

Zak Ratajczak, Curriculum Vitae

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Education

Kansas State University, Manhattan KS (2010-expected 2014)

Program: PhD Biology, PhD Candidate and Graduate Teaching Assistant

Dissertation title: "Thresholds, drivers, and consequences of state-shifts in grassland, savanna, and forest ecosystems"

Advisor: Jesse B. Nippert

Vassar College, Poughkeepsie NY (2006-2010)

Degree: Bachelor of Arts (*GPA: 3.68*)

Major Study: Biology (*GPA: 3.94*) and Earth Science (*GPA: 3.72*), departmental honors in both

Thesis title: "Dendrochronology and dendrochemistry ($\delta^{13}\text{C}$) of coastal Loblolly Pine (*Pinus taeda*) in relation to climate, hurricanes, and soil salinity"

Advisors: David P. Gillikin (Earth Science) and A. Marshall Pregnall (Biology)

Awards

2012—John C. Frazer Award for Excellence in Graduate Student Research in Plant Biology, Kansas State University

2010—Virginia Swinburne Brownell Prize for excellence in Biology, Vassar College

"strongest senior Biology student"

2010—Erminie Smith Prize for excellence in Geology, Vassar College

"strongest senior Earth Science student"

2010—Sigma XI, Honorary Vassar Chapter Membership, Vassar College

2010—Young Botanist Award, Botanical Society of America

2008—Harriet Van Gurnee Allen Award, Vassar College

"most-promising sophomore Biology student"

Fellowships

2010-2013—GAANN Fellowship, U.S. Department of Education

2009—NSF-REU Program at Kansas State University and Konza Prairie LTER

Research Grants

Co-PI (PI: Laura Ladwig), 2012—Cross-site Synthesis Grant, Long Term Ecological Research Network (\$20K)

Description: funding for 2 working-group meetings and a graduate summer stipend, on the topic of ecosystem function/structure sensitivity to fluctuations in winter climate.

PI, 2012—Cross-site Synthesis Grant, Long Term Ecological Research Network (\$12K)

Description: funding for 2 working-group meetings on the topic of woody encroachment and bi-stability.

PI, 2011—Weaver Competitive Grant, Nature Conservancy Nebraska Chapter (\$1K)

Description: supported experimental work at Konza Prairie LTER

PI, 2009—Collins Student Research Grant, Environmental Research Institute (\$1K)

Description: supported research costs of undergraduate thesis

Travel Grants

2012—ESA, Long-Term Studies Research Chapter

2010—Academic Enrichment Fund, Vassar College

2010—GSA Student Travel Grant, Geological Society of America Northeast Chapter

Publications

Ratajczak, Z. and J.B. Nippert. 2012. Technical Comment ‘Global Resilience of Tropical Forest and Savanna to Critical Transitions’. *Science* 336: 541-c.

Ratajczak Z., J.B. Nippert, and S.L. Collins. 2012. Woody encroachment decreases diversity across North American grasslands and savannas. *Ecology* 93: 697-703.

Featured Article’ of volume 93(4) in ‘Ecology’

Ratajczak Z., J.B. Nippert, J.C. Hartman, and T.W. Ocheltree. 2011. Positive feedbacks amplify rates of woody encroachment in tallgrass prairie. *Ecosphere* 2: art121.

** Featured in an ESA blog and podcast**

Presentations

2013—Annual Savanna Science Networking Meetings, South Africa National Parks (talk)

“Abrupt shifts from grasslands to woodlands: understanding their causes and developing warning signs”

2013—Annual Savanna Science Networking Meetings, South Africa National Parks (poster)

“The effect of woody encroachment on plant diversity in global grasslands and savannas: a meta-analysis”

2012—LTER All Scientists Meeting, Dormant Season Ecology Working Group (talk)

“The Critical Climate Period Approach”

2012—LTER All Scientists Meeting (poster)

