

# Colleen M. Iversen · Curriculum Vitae

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## Research interests

I am an ecosystem ecologist who uses a variety of field and laboratory techniques to understand and predict how ecosystems are shaped by climatic change. Specifically, I work at the root-soil interface to investigate how atmospheric and climatic change alters belowground carbon and nutrient cycling.

## Education

### **Ph.D., University of Tennessee (2003 – 2008)**

Ecology and Evolutionary Biology

Co-advisors: Richard J. Norby and Aimée T. Classen

Dissertation: Forest responses to rising atmospheric CO<sub>2</sub>: Causes and consequences of increased fine-root production in a CO<sub>2</sub>-enriched sweetgum plantation

### **M.S., University of Notre Dame (2001 – 2004)**

Biological Sciences

Advisor: Scott D. Bridgham

Thesis: Scaling community nitrogen use- and uptake efficiencies in response to increased nutrient availability in peatlands

### **B.S. (*cum laude*), Hope College (1997 – 2001)**

Biological and Environmental Sciences

## Appointments

### **Post-doctoral research associate (2008 – present)**

Environmental Sciences Division

Oak Ridge National Laboratory

### **Marvin L. Wesely Graduate Research Environmental Fellow (2007 – 2008)**

Global Change Education Program

Department of Energy

## Publications

**Iversen CM (*in press*)**. Digging deeper: Fine root responses to rising atmospheric [CO<sub>2</sub>] in forested ecosystems. *New Phytologist*.

**Iversen CM**, Bridgham SD, Kellogg LE (*in press*). Scaling plant nitrogen-use and uptake efficiencies in response to nutrient addition in peatlands. *Ecology*.

O'Brien SL, **Iversen CM (2009)**. Missing links in the root-soil organic matter continuum. *New Phytologist* 184: 513-516.

Franklin O, McMurtrie RE, **Iversen CM**, Crous KY, Finzi A, Tissue DT, Ellsworth DS, Oren R, Norby RJ (**2009**). Forest fine-root production and nitrogen use under elevated CO<sub>2</sub>: contrasting responses in evergreen and deciduous trees explained by a common principle. *Global Change Biology* 15: 132-144.

**Iversen CM**, Ledford J, Norby RJ (2008). CO<sub>2</sub> enrichment increases carbon and nitrogen input from fine roots in a deciduous forest. *New Phytologist*. 179: 837-847.

**Iversen CM**, Norby RJ (2008). Nitrogen limitation in a sweetgum plantation: Implications for carbon allocation and storage. *Canadian Journal of Forest Research* 38: 1021-1032.

Finzi AC, Norby RJ, Calfapietra C, Gallet-Budynek A, Gielen B, Holmes WE, Hoosbeek MR, **Iversen CM**, Jackson RB, Kubiske MB, Ledford J, Liberloo M, Oren R, Polle A, Pritchard S, Zak DR, Schlesinger WH, Ceulemans R (2007). Increases in nitrogen uptake rather than nitrogen-use efficiency support higher rates of temperate forest productivity under elevated CO<sub>2</sub>. *Proceedings of the National Academy of Sciences, USA* 104: 14014-14019.

Norby RJ, **Iversen CM** (2006). Nitrogen uptake, distribution, turnover, and efficiency of use in a CO<sub>2</sub>-enriched sweetgum forest. *Ecology* 87:5-14.

Keller JK, Bauers AK, Bridgham SD, Kellogg LE, **Iversen CM** (2006). Nutrient control of microbial carbon cycling along an ombrotrophic-minerotrophic peatland gradient. *Journal of Geophysical Research* 111: G03006.

Keller JK, Bridgham SD, Chapin CT, **Iversen CM** (2005). Limited effects of six years of fertilization on carbon mineralization dynamics in a Minnesota fen. *Soil Biology and Biochemistry* 37: 1197-1204.

### Grants and fellowships

- 2007 – 2009    Doctoral Dissertation Improvement Grant. Will CO<sub>2</sub> mediated increases in fine-root litter progressively decrease forest N availability by increasing N immobilization in soil organic matter? *National Science Foundation* (\$11,730).
- 2005 – 2008    Graduate Research Environmental Fellowship. Global Change Education Program, *United States Department of Energy* (\$19,600 annually).
- 2005            Ehleringer Stable Isotope Ecology Course at the University of Utah. Tuition grant from Department of Ecology and Evolutionary Biology, *University of Tennessee* (\$1300).
- 2004            Summer Research Grant. Department of Ecology and Evolutionary Biology, *University of Tennessee* (\$1300).

### Honors and awards

- 2007 – 2008    Marvin L. Wesely Graduate Research Environmental Fellow. Global Change Education Program, United States Department of Energy.
- 2006            Best student poster presentation in the Soil Ecology Section of the Ecological Society of America annual meeting, Memphis, TN, USA.
- 2006            Travel award from Terrestrial Ecosystem Responses to Atmospheric and Climatic Change network to attend forested FACE synthesis in Antwerp, Belgium.

- 2005 Second best student poster presentation. Soil Ecology Society biennial meeting, Argonne National Laboratory, Argonne, IL, USA.
- 2004 Travel award to attend Terrestrial Ecosystem Responses to Atmospheric and Climatic Change annual meeting, Fort Meyers, FL, USA.
- 2003 – 2004 Travel awards from the Society of Wetland Scientists to attend Society of Wetland Scientists annual meeting, New Orleans, LA, USA (2003) and Association of Southeastern Biologists annual meeting, Memphis, TN, USA (2004).

