Courtney E Campany

Hawkesbury Institute for the Environment
Western Sydney University
R2 Hawkesbury Campus
Locked Bag 1797, Penrith NSW 2751, Australia

Phone: + 61(0) 2 4570 1645
Mobile: + 61 (0) 432 391 114
E-mail: c.campany@westernsydney.edu.au
Web: courtneycampany.com

EDUCATION

Doctor of Philosophy — 2016
Western Sydney University, Richmond, NSW, Australia
Thesis: 'Resource allocation in Eucalyptus '

Master of Sciences—Ecology — 2006
Appalachian State University, Boone, NC, USA
Thesis: 'Total soil respiration and soil heterogeneity following fire in the Linville Gorge Wilderness Area'

Bachelor of Sciences—Biological Sciences — 2002
North Carolina State University, Raleigh, NC, USA

CURRENT EMPLOYMENT

Western Sydney University—Hawkesbury Institute for the Environment
Research Fellow
Lead field researcher on a joint industry partnership with Horticulture Innovation Australia to evaluate root to shoot balance in trees produced for landscape use. Assessing morphological variables of nursery trees across Australian to fill knowledge gaps related to how species, container size, fertilization, irrigation and climate impact tree growth and balance. Data will be used to assess current quality standards for landscape trees aimed at significantly increasing urban greenspaces in Australia by 2020.

PROFESSIONAL HISTORY

Western Sydney University—Hawkesbury Institute for the Environment — 09/2012-present
PhD Student
Postgraduate research which focuses on investigating resource and carbon allocation in Eucalypts. Focused on integrating the effects of climate change, source-sink regulation and within canopy variation on ecophysiological processes. Tested the ability to scale leaf-level carbon gain to whole plant production, while also developing our understanding of how carbon is allocated among plant tissues. Generated empirical data on multiple scales that can be used to test theoretical assumptions of leaf physiological behaviour and validate process based models of tree and forest growth.

University of Idaho—College of Natural Resources — 09/2010-08/2012
Research Scientist
Used data from the extensive sampling of plant biomass and soil at the conclusion of the Aspen Free-Air CO_2 Enrichment (Aspen FACE) experiment to analyze the impacts of elevated CO_2 and ozone on ecosystem scale nutrient cycling. Used carbon and nitrogen pools of plant components and soil to understand how aspen forest communities respond to global climate change. Developed allometric approaches to quantify the cumulative input of carbon through net primary productivity across the duration of the Aspen FACE experiment.

University of Nevada, Reno—College of Agriculture and Natural Resources — 03/2009-08/2010
Rangeland Ecologist
Planned and coordinated the ecosystem scale belowground harvest of the Aspen FACE experiment in order to measure the effects of elevated CO_2 and ozone on root production and soil carbon storage. Managed a multi-institution field crew in excavation of large volume soil pits using a variety of ecological methods to sample coarse and fine root production, soil bulk density, ground cover composition and leaf litter production. Post-harvest responsibilities included sample processing and analysis of carbon, nitrogen and stable isotopes for all samples.

PROFESSIONAL HISTORY

Oak Ridge National Laboratory—Environmental Sciences Division 06/2008-02/2009
Post-Master Research Associate
Research scientist for ORNL FACE experiment investigating the effects of CO_2 on established Sweetgum forest stands. Responsible for data collection, sample processing, and site maintenance. Duties included systematic measurements and analyses of litter production/ chemistry, rhizosphere responses through minirhizotron imaging and soil ion exchange with resin capsules. Participated in collaborative experiments measuring soil nitrogen mineralization, soil enzyme activity, and leaf canopy photosynthesis.

University of Tennessee—Department of Ecology and Evolutionary Biology 11/2006-06/2008
Research Coordinator
Laboratory manager and research scientist for the Old-Field Community Climate and Atmospheric Manipulation (OCCAM) project. Maintained a large scale open-top chamber experiment manipulating CO_2, precipitation and temperature on old-field communities through project completion. Responsible for collection and analysis of all long-term ecological datasets and management of scientific personnel in the lab and field site. Responsible for design and implementation of the woody seedling encroachment addition to the OCCAM experiment during the final two growing seasons.

