

**REGIONAL DISTRICT OF BULKLEY-NECHAKO****RDBN FORESTRY COMMITTEE
(Committee of the Whole)
Agenda**

Thursday, April 17, 2014

<u>PAGE NO.</u>		<u>ACTION</u>
	<u>Agenda – April 17, 2014</u>	Adopt
	<u>Supplementary Agenda</u>	Receive
	<u>MINUTES</u>	
3-7	Forestry Committee Meeting Minutes - March 20, 2014	Receive
	<u>DELEGATION</u>	
1.	<u>MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS</u> Josh Pressey, District Manager, Nadina RE: Morice TSA Timber Supply Review	
2.	Al Gorley, Triangle Resources Inc. (via teleconference) RE: Tenure Issue (Discussion Points re: Tenure Issue to Follow)	
	<u>REPORT</u>	
8-9	Gail Chapman, Chief Administrative Officer - RDBN “Draft” Discussion Points for Upcoming Meetings with the Deputy O&G Commissioner, April 24th RDBN Office and Oil and Gas Commissioner, May 7th, Fort St. John, BC.	Recommendation (Page 8)
10-18	“Draft” Briefing Note – Utilization of Timber from Gas Line Clearing	Recommendation (Page 12)
	<u>CORRESPONDENCE</u>	
19-20	Omineca Beetle Action Coalition – Phase 2 of the BC Timber Sales (BCTS) Review	Receive
21-22	Ministry of Forests, Lands and Natural Resource Operations – Update on the Public Discussion on Area-Based Forest Tenures	Receive
23-36	Ministry of Forests, Lands and Natural Resource Operations – Discussion Paper: Area-Based Forest Tenures	Receive

<u>PAGE NO.</u>	<u>CORRESPONDENCE</u>	<u>ACTION</u>
37-77	Forest Practices Board – Timber Harvesting in Beetle-Affected Areas	Receive
78-82	Forest Practices Board – Board Bulletin - Balancing Risk Across Resource Values in Forest Operations	Receive
83-84	Ministry of Forests, Lands and Natural Resource Operations – Climate News – Spring 2014	Receive
85-86	The Canadian Press – B.C. Timber Supply Facing Tenure System Revamp	Receive
87-89	The Globe and Mail – Timber Companies Can't See the Consequences for the Trees	Receive

NEW BUSINESS

ADJOURNMENT

REGIONAL DISTRICT OF BULKLEY-NECHAKO

FORESTRY COMMITTEE MEETING (Committee of the Whole)

Thursday, March 20, 2014

PRESENT: Chairperson Gerry Thiessen

Directors Taylor Bachrach
Stephen Freeman
Carman Graf
Tom Greenaway
Bill Holmberg
Dwayne Lindstrom
Thomas Liversidge
Rob MacDougall
Bill Miller
Rob Newell
Jerry Petersen
Ralph Roy
Stoney Stoltenberg
Luke Strimbold – arrived at 1:10 p.m.

Staff Gail Chapman, Chief Administrative Officer
Cheryl Anderson, Manager of Administrative Services
Hans Berndorff, Financial Administrator
Wendy Wainwright, Executive Assistant

Others Josh Pressey, District Manager, Nadina, Ministry of Forests,
Lands and Natural Resource Operations
Mike Watson, Woodlands Manager, Burns Lake, Ministry of
Forests, Lands and Natural Resource Operations

CALL TO ORDER Chair Thiessen called the meeting to order at 12:56 p.m.

AGENDA Moved by Director Stoltenberg
Seconded by Director MacDougall

F.C.2014-2-1 "That the Forestry Committee Meeting Agenda of March 20,
2014 be received."

(All/Directors/Majority)

CARRIED UNANIMOUSLY

MINUTES

Forestry Committee Meeting
Minutes – March 5, 2014

Moved by Director Graf
Seconded by Director Roy

F.C.2014-2-2 "That the Forestry Committee Meeting Minutes of March 5, 2014
be received."

(All/Directors/Majority)

CARRIED UNANIMOUSLY

MINUTES (CONT'D)

Regional District of Bulkley-
Nechako (RDBN)/Ministry of
Forests, Lands and Natural
Resource Operations (FLNRO)/
Forest Industry Representatives
Meeting Minutes – March 5, 2014 Moved by Director Stoltenberg
Seconded by Director Miller

F.C.2014-2-3 "That the Regional District of Bulkley-Nechako (RDBN)/Ministry of Forests, Lands and Natural Resource Operations (FLNRO)/Forest Industry Representatives Meeting Minutes of March 5, 2014 be received."

(All/Directors/Majority) CARRIED UNANIMOUSLY

Forestry Committee Meeting
Minutes – November 7, 2013 Moved by Director MacDougall
Seconded by Director Stoltenberg

F.C.2014-2-4 "That the Forestry Committee Meeting Minutes of November 7, 2013 be received."

(All/Directors/Majority) CARRIED UNANIMOUSLY

REPORTS

Permission to Partake
In the Forestry Committee
Discussion Moved by Director Freeman
Seconded by Director Greenaway

F.C.2014-2-5 "That the Forestry Committee authorize Josh Pressey, District Manager, Nadina, Ministry of Forests, Lands and Natural Resource Operations to partake in the RDBN Forestry Committee discussion."

(All/Directors/Majority) CARRIED UNANIMOUSLY

DISCUSSION

Land Resource Management Plans (LRMPs)

- Components of the LRMPs have been legislated:
 - o Mainly Biodiversity Objectives and Visual Quality Objectives (VQO);
 - o Legal orders in the forest stewardship plans;
- The remainder of the LRMP is used for guidance;

Steps to modify

- Monitoring regime:
 - o Are the objectives being met;
 - o Are they not being met, if not:
 - How to better achieve objectives;
 - Require public consultation;
 - Require First Nations consultation;
 - o Signed by Mr. Pressey or the Regional Assistant Deputy Minister.

The LRMP's are still in place as there has not been new documentation to replace them. Most LRMPs have timeframes of renewal and some have a timeframe of ten years. It has been identified that a LRMP monitoring and review process is needed. LRMPs are a valuable resource and are meant to be a living document.

REPORTS (CONT'D)

Followup – Motions as
 Suggested by Mr. Al Gorley

Moved by Director Holmberg
 Seconded by Director Stoltenberg

F.C.2014-2-6

"That Recommendations 1 and 2 be recommended to the Regional Board of the RDBN for approval as written and submission to the Ministry of Forests, Lands and Natural Resource Operations:

Recommendation 1:

"The RDBN understands that there is not a consensus to re-open Land Use Plans, therefore, the Province is unlikely to do so. However, the RDBN believes there is a need to monitor the effectiveness of current plans, and ensure that implementation takes into account changes that have occurred since the plans were adopted. The RDBN encourages the Province to establish and lead a monitoring program that will inform stakeholders and improve operation decisions."

Recommendation 2:

"The RDBN recognizes that the Ministry is contemplating an analysis of the impacts of existing visual quality objectives on wildfire risk in the region. The RDBN understands the analysis could lead to recommendations to change the legal objectives in land use plans, possibly, enabling the mitigation of hazardous fuel build-up by salvaging dead timber and reforestation. Based upon this understanding, the RDBN supports the analysis and requests that it be consulted further before any decisions are made to change legal objectives."

Moved by Director Bachrach
 Seconded by Director Holmberg

F.C.2014-2-7

"That Motion F.C.2014-2-6 **Recommendation 1** be amended as follows:

"The RDBN understands that there is not a consensus to re-open Land Use Plans, therefore, the Province is unlikely to do so. However, the RDBN believes there is a need to monitor the effectiveness of current plans, and ensure that implementation takes into account changes that have occurred since the plans were adopted. The RDBN encourages the Province, in partnership with Plan Implementation Monitoring Committees, to establish and lead a monitoring program that will inform stakeholders and improve operation decisions."

(All/Directors/Majority)

CARRIED UNANIMOUSLY

"The question was called on Motion F.C.2014-2-6 as amended."

(All/Directors/Majority)

CARRIED UNANIMOUSLY

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REPORTS (CONT'D)

BC Oil & Gas Commission

Moved by Director Holmberg
Seconded by Director MacDougall

F.C.2014-2-8

"That the Forestry Committee receive the Chief Administrative Officer's March 13, 2014 memo titled "BC Oil & Gas Commission."

(All/Directors/Majority)

CARRIED UNANIMOUSLY

Concerns were brought forward regarding the lack of a BC Oil & Gas Commission office/representative in northwest B.C. Mr. Pressey mentioned that the Ministry of Forests, Lands and Natural Resource Operations (FLNRO) is engaged at a local level with the Environmental Assessment Office regarding potential pipelines and has input into the allocation of timber from right of way clearance.

Discussion took place regarding the removal and utilization of timber being the cost of doing business for the construction of pipelines and right of way clearance. Mr. Pressey mentioned that FLNRO provides technical support in the environmental assessment process. The permitting process is completed by the BC Oil & Gas Commission. The importance of monitoring and tracking timber removal during pipeline construction, and the possibility of developing a long term license associated with right of way clearance was discussed. It is imperative to know the amount and the value of timber removed during construction from the timber harvest land base and the reforestation being completed. Discussion took place regarding the socio economic impact of pipeline construction on the forest industry and the need to understand the cumulative effects that will occur in moving forward.

Mr. Pressey noted that pipelines are a relatively new resource infrastructure for northwest B.C. Mr. Pressey requested that questions from the Forestry Committee may be forwarded to him and he will request the presence of the appropriate personnel to attend a future RDBN Forestry Committee to provide further details regarding the collaboration of BC Oil & Gas Commission and FLNRO.

Invitation to FLNRO
Resource Manager

Moved by Director Miller
Seconded by Director MacDougall

F.C.2014-2-9

"That the Forestry Committee invite Josh Pressey, District Manager, Nadina, Ministry of Forests, Lands and Natural Resource Operations to extend an invitation to Maureen Tait, Resource Manager, Fort St. James, Ministry of Forests, Lands and Natural Resource Operations; and further, that Mr. Pressey include in the invitation FLNRO personnel that would be able to provide information to the RDBN Forestry Committee regarding the environmental assessment process for pipeline construction and right of way clearance."

(All/Directors/Majority)

CARRIED UNANIMOUSLY

CORRESPONDENCE

Correspondence

Moved by Director Stoltenberg
Seconded by Director Petersen

F.C.2014-2-10

"That the Forestry Committee receive the following correspondence:

-Omineca Beetle Action Coalition B C Timber Sales Effectiveness Review Discussion Background;
- Minister of Forests, Lands and Natural Resource Operations Presentation to OBAC – Mountain Pine Beetle and BC's Forests;
-Truck Logger BC – Fall 2013 – Area Based Tenure: Its History and Its Future in BC;
-Wildfire Management Branch – The 2014 Strategic Wildfire Prevention Initiative Program Guides."

(All/Directors/Majority)

CARRIED UNANIMOUSLY

NEW BUSINESS

Open Discussion with Forestry Committee Delegations

The Forestry Committee discussed the benefit of providing the ability for delegates to partake in open discussion during Forestry Committee Meetings. It is important to continue the dialogue that has been started and work together in the future.

Thank You

Chair Thiessen thanked Mr. Pressey for attending the meeting.

SPECIAL IN-CAMERA MEETING MOTION

Moved by Director Stoltenberg
Seconded by Director Greenaway

F.C.2014-2-11

"In accordance with Section 90 (1)(c) and 2 (b) of the *Community Charter*, it is the opinion of the Regional District of Bulkley-Nechako that matters pertaining to labour relations or other employee relations (hiring forestry professional) and (OBAC confidential documentation), including communications necessary for that purpose must be closed to the public therefore exercise their option of excluding the public for this meeting."