## Teaching and mentoring

### Instructor

- Spring, 2008 “Ecology in a Changing World”  
Designed and co-taught 1-credit undergraduate seminar  
Department of Ecology and Evolutionary Biology  
University of Tennessee

### Guest lecturer

- 2003 – 2007 Multiple-section “General Ecology” course on topics related to ecosystems, nutrient cycling, and trophic dynamics.  
Department of Ecology and Evolutionary Biology,  
University of Tennessee

### Teaching assistant

- 2003 – 2004 “Biodiversity” Laboratory  
Department of Ecology and Evolutionary Biology  
University of Tennessee
- 2001 – 2002 “General Ecology” Laboratory  
Department of Biological Sciences  
University of Notre Dame

### Undergraduate mentoring

- Fall, 2009 Faith Whitehouse, Hope College,  
*Fine-root diameter distribution and standing crop from 0 to 90 cm depth under elevated [CO<sub>2</sub>]*
- Summer, 2009 Lauren Stachowiak, University of Wisconsin, Whitewater  
*Rooting distribution and morphology under elevated [CO<sub>2</sub>]*
- Fall, 2007 Jennifer Burks, Earlham College,  
*Mycorrhizal production and decomposition under elevated carbon dioxide concentrations*
- Summer, 2006 Caitlin Guthrie, Pomona College  
*Elevated carbon dioxide does not affect net nitrogen mineralization*

- Fall, 2005                      Joey Roberts, Middle Tennessee State University  
*Disentangling fine-root production under elevated carbon dioxide concentrations using a stable carbon isotope*
- Summer, 2005                      Zara Berg, Montana Tech  
*Nitrogen fertilization effects on a forest understory*

### **Selected presentations (2005-2009)**

- Iversen CM**, Bridgham SD, Kellogg LE. 2009. Scaling plant nitrogen-use and uptake efficiencies in response to nutrient addition in peatlands. Second International PeatNet Symposium: Peatlands in the global carbon cycle, Prague, Czech Republic. *Poster presentation.*
- Iversen CM**, Jastrow JD, and Norby RJ. 2009. Carbon and nitrogen inputs from decomposing roots into different soil organic matter fractions. *Organized oral session.* Ecological Society of America annual meeting, Albuquerque, NM, USA.
- Iversen CM**. 2009. The causes and consequences of increased fine-root production in a CO<sub>2</sub>-enriched sweetgum plantation. *Invited talk.* Biosciences Division Seminar, Argonne National Laboratory, Argonne, IL, USA.
- Iversen CM**. 2009. The causes and consequences of increased fine-root production in a CO<sub>2</sub>-enriched sweetgum plantation. *Invited talk.* Department of Biological Sciences Seminar, University of Illinois at Chicago, Chicago, IL, USA.
- Iversen CM**. 2008. The causes and consequences of increased fine-root production in a CO<sub>2</sub>-enriched sweetgum plantation. *Keynote address.* High CO<sub>2</sub> Workshop, University of Western Sydney, New South Wales, Australia.
- Iversen CM**, Childs J, Norby RJ. 2008. CO<sub>2</sub> enrichment increases carbon and nitrogen input from fine roots in a deciduous forest. Ecological Society of America annual meeting, Milwaukee, WI, USA. *Oral presentation.*
- Iversen CM**. 2007. At the root of the response in a CO<sub>2</sub>-enriched deciduous forest. M.L. Wesely Graduate Research Environmental Fellow, Global Climate Education Program, annual end-of-year meeting, Washington, D.C., USA. *Oral presentation.*
- Iversen CM**. 2006. At the root of the response: Carbon and nitrogen cycling in a CO<sub>2</sub>-enriched deciduous forest. *Invited talk.* Smithsonian Environmental Research Center, Edgewater, MD, USA.
- Iversen CM**, Norby RJ and Classen AT. 2006. Changes in fine-root quantity and quality with elevated CO<sub>2</sub>: Implications for decomposition and nitrogen cycling. Ecological Society of America annual meeting, Memphis, TN, USA. **Winner of best student poster award, Soil Ecology Section.**
- Iversen CM**, Norby RJ and Classen AT. 2006. Nitrogen cycling in a CO<sub>2</sub>-enriched deciduous forest: Implications for carbon storage. Global Change Education Program, Graduate Research Environmental Fellowship annual orientation, Portland, OR, USA. *Oral presentation.*

## Professional activities

Co-organizer: “Missing links in the root-soil organic matter continuum”. Organized oral session at the annual Ecological Society of America meeting, August, 2009 in Albuquerque, NM, USA.

Ad-hoc reviewer for: *Acta Oecologica*, *Biological Invasions*, *Canadian Journal of Forest Research*, *Global Biogeochemical Cycles*, *Global Change Biology*, *New Phytologist*, *Oecologia*, *Plant and Soil*, *Soil Science Society of America Journal*, *Tree Physiology*, National Science Foundation, Ecosystems Panel, and National Institute for Climate Change Research, Southeastern Region.

Public tours: Oak Ridge National Laboratory Free-Air CO<sub>2</sub>-Enrichment experiment.

Public outreach: Local NPR interview, web cast for Oak Ridge Associated Universities, part of a feature story in the *ORNL Review*, presentation of “Ecosystems” and “Greenhouse effect” concepts to Sevierville 3<sup>rd</sup> grade classrooms and Environmental Club.

Society memberships: Ecological Society of America, Soil Ecology Society.

## References

### **Dr. Richard J. Norby**

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### **Dr. Aimée T. Classen**

Assistant Professor  
Department of Ecology and Evolutionary Biology  
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### **Dr. Scott D. Bridgham**

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