

CURRICULUM VITAE

Melinda D. Smith

National Center for Ecological Analysis & Synthesis
735 State Street, Suite 300
Santa Barbara, California 93101-5504
Email: smith@nceas.ucsb.edu

Office: (805) 892-2523
Fax: (805) 892-2510

Education

2002 Kansas State University, Manhattan, Ph.D. in Biology
1998 Kansas State University, Manhattan, M.Sc. Biology
1992 University of Colorado, Boulder, B.A. E.P.O. Biology

Professional Experience

Assistant Professor, Department of Ecology and Evolutionary Biology, Yale University,
New Haven, CT, *to start*: January 2004

Postdoctoral Fellow, National Center for Ecological Analysis and Synthesis, Santa
Barbara, CA, 2002-*present*

EPA STAR Fellow, Division of Biology, Kansas State University, Manhattan, KS, 2000-
2002

Graduate Research Assistant, Division of Biology, Kansas State University, 1998-2000

Graduate Teaching Assistant, Division of Biology, Kansas State University, 1995-1998

Teaching Experience

Principles of Biology Lab (1 semester)
Organismic Biology Lab (2 semesters)
General Microbiology Lab (5 semesters)
Ecology Laboratory (4 semesters)
Readings in Grassland Ecology (1 semester)

Other Relevant Experience

1994-1995 *Geographic Information Systems (GIS) Technician*, City of Boulder Open
Space Department, Boulder, CO

1994 *Botanical Illustrator*, Colorado Rare Plants Guide, Colorado Natural
Heritage Program, The Nature Conservancy, Ft. Collins, CO

1994 *Riparian Ecology Field Technician*, Colorado Natural Heritage Program,
The Nature Conservancy, Ft. Collins, CO

1993,1994 *Field Technician*, ESCO Associates Incorporated, Boulder, Colorado

1992-1994 *Natural Resource Manager/Bio-ecology Crew Leader*, City of Boulder Open Space Department, Boulder, CO

Publications

- Smith, M.D., J. Wilcox, T. Kelly, and A.K. Knapp. Dominance not diversity determines invasibility of tallgrass prairie. *Oikos* in press.
- Weltzin, J.F., M.E. Loik, S. Schwinning, D.G. Williams, P. Fay, B. Haddad, J. Harte, T.E. Huxman, A.K. Knapp, G. Lin, W.T. Pockman, M.R. Shaw, E.E. Small, M.D. Smith, S.D. Smith, D.T. Tissue, and J.C. Zak. 2003. Assessing the response of terrestrial ecosystems to potential changes in precipitation. *BioScience* 53:941-952.
- Wilson, W.G., P. Lundberg, D.P. Vasquez, M.D. Smith, W. Langford, K.L. Gross, and G.G. Mittelbach. 2003. Biodiversity and species interactions: extending Lotka-Volterra community theory. *Ecology Letters* 6:944-952.
- Smith, M.D. and A.K. Knapp. 2003. Dominant species maintain ecosystem function with non-random species loss. *Ecology Letters* 6:509-517.
- Knapp, A.K., P.A. Fay, J.M. Blair, S.L. Collins, M.D. Smith, J.D. Carlisle, C.S. Harper, B.T. Danner, M.S. Lett, and J.K. McCarron. 2002. Rainfall variability, carbon cycling, and plant species diversity in a mesic grassland. *Science* 298:2202-2205.
- Grace, J.B., M.D. Smith, S.L. Grace, S.L. Collins and T.J. Stohlgren. 2001. Interactions between fire and invasive plants in temperate grasslands of North America. Pgs 40-65, In K. Galley and T. Wilson (Eds.), *Fire Conference 2000: The First National Congress On Fire, Ecology, Prevention And Management. Invasive Species Workshop: The Role of Fire In The Control And Spread Of Invasive Species*. Tallahassee: Tall Timbers Research Station.
- Knapp, A.K. and M.D. Smith. 2001. Interannual variability in net primary production and precipitation: Response. *Science* 293: 1723a.
- Knapp, A.K. and M.D. Smith. 2001. Variation among biomes in temporal dynamics of aboveground primary production. *Science* 291: 481-484.
- Smith, M.D. and A.K. Knapp. 2001. Physiological and morphological traits of exotic, invasive exotic, and native plant species in tallgrass prairie. *International Journal of Plant Sciences* 162:785-792.
- Wilson, G.W.T., D.C. Hartnett, M.D. Smith, and K.L. Kobbeman. 2001. Effects of mycorrhizas on growth and demography of tallgrass prairie forbs. *American Journal of Botany* 88:1452-1457.

