

## **X. Ben Wu**

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### **Education:**

Postdoctoral:	The Ohio State University	Wetland Ecology		1992-1995
Graduate:	University of Tennessee	Ecology	Ph.D.	1991
	University of Tennessee	Management Sci.	M.S.	1990
	University of Tennessee	Ecology	M.S.	1988
Undergraduate:	Lanzhou University (China)	Botany	B.S.	1982

### **Experience:**

1995-present Texas A&M University

Presidential Professor for Teaching Excellence (2009-), John Kincaid University Professor for Undergraduate Teaching Excellence (2012-2015), Associate Dean of Faculties and Director of Center for Teaching Excellence (2009-2014),

Professor (2007-), Associate Department Head for Graduate Programs (2007-2009), Associate Professor (2001-2006), and Assistant Professor (1995-2000), Department of Ecosystem Science and Management.

1992-1995 The Ohio State University

Adjunct Assistant Professor (1994-95), Postdoctoral Research Associate (1993-1995), and University Postdoctoral Fellow (1992-1993), School of Natural Resources.

1987-1991 Tennessee Valley Authority

EIS Consultant, Land Between The Lakes (1990-1991); Ecologist, Forest Resources (1989-1990); and Intern, Land Between The Lakes (1987-1988).

1985-1991 The University of Tennessee

Teaching/Research Assistant, Graduate Program in Ecology (1988-1989 and 1986-1987); and Hilton Smith Graduate Fellow, Graduate School (1987-1988).

1982-1984 Lanzhou University, China

Assistant Lecturer, Department of Biology.

### **Selected Awards and Honors:**

- Distinguished Achievement Awards for Teaching (University-Level), Association of Former Students of Texas A&M University, 2016.
- Southeastern Conference (SEC) Faculty Achievement Award, 2015.
- John Kincaid University Professor for Undergraduate Teaching Excellence, 2012.
- Presidential Professor for Teaching Excellence Award, Texas A&M University, 2009.
- Award for Innovative Excellence in Teaching, Learning, and Technology, the International Conference on College Teaching and Learning, 2009.
- Distinguished Achievement Awards for Teaching (College-Level), Association of Former Students of Texas A&M University, 2008.

- Dick Kleberg, Jr. Endowed Lectureship at the King Ranch Institute for Ranch Management, Texas A&M University-Kingsville, 2007
- Michael Breheny Prize for the Best Paper in *Environment and Planning B*, 2006.
- Vice Chancellor's Award in Excellence for Graduate Teaching, Texas A&M Agriculture, Texas A&M University System, 2005.
- Graduate Teacher of the Year Awards, Department of Ecosystem Science and Management, Texas A&M University, 2001, 2002 and 2005.
- Hundred-Talent Program Scholar, Chinese Academy of Sciences, 2004-2007.
- V.F. and Gertrude Neuhaus Teaching Scholar, College of Agriculture and Life Sciences, Texas A&M University, 2000.
- Wakonse Fellow of College Teaching, College of Agriculture and Life Sciences, Texas A&M University, 1997.
- Best Student Poster, Society of American Foresters (SAF) National Convention, Richmond, VA, 1992.
- University Postdoctoral Fellowship, The Ohio State University, 1991-1992.
- Science Alliance Fellowship Awards, University of Tennessee Science Alliance Center of Excellence, 1986, 1987, 1988, 1989, 1990 and 1991.
- National Alumni Association Graduate Fellowships, University of Tennessee National Alumni Association, 1988-89 and 1989-90.
- Hilton A. Smith Graduate Fellowship, University of Tennessee, 1987-88.
- Carlos Campbell Memorial Research Fellowship, Great Smoky Mountains Conservation Association, 1986-87.

