

Smithsonian Environmental Research Center
647 Contees Wharf Road
Edgewater, MD 21037

Phone:(443) 482-2475
Email: mckinleyd@si.edu
Fax:(443) 482-2380

POLICY APPOINTMENT:**2008-2009 (to start 9/01/2008)**

AAAS Science and Technology Policy Fellow
American Association for the Advancement of Science, Washington DC
Host agency: USDA Forest Service-Policy Analysis

RESEARCH APPOINTMENTS:**2007-present**

Smithsonian Post-Doctoral Fellow, Smithsonian Environmental Research Center

2002-2006

NASA Student Fellow, Land-Cover Land-Use Change Program

RESEARCH INTERESTS:

I am interested in linkages between nutrient cycling and plant productivity in response to various forms of global environmental change. My graduate work addressed changes ecosystem N cycling and availability in encroaching coniferous forest in grassland. I currently study the long-term effects of elevated atmospheric CO₂ on soil C&N cycling, with a focus on nutrient constraints on whole ecosystem responses to elevated CO₂.

EDUCATION:**Ph.D. Biology – 2007** Kansas State University, Manhattan, Kansas

Dissertation: Consequences of conversion of native mesic grassland to coniferous forest on soil processes and ecosystem C and N storage

M.Sc. Biology – 2002 University of Texas at San Antonio, San Antonio, Texas**B.S. Biology – 1999** University of Texas at San Antonio, San Antonio, Texas**PUBLICATIONS:**

Duncan C. McKinley, C.W. Rice, and J.M. Blair. *Accepted for publication*. Conversion of grassland to coniferous woodland has limited effects on soil nitrogen cycle processes. *Soil Biology and Biochemistry*.

Duncan C. McKinley and J.M. Blair. 2008. Woody plant encroachment by *Juniperus virginiana* in a mesic native grassland promotes rapid carbon and nitrogen accrual. *Ecosystems* 11(3) 454-468.

Duncan C. McKinley, M.D. Norris, J.M. Blair, and L.C. Johnson. 2007. Altered ecosystem processes as a consequence of *Juniperus virginiana* L. encroachment into North American tallgrass prairie. Pages 170-187 *In Ecology of Western North American Juniperus Communities: A Dynamic Vegetation Type*, ed. O.W. Van Auken, Springer, New York.

Van Auken, O.W. and **D.C. McKinley**. 2007. Structure and composition of *Juniperus* communities and factors that control them. Pages 19-47 *In Ecology of Western North American Juniperus Communities: A Dynamic Vegetation Type*, ed. O.W. Van Auken, Springer, New York.

Duncan C. McKinley and O.W. Van Auken. 2005. Influence of interacting factors on the growth and mortality of *Juniperus ashei* seedlings. *American Midland Naturalist* 154 (3): 320-330.

Duncan C. McKinley and O.W. Van Auken. 2004. The effects of *Juniperus ashei* (Cupressaceae) litter on the growth and survival of *Juniperus ashei* seedlings. *Texas Journal of Science* 56 (1): 3-14.

MANUSCRIPTS SUBMITTED OR IN PREPARATION:

Langley J.A., **D.C. McKinley**, B.A. Hungate, B.G. Drake, and J.P. Megonigal. *In revision*. Priming depletes soil C and releases nitrogen in a scrub-oak ecosystem exposed to elevated CO₂. *Soil Biology and Biochemistry*.

Duncan C. McKinley, J.C. Romero, B.A. Hungate, B.G. Drake, and J.P. Megonigal. Eleven years of elevated atmospheric CO₂ exposure increases microbial activity and plant exploitation of inorganic N in deep soil in a scrub-oak ecosystem. *Global Change Biology*. *In preparation*.

Duncan C. McKinley, M.C. Cerón, P.M. White, B.A. Hungate, B.G. Drake, and J.P. Megonigal. Elevated CO₂ facilitates priming of ancient soil carbon in sub-tropical sandy spodosols. *Soil Biology and Biochemistry*. *In preparation*.

TEACHING APPOINTMENTS:

2002-06 Microbiology Laboratory, Division of Biology, KSU
2002(Fall) Botany Laboratory, Division of Biology, KSU
2002(Spring) Comparative Vertebrate Anatomy Laboratory, UTSA
1999-01 Principles of Ecology Laboratory, UTSA

UNDERGRADUATE STUDENTS MENTORED:

Julio C. Romero, University of New Mexico, Albuquerque, NSF-REU, 2007
 María Clemencia-Cerón, Universidad de los Andes, Bogotá, SI internship, 2008

SELECTED PRESENTATIONS (OF 17 TOTAL):

Duncan C. McKinley, J.M. Blair, L.C. Johnson and C.W. Rice. Changes in C and N cycling with forest encroachment into mesic grassland. Ecological Society of America, Memphis, Tennessee, Aug. 6-11, 2006.

Duncan C. McKinley, J.M. Blair and L.C. Johnson. Changes in nitrogen cycling and carbon storage with forest encroachment into tallgrass prairie. Ecological Society of America, Montreal, CA, Aug. 1-6, 2005.

AWARDS:

2006 – Center for Basic Cancer Research Travel Award, Kansas State University
2005 – Chris Edler Memorial Award for Outstanding Graduate Student
2002-06 – National Aeronautical and Space Administration, Student Fellowship
2001-02 – Environmental Science Research Assistantship
2000-02 – Life Science Research Assistantship

SERVICE:

2006 – Invited instructor (KSU representative) for Girls in Engineering, Math Science and Technology “GEMS”, Garden City Kansas, November 28-29, 2006.

Topic: “War against germs; enemies and allies”

Aim: to inspire underrepresented students about the sciences

1994 – Resource Assistant, Student Conservation Association. Wasatch-Cache National Forest, Utah, (12-weeks).

1993 – Resource Assistant, Student Conservation Association. Ouachita-Caddo National Forest, Arkansas, (High-School Program, 6-weeks).

Ad-hoc reviewer: *Journal of Environmental Quality*, *Journal of Vegetation Science*, *Perspectives in Plant Ecology*, *Evolution and Systematics*

Professional Memberships: Ecological Society of America, American Geophysical Union, AAAS