 2005 Conference*, Ann Arbor, MI, August 2005.
2003. Rand, W., Brown, D. G., Page, S. E., Riolo, R., Fernandez, L. E., and Zellner, M. Statistical validation of spatial patterns in agent-based models. *Proceedings, Agent Based Simulation*, Montpellier, France, April 2003.
- _____. Zellner, M. L., Riolo, R., Rand, W., Page, S. E., Brown, D. G., Fernandez, L. E. The interaction between zoning regulations and residential preferences as a driver of urban form. 2003 UTEP Distinguished Faculty and Student Symposium, Urban and Regional Planning Program, University of Michigan. April, 2003.
2002. Rand, W., M. Zellner, S. E. Page, R. Riolo, D. G. Brown, and L. E. Fernandez. The complex interaction of agents and environments: an example in urban sprawl. Pages 149-161 in C. Macal and D. Sallach, editors. *Proceedings, Agent 2002: Social Agents: Ecology, Exchange, and Evolution*. Argonne National Laboratory, Chicago, Illinois.
- _____. Brown, D. G., S. E. Page, R. Riolo, and W. Rand. Modeling the effects of greenbelts at the urban-rural fringe. Pages 190-195 in A.E. Rizzoli and A.J. Jakeman, editors. *Proceedings, IEMSS 2002*, Vol. 2. International Environmental Modelling and Software Society, Lugano, Switzerland.
- _____. Bergen, K.M., D.G. Brown, M.C. Dobson, E. Gustafson. Integrating radar remote sensing of habitat structure: A pilot project for biodiversity informatics. *Proceedings, NSF National Conference on Digital Government Research*, Los Angeles, pp. 149-154.
- _____. Bergen, K.M., Brown, D.G., Rutherford, J.R., and Gustafson, E.J. Development of a method for remote sensing of land-cover change 1980-2000 in the USFS North Central Region using heterogeneous USGS LUDA and NOAA AVHRR 1km Data. *Proceedings, International Geoscience and Remote Sensing Symposium*, Toronto, CA, 2002.
2000. Malanson, G.P., Xiao, N., Alftine, K., Bekker, M., Butler, D.R., Brown, D.G., Cairns, D.M., Fagre, D., and Walsh, S.J. Abiotic and biotic controls of spatial pattern at alpine treeline. *Proceedings, Fourth International Conference on GIS and Environmental Modeling*, Banff, Canada.

1999. Drzyzga, S.A. and Brown, D.G. Land parcelization and forest cover fragmentation in three forested counties in Northern Lower Michigan. *Proceedings*, Society of American Foresters 1998 National Convention, Traverse City, MI: 129-135.
1996. Brown, D.G. and Vasievich, J.M. A study of land ownership fragmentation in the Upper Midwest. *Proceedings*, GIS/LIS '96 Conference, Denver, CO: 1199-1209.
1995. Moody, A., Walsh, J., Allen, T., and Brown, D. Scaling properties of NDVI and their relationship to land-cover spatial variability. *Proceedings*, 15th Int. Geosci. and Remote Sens. Symp., Firenze, Italy, July 10-14.
- _____. Allen, T.R., Brown, D.G., Butler, D.R., and Walsh, S.J. Local and regional patterns of modern glacier equilibrium-line altitudes in Glacier National Park, Northwest Montana. *Proceedings*, 1995 ACSM-ASPRS Annual Convention, Charlotte, NC: 112-122.
1994. Brown, D.G. Anisotropy in elevation and derivative surfaces as an indication of systematic errors in DEMs. In R.G. Congalton, Ed., *Proceedings*, International Symposium on the Spatial Accuracy of Natural Resource Data Bases, Williamsburg, VA, Bethesda, MD: American Society for Photogrammetry and Remote Sensing: 98-107.
- _____. Walsh, S.J., Brown, D.G., Bian, L., and Allen, T.R. Effects of spatial scale on data certainty: an assessment through data dependency and sensitivity analyses. In R.G. Congalton, Ed., *Proceedings*, International Symposium on Spatial Accuracy of Natural Resource Data Bases, Williamsburg, VA., Bethesda, MD: American Society for Photogrammetry and Remote Sensing: 151-160.
- _____. Berry, L., Olson, J.M., Campbell, D.J., and Brown, D.G. The Rwanda Society-Environment Project: a pilot study to link socioeconomic and physical data within an environmental information system. An interim report. *Sharing Data through the Information Cooperative. Proceedings*, Second CIESIN User's Workshop, Atlanta, GA: CIESIN.
1993. Brown, D.G. and Walsh, S.J. Spatial Autocorrelation in Remotely Sensed and GIS Data. *Proceedings*, 1993 ACSM/ASPRS Annual Convention, New Orleans, LA, 3: 31-39.
1991. Brown, D.G. Topoclimatic models of an alpine environment using digital elevation models within a GIS. *Proceedings*, GIS/LIS '91 Conference, Atlanta, GA, 2: 835-844.
- _____. Walsh, S.J., Bian, L., and Brown, D.G. Issues of spatial dependency for surface representation through remote sensing and GIS. *The Integration of Remote Sensing and Geographic Information Systems*, Proceedings Special session at the 1991 ACSM/ASPRS Annual Convention, Baltimore, MD: 175-183.
1990. Brown, D.G. Impacts of remote sensing spatial resolution on the assessment of non-point source water pollution integrated through a watershed response model and a GIS. *Papers and Proceedings of the Applied Geography Conferences*, 13: 1-9.
- _____. Walsh, S.J., Brown, D.G., and Bian, L. Comparison of Landsat Thematic Mapper digital enhancements of snow-avalanche paths: validation through GIS/remote sensing integration. *Proceedings*, International Geoscience and Remote Sensing Symposium, College Park, MD, 2: 1161-1164.
- Book Reviews**
1998. Brown, D.G. Innovations in GIS 4 (Z. Kemp, ed.) and Spatial Analytical Perspectives in GIS (M. Fischer, et al., eds.). *Annals, Association of American Geographers*, 88(3):520-523.
1996. Brown, D.G. The Canadian Remote Sensing Contribution to Understanding Global Change, Edited by E. LeDrew, M. Strome, and F. Hegyi. *Professional Geographer*, 48(4): 473-474.