Smith, M.D., and A.K. Knapp. 2001. Size of the local species pool determines invasibility of a C₄-dominated grassland. *Oikos* 92:55-61.

Smith, M.D., C.W. Rice, and D.C. Hartnett. 2000. Effects of long-term fungicide applications on microbial properties in tallgrass prairie soil. *Soil Biology and Biochemistry* 32:935-946.

Smith, M.D., D.C. Hartnett, and G.W.T. Wilson. 1999. Interacting influence of mycorrhizal symbiosis and competition on plant diversity in tallgrass prairie. *Oecologia* 121:574-582.

Smith, M.D. and A.K. Knapp. 1999. Exotic plant species in a C₄-dominated grassland: invasibility, disturbance, and community structure. *Oecologia* 120:605-612.

Manuscripts (in review, submitted or in prep)

Chalcraft, D.R., J.W. Williams, M.D. Smith, and M.R. Willig. Scale dependence in the relationship between species richness and productivity: the role of spatial and temporal turnover. (in review *Ecology*)

Smith, M., J. Williams, S. Andelman, D. Chalcraft, R. Waide, and M. Willig. Ecology by design: synoptic networks to advance ecological understanding. (in review *Frontiers in Ecology and the Environment*)

Huxman, T.R.* , M.D. Smith*, P.A. Fay, A.K. Knapp, M.R. Shaw, M.E. Loik, S.D. Smith, D.T. Tissue, J.C. Zak, J.F. Weltzin, W.T. Pockman, O.E. Sala, B. Haddad, J. Harte, G.W. Koch, S. Schwinning, E.E. Small, and D.G. Williams. Precipitation - productivity relationships: convergence across biomes to a common rain-use efficiency. (in prep)
*denotes equal contribution

Knapp, A.K., M.D. Smith, and S.L. Collins. Searching for generality in ecology: *post-hoc* synthesis of long-term data from North American grasslands and South African savannas. (in prep)

Rivers, J.W., M.D. Smith, J.S. Pontius, P.S. Gibson, D.P. Althoff. Long-term dynamics of bird communities with and without anthropogenic disturbance. (in prep)

Smith, M.D. and S.L. Collins. Scale-dependence of the effects of fire and grazing on spatial and temporal heterogeneity in tallgrass prairie. (in prep).

Wilsey, B., W. Polley, M. Smith. Biodiversity/stability relationships provide an alternative explanation for hump-backed relationships between species richness and biomass. (in prep)

Research Grants

- USDA/NRI Managed Ecosystems Program, *Ecosystem responses to experimental warming and more extreme precipitation patterns*, 2003-2006, A.K., Knapp (PI), J.M. Blair (Co-PI), M.D. Smith (sub-contract), (\$300,000).
- Kansas NSF-EPSCoR Ecological Genomics Program, 2003, *Linking ecological and genetic responses of grassland plant communities to environment*, M.D. Smith (PI), A.K. Knapp (Co-PI), (\$15,197).
- Environmental Protection Agency STAR Fellowship, 2000-2002, *Effects of dominance, resource availability, and disturbance on invasions by exotic plant species* (\$90,400).
- Center for Basic Cancer Research Travel Grant, Division of Biology, Kansas State University, 1998, 1999, 2001, 2002 (\$2300).