### **Professional Activities:**

- Member, National Research Council Committee on Barriers and Opportunities in Completing 2- and 4-Year STEM Degrees (2013-2016); Member, Steering Committee of NSF-funded Faculty Development Network for Undergraduate Biology (FDN-UB) (2014-present); Member, International Advisory Committee of the Computer Network Information Center, Chinese Academy of Sciences (2009-present);
- Chair, Asian Ecology Section of the Ecological Society of America (ESA) (1997-1998); Co-Chair, International Affairs Committee (2006-2008) Society for Range Management (SRM); Member, Steering Committee of the journal *Rangeland Ecology and Management* (2006-2009).
- Journal editorial board member: *Acta Prataculturae Sinica* (2015-present), *Chinese Journal of Applied Ecology* (1996-present), *Ecological Processes* (2011-present), *Journal of Integrative Plant Biology* (2005-2007), *Ecological Engineering* (1997-2007).
- Member of grant review panels: NSF (3 panels); USDA (3 panels); USEPA (5 panels).
- Co-chair, Quality Enhancement Plan (QEP) committee for the decennial reaffirmation of accreditation of Texas A&M University (2011-2012); Co-chair, Faculty Teaching and Learning Portal committee (2009-2014); Activity Leader, Roadmap workshops for early-career academics, Texas A&M ADVANCE program (2011-2014); Project Director (2007-2012), Sloan Minority Ph.D. Program in Ecosystem Science and Management; Chair, Graduate Programs Committee of Ecosystem Science and Management (2007-2009); Co-chair, Exploratory Committee for the merger of Departments of Rangeland Ecology and

Management and Forest Science (2006); Chair, Committee for Development of BS degree program in Ecological Restoration (2004-2006), Texas A&M University.

## **Teaching Activities:**

### Undergraduate Courses

- RENR 205 - Fundamentals of Ecology (3 SCH, co-teach with M. Mateos)

Introduction to principles of ecology based on the ecosystems framework. This is a service course with large classes (up to 250 students in each of the 2 sections) and diverse students from more than 40 majors. A blended-learning approach is used to engage students outside of class with online adaptive test-to-learn exercises and weekly quizzes with alternative questions and multiple takes to help students develop better understanding and mastery. In class, we engage students using Socratic methods and active learning activities such as clicker questions, think-pair-share/peer instruction, and case studies to facilitate both deeper understanding and skill development. We have also developed and implemented two 5-week long web-based ecological inquiry projects (using BearCam photos and a virtual learning environment) which integrated authentic scientific inquiries with collaborative learning and calibrated peer review approaches.

Taught in Fall semesters of 1995-2002, 2004-2015. Over 8,300 students have taken this course.

- RENR 215 - Fundamentals of Ecology Laboratory (1 SCH)

Introduction to the general principles and inquiry process, sampling procedures and equipment, and data analysis and interpretation for field investigations of the biotic and abiotic components of ecosystems and their interactions. This field-oriented lab course is designed to emphasize hands-on experiences and ecological integration using active and collaborative learning and intensive writing approaches.

Served as faculty coordinator for both Spring and Fall of 1995-2001 and Fall of 2002, 2004 and 2005. Taught one section for 7 semesters in 1994-1998.

### Graduate Courses

- ESSM 660 - Landscape Analysis and Modeling (3 SCH)

Introduction to concepts and methods of spatial analysis (landscape pattern analysis and modeling, spatial statistics) and their applications, with an emphasis on natural resource studies. The teaching approaches include lectures coupled with web-based group and class discussions of current literature, use of our own published works to bring additional insights to the scientific inquiry process, extensive hands-on lab exercises to solve real-world problems, term projects based on students' own dissertation/thesis research, and preparation of project reports as journal manuscripts using the peer review process.

Taught in Spring of 1997-2003, 2005-2016. Over 270 PhD and MS students from 14 departments in 5 colleges have taken this course.

- RLEM 689 - Landscape Ecology and Conservation (3 SCH)

Introduction to concepts of landscape ecology and their applications in natural resource conservation.