(All/Directors/Majority)

CARRIED UNANIMOUSLY

ADJOURNMENT

Moved by Director MacDougall

F.C.2014-2-12

"That the meeting be adjourned at 1:25 p.m."

Gerry Thiessen, Chair

Wendy Wainwright, Executive Assistant



REGIONAL DISTRICT OF BULKLEY-NECHAKO
Forestry Committee
Memorandum

TO: Chair Thiessen and RDBN Forestry Committee Members

FROM: Gail Chapman, CAO

SUBJECT: RDBN "Draft" Discussion Points for Upcoming Meetings
 With the Deputy O&G Commissioner, April 24th RDBN Office
 And Oil and Gas Commissioner, May 7th, Fort St. John, BC.

DATE: April 9, 2014

Attached, hereto, please find "RDBN Key Points for Discussion with the Oil and Gas Commission" as submitted to the RDBN Forestry Committee for consideration by Mr. Al Gorley on behalf of the RDBN.

It is also being suggested that the RDBN approach the Environmental Assessment Office and the Ministry of Forests, Lands, and Natural Resource Operations regarding the "discussion points" as well.

Also, the RDBN may want to inquire of the Oil & Gas Commission that during its permitting process, allowance for local government input be considered.

RECOMMENDATION: (All/Directors/Majority)

"That the RDBN Forestry Committee recommend to the Regional District of Bulkley-Nechako Board of Directors that it ratify the proposed "Discussion Points" to be brought forward as key discussion items between the Oil and Gas Commission and the RDBN. Further, that the RDBN forward a copy of the issues to the Environmental Assessment Office and Ministry of Forests, Lands and Natural Resource Operations requesting future meetings to discuss the identified RDBN concerns."

KEY POINTS FOR DISCUSSION WITH OGC¹

The need for an overall timber supply strategy that includes maximizing utilization of timber that must be cut for non-forestry purposes.

The need ensure that the public receives the true value of timber cut, beyond just the direct stumpage fees.

Some possible approaches to help achieve this:

1. Encouraging Voluntary Utilization

How can the consultation, planning, approval and operational activities be improved to encourage maximum utilization and public benefit from cut timber? Can communication and cooperation between pipeline and forest companies be improved?

2. Contractual Utilization Requirement

How can utilization be assured through permit conditions and is there a way to minimize the number of exemptions?

3. Legal Utilization Requirement

What options are available to make utilization a legal requirement? For example if mandatory utilization was a condition of the environmental assessment certificate could it be enforced by the OGC? Is a legislative change required?

4. Fee in Lieu of Utilization

As an economic incentive to utilize timber (or disincentive to waste) a fee in lieu of manufacture could be required. What would be necessary to put this in place? How could the fee be directed to appropriate investment within the region?

5. Monitoring and Reporting

Timely tracking and public reporting of the amount of timber cut, rate of utilization and fees paid (including disposition of fees in lieu of manufacture).

¹ Note that for some of these topics the OGC may have an interest or opinion but the jurisdiction may reside with the EAO or one of the ministries.

BRIEFING NOTE

APRIL 16, 2014

DRAFT

For: Decision by the Regional District Bulkley Nechako (RDBN) Board

Subject: Utilization of timber from gas line clearing.

Issue: Approval of discussion points for meeting with the Oil and Gas Commission (OGC) in May

SYNOPSIS

This briefing note recommends that the Board approve several key points to be discussed with the OGC in advance of RDBN finalizing a position paper on wood waste during pipeline construction. It also recommends that the RDBN communicate its concerns and position to the Ministry of Forests Lands and Natural Resource Operations, and to the Environmental Assessment Office.

BACKGROUND

Throughout the RDBN and in neighboring regions concerns have been raised about the potential waste of timber during construction of transmission lines. The most recent example is burning merchantable timber during clearing for the northwest transmission (hydro) line, but similar issues could arise as oil and gas companies construct pipelines through this region.

RDBN Directors have brought this concern to the attention of provincial government officials directly and through the Omineca Beetle Action Coalition, but feel the response received to date has been inadequate. Part of the issue seems to be related to jurisdiction – the gas pipelines are under jurisdiction of the BC Environmental Assessment Office (EAO) and the OGC, whereas the Northern Gateway project is federally regulated and right-of-way clearing is under jurisdiction of the Ministry of Forests Lands and Natural Resource Operations (MFLNRO). Stumpage rates for timber cutting on all lines are set by MFLNRO.

Major pipeline applications require a certificate from the EAO. The EAO invites public comment before determining certificate conditions. Typically public comments appear to be related to environmental protection and public safety, however there is nothing preventing comments about timber utilization. In the case of the Pacific Trails Pipeline which runs through RDBN the comment period closed as of March 24th.

The OGC is an agent of the provincial government, accountable to a board of directors consisting of the Deputy Minister, Ministry of Natural Gas Development (Chair), Commissioner (Vice Chair), and an industry representative. The RDBN will be meeting with representatives of the OGC in Fort St. John in May. On the advice of the Forestry Committee the RDBN retained a consultant to help prepare this preliminary analysis and discussion points (*Appendix 1*) for that meeting, and to then prepare a formal position paper.



CONTEXT

Many of the communities of RDBN are, and will continue to be dependent on sustainable harvesting and manufacturing of timber as an economic mainstay. What has previously been referred to as the “mid-term” timber supply shortage is now a “near-term” issue. The salvage of dead pine is winding down and companies are moving more of their cut into green timber, which is in short supply. At the same time, a number of pipelines through the region are under consideration. These lines would move bitumen from Alberta and liquid natural gas from Northeastern BC to ports on the coast.

In the face of closing mills and reduced harvest the public has little tolerance for the waste of its scarce resources. Government policy allows companies to not utilize merchantable wood they cut, provided they pay the stumpage. However the stumpage value of cut timber is less than its total value to society – the latter includes the social and economic benefits from processing, transporting and manufacturing the wood, and the ancillary services that support those activities.

Wood waste that occurs in forestry and other operations will need to be addressed as part of a broader strategy to mitigate the extent and impact of the near-term timber supply shortage. In the meantime, the immediate challenge is to ensure that the greatest possible public benefit is realized from any timber that must be cleared for pipeline construction. Achieving this could contribute positively to the business climate for the pipelines, as it is an important aspect of public support (social license).

DISCUSSION

The precise number and location of potential pipelines is unknown, so we are only able to make rough estimates of the amount of timber that will be cut (*Appendix 2*). Despite being a relatively small amount of the overall inventory, enough could be cut to make it significant at a local level in the short-term.

There are logistic and economic challenges to utilizing timber on a right of way. Unlike a forestry operation that targets a concentrated area of accessible merchantable timber, a pipeline crosses the landscape through an assortment of terrain and vegetation types. Some timber will be in locations where it cannot reasonably be extracted due to safety or environmental limitations. Other timber may be technically merchantable and accessible but the cost of getting it to market is more than mills will pay for it.

An important question when developing public policy is: “what is the true value of the timber, and how can that value be captured?” In a conventional forestry situation, the value includes all the economic and social benefits arising from harvesting, transportation, and manufacturing, plus the direct stumpage paid. When timber is wasted, even though stumpage is paid some of its value to the public is not captured.

Under its current policy the OGC requires companies wishing to undertake new cutting on Crown land to complete a Fibre Utilization Plan. It recently published guidelines to support completion of such a plan (*Appendix 3*). Although it can require utilization as a permit condition the OGC does not have any legal authority to force compliance.

The first choice would be to generate the public benefit by having the timber utilized. The second would be to have the public appropriately compensated when it isn’t utilized. This approach would recognize the true value of the timber and the true cost of the pipeline. At a time when the province is encouraging rapid development of the LNG industry adding additional time or costs may be resisted, however they are likely small in the overall scheme.

RECOMMENDATIONS

1. RDBN should approve the points listed in Appendix 1 as “for discussion only” and forward a copy to the OGC in advance of the May meeting.
2. RDBN should provide the EAO and MFLNRO with a copy of the discussion points and request an opportunity for a discussion with them.

APPENDIX 1 – KEY POINTS FOR DISCUSSION WITH OGC¹

The need for an overall timber supply strategy that includes maximizing utilization of timber that must be cut for non-forestry purposes.

The need to ensure that the public receives the true value of timber cut, beyond just the direct stumpage fees.

Some possible approaches to help achieve this:

1. Encouraging Voluntary Utilization
How can the consultation, planning, approval and operational activities be improved to encourage maximum utilization and public benefit from cut timber? Can communication and cooperation between pipeline and forest companies be improved?
2. Contractual Utilization Requirement
How can utilization be assured through permit conditions and is there a way to minimize the number of exemptions?
3. Legal Utilization Requirement
What options are available to make utilization a legal requirement? For example if mandatory utilization was a condition of the environmental assessment certificate could it be enforced by the OGC? Is a legislative change required?
4. Fee in Lieu of Utilization
As an economic incentive to utilize timber (or disincentive to waste) a fee in lieu of manufacture could be required. What would be necessary to put this in place? How could the fee be directed to appropriate investment within the region?
5. Monitoring and Reporting
Timely tracking and public reporting of the amount of timber cut, rate of utilization and fees paid (including disposition of fees in lieu of manufacture).

¹ Note that for some of these topics the OGC may have an interest or opinion but the jurisdiction may reside with the EAO or one of the ministries.

APPENDIX 2 – ESTIMATE OF THE IMPACT OF GAS LINE CLEARING ON TIMBER SUPPLY IN THE RDBN

NOTE: This is a rough estimate based on the assumptions stated. A more accurate estimate could be made by employing detailed mapping and analysis when more information is available.

ASSUMPTIONS:

- 1-3 discreet projects running east-west through the region
- Clearing width is 30 – 50 meters
- Permanent clearing width is 30 meters.
- Clearing length is 250 – 350 km (RDBN only)
- Percent new clearing (not on existing right of way) is 50% - 90%
- Percent of new clearing within timber harvesting land base (THLB) is 70% - 90%
- Percent of new clearing within THLB that is mature commercial timber is 50% - 70%
- Volume of mature commercial timber cleared is 250 – 350 m³/ha.
- Percent of volume of mature commercial timber that will be utilized without further encouragement is 30% - 70%
- Project length (clearing) is 2-4 years and occurs simultaneously in all timber supply areas (TSAs)
- Distribution is approximately equal between 4 TSAs

ESTIMATES PER PIPELINE (RANGE):

- Total clearing area = 750 to 1750 hectares
- New clearing = 375 to 1575 hectares
- New clearing in THLB = 263 to 1418 hectares
- New clearing in THLB in mature commercial timber = 131 to 993 hectares
- Volume of mature commercial timber cleared in THLB = 32,750 to 347,550 cubic meters

ESTIMATE OF NEAR-TERM TIMBER IMPACT PER PIPELINE BASED ON MOST SEVERE ASSUMPTIONS:

- 350,000 m³ gross merchantable volume
- 245,000 m³ not salvaged without further encouragement
- 60,000 m³ per TSA (20,000 m³/ year for 3 years)

ESTIMATE OF NEAR-TERM TIMBER IMPACT PER PIPELINE BASED ON AVERAGE ASSUMPTIONS:

- 126,000 m³ gross merchantable volume
- 63,000 m³ not salvaged without further encouragement
- 16,000 m³ per TSA (5,300 m³/year for 3 years)

IMPACT ON PRODUCTIVE LAND BASE AND FUTURE AAC (LONG-TERM TIMBER SUPPLY):

Based on the average assumptions, an individual pipeline through RDBN would permanently remove 500 hectares of land from commercial timber production. The impact of this on Allowable Annual Cut (AAC) in the region would be about 1,500 m³/year (less than 400 m³/year per TSA). This number is small enough to fall within the rounding error of the Chief Forester's analysis and is therefore inconsequential from an AAC perspective when taken on its own. However, the cumulative effects of several pipelines, when added to roads and other developments that reduce the productive timber growing land base can add up over time and need to be managed.

