

GAIL W. T. WILSON

Department of Natural Resource Ecology & Management
Oklahoma State University
Stillwater, OK 74078-6013
405-744-5539
gail.wilson@okstate.edu

EDUCATION:

Ph.D.: Agronomy, Kansas State University, Manhattan, KS, 2003.
M.S.: Biology, Slippery Rock State University, Slippery Rock, PA, 1983.
B.S.: Biology, Geology minor, Mercyhurst College, Erie, PA, 1979.

PROFESSIONAL EXPERIENCE:

2007 – Present Associate Professor, Oklahoma State University
2003 – 2007 Research Assistant Professor, Kansas State University
2001 - 2007 Director, NSF Research Experience for Undergraduates Program
1998 - 2001 Research Coordinator, Konza Prairie Biological Station
1994 - 2003 Research Associate, Division of Biology, Kansas State University
1990 - 1994 Associate Scientist, Department of Plant Pathology, Kansas State University
1985 - 1990 Research Assistant, Department of Plant Pathology, Kansas State University
1982 - 1985 Instructor/Naturalist, National Audubon Society, Jamestown, NY
1980 - 1982 Graduate Research Assistant, Slippery Rock State University, PA

RESEARCH INTERESTS:

Ecology of Arbuscular Mycorrhizas, Soil-Plant Interactions, Ecology of Invasive Plants, Plant-Herbivore Interactions, Plant Population Ecology, Carbon-Nitrogen Cycling, Fire Ecology.

PROFESSIONAL ACTIVITIES, BROADER IMPACTS:

2008 NSF Evolutionary and Population Ecology advisory panel.
2007 NSF Doctoral Dissertation Improvement advisory panel.
2007 NSF Research Experience for Undergraduates PI Advisory Symposium.
2006 NSF Doctoral Dissertation Improvement advisory panel.
2005 – 2007 Graduate Faculty Member, Kansas State University
2005 – 2007 Invited panel member, Working group at the National Center for Ecological Analysis and Synthesis: Narrowing the Gap Between Theory and Practice in Mycorrhizal Management.
2005 – 2007 Kansas State University Division of Biology Faculty Representative for Konza Prairie Biological Station Education Program and Friends of Konza Prairie.
2005 – 2007 Kansas State University Division of Biology, Seminar selection committee.
2004 – 2007 Instructor for NSF Girls Researching Our World (GROW). This program gives 6-8 grade girls the opportunity to interact with scientists during a week long camp.
2000 – 2007 Organizing Member, Consortium for Undergraduate Research, Kansas State University
1998 – 2007 Konza Prairie Biological Station: Service on control burn and bison management (> 200 hrs), Visitors' day information coordinator (Bi-annual event), Conduct tours for visiting scientists, students, and film crews (> 50 tours).
2004 - 2007 Teacher Mentor and Session Coordinator, NSF Girls Researching Our World (GROW). Workshop for high school science teachers.
1998 – Present High school science curriculum and extra-curricular activities advisor, USD 278 Public Schools, Riley County, KS.

1998 – 2002 Middle school science fair advisor, Chairman of science fair judging, USD 278 Public Schools, Riley County, KS.

EDITORIAL/GRANT REVIEW SERVICES:

Review for national granting agencies (13 total in past 5 years), NSF ecology and NSF ecosystem, National Geographic, Israel Science Foundation, Australian Research Council, Academy of Sciences of the Czech Republic, USDA-CREES.

Review for international journals (33 total in past 5 years), American Journal of Botany, American Midland Naturalist, Applied Soil Ecology, Australian Journal of Botany, Biology Letters, Canadian Journal of Botany, Ecology, Ecology Letters, Environmental Toxicology and Chemistry, Functional Ecology, Journal of Applied Ecology, Journal of Ecology, Molecular Ecology, Mycorrhiza, New Phytologist, Plant and Soil, Plant Ecology, Proceedings of the Royal Society: Biological Sciences, Rangeland Ecology and Management, Restoration Ecology, Soil Biology and Biochemistry, Torrey Botanical Society, Trends in Ecology and Evolution.

