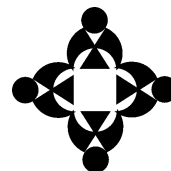




Partial Cutting Information Needs Assessment for the Nelson Forest Region:

“Finding Solutions”: Administrative and Policy Issues

FILE REPORT 01-4

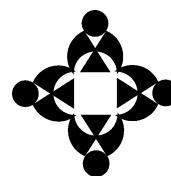


Southern Interior
Extension and
Research Society

Partial Cutting Information Needs Assessment for the Nelson Forest Region:

**“Finding Solutions”:
Administrative and Policy Issues**

Kathie Swift (editor and compiler)



Southern Interior
Forest Extension and
Research Partnership

National Library of Canada Cataloguing in Publication Data

Main entry under title:

Partial cutting information needs assessment for the Nelson Forest Region
[computer file] : finding solutions : administrative and policy issues

(File report ; 01-4)

Mode of access: World Wide Web.

ISBN 0-9687156-9-9

1. Logging—British Columbia—Nelson Region. 2. Silvicultural systems—British Columbia—Nelson Region. 3. Forest management—British Columbia—Nelson Region. 4. Nelson Forest Region (B.C.)
I. Swift, Kathie, 1962- II. Southern Interior Forest Extension and Research Partnership.
III. Series: File report (Southern Interior Forest Extension and Research Partnership) ; 01-4.

SD568.B7P38 2001b

634.9'8'097116

C2001-902290-5

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The Southern Interior Forest Extension and Research Partnership would like to acknowledge the generous financial contributions of Forest Renewal BC.



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ABSTRACT

As the management of other values becomes a more intricate component of our forestry culture, the use of the silvicultural systems “tool kit” increases in importance. With the greater use of different systems, the need for information pertaining to their use is also increasing.

In early January 2000, the B.C. Ministry of Forests in the Nelson Forest Region did an internal review of the partial cutting issue and indicated that a more widespread view of the problem was required. To achieve this wider view, the Ministry worked with the Southern Interior Forest Extension and Research Partnership (the Partnership) to develop a partial cutting information needs strategy.

During the focus group sessions, the target group identified over 70 policy or administrative framework issues. This list was further refined to 38, with the majority of issues relating to broad themes such as surveys and standards, landscape-level planning, and compliance and enforcement.

A working session was set up with the policy community (October 12 and 13, 2000) to further review these issues. The researchers then discussed what steps were needed to address the identified issue, looking at possible extension or research mechanisms. This report provides a brief outline of the discussions that took place around these issues.

ACKNOWLEDGEMENTS

Thanks to the following individuals for taking the time to participate in the information needs assessment and follow-up.

Robert Short	Evans Forest Products	Greg Goldstone	MOF Castlegar
Scott King	Evans Forest Products	Ivan Listar	MOF Nelson
Neil Weber	Evans Forest Products	Karl Koerbe	Kalesnikoff Lumber Co.
Tim Arnett	Evans Forest Products	Reiner Augustin	Kalesnikoff Lumber Co.
Heather Morgan	Evans Forest Products	Al Pollard	MOF Kootenay Lake
Steve Jablancy	MOF Invermere	Jim Annunziello	MOF Kootenay Lake
Pat Wadey	MOF Columbia	Heather Pinnell	Harrop-Procter Community Forests
Bob Richkum	MOF Columbia	Richard Prill	MOF Boundary
Cliff Beliveau	MOF Invermere	Bob Murray	Hugh Hamilton Ltd.
Harry Mitchell	MOF Invermere	Stan Hadikin	Kalesnikoff Lumber Co.
Grant Neville	Crestbrook Forest Industries	Jane Miller	Kokanee Forests Consulting
Paul Hague	Evans Forest Products	Deb Delong	MOF Nelson
George Richardson	Crestbrook Forest Industries	John Pollack	MOF Nelson
Kelly LaRoy	Crestbrook Forest Industries	Ron Ozanne	Atco Lumber Ltd.
Ralph Winter	MOF Forest Practices Branch	Don Norris	MOF Nelson
Wayne Johnstone	MOF Research Branch	Bruce Fraser	MOF Nelson
Cy McConnel	MOF Invermere	Mark Smedstad	MOF Invermere
Lloyd Havens		Brian Amies	

Policy Working Session:

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Chris Fletcher	MOF Timber Supply Branch	Ralph Winter	MOF Forest Practices Branch
Barb Wadey	MOF Revelstoke	Darrell Regimbald	MOF Invermere
Kristine Saceniaks	MOF Nelson	Paul Rehler	MOF Forest Practices Branch
Patrick Daigle	MOF Research Branch	Mel Scott	MOF Forest Practices Branch
Bill Nelson	MOF Cranbrook	Ivan Listar	MOF Nelson
Tom Johnston	MOF Arrow	Bernie Peschke	MOF Nelson

QUALIFIER

The intent of this report is to identify key information issues in the area of partial cutting in the Nelson Forest Region. It is important to note that the information needs identified in this survey only reflect the views of practitioners in this forest region and should be treated accordingly. As well, the information generated as a result of the follow-up working sessions with the research and policy communities is far from complete and should be viewed as a limited reflection of what is currently under way.