Taught in Summer of 2003-2005 for participants of the Information Technology in Science (ITS) Center for Teaching and Learning Cohort II and III "Landscape Ecology and Conservation" team.

- RLEM 681 – Seminar: Quantitative Methods in Landscape Ecology (1 SCH)
- RLEM 681 – Seminar: Spatial Simulation in Landscape Studies (1 SCH)
- RLEM 681 – Seminar: Ecological Restoration (1 SCH)
- NR 760 - Ecosystem Modeling (3 SCH)

#### Graduate Student Program

- Served as chair/co-chair for 15 PhD and 16 MS students.
- Served as a committee member for 58 PhD and 36 MS students from 7 departments of 5 colleges.

#### **Faculty Development Activities:**

- Conducted with C. Sandoval and J. August a 3-day workshop “*Advanced Training Program for Academic Administrators on Teaching and Learning*”, November 24-26, 2014, Nanjing, China.
- Conducted with V. Lee a 5-day workshop “*Academic Leadership in the Learning-centered University*”, August 4-8, 2014, Durham, NC.
- Conducted with B. Harmon a 2-day workshop “*Inquiry-based Approaches in Undergraduate Science Courses: Learning Science through Science Process*”, May 13-14, 2014, at *The Institute for Pedagogy in the Liberal Arts*, Oxford, GA.
- Conducted with V. Lee a 2.5-day workshop “*Teaching & Learning Workshop at Jazan University*”, February 10-12, 2013, Jazan, Saudi Arabia.
- Conducted with V. Lee a 5-day workshop “*Building a Culture of Teaching Excellence at Jazan University*”, July 9-13, 2012, Ann Arbor, MI.
- Conducted numerous (2-3 hour) workshops in the US and China on topics such as active and inquiry-based learning, engaging students with technology, blended learning, teaching large classes, peer review of teaching, decoding the discipline, and habits and skills of new faculty who succeed.
- Served as a member of the Planning Committee (2009-2014) to design and facilitate the annual *Wakonse South Conference on College Teaching*.
- Serving as a Steering Committee member (2014-present) for the NSF-funded *Faculty Development Network for Undergraduate Biology (FDN-UB)*.

#### **Selected grants (last 10 years):**

*(Over 12 million since joining Texas A&M University)*

1. Developing ground penetrating radar (GPR) for enhanced root and soil organic carbon imaging: Optimizing bioenergy crop adaptation and agro-ecosystem services, DoE-ARPA-E, \$4,600,000, 2015-2019, co-PI.
2. BREAD PHENO: High throughput phenotyping early stage root bulking in cassava using ground penetrating radar, NSF-BREAD, \$2,490,232, 2015-2018, co-PI.
3. Enhancing blended and active learning in a large ecology course, Texas A&M University, \$75,000, 2015-2016, PI.
4. Virtual Ecological Inquiry (VEI) - A virtual environment for inquiry-based learning and education research, NSF-CCLI/TUSE, \$199,950, 2010-2014, PI.
5. Sustaining rangelands in the Southern Great Plains in the 21st century: Adapting to and mitigating for climate change (planning grant), USDA-AFRI, \$50,000, 2010-2011, co-PI.