BRIEFING NOTE: RDBN TIMBER IMPACT OF PIPELINE CLEARING

SPECIAL NOTE: PACIFIC TRAILS PIPELINE

The Pacific Trails Pipeline (Chevron and Apache) is well advanced in the permit stage and construction is underway on some segments. The segments in the RDBN have been identified within a one kilometer wide corridor but exact locations are not finalized. Given the route (map below) it appears likely that much of the clearing will be within economic distance of timber manufacturing facilities. The public comment period for the EAO recently concluded.



APPENDIX 3 – OGC FIBRE UTILIZATION PLAN GUIDELINE

1.0 INTRODUCTION

This guideline supports the completion of the Fibre Utilization Plan (FUP) form posted on the Oil and Gas Commission (Commission) website. A FUP is to be submitted to the Commission along with applications, as detailed in Section 2.0 of this guideline, that require new cut on Crown land.

2.0 APPLICATION

The purpose of the fibre utilization requirement is to ensure responsible utilization of merchantable fibre harvested for oil and gas development. The FUP informs the Commission's determination on fibre utilization. The Commission expects oil and gas operators to assess merchantable and non-merchantable fibre volumes and, where practicable, appropriately utilize merchantable fibre, or make said fibre available for other interested parties to utilize.

Wood fibre is considered utilized when:

- The merchantable fibre had been removed from a project site and transported to a commercial fibre processing facility for use, or
- The merchantable fibre has been decked at roadside accessible by conventional log hauling trucks; and First Nations, local forest licensees, and local logging contractors have been notified that the fibre is available, or
- The fibre is used by the oil and gas operator onsite for matting, corduroy, decking, railings, etc.

2.1 Fibre Merchantability

Fibre is considered merchantable if it meets the merchantability specifications listed in Section 1.5 of the current Coastal or Interior Appraisal Manual (www.for.gov.bc.ca/hva/manuals/interior.htm, <http://www.for.gov.bc.ca/hva/manuals/coast.htm>). Further direction is given by the Chief Forester in the most recent Timber Supply Review for the applicable forest district (www.for.gov.bc.ca/hts/tsas.htm). Non-merchantable fibre may include logging debris, logging waste, undersized stems, etc. and may be estimated as 20% of merchantable fibre for merchantable stands, or as an ocular estimate for non-merchantable stands.

2.2 Exemptions

Exemption from fibre utilization requirements must be requested at the time the application is submitted or through a permit amendment. Exemption may be granted by the Commission if:

- The volume of fibre is small and/or remote,

BRIEFING NOTE: RDBN TIMBER IMPACT OF PIPELINE CLEARING

- The holder of the MLTC and associated CP can provide documentation from potential buyers stating that the species and grades of fibre are not currently being utilized,
- The recovery of the fibre would cause damage to other resources in excess of the value of the fibre recovered, or
- Utilization of the timber is not practicable.

Given the nature of geophysical activities, and the logistical difficulties associated with making fibre harvested during geophysical activity, all geophysical programs are exempted from the fibre utilization requirement.

2.3 Forest Health

All fibre waste left onsite must be managed to minimize fire and pest risks and must be disposed of at the end of the clearing phase or at the end of the summer fire season, whichever comes first.

2.4 Waste Assessment

Oil and gas operators cutting Crown timber are required, regardless of utilization, to report and pay the province for that timber. As per the specifications detailed in the Master License to Cut, exempted merchantable fibre, outside the Forest Districts described in section 6.6 of the Interior Forest Appraisal Manual (www.for.gov.bc.ca/hva/manuals/interior.htm), must have a waste survey completed and stumpage will be billed by BC accordingly.

3.0 FORM DETAILS

3.1 Block A Administration

Administrative information is used to collect key applicant and agent contact information.

Applicant Name – Enter the company name as registered with the BC Corporate Registry.

Contact Information – The first and last name of the principal contact for the applicant company, and the primary phone and email information for the contact listed.

Referral Company – The referral company or land agent contracted by the applicant.

Agent Information – The name, primary phone number and email address of the land agent.

3.2 Block B Volume and Area

Indicate the method used to calculate the fibre volume estimate. Check one or more boxes, as appropriate.

The applicant is required to include an estimate of the area of new Crown land disturbance. If the project is located on Crown land, the total amount of new Crown land area disturbed, in hectares (excluding woodlot areas) is to be indicated in this section. Do not include areas that were previously cleared and have not been restocked to Ministry of Forests, Lands and Natural Resource Operations stocking standards (www.for.gov.bc.ca/hfp/silviculture/stocking_stds.htm).

Please note that a volume estimate for both merchantable and non-merchantable timber, both coniferous and deciduous, is required.

BRIEFING NOTE: RDBN TIMBER IMPACT OF PIPELINE CLEARING

The original/proposed new cut for Crown land area is the amount of new cut that is being proposed or was permitted on the original application. This field must be completed for all fibre utilization submissions.

The amended area of new cut on Crown land area is applicable only for an amendment and is the change from the original permitted area.

Indicate whether harvesting has commenced on the original permitted area.

Proposed new cut total for Crown land area is the total of both the original/proposed area and the amended area.

3.3 Block C Utilization Plan

Indicate how the fibre is to be utilized by checking the appropriate box. Provide details as requested to allow the Commission to review the FUP as quickly and efficiently as possible.

Exemption from the fibre utilization requirements must be requested at the time the application is submitted or through permit amendment (as explained in section 2.2 above). A rationale for the requested exemption must be attached to the FUP.

3.4 Block D – Signing Authority

A representative of the company who has the authority to sign legal agreements on its behalf must sign the FUP form.

4.0 CONTACT

If you have any questions regarding the FUP or its application, contact the appropriate Operations Manager responsible for overseeing Regional Operations in the area for which the activity is proposed. Refer to the Commission's website for current contact information (<http://bcogc.ca/Phone-List>).

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April 7, 2014

Dear Minister Thomson,

The OBAC directors were pleased to meet with Mr. John Allan on February 28, 2014 to discuss Phase 2 of the BC Timber Sales (BCTS) Review. We found the discussion informative, and provided Mr. Allan with a number of considerations to improve the effectiveness of BCTS (summary attached).

As you know, lumber companies in our region are expected to close more mills, significantly reducing the benefits they provide to some communities. Even as other economic opportunities are developed, our region will remain highly forest dependent, and will need to leverage maximum value from declining timber supplies to support our quality of life over the mid and longer term.

In our view, the effectiveness of BCTS will be judged by how well it:

1. Complements and helps achieve the economic, social and public safety objectives of the region and its communities, including fair value for our timber.
2. Generates recognizable direct and indirect economic benefits to communities closest to the forests where harvesting occurs.

In light of the importance of this matter to our communities, I ask that OBAC have the opportunity to meet with you before final decisions are made on possible changes.

Yours truly,

A handwritten signature in cursive script that reads "Stephanie Killam".

Mayor Stephanie Killam, District of Mackenzie
OBAC Chairperson

Cc: John Allan
Cc: Mike Falkiner, BC Timber Sales

Considerations to improve the effectiveness of BCTS:

1. Ensure BCTS as an organization is responsible, accountable and equipped to work at a local and regional level to understand and help achieve local business and community objectives.
2. Redefine “revenue” as both direct (conventional stumpage fees) and indirect (additional value to the owners).
 - a. *Cut control*: Selling a minimum of 90% and a maximum of 110% of its apportionment every year, or at least over a reasonable business cycle.
 - b. *Contracting*: Maintain continuity of a local, experienced contracting sector.
 - c. *Sales profile*: Design and schedule timber sales to support a wider range of local economic development objectives, including support for small business.
 - d. *Utilization*: In anticipation of major transmission corridor clearing projects and the like, BCTS could play a role to help ensure the timber is fully utilized to maximize public benefits.
3. Ensure BCTS has access to sufficient timber volume to achieve both its market pricing and local/regional benefits objectives.
 - a. *Protecting the apportionment*: As annual allowable cuts decline, the government should maintain the volume presently apportioned to BCTS, or reducing it less proportionally.
 - b. *Agreements to auction other timber*: BCTS could conduct competitive auctions for some timber from major licences, community forests, First Nations woodland licences, woodlots, and licences to cut, and use the data to support the market pricing objective.
4. Provide BCTS with direction and capacity to actively work with entrepreneurs to develop the wood value chain beyond the current situation of almost entirely primary manufacturing in most regions.
5. Give BCTS more latitude to encourage forest management innovation in order to generate direct and indirect benefits over-and-above revenue. This might include:
 - a. *Innovative practices*: Experimenting with techniques that help achieve multiple resource benefits such as water management or wildlife habitat *and* timber productivity; developing leading-edge reforestation and silviculture techniques; improved public involvement; fuel management/community protection or operating in sensitive areas currently excluded from conventional harvesting.
 - b. *Investments in science and information*: Directing some of its revenue to climate adaptation trials, productivity improvement experiments and inventory enhancements.
6. Direct revenue sharing - once BCTS has recovered its operating costs it should pay a local (regional) dividend before stumpage is transferred to general revenue of the province.

Note that these measures do not address the broader concern about corporate concentration of the manufacturing firms that buy the timber and how that affects the credibility of pricing – that needs to be dealt with separately from the BCTS review.

Gail Chapman

From: Pressey, Josh P FLNR:EX <Josh.Pressey@gov.bc.ca>
Sent: April-01-14 4:19 PM
To: Gail Chapman
Cc: 'Mayor'; 'bholmberg@finning.ca'; 'ssmith@villageofgranisle.ca'; 'Mayor Linda McGuire'
Subject: Update on the Public Discussion on Area-based Forest Tenures

As you may be aware, earlier this afternoon, Minister Steve Thomson announced the launch of a public engagement process on the topic of converting some, or a portion of some, volume-based forest licences to new or expanded area-based tree farm licences.

Minister of Forest, Lands and Natural Resource Operations press release - <http://www.newsroom.gov.bc.ca/2014/04/public-input-invited-on-expansion-of-area-based-tenures.html>

As many of you know, the 2012 Special Committee on Timber Supply recommended increasing the diversity of area-based tenures, as a means of providing certainty of fibre supply, in areas affected by the Mountain Pine Beetle infestation. This public engagement is a commitment government made in response to the committee's report.

The process will be led by former chief forester Jim Snetsinger and runs from today to noon, May 30, 2014. The purpose of the public engagement is to get input on the benefits that should be sought from proponents who are interested in pursuing a conversion; as well as input on the criteria that should be used to evaluate applications. A discussion paper, terms of reference, list of reference papers to support the engagement process are available online. All written submissions received will be posted online. As well, Jim will also be writing blog posts at least once a week, and, where appropriate, offering insights and exchanging ideas with people who weigh in.

Interested people are also encouraged to submit their ideas through the web-site at <http://engage.gov.bc.ca/foresttenures>

During this period, Jim is also scheduled to visit 10 different communities, where he will meet with stakeholders, local governments, First Nations and the general public. Meetings are planned for Nanaimo, Kamloops, Prince George, Cranbrook, Dawson Creek, Smithers, Burns Lake, Williams Lake, Quesnel and Vancouver. The exact dates and times will be posted on the web site once they have been finalized. Most meetings will be held at ministry offices.

