



# Centre for Forest Resources and Management

**The Centre for Forest Resources and Management aims to understand and advise on the scientific and technical aspects of managing, quantifying and improving the forest resource. Our aim is that British forests – from their creation to maturity and regeneration – are managed in a cost-effective, safe, sustainable and socially beneficial way. Our work covers bio-energy development, forest resource forecasting, genetic improvement, woodland regeneration and creation, management and harvesting, and the physical properties of stands, trees and timber.**

## Scope of our work

Our research focuses on characterising Britain's woodland resources, enabling the wood processing industries and renewable energy sector to assess the potential for raw material. Demand for UK timber depends on timber quality, so our work aims to provide guidance to timber producers on how to improve their raw material and help ensure wood can compete with other materials. Our scientists are looking at new approaches to woodland creation to increase the range of species, structural diversity and resilience of our forests to current and future climates.

They are also using new methods in biotechnology and tree breeding to explore genetic variation and ultimately provide advice on what stock has the most appropriate genetic origin for use in forest establishment. Our expertise in forecasting forest growth is now applied to carbon assessment and management. We also work alongside specialists in Forest Research's two other Centres, providing technical support across a number of areas, such as wood energy and biomass initiatives, field experiments, monitoring and surveys, software development and technical development.

## Key research areas

### Sustainable forest management

We are committed to researching sustainable forest management at all stages of a forest's life cycle – from seed production and germination to tree growth, harvesting and site regeneration. These operations must be done safely and economically but they must also be environmentally and socially sustainable. We investigate all steps of this life cycle to find the most sustainable management practices.

### Forestry products

Woodlands can supply many products, each providing income to the grower and supporting jobs in both the local and national economies. We are examining how to maximise the financial returns to both grower and processor. Our research helps to answer the information needs of both the established timber markets and the emerging woodfuel markets. We support the development of a range of industries using the forest resource, including a sustainable bio-energy industry.



Timber is an ideal construction material.

### Genetic improvement

The natural variation in Britain's tree species provides an opportunity to select parent trees with particular properties, such as straightness, fine branching and desired wood density. Through field trials and advanced biotech tools such as tissue culture and DNA-markers, we are continually improving the quality of our trees for future woodlands.

### Surveys

To manage Britain's woodlands, we first must assess their many characteristics. As well as traditional assessments, such as timber volume, we now assess other features, including stem straightness, branch size, soils, woodland condition and open ground. For some surveys sensors on planes and satellites are used, and we are evaluating laser technology as a method of quickly obtaining forest data from the ground.

### Forecasting

Using baseline information on forest characteristics, location, extent and size, we develop models to predict future timber output, which is important to managers and investors. These models can also be applied to many of today's questions on the carbon content and sequestration of forests.



Many different survey techniques are used.