

Joseph O. Sexton

Curriculum vitae

Levine Science Research Center, Box 90328
Duke University
Durham, NC 27708-0328

phone: (919) 613.8069
fax: (919) 684.8741
email: joseph.sexton@duke.edu

Objectives

1. Study spatiotemporal ecosystem dynamics.
2. Support sustainable ecosystem management with ecological information.
3. Link ecology to other sciences through the geographic information system (GIS).

Education

Doctoral candidate

University Program in Ecology
Duke University
Durham, North Carolina

[May, 2009]
GPA: 3.9

Advisor: Dean Urban

Thesis: Suburban forest dynamics: succession, phenology, and urbanization of a Piedmont landscape.

Relevant coursework:

Advanced Geographic Information Systems
Landscape Ecology
Modeling in Ecology and Earth Science
Introductory City and Regional Planning

Multivariate Analysis
Spatial Analysis
Bayesian Ecological Modeling
Special Topics in Graph Theory

Master of Science, *magna cum laude*

Department of Forest Resources
Utah State University
Logan, Utah

August, 2003
GPA: 3.8

Co-advisors: R. Douglas Ramsey (geography), Terry L. Sharik (forest ecology).

Thesis: Models for the distribution of quaking aspen in geographic and potential evapotranspiration spaces relevant to the Book Cliffs (Utah), 2000-2002.

Relevant coursework:

Applied Remote Sensing
Special Topics in Geographic Information Systems
Geographic Information Analysis
Introduction to Imagine Toolkit (*w/ C programming*)
Linear Regression & Time Series Analysis

Landscape Ecology
Plant Community Ecology
Vegetation Pattern Analysis
Fire Management and Planning
Intermediate Wildland Fire Behavior

Bachelor of Science, *cum laude*

Department of Wildlife Ecology and Conservation
303 Newins-Ziegler Hall
University of Florida
Gainesville, FL 32611

May, 1999
Upper division GPA: 3.9
Minor in zoology
Emphasis in Wildlife Resources

- Created fire history GIS database for The Nature Conservancy/ University of Florida Katharine Ordway Preserve land management plan;
- Secretary of University of Florida student chapter of The Wildlife Society.

Relevant Coursework:

Introduction to Ecology
Honors Ecology
Introduction to Wildlife Ecology
Forest Ecology
Wildlife Ecology and Management
Conservation Biology
Silviculture
Dendrology of Forest Plants
Practical Plant Taxonomy
Principles of Entomology
Vertebrate Zoology
Mammalogy

Wetlands Wildlife Resources
Terrestrial Wildlife Resources
Natural Resource Sampling
Wildlife Techniques (*field sampling methods*)
Environmental Geology
General Soils
Introduction to Fisheries Science
Intro. Natural Resource/Environmental Economics
Principles of Forest Resource Economics
Natural Resource Policy and Administration
GPS for Planners
Principles of Marketing

Employment

NASA Earth Systems Science Research Fellow

Landscape Ecology Laboratory
Duke University
Durham, North Carolina

Sept., 2003 – present
contact D. L. Urban, lab director

- Remotely sense landcover, impervious surface, and forest structure & composition over time.
- Quantify landscape dynamics in relation to ecosystem services (e.g., carbon sequestration, water quality, climate mitigation, wildlife habitat).

Graduate Teaching Assistant

Nicholas School of the Environment and Earth Sciences
Duke University
Durham, North Carolina

September, 2003 – present
contact D. L. Urban, instructor

Courses:

- Landscape Ecology (grading, tutoring)
- Multivariate Analysis (grading, tutoring)
- Advanced GIS (grading, tutoring)
- Spatial Statistics (grading, tutoring)
- Remote Sensing (course development, lecturing and leading laboratory exercises, exam preparation, grading, tutoring)

Doctoral Research Assistant

Landscape Ecology Laboratory
Duke University
Durham, North Carolina

Sept., 2003 – August, 2007 (intermittent)
contact D. L. Urban, lab director

- Created a spatiotemporal database of landcover change for the North Carolina Piedmont Plateau.

Graduate Research Assistant

Department of Forest, Range, and Wildlife Sciences
Utah State University
Logan, Utah

Sept., 2000 – August, 2003
contact R. D. Ramsey, lab director

- Advised Bureau of Land Management Vernal Field Office regarding monitoring and management of quaking aspen;
- Created a GIS of the Book Cliffs relevant to aspen ecology and management;

Graduate Research Fellow

Department of Forest Resources
Utah State University
Logan, Utah

Sept., 2000 – Aug., 2001
contact Terry L. Sharik, Ph.D., dept. head

- Researched applications of GIS and remote sensing in support of the Bureau of Land Management's Book Cliffs Land Management Plan;
- Communicated with the Bureau of Land Management Vernal Field Office to understand management issues and data requirements for the Book Cliffs Management Area, and co-authored a successful grant proposal to study the Book Cliffs aspen landscape.