Once the public engagement period wraps up, Jim will compile all the feedback into a report, complete with recommendations, by the end of June, which will inform government's next steps on this policy initiative.

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As always feel free to contact me if you have any questions on this initiative.

Regards,

Josh Pressey, RPF

District Manager

Resource Operations Nadina District

Ministry of Forests, Lands & Natural Resources Operations

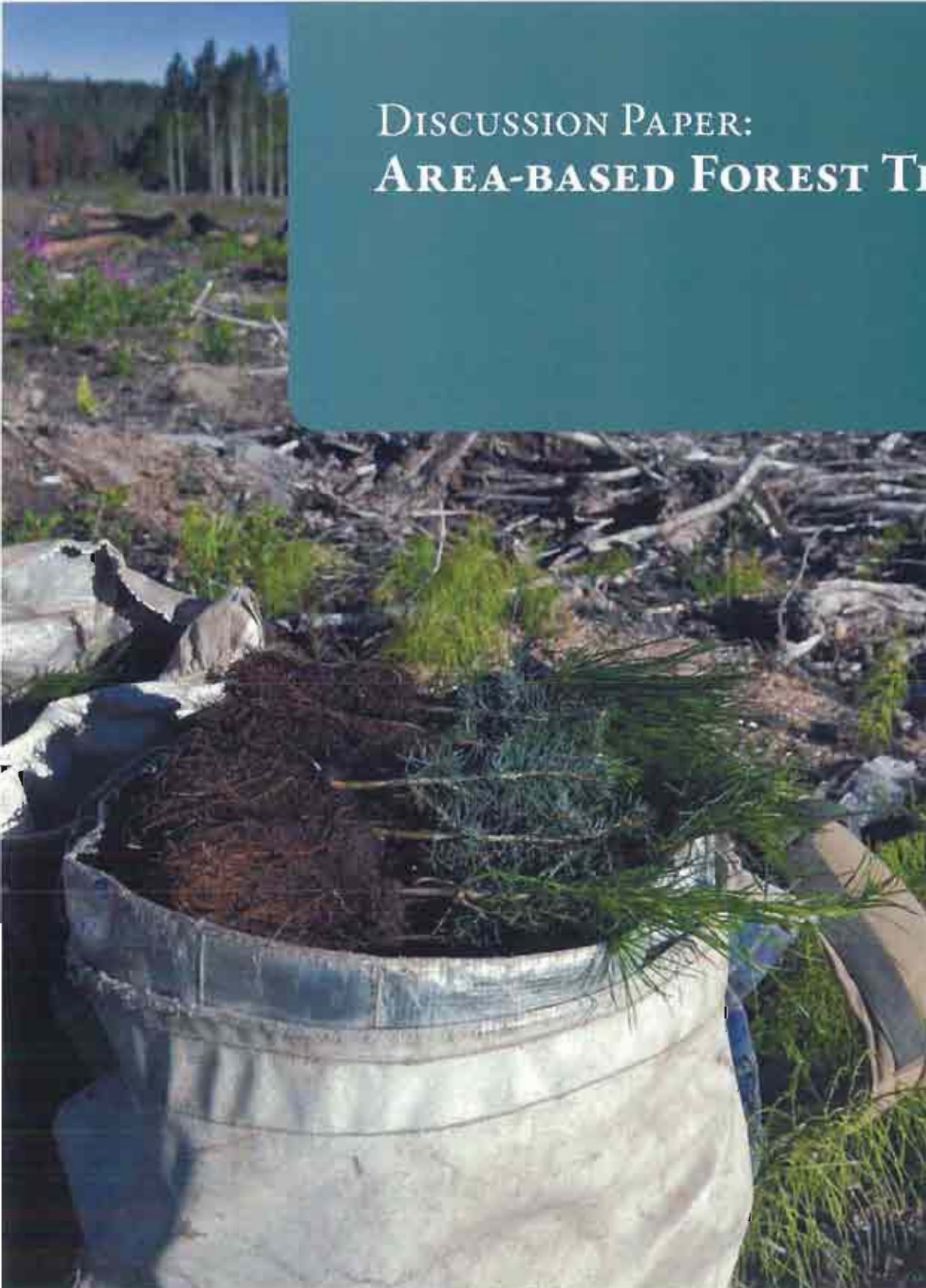
Office: (250) 692-2200

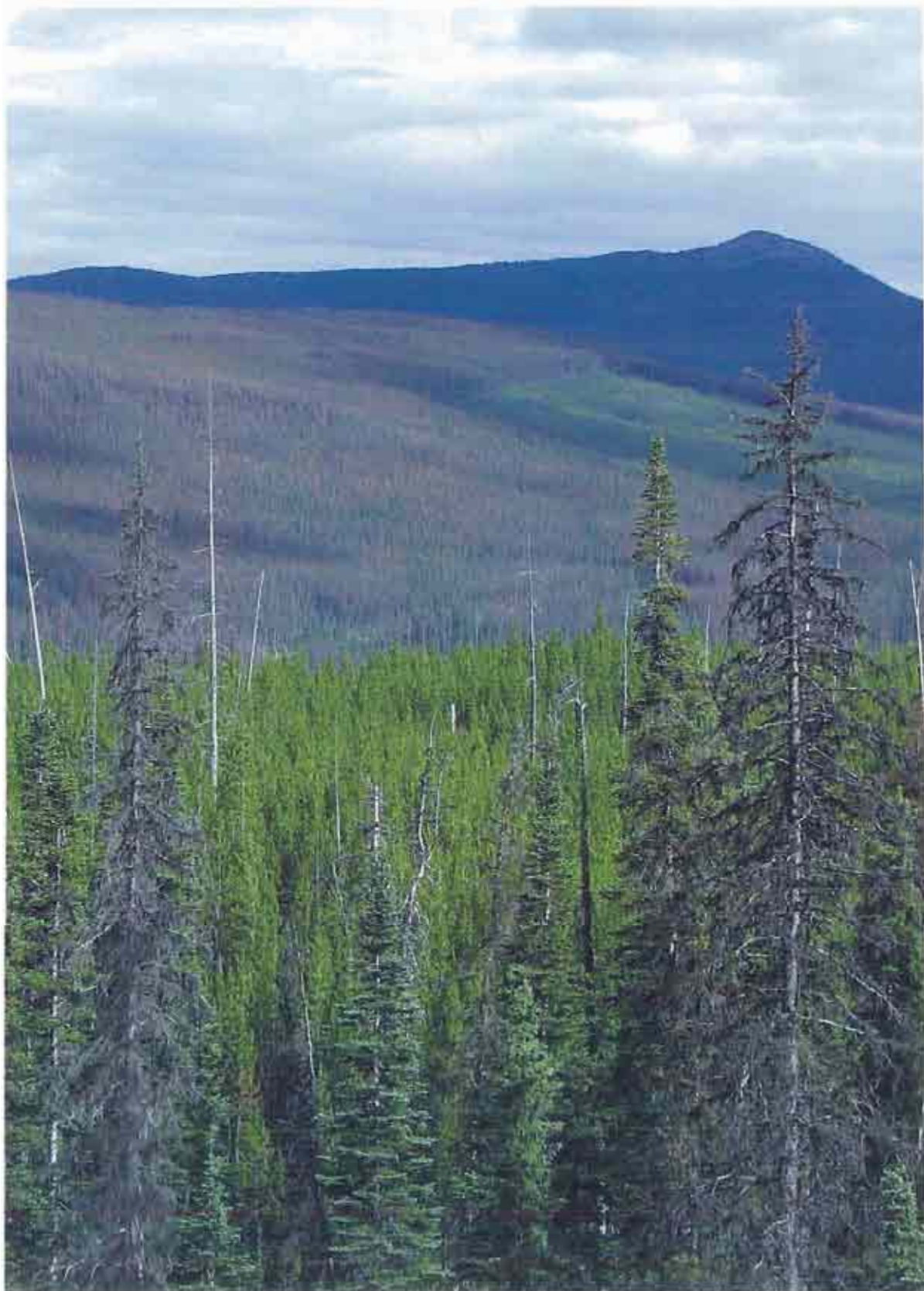
Fax: (250) 692-7461



Ministry of
Forests, Lands and
Natural Resource Operations

DISCUSSION PAPER:
AREA-BASED FOREST TENURES





INTRODUCTION

The B.C. government is contemplating policy changes that would enable – on an invitation-basis only – the conversion of some volume-based forest tenures to area-based forest tenures. This is intended to help address the issue of a declining timber supply in the Interior, brought on by the mountain pine beetle. This brief discussion paper provides a summary of the proposal and how government envisions these licence conversions could work.

Jim Snetsinger has been asked by the Minister of Forests, Lands and Natural Resource Operations to lead the public engagement process on how best to achieve government's objectives for any such conversion process, specifically:

- › the social, economic and environmental benefits that should be sought from proponents;
- › the criteria for evaluating applications;
- › the process for implementing conversions, including specific application requirements; and
- › the identification of target locations for conversion opportunities.

He will use the comments received in response to this discussion paper to prepare and submit a final report to government by June 30, 2014. It will be based on the results of the public process and will clearly describe how public input affected the proposed recommendations. The report will be used to inform government on any proposed legislative, regulatory or policy changes that might be required to set out the criteria and process for conversions.

Comments on this discussion paper are welcome until noon Friday, May 30, 2014. Comments can be submitted online at engage.gov.bc.ca/foresttenures, via email at Forest.Tenures@gov.bc.ca or by fax to 250 387-6445.

BACKGROUND

British Columbia is home to one of the largest public forests in the world. Of a total landbase of 95 million hectares, 55 million hectares are considered productive forest lands. Only five per cent of the landbase is privately owned, meaning that most of the forests belong to the people of British Columbia.

Public ownership allows the B.C. government to manage public forests for the environmental, social and economic interests of British Columbians. Forestry has long been a key driver of the province's economy. In 2013, forest product exports exceeded \$11.6 billion and over 58,000 British Columbians were directly employed in the forest sector. The majority of forest sector jobs are in rural communities throughout the province and in some areas the economic contribution of forestry to the local economy exceeds 40 per cent.

B.C.'s forests are managed sustainably with an eye to the future. While B.C.'s forests cover 55 million hectares, only about 22 million hectares are available for timber harvesting. Of that amount, less than one per cent is harvested each year. The province's chief forester conducts timber supply reviews at least once every 10 years and sets the maximum volume of timber that can be harvested in a given geographic area. Comprehensive land use plans cover most of the province and define areas that have been set aside as parks and protected areas (about 15 per cent) and areas where resource development activity, including forestry, is allowed.

The *Forest and Range Practices Act* and related regulations set out objectives for 11 different values. Forest licensees must meet those objectives when preparing forest stewardship plans and operating plans. British Columbia has 52 million hectares of land certified to internationally recognized standards for sustainable forest management.



