

## John M. Blair

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<b><u>Education</u></b>	Ph.D.	1987	University of Georgia, Athens, GA	Entomology (Ecology emphasis)
	M.S.	1983	Kent State University, Kent, OH	Biology
	B.S.	1980	Kent State University, Kent, OH	Biology

### **Positions Held**

2008-present	Edwin G. Brychta Professor of Biology, Division of Biology, Kansas State University
2006-present	University Distinguished Professor, Division of Biology, Kansas State University
2001-2006	Professor, Division of Biology, Kansas State University
1999-present	Director and PI, Konza Prairie Long-Term Ecological Research (LTER) Program
1997-2001	Associate Professor, Division of Biology, Kansas State University
1992-1997	Assistant Professor, Division of Biology, Kansas State University
1991-1992	Research Scientist, Dept Entomology (Soil Ecology Program), Ohio State University
1988-1991	Senior Researcher, Dept Entomology (Soil Ecology Program), Ohio State University
1987-1988	Postdoctoral Associate, Department of Entomology, University of Georgia

### **Research Interests**

Ecosystem ecology and terrestrial biogeochemistry; Grasslands and global change; Soil ecology, including decomposition, soil nutrient cycling, litter/soil/plant nutrient dynamics; Effects of climate change and other disturbances on ecosystem processes; Restoration ecology; Ecology of soil invertebrates.

### **Courses Taught**

Principles of Biology (BIOL 198), 1992 - present  
Fundamentals of Ecology (BIOL 529), 1993 - present  
Ecology Laboratory (BIOL 632), 2003 - present  
Nutrient Dynamics (BIOL 826), 1994 - present  
Presentations in Ecology (BIOL 862), 1994 - 2002

### **Selected Publications of 99 total (names of my students are underlined)**

Carter, D.L. and J.M. Blair. *In press*. High richness and dense seeding enhance grassland restoration establishment, but have little effect on drought response. *Ecological Applications*.

Carter, D.L. and J.M. Blair. *In press*. Recovery of native plant community characteristics on a chronosequence of restored prairies seeded into pastures in West-Central Iowa. *Restoration Ecology*. DOI: 10.1111/j.1526-100X.2010.00760.x

Fay, P.A., J.M. Blair, M.D. Smith, J.B. Nippert, J.D. Carlisle, and A.K. Knapp. 2011. Relative effects of precipitation variability and warming on tallgrass prairie ecosystem function. *Biogeosciences* 8:3053-3068.

McCain, K.N.S., G.W.T. Wilson, and J.M. Blair. 2011. Mycorrhizal suppression alters plant productivity and forb establishment in a grass-dominated prairie restoration. *Plant Ecology* 212:1675-1685.

Jangid, K., M.A. Williams, A.J. Franzluebbers, J.M. Blair, D.C. Coleman and W.B. Whitman. 2010. Development of soil microbial communities during tallgrass prairie restoration. *Soil Biology & Biochemistry* 42:302-312.