6. A graduate program in forest resources: Developing integrated expertise in forest resource, conservation, and restoration, USDA-AFRI, \$340,000, 2009-2014, co-PI.
7. Enhancing the teaching capacity of urban forestry program at Southern University and A&M College, USDA CSREES, \$200,000, 2008-2010, co-PI.
8. Strengthening educational capacities in geospatial science and technology for agricultural and natural resources management, USDA CSREES, \$290,000, 2008-2010, co-PI.
9. Development of data-based validation framework for state-and-transition models, USDA CSREES, \$464,000, 2007-2010, co-PI.
10. Geospatial ecosystem management (GEM) program, USDA HSI, \$240,000, 2007-2009, co-PI.
11. Building a research bridge between an HSI and a land-grant university for doctoral studies in environmental science, USDA CSREES, \$300,000, 2005-2007, co-PI (PI for TAMU portion of the grant).
12. Diversity and ecosystem function of wetlands in the changing steppe landscapes of northern China, Chinese Academy of Sciences, ¥1,000,000, 2004-2007, PI.
13. Landscape changes as related to Rio Grande wild turkey production and survival in the Edwards Plateau of Texas – Phase II, Texas Parks and Wildlife Department, \$320,850, 2004-2007, co-PI.
14. Ecological implementations of hydrologic restoration of Bahia Grande wetlands, USFWS, \$180,000, 2004-2006, co-PI.
15. Integrating science, education and IT in a cross-cultural setting, NSF, \$89,192, 2004-2007; co-PI.
16. Developing effective approaches for riparian forested wetland restoration, City of Garland, \$107,542, 2002-2004, PI.
17. Restoring resaca wetlands and associated wet prairie habitats at Palo Alto Battlefield National Historic Site, National Park Service, \$115,414, 2002-2006. co-PI.
18. Scaling soil C and N storage in a changing savanna parkland landscape: Spatial structure, prediction and uncertainty assessment, NSF, \$398,000, 2001-2005, PI.

### **Selected Publications (last 10 years)**

*(Total 72 journal articles and 8 book chapters; \* student or postdoc advised; \*\* student - served as a committee member)*

1. Jin B\*, Sun G, Zhang Y, Zou M, Ni X, Luo K, Zhang X, Cheng H\*, Li F, Wu XB. 2016. Livestock tracks transform resource distribution on terracette landscapes of the Loess Plateau. *Ecosphere* 7(3):e01337. 10.1002/ecs2.1337.
2. Wu XB, Knight SL, Schielack JF, Robledo DC\*, Jaime XA, Peterson CA, Griffing LR. 2016. Authentic ecological inquiries using BearCam archives. *CourseSource* [in press].
3. Rho P\*, Wu XB, Smeins FE, Silvy NJ, Peterson MJ. 2015. Regional land cover patterns, changes and potential relationships with scaled quail (*Callipepla squamata*) abundance. *Journal of Ecology and Environment* 38(2):185-193.
4. Li W\*, Zhan S, Lan Z, Wu XB, Bai Y. 2015. Scale-dependent patterns and mechanisms of grazing-induced biodiversity loss: Evidence from a field manipulation experiment in semiarid steppe. *Landscape Ecology* 30:1751-1765.
5. Webb AM, Knight SL, Wu XB, Schielack JF. 2014. Teaching science with web-based inquiry projects: An exploratory investigation. *International Journal of Virtual and Personal Learning Environments* 5(2):57-68.
6. DeMaso SJ\*\*, Hernandez F, Brennan LA, Silvy NJ, Grant WE, Wu XB, Bryant FC. 2014.

