

A topographic map of British Columbia, Canada, showing mountain ranges, rivers, and lakes. A blue wavy banner is at the top. The title 'Landscape level Reforestation Strategies' is centered in large yellow text with a drop shadow. Below it, the subtitle 'The use of multi-block stocking standards in BC' is in red text.

# Landscape level Reforestation Strategies

The use of multi-block stocking standards in BC

Allan Powelson February 25, 2010

# What is a landscape level reforestation strategy?

- Reforestation performance is evaluated based on the collective results of a defined area or population
- Typically, it is reforestation performance over a population of cutblocks within a geographic area.
- Can be all stand parameters or just a single parameter
- Most common are indicators based on achievement of desired production from a management unit.

# Legislation

- **FPPR s 45** (grants ability to achieve FRPA s 29 obligations across multiple blocks)
- **FPPR s16**
- (1) A person required to prepare a forest stewardship plan must ensure that the plan specifies the situations or circumstances that determine when .....**section 45 [free growing stands collectively across cutblocks]** will apply to an area. (You choose if standard applies to single or multi-blocks)
- (3) A person required to prepare a forest stewardship plan must ensure that the plan specifies, for each of the situations or circumstances specified under subsection (1) where
  - (c) section 45 (1) will apply, the **regeneration date** and the stocking standards, and (DM approves)
  - (d) section 45 (2) will apply, the **free growing date** and the stocking standards, as approved by the chief forester. (Chief Forester approves)



# Tests

- The phrase “as approved by the Chief Forester” in FPPR s 16 (3) (d) gives the CF more discretion than a DM has in approving single block stocking standards.
- Basically, CF considerations for approval are based on the tests of FPPR s 26 but **are not limited** to these.
- Basic considerations are typically:
  - stocking levels,
  - characteristics of crop trees.
  - immediate and long-term known forest health issues,
  - compatibility with the specified results or strategies,
  - ability to measure and verify the stocking standards,
  - acceptable risk to the public

# BCTS North Coast

- Targeted at controlling species composition across the population of cutblocks:
- *A population area must achieve a species distribution standard where:*
  - *over 50% of the population area, hemlock will comprise less than 50% of well-spaced stocking; and*
  - *over an additional 30% of the population area, hemlock will comprise less than 75% of well-spaced stocking.*

# Weyerhaeuser Southern Interior

- Based on targeting a Maximum Productivity Index from a population of cutblocks
  - Must achieve at least a Threshold Productivity Index
  - 3 main tests
    - **P&A PI > 90% MPI**
    - **Pref PI > 75% MPI**
    - **Total Broadleaf density < 1% of P&A density**
- Uses total trees on a block by block basis but similar standard units across multiple blocks are combined and assessed to determine if they achieve the overall threshold standard.



Multi-Block Tests

1. Area weighted PPI P&A (A) >= Area weighted 90% MPI (E)
2. Area weighted PPI P (B) >= Area weighted 70% MPI (E)
3. Area weighted broadleaf (C minus D) <1% Area weighted total P&A (F)

Multi-Block Reporting - Standard Group 3 Blocks

Test 1	Test 2	Test 3
TRUE	TRUE	TRUE

Test 1		Test 2		Test 3	
0	0	0	0	0	0
0	0	0	0	0	0
15.8016	18.4448	15.8016	18.4448	0	15788.8
1.37484	5.2119	1.71864	5.2119	0	432
47.2768	48.0653	47.2768	48.0653	0	65736
6.69825	7.33125	6.471	7.33125	0	4800
20.8242	20.8242	20.8242	20.8242	0	365148
32.22601	34.25432	30.99781	34.25432	0	16020
16.84854	16.84854	16.84854	16.84854	0	41820
50.4903	50.4903	50.4903	50.4903	0	137340
32.84796	32.84796	32.84796	32.84796	0	171760
14.90455	15.24646	14.7291	15.24646	0	15544
58.41066	58.41066	57.3265	58.41066	0	135135
4.36158	4.36158	4.36158	4.36158	0	40752
24.16491	24.16491	24.08679	24.16491	0	62244
4.55	10.64	1.05	10.64	0	4298
0.987	6.862	0.611	6.862	0	1410
165.504	165.504	161.28	165.504	0	182553.6
18.88	30.08	21.888	30.08	0	34348.8
13.356	13.644	12.132	13.644	0	17136
0.672	4.018	1.022	4.018	0	336
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
530.1792	567.2502	521.7638	567.2502	0	1312602
0.934648	Group	0.919813	Group	0	Group