Appalachian State University—Department of Biology 08/2003-05/2006
Master's Thesis Research
Examination of the influence of a low-intensity ground fire on total soil respiration in the Linville Gorge Wilderness Area, Burke Co., NC. Analyzed how the heterogeneity of total soil respiration and the relative contribution of roots or microorganisms to the observed patterns of soil respiration would impact the recovery of ecosystem carbon fluxes and forest functioning following fire. Measured soil and microbial respiration, root distributions, litter production, tissue chemistry and soil organic matter.

Appalachian State University—Department of Biology 01/2004-12/2005
Biology Lab Instructor (General and Advanced)
Taught weekly biology labs related to water quality, evolution, life form classification and basic processes in both plant and animals. Focused lesson plans on cellular osmosis, plant identification with dichotomous keys, microscopic exploration of plant tissues and water quality in urban environments. Reviewed class performance with supervisors and used students' comments to improve future lesson plans and teaching techniques.

PUBLICATIONS

Campany C, von Caemmerer S, Medlyn B, Tjoelker M and Duursma R. Rapid response of mesophyll conductance to light availability allows shade leaves to take advantage of sunflecks. Plant, Cell & Environment 39(12): 2762-2773.

Aspinwall M, Drake H, **Campany C**, Varhammar A, Ghannoum O, Tissue D, Reich P and Tjoelker M. Convergent acclimation of leaf photosynthesis and respiration to prevailing ambient temperatures under current and warmer climates in *Eucalyptus tereticornis*. New Phytologist 212(2): 354-367.

Talhelm A, Pregitzer K, Kubiske M, Zak D, **Campany C**, Burton A, Dickson R, Hendrey G, Isebrands J, Lewin K, Nagy J and Karnosky D. 2014. Elevated carbon dioxide and ozone alter productivity and ecosystem carbon content in northern temperate forests. Global Change Biology 20: 2492-2504.

Classen A, Norby R, **Campany C**, Sides K, and Weltzin J. 2010. Climate change alters seedling emergence and establishment in an old-field ecosystem. PLoS ONE 5(10): e13476. doi:10.1371.

Kardol P, **Campany C**, Souza L, Norby R, Weltzin J and Classen A. 2010. Climate change effects on plant biomass alter dominance patterns and community evenness in an experimental old-field ecosystem. Global Change Biology 16: 2676-2687.

PUBLICATIONS

Kardol P, Cregger M, **Campany C** and Classen A. 2010. Changes in plant community composition affect multifactor climate change effects on soil ecosystem functioning. Ecology 91(3): 767-781.

Campany C, Medlyn B and Duursma R. Reduced growth due to sink limitation is not fully explained by reduced photosynthesis. (*in review*)

Campany C, Mark Tjoelker, and Duursma R. Elevated atmospheric CO_2 and drought alter carbon allocation above but not belowground in Eucalyptus saligna. *(in preparation*)

PRESENTATIONS

Campany C, Medlyn B, Tjoelker M, von Caemmerer S and Duursma R. Are whole canopies optimized for carbon gain? How wasteful water use in shade leaves of *Eucalyptus* trees constrain theoretical relationships of photosynthesis and resource distribution. Ecological Society of America, Baltimore, MD, USA — 08/2015

Campany C, Medlyn B and Duursma R. Effects of belowground space limitation on performance of *Eucalyptus* seedlings: Nutrient limitation or sink inhibition? Ecological Society of Australia, Alice Springs, NT, Australia — 08/2014

Pregitzer K, **Campany C**, and Talhem A. Fine root respiration: Importance for ecosystem carbon fluxes. 24th New Phytologist Symposium. St Hugh's College, University of Oxford, UK — 04/2010

Campany C, Norby R, and Classen A. Influence of climate change factors on emergence, growth and survivorship of woody seedling establishment in a constructed old-field community. Ecological Society of America, Milwaukee, WI, USA — 08/2008

Campany C, Norby R, Classen A, and Weltzin J. Interactive effects of atmospheric and climate change on aboveground production in a constructed old-field system. Ecological Society of America, San Jose, CA, USA — 08/2007

GRANTS & FELLOWSHIPS

Scholarship to attend Stable Isotopes in Biosphere System workshop Center for Water, Carbon and Food, University of Sydney — 2013

Hawkesbury Institute for the Environment Postgraduate Research Award — 2012-2015

Sigma Xi Outstanding Graduate Research Award — 2007