During summer 2012, the bi-partisan Special Committee on Timber Supply conducted public meetings in 15 communities and reviewed over 650 submissions before it finalized its unanimous report. That report made recommendations for how the provincial government could take action to enhance the mid-term timber supply. A copy of the report is available online at <http://www.leg.bc.ca/timbercommittee/>

Recommendation 5.1 of the Special Committee's report states:

Given the history of area-based tenure management in British Columbia and elsewhere in Canada, the Committee recommends to the Legislative Assembly that the Ministry:

- a. *Gradually increase the diversity of area-based tenures, using established criteria for conversion and a walk-before-you-run approach.*
- b. *If conversion to more area-based tenures is desirable, give consideration to incorporating a take back-volume provision, or some equivalent public benefit, on conversion to area-based rights and reallocating that volume to First Nation and/or community area-based tenures.*
- c. *Before considering a conversion of a licensee's renewable volume-based tenures in whole, or in part, rigorously evaluate: the licensee's past performance; their commitment to sustainable forest management; their commitment to investment in forest management including, but not limited to, silvicultural investments; and community and First Nations support for conversion through a process of public consultation.*

In October 2012, Forests, Lands and Natural Resource Operations Minister Steve Thomson released *Beyond the Beetle: A Mid-term Timber Supply Action Plan*, which provided government's response to the Special Committee's recommendations. A copy of the action plan is available online at www.gov.bc.ca/pinebeetle

Government agrees with the Special Committee's recommendation that enabling the conversion of or a portion of some volume-based forest tenures to area-based forest tenures (to be evaluated on a case-by-case basis) is one tool that could be used to deal with mid-term timber supply issues in the Interior.

Some forest companies have indicated that area-based tenures will provide them with the security they need for long-term business and investment planning in areas affected by the mountain pine beetle. However, other forest companies have indicated that they are not interested in pursuing conversions of volume-based forest tenures to area-based forest tenures at this time.

LOGGING RIGHTS IN B.C. AND B.C.'S FOREST TENURE SYSTEM

The right to harvest timber on public lands is provided through a system of forest tenures (or licences) authorized under the *Forest Act*. There are many types of forest tenures and they are held by large, medium and small forest companies, communities, First Nations and individuals.

For forest management purposes, B.C. is divided into 38 timber supply areas (TSAs). Within each timber supply area, an allowable annual cut (the maximum volume of timber allowed to be harvested each year) is set by the province's chief forester. Holders of "volume-based" forest tenures are permitted to harvest timber within the timber supply area up to that maximum amount.

The main type of volume-based forest tenure in B.C. is the replaceable forest licence. There are 180 replaceable forest licences in B.C. About 40 per cent of B.C.'s timber is harvested through these forest licences, 20 per cent is harvested under shorter-term volume-based licences, 20 per cent is auctioned off as short-term licences by BC Timber Sales (to support the timber pricing system) and 20 per cent is harvested under various other forms of area-based tenures, as described below.

A replaceable forest licence is provided to one licensee, initially with a 20-year term. The licence content, terms and conditions are then reviewed every five to 10 years and the licensee may be offered a "replacement" licence. If the licensee accepts that licence, it begins with another 20-year term.

Different forest licence holders within a timber supply area usually negotiate "operating areas" with each other. Although the boundaries of these operating areas have no legal standing, the forest licence holders usually honour them, so they have some assurance of where they will be harvesting timber within the timber supply area. This allows them to invest in roads, engineering and inventory work with a higher level of confidence. The mountain pine beetle infestation has resulted in forest licence holders competing for the best remaining operating areas.

Area-based forest tenures in British Columbia include tree farm licences, community forest agreements, woodlots and First Nation woodland licences. Area-based tenures normally provide the tenure holder with near-exclusive rights to harvest timber within a specific area. About 15 per cent of B.C.'s timber is harvested under tree farm licences. Another five per cent of B.C.'s timber is harvested through community forest agreements, woodlots and First Nation woodland licences.

TENURE TYPE	PERCENTAGE OF HARVEST
Volume-based (forest licences, non-replaceable forest licences, etc.)	60 per cent
BC Timber Sales – timber sale licences	20 per cent
Area-based licences (tree farm licences, community forest agreements, woodlot licences, First Nations woodland licences)	20 per cent

With area-based forest tenures, it is in the best interests of the licence holder to ensure the long-term sustainability of the area to secure future harvests. However, an area-based forest tenure does not mean that the holder owns the land or controls its use. The tenure holder is limited to activities related to timber harvesting and forest management. First Nations' rights apply to area-based tenures the same way they do to volume-based tenures. Public access is allowed and hunting, fishing and other recreational activities also occur on area-based tenures, just as they would on other areas of Crown land.

B.C. is unique in Canada because of its large proportion of volume-based licences. Other provinces typically grant harvesting rights through area-based tenures. For example, Alberta uses forest management agreements and Saskatchewan uses sustainable forest licences.

This chart shows the differences and similarities between forest licences and tree farm licences:

ATTRIBUTES	VOLUME-BASED REPLACEABLE FOREST LICENCES	AREA-BASED TREE FARM LICENCES
Logging rights	Non-exclusive – multiple licensees permitted to log in same timber supply area.	Virtually exclusive apply to a defined area.
Other tenures	Other types of tenures can be issued within the timber supply area, which may or may not involve logging.	Other types of tenures can be issued as long as they are compatible with forest management and do not involve logging.
Obligations	Stewardship, road construction and maintenance and reforestation.	Stewardship, road construction and maintenance, reforestation, management plans, forest inventories and other resource inventories to manage the licence.
Licence term	Initially issued for up to 20 years, and be renewed every 5 to 10 years.	Initially issued for 25 years, and renewed every 5 to 10 years.
Annual rent	Pay \$0.25 per cubic metre of amount authorized to harvest.	Pay \$0.45 per cubic metre of amount authorized to harvest.
Rights to other forest resources	No rights to other resources on the land.	
Right to occupy Crown land	Rights are limited to logging and forest management responsibilities.	
Stumpage	Stumpage, a fee to cut trees, is based on the market price of timber and other factors.	
Fire levy	Pay \$0.12 per cubic metre of amount authorized to harvest for fire suppression.	
First Nations consultation	Before issuing or replacing licences, the government is required to consult with First Nations.	
Compensation for deletion of Crown land	The licence holder is compensated if the allowable annual cut of the licence is reduced by more than 5 per cent as a result of Crown land deletions. Compensation may also be paid for improvements, such as roads, made by the licence holder.	

POTENTIAL BENEFITS

The provincial government is considering enabling conversions of volume-based forest licences to area-based forest licences because of potential benefits that could occur. It is specifically exploring the option of converting some or a portion of some volume-based replaceable forest licences to new or expanded area-based tree farm licences; a tree farm licence is similar to a volume-based replaceable forest licence in terms of contractual rights and obligations.

The major benefit of such a change is the increased certainty of timber supply that an area-based tenure would provide to the licence holder. This certainty would enable the licence holder to make long-term investment decisions for the benefit of the company, its workers and the community to which it pays local taxes.

Sawmills and other facilities:

Sawmills and other timber processing facilities require a huge investment of capital and a secure and predictable supply of timber is a key component of any decision to invest in a new mill or modernize an existing one. Security of tenure and a robust fibre supply are crucial for companies to maintain their competitiveness and convince capital markets, investors and shareholders to commit to investing in B.C. facilities that provide high-paying jobs.

Tree farm licences offer this security, since a licensee has more certainty over the timber supply needed to run the mill. This, in turn, can provide stability for workers and communities. Since tree farm licensees have longer-term certainty and exclusivity in the operating area, they are able to plan roads and log sorts at the most efficient locations on the land base.

Area-based tenures also enable the design of milling equipment to match the anticipated timber characteristics of the future. However, the accompanying risk of an area-based tenure is that a large wildfire could extinguish the timber supply with no ability to re-locate harvesting operations.

Inventory:

A clear understanding of which tree species are present in a given area, how fast the trees are growing and the volume of wood they produce each year is critical for determining the allowable annual cut in that area, and contributes to effective forest management and planning.

In certain circumstances, there may be a business incentive for area-based tree farm licence holders to invest in better forest inventory and growth and yield information to ensure the allowable annual cut for the tenure is determined with a higher degree of accuracy. The tree farm licence holder may also share costs with the province to invest in better inventories. For volume-based forest licences, inventory costs are generally borne by the Province.

Planning:

Many operating areas in timber supply areas impacted by the mountain pine beetle are no longer viable. In some timber supply areas, licensees are now challenging each other for the best operating areas.

Area-based tree farm licences would allow tenure holders to know exactly where they can exercise their timber harvesting rights. This would allow for better operational planning, such as establishing road networks and deciding to not cut selected areas of non-pine or non-damaged stands so they can be harvested at a future date. This is a viable option because tenure holders would know that the operations of other licensees would not affect the land base of their area-based tenures. This greater certainty would encourage more effective access planning, better stewardship and greater predictability of timber supply.

Relationships:

Knowing which licence holder operates on a particular area of Crown land would allow members of the public and First Nations to more readily develop positive relationships with that licensee. In timber supply areas with a multitude of forestry operators, it can sometimes be more challenging to form those relationships.



GOVERNMENT'S PROPOSAL

In response to the recommendations of the Special Committee on Timber Supply and the commitments it made in the Beyond the Beetle report, the Province is looking at options to convert some or a portion of some volume-based forest licences to new or expanded area-based tree farm licences (on a case-by-case basis), in areas where it makes sense to do so and in areas where there would be benefits for workers and communities by mitigating mid-term timber supply issues.

Amendments to the *Forest Act* would be needed to enable such conversions to occur. The Province is proposing that those amendments be based on the following principles:

- › Initially, these opportunities would be limited in number and would only be available in areas impacted by the mountain pine beetle. Over time, they could be offered in other parts of the province.
- › Similar to the way that community forest applications are handled, a licensee would request but would then need to receive an invitation from the minister to apply for an area-based tenure prior to submitting an application.
- › The applicant would have to demonstrate that its application provides benefits to some or all of the following: the Province, the local community, local First Nations and the public. To ensure that's the case, the Province is proposing that applications **must show how some or all** of the Province's social, economic and environmental objectives would be advanced, as outlined below:

Social Objectives

- › *development of partnerships, including those that further First Nations' involvement in forestry*
- › *training and educational opportunities directly related to forestry and manufacturing operations*
- › *community stability through the creation of new jobs or a reduction in job losses (compared to a base case)*
- › *investment in community infrastructure*
- › *improved opportunities for outdoor recreation*
- › *access to Crown land for First Nations and members of the public*

Economic Objectives

- › *sustainable allowable annual cut*
- › *return of allowable annual cut to government, to support other forest tenure opportunities*
- › *support of existing industries or new industries (e.g. bioenergy)*

- support of range resources
- reduced costs for government or industry
- investments in existing mills or other processing facilities
- investment in the management or maintenance of safe and efficient resource roads and infrastructure

Environmental Objectives

- investment in forest management beyond B.C.'s already high environmental requirements (e.g. information gathering and planning, or investments in silviculture)
- investment in managing other resources such as water, wildlife and non-timber resources, above B.C.'s already high environmental requirements

PROPOSED APPLICATION PROCESS

- If the minister confirms that an area-based application meets the specified criteria, the invited applicant would conduct a 60-day public review and comment period and then show how any concerns have been addressed before submitting the final application.
- An invited applicant would engage with First Nations and demonstrate how any First Nations concerns have been addressed before submitting the final application.
- The final application would also:
 - represent a fair and balanced exchange of rights and opportunity, in terms of the age class of trees, tree species distribution, percentage of dead pine, etc.
 - support an allowable annual cut that is consistent with the allowable annual cut that would be surrendered under the existing forest licence, and that is consistent with the general timber supply forecast for the timber supply area as a whole
 - respect Aboriginal rights
 - respect existing land use plans
 - support (or not hinder) existing forest tenure commitments (e.g. issuance of First Nations woodland licences, community forest agreements and woodlots, and other tenures)
 - not unduly impact the rates of harvest and forest management of other forest tenure holders within the timber supply area
 - not unduly impact existing tenure holders within other resource sectors (e.g. oil and gas, mining) and would not result in payment of compensation by the Province to any tenure holder or stakeholder
- After evaluating the application against these criteria, the minister may offer an area-based licence and may also set certain conditions for the final licence agreement.

