

# Continuous Cover Forestry: Delivering Sustainable and Resilient Woodlands in Britain

by Ted Wilson

Report on the 2014 National Conference of the Continuous Cover Forestry Group, held at Braithwaite, Cumbria and woodlands of the Lake District National Park. Woodland Heritage was a leading supporter of this event.

## Background

**F**orestry is undergoing a period of profound change and reassessment. At the forefront is recognition that many current practices need to be adapted in response to global climate change and increasing threats to forest health from invasive pests and diseases. We seek new ways of adding value and delivering social, economic and environmental benefits, while at the same time diversifying the species and structure of our productive forest estate.

Continuous Cover Forestry (CCF) is now recognised as an important approach with the potential to create structurally, visually and biologically diverse woodlands. It is often referred to as “close to nature” forest management, and results in forest stands where a permanent growing stock is maintained on the site and where growth increment is harvested in relatively short-term cyclical interventions. Continuous cover forests are managed by a set of principles that sustain the production of high quality timber and satisfy many other values, including conservation and regulation of hydrological cycles, carbon capture and storage, and provision of diverse wildlife habitats.

The appearance and approach in CCF woodlands contrasts strongly with plantation forestry, where periodic clear-felling leads to a radical change to the forest environment. However, the transformation from largely even-aged stands in Britain to more irregular structures remains a challenging area of professional practice. There is continuing demand for a stronger evidence-base and practical demonstration of CCF



systems across a range of woodland types, and in both public and private ownership.

Since its founding, in 1991, the Continuous Cover Forestry Group (CCFG) has championed the discussion and sharing of experience in continuous cover forestry. The group has collaborated with many forestry associations across Europe and

worked to strengthen the evidence-base through its technical reports, field meetings, workshops and international study tours. In June 2014, the group held a major conference to discuss a wide range of issues associated with the science, ecology and practice of CCF. The event was supported by many organisations from across the forestry sector, including Woodland Heritage. There were 140 participants, ensuring a busy and lively gathering.

## The Conference Themes and Structure

The conference was held over three days (3-5 June) at Braithwaite, near Keswick, Cumbria. This location is surrounded by several public and private woodlands managed on CCF principles, which made it possible to hold over 60% of the conference programme in forest settings.

The conference addressed five critical themes:

- **Ecosystems services** – using CCF to integrate multiple functions and values of woodland, including timber, recreation, conservation and environmental quality.
- **Ecological resilience and climate adaptation** – the role and importance of species diversity and multi-aged structures in forest ecosystems.
- **Monitoring and management approaches** – tools for informing decision-making and measuring progress towards management and ecological objectives.
- **Learning and skills** – identifying opportunities and challenges for future best practice.
- **Timber quality and value** – enhancing value and outputs through designed stand interventions.

A combination of plenary lectures and field tours made it possible to address each of the themes. Two keynote presentations provided an overview of developments in the UK and overseas. Graham Gill, a founding member of CCFG and Forest Management Director at the Forestry Commission North England



*Participants at the CCFG 2014 National Conference.*

Photo: Rob Grange 2014.

Forest District, set the scene with a review of silvicultural systems, and practical examples of CCF at Kielder Forest and other locations in Britain. Later, the Scottish Forestry Trust International Keynote Lecture was delivered by Klaus Puettmann, Edmund Hayes Professor of Silviculture Alternatives, Oregon State University, USA. This informed us about the extent to which CCF has been adopted in many regions, particularly North America and Europe, and highlighted the scientific challenges associated with managing complex forest structures.

Several overarching issues were also addressed, including climate change, ecological resilience, and long-term monitoring and inventory systems. Mark Broadmeadow (Forestry Commission England) provided some of the latest climate research that underpins current forest policy in Britain. This supports the diversification of species selection in new woodlands and the adoption of a wider range of silvicultural systems than previously.

Gary Kerr (Forest Research) explained the concept of resilience (i.e., the capacity of an ecosystem to respond to disturbance by resisting damage and recovering) and questioned whether our present understanding of the main building blocks of resilience has a sound knowledge base and, if not, what can be done to rectify this situation.