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1 INTRODUCTION

As the management of other values becomes a more intricate component of our forestry culture, the use of the silvicultural systems tool kit increases in importance. With the greater use of different systems, the need for information pertaining to their use is also increasing. Partial cutting, a term that seems to encompass many of the different silvicultural systems techniques, has been categorized as an area of high information need in a number of surveys. However, before providing information to fill this need, it is important to define the problems surrounding partial cutting, the information needed to help address these problems, the best methods of delivery, and the techniques to evaluate the effectiveness of delivery.

In early January 2000, the B.C. Ministry of Forests in the Nelson Forest Region did an internal review of the partial cutting issue and indicated that a more widespread view of the problem was required. To achieve this wider view, the Ministry requested the aid of the Southern Interior Forest Extension and Research Partnership (the Partnership). Working with the Partnership and a small multi-party working group, a partial cutting information needs strategy was developed and implemented.

1.1 Project Objectives

The objectives developed for the partial cutting information needs project were:

1. to identify information needs that will increase the comfort, confidence, and competence of those who have to develop or approve and implement partial cutting regimes to meet a management objective; and
2. to provide direction and identify priorities for research, extension, and policy specialists and to link these priorities to funding agencies.

2 METHODS

To carry out the objectives of the partial cutting needs assessment project, an audience of field practitioners was chosen as the primary target group. This group included consultants, Ministry of Forests district personnel, licensees, Ministry of Environment, Lands and Parks personnel, and woodlot owners. Administrative personnel were also chosen as a secondary target group.

To assess the needs of the primary target group, a two-phase approach was used. The first phase involved the development of a 4 × 5 matrix with possible issue categories listed across the top of the matrix and potential forest types of interest listed down the side of the matrix. This exercise provided the target group with an opportunity to analyze their issues with a “coarse filter.” They categorized the issues as biological/technical, policy, administrative, and socio-economic, as well as by forest type (Dry Douglas-fir; Wet Belt Douglas-fir; Kootenay Mix – Interior Cedar–Hemlock; lodgepole pine; and Engelmann Spruce–Subalpine Fir). This matrix, along with details about its use, was forwarded to the target audience for completion. Once completed, the matrices were returned and the data summarized by issue and forest type.

In the second phase of the project, all members of the target audience were invited to attend two focus group sessions. One, held in Invermere (June 13, 2000), drew 18 participants, and the other in Castlegar (June 14, 2000), drew 17 participants. The intent of these focus groups was to:

- review all of the issues generated by the matrix,
- clarify the real issues, and
- identify any additional issues that might have been missed during the first phase of the process.

The focus group participants were to prioritize the issues that were identified; however, because of time limitations, this did not occur. A list of issues was generated that synthesized the information collected from both focus groups. This list was forwarded to the participants for review. At the same time, the participants were also asked to identify their top ten biological or technical issues and their top ten policy or administrative issues based on the perceived severity and extent of the problems. A summary of the policy/administrative issues is presented in Appendix 1, with a more detailed account provided in Appendix 2.

To meet the second objective of this project, two working sessions were set up, one with the research community (October 10 and 11, 2000), and one with the Ministry of Forests policy community (October 12 and 13, 2000).

The purpose of the working session with the policy community was to review the biological or technical issues initially identified by the project target group. The information generated by the target group was first reviewed, and then each individual issue was assessed to determine:

- what information was currently known about the issue,
- what information was lacking, and
- where uncertainties existed.

The researchers then discussed what steps were needed to address the identified issue, looking at possible extension or research mechanisms.

The remaining sections of this report will focus on the information generated for the policy and administrative framework issues.

3 RESULTS

3.1 Major Issues Identified

During the focus group sessions, the target group identified over 70 policy or administrative framework issues. This list was further refined to 38, with the majority of issues relating to broad themes such as surveys and standards, landscape-level planning, and compliance and enforcement. The following were the top policy or administrative framework issues identified by the target group.

- How do we deal with conflicts between the social value of partial cutting, the biological realities of the stand, and legislative requirements.
- How can we improve the definition and application of the stocking standards for partial cutting?
- In timber supply modelling, can we model the variable basal area retention attributed to species composition and basal area variation within a stand?

- How can we improve the tracking of past or current partial-cutting operations? Some history is available from ISIS/MLSIS, but this is often not accurate, current, or contains little detail. How can we improve this?
- Is Timber Supply Review modelling of uneven-aged stands, and partial cutting as a whole, adequate?
- How do we measure Silviculture Prescription compliance when doing partial cutting?

3.2 Synopsis of Discussions

A brief outline of the discussions that took place around these issues, and a number of others, follows.

