

## CLUSTER

### A cluster-based approach for identifying farm forest resources to maximise potential markets

#### PROJECT TEAM

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#### BACKGROUND

While we have a general picture of the area of forest approaching first thinning age, there is very little information at a local level on exactly where the resource is located and which plantations are suitable for thinning in the next 5 to 10 years. In addition, there are few structures in place to quantify, locate or market the timber for owners and there is a danger that the resource will be overlooked if the potential is not fully recognised. This research aims to address these issues by developing an optimal methodology for quantifying the material from farm forests.

#### OBJECTIVES

- Development of methods to quantify the forest resource and produce a timber forecast at a local level.
- Development of cluster groups where forestry operations can be performed together to minimise cost.
- Development of cluster groups to facilitate combined sale of forest products from many farms.
- Scheduling harvesting to coincide with adjacent harvesting in similar locations based on demand for selected products.

#### PROGRESS

The collation of locations of all private grant-aided forests from Forest Service databases has been completed and high forest density areas identified nationally. A high forest density area in the north west of Ireland has been selected as a study area (Figures 1a and 1b). Forests contained within this area were stratified for suitability for field visit using aerial photography and Forest Service planting records. Landowner notification was issued and field visits were arranged with the



Figure 1: a) High forest density areas nationally; b) Cluster study area.



Figure 2: Field database indicating areas suitable for thinning in close proximity.

selected landowners. An assessment of timber quality and volume was performed using standard forest mensuration techniques. These field visits are near completion and the compilation of field data and the creation of a field database has started (Figure 2).

Part of this research programme involves an investigation into remote sensing options for obtaining forest information. In this context the suitability of EO data for assessing the small scale, fragmented farm forest holdings in Ireland is being examined. Aerial photography, high resolution satellite imagery, LIDAR and RADAR datasets have been obtained and are currently being investigated.

**ACTIVITIES PLANNED**

Field work will be completed in early 2009. The remainder of the reporting period will consist of the compilation of results, analysis and preparation of main findings for publication and presentation in the final report.

**OUTPUTS**

- Farrelly, N., Clifford, B. and Green, S. 2008. Unlocking farm forest potential. *TResearch* 3 (1): 22-25.
- Farrelly, N., Clifford, B. and Green, S. 2008. Using GIS cluster analysis to quantify timber production from farm forestry plantations. *Irish Timber and Forestry* 17 (5) 30-33.

Farrelly, N., Clifford, B. and Green, S. 2008. *Cluster – A cluster-based approach for identifying farm forest resources to maximise potential markets*. Forest growth modelling and wood production forecasting workshop, 12 May 2008, Killeslin Hotel, Portlaoise. Available at <http://www.coford.ie/iopen24/pub/120508cluster.pdf>

Farrelly, N., Clifford, B. and Green, S. 2008. *The private forest resource – its potential for wood energy and barriers and solutions to access*. Bioenergy conference 2008, 19 June 2008, Teagasc, Athenry, Co Galway.

Farrelly, N. 2008. *Fuelling your future – the growing forest resource*. Proceedings from the Teagasc/COFORD/SEI Wood Energy Conference, Westport 10 September 2008.

Clifford, B., Green, S. and Farrelly, N. 2008. *A cluster based approach for the identification of private forest resources*. 2nd Annual Irish Earth Observation Symposium, Opportunities for Earth Observation in Ireland, 6-7 November 2008, pp14.

Farrelly, N., Clifford, B. and Green, S. 2008. *Using cluster analysis to identify forest resources*. Poster presentation, Farmfest, Teagasc, Athenry, Co Galway, 2008.

Farrelly, N., Clifford, B. and Green, S. 2008. Forest focus unlocking farm forestry. *Irish Farmers Monthly* July 2008. p42-44.