PUBLIC INPUT REQUESTED

Before the Province proceeds with any legislative changes, it is seeking input from members of the public, communities, First Nations and interested stakeholders.

WHERE CAN I LEARN MORE?

The website engage.gov.bc.ca/foresttenures includes this discussion paper, frequently asked questions, a moderated blog and a list of research papers. You may submit your comments, have your questions answered and see what others think of this proposal.

HOW DO I PROVIDE MY INPUT?

Submit comments through the website engage.gov.bc.ca/foresttenures, via e-mail at Forest.Tenures@gov.bc.ca or by fax to 250 387-6445.







**Forest
Practices
Board**

Timber Harvesting in Beetle-Affected Areas

Is it meeting government's expectations?

Special Report

FPB/SR/44

March 2014

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Board Commentary

British Columbia is in the midst of a large-scale salvage program, the likes of which has never been seen. There is nothing sustainable about this harvest; this is a one-time activity initiated by the province to recover value from the trees killed by the mountain pine beetle (MPB) epidemic and to speed regeneration of affected areas. Once those trees no longer have any economic value, salvage will stop and the province will need to sustainably manage the harvest of the remaining live trees. The issue, simply put, is that the more live trees that are harvested now, the lower the sustainable harvest level will be after the salvage program is finished.

A 2007 Board report¹ on this issue concluded that the entire increased allowable annual cut (AAC), allocated to managing the effects of the beetle epidemic, had been put to good effect; that is, into harvesting more pine. From 2000 to 2006, the amount of non-pine harvested remained more-or-less the same, while the amount of pine harvested more than doubled.

However, since the 2007 Board report, things have changed. Since 2009, the proportion of pine in the harvest has been decreasing and the proportion of non-pine has been increasing. The Board is concerned that government's projections about the timber supply available after the salvage program ends are based on maintaining a high proportion of pine—more specifically dead pine—in the harvest until then. In discussions with industry foresters, the Board has found general agreement that there is a growing disparity between government's estimate of the amount of salvageable timber and the actual economically viable timber available on the ground.

In light of what appears to be rapidly changing circumstances in areas affected by MPB, it seems prudent for the chief forester to revisit AAC determination in those areas more frequently than has been done in the past and certainly not on the 10-year interval allowed by the recent amendment to the *Forest Act* section 8(1). Decisions can quickly become outdated, particularly as better information about shelf life and the amount of dead pine on the landbase becomes available.

The Board encourages the chief forester to:

- Develop a process of rapid re-evaluation of the AAC in areas where it has been increased to facilitate salvage harvest of dead pine.
- Be consistent in explicitly stating expectations about harvest performance, and, in particular, how performance against those expectations should be measured.

The Board encourages government to:

- Ensure it collects the information needed by the chief forester to measure performance, particularly in areas where there is an expectation that salvage harvesting will continue for the foreseeable future.

¹ Tree Species Harvested In Areas Affected By Mountain Pine Beetles FBP/SR/33.

Executive Summary

Government has told the people of British Columbia that the mountain pine beetle (MPB) epidemic in British Columbia's interior will result in the 'mid-term'² timber supply being much lower than was expected prior to the epidemic. Government's projections would be much worse were it not for their expectation that the forest industry will, in the short-term, maximize the harvest of pine trees—in particular, dead pine—and minimize the harvest of non-pine trees, saving those trees for the mid-term.

The Board compared the amount of dead pine and live pine in the harvest against government's general expectation that, "licensees continue to focus harvesting on MPB-impacted pine-leading stands."³ The Board found that, over the entire MPB affected area, the forest industry has focused its harvesting to meet that general expectation:

- For the last two years, the proportion of dead pine in the harvest has been higher than the proportion reported to be on the landbase. It is difficult to accurately estimate the amount of dead pine in the harvest before that time.
- The proportion of any pine (dead or alive) in the harvest has been greater than the proportion of pine on the landbase since the beginning of the epidemic, around the year 2000.

Notwithstanding these generally positive findings, there are indications that government's specific expectations are not being met in some cases:

- Although the percentage of pine in the harvest increased steadily from 2000 to 2009, it has decreased steadily since then. The Board projects that, if the current trend continues, the percentage of pine in the harvest will be lower than the percentage of pine on the landbase by 2018, which would indicate a loss of focus on meeting government's expectations about the harvest of pine.

The decrease is likely caused by increasing difficulty in finding economically viable pine stands—stands with high enough volume and close enough to roads and mills. Many of those stands have already been harvested and the quality of the dead pine in the remaining stands is deteriorating rapidly. Therefore, the trend in decreasing pine in the harvest seems likely to continue.

- The Board examined harvest performance against specific expectations, stated at the management unit scale (timber supply area [TSA] or tree farm licence [TFL]) and found that, in some cases, licensees are not meeting those expectations. Notably, the AAC determination for eight management units contain a specified non-pine partition—an expectation about the maximum volume of non-pine species that should be harvested. The first non-pine partitions were established in 2008. In 2009-10,⁴ two-thirds of the non-pine partition was harvested. Since then, there has been a consistent year-over-year increase in the proportion harvested. The Board estimates that the non-pine harvest in 2013-14 will be more than 10 percent over the total of the non-pine partitions (9.3 million cubic metres harvested of the total 8.4 million cubic

² Typically cited as being 10 to 50 years from now.

³ Okanagan TSA Allowable Cut Determination, 2012.

⁴ Harvest performance is described using government fiscal years (April 1 to March 31) in this report.

metre non-pine partition). There are specific concerns in two of the TSAs where there are non-pine partitions.

- The Prince George TSA has a non-pine partition of 3.5 million cubic metres and just over 100 percent of that partition was harvested during 2011-12 and 2012-13, and the Board estimates that just over 100 percent will be harvested in 2013-14. However, the Prince George TSA also has a specific 'sub-partition' for the maximum volume that should be harvested from spruce-leading stands (875 000 cubic metres). In 2012-13, 125 percent of that partition was harvested and the Board estimates that over 180 percent will be harvested in 2013-14.
- There has been a non-pine partition in place in the Morice TSA since 2008. Almost the entire partition was harvested in 2008-09 and the non-pine harvest has exceeded the partition in each fiscal year since then. In 2012-13, 185 percent of the partition was harvested and the Board estimates that about 200 percent of the partition will be harvested in 2013-14.

The expectations for non-pine harvest were set based on the actual non-pine harvest five to eight years in the past (2006 to 2009). It may be challenging for the forest industry to continue to meet those expectations in the face of the increasing difficulty in finding economically viable pine stands. The non-pine partitions are guidance provided by the chief forester and have no legal effect. The Crown is relying on forest managers to respect the partitions.

The Board notes that government rarely explicitly states how performance against its expectations should be measured and that there are potentially significant problems with the information available to measure performance. This results in considerable, and sometimes unresolved, debate about how to measure performance and about how to interpret the measurements. In this report, the Board has largely relied on the information obtained from government's Harvest Billing System.⁵

⁵ <http://www.for.gov.bc.ca/hva/hbs/> Government ensures the information is adequate for the primary purposes of timber pricing and billing.

Detailed Report

Introduction

Background

The effects of the mountain pine beetle (MPB) epidemic in British Columbia's interior are expected to have negative implications for timber supply in the period known as the 'mid-term.'ⁱ Current projections are that, "when beetle-killed pine is no longer salvageable, the province's overall supply of mature timber will be reduced, and 10 to 15 years from now it is forecast to be 20 percent below the pre-infestation levels, a reduction that may last up to 50 years," and that, "in areas with the greatest percentage of pine in the forest, shortages are already being noted and the drop in the harvest levels will likely exceed 20 percent,"ⁱⁱ below pre-infestation levels.

These projections are based on various assumptions made by the chief forester during the process of determining the allowable annual cut (AAC). Dire as the projections are, they would be much worse but for, "the assumption that we'll minimize the amount of harvesting of green fibre,"ⁱⁱⁱ in the short-term to save this fibre for the mid-term. However, the Board is aware of many anecdotal concerns that the profile of the harvest in MPB-affected areas may not be meeting the assumptions and expectations of government.

The Board reported on aspects of this issue six years ago (November 2007) in a special report titled, *Tree Species Harvested In Areas Affected By Mountain Pine Beetles*.^{iv} This report is a follow-up that has a broader geographic scope and examines issues that could not be addressed in 2007 (notably, the amount of dead pine being harvested) and issues that have arisen since 2007 (notably, the application of explicit 'partitions' on the amount of non-pine species that should be harvested).

Objectives

This special report assesses whether the harvest profile in areas affected by the MPB epidemic is consistent with government's expectations. The primary focus is an examination of the amount of live pine harvested, relative to the amount of dead pine and non-pine species, and a comparison of those amounts against expectations, expressed or implied, in the chief forester's determinations for AACs and the public discussion papers that are part of the timber supply review process.^v

Description of the Beetle-Affected Area

This report focuses on the 28 timber supply areas (TSAs) and tree farm licences (TFLs) identified by the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) as, "mountain pine beetle impacted management units,"^{vi} hereafter called the 'beetle-affected units.' These units might be better described as 'pine-affected' units, since they were selected by MFLNRO based on having a minimum of 15 percent pine on the timber harvesting landbase in stands with over 150 cubic metres per hectare.