3.2.1 Information Management

COMPONENTS OF THE ISSUE	<ul style="list-style-type: none"> – Are we collecting and storing the right data for new forestry practices, particularly for partial cutting and all of the possible variations which this method presents? – Does a corporate commitment exist to the current information management system, which includes dedicated people and money? – Is the data storage framework outdated? – Are we clear on what we want from the current system, and what we want for the future? – What kind of information management system needs to be designed to deal with the different stand structure changes?
NEXT STEPS	<ul style="list-style-type: none"> – Set up a provincial working group to undertake a more detailed problem analysis. – Define the issues and potential solutions, by consulting with various people including district personnel and licensees. – Communicate the lack of resources to Branch. – Communicate the need for quality control support (“cleaner” data required).
IMMEDIATE ACTIONS	<ul style="list-style-type: none"> – Bruce Fraser volunteers to chair a provincial group to discuss the issues around ISIS and information management in general.

3.2.2 Landscape-level Planning

COMPONENTS OF THE ISSUE	<ul style="list-style-type: none"> – Do we want to build partial-cutting regimes on a block-by-block basis, or on a broader “working circle” area basis, in which areas with specific management objectives, or specific ecosystem types or species are used. – Do we have the spatial modelling capabilities to do this realistically? What will the effects be?
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NEXT STEPS	<ul style="list-style-type: none"> – Merritt IFPA is currently looking into this (JS Thrower and Associates). – A regulation change is currently proposed to allow this to take place using stand management prescriptions (Ralph Winters working on this).
IMMEDIATE ACTIONS	<ul style="list-style-type: none"> – Patrick Daigle will pass along extension materials from the U.S. experience to Mel Scott. – Mel Scott will make a request for Patrick’s time to develop a discussion paper on working circles and how they can be related to Silviculture Prescriptions.

3.2.3 Timber Supply Modelling

COMPONENTS OF THE ISSUE	<ul style="list-style-type: none"> – Is timber supply modelling adequate for partial cutting? – Are we collecting the correct data, or using the correct protocol, to feed models used by the Timber Supply Review (data collection dictated by legislation)? – How do we represent partial cutting in timber supply analyses for all zones? – What protocol should be used in timber supply modelling? – Need to understand what partial cutting regimes are being used and what responses we are able to model (i.e., this is a data problem not a model problem).
NEXT STEPS	<ul style="list-style-type: none"> – We need a shorter-term solution because of the time needed to collect the data. – In the longer term, we need to collect data through the establishment of PSPs to celebrate existing models. – We need to focus on where partial cutting affects timber supply.
IMMEDIATE ACTIONS	<ul style="list-style-type: none"> – Chris Fletcher proposes to get experts together to describe the current regimes (i.e., what is the level of uncertainty in response to different levels of basal area removal). This will involve discussions with district pilots (Invermere or Merritt IFPA) and could be accomplished in one year.

3.2.4 Extension and Training on Terminology

COMPONENTS OF THE ISSUE	<ul style="list-style-type: none"> – Extension and training on definitions or terminology associated with intermediate cuts. “Intermediate cut” or “regeneration cut” does not equal a silvicultural system. How do we plan for the longer term? – What is the threshold for setting regeneration standards? It is very dependent on management objectives and species. There needs to be some extension on guidelines.
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NEXT STEPS	– Write Code bulletin to provide a framework for decision making (i.e., critical factors to consider).
IMMEDIATE ACTIONS	<ul style="list-style-type: none"> – Biological definition versus legislative definition: a local discussion group led by the districts to formulate this definition; Darrell Regimbald, Barb Wadey, and Bill Nelson to talk to Paul Rehsler. – To look at potential impacts, Ivan Listar put together a FRBC proposal to do some modelling using PROGNOSIS. – Mel Scott to forward Ken Zielke’s book on Silvicultural Systems Terminology to district staff.

3.2.5 Extension and Training

COMPONENTS OF THE ISSUE	– Extension and training required on partial cutting in general.
NEXT STEPS	– Practitioners need all available information on partial cutting in a form that they can use and understand.
IMMEDIATE ACTIONS	– Mel Scott submits a funding proposal for partial-cutting training (with the assistance of SIFERP).

3.2.6 Social versus Biology

COMPONENTS OF THE ISSUE	<ul style="list-style-type: none"> – Greater clarity required on the objectives for partial cutting. – Greater clarity required on the biological effects of partial cutting. – Greater clarity required on the legislation to deal with partial cutting.
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3.2.7 Standards and Surveys

COMPONENTS OF THE ISSUE	<ul style="list-style-type: none"> – How can we improve stocking standards for partial cutting? – We have not developed a process or numbers to determine the appropriate stocking standards for zones other than the dry Interior Douglas-fir zone. – We need guidelines to determine whether licensees have met the free-growing standards for partial cuts. – We need biological information to provide acceptable ranges of stocking standards for partial cutting. – A surveying problem is also part of this issue: how can heterogeneous stands be surveyed adequately? – Free growing should not be applied to residual trees, but to those 2 m tall young ones. – Acceptability criteria required for all layers at time of harvest: will these trees make it? – How do we determine site index on these residuals?
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NEXT STEPS	<ul style="list-style-type: none"> - Acceptability criteria for trees remaining after an intermediate cut: do these exist? - Paul Rehsler is addressing the following: <ul style="list-style-type: none"> • pre-harvest stand structure composition (stocking requirements) • characterization of the stand structure after harvest, • surveys to meet that stand structure • framework for setting numbers that will go into a silviculture prescription • characterization of partial cutting currently being carried out - UBC/PROGNOSIS team is working on biological components of residuals.
IMMEDIATE ACTIONS	<ul style="list-style-type: none"> - Extend current information from the United States: Patrick Daigle to Paul Rehsler.