Other
Publications

- In Press. Brown, D.G. Simulation. Invited encyclopedia entry in Encyclopedia of Geographic Information Science. New York: Sage Publications.
2006. Brown, D.G. Path dependence and the validation of agent-based spatial models of land-use. Text Box in Verburg, P., Kok, K., Pontius, R.G., and Veldkamp, A. Chapter 5: Modelling of Land Use and Land Cover Changes. In: E. Lambin, H. Geist, eds., *Land Use and Land Cover Change: Local Processes, Global Impacts*. New York: Springer, p. 130.
- _____. Brown, D.G. Agent-based models. Invited encyclopedia entry in H. Geist, Ed. *The Earth's Changing Land: An Encyclopedia of Land-Use and Land-Cover Change*. Westport CT: Greenwood Publishing Group, pp. 7-13.
- _____. Brown, D.G. Auto-correlation. Invited encyclopedia entry in H. Geist, Ed. *The Earth's Changing Land: An Encyclopedia of Land-Use and Land-Cover Change*. Westport CT: Greenwood Publishing Group, p. 58.
2005. National Science Foundation, Environmental Research and Education. Meeting Report. *Understanding and Harnessing Complexity in the Environment: 2005 Biocomplexity in the Environment Awardees Meeting*. Arlington, VA: National Science Foundation.
2004. Potts, R., Gustafson, E., Stewart, S., Thompson, F.R., Bergen, K., Brown, D.G., Hammer, R., Radloff, V., Bengston, D., Sauer, J., and Sturtevant, B. The Changing Midwest Assessment: Land Cover, Natural Resources, and People. Gen. Tech. Rep. NC-250. St. Paul, MN: U.S.D.A., Forest Service, North Central Research Station, 87 p.
2002. Brown, D.G. Forest Cover Increase and Carbon Sequestration. *Our Changing Planet: The Fiscal Year 2003 US Global Change Research Program and Climate Change Research Initiative*. A Report to Congress by the Climate Change Science Program and the Subcommittee on Global Change Research, Washington, DC, pp. 76-78.
- _____. Parker, D.C., Berger, T., and Manson, S.M. Agent-Based Models of Land-Use and Land-Cover Change. Report and Review of an International Workshop, Irvine, CA, USA, Oct 4-7 2001. LUCC Report Series 6. Bloomington, IN: LUCC Focus 1 Office. (contributing author)
2001. Brown, D.G. and Duh, J.-D. Reply. *Journal of Environmental Management*, 62(2): 233-236.
2000. Brown, D. G., K. V. Walker, M. B. Davis, S. Sugita, and J. D. Lindeberg. Land ecology. Pages 55-64 in P. Sousounis and J. Bisanz, eds. *Preparing for a Changing Climate: The Potential Consequences of Climate Variability and Change*. Report for the U.S. Global Change Research Program. Univ. Michigan, Ann Arbor.
- _____. Brown, D.G. Image and spatial analysis software tools for foresters. *Journal of Forestry*, 98(6): 53-57.
- _____. K.M. Bergen, Brown, D., Olson, C.E. and Lillesand, T. Profiles in curricula: Remote sensing at the University of Michigan-Ann Arbor and University of Wisconsin-Madison. *Journal of Forestry*, 98(4):32-33.
- _____. Brown, D. G. and Burris Barno, S. Land Ecology Sector Report. In: P. Sousounis and G. Albercook, Eds., *Climate Change in the Upper Great Lakes Region: A Workshop Report*. Ann Arbor, MI: Atmospheric, Oceanic, and Space Sciences Department, University of Michigan.
1997. Miller, H., Kemp, K., Brown, D.G., and Fried, J.S. *Education Policy White Paper: Alternative Designs for Curriculum Content and Evaluation*. Draft version on the WWW at http://www.ncgia.ucsb.edu/other/ucgis/ed_priorities/contents.html

1996. Brown, D.G., Bittenfield, B.P., Moody, A., Getis, A., McMaster, R., and Bian, L. *Scale: UCGIS Research Priority White Paper*. Available on the WWW at <http://www.ncgia.ucsb.edu/other/ucgis/priorities.html>
- _____. Brown, D.G., Olson, J.M., Campbell, D.J., and Berry, L. A hierarchical approach to the integration of social and physical data sets: The Rwanda Society-Environment Project. *Human Dimensions Quarterly*, 4(1): 14-17. (invited)
1995. Campbell, D.J., Berry, L., Olson, J.M., and Brown, D.G. Towards an environmental information system for the East African Region in the 21st century. Paper presented at the CIESIN Board of Trustees Annual Retreat, Michigan State University, East Lansing, MI.
1994. Campbell, D.J., Berry, L., Olson, J.M., and Brown, D.G. Basic data systems for natural resource management: Findings of the Rwanda Case Study. Rwanda Society-Environment Project Final Report. East Lansing: Department of Geography, Michigan State University.
- _____. Brown, D.G. Issues and alternative approaches for the integration and application of societal and environmental data sets within a GIS. *Rwanda Society-Environment Project, Working Paper No. 3*. East Lansing, MI: Michigan State University, Department of Geography. Available on the WWW at <http://www.ciesin.org/kiosk/publications/94-0002.txt>.
1992. Brown, D.G. *Topographical and biophysical modeling of vegetation patterns at alpine treeline*. Ph.D. Dissertation, Department of Geography, University of North Carolina at Chapel Hill. Ann Arbor: University Microfilms, Inc.
- Conference Presentations**
2006. "An agent-based model for studying the landscape effects of exurban development." *US-IALE Annual Meeting*, San Diego, CA, March, 2006.
- _____. "Implications of bottom-up and top-down empirical observations for an agent-based model of residential development." *Annual Meeting of the AAG*, Chicago, IL, March, 2006.
- _____. "Modeling coupled human-landscape interactions at the urban-rural fringe in Southeastern Michigan." *AAAS Annual Meeting*, St. Louis, Mo, February, 2006.
2005. "Modeling land cover change at the urban-rural fringe as a consequence of land-use decision making by multiple actors." *6th Open Meeting of the Human Dimensions of Global Change Community*, Bonn, Germany, October 2005.
- _____. "Initiating research on human responses to flooding in the Poyang Lake Region." *The International Conference on Poyang Lake Complex Environment System*, Nanchang, Jiangxi, China, June 2005
- _____. "Land-cover change in exurban Southeastern Michigan." *2005 Annual Meeting of the Association of American Geographers*, Denver, CO, April 2005.*
- _____. "Multi-agent systems and GIS." *First South African International Workshop on Sensor Web Enablement*, CSIR, Pretoria, South Africa, March 2005. (Invited)
2004. "Toward integration of spatial data models and agent-based process models", *GIScience 2004 Abstract*, College Park, MD, October, 2004 (w/ D.T. Robinson, R.L. Riolo, W. Rand, M. North, and K. Johnston).*
- _____. "Land-use decision making by multiple actors at the urban-rural fringe and the availability of open-space", *International Geographical Congress*, Glasgow, Scotland, August 18, 2004.
- _____. "Spatial process and data models: Toward integration of agent-based models and GIS", *ESRI User Conference*, San Diego, CA, Aug 10, 2004.

