

Quantification of the Timber Resource

Eamonn Wall and Company, National Forest Company



THE NATIONAL
FOREST

Introduction

The research

This study¹ provides estimates of the potential timber yields which could come out of The National Forest over the next 25 years. The timeline to 2034 captures the potential for first thinnings of newly planted woodlands, as well as ongoing management of mature woodlands. The study also assesses how woodland thinnings can provide a woodfuel resource to expand the development of woodfuel heating systems in the area. The findings update a similar study undertaken in 2004².

Why do it?

Understanding the volume, quality and projected supply of timber grown in The National Forest, provides the basis for developing a new woodland economy across the area. It also demonstrates the economic and other benefits that will arise from sustainable woodland management. This is essential to realise the Forest's objective of growing high quality timber in the long term and making effective use of woodland thinnings in the short to medium term. Knowledge of the early woodfuel resource also provides substance to the real potential of the Forest to contribute towards local renewable energy supply.



Aims & objectives

- To review the age class distribution and type of woodland in the Forest area.
- To quantify the overall, and utilisable, woodland resource.
- To model the growth and timber yield of woodland and the amount that could be sustainably harvested over the next 25 years.
- To estimate the number of small wood fuel installations (100kw) which could be run by wood chips sourced from the Forest area in future years.

The Project

Description

The study assessed young (newly planted) woodlands and established woodlands. These were categorised by: species (broadleaved, conifer and mixed, with a special category for poplar given their shorter rotation); the size distribution of woodlands; their age class; and the net planted area of each woodland type. From this information the overall area with management potential was identified (in hectares) and the timber yields were modelled by woodland type. The overall area was based on technical feasibility and did not make any allowance for woods where management is not undertaken.

Approach

Newly planted woodlands were assumed to be up to 20 years old and not yet productive. Advice on predominant coniferous species and typical yield class within The National Forest was provided by the Forestry Commission. Established woodlands were assumed to be at least 20 years old, at or close to the age of thinning or felling (in the case of poplars). Datasets used included: National Forest Company (NFC) woodland data; the National Inventory of Woodlands and Trees; Forestry Commission Woodland Grant Scheme, England Woodland Grant Scheme and Felling Licence data; and aerial photography.

Timber yield class information was based upon tree species averages taken from Forestry Commission yield class tables. The utilisable timber from each woodland type (i.e. young broadleaves, established broadleaves, young conifer, established conifer and poplars), was divided into 5 year periods to assess the overall volumes of timber being produced over time, through to 2034.

Availability of the woodfuel resource assumed that 20% of produce from conifer thinnings and 50% of produce from broadleaved thinnings would be available as woodchip. Conversions of 0.44 dry tonnes/m³ and 0.57 dry tonnes/m³ for conifers and broadleaves (respectively) were used.

Timescales

The study was undertaken between January to June 2009.

Budget

£2,371 including VAT.

Results

Outcomes

- The total utilisable woodland area for management in The National Forest is 5,252ha. This represents 76% of the net planted area and 65% of the gross woodland area.
- The current timber yield potential (2009) is 21,070m³/year. Established conifers provide most of this (42%) mainly due to their higher yield class.
- By 2034 the potential yield almost doubles to 38,500m³/year as young woodlands reach first thinning age.
- The contribution from young conifers is first apparent in 2012 and from young broadleaves in 2017, when they start to reach productive age.
- Poplars will make a significant contribution in 2012, when new plantings begin to reach felling age. Their contribution to yield is large (10%) compared to their gross woodland area (2%).
- The current potential resource for woodfuel is 7.7 dry tonnes/day. By 2032 this will almost triple to 20.7 dry tonnes/day, with 63% coming from young woodlands.
- The potential woodfuel reserve would be sufficient to supply up to 75 100kw wood chip systems by 2032 (with a steady increase in numbers from 2009).

Applications

- The study will guide woodland management decisions and best practice in The National Forest and will underpin the NFC's work with partner organisations to develop the woodland economy of the area.
- It will also inform investment and procurement decisions by potential users of National Forest timber, ranging from logs, woodchips and craft timber, to longer term use of timber in construction.
- Quantifying timber volumes from first thinnings and their potential use for woodfuel could be applied to other areas of the UK, where there is similar interest in developing wood fuel as a renewable energy resource.
- The overall methodology used in The National Forest could be applied to other Forest creation initiative areas.

Further information

Dissemination

- National Forest woodland owners and contractors.
- Woodland management and woodfuel development consultants.
- England Forest Industries Partnership and Defra.
- Local media, including the NFC's Forest Scene newsletter.
- NFC research review seminar 2010.
- NFC website www.nationalforest.org

Links to published work

¹ *National Forest quantification of the Forest Resource Update Report* (2009). Eamonn Wall & Co.

² *National Forest quantification of the Forest Resource* (2004). Eamonn Wall & Co.



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