

Loretta C. Johnson
www.ksu.edu/johnsonlab

PROFESSIONAL PREPARATION

Connecticut College, New London, CT	Zoology/Field Biology	B.A., 1979
University of Connecticut	Plant Ecology	Ph.D., 1992

APPOINTMENTS

2003-present Co-Director, Ecological Genomics in Kansas Initiative, www.ecogen.ksu.edu
2001- present Associate Professor, Division of Biology, Kansas State University,
www.ksu.edu/simsl
2000- 2008 Director, Stable Isotope Ratio Mass Spectrometry Laboratory
1995- 2001 Assistant Professor, Division of Biology, Kansas State University, Manhattan, KS
1992-1995 Postdoctoral Fellowship, Ecosystems, Marine Biological Lab, Woods Hole, MA
1991-1992 Lectureship, University of Connecticut
1987-1990 Graduate Teaching Assistant, University of Connecticut
1985-1986 Fulbright and American Scandinavian Fellowships, University of Lund, Sweden

PUBLICATIONS: SINCE 1996

Johnson, L.C., G.R. Shaver, K.J. Nadelhoffer, A. E. Giblin, E.B. Rastetter, J.A. Laundre, G.L. Murray. 1996. The effects of enhanced drainage and elevated temperature on carbon balance in tussock tundra microcosms. **Oecologia** 108:737-748.

Nadelhoffer, K., G. R. Shaver, B. Fry, A. Giblin, L. Johnson, and R. McKane. 1996. Variation in ¹⁵N natural abundance in arctic tundra as an indicator of plant species N-use patterns. **Oecologia** 107:386-394.

Williams, M. E.B. Rastetter, D. N. Fernandes, M. L. Goulden, L. C. Johnson, and G. R. Shaver. 1997. Predicting gross primary productivity in terrestrial ecosystems. **Ecological Applications** 7(3):882-894.

Shaver, G. R., L.C. Johnson, D. H. Cades, G. Murray, J.A. Laundre, E.B. Rastetter, K. J. Nadelhoffer, and A. E. Giblin. 1998. Biomass accumulation and CO₂ exchange in three Alaskan wet sedge tundras: Responses to manipulation of nutrients, temperature, and light. **Ecological Monographs** 68(1):75-92.

Hooper, David U. and L.C. Johnson. 1999. Nitrogen limitation in arid and semi-arid ecosystems: Response to geographic and temporal variation in precipitation. **Biogeochemistry** 46:247-293.

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.

Johnson, L.C., G. Shaver, D. Cades, A. Stanley, K. Nadelhoffer, and A. Giblin. 2000. Plant carbon-nutrient interactions control CO₂ exchange in Alaskan wet sedge tundra ecosystems. **Ecology** 81:453-469.

Johnson, L.C. and J.R. Matchett (2001). Fire and grazing regulate belowground processes in tallgrass prairie. **Ecology**. 82:3377-3388.

Norris, M., J. Blair, and L.C. Johnson (2001). Land cover change in eastern Kansas: litter dynamics of closed-canopy eastern red cedar forests in tallgrass prairie. **Can. J. Botany** 79:214-222.

McKane, R., L.C. Johnson, B. Fry, G. Shaver, K. Nadelhoffer, E. Rastetter, B. Fry, A. Giblin, K. Kielland, B. Kwaitkowski, J. Laundre, and G. Murray (2002). Resource-based niches provide a basis for species diversity and dominance in an arctic plant community. **Nature** 415:68-71.

- Loya, W., L. C. Johnson, K. Nadelhoffer, G. Kling, J. King, W. Reeburgh (2002). Pulse-labeling studies of carbon cycling in Arctic tundra ecosystems: the contribution of photosynthate to soil organic matter. **Global Biogeochemical Cycles**. 16(4).
- K.J. Nadelhoffer, L.C. Johnson, J. Laundre, A. Giblin. and G. Shaver. 2002. Fine root production and nutrient use in wet and moist arctic tundras as influenced by chronic fertilization. **Plant and Soil**. 242 (1): 107-113.
- Norris, M., J. Blair, and L.C. Johnson (2002). Changes in plant biomass, productivity, and nutrient stores following *Juniperus* expansion into grasslands. **Can. J. Forestry Research** 31:1940-1946.
- King, J., W. Reeburgh, K. Nadelhoffer, G. Kling, W. Loya, and L.C. Johnson (2002). Contribution of photosynthate of methane emission in tundra: A ¹⁴C labeling approach. **Global Biogeochemical Cycles** 4 (doi: 10.1029/2001GB001456).
- Hoch, G., J. Briggs, and L. Johnson (2002). Assessing the rate, mechanisms, and consequences of conversion of tallgrass prairie to *Juniperus virginiana* forest. **Ecosystems** 5:578-586.
- Smith, D.L. and L.C. Johnson (2003). Expansion of *Juniperus virginiana* in the Great Plains: Changes in Soil Organic Carbon Dynamics. **Global Biogeochemical Cycles** 17(2):1-12.
- Loya, W., L.C. Johnson, K. Nadelhoffer (2004). Annual dynamics of leaf and root derived carbon in arctic tundra soils. **Soil Biology and Biochemistry** 36(4):655-666.
- Smith, D.L. and L.C. Johnson. 2004. Changes in soil carbon cycling as forests expand into grassland: Vegetation-mediated changes in microclimate reduces soil respiration. **Ecology**. 85 (12): 3348-3361.
- Wessman, C., S.A. Archer, L.C. Johnson and G. Asner. Woodland expansion in US Grassland: Assessing land cover change and biogeochemical impacts. Peer-reviewed Book Chapter. Land Use and Land Cover Change. Kluwer Publishing. In Press.
- Craine, J., B. Lee, L. Johnson, W. Bond, W.D. Williams. 2005. Roots of the world. **Ecology**. 86:12-19.
- Jumpponen, A. Trowbridge, J., Mandyam, K.G. and Johnson, L.C. 2005. Nitrogen deposition affects AM root colonization minimally but shifts community structure. **Biology and Fertility of Soils**. 41:217-224.
- Jumpponen, A. and **Johnson, LC**. 2005. Can rDNA analysis of diverse fungal communities in soil and roots detect effects of environmental manipulations-a case study from tallgrass prairie. **Mycologia**. 97(6):1177.
- J. Kammenga, M. Herman, J. Ouborg, L. Johnson, and R. Breitling. Microarray Challenges in Ecology **Trends in Ecology and Evolution**. In Press.
- M. Ungerer, L. Johnson and M. Herman. Ecological genomics: finding gene functions in the natural environment. **Special ecological genomics issue of Heredity**. In Press.

