



Branching out

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Biolley: a tool for maximizing the value of selection cutting

In uneven-aged hardwood forests, selection cutting is often recommended as the best silvicultural treatment for maximizing the production of quality timber destined for saw timber and veneer wood. However, the application of this treatment is not always profitable in the short and long terms. Are there any tools available to help forest managers choose which trees to harvest and thus promote the profitability of this treatment, without compromising future harvests?

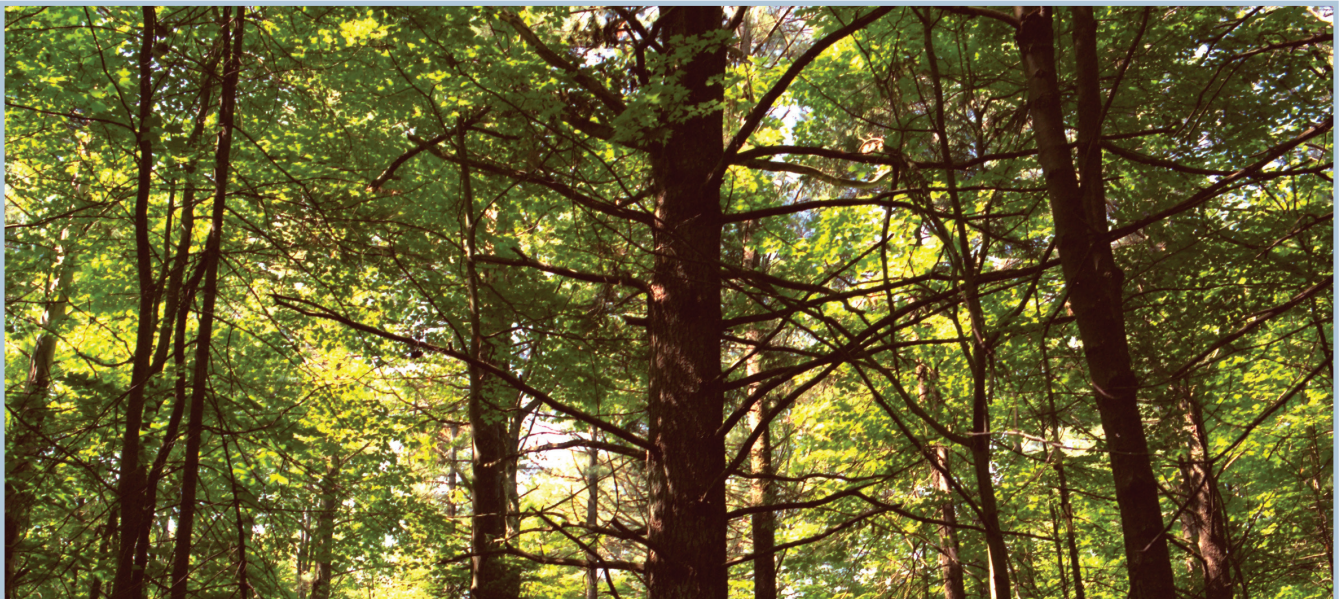


Photo: CFS

To answer this question, researchers at the Canadian Wood Fibre Centre developed a decision support tool: Biolley. Named after a prominent European forester, Biolley determines both the number of trees to be cut and the number to leave standing in order to

maximize current and future revenues for the entire supply chain. Rather than volume production, the Biolley model favours value production and takes current market considerations into account. This new approach has a direct bearing on stem selection.

A change in practices

In current selection cutting practices, stem removal is performed in all age groups by primarily harvesting low-vigour trees. Large diameter and high-vigour stems are not harvested in order to prevent exploitation cutting.