- _____. "Rationale and approaches for developing spatial land-use and land-cover scenarios." Invited. *1st West China Development Consortium Conference*, Chengdu, Sichuan, China, June 22-23, 2004.
- _____. "Spatial analysis and modeling of environmental variability and change." Invited. *Workshop on Spatial Analysis of Environment, Public Health & Regional Development* Nanchang, Jiangxi, China, June 2004.
- _____. "Land-use and land-cover trends in the Upper Midwest." Invited. *New Generation Resource Policy for a Region in Transition: Land Use, Agriculture, Environment, and Health in the Great Lakes Region*, Oregon OH, May 12, 2004.*
- _____. "Uncertainty in spatial landscape metrics." Invited. Session on Coalescing Frontiers? Landscape Ecology and GIScience. *2004 Annual Meeting of the Association of American Geographers*, Philadelphia, PA.*
- _____. "Spatial modeling of land use and land cover change." Invited. *NASA LCLUC Science Team Meeting*, College Park, MD, Jan 2004.
2003. "Project SLUCE: Spatial land use change and ecological effects (poster)." *Biocomplexity in the Environment, Awardees Meeting*. National Science Foundation, Crystal City, VA, Sept 2003.
- _____. "Land use modeling and complex systems." Invited. *Sustainable Mobility Workshop*. University of Michigan, Ann Arbor, MI, May 2003.
- _____. "Characterizing the spatial dynamics of land development in Southeastern Michigan, USA: Agent-based models, GIS, and social surveys." *Framing Land Use Dynamics*, Utrecht, The Netherlands (with several others), April 2003.*
- _____. "Modeling spatial patterns of land development using a multi-agent system." *2003 Annual Meeting of the Association of American Geographers*, New Orleans, LA (with several others).*
2002. "Rural land use trends in the United States, 1950-2000." *87th Annual Meeting of the Ecological Society of America*, Tucson, AZ (with Kenneth Johnson, Tom Loveland, and David Theobald).*
- _____. "Object-based classification of land use with classification trees." *US-International Association for Landscape Ecology Meeting*, Lincoln, NB.* (E. Addink, presenter).
2001. "Assessing the accuracy of spatial landscape metrics." Invited. *EPA Symposium on Remote Sensing and GIS Accuracy Assessment*, Las Vegas, NV.
- _____. "Spatial land-use change and ecological effects: Agent-based modeling and evaluation of alternative policies and interventions." *CSISS Workshop on Multi-Agent Systems and Land Use and Cover Change (MAS-LUCC)*, Irvine CA.
- _____. "Incorporating land-use and land-cover into watershed decision support." *AWRA-UCOWR Decision Support Systems Meeting*, Snowbird, UT.
- _____. "Relationships between parcelization, land use, and forest cover change in Upper Midwest, USA." *AAG Annual Meeting*, New York, NY.*
2000. "Using spatial simulation to translate between land-use and land-cover." *GIScience 2000 Abstracts*, Savannah, GA, Santa Barbara: University of California Regents, p. 234-235 (with Jiunn-Der Duh).*
- _____. "GIScience questions in the context of landscape pattern and change research." *Imagin*, Lansing, MI.
- _____. "A methodology for comparing spatial vegetation patterns at alpine treeline using remotely sensed observations and vegetation model output." *AAG Annual Meeting*, Pittsburgh, PA.*

1999. "Estimating error in fragmentation metric values obtained using remote sensing for change analysis. *5th World Congress, International Association for Landscape Ecology*, Snowmass, CO (with J-D Duh).*
- _____. "Relationship between the leaf area index and spectral vegetation indices at the alpine treeline." *AAG Annual Meeting*, Honolulu, HI (with Stephen J. Walsh, Mark A. Bowersox, and Evan S. Hammer).*
1998. "Relationships between parcel fragmentation and changes in land use and land cover patterns in the Upper Midwest USA." *1998 Society of American Foresters National Convention*, Traverse City, MI, (with J.M Vasievich, S.A. Drzyzga, and B.C. Pijanowski).
- _____. "Integrated learning in physical geography and geographic techniques through a course in digital terrain analysis." *AAG Annual Meeting*, Boston, MA (with Judy M. Olson).*
- _____. "Application of North American Landscape Characterization (NALC) data for studying regional-scale landscape pattern and change." *13th Annual Meeting, US Regional Association of International Association for Landscape Ecology*, East Lansing MI (with Geoffrey Duh).
- _____. "Relationships between parcel fragmentation and changes in land use and land cover patterns in the Upper Midwest USA." *Earth's Changing Land, GCTE-LUCC Open Science Conference*, Barcelona, Spain, (with J. Michael Vasievich and Bryan C. Pijanowski).
1997. "Sampling to assess county-level parcel fragmentation using digitized plat maps." *East Lakes Division of the Association of American Geographers*, East Lansing, MI (with Scott A. Drzyzga).*
- _____. "Application of digital photogrammetry to the study of active coastal dunes." (Poster Presentation) *AAG Annual Meeting*, Fort Worth, TX (with Alan F. Arbogast).*
1996. "Geomorphic region identification using artificial neural networks and digital elevation models." *AAG Annual Meeting*, Charlotte, NC, (with D.P. Lusch and K.A. Duda).*
- _____. "GIS-based study of land ownership and cover fragmentation." (Poster Presentation) *MSU Land Use Forum*, East Lansing, MI (with J.M. Vasievich).*
- _____. "GIS approaches to targeted siting of riparian buffer strips: trade-offs between realism and complexity." (Poster Presentation) *Third International Conference on GIS and Environmental Modeling*, Sante Fe, NM (with J.S. Fried, M.O. Zweifler, and M.A. Gold).*
1995. "Characterizing continuity in pre-European settlement forest types using fuzzy sets." *First ESF-GISDATA and NSF-NCGIA Summer Institute in Geographic Information*, Wolfe's Neck, ME.
- _____. "A hierarchical approach to the integration of social and physical data sets: The case of the Rwanda Society-Environment Project." *First Open Meeting of the Human Dimensions of Global Change Community*, Durham, NC (with J.M. Olson, D.J. Campbell, and L. Berry).
- _____. "Interpolation of fuzzy forest types from General Land Office survey notes." *AAG Annual Meeting*, Chicago, IL.*
1994. "Remote sensing and GIS techniques for spatial and biophysical analyses of alpine treeline through process and empirical models." *Environmental Information Management and Analysis Symposium*, Albuquerque, NM (with D.M. Cairns, G.P. Malanson, S.J. Walsh, and D.R. Butler).
- _____. "Anisotropy in elevation and derivative surfaces as an indication of systematic errors in DEMs." *International Symposium on the Spatial Accuracy of Natural Resource Data Bases*, Williamsburg, VA.