3.2.8 Stand Structure

COMPONENTS OF THE ISSUE	<ul style="list-style-type: none"> - What are the acceptability criteria for trees remaining after an intermediate cut; are there criteria? If so, are there criteria for all layers? - Criteria for intermediate cut: 12 months after harvest. - Leave tree acceptability criteria for partial cutting are not adequately defined.
NEXT STEPS	<ul style="list-style-type: none"> - Provide further direction on leave tree acceptability criteria: what type of tree will count towards stocking. - Provide “bottom line” criteria on what is an intermediate cut; need articulate definition of basic principles. - Provide guidance on conducting a proper survey: what is involved, what is counted, and for what purpose; how long will the trees be left. - Develop draft of partial cutting handbook.
IMMEDIATE ACTIONS	<ul style="list-style-type: none"> - Partial cutting handbook: one-year time frame draft has already been developed. Portions on leave trees to be sent out to districts. Supplemental chapter for leave tree criteria to be released later. Mel Scott and Paul Rehsler.

3.2.9 Compliance

COMPONENTS OF THE ISSUE	<ul style="list-style-type: none"> - What attributes should be used to control or assess compliance with stand structure? - Are the current standards the best attributes?
NEXT STEPS	<ul style="list-style-type: none"> - Part of Paul Rehsler’s project will address this.

- IMMEDIATE ACTIONS – Depending on Paul Rehsler’s work, some actions will be put into legislation.
-

3.2.10 Adaptive Management

- COMPONENTS OF THE ISSUE – How can we encourage an adaptive management approach to what we are doing?
– How can we encourage monitoring of what we have done in the past?
– How can we pass that knowledge on?
– The current system does not allow for innovation and has a problem with professional reliance.
– There is no formalized monitoring mechanism in place that can provide feedback on the information generated.
– There is no mechanism to institutionalize the concepts of adaptive management.
– What is the best process to get new information or technology into operational practices?
- BARRIERS – Constrained by policy framework.
– No guidance on how to establish operational trials.
– No money for champions.
– No system to store or communicate information.
- NEXT STEPS – Create the institutional structure.
– Some guidance is required to describe an operational trial.
– A review of old trials is needed and extension of existing information.
– Retrospective work is needed.
– Communication on adaptive management role.
– Ministry of Forests should be releasing operational trial guidelines soon.
– Brian Nyberg has been presenting a course on “Demystifying Adaptive Management.”
- IMMEDIATE ACTIONS – Patrick Daigle will call Brian Nyberg and pass on this adaptive management information.
– Bruce Fraser will ask Brian Nyberg to do a presentation on adaptive management to the Nelson RMT.
-

3.2.11 Other Issues Identified

1. We are not sure that the standards used at the stand level are appropriate for the forest-level objectives.
There is a lack of connection between stand-level actions and forest-level modelling and assumptions. We assume things about non-timber objectives (i.e., adjacency guidelines would be different), but are these assumptions correct with respect to partial cutting? If we build regimes for the stand level, these can be used at the TSA level.
-

2. Survey procedures built for uniform stands may not be appropriate for measuring compliance in more complex, highly heterogeneous stands. Patrick Daigle to find out what they do about this in the United States.
3. We are getting cruise data after the silviculture prescription, when this data should be obtained before. There is a lot of good information that could be used to develop good silviculture prescriptions.
4. How do we move beyond the 40% basal area retention rule to create stand structures that are meeting the objectives which underlay this 40% rule. If you apply the 40% rule to meet something like adjacency, what short-term and long-term biological trade-offs will take place? Should we be expecting regeneration to take place at this level of basal area removal? Has this number outlived its usefulness, especially since we have other sets of checks and balances relating to hydrology concerns. We need specific numbers for each of the following: visuals, water, wildlife (ungulate winter range), and regeneration.
5. In areas that have been previously harvested and are being harvested again, old skid trails are not being used to avoid exceeding soil disturbance guidelines; this creates two sets of trails instead of one. Guidelines from Branch are needed to deal with inconsistencies between forest districts regarding limiting site disturbance in multiple entries.
6. Forest Development plans tend to be general, so it may be difficult to provide measurable objectives and Silviculture Prescriptions at the stand level.
7. What is the minimum size of openings that should be reforested? (A bulletin is in the works.)

4 RECOMMENDATIONS

- Because of the internal nature of policy and policy development, it is suggested that the Ministry of Forests consider the issues that were raised by this process.