Understanding growth and development in CCF woodlands was a theme picked up by Áine Ní Dhubháin and Lucie Vítková (University College Dublin). Their use of long-term monitoring plots and innovative sampling methods is providing new insights to volume increment, timber quality and valuation of various woodland functions and services.

Other speakers presented case studies and research demonstrating where CCF already delivers positive outcomes for owners, the wider public and the natural environment: Andy Poore and Phil Morgan (both SelectFor Ltd) on monitoring increment, production and timber quality enhancement at Stourhead (Western) Estate, Wiltshire; Christine Reid and Saul Herbert (both Natural England) on biodiversity and conservation benefits and impacts; Graham Taylor (Pryor and Rickett Silviculture) through case studies based on his experience in lowland broadleaved woodland, mostly in Herefordshire. Scott Wilson presented a summary of a recent study that followed up on Cyril Hart's review of CCF sites in 1995. This found that 2-3% of British woodland is managed according to "classical" silvicultural alternatives to clear-felling (e.g., group and single-tree selection forests), but a much larger area is managed on a more eclectic basis where thinning is adapted in response to natural regeneration and to encourage an irregular structure.

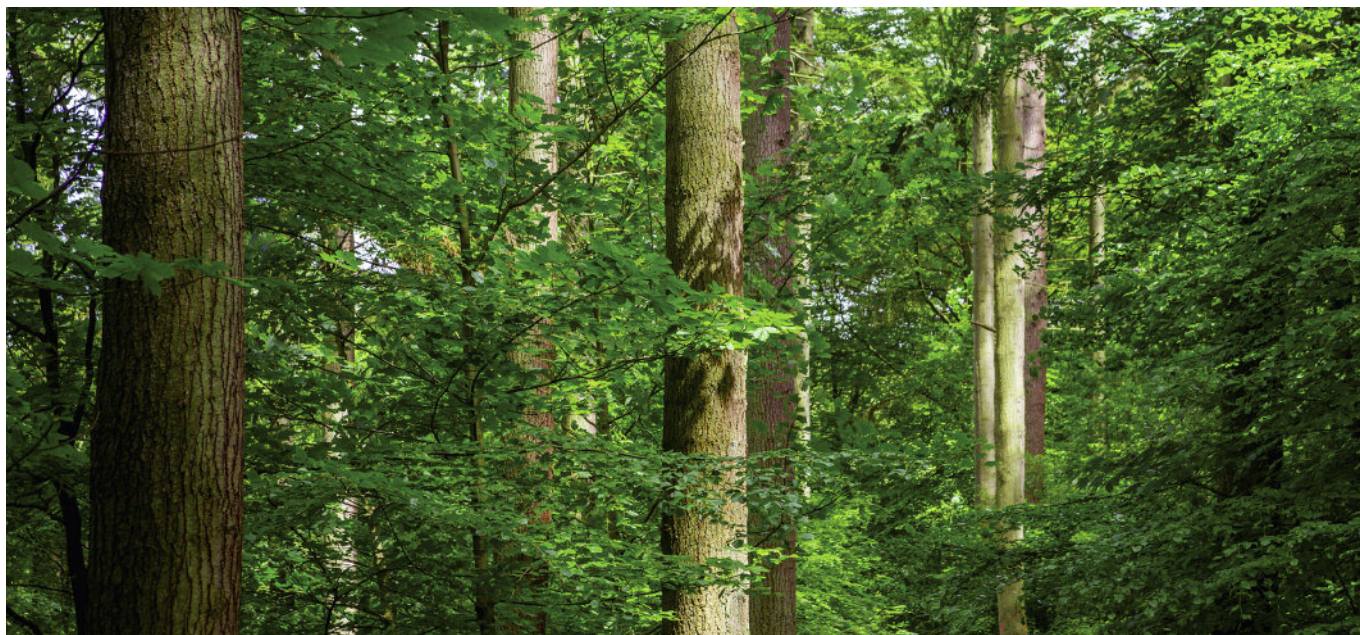
Woodlands visited for field sessions included Thirlmere Forest, managed by Vicky Bowman, Paul



*Discussing understorey light levels and natural regeneration, Wythop Forest, Cumbria.* Photo: Rob Grange 2014.