- McCain, K.N.S., S.G. Baer, J.M. Blair, and G.W.T. Wilson. 2010. Dominant grasses suppress local diversity in restored tallgrass prairie. *Restoration Ecology* 18:40-49.
- Melzer, S.E., A.K. Knapp, K.P. Kirkman, M.D. Smith, J.M. Blair and E.F. Kelly. 2010. Fire and grazing impacts on silica production and storage in grass dominated ecosystems. *Biogeochemistry* 97:263-278.
- Buis, G.M., J.M. Blair, D.E. Burkepille, C.E. Burns, A.J. Chamberlain, P. Chapman, S.L. Collins, R.W.S. Fynn, N. Govender, K. Kirkman, M.D. Smith and A.K. Knapp. 2009. Controls of aboveground net primary production in mesic grasslands and savannas: An interhemispheric comparison. *Ecosystems* 12:982-995.
- Heisler-White, J.L., J.M. Blair, E.F. Kelly, K. Harmony and A.K. Knapp. 2009. Contingent productivity responses to more extreme rainfall regimes across a grassland biome. *Global Change Biology* 15:2894-2904.
- Kitchen, D.J., J.M. Blair and M.A. Callahan, Jr. 2009. Annual fire and mowing alter biomass, depth distribution, and C and N content of roots and soil in tallgrass prairie. *Plant and Soil* 323:235-247.
- Reed, H.E., J.M. Blair, D. Wall and T.R. Seastedt. 2009. Persistent effects of past burn regimes on decomposition in response to reduced precipitation in tallgrass prairie. *Applied Soil Ecology* 42:79-85.
- Baer, S.G. and J.M. Blair. 2008. Grassland establishment under varying resource availability: A test of positive and negative feedback. *Ecology* 89:1859-1871.
- Marshall, J.D., J.M. Blair, D. Peters, G. Okin, A. Rango and M. Williams. 2008. Predicting and understanding ecosystem responses to climate change at continental scales. *Frontiers in Ecology and the Environment* 6:273-280.
- Macpherson, G.L., J.A. Roberts, J.M. Blair, M.A., Townsend, D.A. Fowle and K.R. Beisner. 2008. Increasing shallow groundwater CO<sub>2</sub> and limestone weathering, Konza Prairie, USA. *Geochimica et Cosmochimica Acta* 72:5581-5599.
- McKinley, D.C. and J.M. Blair. 2008. Woody plant encroachment by *Juniperus virginiana* in a mesic native grassland promotes rapid carbon and nitrogen accrual. *Ecosystems* 11:454-468.
- McKinley, D.C., C.W. Rice and J.M. Blair. 2008. Conversion of grassland to coniferous woodland has limited effects on soil nitrogen cycle processes. *Soil Biology & Biochemistry* 40:2627-2633.
- Veen, G.F., J.M. Blair, M.D. Smith and S.L. Collins. 2008. Influence of grazing and fire frequency on small-scale plant community structure and resource variability in native tallgrass prairie. *Oikos* 117:859-866.
- Norris, M.A., J.M. Blair and L.C. Johnson. 2007. Altered ecosystem nitrogen dynamics as a consequence of land cover change in tallgrass prairie. *American Midland Naturalist* 158:432-445.
- Jones, K.L., T.C. Todd, J. L. Wall-Beam, J.D. Coolon, J.M. Blair and M.H. Herman. 2006. Molecular approach for assessing responses of microbial-feeding nematodes to burning and chronic nitrogen enrichment in a native grassland. *Molecular Ecology* 15:2601-2609.
- Reed, H., T.R. Seastedt and J.M. Blair. 2005. Ecological consequences of C<sub>4</sub> grass invasion of a C<sub>4</sub> grassland: A dilemma for management. *Ecological Applications* 15:1560-1569.
- Baer, S.G., J.M. Blair, S.L. Collins and A.K. Knapp. 2005. Soil heterogeneity effects on tallgrass prairie community heterogeneity: an application of ecological theory to restoration ecology. *Restoration Ecology* 13:413-424.
- Briggs, J.M., A.K. Knapp, J.M. Blair, J.L. Heisler, G.A. Hoch, M.S. Lett and J.K. McCarron. 2005. An ecosystem in transition: causes and consequences of the conversion of mesic grassland to shrubland. *BioScience* 55:243-254.

- Harper, C.W., J.M. Blair, P.A. Fay, A.K. Knapp and J.D. Carlisle. 2005. Increased rainfall variability and reduced rainfall amount decreases soil CO<sub>2</sub> flux in a grassland ecosystem. *Global Change Biology* 11:322-334.
- Lett, M.S., A.K. Knapp, J.M. Briggs and J.M. Blair. 2004. Influence of shrub encroachment on aboveground net primary productivity and carbon and nitrogen pools in a mesic grassland. *Canadian Journal of Botany* 82:1363-1370.
- Baer, S.G., J.M. Blair, S.L. Collins and A.K. Knapp. 2004. Plant community responses to resource availability and heterogeneity during restoration. *Oecologia* 139:617-629.
- Heisler, J.L., J.M. Briggs, A.K. Knapp, J.M. Blair and A. Seery. 2004. Direct and indirect effects of fire on shrub expansion in a mesic grassland. *Ecology* 85:2245-2257.
- Silletti, A.M., A.K. Knapp and J.M. Blair. 2004. Competition and coexistence in grassland co-dominants: responses to neighbor removal and resource availability. *Canadian Journal of Botany* 82:450-460.
- Baer, S.G., J.M. Blair, A.K. Knapp and S.L. Collins. 2003. Soil resources regulate productivity and diversity in newly established tallgrass prairie. *Ecology* 84:724-735.
- Bakker, C., J.M. Blair and A.K. Knapp. 2003. A comparative assessment of potential mechanisms influencing plant species richness in grazed grasslands. *Oecologia* 137:385-391.
- Callahan, M.A., Jr., J.M. Blair, T.C. Todd, D.J. Kitchen, and M.R. Whiles. 2003. Macroinvertebrates in North American tallgrass prairie soils: Effects of fire, mowing, and fertilization on density and biomass. *Soil Biology & Biochemistry* 35:1079-1093.
- Fay, P.A., J.D. Carlisle, A.K. Knapp, J.M. Blair and S.L. Collins. 2003. Productivity responses to altered rainfall patterns in a C<sub>4</sub>-dominated grassland. *Oecologia* 137: 245-251.
- McCarron, J.K., A.K. Knapp, and J.M. Blair. 2003. Soil C and N responses to woody plant expansion in a mesic grassland. *Plant and Soil* 257:183-192.
- Baer, S.G., D.J. Kitchen, J.M. Blair and C.W. Rice. 2002. Changes in ecosystem structure and function in a chronosequence of grasslands restored through the Conservation Reserve Program. *Ecological Applications* 12:1688-1701.
- Callahan, M.A., Jr., M.R. Whiles and J.M. Blair. 2002. Annual fire, mowing and fertilization effects on two cicadas (Homoptera:Cicadidae) in tallgrass prairie. *American Midland Naturalist* 148:90-101.
- Knapp, A.K., P.A. Fay, J.M. Blair, S. L. Collins, M. D. Smith, J. D. Carlisle, C. W. 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.
- Callahan, M.A., Jr., J.M. Blair and P.F. Hendrix. 2001. Different behavioral patterns of the earthworms *Octolasion tyrtaeum* and *Diplocardia* spp. in tallgrass prairie soils: potential influences on plant growth. *Biology and Fertility of Soils* 34:49-56.
- Norris, M.D., J.M. Blair and L.C. Johnson. 2001. Land cover change in eastern Kansas: litter dynamics of closed-canopy eastern redcedar forests in tallgrass prairie. *Canadian Journal of Botany* 79:214-222.
- Norris, M.D., J.M. Blair, L.C. Johnson and R.B. McKane. 2001. Assessing changes in biomass, productivity, and C and N stores following *Juniperus virginiana* forest expansion into tallgrass prairie. *Canadian Journal of Forest Research* 31:1940-1946.
- Fay, P.A., J.D. Carlisle, A.K. Knapp, J.M. Blair and S.L. Collins. 2000. Altering rainfall timing and quantity in a mesic grassland ecosystem: Design and performance of rainfall manipulation shelters. *Ecosystems* 3:308-319.
- Knapp, A.K., J.M. Blair, J.M. Briggs, S.L. Collins, D.C. Hartnett, L.C. Johnson and E.G. Towne. 1999. The keystone role of bison in North American tallgrass prairie. *BioScience* 49:39-50.