APPENDIX 1 Top Administrative and Policy Issues

THEME/CATEGORY	IDENTIFIED ISSUE	FOREST TYPE AFFECTED	PRIORITY IDENTIFICATION	PAGE REFERENCE
Surveys and Standards	Is there a lack of inventory data capturing layers 3, 4 as well as previous partial cutting practices?	All	1	13
	How can we improve the definition and application of the stocking standards for partial cutting?	All	5	13
	How can we improve the clarity and consistency of current survey procedures?	All	3	14
	How do we manage for basal area targets?	All	2	14
	What is the minimum size of openings that should be reforested?	All	1	14
	Do the current standards and assumptions of regeneration delay and free growing apply to partial cutting?	All	1	15
	Are there guidelines for accepting advanced regeneration and residuals?	All	2	15
	Is there any way to help reduce the tree marking operations that usually takes place within the contracting procedures within the SBFEP?	All	1	15
	Waste policy versus other values: how do you reduce the conflicts between line agencies?	All	0	15
	Is it possible to carry over a partial roll over of silviculture obligations within a block (e.g., by stratum)?	All	0	16
	Do we have provincial/regional survey criteria for roll over under section 26 of the SPR, or is this a district decision?	All	0	16
We should have acceptability criteria for residual stems (layer 1 and 2): is one available?	All	3	16	

APPENDIX 1 Top Administrative and Policy Issues (Continued)

THEME/CATEGORY	IDENTIFIED ISSUE	FOREST TYPE AFFECTED	PRIORITY IDENTIFICATION	PAGE REFERENCE
Surveys and Standards (continued)	It is difficult to track past/current/planned partial cutting operations: how can this be improved? We can get some history from ISIS/ML SIS, but it is not often accurate, current, or contains much detail: how can we improve this?	All	3	16
Landscape Level	Is TSR modelling of uneven-aged stands, and partial cutting as a whole, adequate?	All	3	16
	What is the intermediate cut definition?	All	1	16
	How can we clarify objectives, residual and long-term stand conditions if policy framework is short term in nature?	All	1	17
	How can we provide more management guidance through higher level plans/objectives?	All	0	17
	Placement of OGMAs overtop NDT4 fire-maintained ecosystems: what are the options for restoration and long-term impacts?	Dry Df	0	17
	The current definition of silviculture systems in the guidebooks seems to have timber as their base objective. Do these definitions still apply when the objective is no longer timber?	All	0	17
	There is a conflict between the social value of why we are partial cutting, the biological realities of the stand, and legislative requirements. How do we deal with this?	All	6	17
	There is a lack of geo-referenced cutting profile: how do we improve this?	All	0	17
	Current partial cutting program requires innovation that includes some risk taking, monitoring, and some form of risk matrix: how can we encourage an adaptive management approach to what we are doing?	All	2	18

APPENDIX 1 *Top Administrative and Policy Issues (Continued)*

THEME/CATEGORY	IDENTIFIED ISSUE	FOREST TYPE AFFECTED	PRIORITY IDENTIFICATION	PAGE REFERENCE
Landscape Level <i>(continued)</i>	With the advent of the SP, the option to go outside the block boundary to remove diseased trees is lost. What is the impact of this on future stands?	All	0	18
	Timber supply modelling: can we model the variable BA retentions due to species composition and BA variation within a stand?	All	4	18
	Forced to partially cut stands that should not be: why? Are economic values still being met? Do we need a different measure of value?	All	3	18
	Do we have flexibility in terms of managing for beetles?	All	0	18
	What is the impact of forest health factors in removing specific species?	All	1	19
	Why are we partially cutting lodgepole pine stands? Is a possible option group selection?	Lodgepole	0	19
	Is the stumpage appraisal system working for partial cutting?	All	3	19
	How should the postwood component of a stand be treated?	All	1	19
	What is the impact of non-action areas (i.e., Parks) on adjacent THLB?	All	0	20
	Is there a need for a management strategies and administration field handbook, and if so what should be in it?	All	2	20
Is there a general resistance to using partial cutting?	All	0	20	
Compliance and Enforcement	Why are re-used old skid trails now counted as new soil disturbance?	All	1	21
	How do you measure SP compliance when doing partial cutting?	All	3	21

APPENDIX 1 *Top Administrative and Policy Issues (Concluded)*

THEME/CATEGORY	IDENTIFIED ISSUE	FOREST TYPE AFFECTED	PRIORITY IDENTIFICATION	PAGE REFERENCE
Compliance and Enforcement <i>(continued)</i>	Is C & E training in partial cutting required to increase the specifications of tolerance?	All	1	21
	How do we reduce the difficulties in measuring stands post-harvest against whatever standards are set (post-harvest methods to determine compliance, etc.)?	All	3	21
	Agencies try to encourage beetle-proofing, but experience indicates limited success: what do we do?	All	0	21

APPENDIX 2 Details of the Top Administrative and Policy Issues

Surveys and Standards Theme

1. Is there a lack of inventory data capturing layers 3 and 4, as well as for previous partial cutting practices?

Concerns:

- There is concern about the accuracy of the information for layers 3 and 4. It appears that the only way it can be collected is from sources other than inventory. Is this information being collected in a consistent manner throughout the province? What does the collected information really mean when each district/region may be collecting the data differently?
- There is a problem with the FIT files: they cannot handle multi-layered stands. Is inventory branch going to reconstruct the inventory model?
- What is the most appropriate monitoring system to document the history of partial cutting, where it has been successful, and where it has not?