Departmental Seminars

- Texas Tech University, Department of Biology, Lubbock, Texas, Feb. 2003
- University of Toronto, Department of Botany, Toronto, Ontario, Feb. 2002
- University of California Santa Barbara, Department of Ecology, Evolution and Marine Biology, Santa Barbara, CA, Feb. 2002
- University of Washington, Department of Botany, Seattle, WA, Jan. 2002
- Yale University, Department of Ecology and Evolutionary Biology, New Haven, CT, Dec. 2001
- University of Wisconsin Stevens Point, Department of Biology, Stevens Point, WI, Dec. 2001
- University of Utah, Department of Biology, Salt Lake City, UT, Dec. 2001

Invited Presentations

- Smith, M.D. 2003. Invasions of herbaceous communities in the LTER: synthesis and future directions. LTER All Scientists Meeting, Seattle, WA, *Invasive Species Workshop*.
- Smith, M.D. 2003. Species dynamics in grasslands: the role of dominant species in maintaining ecosystem function. National Center for Ecological Analysis and Synthesis, Santa Barbara, CA.
- Smith, M.D. 2002. Patterns of native and nonnative species abundance across LTER sites and the invasibility of ecosystems: Results from LTER and related studies. LTER Coordinating Committee Meeting, Niwot Ridge, CO.
- Smith, M.D. 2002. Understanding invasibility: contributions to the war on exotic species. First LTER Mini-Symposium, National Science Foundation, Arlington, VA.

Smith, M.D. 2001. Plant responses to burning frequency in the Flint Hills. Joint Meeting of the Kansas Chapters of the Society of Range Management and The Wildlife Society, Butler County Community College, El Dorado, KS.

Smith, M.D. and A.K. Knapp. 2000. Small- and large-scale processes influence invasibility of tallgrass prairie: insights from long-term experiments. LTER All Scientists Meeting, Snowbird, UT, *Invasive Species Workshop*.

Smith, M.D. and A.K. Knapp. 2000. Fire and invasion of exotic plant species in tallgrass prairie. Fire Symposium, Kruger National Park, South Africa.

Smith, M.D. 2000. Biodiversity and ecosystem function: the role of the selection probability effect. KSU Ecology Research Group, Manhattan, KS.

Presentations at Scientific Meetings

Smith, M.D. and S.L. Collins. 2003. Scale-dependence of the effects of fire and grazing on spatial and temporal heterogeneity in tallgrass prairie. 88th Annual Meeting Ecological Society of America, Savannah, GA (oral presentation).

Smith, M.D., J. Wilcox, T. Kelly, and A.K. Knapp. 2002. Effects of dominance and diversity on invasibility of a C₄-dominated grassland. 87th Annual Meeting Ecological Society of America, Tucson, AZ (poster presentation).

Smith, M.D. and A.K. Knapp. 2001. Loss of subordinate species affects productivity of a C₄-dominated grassland. 86th Annual Meeting Ecological Society of America, Madison, WI (oral presentation).

Smith, M. D. and A. K. Knapp. 2000. Comparison of traits of exotic, invasive exotic and native plant species in tallgrass prairie. 12th Annual Konza Prairie LTER Workshop, Manhattan, KS (oral presentation).

Smith, M.D. and A.K. Knapp. 1999. Local species pools influence exotic plant species richness in tallgrass prairie. 11th Annual Konza Prairie LTER Workshop, Manhattan, KS (oral presentation).

Smith, M.D. and A.K. Knapp. 1999. Invasibility of a C₄-dominated grassland: long-term responses of exotic plant species to disturbance. 84th Annual Meeting Ecological Society of America, Spokane, WA (oral presentation).

Smith, M.D., C.W. Rice, D.C. Hartnett, and G.W.T. Wilson. 1999. Effects of long-term suppression of arbuscular mycorrhizal fungi on soil biota and nutrient cycling in tallgrass prairie. Soil Ecology Society International Conference, Chicago, IL (oral presentation).