“Widespread abrupt shifts of grasslands to a wooded state: woody encroachment in a stable state and socio-economic framework”

2012—Ecological Society of America Annual Meeting (invited talk)

“Bi-stability, compromised resilience, and state-shift indicators: abrupt shift of tallgrass prairie to degraded shrubland”

2012—Konza Prairie LTER Annual Meeting (talk)

“Grasslands and shrublands as alternative stable states: mechanisms and multi-scale evidence”

2012—Konza Prairie LTER Annual Meeting (poster)

“Woody encroachment decreases diversity across North American grasslands”

2012—Kansas State University BioForum (talk)

“The effects of woody encroachment on global biodiversity: a meta-analysis”

2011—Grasslands in a global context, Institute for Grassland Studies (poster)

“Woody encroachment decreases diversity across North American grasslands”

2011—Konza Prairie LTER Site Review (poster)

“Biological feedbacks and the transformation of tallgrass prairie to savanna/forest”

2011—Konza Prairie LTER Annual Meeting (poster)

“Biological feedbacks and the transformation of tallgrass prairie to savanna/forest”

2011—Sheffield University Plant Ecology and Arctic Research group (invited talk)

“Positive feedbacks, demographic bottlenecks and the transformation of tallgrass prairie to savanna/forest”

2011—Role of Stable isotopes in water cycle research (poster)

“Biological feedbacks and the transformation of tallgrass prairie to savanna/forest”

2010—Geological Society of America North-East Chapter Meeting (poster)

“The direct and interactive effects of precipitation, salinity and hurricanes on tree-ring $\delta^{13}\text{C}$ of coastal pine”

Teaching experience

Fall 2012—Principles of Biology (two sections), Kansas State University

Fall 2011—Principles of Biology (two sections), Kansas State University

Fall 2010—Principles of Biology, Kansas State University

Synergistic Activities

Spring 2013—Co-organized a 4-day synthesis meeting for 12 scientists at the Sevilleta LTER on the topic of “Sensitivity of ecosystem structure/function to winter climatic variation”

Winter 2013—Organized a 4-day synthesis meeting for 8 Scientists at the Konza LTER on the topic of “Early warning signs for grassland to woodland transitions”

Fall 2012—Attended the “South American Resilience and Sustainability” meeting on abrupt transitions between grasslands and woodlands

Fall 2012—Co-organized a graduate student working group for the LTER “All Scientists Meeting” on the topic of “Dormant Season Ecology”

Spring 2012—Organized a 4-day synthesis meeting for 12 Scientists at the Sevilleta LTER on the topic of “Woody Encroachment and Bi-Stability”

Volunteer experience

2012-Present—EPA Rainworks Challenge, Kansas State University, Department of Architecture and Urban Planning

Description: Act as a ‘consultant,’ meeting with teams of undergraduate students that are developing grant proposals for the EPA Rainworks Grant, a competition to integrate rain gardens into college campuses

2012—Girls Researching Our World (GROW), Kansas State University

Description: Engaging female middle-school students in Scientific Research and Education activities at Konza Prairie Research Station

2011 to Present—Stillwater Elementary School, Stillwater NY

Description: Lead re-occurring lectures and activities in two 6th grade classrooms (in person and via teleconference), helping them with 'Model Unite Nations' exercises

2011 to Present—"Prairie Restoration on Campus," Kansas State University, Beach Museum of Art and Department of Architecture and Urban Planning

Description: Serving on a committee that is organizing, seeking funding, and installing restored prairie ecosystems and related K-12 education initiatives on the Kansas State University campus

2010 to Present—"Konza Prairie Educational Tour Guide" Konza Prairie Biological Station

Description: Give educational and interactive tours to college students, GK-12 teachers, and the public (>100 individuals per year)

2009 to 2010—"Poughkeepsie Farm Project Educational Farm" Poughkeepsie Farm Project

Journals reviewed for

Journal of Arid Environments, Journal of Vegetation Science, Oecologia

Professional references

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