UNIVERSITY SERVICE (OSU):

Department Seminar Selection Committee (2007 – present)
Department Graduate Committee (2007 – present)
Departmental Safety Coordinator (2007 – present)
Search Committee for Forest Management Position (2008)
Search Committee for Timber Management Position (2007)
Judge for Annual OSU Research Symposium (2008)

EDUCATIONAL ACTIVITIES:

Teaching (Oklahoma State University)

NREM 5043 Ecology and Evolution of Symbiosis; Spring even years
NREM 5053 Global Ecology and Biogeochemistry; Spring odd years
NREM 4023 Restoration Ecology; Fall Semesters
NREM 5020 Graduate Student Seminar Series; Fall and Spring Semesters

Teaching (Kansas State University)

BIOL 698 Rangeland Ecology: 2003-2007.
BIOL 699 Undergraduate Independent Research: Grassland Ecology. 2005-2007.
AGRON 698 Undergraduate Independent Research: Rangeland Ecology and Restoration. 2006.

REFEREED JOURNAL ARTICLES:

1. Johnson, N.C., V.B. Chaudhary, J.D. Hoeksema, J.C. Moore, A. Pringle, J.A. Umbanhower and G.W.T. Wilson. 2008. Mysterious mycorrhizae? A field trip and classroom experiment to demystify symbioses formed between plants and fungi. American Biology Teacher. In Press.
2. **Wilson, G.W.T.** and M.M. Williamson. 2008. Topsin-M: the new benomyl for mycorrhizal suppression experiments. Mycologia. 100: 548-554.
3. Wilson, J.D., D.B. Bechtel, **G.W.T. Wilson**, and P.A. Seib. 2008. Bread quality of spelt wheat and its starch. Journal of Cereal Chemistry. 85: 629-638.

4. Jonas, J.L., **G.W.T. Wilson**, P.M. White, Jr., and A. Joern. 2007. Consumption of mycorrhizal and saprophytic fungi by Collembola in grassland soils. *Soil Biology and Biochemistry*. 39: 2594-2602.
5. Johnson, N.C., J.D. Hoeksema, L. Abbott, J. Bever, V.B. Chaudhary, C. Gehring, J. Klironomos, R. Koide, R.M. Miller, R.J. Moore, M. Schwartz, S. Simard, W. Swenson, J. Umbanhowar, **G.W.T. Wilson**, C. Zabinski. 2006. From Lilliput to Brobdingnag: Extending models of mycorrhizal function across scales. *Bioscience*. 56:889-900.
6. **Wilson, G.W.T.**, D.C. Hartnett, and C.W. Rice. 2006. Mycorrhizal-mediated phosphorus transfer between the tallgrass prairie plants *Sorghastrum nutans* and *Artemisia ludoviciana*. *Functional Ecology*. 20: 427-435.
7. Villarreal, M., R.C. Cochran, E.G. Towne, **G.W.T. Wilson**, D.C. Hartnett, and D.G. Gooden. 2006. The use of pasture reflectance characteristics and arbuscular mycorrhizal root colonization to predict pasture characteristics of tallgrass prairie grazed by cattle and bison. *Grass and Forage Science*. 61: 32-41.
8. Kula, A.R., D.C. Hartnett, and **G.W.T. Wilson**. 2005. Mycorrhizal symbiosis and insect herbivory in tallgrass prairie microcosms. *Ecology Letters*. 88: 61-69.
9. Hartnett, D.C, A.F. Potgieter, and **G.W.T. Wilson**. 2004. Fire effects of mycorrhizal symbiosis and root system architecture in Southern African Savanna grasses. *African Journal of Ecology*. 42: 1-10.
10. Trager, M., **G.W.T. Wilson**, and D.C. Hartnett. 2004. Interactive effects of burn regime and bison activity on tallgrass prairie vegetation. *American Midland Naturalist*. 152: 37-47.
11. Rice, C.W., P.M. White, K.P. Fabrizzi, and **G.W.T. Wilson**. 2004. Managing the microbial community for soil carbon management. *Supersoil 2004*. University of Sydney, Australia.
12. Hartnett, D.C. and **G.W.T. Wilson**. 2002. The role of mycorrhizas in plant community structure and dynamics: Lessons from the grasslands. *Plant and Soil*. 244: 319-331.
13. Eom, A.H., **G.W.T. Wilson**, and D.C. Hartnett. 2001. Effects of ungulate grazers on arbuscular mycorrhizal symbiosis and fungal community structure in tallgrass prairie. *Mycologia*. 93:233-242.
14. **Wilson, G.W.T.**, D.C. Hartnett, M.D. Smith, and K. Kobbeman. 2001. Effects of mycorrhizae on growth and demography of tallgrass prairie forbs. *American Journal of Botany*. 88: 1452-1457.
15. Todd, T. C., H. E. Winkler, and **G.W.T. Wilson**. 2001. Interactions of *Heterodera glycines* and mycorrhizal fungi on soybean in Kansas. *Supplement to Journal of Nematology*. 33: 306-310.
16. Eom, A.H., D.C. Hartnett, and **G.W.T. Wilson**. 2000. Host plant species effects on arbuscular mycorrhizal fungal communities in tallgrass prairie. *Oecologia*. 122: 435-444.