# Fort St. John (Joint CANFOR, BCTS, LP, +)

- Based on the relationship between the Targeted (TMV) and Predicted Merchantable Volume (PMV) for aggregates based on Site Index and Species Composition.
  - PMV must achieve 95% of TMV
  - Has separate landscape level species targets
  - Has separate landscape level regeneration targets
- Has a unique survey system (Mean Stocked Quadrant)

Based on the population of blocks harvested in 1993/94

Table 33: Predicted and Target Volumes by Stratum-BCTS 2008

Block Strata Summary	Stratum	Net Area (ha)	Mean SI	Mean EA	Mean MSQ	Mean TSS	PMV/ha	Tot PMV	Target MSQ	Target EA	TMV/ha	Total TMV	PMV % of Target
A31969(B)	PIWG/18-20/1200-1400	17.9	21	15.8	3.5	1200	544.8	9751	3.7	14	516.1	9238	3.52
A47644(B), A36014(B), A47644(C)	PISxWG/18-20/1200-1400	64.6	19.2	15.9	3.8	1200	480.7	31054	3.7	14	449.9	29065	11.20
A32937(A), A36014(B), A45132(A), A36008(A), A31969(A)	PISxWG/20-22/1200-1400	185.5	19.7	17.5	3.6	1200	510.9	94767	3.7	14	476.9	88473	34.17
A32946(A)	PISxWG/22-24/1200-1400	65.5	21.6	15	3	1200	567.2	37152	3.7	14	568.3	37224	13.40
A47389(B), A47389(A)	SxNSR/22-24/1200-1400	23.5	15.2	11.1	1.5	1200	177.6	4173	3.7	14	272.7	6408	1.50
A32938(A)	SxSR//22-24/1200-1400	8.2	23.5	17.5	2.3	1200	634.1	5200	3.7	14	707.3	5800	1.87
A47644(A), A45125	SxWG/18-20/1200-1400	34.1	21.7	18.2	3.2	1200	639.4	21803	3.7	14	611.7	20859	7.86
A36013(A), A36013(B), A47644(B), A45124(A), A45132(A)	SxWG/22-24/1200-1400	131.3	21.7	16.7	3.2	1186	632.7	83076	3.7	14	611.4	80279	29.95
	Total	530.6	20.4	16.5	3.3	1197	540.9	286976	3.7	14	522.7	277344	103.47

PMV must achieve 95% of TMV

## 2008 Planting Summary

Planting % Must be within +/- 20% of Cruise %

Division	Data	Total	Percentages	
BCTS	Sum of Cruise Spruce (m3)	226132	73.1%	
	Sum of Cruise Pine (m3)	83047	26.9%	
	Sum of Planted Spruce (trees)	988600	80%	
	Sum of Planted Pine (trees)	247600	20%	
	Licencee Participants	Sum of Cruise Spruce (m3)	338015	65%
		Sum of Cruise Pine (m3)	178661	35%
Sum of Planted Spruce (trees)		1068477	61%	
Sum of Planted Pine (trees)		695832	39%	
<b>Total Sum of Cruise Spruce (m3)</b>		<b>564147</b>	<b>68%</b>	
<b>Total Sum of Cruise Pine (m3)</b>		<b>261708</b>	<b>32%</b>	
<b>Total Sum of Planted Spruce (trees)</b>		<b>2057077</b>	<b>69%</b>	
<b>Total Sum of Planted Pine (trees)</b>		<b>943432</b>	<b>31%</b>	

# CANFOR NW (proposed)

- Similar in structure to the Fort St. John process
  - Except it is proposing using total trees instead of MSQ
  - No change in survey system except well-spaced will not be collected.
  - Will also collect OAF indicators at each plot
  - Will group based on estimated stocking distribution, similar site index, and similar species composition.
  - Still in discussion with MFR about content and procedures.



# Summary

- Landscape level reforestation strategies allow for innovation and creativity in achieving desired future forest conditions
- Work very well within a sustainable forest management planning process
- Is this the next step in the evolution of stocking standards in BC (western Canada)?

An aerial photograph of a forested region, likely in British Columbia, Canada. The terrain is rugged with numerous streams and rivers. A prominent blue wavy banner is at the top of the image. The text is overlaid on the map.

# Thank You

Allan Powelson

Forest Establishment Initiatives Officer

Forest and Range Investment and Practices Branch

[allan.powelson@gov.bc.ca](mailto:allan.powelson@gov.bc.ca)

250-812-5054