2. How can we improve the definition and application of stocking standards for partial cutting?

Concerns:

- The current stocking standards being used in partial cutting prescriptions are actually uneven-aged stocking standards of layer 1–4 in terms of number of stems per hectare or basal area per hectare. This causes a problem if the partial cut is not uneven-aged.
- In an actual stand you may not be able to meet the stocking standard because of the amount of residual basal area remaining that does not count in the stocking tally. When you don't meet the standard you are expected to fill plant, but there is no place to plant the tree because the site is already occupied.
- Need to start working towards numbers that are more appropriate to the system being used.
- Need to develop a process where different targets can be expressed. There are, however, potential problems with publishing such a wide variety of numbers for all of the possible variations of partial cutting techniques.
- In terms of providing background information and guidance to the SDM, the guidebooks fail to indicate what the base stocking standard represents. Because this explanation is missing, the SDM has no terms of reference with which to measure any alternative standards that may be posed.
- We need to evolve past these standards: determine what the strategic forest needs are and then create the standards accordingly. Is there a process in place for this to happen: if not what are the barriers?
- People seem unable to articulate objectives clearly and to determine what type of stand structure is wanted over time and the growth and yield implications of that decision: why? (Training in conceptual approaches – SIBC Module 6).

3. *How can we improve the clarity and consistency of current survey procedures?*

Concerns:

- Problems in clarity and consistency exist in terms of how surveys are carried out.
- A lot of training is needed on multi-storeyed stands and how to survey them and how the survey works.
- Problems also exist in interpreting the survey results: what does basal area really mean?
- In terms of counting trees: what do you count, what do you look for (quality criteria), and how can you meet the objectives of the SP?
- The information derived from these surveys has implications for timber supply because of the variation of survey methodologies taking place (i.e., in terms of statistical accuracy and the lack of standardization of the procedures).

4. *How do we manage for basal area targets?*

Concerns:

- Basal area retention in riparian areas: do you manage for a basal area target or stems per hectare?
- Parallel basal area stocking standards are needed to go along with stems per hectare stocking standards.
- Basal area stocking will also vary by species.
- What is the cut-off in basal area in terms of whether you have regeneration obligations?
- In terms of options for treatments, will the residual trees respond? What are the growth and yield responses or expectations? What do the models say?
- When managing for wildlife, what targets are needed? How do we monitor the results?
- How do we express stocking standards in terms of amount of basal area on a site? Are we looking for big groups or little guys?
- Where does deciduous basal area come into things?
- What is the appropriate basal area for each management objective? What is the future growth and yield implications? Do the current basal area standards make sense in terms of management objectives, or is it just to meet compliance?
- What is the relationship between potential site productivity versus realized site productivity (what is on the ground now)?
- How do we move our thinking away from a “stocked” stand to a “managed” stand because of other attributes?
- What is an appropriate monitoring system to follow systems over time (monitoring and action systems)?
- How do we pass on what has worked and what has not?

5. *What is the minimum size of openings that should be reforested?*

Concerns:

- Most partial cutting is irregular in distribution with gaps: do you leave these gaps unforested until the next pass or final harvest?
- Tracking and reforestation of these gaps is going to become an issue as we get into larger units.

- Are these openings accurately accounted for in OAFs?
- How do you regulate the holes?

6. *Do the current standards and assumptions of regeneration delay and free growing apply to partial cutting?*

Concerns:

- What is the minimum length of time before regeneration delay can be declared and what do you declare?
- Current system doesn't recognize the complex and variable nature of partial cutting.
- How do we get these partial cuts off of the books: is it or is it not? There is a misuse of the terms "free growing" and "regeneration delay" for partial cutting; they are not the same as the terms used in relation to clearcutting.
- We need another piece of legislation to show what is growing out there.

7. *Are there guidelines for accepting advance regeneration and residuals?*

Concerns:

- Acceptability standards for advanced regeneration and residuals may need to vary by site depending on the management objective: the current guidelines do not reflect this.

8. *Is there any way to help reduce the tree-marking operation, which usually takes place within the contracting procedures for the Small Business Forest Enterprise Program?*

Concerns:

- Most forest companies have contractors, who they have used over an extended period of time and who understand the company's requirements for partial cutting activities. It is likely that the company has invested some training dollars to make sure that the job will be done to the required standard. The Small Business program within the MOF does not have this opportunity. When they are doing a partial cut, they must contract it out to whoever meets the terms of the agreement. This person may or may not be known to the District. To limit the chance of anything going wrong, the program has undertaken the responsibility of marking every tree that is to be removed, as well as providing constant supervision. This is very costly and time consuming: what can be done about this?

9. *Waste policy versus other values: how do you reduce the conflicts between line agencies?*

Concerns:

- There appears to be a conflict developing between line agencies surrounding the interpretation of residuals which are being left for wildlife trees versus being considered waste or danger trees: what do you do?

10. *Is it possible to carry forward a partial rollover of silviculture obligations within a block (e.g., by stratum)?*

11. Do we have provincial or regional survey criteria for rollover under section 26 of the Silviculture Prescription regulations, or is this a district decision?

Concerns:

- Plots per hectare grid spacing: need direction on how to do it so that consistency is maintained. There is a lack of guidance in the regulated requirements: what are we looking for?