- Smith, M.D. and A.K. Knapp. 1998. Abundance of non-native plant species in tallgrass prairie plant communities: does diversity matter? 10th Annual Konza Prairie LTER Workshop, Manhattan, KS (oral presentation).
- Smith, M.D., G.W.T. Wilson, and D.C. Hartnett. 1998. Mycorrhizae and dominant competitors interact to influence tallgrass prairie plant community structure. 83rd Annual Ecological Society of America, Baltimore, MD (oral presentation).
- Smith, M.D. and D.C. Hartnett. 1997. Influence of mycorrhizae and keystone competitors on tallgrass-prairie plant communities. 82nd Annual Ecological Society of America, Albuquerque, NM (poster presentation).
- Smith, M.D., C.W. Rice, and D.C. Hartnett. 1997. The effects of long-term suppression of mycorrhizae on microbial processes and nutrient cycling in tallgrass prairie. Soil Ecology Society International Conference, Manhattan, KS (oral presentation).
- Smith, M.D. and D.C. Hartnett. 1996. The role of arbuscular mycorrhizae in plant competition, community structure and belowground processes in tallgrass prairie. 8th Annual Konza Prairie LTER Workshop, Manhattan, KS (oral presentation).

Honors and Awards

- Murray F. Buell Award for Excellence in Ecology, Ecological Society of America, 2001.
 Sigma XI Student Travel Award, Kansas State University, 1998, 2000 (\$500).
 Graduate Student Council Travel Award, 1999 (\$150), 2002 (\$236).
 Chris Edler Memorial for Outstanding Konza Prairie Graduate Student, Division of Biology, Kansas State University, 1999.
 Michael Scott Watkins Award for Excellence in Teaching, Division of Biology, Kansas State University, 1999.
 Outstanding Student Presentation Award, Division of Biology, Kansas State University, 1999.

Membership in Professional Societies

Botanical Society of America (1998-present), Ecological Society of America (1996-present), Sigma XI (1997-present), Soil Ecology Society (1997-present)

Professional Service

- Coordinator, Research Initiatives II: Biodiversity Losses Workshop, LTER All Scientists Meeting, Seattle, WA, 2003
 Judge, Braun/Buell Awards, ESA Meeting, Savannah, GA, 2003
 Mentor, Kids Do Ecology, NCEAS, 2003
 Knowledge Network for Biocomplexity working group, NCEAS, 2001-present
 PrecipNet working group, NCEAS, 2002-2003

Manuscript reviews: *American Midland Naturalist*; *Applied Soil Ecology*; *Arctic, Antarctic and Alpine Research*; *Bulletin of the Torrey Botanical Society*; *Diversity and Distributions*; *Ecography*; *Ecological Applications*; *Ecology*; *Ecology Letters*; *Frontiers in Ecology and Environment*; *Journal of Ecology*, *Journal of Applied Ecology*; *Oecologia*; *Oikos*; *The Prairie Naturalist*; *Restoration Ecology*; 1999-present
Proposal reviewer, NSF Ecology Program, 1999-present
Reviewer, USGS Draft Plant Community Monitoring Protocol for Six Prairie Parks, 2000

References

Dr. Sandy Andelman, *Postdoc Advisor* (2002-present)
National Center for Ecological Analysis & Synthesis
735 State Street, Suite 300
Santa Barbara, CA 93101-5504
Office: (805) 892-2500, Fax: (805) 892-2510
Email: andelman@nceas.ucsb.edu

Dr. Alan K. Knapp, *Ph.D. Advisor* (1998-2002)
Kansas State University, Division of Biology, Ackert Hall
Manhattan, KS 66506
Office: (785) 532-7094, Fax: (785) 532-6653
Email: aknapp@ksu.edu

Dr. David C. Hartnett, *M.Sc. Advisor* (1995-1998), *Ph.D. Committee Advisor* (1998-2002)
Kansas State University, Division of Biology, Ackert Hall
Manhattan, KS 66506
Office: (785) 532-5925, Fax: (785) 532-6653
Email: dchart@ksu.edu

Dr. John M. Blair, *M.Sc. Committee Advisor* (1995-1998), *Ph.D. Committee Advisor* (1998-2002)
Kansas State University, Division of Biology, Ackert Hall
Manhattan, KS 66506
Office: (785) 532-7065, Fax: (785) 532-6653
Email: jblair@ksu.edu

Dr. Scott L. Collins, *Ph.D. Committee Advisor* (1998-2002)
Department of Biology
Casteretter Hall
University of New Mexico
Albuquerque, NM 87131
Ph: (505) 277-6303, Fax: (505) 277-5355
Email: scollins@sevilleta.unm.edu