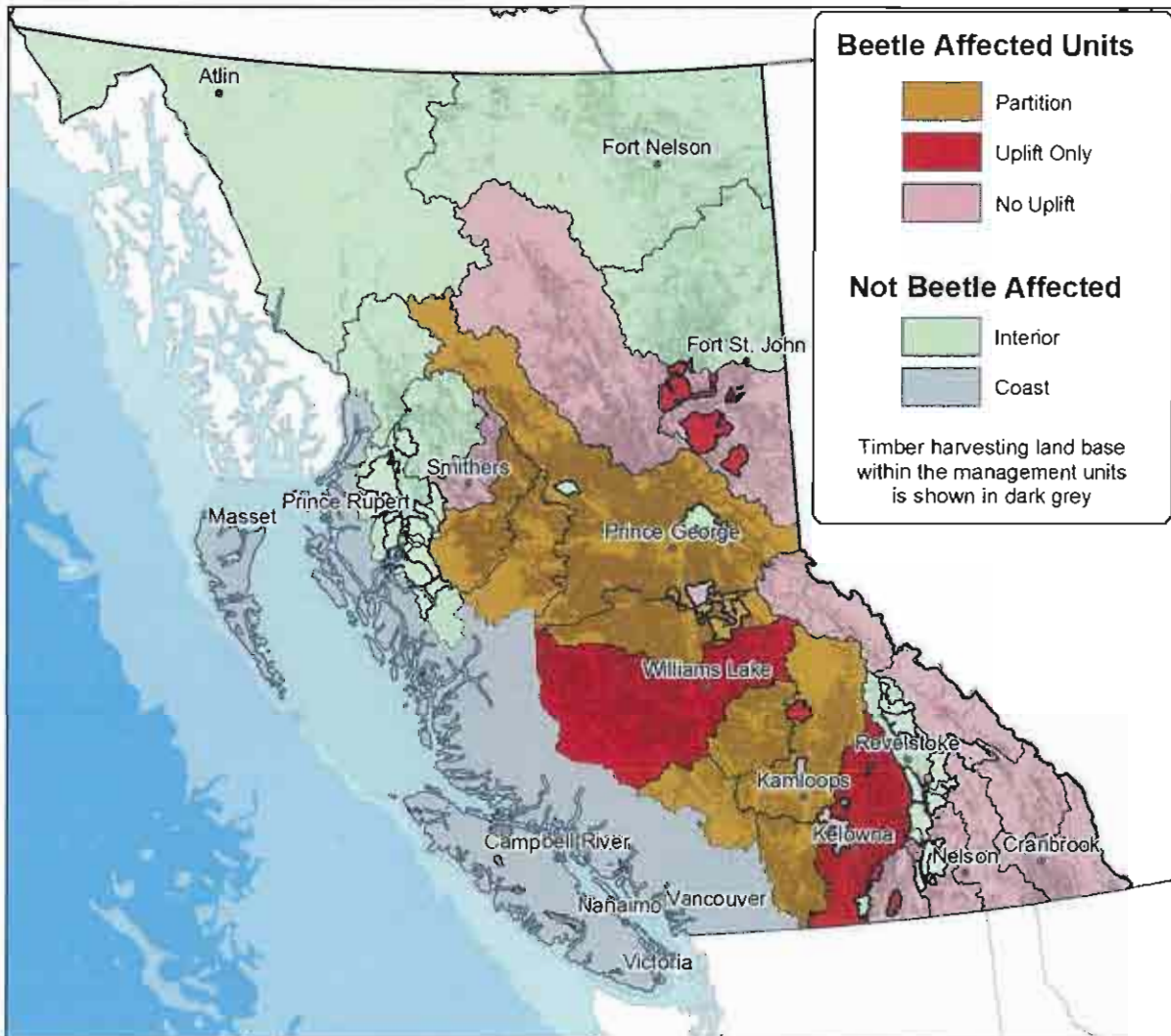


Figure 1. British Columbia's timber supply areas and tree farm licences shown in categories relevant to this special report.

Beetle-affected units cover most of the harvestable forest area in the BC interior. The coast, far north and some management units in the interior wet-belt are not beetle-affected (Figure 1).

In this report, the 28 beetle-affected units are divided into three categories as shown in Figure 2 (see Appendix 1 for details).

Partition

There are nine beetle affected units with relevant partitions⁶ to the AAC:

- **Non-Pine Partition:** In eight units, the AAC determination specifies a partition for the maximum total volume of non-pine species that should be harvested, “to ensure ongoing sustainability of non-pine species and protection of non-timber values.”^{vii}
 - In six of those units, the determination also provided an uplift in the AAC; an increase in the AAC to facilitate recovery of value from the dead pine.
- **Live Tree Partition:** In the 100 Mile House TSA, the recent determination specifies a maximum volume of live trees that should be harvested.^{viii} This unit also has an uplift.

Uplift Only

There are five units where the AAC determination includes an uplift to facilitate recovery of value from the dead pine but not a specified non-pine or live tree partition.

No Uplift No Partition

There are 14 units with neither an uplift, nor a partition.

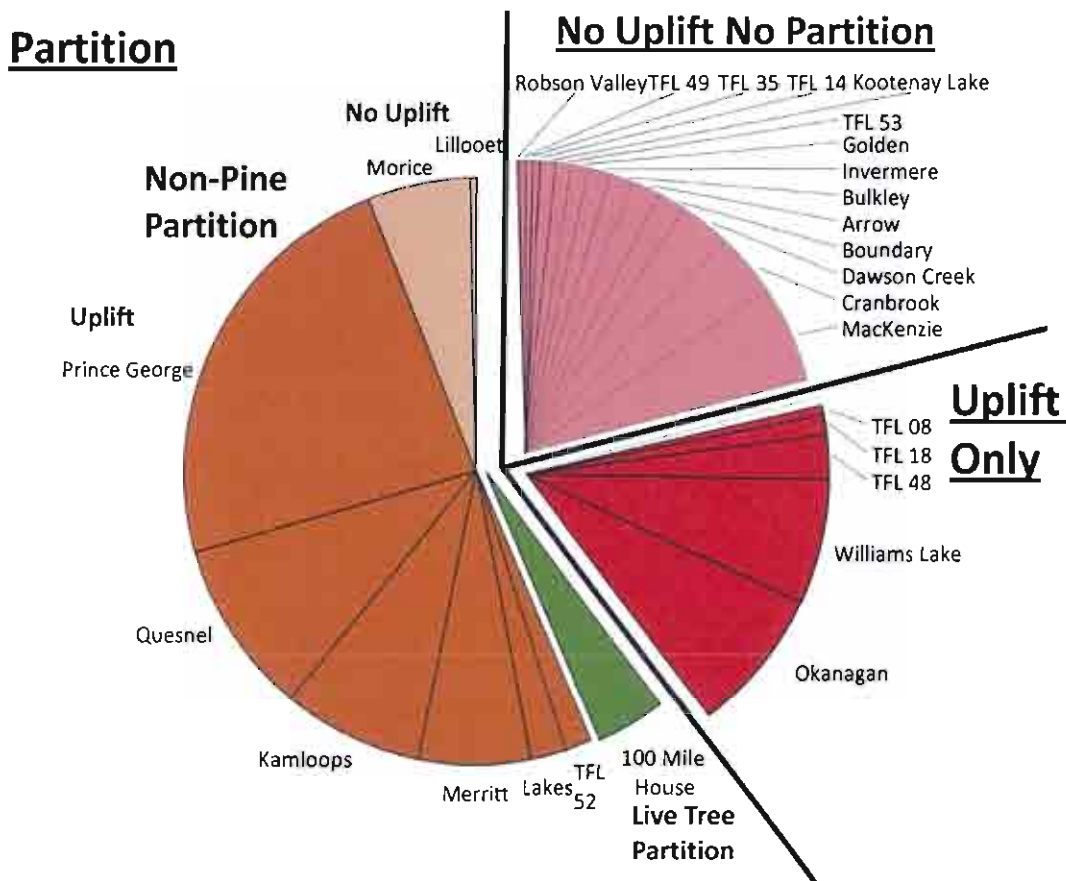


Figure 2. Proportion of the 2012-13 harvest in beetle-affected units by management unit category.

⁶ Section 8 (5) of the *Forest Act* enables the chief forester, when determining an AAC, to, “specify that portions of the [AAC] are attributable to . . . different types of timber or terrain.”

In the 2012-13 fiscal year, the total harvest in beetle-affected units was just over 44 million cubic metres (Appendix 2).⁷ Well over half of that was harvested in units with a partition (Figure 2).

The remainder of the harvest in beetle-affected units was evenly split among units with an uplift but not a partition, and those with neither an uplift nor a partition (Figure 2).

Harvest in beetle-affected units is dominated by the Prince George TSA, with nearly 25 percent of the total harvest in 2012-13. Fifty-five percent of the total harvest that year occurred in the top five units: Prince George, Quesnel, Kamloops, Okanagan and Williams Lake TSAs (Figure 2, Appendix 2).

Harvest in the beetle-affected units during 2012-13 was 85 percent of the total harvest in the interior (44 of 51 million cubic metres). The other seven million cubic metres was harvested in TSAs and TFLs that were not beetle-affected units (four million) and in community forests and woodlots (three million). The entire interior harvest was about three-quarters of the total provincial harvest (the remainder coming from the coast).

Government's Expectations About Harvest

The chief forester's AAC determinations and associated public discussion papers^{ix} contain expectations (either explicit or implied) about the kinds and volumes of trees that should be harvested. The chief forester has expressed the general expectation that, "licensees continue to focus harvesting on MPB-impacted pine-leading stands."^x In some cases, there are more specific expectations about the proportion of the harvest that should be dead pine. There are also some specific expectations about the proportion of the harvest that should be pine, whether live or dead, and, conversely, the maximum volume of non-pine that should be harvested. The nature of the expectations leads to the three main questions addressed in this report (Table 1).

Table 1. Summary of government's expectations and the resulting questions for this report.

General Expectation	Specific Examples	Question in this Report
Harvest as much dead pine as possible for as long as possible.	In the 100 Mile House TSA: the public discussion paper indicates that 75 percent of the total harvest should be dead pine until 2017. ^{xi}	How much dead pine is being harvested?
Focus on harvesting pine for as long as possible.	In the Prince George TSA: "the timber supply analysis assumes that 92 percent of the harvest will come from pine-leading stands for as long as possible." ^{xii}	How much pine is being harvested?
Avoid harvest of non-pine species, to the extent possible, to protect that volume for the mid-term supply.	Eight beetle-affected units have specified 'non-pine partitions' indicating the chief forester's expectation about the total volume of non-pine species that should be harvested (see Appendix 1 for details).	How much of the non-pine partitions is being harvested?

⁷ As reported to the MFLNRO Harvest Billing System. In this report the Board reports all harvesting by government fiscal year (April 1 – March 31) primarily to maintain consistency with some other reporting done by the ministry. The fiscal year also provides convenient breaks similar to harvesting seasons.

Measuring Harvest Against Expectations

Government rarely explicitly states how harvest performance should be measured against expectations. However, in two cases, the chief forester's AAC determinations do explicitly state that information in government's Harvest Billing System (HBS)^{xiii} should be used to monitor ongoing performance of harvest in the non-pine partitions.^{xiv}

The Board used information from HBS throughout this report to estimate the proportion of the harvest that was pine and the absolute volume of the harvest that was non-pine—the non-pine partitions. The Board used HBS data rather than other available sources of information, such as forest cover maps or pre-harvest estimates of the species composition of stands (cruise information⁸), because HBS data is what government uses to develop its harvest expectations (Appendix 4). The AAC determination process, in which the harvest expectations are set, is based on an analysis of current management practices.^{xv} Recent⁹ actual harvest performance, as identified in HBS, is used as a starting point in that analysis and subsequent analyses examine the implications of meeting (or not meeting) harvest expectations based on that starting point.

Government has also expressed expectations about the proportion of the pine in the harvest that should be dead. With the exception of the most recent AAC determination for the 100 Mile House TSA, there is no indication how these expectations should be measured.¹⁰ The Board used a combination of HBS returns and data obtained from the Electronic Commerce and Appraisal System (ECAS)^{xvi} to estimate the amount of dead pine in the harvest. These methods are described more fully in Appendix 3.

There are potentially significant issues in using HBS and ECAS information to measure harvest performance against expectations (see Appendix 4 for details):

- The primary purpose for collecting the information is to calculate stumpage (price) of timber to be harvested (in the case of ECAS), collect revenue and ensure the correct timber volume is being billed accurately and equitably (in the case of HBS). Government ensures the information is adequate for the primary purposes of timber pricing and billing, but neither system is specifically designed to collect information to monitor harvest performance.
- The information used does not represent direct measurements of every tree: all of it is estimates based on various kinds of sample measurements. The estimates contain generally accepted sampling variability.
- Since the beginning of the MPB epidemic there have been significant changes in the timber profile on the landbase, forest harvesting methods and the collection and reporting of information in the system used to measure harvest performance. Most notable are changes in the HBS, which now contains two different kinds of estimates of timber volume.

⁸ The systematic measurement of a forested area designed to estimate to a specified degree of accuracy the volume of timber it contains, by evaluating the number and species of trees, their sizes, and conditions.

(<http://www.for.gov.bc.ca/hfd/library/documents/glossary/Glossary.pdf>)

⁹ During the period immediately leading up to the closure of the data package used in the analysis, often two years before the determination.

¹⁰ That determination simply states that district staff could monitor the harvest of dead pine using cruise data.