O'Lear, H.A. and J.M. Blair. 1999. Responses of soil microarthropods to changes in soil water availability in tallgrass prairie. *Biology and Fertility of Soils* 29:207-217.

Collins, S.L., A.K. Knapp, J.M. Briggs, J.M. Blair and E. Steinauer. 1998. Modulation of diversity by grazing and mowing in native tallgrass prairie. *Science* 280:745-747.

Knapp, A.K., S.L. Conard and J.M. Blair. 1998. Determinants of soil CO<sub>2</sub> flux from a sub-humid grassland: effect of fire and fire history. *Ecological Applications* 8:760-770.

Blair, J.M. 1997. Fire, N availability, and plant response in grasslands: A test of the transient maxima hypothesis. *Ecology* 78:2359-2368.

Turner, C.L., J.M. Blair, R.J. Schartz and J.C. Neel. 1997. Soil N availability and plant response in tallgrass prairie: Effects of fire, topography and supplemental N. *Ecology* 78:1832-1843.

### **Major Grants Funded (approx. \$30M in funded projects; \$13M as PI and \$17M as Co-PI)**

Collaborative Research: LTREB: The role of ecological heterogeneity in a long-term grassland restoration experiment. S.G. Baer (PI-SIU) and J.M. Blair (PI-KSU)

Funding Agency: NSF Long-Term Research in Environmental Biology

Duration: 2012 – 2017

Award Amount: \$450,000 (\$131,087 KSU portion)

Collaborative research: Convergence and contingencies in savanna grasslands. M.D. Smith (PI-Yale) A.K. Knapp (PI-CSU), and S.L. Collins (PI-UNM), J.M. Blair (PI-KSU)

Funding Agency: NSF

Duration: 2009 - 2012

Award Amount: \$707,000 (\$64,063 KSU portion)

LTER VI: Grassland dynamics and long-term trajectories of change. J.M. Blair (PI), W.K. Dodds, D.C. Hartnett, A. Joern, J.B. Nippert and others

Funding Agency: NSF Long-Term Ecological Research Program

Duration: 2008 – 2014

Award Amount: \$5,640,000

Interactive effects of altered rainfall timing and elevated temperature on soil communities and processes. J.M. Blair (PI), and A.K. Knapp

Funding Agency: DOE/NICCR

Period Covered: 2007 – 2011

Award Amount: \$622,552 (\$446,765 KSU portion)

Grassland structure and function in response to warming and more extreme precipitation patterns. A.K. Knapp (PI), J.M. Blair (Co-PI), and M.D. Smith

Funding Agency: UDSA/NRI Managed Ecosystems Program

Period Covered: 2007 – 2010

Award Amount: \$399,648 (\$148,108 to KSU)

Understanding and Forecasting Ecological Change: Causes, Trajectories and Consequences of Environmental Change in the Central Plains. W.K. Dodds (PI), J.M. Blair (Co-PI), and J. Harrington

Funding Agency: NSF EPSCoR Program

Period Covered: 2006 – 2009

Award Amount: \$3,263,478

Collaborative research: LTREB- Long-term ecosystem responses to more extreme precipitation patterns and warming. J.M. Blair (PI-KSU) and A.K. Knapp (PI-CSU)

Funding Agency: NSF LTREB Program

Period Covered: 2005 – 2010

Award Amount: \$300,000 (\$202,065 KSU portion)