- _____. "Rwanda case study - integration of a rich set of natural and social science data." Global Demographic Data Project, Expert group meeting, CIESIN, University Center, MI.
- _____. "Linking landscape pattern information across multiple resolution satellite digital data sets." *AAG Annual Meeting*, San Francisco, CA.*
1993. "Alternative approaches to the integration and application of societal and environmental data within a GIS." *Canadian Association of Geographers, Ontario Division and East Lakes Division of the Association of American Geographers*, Windsor, ONT.*
- _____. "Generating hypotheses about spatial constraints on vegetation patterns at treeline." *AAG Annual Meeting*, Atlanta, GA.*
- _____. "Spatial autocorrelation in remotely sensed and GIS data." *ASPRS Annual Conf*, New Orleans, LA.
1992. "Relative importance of factors affecting vegetation patterns at alpine treeline." *AAG Annual Meeting*, San Diego, CA.*
1991. "Topoclimatic models of an alpine environment using digital elevation models within a GIS." (Poster) *GIS/LIS Conference*, Atlanta, GA.
- _____. "Fractal dimension and spatial patterns of variable interaction within a distributed watershed erosion model." *AAG Annual Meeting*, Miami, FL (with L. Bian and S.J. Walsh).*
1990. "Landsat TM spectral response model of sub-alpine lake turbidity using archived field data." *AAG Annual Meeting*, Toronto, ONT.*
- _____. "Impacts of remote sensing spatial resolution on the assessment of non-point source water pollution integrated through a watershed response model and a GIS." *Applied Geography Conf*, Charlotte, NC.
1989. "Relationships between lake turbidity measures and basin geomorphology: a remote sensing perspective." *AAG Annual Meeting*, Baltimore, MD, *
- Keynote Addresses**
2006. "Agent-based modeling of exurban land-change scenarios." Keynote presentation at GRoWE Symposium III: Agent-Based Modeling of Spatially Distributed Systems. Consortium for Global Research on Water-Based Economies (GRoWE), Kansas State University, Manhattan, KS
2007. "Geospatial Methods for Characterizing Land-Use and Land-Cover Dynamics from Remote Sensing." Keynote address at *Framing Land Use Dynamics II* conference, Utrecht, The Netherlands.
- Workshops**
2007. "International Workshop on Agent-Based Modeling of Complex Spatial Systems," NSF-sponsored workshop, invited participant. Convened by National Center for Geographic Information and Analysis, UCSB, and Centre for Advanced Spatial Analysis, UCL, Santa Barbara, CA.
2006. "Introduction to Spatial Modeling: History, Theory, Concepts," presented with Michael Goodchild and Dawn Parker. Pre-Conference Seminar, ESRI User Conference, San Diego, CA.
2006. "Agent-Based Modeling for Understanding Human-Environment Interactions," organizer and presenter. Two-day workshop presented at School of Geography and Environment, Jiangxi Normal University, Nanchang, China.
2006. "Integration of Socioeconomic and Biophysical Processes in East Africa," NSF-sponsored workshop, invited presenter. Dar Es Salaam, Tanzania.

2006. "Land-Use and Land-Cover Change" NIH-sponsored roadmap workshop, invited participant. East-West Center, Honolulu, HI.
2006. "Land-Use Change and Social Sciences in NEON," NSF-sponsored workshop, invited participant. Harvard Forest, Harvard University, Petersham, MA.
2005. "Symposium on Spatial Modeling," presented with Stephen Walsh, Steven Manson, Dawn Parker, and Tom Evans. Carolina Population Center, IGERT Program, University of North Carolina, Chapel Hill.
2005. "National Land Cover Change Modeling Workshop," USGS-funded workshop, invited participant, Pingree Park, Colo.
2005. "Introduction to Spatial Modeling: History, Theory, Concepts," presented with Michael Goodchild and Dawn Parker. Pre-Conference Seminar, ESRI User Conference, San Diego, CA.
2003. "Simulation of landscape patterns and processes." Invited presenter. *GIS and Modeling Workshop*. ESRI Campus, Redlands, CA.
1997. "GIS Applications in Smaller Communities," presented with Richard Groop. Current Issues in Planning Symposium, URP Program, Michigan State University.
1991. "Principles and Practices of Remote Sensing, GIS, and their Integration." Workshop presenter, Department of Geography, UNC, Chapel Hill, NC.
1989. "Image Processing Applications in the Third World." World Bank Technical Seminar, Chapel Hill, NC.

**Other
Invited
Lectures**

2007. Clark University, George Perkins Marsh Institute, Worcester, MA.
2006. Alabama A&M University, Center for Forest Ecosystems Assessment, Huntsville, AL.
2006. Arizona State University, Global Institute for Sustainability, Tempe, AZ.
2006. Stanford University, Environmental Policy Forum, Palo Alto, CA.
2006. Chinese Academy of Science, Inst. For Geographic Sci. and Nat. Res. Research, Beijing, China.
2005. Pennsylvania State University, Department of Geography, State College, PA.
2005. University of Washington, Urban Ecology IGERT Program, Seattle, WA.
2005. Portland State University, Department of Geography, Portland, OR.
2005. Central Michigan University, Department of Biology, Mt. Pleasant, MI.
2005. University at Buffalo, SUNY, Department of Geography, Buffalo, NY.
2004. University of Southern California, Department of Geography, Los Angeles, CA.
2004. George Mason University, Department of Geography, Fairfax, VA.
2004. Nanjing University, International Institute for Earth System Science, Nanjing, Jiangsu, China.
2003. Duke University, Landscape Ecology Lab, Nicholas School, Durham, NC.
2003. University of North Carolina, Department of Geography, Chapel Hill, NC.
2002. University of Michigan, Land Use Policy Forum, Ann Arbor, MI.
2001. Indiana State University, Department of Geography, Terre Haute, IN.
2001. Indiana University, CIPEC, Bloomington, IN.
2000. USDA Forest Service, North Central Research Station, St. Paul, MN.
2000. University of Michigan, Center for the Study of Complex Systems, Ann Arbor, MI.
1999. Texas A&M University, Department of Geography, College Station, TX.
1999. San Diego State University, Department of Geography, San Diego, CA.
1999. University of North Carolina, Department of Geography, Chapel Hill, NC.
1999. University of Michigan, School of Natural Resources and Environment, Ann Arbor, MI.
1998. University of Iowa, Department of Geography, Iowa City, IA.
1994. Michigan State University, Department of Geography, East Lansing, MI.
1994. University of North Carolina, Department of Geography, Chapel Hill, NC.
1994. Michigan State University, Kellogg Biological Station, Hickory Corners, MI.
1992. Michigan State University, Department of Geography, East Lansing, MI.