17. Eom, A. H., D.C. Hartnett, **G.W.T. Wilson**, and D.A.H. Figge. 1999. The effect of fire, mowing and fertilizer amendment on arbuscular mycorrhizas in tallgrass prairie. *American Midland Naturalist*. 142: 55-69.
18. Hartnett, D.C. and **G.W.T. Wilson**. 1999. Mycorrhizal mediation of plant species composition and diversity in tallgrass prairie. *Ecology*. 80: 122-130.
19. 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.
20. **Wilson, G.W.T.** and D.C. Hartnett. 1998. Interspecific variation in plant responses to mycorrhizal colonization in prairie grasses and forbs. *American Journal of Botany*. 85:1732-1738.
21. Rice, C.W., T.C. Todd, J.M. Blair, T.R. Seastedt, R.A. Ramundo, and **G.W.T. Wilson**. 1998. Belowground biology and processes. pp. 224-265. IN: *Grassland Dynamics: Long-Term Ecological Research in Tallgrass Prairie*. A.K. Knapp, J.M. Briggs, D.C. Hartnett, and S.L. Collins (editors). Oxford University Press Inc., New York, New York.
22. **Wilson, G.W.T.** and D.C. Hartnett. 1997. Effects of mycorrhizas on plant growth and dynamics in experimental tallgrass prairie microcosms. *American Journal of Botany*. 84: 478-482.
23. Miller, R.M., B.A.D. Hetrick, and **G.W.T. Wilson**. 1997. Mycorrhizal fungi affect root stele tissue in grasses. *Canadian Journal of Botany*. 75: 1778-1784.
24. Hetrick, B.A.D., **G.W.T. Wilson** and T.C. Todd. 1996. Mycorrhizal response in wheat cultivars: Relationship to phosphorus. *Canadian Journal of Botany*. 74: 19-25.
25. Figge, D.A.H., B.A.D. Hetrick, and **G.W.T. Wilson**. 1995. Role of expanded clay and porous ceramic amendments on plant establishment in minespoils. *Environmental Pollution*. 88: 161-165.
26. Hetrick, B.A.D., **G.W.T. Wilson**, B.S. Gill, T. S. Cox. 1995. Chromosome location of mycorrhizal responsive genes in wheat. *Canadian Journal of Botany*. 73: 891-897.
27. Anderson, R.C., B.A.D. Hetrick, and **G.W.T. Wilson**. 1994. Mycorrhizal dependence of *Andropogon gerardii* and *Schizachyrium scoparium* in two prairie soils. *American Midland Naturalist*. 132: 366-376.
28. Hetrick, B.A.D., D.C. Hartnett, **G.W.T. Wilson**, and D.J. Gibson. 1994. Effects of mycorrhizae, phosphorus availability, and plant density on yield relationships among competing tallgrass prairie grasses. *Canadian Journal of Botany*. 72:168-176.
29. Hetrick, B. A. D., **G.W.T. Wilson**, and D. A. H. Figge. 1994. The influence of mycorrhizal symbiosis and fertilizer amendments on establishment of vegetation in heavy metal mine spoil. *Environmental Pollution*. 86:171-179.
30. Hetrick, B.A.D., **G.W.T. Wilson**, and A.P. Schwab. 1994. Effects of mycorrhizae and other soil microbes on revegetation of heavy metal contaminated soil. *Environmental Pollution*. 86: 181-188.

