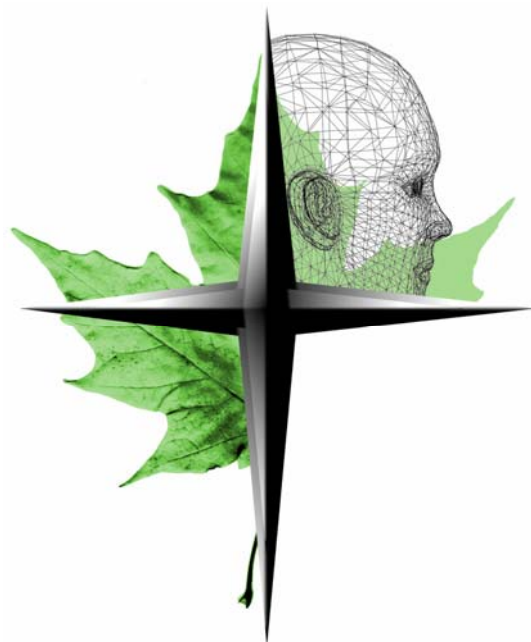


C A S E S T U D Y

F O R E S T P L A N N I N G W I T H R E M S O F T[®]



Setting a preferred silviculture strategy through optimized investment scheduling

Remsoft Spatial Planning System enables models to account for forest-level and stand-level factors that influence return on investment

When budgets are limited (and whose aren't?) getting the most 'bang for a buck' from a silviculture investment gains heightened importance.

Determining the optimum level, type and scheduling of silviculture expenditures should mean improved quality and quantity of timber supply, provide even wood flow and, ultimately, maximize financial return on investment.

But how to know what combination of prescriptions and treatment regimes can achieve these objectives over a long-term planning horizon? The iterations are almost limitless.

The approach taken by Timberline Forest Inventory Consultants, when contracted to develop a Preferred Silviculture Plan for a 261,000 hectare Tree Farm License (TFL) in the British Columbian interior, was to build a Woodstock model optimizing financial returns – rather than harvest volume – in order to evaluate different silviculture strategies.

“The purpose of the project was to identify how a discretionary silviculture investment could improve short, mid and long-term financial return (net present value),” explains Jay Greenfield, a Resource Analyst in the Prince George office of Timberline.

“By including silviculture costs and harvest revenues in the analysis, treatment regimes considered a balance between timber quality and quantity that results in the greatest financial return.”

Different combinations of fertilization, regeneration and rehabilitation at the stand-level were the specific silviculture investment types that Timberline evaluated in the analysis.

Anatomy of a discretionary silviculture model

Development of the Preferred Silviculture Strategy began with the most recent Management Plan for the TFL, to which logging, treatment costs and expected product values (revenues) were added.



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Stanley, Remsoft's block scheduling software, was used to produce treatment schedules and maps that demonstrated the location and timing of each treatment and helped Timberline communicate the strategy to its client.

"To this model we built-in optional silviculture treatments with a corresponding cost and change in volume and value, and set operability criteria (ages and forest types) and allowed the model to apply the treatment, when and where it provided a financial gain," Mr. Greenfield said.

"First treatments were analyzed individually and ranked according to the overall impact on the net present value generated. Then the best treatments were combined (where feasible) into one composite scenario – our Preferred Silviculture Scenario. This allowed the model to make trade-offs between treatments when silviculture budget levels were imposed."

Optimized investment scheduling

Timberline's Woodstock model elected what treatments to apply when and where to apply them based on treatment cost and associated impacts on current and future revenues.

But more than just taking into account stand-level factors, such as type and age class, the Woodstock model considered forest-level factors that influence harvest timing and therefore the economic viability of a silviculture investment.

"The ability to generate a positive return on investment from silviculture is directly linked to forest-level factors, such as harvest flow policy and the preservation of visual quality and biodiversity values, as much as it is to stand-level factors. Using Woodstock we are able to examine how these factors should influence investment decisions," Mr. Greenfield explains.

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Results

The silviculture strategy that achieved the objectives was the one that could meet forest-level even-flow harvest requirements for the first 50 to 60 years and raise the entire short-term harvest.

"Our analysis showed that significant gains in both harvest volumes and net revenues can be realized through incremental silviculture investment," Mr. Greenfield stated.

"The 'best bang for the buck' for this land base was in forest fertilization because it provided additional volume at a time when timber supply is expected to be limited.

"The Woodstock model focuses treatments in order to overcome this 'pinch-point' in the harvest schedule caused by a gap in age class distribution."