- Short- and Long-Term Influence of Brush Canopy Cover on Northern Bobwhite Demography in Southern Texas. *Rangeland Ecology and Management* 67:99–106.
7. Ansley RJ, Mirik M, Heaton CB\*, Wu XB. 2013. Woody cover and grass production in a mesquite savanna: geospatial relationships and precipitation. *Rangeland Ecology and Management* 66:621–633.
  8. Bagchi S\*, Briske DD, Bestelmeyer BT, Wu XB. 2013. Assessing resilience and state-transition models with historical records of cheatgrass *Bromus tectorum* invasion in North American sagebrush-steppe. *Journal of Applied Ecology* 50(5):1131-1141..
  9. Gilad O\*, Wu XB, Armstrong F. 2013. Assessing the feasibility for reintroducing desert bighorn sheep to Guadalupe Mountains National Park: Habitat, migration corridors and challenges. *Applied Geography* 41:96-104.
  10. Bai E\*, Boutton TW, Liu F\*, Wu XB, Archer SR. 2013. <sup>15</sup>N isoscapes in a subtropical savanna parkland: spatial-temporal perspectives. *Ecosphere* 4(1):4. <http://dx.doi.org/10.1890/ES12-00187.1>
  11. Liu F\*, Archer SR, Gelwick F, Bai E\*, Boutton TW, Wu XB. 2013. Woody plant encroachment into grasslands: Spatial patterns of functional group distribution and community development. *PLoS ONE* 8(12): e84364.
  12. Bagchi S\*, Briske DD, Wu XB, Mcclaran MP, Bestelmeyer BT, Fernández-Giménez ME. 2012. Empirical assessment of state-and-transition models with a long-term vegetation record from the Sonoran Desert. *Ecological Applications* 22(2):400–411.
  13. Bai E\*, Boutton TW, Liu F\*, Wu XB, Hallmark CT, Archer SR. 2012. Spatial variation of soil  $\delta^{13}\text{C}$  and its relation to carbon input and soil texture in a subtropical lowland woodland. *Soil Biology & Biochemistry* 44:102-112.
  14. Bai E\*, Boutton TW, Liu F\*, Wu XB, Archer SR. 2012. Spatial patterns of soil  $\delta^{13}\text{C}$  reveal grassland-to-woodland successional processes. *Organic Geochemistry* 42:1512–1518.
  15. Fowler DA, Matthews PR, Schielack JF, Webb RC, Wu XB. 2012. The power of inquiry as a way of learning in undergraduate education at a large research university, In: Lee VS. (Ed.) *The Power of Inquiry as a Way of Learning in Undergraduate Education*. Jossey-Bass, San Francisco, CA.
  16. Simmons ME\*, Wu XB, Whisenant SG. 2012. Responses of pioneer and later-successional plant assemblages to created microtopographic variation and soil treatments in riparian forest restoration. *Restoration Ecology* 20(3):291–425.
  17. Wu XB, Griffing L, Herbert B, Acheson G, Knight SL. 2012. Bridging current science and classrooms: The learning community perspective. In: Schielack JF, Knight SL. (Eds) *An Information Technology-based Learning Ecology Model to Promote Science Education Leadership*. Teachers College Press, New York, NY.
  18. Bestelmeyer BT, Wu XB, Brown JR, Fuhlendorf SD, Fults GA. 2011. A landscape approach to rangeland conservation practices. pp 337-370, in *Conservation Benefits of Rangeland Practices: Assessment, Recommendations, and Knowledge Gaps*. USDA Natural Resources Conservation Service, Washington, DC.
  19. DeMaso SJ\*\*, Hernández F, Brennan LA, Silvy NJ, Grant WE, Wu XB. 2011. A population model to simulate northern bobwhite population dynamics in southern Texas. *Journal of Wildlife Management* 75(2):319–332.
  20. Knapp CN, Fernández-Giménez ME, Briske DD, Bestelmeyer BT, Wu XB. 2011. An assessment of state-and-transition models: Perceptions following two decades of development and implementation. *Rangeland Ecology & Management* 64(6):598-606.
  21. Liu F\*, Wu XB, Bai E\*, Boutton TW, Archer SR. 2011. Quantifying soil organic carbon in complex landscapes: An example of grassland undergoing encroachment of woody plants. *Global Change Biology* 17:1119–1129.