Research Technician

South Carolina Fish and Wildlife Research Unit
Clemson University
Clemson, South Carolina

May – August, 1999
contact C. R. Allen, Ph.D., asst. unit leader

- Conducted roadside baited trap transects for red imported fire ant (*Solenopsis invicta*) monitoring;
- Validated South Carolina Gap Analysis land-cover maps and communicated observations with Gap Analysis project management;

Research Assistant

Department of Wildlife Ecology and Conservation
University of Florida
Gainesville, Florida

August, 1996 - May, 1999
Contact Lyn Branch, Ph.D., asst. professor

- Performed library and laboratory research on nutrient cycling responses to herbivory and belowground waste deposition by colonial mammals;
- Recruited, trained, and managed a field team of 21 volunteers to study decomposition and nutrient cycling in response to litter burial and soil microsite disturbance.

Forestry Research Intern

Department of Ecological Forestry
Tall Timbers Research Station
Tallahassee, Florida

May, 1998- July, 1998
contact W. Kieth Moser, Ph.D.

- Developed forest-mensuration sampling and GPS/GIS protocols;
- Measured and mapped longleaf pine cover for a study of its effects on bobwhite quail density.
- Conducted prescribed burns to maintain old-growth longleaf pine/wiregrass communities.

Office Assistant

USFWS Cooperative Fish and Wildlife Research Unit
University of Florida
Gainesville, Florida

January, 1995- May, 1996
contact H.F. Percival, unit leader

- Created and populated research databases on sea turtle, alligator, and migratory bird populations.

Selected publications

Sexton, J.O., D.L. Urban, C. Song. *in prep.* Temporal signature extension of the National Land Cover Database (NLCD 2001) Landcover Layer on the North Carolina Piedmont Plateau (1985 – 2005).

Delgado, C., D. Amor, J.O. Sexton, A. Pfaff. *in prep.* Do protected areas constrain road deforestation? Proceedings of the Amazon in Perspective International Scientific Conference, Integrated Science for a Sustainable Future/ LBA (Large Scale Biosphere-Atmosphere Project in the Amazon) / GEOMA (Amazonian Environmental Modeling Network) / PPBio (Biodiversity Research Program). November 17 - 20, 2008 Manaus – Brazil.

Delgado, C., D. Amor, J.O. Sexton, F. Colchero., A. Pfaff. *in prep.* Short- and long-term road impacts on frontier deforestation. Proceedings of the Amazon in Perspective International Scientific Conference, Integrated Science for a Sustainable Future/ LBA (Large Scale Biosphere-Atmosphere Project in the Amazon) / GEOMA (Amazonian Environmental Modeling Network) / PPBio (Biodiversity Research Program). November 17 - 20, 2008 Manaus – Brazil.

Sexton, J.O., D.L. Urban, C. Song. *in revision.* Temporal signature extension of the National Land Cover Database (NLCD 2001) Tree Canopy Layer on the North Carolina Piedmont Plateau (1985 – 2005).

Bartel, R.A and J.O. Sexton. *in review.* Monitoring habitat dynamics for rare and endangered species using satellite images. *Ecography*.

Sexton, J.O., Bax, T.V., P. Siqueira, J.J. Swenson, Hensley, S. *in press.* A comparison of lidar, radar, and field measurements of canopy height in southeastern North American forests. *Forest Ecology and Management*.

Whitehurst, A.W., J.O. Sexton, L. Dollar. *in press.* Landcover change in western Madagascar's dry deciduous forests: a comparison of changes in and around Kirindy Mite National Park. *Oryx*

Sexton, J.O., R.D. Ramsey, D.L. Bartos. 2006. Habitone analysis of quaking aspen in the Utah Book Cliffs: effects of site water demand and conifer cover. *Ecological Modelling* 198 (3-4): 301-311.

InSAR Working Group Reports Committee (34 authors). 2006. Interferometric Synthetic Aperture Radar (InSAR) Workshop Summary Report. InSAR Workshop, sponsored by NASA, NSF, and USGS.

October 20-22, 2004. Oxnard, California. 64 pp.
http://www.stanford.edu/group/radar/InSARWorkshopReport_hires.pdf

Sexton, J.O. 2003. Models for the distribution of quaking aspen in geographic and potential evapotranspiration spaces relevant to the Book Cliffs (Utah), 2000-2002. Master's thesis, Dept. of Forest Resources, College of Natural Resources, Utah State University. Logan, UT.

Selected presentations

Sexton, J.O., and D.L. Urban. 2008. Coupled natural and anthropogenic landcover dynamics on the North Carolina Piedmont. Annual Meeting of the Association of American Geographers, Boston, MA. April 15, 2008.