31. Hetrick, B.A.D., **G.W.T. Wilson**, and A.P. Schwab. 1994. Mycorrhizal activity in warm- and cool-season grasses: variation in nutrient-uptake strategies. *Canadian Journal of Botany*. 72:1002-1008.
32. Hartnett, D.C., B.A.D., Hetrick, **G.W.T. Wilson**, and D.J. Gibson. 1993. VA-Mycorrhizal influence on intra- and interspecific neighbor interactions among co-occurring prairie grasses. *Journal of Ecology*. 81:787-795.
33. Hetrick, B.A.D., **G.W.T. Wilson**, and T.S. Cox. 1993. Mycorrhizal dependence of modern wheat cultivars: a synthesis. *Canadian Journal of Botany*. 71: 512-518.
34. Hetrick, B.A.D., **G.W.T. Wilson**, and T.S. Cox. 1992. Mycorrhizal dependence of modern wheat varieties, landraces, and ancestors. *Canadian Journal of Botany*. 70:2032-2040.
35. Hetrick, B.A.D., **G.W.T. Wilson**, and T.C. Todd. 1992. Relationships of mycorrhizal symbiosis, rooting strategy, and phenology among tallgrass prairie forbs. *Canadian Journal of Botany*. 70:1521-1528.
36. Hetrick, B.A.D., **G.W.T. Wilson**, and J.F. Leslie. 1991. Root architecture of warm- and cool-season grasses: relationship to mycorrhizal dependence. *Canadian Journal of Botany*. 69:112-118.
37. Hetrick, B.A.D., and **G.W.T. Wilson**. 1991. Effects of mycorrhizal fungus species and metalaxyl application on microbial suppression of mycorrhizal symbiosis. *Mycologia*. 83:97-102.
38. **Wilson, G.W.T.**, B.A.D. Hetrick, and A.P. Schwab. 1991. Reclamation effects on mycorrhizae and productive capacity of flue gas desulfurization sludge. *Journal of Environmental Quality*. 20: 777-783.
39. Hetrick, B.A.D., **G.W.T. Wilson**, and T.C. Todd. 1990. Differential responses of C₃ and C₄ grasses to mycorrhizal symbiosis, P fertilization, and soil microorganisms. *Canadian Journal of Botany*. 68:461-467.
40. Hetrick, B.A.D., **G.W.T. Wilson**, and C.E. Owensby. 1990. The influence of mycorrhizae on big bluestem rhizome regrowth and clipping tolerance. *Journal of Range Management*. 43:286-290.
41. Hetrick, B.A.D., and **G.W.T. Wilson**. 1990. Relationship of native and introduced mycorrhizal fungi to mycorrhizal dependence of *Andropogon gerardii* and *Koeleria pyramidata*. *Mycologia*. 82:779-782.
42. Hetrick, B.A.D., **G.W.T. Wilson**, and D.C. Hartnett. 1989. Relationship between mycorrhizal dependence and competitive ability of two tallgrass prairie grasses. *Canadian Journal of Botany*. 67:2608-2615.
43. Hetrick, B.A.D., **G.W.T. Wilson**, and C.E. Owensby. 1989. Influence of mycorrhizal fungi and fertilization on big bluestem seedling biomass. *Journal of Range Management*. 42:213-216.