RESEARCH GRANTS:2001-2009

Ecotypic variation and functional genetic responses of a dominant prairie grass under natural and reduced precipitation: Genes to ecosystem response (Johnson, PI Karen Garrett, Ted Morgan, Eduard Ahkunov, Sara Baer (SIU)

Funding agency: USDA-Abiotic Stress Progra

Award Period: 09/1/08-09/1/2012

Total Award Amount: \$349,000

Targeted Excellence in Ecological Genomics: Building a Research Initiative into an Institute. Johnson and Herman).

Funding Agency: KSU-Provost Office

Duration: July 1, 2005-June 30, 2010

Amount: \$2,700,000.

Kansas EPSCoR. Ecological Genomics Initiative. Thrust leaders-L. Johnson, M. Herman, Bob Cohen (KU-Molecular Biosciences)

Funding Agency: NSF
Duration: April 1, 2003-Mar 31, 2006
Amount: \$3,743,109 (as part of the 9,000, 000 KS EPSCoR grant)

NASA renewal: Scaling up Land-cover Change in the Great Plains: Predicting impacts of regional forest expansion on biogeochemical processes: L. Johnson, K. Price (KU Remote Sensing) J. Blair, R. B. McKane (US EPA).

Funding Agency: NASA Land-use and Land-cover change program
Duration: Sept 15, 2001-Sept 14, 2006 (no cost time extension)
Amount: \$575,000

Belowground carbon and nutrient dynamics in arctic tundra under changing climates. K.J. Nadelhoffer, L.C. Johnson (Co-PI), G. Kling, E. Rastetter.

Funding agency: NSF- Arctic System Science Program
Duration: 3/31/2000-2006 (no cost time extension)
Amount: \$2,008,000 (275K subcontract)

Long-term Ecological Research Program in Tallgrass Prairie: The Konza Prairie LTER Program. A.K. Knapp (PI), J. M. Briggs, J.M Blair, D.C. Hartnett, L.C. Johnson (Co-PI), D.W. Kaufman, and W.K. Dodds.

Funding Agency: NSF Long-term Ecological Research Program
Duration: October 15, 2002-October 14, 2007
Amount: \$3,360,000

Diversity of ericoid mycorrhizal fungi and its significance in plant nitrogen acquisition in the arctic. Jumponnen and Johnson.

Funding Agency: NSF-OPP
Duration: May 1, 2003-April 30, 2006
Amount: \$729,000

Targeted Excellence: Center for the Study of Origins. Bolton et al. (I am listed as a participant, not as a co-PI).

Funding Agency: KSU-Provost Office
Duration: May 1, 2004-May 1, 2005
Amount: \$100,000

Targeted Excellence: Center for the Study of Origins. Bolton, T. (Physics, Director), C. J. Ferguson (Biology, Co-Director), B. Glymour (Philosophy, Co-Director), and many others. (I am listed as a participant, not as a co-PI).

Funding Agency: KSU-Provost Office
Duration: July 1, 2005-June 30, 2006
Amount: \$496,648

2) Extramural grants pending

Stress Response in the forage grass *Andropogon gerardii*. Shah and Johnson (previously strongly recommended for funding).

Funding Agency: USDA
Duration: June 1, 2007-April 30, 2010
Amount: \$350,000

4) Intramural grants received (title, period, source, amount; examples include BRIEF, AES, and BGR)

Environmental Influences on Root Productivity in Tallgrass Prairie: Genomic and Molecular Approaches. Johnson and Shah.

Funding Agency: **Targeted Excellence in Ecological Genomics-Seed Grant Program**
Duration: Dec 15, 2005-Dec 14, 2007
Amount: \$75,000.

SYNERGISTIC ACTIVITIES

- Gordon conference co-chair, 2009, 2011, Ecological and Evolutionary Functional Genomics
- NSF Ecosystems Panel, 2002-2006
- Invited participation, GCTE (Global Change in Terrestrial Ecosystems) meeting, Abisko Sweden, Carbon-nutrient interaction in boreal and arctic ecosystems. June 1999.
- Invited participation at SCOPE (Scientific Committee on Problems in the Environment) meeting on N deposition, Termas de Chilan, Chile, Dec. 1996.
- Participation in the Russian and U.S. National Academy of Sciences Young Investigator Program in Arctic Ecology, 1993-1994