Sexton, J.O. 2006. Suburban forest dynamics: succession, phenology, and urbanization of the Research Triangle. Presented to the Orange County GIS User's Group. Town Hall, Chapel Hill, NC. August 2, 2006.

Sexton, J.O. and D.L. Urban. 2006. Change-vector analysis of forest succession: gradient effects on Piedmont forest dynamics. 21st Annual Symposium of the United States Regional Chapter of the International Association for Landscape Ecology. San Diego, CA, March 28 – April 1, 2006.

Sexton, J.O. 2005. Habitone analysis of quaking aspen in the Book Cliffs (Utah, USA): effects of site water demand and conifer cover. 20th Annual Symposium of the United States Regional Chapter of the International Association for Landscape Ecology. Syracuse, NY, March 12-16, 2005. *Also presented as an invited lecture at Restoring the West Conference 2006 – Aspen Restoration. September 12-13, Utah State University, Logan, UT.*

Sexton, J.O. and D.L. Urban. 2005. NPP-edge effects in suburban landscapes: measuring “edge” (poster). 20th Annual Symposium of the United States Regional Chapter of the International Association for Landscape Ecology. Syracuse, NY, March 12-16, 2005.

Sexton, J.O., R.D. Ramsey, J. Lowry, T.L. Sharik. 2002. A multiple-scale GIS framework for monitoring quaking aspen in the Intermountain West. Pecora 15/Land Satellite Information IV/ International Society for Photogrammetry and Remote Sensing (ISPRS) Commission I Symposium, Integrating remote sensing at the global, regional, and local scale. Denver, CO (USA), November 10-15, 2002.

Sexton, J.O. 2002. Heuristics for interpreting empirically modeled raster data: fuzzy vs. probabilistic uncertainty and potential vs. actual landcover (poster). Utah Geographic Information Council 2002 Conference. September 18-20, 2002. Ruby's Inn, Bryce Canyon National Park, Utah.

Sexton, J.O. 2002. Quaking aspen biogeography: issues of fuzzy vs. probabilistic classification and multispectral vs. environmental raster data (poster). The Ecological Society of America/ Society for Ecological Restoration 2002 Joint Annual Conference. August 7, 2002. Tucson, AZ.

Sexton, J.O.; A.F. Wells. 2002. Toward a synthesis of landscape and community ecologies: the generalization of scale. Utah State University Department of Forest Resources seminar, April 24, 2002.

Sexton, J.O.; M. Jenkins; T.L. Sharik; W. Wagner. 2000. A remotely sensed aspen deterioration classification for the study and management of quaking aspen in the Intermountain West (poster). Sustaining Aspen in Western Landscapes Symposium, Grand Junction, CO, June 13-15, 2000.

Honors, Awards, and Service

Nature Reader Advisory Panel, 2009.

American Association for the Advancement of Science (AAAS) Program for Excellence in Science Member, 2008 (2009 nominee).

Sigma Xi Scientific Research Society associate member, 2006.

Duke University Aleana Webb Dissertation Research Award, 2006.

Duke University Nicholas School of the Environment and Earth Sciences Professional Development Travel Award, 2006.

Duke University Graduate School Conference Travel Fellowship, 2006.

NASA Earth System Science Fellowship, 2005 – 2008.

United States Regional Chapter of the International Association for Landscape Ecology (US-IALE) NASA/MSU Professional Enhancement Award, 2005.

Utah Geographic Information Council Annual Conference Student Poster Competition 2nd Place, 2002.

Xi Sigma Pi honorary forestry fraternity membership, 2000 – present.

Utah State University Vice-Presidential Fellowship for Graduate Research, 1999-2000.

University of Florida Department of Wildlife Ecology and Conservation Jennings' Scholarship, 1997.

Alpha Zeta honorary agricultural fraternity membership, 1995 - present

University of Florida Out of State Tuition Waiver (scholarship awarded to the top 0.5% of incoming freshmen to the University of Florida), 1994 – 1999.

Funded proposals

Donohue, M.J., Salk, C.F., Sexton, J.O. 2008. Micro-Incentives Research Center grant. Social Science Research Institute, Duke University. \$9600.

Sexton, J. O. 2005. Carbon dynamics in heterogeneous landscapes: fusing remote sensing with spatial ecological models. NASA Earth System Science Fellowship. \$72,000. 3 years.

Sexton, J. O.; R. D. Ramsey; T. L. Sharik; W. Wagner. 2000. Determining the location, extent, condition, and trend of aspen communities in the Bookcliff Mountains. Vernal Field Office of the Bureau of Land Management Task Order. \$35,300.

Revised: October 30, 2008.