**Current
Extramural
Grants**

1992. West Virginia University, Department of Geology and Geography, Morgantown, WV.
1992. University of Colorado at Boulder, Department of Geography, Boulder, CO.

"Using Remote Sensing-based Measures to Assess NRCS Program Impacts in Michigan" co-PI with Nancy French (Altarum Institute), NASA LCLUC Program, 2006-2008, \$116,168 (UM share).

"Changing Responses of Land Dynamics and Vulnerability to Flooding Under Policy and Environmental Change near Poyang Lake, China" PI with K. Bergen and S. Bao, NASA LCLUC Program (NEWS/04-1-0000-0025), 2005-2008, \$522,670.

"DHB: Program in Human and Environmental Systems Interactions (PHESI)" Co-PI with A. Agrawal and R. Riolo, NSF Human and Social Dynamics (BCS-0527318), 2005-2008, \$542,927 (UM share).

"Spatial and Temporal Patterns of Error in Land Cover Change Analyses: Identifying and Propagating Uncertainty for Ecological Monitoring and Modeling" Student Fellowship – Amy Burnicki, NASA Earth System Science Fellowship Program (ESSF/03-0000-0084), 2003-2006, \$72,000.

"PROJECT SLUCE: Spatial Land Use Change and Ecological Effects at the Rural-Urban Interface: Agent-Based Modeling and Evaluation of Alternative Policies and Interventions" PI with J. Nassauer, S. Page, and 7 others, NSF Biocomplexity (BCS-0119804), 2001-2006, \$1,328,195.

"Neighborhoods and Cardio-Vascular Disease Risk in a Multiethnic Cohort." Co-I with A. Diez-Roux. NIH-NHLBI (R01 HL71759-01), 6/1/2003-5/30/2007, \$78,000 (SNRE sub-account).

"MI Interdisciplinary Center on Social Inequality, Mind and Body." Co-I with George Kaplan and many others. NIH (R24 HD047861-01), 09/27/2004 - 08/31/2009, \$60,000 (SNRE sub-account).

"Exploring Relationships Between Adult Physical Activity and Perceived and Objective Measures of Community Environmental Characteristics." Co-I with Ana Diez-Roux and Kelly Evenson (UNC). Robert Wood Johnson Foundation. 2005-2007, \$63,980 (SNRE sub-account).

**Completed
Grants**

"Developing Land Cover Scenarios in Metropolitan and Non-Metropolitan Michigan, USA: A Stochastic Simulation Approach." PI with P. Goovaerts and K. Bergen, NASA, LCLUC Program (NAG5-11271), 2001-2005, \$354,977.

"Modeling Siberian Boreal Forest Land-Cover Change and Carbon Under Changing Economic Paradigms" Co-PI with K. Bergen, NASA, LCLUC Program, 2001-2005, \$584,000.

"Landscape Level Analysis Linking Urban Sprawl and Aquatic Ecosystems." PI with J.D. Allan and J. Nassauer. USDA Forest Service, North Central Research Station (#00-JV-11231300-021), 2000-2005, \$49,869.

"Developing GIS Simulation for Integrating Landscape Ecological Knowledge into Landscape Designs" PI with Geoffrey Duh, USDA Forest Service, 2002-2004, \$54,170.

"Climate Change and Thresholds of Ecosystem Change: Invasibility of Tundra in the Northern Rocky Mountains." Co-PI with G. P. Malanson, S. J. Walsh, D. M. Cairns, and D. R. Butler. USGS Biological Resources Division, Global Change Research Division (99CRAG0035), 1999-2004, \$71,395 (UM Share).

"Radar Remote Sensing of Habitat Structure for Biodiversity Informatics" co-PI with K. Bergen and Craig Dobson, NSF Biodiversity & Ecosystem Informatics (EIA-0131281), 2001-2003, \$50,007.

"Analyzing Trends in Agricultural Land Use, 1900-1997" PI, National Wildlife Federation, 2002-2003, \$10,000.

"Biocomplexity-Incubation: Exploring Biocomplexity at the Interface of Social and Ecological Systems." PI with T. Crow, J.D. Allan, J. Nassauer, and S. Yaffee, NSF, Biocomplexity Program (DEB-0083992), 2000-2002, \$111,973.

"Hotspots of Change Project: Land-Cover Change in the North Central Region" PI with K. Bergen, USDA Forest Service, 2000-2002, \$69,476.

"Assessing Climate Change Impacts in the Upper Great Lakes Region: Michigan State University Effort." Co-PI with J.A. Andresen and J.A. Winkler, US EPA through the University of Michigan, 1999-2001, \$67,170.

"Upper Midwest Regional Earth Science Applications Center." Co-PI with M. E. Bauer, T. M. Lillesand, T. E. Burk, D. L. Skole, and others, NASA through the University of Minnesota, \$400,000 (MSU Share), \$1,500,000 (total).

"Characterizing Ecological Boundaries from Remote Sensing Based Field Representations." Co-PI with G. M. Jacquez (BioMedWare, Inc.), Project Varenus Seed Grant (Univ. of California, Santa Barbara), 1998, \$1,854.

"Collaborative Research on Process and Pattern at Alpine Treeline." PI with G. P. Malanson, National Science Foundation, Geography and Regional Science Program (#97-14347), 1997-1999, \$85,640 (MSU).

"Hierarchical Investigation of Socioeconomic Drivers of Decadal Scale Land-Cover Changes in the Upper Midwest." PI with B. Pijanowski and J. M. Vasievich (co-PIs), Land-Cover and Land-Use Change Research Program, NASA, Mission to Planet Earth (#NAG5-6042), 1997-2000, \$393,979.

"Socioeconomic Causes of Land Ownership Fragmentation in the Lake States." USDA Forest Service, North Central Forest Experiment Station (#23-95-50), 1995-2000, \$50,800.

"Stress, Disturbance, and Climatic Sensitivities Affecting the Pattern of Vegetation at Alpine Treeline." NASA *Global Change Fellowship* (#NGT 30068), 1991-92, \$22,000.