12. We should have acceptability criteria for residual stems (layer 1 and 2): is one available?

Concerns:

- Compliance issue: residual stems fill a goal, so pick reasonable layer 1 and 2's to fulfill intermediate cut objective: what should they look like?

13. Difficult to track past, current, or planned partial cutting operations. How can this be improved? Can get some history from ISIS/MLSIS, but it is not often accurate or current, and does not contain much detail: how can we improve this?

Concerns:

- Retaining a record of the stand after free growing?
- Information management issue.
- Historic information: is there a way to differentiate?
- Need standard codes to fit into more boxes.
- How do you fill in the existing boxes?
- What happens when the computer won't let you go to the next screen?

Landscape Level Theme

1. Is Timber Supply Review (TSR) modelling of uneven-aged stands, and partial cutting as a whole, adequate?

Concerns:

- TSR does not have the information to model partial cutting.
- There is a problem with the database monitoring capacity.
- There is an increased cost implied when you have to go back to the same plots established pre-harvest: how will this cost be reconciled? Or will it?
- What kinds of models are needed that can determine the effect of partial cutting on TSR/ forest health/genetic seed/etc.?

2. What is the intermediate cut definition?

Concerns:

- It would be nice to have one!
- Where do you draw the line (basal area? stems per hectare?) before you need to think about regeneration?
- So far it is very subjective: how do you put more definition around it?

3. *How can we clarify objectives and residual and long-term stand conditions when the policy framework is short term in nature?*

Concerns:

- The policy framework is designed for a short period of time 10-15 years: there needs to be something more long term. How can this be achieved?

4. *How can we provide more management guidance through higher level plans or objectives?*

Concerns:

- What you are managing for and how: nothing has changed; there is still a void and it causes confusion and conflicts on the ground.
- Currently there are no objectives.
- There are no clear definitions of meeting those objectives.
- Success and failure of an SP is not measured by objectives.
- Objectives tend to be immeasurable.

5. *Placement of OGMA's overtop NDT4, fire-maintained ecosystems: what are options for restoration and long-term impacts?*

6. *Current definition of silviculture systems in the guidebook seems to have timber as its base objective. Do these definitions still apply when the objective is no longer timber?*

Concerns:

- Silviculture system in a Silviculture Prescription implies certain requirements that are currently not taking place due to "other values." There may need to be a redefining of these systems to meet objectives other than timber. For example, partial cutting with middle retention is being done to meet another objective: this will cause a problem with regeneration in terms of how to do it and when. Because it is being done for another purpose, it won't fit within the traditional silvicultural systems.

7. *There is a conflict between social value of why we are partial cutting, the biological realities of the stand, and legislative requirements. How do we deal with this?*

Concerns:

- There is a need to articulate a future stand structure with growth and yield implications and what you need to achieve as an objective. What would the impact of this be? How would one go about doing this?

8. *There is a lack of a geo-referenced cutting profile: how do we improve this?*

Concerns:

- Timber Supply Review says that there is wood out there: where?
- Need a spatially explicit model.

9. *Current partial cutting program requires innovation, which includes some risk-taking, monitoring, and some form of risk matrix: how can we encourage an adaptive management approach to what we are doing?*

Concerns:

- Adaptive management approach, compliance and enforcement, and SDM: how do you mix them all together?
- How can you use adaptive management for partial cutting activities so that some of the issues can be dealt with?
- Need some baseline monitoring: link to IFPA's on how to overcome other constraints; need documentation and extension.

10. *With the advent of the Silviculture Prescription, the option to go outside the block boundary to remove diseased trees is lost. What is the effect of this on future stands?*

11. *Timber supply modelling: can we model the variable basal area retentions attributed to species composition or basal area variation within a stand?*

12. *Forced to partially cut stands that probably should not be: why? Are economic values still being met? Do we need a different measure of value?*

Concerns:

- Forced to do partial cutting for non-timber reasons with productivity implications.
- A risk analysis process that could quantify this is missing.
- How much is this loss and with what trade-offs?
- Are economic values still being met? This needs to be bumped up to a higher level, but problems always seem to appear at the Silviculture Prescription stage: is it because of the lack of strategic guidance?
- Do we need to write down the consequences of the activity with the Silviculture Prescription?
- Risk of applying guidelines to manage for other values may be too high: may have to walk away from the stand.
- Highly constrained area: we may have to put productivity at risk to get some timber values out. What is the long-term implication of this?
- Do we need a different measure of value criteria for getting timber out using partial cutting: is there a way to use partial cutting strategically?
- If partial cutting is used non-strategically over the whole landscape, it (globally) may reduce timber in Timber Supply Review in the long run.
- Need some way to bring data forward through some form of monitoring (NIVMA, PROBE).

13. Do we have flexibility in managing for beetles?

14. What is the effect on forest health factors of removing specific species?

Concerns:

- Forest health factors are causing the removal of specific species in an area; this may create small blocks, which may or may not meet a standard unit. How do you track these over time?