Philips and team at United Utilities plc, and Forestry Commission woodlands at Wythop, Blengdale and Miterdale, managed by Gareth Browning and colleagues from the office at Peil Wyke, Cumbria. Topics presented in the field included: CCF, water quality and harvesting and on sensitive sites, by Simon Webb (Natural England) and John Gorst (United Utilities); CCF and timber quality, by Elspeth MacDonald (Forest Research) and Nick Martin (UPM Tilhill); implementation of long-term monitoring systems and their application, by Phil Morgan (SelectFor Ltd), Sharon Rodhouse and Mark Rodhouse (both Sylvatic Ltd); CCF and ancient woodland restoration, by Richard Thompson (Forestry Commission Scotland) and Peter Lowe (Woodland Trust); under-planting and natural regeneration options, by Gary Kerr. In addition, there was a practical exercise led by Jens Haufe (Forestry Commission) that considered tree marking and crown thinning techniques for initiating the transformation of stands to CCF.

Sessions were chaired by Rik Pakenham and Chris Starr, with introductions and summaries by Richard Leaf (Lake District National Park) and Bill Mason (CCFG Chair and Forest Research), respectively. A



*Mature Douglas Fir with a developing structure of mixed broadleaves, Wythop Forest, Cumbria.*

Photo: Rob Grange 2014.

letter of support from HRH Prince Charles reminded everyone of the importance of forest resources and conservation in the British landscape, and the challenges associated with managing woodlands in the face of growing uncertainty about future conditions.

## Outcomes and Achievements

The conference was an opportunity to reflect on past achievements and determine future priorities for CCF in Britain. The presentations, case studies and field sessions confirmed that CCF is growing steadily in importance. Several recommendations were made to help guide future action, especially in the areas of monitoring forest conditions, research and knowledge exchange:

- 1. Monitoring** – Regular monitoring of forest development is a critical means of assessing the implementation of CCF. This requires new approaches based on periodic surveys of mature timber as well as the condition and status of regenerating and intermediate classes of saplings and maturing trees. Such monitoring needs to allow for evaluation of the impacts of browsing animals and other pests. Combined with financial information on product outturn and management costs, the data will provide essential information on the viability of CCF in different forest types and ownerships.
- 2. Research** – There is an ongoing need for careful research on numerous aspects relevant to the wider use of CCF, such as improved growth and yield models that can accommodate a range of species and varied stand structures while providing useful predictions of forest development over time. Other areas include better understanding of the

effect of CCF on carbon sequestration and storage, as well as analysis of cultural and organisational factors that may affect the uptake of CCF. A comprehensive list of research priorities for CCF is provided on the CCFG website.

- 3. Knowledge Exchange** – Wider uptake of CCF will be made easier through an expanded programme of knowledge exchange which will enhance the silvicultural knowledge and skills of owners, policy makers, and those responsible for transforming forests to CCF. This programme would greatly benefit from the expansion and consolidation of the small existing network of well documented demonstration sites located throughout Great Britain.

Resources from the conference, including presentations, posters and conference reports have been archived on the CCFG website:

<http://ccfg.org.uk/conferences/conference2014>

## Acknowledgements

Our thanks are extended to the many supporters, volunteers, speakers and delegates who made the CCFG 2014 National Conference a wonderful success. CCFG is especially grateful to sponsors who generously provided funding and in-kind services to enable the event to run smoothly and efficiently. In particular, we thank Woodland Heritage for being the first organisation to embrace this project and enable us to secure match-funding from elsewhere. Through the generosity of all involved, it has been possible to make conference resources available online to a wider audience of students and practitioners interested in continuous cover forestry, and as a lasting legacy of this landmark event.