Equipment Grants

"Michigan State University Center of Excellence in Applications of Remote Sensing to Regional and Global Integrated Environmental Assessment." Co-PI w/ D. L. Skole, R. E. Groop, R. Hinojosa, NASA, 1997-1998, \$448,000.

"A Digital Terrain Analysis Component for Extending and Integrating a Geography Curriculum." PI with Judy M. Olson (co-PI). National Science Foundation, Instrumentation and Laboratory Improvement Program (#95-51118), 1995-97, \$44,600 (NSF Contribution), \$91,409 (total).

"Color Output for Integrated Research and Teaching in Geography: GIS, Remote Sensing, Spatial Databases, and Climatology." Co-PI with J.B. Burley. SUN Microsystems, *Academic Equipment Grant* (AEG), June 1994, \$11,985.

Intramural Grants

"The Establishment of UM Program of Poyang Lake Studies in Environment, Health and Sustainable Development" Co-PI with M. Wilson and S. Bao. OVPR, U. Michigan, 2005-2007, \$10,000.

"Local Environmental Institutions and Participation: Analyzing Variations and Changes in Individual Environmental Beliefs." Co-PI with A. Agrawal. CLOSUP, U. Michigan, 2005-2008, \$24,570.

"Initiating Research in Spatial Analysis of Society-Environment Interactions in Southeastern Michigan." Co-PI with R.W. Marans, G.R. Smith, and M.L. Wilson. Office of the Vice President for Research, University of Michigan. 2000-2004, \$277,000.

"Educational Program for Spatial Analysis/GIS." Co-PI with J.D. Nystuen, and E.D. Rothman. Office of the Vice President for Research, University of Michigan. 2000-2003, \$221,000.

"Information Technology Partnership" PI. Chief Information Officer, University of Michigan. 2000-2003, \$280,000.

"GIS for the Kellogg Biological Station (KBS)" co-PI with R. E. Groop. Colleges of Social Science and Agriculture and Natural Resources and the Kellogg Biological Station, 1996-98, ~\$50,000.

"Developing a Fuzzy Model of Natural Vegetation Patterns for Ecological Mapping." All-University Research Grant, College of Social Science, Michigan State University, 1994-95, \$3,918.

"Linking Multi-Scale Spatial Structure for the Characterization of Landscape Pattern." All-University Research Grant, College of Social Science, Michigan State University, 1993-94, \$3,830.

TEACHING

Courses Taught	UNIVERSITY OF MICHIGAN
	Principles of Geographic Information Systems (NRE 531; NRE/ENVIRON 420; NRE 540) - 55-82 students; 4 semester credits (lecture/lab)
	Environmental Spatial Data Analysis (NRE 543) - 13-21 students; 3 semester credits (lecture/lab)
	GIS and Landscape Modeling (NRE 534) - 11-19 students; 3 semester credits (lecture/discussion/lab)
	Seminar in Geographic Information Science (NRE 639) - 4-10 students; 1-2 semester credits (seminar)
	Introduction to Environmental Analysis (NRE/ENVIRON 239) - 60 students; 4 semester credits (lecture/lab); taught ½ the course
	MICHIGAN STATE UNIVERSITY
	Introduction to Geographic Information Systems (GEO 225) - 42 to 52 students per offering; 4 semester credits (3 lecture, 2 lab)
	Geographic Information Systems (GEO 425) - 26 to 39 students per offering; 4 semester credits (3 lecture, 2 lab)
	Digital Terrain Analysis (GEO 428) - 10-12 students; 4 semester credits (3 lecture, 2 lab)
Geoprocessing (GEO 825) - 5 to 12 students; 4 semester credits (lecture/lab)	
People and the Environment (ISS 310) - 100 to 200 students per offering; 4 semester credits (4 lecture)	
Post-Doc Scholars Supervised	Elisabeth Addink (University of Utrecht), 2001-2002, "Object-based classification of land use in urbanizing landscapes."
	Li An (San Diego State University), 2003-2005. "Spatial-temporal modeling of types of land development and implications for land-cover change at the urban-rural fringe."
	Luguang Jiang (Chinese Academy of Sciences), 2006-2008.
	Shuhua Qi (Jiangxi Normal University), 2006-2008.
PhD Theses Directed	Jiunn-Der (Geoffrey) Duh, PhD, 2004. "Developing GIS simulation for integrating landscape ecological knowledge into landscape designs." (Portland State University)
	Moirra Zellner, PhD, 2005. (Urban, Technological, and Environmental Planning). Co-advise with Scott Campbell. "Generating Policies for Sustainable Water Use in Complex Scenarios: An Integrated Land-Use and Water-Use Model of Monroe County, Michigan" (University of Illinois - Chicago)
	Amy Burnicki, PhD expected 2006, Recipient of NASA Earth System Science Fellowship. "Spatial-temporal patterns of

**MA/MS
Theses
Directed**

- accuracy in remote sensing based landscape characterization." (University of Wisconsin – Madison)
- Tingting Zhao, PhD candidate. Co-advise with Kathleen Bergen. "Scale effects in land-cover classification and biophysical parameter estimation from remote sensing."
- Derek Robinson, PhD candidate. Recipient of NSERC (Canada) pre-doctoral research fellowship (2006). "Edge effects in the coupling of land-use and ecosystem process models."
- Jason J. Taylor, PhD candidate. "Avian populations and human-induced landscape change: An analysis of spatio-temporal dynamics at the urban-rural interface."
- Qing Tian, PhD Pre-candidate.
- David F. Vaughan, MA, 1996, "Topographic Effects on the Normalized Difference Vegetation Index, Rocky Mountain National Park, Colorado." (PhD program, Univ. South Carolina)
- Catherine J. Delain, MA, 1997, "A Classification Tree Approach to the Automation of Landtype Association Mapping in Michigan." (Manitowoc County, WI)
- Jessica J. Dolanski, MA, 1997, "Development, Application, and Evaluation of the Archaeological Site Prediction System." (MSU GIS and Remote Sensing Outreach Services)
- James H. Reisen, MA, 1998, "An Analysis of Error in Digital Image Rectification." (NRCS)
- Kenneth A. Duda, MA, 1998, "Michigan Forest Defoliation Detection using Multitemporal NDVI Signatures and Supervised Classification of AVHRR Satellite Imagery." (NASA LP DAAC)
- Mark A. Bowersox, MA, 1999, "Comparing surface- and patch-based metrics of patchiness and abruptness at the alpine treeline ecotone." (ITT Solutions, NY)
- Scott A. Drzyzga, MA, 2000, "Land Ownership Parcelization and Forest Fragmentation in Three Forested Counties in Northern Lower Michigan." (Assistant Professor, Shippensburg Univ.)
- Christina Yin and Abigail Fateman, MS, 2002, "A protocol for using community volunteers for GIS-based stream monitoring." (Contra Costa County, CA)
- Christine Geddes, MS, 2003. "Modeling snow water equivalent across the alpine treeline ecotone in Glacier National Park, MT." (Univ. Michigan, Institute for Fisheries Research)
- Amy Gilboy, MS, 2003. "Effects of landscape spatial structure and composition on models of bird habitat selection." (St. Johns County, FL)
- Lara Peterson, MS, 2004. "Modeling land-cover change in the Siberian boreal forest: A case study in the Baikal Region." Co-advised with K. Bergen. (USDA Forest Service, Office of International Programs)
- Jason J. Taylor, MS, 2004. "Linking land-cover change to local land-use policy: A GIS-based analysis." (PhD Program, Univ. Michigan)
- Khemerith So, MS, 2005. "Integrating public participation, geographic information systems and multi-criteria decision analysis methods for tidal wetland restoration site prioritization: Applications to the Nehalem and Umpqua Estuaries in Oregon." (US Fish and Wildlife Service, OR)
- Vikalpa Jetly, MS, 2005. "Evaluating the relationship between urbanization and ecological quality in Southeastern