15. Why are we partially cutting lodgepole pine stands? Is a possible option group selection?

Concerns:

- Other values or reasons are driving the use of partial cutting in this forest type: what are the implications of these other values on the biology of these forests?
- Are there other, more biologically appropriate, silviculture systems options, such as group selection?

16. Is the stumpage appraisal system working for partial cutting?

Concerns:

- Is there full and equal recognition of costs associated with different partial cutting systems?
- Intermediate cut versus section 26: two ways to deal with the same stand. Some will choose an intermediate cut (which carries marking and layout costs only), while others may choose (or must do, depending on the objective of the area) a regeneration cut (which includes regeneration obligations and costs). Will this inequality be made up over time?
- The smaller, more complicated, and the more retention required per block, the larger the cost per cubic metre cut. Is this cost recognized within the current appraisal system?
- Different application of “rules” in different regions. Some do not get appraisal benefits when using clearcut with reserves in dispersed reserves, despite the extra expense in dealing with leave trees when cable logging.
- The Appraisal Manual definition of partial cutting is not used in the Nelson Forest Region.
- What appraisal allowances are reasonable for silviculture treatments in intermediate cuts?
- How do we deal with the uncertainty that post-harvest density or basal area may fall below minimum requirements for an intermediate cut, and regeneration objectives or full appraisal allowance would apply? (This would factor on blocks where IBM control is delayed as a result of road construction, or one or more flights occur before commencement of operations.)

17. How should the post-wood component of a stand be treated?

Concerns:

- Linked somewhat with issue 1.
- There appears to be a disincentive to harvest the small wood component of a stand of mixedwood because it can get scaled as a sawlog with the resulting higher stumpage fee.

- Is there a mechanism to sell smaller wood at the landing and not after it has been scaled? Often there is no biological value in leaving it behind as it will likely get burned. Is there any way of selling it at the landing?
- The marketing of small wood is an issue intertwined with the appraisal issue.
- This has the potential to become a broader issue, when one includes thinning from below as a partial cut treatment option.

Science: What we already know is available, or here is how we are answering this question (options)

- Push this up to the ILMA: TAC, or IAC

18. What is the impact of non-action areas (i.e., parks) on adjacent THLB?

19. Is there a need for a partial cutting management strategies field handbook, and if so, what should be in it?

Concerns:

- Why does one not exist: are there too many factors to deal with?
- Need something for our Interior Cedar–Hemlock forests which talks about issues: is there a decision-making process available?
- Need some guidance on options for managing something/strategies all in one?
- How do species respond to partial cutting: is our knowledge of stand dynamics limited?
- Where is a diagnostic tool that synthesizes the information into a range of answers?
- Assumptions behind guidelines need to be understood and recognized so that when someone poses an alternative, some basic principles can be evaluated. We have not been shown how to develop these alternative designs.
- A guide is needed on how to define objectives and how to articulate what you want to have happen on the ground. Need a framework for walking through a process and having the required tools available.
- A decision-making process is needed, which makes sure we consider everything: growth and yield, management objectives, land-based issues, etc.

20. Is there a general resistance to using partial cutting?

Concerns:

- Partial cutting poses complex administration issues around approval, prescription, and management, as well as extra costs for layout, tracking, and logging.
- Partial cutting is not a black and white issue and it is difficult to administer with targets and standards; it requires a lot of extra work to determine the accuracy of the numbers and the regimes in place to meet these target numbers.
- There still seems to be some code-training issues around the five-year rule for free growing, even without regeneration obligations or intent being included in the Silviculture Prescription: the SDM will not approve an SP without including this five years.

Compliance and Enforcement Theme

- 1. Why are re-used old skid trails counted as new soil disturbance? The counting of re-used, old skid trails is now classified as soil disturbance: this was an issue when old skid trails were excessively wide and an operator could use his own smaller trails to avoid the larger, older abandoned trails and keep his disturbance below set levels.*
- 2. How do you measure Silviculture Prescription compliance when doing partial cutting?*

Concerns:

- This is a compliance and enforcement issue, and may be district-specific.
 - How do you monitor your accountability?
 - Amount of information contained in the Silviculture Prescription can be vague and elusive, which makes them hard to audit and measure.
 - How can we focus on results rather than the “how to”?
 - Silviculture Prescriptions tend to be cumbersome for partial cutting.
 - Is it best to measure specific tree numbers or leave-tree characteristics and stand structure?
 - How do you describe site degradation?
 - How do we help in the development of internal silvicultural regimes: not legally binding?
 - When is the stand meeting the intent of the law rather than the letter of the law?
 - If you apply a range of basal area percentages, what do those ranges actually mean and how can they be applied operationally?
 - When do you get hammered with the range (issue of trust)?
 - What qualifiers would drive the decision? Does the planning process make things more confusing?
- 3. Is compliance and enforcement training in partial cutting required to increase the specifications of tolerance?*

Concerns:

- Are more people required?
 - How do you change the culture from black and white to gray?
 - There needs to be some form of specification of tolerance for partial cutting.
- 4. How do we reduce the difficulties in measuring these stands post-harvest against whatever standards are set: post-harvest survey methods to determine compliance, etc.?*
 - 5. Agencies try to encourage beetle-proofing, but experience indicates limited success: what do we do?*