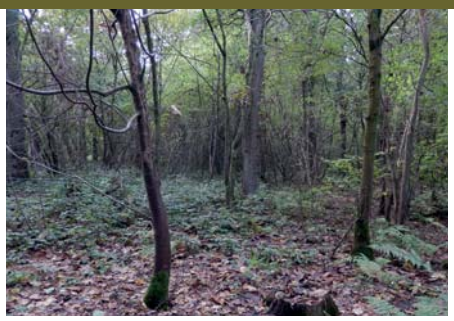
UNIVERSITY OF BIRMINGHAM

BIFOR

Bud burst

ISSUE 1, SPRING 2014

NEWSLETTER OF THE BIRMINGHAM INSTITUTE OF FOREST RESEARCH



Developing a shared science vision for BIFoR

Professor Rob MacKenzie, BIFoR Director

On 6 November 2013, the University of Birmingham launched the Birmingham Institute of Forest Research (BIFoR). Six months on, plans for the Institute are developing apace. It feels sometimes like being part of the race to deliver the Olympics. *There is an Olympics-delivery aspect to BIFoR:* by bud-burst 2016 we have to be ready to switch on the Free-Air Carbon Dioxide Enrichment (FACE) experiment in our research woodland, Mill Haft. The forest FACE experiment is the ecological version of the Large Hadron Collider, except that it must be built using the equivalent of keyhole surgery, so that the woodland is not disturbed in the process of setting up the experiment.

The greater part of BIFoR, though, is much less focused on a single physical object and much more open-ended. We want BIFoR to become a world-leading centre in the understanding of how forests react to the combined threats of climate change and invasive pests or diseases. The vision for BIFoR, then, is not about establishment or completion of a particular experiment, but about finding the most fruitful roads to discovery. Only by working closely with all those interested in forestry / climate change / the natural world will BIFoR be able to establish a science vision that matches our ambitions for discovery with society's pressing need for solutions.

Forests are critical components of global carbon, nutrient and water cycles, forests influence the thermal balance of the planet directly and indirectly, and forests are home to more than half of all known species. Woodlands and forests deliver direct economic, environmental and social benefits, ranging from fuel and building materials, to the sense of well-being associated with a walk amongst the bluebells.

Therefore an important and urgent scientific case to be made for tree-covered landscapes of all kinds. At BIFoR, we will study woodlands and forests to find out how best they can help us live within the planet's resources and to measure how the global changes we are making to the planet impact on the woodlands and forests that remain.

The dynamic response of forests to combinations of climate change and pests and diseases is only partially understood. The BIFoR FACE experiment will provide at least a decade of data with which we can follow the carbon as it moves through the trees, into the soil, and, at least in part, back out into the air. And in following the carbon, many other interesting issues will come into focus: the cycling of other nutrients, such as nitrogen and phosphorus; changes in food webs; interaction with the water cycle; implications for woodland management; and so on.

Much of what we have been doing in the past six months with University colleagues and with interested partners from the general public, the private and public sectors, non-governmental organisations and global academia, has been to sharpen our focus on what BIFoR can do best, soonest. In the next newsletter, due at last-leaf fall in autumn 2014, we will report on what specific experiments we have begun.

Welcome

to the first newsletter from the Birmingham Institute of Forest Research (BIFoR). We hope to produce two newsletters per year – at spring bud burst and at last leaf fall in autumn – bringing news of progress with research, university teaching, and wider engagement.

In this issue, we include an update on the science vision from the Institute's Director, Rob MacKenzie, an introduction to our landmark carbon dioxide enrichment experiment, and a calendar of significant dates. Details about how to stay in touch more regularly with the Institute are given at the end of the newsletter.

From the Shorter Oxford English Dictionary

Haft (also sometime heft):
fix, establish, settle. Earliest recorded use: late 16th century. Probably of Scandinavian origin (cf. Old Norse Haefda: gain possession by long occupation).

So, the name of BIFoR experimental woodland, Mill Haft, means 'the land on which the mill has been established'.

NEWSLETTER OF THE BIRMINGHAM INSTITUTE OF FOREST RESEARCH
ISSUE 1, SPRING 2014

BIFoR sample number 0000-0001

Professor John Selker, Oregon State University, and Robin Daniels from Norbury Park Estate collected the first scientific samples from Mill Haft research woodland on Friday 21 March 2014, coinciding with UNEP International Day of Forests and the Tree (www.un.org/en/events/forestsday). Most measurements in Mill Haft will be non-destructive and continuous electronic measurements; removal of material from the research area will be strictly controlled and archived, to squeeze as much data as possible from each sample or specimen.

Photo: by John James

Forest FACE Facility

A ground-breaking 'Free-Air Carbon Dioxide Enrichment' (FACE) facility will be developed and built on Norbury Park Estate in Staffordshire. The facility will test the resilience of a mature forest to a high carbon future and enable globally leading scientists to take measurements from deep within the soil to above the tree canopy.

The experiment will comprise six, 30-metre wide, FACE rings, each as tall as the mature trees in the woodland. The facility will also include a fieldwork compound and a field study centre in a converted barn near the site.

The BIFoR forest FACE facilities will work in close collaboration with the only other forest FACE facility currently in operation, at the Hawkesbury Institute for the Environment. By linking up, with this and any new forest FACE experiments, BIFoR will provide a truly global assessment of the resilience of forests in a changes climate.

The FACE experiment will be designed in conjunction with Brookhaven National Laboratory, New York, who also designed the Hawkesbury facility and who visited us in March 2014.

Talking about BIFoR

We have already started to introduce BIFoR to many individuals and organisations, both local and national, including:

- Local public from around the Norbury area at recently held public exhibitions
- Forest Research and the Forestry Commission
- The Woodland Trust
- Grown in Britain
- The National Association of Cider Makers
- The PlantNetwork
- The Natural Environment Research Council

We plan more events over the coming months, but if you would like to find out more please contact us at **bifor@contacts.bham.ac.uk**

Upcoming key events

- Urban Trees Research Conference 2–3 April 2014 (University of Birmingham)
- Continuous Cover Forestry National Conference 3–5 June 2014 (Keswick)
- British Science Festival 6–11 September 2014 (University of Birmingham)

Timeline

The aim is to have the facility up and running in spring 2016. We have a long way to go but a team across the University of Birmingham are well underway working towards establishing the facility.

Key activities already completed:

- Proposal presented to the Head of Planning at Stafford Borough Council in December 2013
- On-going engagement with Council officers and other key organisation eg, Environment Agency and Natural England
- Public consultation exhibitions were held in the local areas in February 2014
- Commencement of facility design

Immediate next steps:

- Measurements to establish the scientific baseline
- Continuation of the design of the facility over the coming months
- Submission of planning application to Stafford Borough Council in early summer
- Continue to talk to key stakeholders
- Appointment of contractors early 2015

Stay in touch

If you would like to be kept informed of BIFoR developments there are a number of ways to contact us:
Email: **bifor@contacts.bham.ac.uk**
Twitter: **@BIFoRUoB**
Website: **www.birmingham.ac.uk/research/activity/bifor**