22. Liu F\*, Wu XB, Bai E\*, Boutton TW, Archer SR. 2011. Impact of woody proliferation on soil carbon in subtropical savanna: Spatial distribution, uncertainty and sampling strategy. In: Han X, Wu Y (Eds) *Ecological Vision: Challenge, Response and Strategy*. Higher Education Press, Beijing.
23. Perotto-Baldivieso HL\*, Wu XB, Peterson MJ, Smeins FE, Silvy NJ, Schwertner TW. 2011. Flooding-induced landscape changes along dendritic stream networks and implications for wildlife habitat. *Landscape and Urban Planning* 99:115–122.
24. Simmons ME\*, Wu XB, Whisenant SG. 2011. Plant and soil responses to created microtopography and soil treatments in bottom land hardwood forest restoration. *Restoration Ecology* 19(1):136-146.
25. Liu F\*, Wu XB, Bai E\*, Boutton TW, Archer SR. 2010. Spatial scaling of ecosystem C and N in a subtropical savanna landscape. *Global Change Biology* 16:2213–2223.
26. Parker AF\*, Owens PR, Libohova Z, Wu XB, Wilding LP, Archer SR. 2010. Use of terrain attributes as a tool to explore the interaction of vertic soils and surface hydrology in South Texas playa wetland systems. *Journal of Arid Environments* 74:1487-1493.
27. Bai E\*, Boutton TW, Liu F\*, Wu XB, Archer SR, Hallmark CT. 2009. Spatial variation of the stable nitrogen isotope ratio of woody plants along a topoedaphic gradient in a subtropical savanna. *Oecologia* 159:493–503.
28. Bai E\*, Boutton TW, Wu XB, Liu F\*, Archer SR. 2009. Landscape-scale vegetation dynamics inferred from spatial patterns of soil  $\delta^{13}\text{C}$  in a subtropical savanna parkland. *Journal of Geophysical Research* 114, G01019, doi:10.1029/2008JG000839.
29. Han X, Owens K, Wu XB, Wu J, Huang J. 2009. The Grasslands of Inner Mongolia: A Special Feature. *Rangeland Ecology & Management* 62(4):303-304.
30. Song L, Li FM, Fan XW, Xiong YC, Wang WQ, Wu XB, Turner NC. 2009. Soil water availability and plant competition affect the yield of spring wheat. *European Journal of Agronomy* 31(1):51-60. JUL 2009
31. Azevedo JC\*\*, Wu XB, Messina MG, JR Williams, Fisher RF. 2008. The role of the Sustainable Forestry Initiative in forest landscape changes in Texas, USA. p. 273-296 In Laforteza R, Chen J, Sanesi G, Crow TR (Eds) *Patterns and Processes in Forested Landscapes: Multiple Use and Sustainable Management*. Springer.
32. Bai E\*, Boutton TW, Liu F\*, Wu XB, Archer SR. 2008. Variation in woody plant  $\delta^{13}\text{C}$  along a topoedaphic gradient in a subtropical savanna parkland. *Oecologia* 156:479–489.
33. Middleton BA, Wu XB. 2008. Landscape pattern of seed banks and anthropogenic impacts in forested wetlands of the northern Mississippi River Alluvial Valley. *Ecoscience* 15:231-240.
34. Simmons ME\*, Wu XB, Knight SL, Lopez RR. 2008. Assessing the influence of field- and gis-based inquiry on student attitude and conceptual knowledge in an undergraduate ecology lab. *CBE-Life Sciences Education* 7:338-345.
35. Sivanpillai R\*\*, Wu XB, Srinivasan R, Smith CT, Messina MG. 2008. Comparative analyses of East Texas forest cover maps generated from Landsat and AVHRR data. *GeoJournal* 71(4):211-220.
36. Feagin RA\*, Wu XB. 2007. The spatial patterns of functional groups and successional direction in a coastal dune community. *Rangeland Ecology and Management* 60(4):417-425.
37. Feagin RA\*, Wu XB, Feagin T. 2007. Edge effects in lacunarity analysis. *Ecological Modelling* 201:262-268.
38. Kjelland ME\*\*, Kreuter UP, Clendenin GA, Wilkins RN, Wu XB, Afanador EG, Grant WE. 2007. Factors related to spatial patterns of rural land fragmentation in Texas. *Environmental Management* 40:231-244