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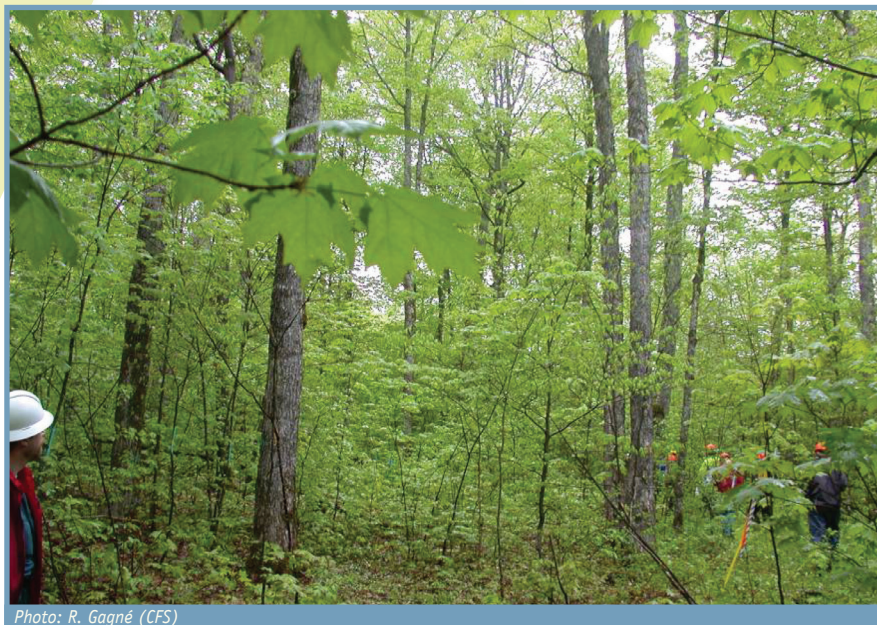


Photo: R. Gagné (CFS)

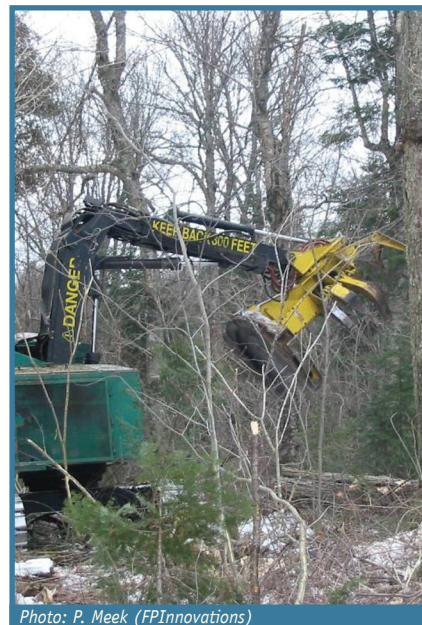


Photo: P. Meek (FPInnovations)

The Biolley tool, on the other hand, advocates an increase in the harvest of higher diameter classes (40 cm and up) and improvement cutting in lower-diameter classes when the number of stems is sufficient. This approach makes it possible to build a high-value timber reserve for the future and should not diminish the forest's genetic potential because quality stems are retained for regeneration. In addition, because large-diameter timber is of higher value, harvest revenues automatically increase.

A local solution

The solutions proposed by Biolley are adapted to local stand growth conditions, market circumstances and processing capacity. It is important to note that in the absence of local processing capacity, there is no point in using this tool. Using operational inventory data and permanent plots, Biolley proposes a stand structure that maximizes revenue for each thinning and suggests a sequence of actions

that will steer the stand toward this ideal state.

Implementation in the field

In 2010, the Coopérative forestière des Hautes-Laurentides implemented this model in the field to assess its short- and long-term feasibility. One year later, Biolley users noted a 7% increase in timber harvested combined with an equivalent increase in residual timber value after 30 years. These results therefore have a significant impact on the profitability of hardwood sawmills. Biolley is also used in forest management planning on the Valcartier military base, near Quebec City. These applications will help to refine this tool, and a Web version will soon be available.

USEFUL LINK:

Management solutions for low-value hardwood and mixed forests (in French only)
<http://www.partenariat.qc.ca/pdf2/OT-143.pdf>

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