Michigan through the use of spatial landscape indicators." (i-Cubed, Boulder, CO)

Elizabeth Severtsen, MS, 2005. "High-resolution remote sensing for mapping an invasive species." (Univ. Wash.)

Michele Tobias, MS, 2006. "Analysis of beach-habitat change for Piping Plover, Santa Barbara, CA." (UC Davis)

Neil Carter, MS, current. "Ecological and social suitability for black bear habitat in Michigan's Lower Peninsula."

Hugh Stimson, MS, current.

**Graduate
Committees
(not adviser)**

M.A./M.S.

1994. David L. Price (MSU)
1999. Demetrios Gatzolis (MSU)
1999. Eleanor Waller (MSU)
2002. Nancy Parachini
2005. Aneetha Jayaraman
2005. Kathryn Windfeldt

Ph.D.

1996. Johan Liebens (MSU)
1996. Greg Bierly (MSU)
1997. Jorge Euan (MSU Res. Dev.)
1997. Tarek A. Joseph (MSU)
1997. Claudia Walters (MSU)
2002. Rob Corry
2002. Chris Lepczyk (MSU Fish. & Wildlife)
2003. Hirotaka Saito (Environmental Engin.)
2003. Theresa Friedrich (EEB)
2005. Geoffrey Lewis
2006. Wayne Walker
2006. Kacey Ernst (Epidemiology)
2006. Amy Auchincloss (Epidemiology)
2007. Justin Cohen (Epidemiology)

Ph.D. Current

Jason Barnes (Geology)
Jim Buck (NRE)
Luis Fernandez (NRE)
Haejin Han (NRE)
Diego Ruiz Moreno (EEB)
Shahar Shlomi (CEE)
Zhifang Wang (NRE)

**External PhD
Examiner**

Danijela Puric-Mladenovic, "Predictive Vegetation Modeling for Forest Conservation and Management in Settled Landscapes." University of Toronto, Faculty of Forestry, 2003.

Tara Sharma, "Land-Use Modeling for Exploring Alternative Agricultural Futures: Linking Choices and Consequences." University of British Columbia, Department of Geography, 2004.

Barry Kronenfeld, "The Tradeoff Between Information Content and Cognitive Simplicity in Graded Area-Class Maps: A Case Study in Vegetation Mapping." University at Buffalo (SUNY), Department of Geography and GIScience IGERT, 2004.

**Undergrads.
Supervised**

Leslie Garrison, UROP, 2005-2006.
Brad Gregorka, Research Internship, 2004.
Amanda Turek, Work/Study, 2004-2005.
Lucas Spaete, UROP, 2003-2005. Land cover change in Pittsfield Township, MI
Arthur Chan, UROP and Work/Study, 2002-2004.
Dave Somers, Work/Study, 2001-2004.
Joseph Day, SROP, 2002, Land cover change in Oakland County.
Emily Marshall, NSF REU, 2001, Mapping land parcel change in Southeastern Michigan.
Mark Irwin, NSF REU, 2001, Mapping land parcel change in Southeastern Michigan.
James Rutherford, UROP, 2000-2001, Mapping urban land cover characteristics.
Bryan Emmett, UROP, 1999-2000, Relationships between land cover change and bird species abundance.

**Other
Teaching**

Designed, with Emily Silverman, new undergraduate course - Introduction to Environmental Analysis (NRE 239), 2000-2001. Taught half in Winter 2003.

"Teaching GIS and Teaching with GIS." Coll. of Natural Science Brown Bag on Instructional Technology, Michigan State University, 1997.

Director, Certificate of Graduate Studies in Spatial Analysis, Univ of Michigan, 2000 to present.

"Introduction to UNIX." Workshop for the Department of Geography, Michigan State University, 1993.

SERVICE

To National/ International Organizations

Member, National Research Council (NRC) Panel on Human Health and Security for "Earth Science and Applications from Space: A Community Assessment and Strategy for the Future," Space Studies Board, 2005-2006.

Chair, Land-Use/Land-Cover Change (LULCC) Steering Group for LULCC Interagency Working Group, U.S. Climate Change Science Program, 2004-present.

Expert Panel Member: USGCRP/Climate Change Research Initiative Draft Report on Land Use / Land Cover Change elements of strategic plan, 2002.

Advisory Committees

External Advisory Committee: The Maine NSF-GIS Consortium: A Statewide, Interdisciplinary Approach to GIS Education. Cathleen McAnney and Matthew Brampton, PIs, 2003-05.

Scientific Advisory Board: Climate Land Interaction Project. Michigan State Univ. David Campell, PI, 2004-2007.

Advisory Board: UCGIS Model Curriculum Project, 2005-present.

Reviewing Activities

Review Panel Member:

National Science Foundation (Biocomplexity in the Environment Program; Environmental Decision Making and Valuation; Division of Behavioral and Cognitive Sciences, Geography and Regional Science Program, Doctoral Dissertation Panel; Division of Undergraduate Education, Instrumentation and Laboratory Improvement Program)

National Aeronautics and Space Administration (New Investigator Program; Earth System Science Fellowship Program)

Strategic Environmental Research and Development Program (SERDP) Ecosystems Management Project.

Site Reviewer: NSF, Decision Making Under Uncertainty Program, Arizona State University, 2004.