39. Rader ML\*\*, Brennan LA, Hernández F, Silvy NJ, Wu XB. 2007. Nest-site selection and nest survival of northern bobwhite in southern Texas. *The Wilson Journal of Ornithology* 119(3):392-399.
40. Rader ML\*\*, Teinert TW, Brennan LA, Hernández F, Silvy NJ, Wu XB. 2007. Identifying predators and nest fates of bobwhites in southern Texas. *Journal of Wildlife Management* 71(5):1626-1630.
41. Simmons ME\*, Wu XB, Whisenant SG. 2007. Bottomland hardwood forest species' responses to flooding regimes along an urbanization gradient. *Ecological Engineering* 29(3):223-231.
42. Sivanpillai R\*\*, Srinivasan R, Smith CT, Messina MG, Wu XB. 2007. Estimating regional forest cover in east Texas using Advanced Very High Resolution Radiometer (AVHRR) data. *International Journal of Applied Earth Observation and Geoinformation* 9(1): 41-49.
43. Wu XB, Liu F\*, Whisenant SG. 2007. Advances in restoration ecology. In: Wu J, Ge J, Han X, Yu Z, Zhang D (Eds.) *Lectures in Modern Ecology (III): Advances and Key Topics*. Higher Education Press (in Chinese).
44. Azevedo JC\*\*, Wu XB, Messina MG, Fisher RF. 2006. Effects of the Sustainable Forestry Initiative on the quality, abundance, and configuration of wildlife habitats. *Journal of Sustainable Forestry* 23(1):37-65.
45. Feagin RA\*, Wu XB. 2006. Spatial pattern and edge characteristics in restored terrace versus reference salt marshes in Galveston Bay. *Wetlands* 26(4): 1004–1011.
46. Sivanpillai R\*\*, Smith CT, Srinivasan R, Messina MG, Wu XB. 2006. Estimation of managed loblolly pine stand age and density with Landsat ETM+ data. *Forest Ecology and Management* 223:247–254.
47. Sui DZ, Wu XB. 2006. Changing patterns of residential segregation in a prismatic metropolis: A lacunarity-based study in Houston, 1980-2000. *Environment and Planning B* 33(4):559-579.
48. Azevedo JC\*\*, Wu XB, Messina MG, Fisher RF. 2005. Assessment of sustainability in intensively managed forested landscapes: A case study in east Texas. *Forest Science* 51(4):321-333.
49. Feagin RA\*, Wu XB. 2005. An experimental approach for quantifying the spatial interactions of plants under different treatment conditions. *Ecoscience* 12(1):44-52.
50. Feagin RA\*, Wu XB, Smeins FE, Whisenant SG, Grant WE. 2005. Individual versus community level processes and pattern formation in a model of sand dune plant succession. *Ecological Modelling* 183:435-449.
51. Mitsch WJ, Wang N, Zhang L, Deal R, Wu XB, Zuwerink A. 2005. Using ecological indicators in a whole-ecosystem wetland experiment. p. 211-235, In: Jørgensen SE, Xu F-L, Costanza R (Eds.) *Handbook of Ecological Indicators for Assessment of Ecosystem Health*, CRC Press, Boca Raton, FL.
52. Sivanpillai R\*\*, Smith CT, Srinivasan R, Messina MG, Wu XB. 2005. Estimating regional forest cover in East Texas using enhanced thematic mapper (ETM+) data. *Forest Ecology and Management* 218:342-352.
53. Wu XB, Archer SR. 2005. Scale-dependent influence of topography-based hydrologic features on patterns of woody plant encroachment in savanna landscapes. *Landscape Ecology* 20(6):733-742.
54. Zeng H, Sui DZ, Wu XB. 2005. Human disturbances of landscapes in protected areas: A case study of the Wolong Nature Reserve. *Ecological Research* 20(4):487-496.
55. Zeng H, Wu XB. 2005. Utilities of edge-based metrics for studying landscape fragmentation. *Computers, Environment and Urban Systems* 29(2):159-178.