

DISTINGUISHED SCIENTIST SEMINAR SERIES

Thursday

May 7, 2015

10:30 a.m. - 12:00 noon

Building 66 Auditorium

Lawrence Berkeley National Laboratory

Host: Eoin Brodie

Belowground Biotic Interactions and Biogeochemical Feedbacks to Climate Change



Richard D Bardgett

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Richard Bardgett is Professor of Ecology at The University of Manchester, England. His main research interest is the study of plant-soil interactions and their impact on nutrient cycling and plant community dynamics in natural and managed ecosystems. Richard has published many papers on this topic, including two books, namely 'The Biology of Soil' which won the 2006 Marsh Ecology Book of the Year Award, and the recently (2010) published 'Aboveground-Belowground Linkages'. Richard is Editor of Journal of Ecology, the oldest ecological journal in the world, and a member of the Editorial Boards of Ecology Letters and Ecosystems. He is a Visiting Professor at the Ecole Polytechnique Fédérale de Lausanne, Switzerland, and member of the Board of Directors of Rothamsted and the Netherlands Institute of Ecology Scientific Advisory Board. He was until recently Vice President of the British Ecological Society, and was elected an Honorary Fellow of the Royal Society of New Zealand in 2006.

Abstract

Human activities are rapidly changing the world's ecosystems. The most obvious human impact is through the conversion of land for agriculture, but terrestrial ecosystems are also affected by other global change phenomena, including climate change. This has led to a groundswell of research aimed at improving understanding of the impact of global changes on biodiversity and ecosystem function, and on management strategies to mitigate them. Whilst this topic has received much attention, scientists have only recently become aware that understanding the consequences of global change for ecosystem functioning requires consideration of interactions between plant and soil communities. This is because the impact of global changes on the functioning of terrestrial ecosystems is often indirect: they operate via changes aboveground that cascade belowground to the soil biological community, which drives biogeochemical processes and feedbacks to the Earth's climate system. Here I highlight some recent developments in this area that illustrate how a combined aboveground-belowground approach can improve understanding of the consequences of global change for the functioning of terrestrial ecosystems. In particular, I focus on recent studies that advance our understanding of the functional role of belowground biotic interactions for biogeochemical cycles, and their role in governing the impact of climate change on ecosystem carbon cycling.

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