Site Reviewer and Panel Member: NSF IGERT Evaluation Team, University of Wisconsin, 2001-2002.

Ad Hoc Research Proposal Peer Reviewer:

Austrian National Science Fund

Michigan Sea Grant College Program

National Aeronautics and Space Administration (ADRO Program, Graduate Student Fellowship Program, New Investigator Program, LBA Program)

National Geographic Society, Committee for Research and Exploration

National Science Foundation (Directorate for Computer & Information Science & Engineering; Directorate for Social, Behavioral, and Economic Sciences; Division of Undergraduate Education; International Research Fellowship Program)

National Sciences and Engineering Research Council of Canada

Southeast Regional Climate Center

Strategic Environmental Research and Development Program (SERDP)

USDA Forest Service, North Central Research Station

Promotion/Tenure Reviewer: Clark University; University of California, Berkeley; University of Durham, UK; Indiana University; University of Maryland; Texas A&M University; University of Wisconsin, Madison; U.S. Military Academy, West Point, NY.

Editorial Board Member:

Applied Spatial Analysis and Policy, Springer, Netherlands (2007-present)

Journal of Land Use Science, Taylor and Francis WebFirst (2005-present)

Landscape Ecology, Springer, Netherlands (1999-2005)

Manuscript Reviewer:

Agriculture Ecosystems and Environment, Annals of the Assoc. of Am. Geographers, Addison Wesley Longman, Bioscience, Canadian Journal of Forest Research, Catena, Computers and Geosciences, Ecological Applications, Ecology, Ecology and Society, Ecosystems, Environment and Planning A, Environment and Planning B, Environmental Impact Assessment Review, Folia Geobotanica, Forest Policy and Economics, GeoForum, Geographical Analysis, Geographical & Environmental Modelling, Geocarto International, Geomorphology, Int. J. of Geographical Information Science, Int. J. of Remote Sensing, Journal of Ecology, Journal of Environmental Management, Journal of Geographical Systems, Journal of Geography, Journal of Geophysical Research-Atmospheres, Journal of Hydrology, Journal of Land Use Science, Journal of Vegetation Science, Landscape Ecology, Natura Croatica, Photogrammetric Eng. & Remote Sensing, Plant Ecology, Prentice Hall, Professional Geographer, Remote Sensing of Environment, Transactions in GIS, Urban Ecosystems

*Conference
Service*

Programme Committee, GeoComputation 2007, Maynooth, Ireland.

International Program Committee, The IASTED International Conference on Environmental Modelling and Simulation (EMS 2007), Honolulu, Hawaii, 2007.

International Program Committee, The IASTED International Conference on Environmental Modelling and Simulation (EMS 2006), St. Thomas, Virgin Islands, 2006.

Special Session Co-Organizer: Issues in Complexity in Geography, AAG Annual Meeting, Chicago, IL, 2006.

Symposium Co-Organizer: Understanding exurban landscape change processes: Human preferences, agent behaviors and ecological effects, IALE Meeting, San Diego, CA, 2006.

Symposium Organizer: Space Matters! Spatial Dimensions of Complex Interactions Between People and the Natural Environment, AAAS Meeting, St. Louis, MO, 2006.

Conference Co-Organizer: GeoComputation 2005, Ann Arbor, MI, August 1-3, 2005.

Session Co-Organizer: Modeling Land Use and Land Cover Dynamics, International Geographical Congress, Glasgow, Scotland, Aug 10, 2004.

Symposium Co-Organizer: Land-Use in Rural America, Ecological Society of America, Tucson, AZ, Aug 2001.

Chair: Land Ecology Working Group, USGCRP Regional Assessments Workshop, Ann Arbor, MI, May, 1998.

*Professional
Committees*

Awards Committee Member (2000-2005), Program Chair (1997-98), Director (1993-1996): Remote Sensing Specialty Group of the AAG.

Chair (and executive committee member): GIS Specialty Group of the AAG, 1998-2001.

Lead Delegate: University Consortium for Geographic Information Science (UCGIS), 1994-1999 (MSU), 2002-present (UM)

Member, Research Projects Committee: University Consortium for Geographic Information Science, 2003-present.

Panel Member: University Consortium for Geographic Information Science, Scale Research Priority, Park City, Utah, June 1998.

To University,
College and
Department

Associate Dean for Research, School of Natural Resources and Environment, 2006-present
Responsible for allocating financial resources and space, and cultivating an environment that furthers the research objectives of a School of ~43 FTE faculty members, enhances inter-disciplinarity, and increases funding for graduate students. Chair the faculty Research Committee and coordinate activities with that group. Report directly to the Dean, and represent the School to the Office of the Vice President for Research (OVPR) and other research entities internal and external to the University.

UM Committees:

Executive Committee, Michigan Memorial Phoenix Energy Institute
Advisory Committee, Global Health Research and Training

UM SNRE Committees:

Chair, Global Change Theme Group, 2003-04
Chair, Ecosystem Modeling Search Committee, 2002
SNRE 100th Anniversary Advisory Committee, 2002-03
Executive Committee, 2001-2005
Ecosystem Management Initiative Advisory Committee, 2000-present
Information Technology Committee, 2000
Chair, GIS Lab Manager Search Committee, 2000

Director: Environmental Spatial Analysis Laboratory, SNRE, University of Michigan

Chair of the steering committee:

Graduate Certificate Program in Spatial Analysis, University of Michigan

Peer Reviewer:

UM CARAT/Rackham IT Fellowships (23)
UM OVPR small grants (1)
MSU All University Research Initiation Grants (3)
Michigan Agricultural Experiment Station

MSU Geography Department Committees:

Geography BSRSI Faculty Search Committee (2 positions), 1998-99
Department of Geography, Curriculum Review Committee, 1998
Microcomputer Support Position Search Committee, 1998
Geography BSRSI Faculty Search Committee (2 positions), 1997-98
Senior Remote Sensing Faculty Search Committee, 1995-96
Computing Strategy Committee, 1993-1995
Graduate Awards Committee, 1993, 1996

MSU College of Social Science Committees:

Dean's Research Counsel, 1998-1999
Research Committee, 1998-1999
Center for Remote Sensing and GIS Advisory Committee, 1997-1999
Working Group on Environmental Studies, 1993-1995

Guest:

Outreach Communications video production for MSU News Segment (1996)
Geography Awareness Week Special, WKAR Radio Talk Show, 11/17/1995

Organizer and Chair: MSU GIS Interest Group (UCGIS), 1995-1999

Graduate student representative to faculty (UNC-CH)

Colloquium Steering Committee (UNC-CH)