

Individual Forest Management Unit Analysis

As described in section 4.3.4 “Comparison to the 1992 DFMP “, many changes have occurred that influence the calculation of the sustainable harvest levels in this plan. Scenarios were completed to evaluate the impact of managing each individual FMU as a discrete land base (i.e. determining even-flow harvest levels for both the primary coniferous and deciduous from their respective land bases).

To accomplish this objective while incorporating SYU level constraints, all FMUs were run concurrently in a single model. Even flow constraints were placed on the volume of conifer coming from C and CD broad cover types as well as the volume of deciduous harvested from the D and DC types. Only the aspatial portion of the analysis was completed; no spatial scheduling was completed and pre-blocks were not incorporated.

Table 1. Aspatial Modeling Protocols

Aspatial Modeling	2005 - Landbase = Individual Forest Management Units (discrete land bases)
¹ Planning Start Year	18-Nov-2000
² Planning Horizon	the planning horizon is 32 periods or 160 years
³ Planning Time Step	5 yrs
⁴ Sustainability	The following constraints were placed on each FMU: even flow primary con & decid harvest levels (aspatial), non-declining total growing stock for final 40 years of planning horizon and non-declining operable growing stock for final 15 years of planning horizon. Even-flow conifer for Lodgepole CTP (Jack Knife HDA).
⁵ Objective	Maximize total volume harvest over planning horizon. The timber supply objective is to maximize the sum of coniferous and deciduous harvest volumes over the entire planning horizon. The value of the objective function is in cubic metres.
⁶ Harvest Constraints	Area harvested in Marshy Bank <= 500ha / period in period 1 Area harvested in Blackstone <= 1,000ha / period in period 1 Area harvested in Jasper National Park <= 0 ha / period in periods 1 & 2 Various Harvest Design Areas aggregated for preferred sequence Maintain a range of late, very late, and extremely late seral stages in the main yield strata – D, DC, CD, Se (Sw), Pl, Sb.
⁷ Minimum Harvest Ages	Deciduous Minimum Harvest age: 80 for 1st rotation, 60 for 2nd rotation; Coniferous Minimum Harvest age: 100 for 1st rotation, 80 for 2nd rotation
⁸ Regeneration Lag	C 2.3 years CD 2.4 years DC 2.3 years D 0.4 years
⁹ Succession after harvest	All yield classes regenerate to pre-harvest yield class at age zero (adjusting for regeneration lag) All harvested stands of 'A', 'B', 'C', or 'D' come back to a "C" density
¹⁰ Natural Break-up Ages	Deciduous 200 years DC Mixedwood 200 years CD Mixedwood 300 years Coniferous 300 years
¹¹ Succession after break-up	All Yield Classes maintain original Yield Class at age zero Except non-harvestable forested areas that break-up and return to the curve @ 170 yrs of age

Table 2. Primary Volumes for Individual FMUs

FMU	Con (m3/yr)	Dec (m3/yr)	total
R1	59,901	101,505	161,406
R2	166,669	46,838	213,507
R3	136,142	11,279	147,422
R4	74,949	69,831	144,781
total	437,662	229,454	667,116

The timber supply model and corresponding outputs are contained in the DVD under the folder “Sensitivity”.