44. **Wilson, G.W.T.**, B.A. Daniels Hetrick, and D. Gerschefske Kitt. 1989. Suppression of vesicular-arbuscular mycorrhizal fungus spore germination by nonsterile soil. *Canadian Journal of Botany*. 67:18-23.
45. Hetrick, B.A.D., and **G.W.T. Wilson**. 1989. Suppression of mycorrhizal fungus spore germination in nonsterile soil: relationship to mycorrhizal growth response in big bluestem. *Mycologia*. 81:382-390.
46. Hetrick, B.A. Daniels, J.F. Leslie, **G.W.T. Wilson**, and D. Gerschefske Kitt. 1988. Physical and topological assessment of effects of a vesicular-arbuscular mycorrhizal fungus on root architecture of big bluestem. *New Phytologist*. 110:85-96.
47. Hetrick, B.A. Daniels, **G.W.T. Wilson**, D. Gerschefske Kitt, and A.P. Schwab. 1988. Effects of soil microorganisms on mycorrhizal contribution to growth of big bluestem grass in non-sterile soil. *Soil Biology and Biochemistry*. 20:501-507.
48. Kitt, D. Gerschefske, B.A. Daniels Hetrick, and **G.W.T. Wilson**. 1988. Relationship of soil fertility to suppression of the growth response of mycorrhizal big bluestem in nonsterile soil. *New Phytologist*. 109:473-481.
49. **Wilson, G.W.T.**, B.A. Daniels Hetrick, and D. Gerschefske Kitt. 1988. Suppression of mycorrhizal growth response of big bluestem by nonsterile soil. *Mycologia*. 80:338-343.
50. Hetrick, B.A. Daniels, D. Gerschefske Kitt, and **G. Thompson Wilson**. 1988. Mycorrhizal dependence and growth habit of warm-season and cool-season tallgrass prairie plants. *Canadian Journal of Botany*. 66:1376-1380.
51. Hetrick, B.A. Daniels, D. Gerschefske Kitt, and **G. Thompson Wilson**. 1987. Effects of drought stress on growth response in corn, sudan grass, and big bluestem to *Glomus etunicatum*. *New Phytologist*. 105:403-410.
52. Kitt, D. Gerschefske, B.A. Daniels Hetrick, and **G. Thompson Wilson**. 1987. Sporulation of two vesicular-arbuscular mycorrhizal fungi in nonsterile soil. *Mycologia*. 79:896-899.
53. Hetrick, B.A. Daniels, D. Gerschefske Kitt, and **G. Thompson Wilson**. 1986. The influence of phosphorus fertilization, drought, fungal species, and nonsterile soil on mycorrhizal growth response in tall grass prairie plants. *Canadian Journal of Botany*. 64: 1199-1203.
54. **Thompson, G.W.**, and R.J. Medve. 1984. Effects of aluminum and manganese on the growth of ectomycorrhizal fungi. *Applied and Environmental Microbiology*. 48: 556-560.

RESEARCH GRANTS FUNDED

USDA Rangeland Research Program (04915), Bud bank demography: a new approach to assessment of rangeland health and response to environmental change. PIs: D.C. Hartnett and **G.W.T Wilson**. \$400,000. 2008-2010.

LTER sub-contract. Grassland Restoration: Trajectories of change during ecosystem recovery. Sub-contract in Konza Prairie LTER VI: Grassland Dynamics and Long-Term Trajectories of Change. Lead PI: J.M. Blair. OSU Sub-contract to **G.W.T. Wilson**. \$90,000. 2009-2014.

NSF Research Experience for Undergraduates Site Grant (DBI 0552930), Ecology and Evolutionary Biology of Grasslands. PIs: **G.W.T. Wilson**, B.K. Sandercock. \$200,000. 2006-2009.

NSF Ecology (DEB 0316136), Testing a Unified Hypothesis of Mycorrhizal Function. PIs: N.C. Johnson, **G.W.T. Wilson**, C.A. Gehring, R.M. Miller. \$405,000. 2004-2007.

NSF Research Experience for Undergraduates: Supplements to the above. \$14,000. 2005-2006.

NSF Ecology (DEB 0234159), Belowground Meristem Populations as Regulators of Grassland Dynamics. PIs: D.C. Hartnett, **G.W.T. Wilson**. \$336,215. 2003-2006.

NSF Research Experience for Undergraduates: Supplements to the above. \$33,250. 2004-2006.

NSF Ecosystem Studies (DEB 0236106), Belowground Grazer-Mycorrhizal Interactions in Tallgrass Prairie: Effects on Carbon and Nitrogen Partitioning and Sequestration. PIs: C.W. Rice, T.C. Todd, **G.W.T. Wilson**. \$500,000. 2004-2008.

NSF Research Experience for Undergraduates: Supplements to the above. \$36,000. 2004-2006.

NSF Research Experience for Undergraduates Site Grant (DBI 0243890): Conservation of the Tallgrass Prairie Ecosystem. PIs: B.K. Sandercock, W.K. Dodds, K.B. Gido, **G.W.T. Wilson**. \$169,950. 2004-2006.

KSU Provost Office, Travel Grant, Mycorrhizal Research in Guatemala. \$1,500. 2002. PI: **G.W.T. Wilson**.

NSF Ecology (DEB 9873654), Biotic Interactions of Grassland Plants: Above- and Belowground Linkages. PIs: D.C. Hartnett, C.W. Rice, T.C. Todd, **G.W.T. Wilson**. \$291,902. 1998-2002.

NSF Research Experience for Undergraduates: Supplements to the above. \$19,100. 1999-2000.