In some cases, the information is an estimate of what was harvested and delivered to mills.¹¹ In this process all the delivered logs are weighed and the volume and species composition of a sample of those logs are measured. That information is used to estimate the volume and species composition of the logs that were only weighed.¹² Virtually all the information in HBS was this kind of estimate until June 2010, when it became mandatory to use the cruise-based billing process to report harvest in areas severely affected by MPB (more than 35 percent of the cut block is red or grey MPB attacked timber).^{xvii} With cruise-based billing, the information reported to HBS is a timber cruise estimate of the volume and species composition of the stand prior to harvest.

In 2012-13, about 44 percent of the volume reported to HBS was a weigh scale estimate of the volume and about 54 percent of the volume was a cruise based estimate of the volume (the remaining two percent was reported as waste). The volume and the tree species composition estimates from these two sources may or may not be comparable depending on the circumstances (see Appendix 4) and this may be important when attempting to measure harvest performance against expectations.

A brief description of the information system and a more detailed discussion of the issues with the information are provided in Appendix 4. The potential implications of these issues on the finding of this report will be discussed, where appropriate, in the remainder of the text.

Given that the situation in beetle-affected units is changing relatively rapidly, the Board thinks that it is important that the most current estimates of harvest performance be made available. For that reason, the Board has, in some cases in this report, estimated harvest performance for the last quarter of government's current fiscal year (January 1, 2014 to March 31, 2014) in order to present results for the entire fiscal year. Fourth quarter estimates for 2013-14 were calculated based on the average, over relevant previous fiscal years, of the ratio between harvest in the fourth quarter and the first three quarters (see Appendix 3 for details of the calculations and Appendix 5 for values used in the projections).

How Much Dead Pine is Being Harvested?

It is difficult to estimate of the amount of dead pine that has been harvested during the entire course of the MPB epidemic, which started around 2000, because there have been changes to the way harvesting has been reported to HBS during that time. Most notably, until April 2006, logs graded 3 or 5 in HBS indicated that the trees were dead when harvested. After 2006, these grades were eliminated and the same logs were primarily reported as grade 4, along with many trees that were alive when harvested. In June 2010, cruise-based billing was introduced, which requires that any cut block with more than 35 percent dead pine be reported to HBS using two billing codes, code 8 for dead and code 7 for alive. The Board used this information, supplemented with some actual cruise data, to estimate the amount of dead pine in the harvest in the recent past.

The Board found that 62 percent of the pine harvested was dead during the two full fiscal years since cruise-based billing became mandatory (2011-12 and 2012-13) (Table 2). MFLNRO estimates that just

¹¹ or left on site and reported as waste.

¹² This is generally the case, although in some instances all of the delivered logs are measured.

over half the pine on the landbase is dead.^{xviii} Combined, these results indicate that over all beetle-affected units there is a substantial focus on harvesting dead pine. There is uncertainty about this conclusion because there is considerable uncertainty about the amount of dead pine on the landbase. The provincial scale estimate, published by MFLNRO, is around half, but there are separate estimates published by MFLNRO for individual management units that are higher^{xix} in some cases and lower^{xx} in others.

The Board notes that even though 62 percent of the harvested pine was dead, less than 40 percent of the total volume harvested was dead pine because not nearly all of the harvest was pine (Table 2).

The harvest of dead pine shows an expected trend by management unit type (Table 2). The highest proportion of dead pine is in units with a partition and the lowest is in units without an uplift. There is substantial variability among managements in the amount of dead pine being harvested (Appendix 6).

Table 2. Harvested volume of dead pine, all pine and all species (millions of cubic metres) and relevant percentages by management unit type (April 1, 2011 to March, 2013).

Management Unit Type	Volume of Dead Pine	Volume of All Pine	Percent of Pine that is Dead	Total Volume of All Species	Percent of Total Volume that is Dead Pine
Partition	24.3	33.4	73%	51.4	47%
Uplift	6.2	11.3	55%	19.4	32%
No Uplift	3.2	9.3	34%	18.0	18%
All Units	33.6	54.0	62%	88.8	38%

Three of the public discussion papers, produced by MFLNRO for recent AAC determinations, have presented explicit assumptions about the proportion of dead pine in the harvest in 'Scenario 1' (the base scenario from which sensitivity analyses are conducted). The Board compared these assumptions against the actual harvest (Table 3). For the Quesnel TSA, the harvest was close to the assumptions, but for the Prince George TSA there was somewhat less dead pine being harvested than was assumed in the analysis. In the 100 Mile House TSA, there was a more substantial difference between the assumption in the public discussion paper and the actual harvest (11 percent).

Table 3. Dead pine harvest expectations as specified in public discussion papers compared to actual dead pine harvest (April 1, 2011 to March 31, 2013).

Timber Supply Area	Public Discussion Paper Scenario 1	Actual Harvest
100 Mile House ^{xxd}	75%	64%
Prince George ^{xxii}	60%	54%
Quesnel ^{xxiii}	72%	69%

How Much Pine is Being Harvested?

Detailed information about the trees species composition of the harvest has been recorded consistently in HBS since 1998. The Board used this information to determine how much pine was harvested over the entire course of the outbreak.

In 2001, the chief forester began to increase the AAC to facilitate management of the beetle epidemic (Appendix 1). At that time, there was approximately 2.2 billion cubic metres of wood on the timber harvesting landbase in the beetle-affected units (Table 4).¹³ Pine made up less than half that volume.

Since 2001, there have been over 500 million cubic metres of wood harvested, a little less than one-quarter of the total. Sixty percent of that harvest was pine. This indicates an overall focus on pine in the harvest since 2001. Despite this pine focus in the harvest, the percentage of pine on the landbase only dropped from around 46 percent in 2001 to around 41 percent in 2013 (Table 4).

Table 4. Timber volume harvested since 2001 and remaining on the timber harvesting landbase in 2013 by type of tree (in all beetle-affected units).

Type of Tree	Timber Volume (millions of cubic metres)		Total
	Harvested Since 2001	Remaining on the Landbase in 2013	
Pine	330	690	1020
Other Species	200	1000	1200
Total	530	1690	2220

From the beginning of the forest management response to the current epidemic, around the year 2000, until 2005-06 the volume of pine harvested increased more-or-less steadily, while the volume of other species harvested decreased (Figure 3). This occurred during a period of increasing AACs that were initially meant to facilitate efforts to control the epidemic. Beginning in 2004, there were further increases in the AAC in some areas to facilitate salvage of the dead pine (Figure 3). This finding is consistent with the 2007 Board report,^{xxiv} which concluded that all of the additional harvest power granted by the increased AACs had been devoted to managing the epidemic.

From 2006-07 to 2009-10, there was a dramatic decrease in the volume harvested, but it increased again in 2010-11 and has remained relatively constant for the last three years. Because of these changes, it is not clear from Figure 3 whether the focus on government's expectations for the pine harvest has been maintained since 2006-07.

¹³ Volume on the landbase is based on data from *Monitoring Harvest Activity Across 28 Mountain Pine Beetle Impacted Management Units*; MFLNRO 2013; http://www.for.gov.bc.ca/hts/pubs/MPB_Monitoring_Harvest_2013.pdf. Harvested volumes are the sum of volumes reported to the Harvest Billing System.

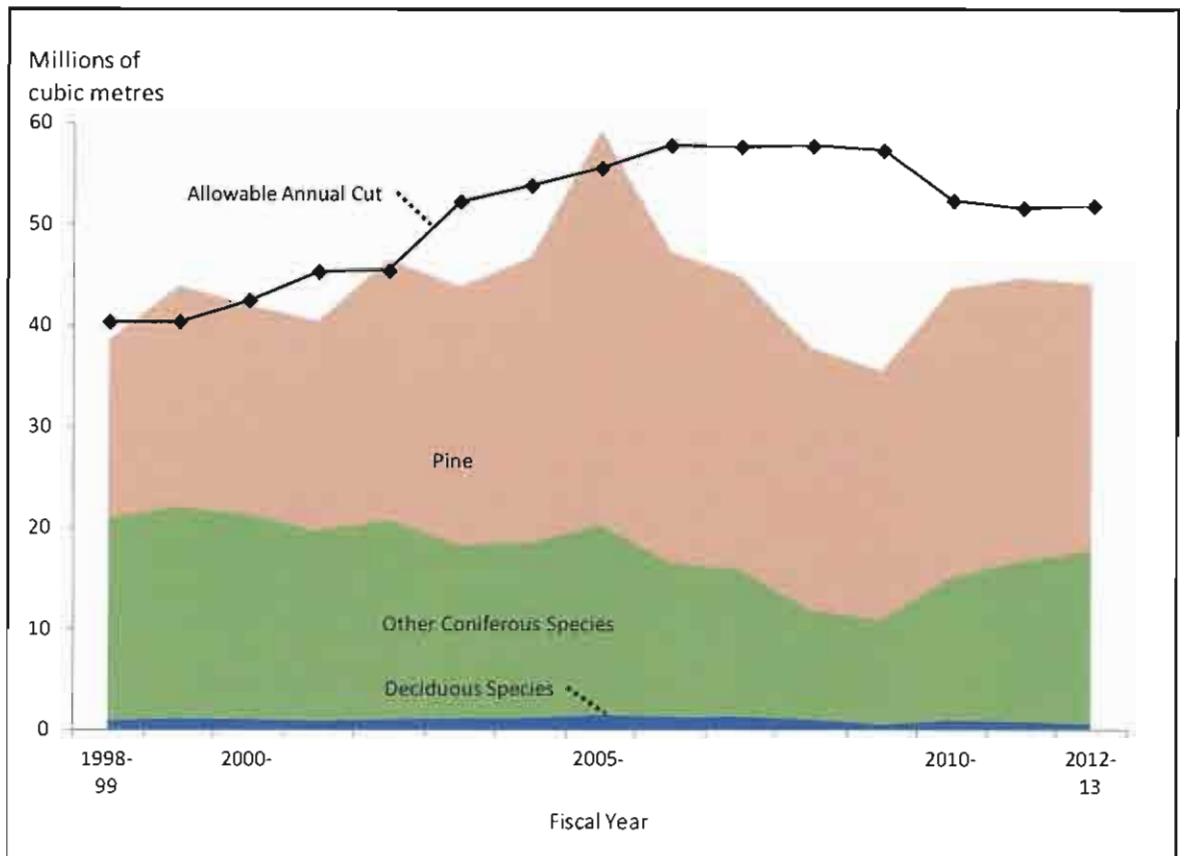


Figure 3. Volume harvested by species type and fiscal year (compared to the allowable annual cut).

What is clear from Figure 3 is that, over the last seven years, there has been a substantial gap between the AAC and the volume harvested, with a total of 23 percent of the AAC not harvested. In the last three fiscal years, the harvest has increased but there is still a 15 percent gap between the AAC and the harvest. Up to 2009-10, the gap between the AAC and the harvest is largely explained by the dramatic decline in housing starts in the United States (beginning in 2006), which resulted in decreased demand for dimensional wood products (e.g., 2X4s and 2X6s). Global markets for wood products began to open up and improve in 2010-11, and the increased demand resulted in increased harvest levels, which have remained reasonably steady at 15 percent below the AAC. The recent gap between the harvest and the AAC is largely due to volumes apportioned to non-replaceable forest licences (NRFL) for which there has either been no commitments (i.e., no licence agreements have been signed) or for which commitments have been made but there has been little or no harvesting. In most cases, these NRFLs were intended to facilitate the harvest of dead pine, much of it for bioenergy, and secondarily for sawn wood products. Log markets did not support the harvesting on many NRFLs (until recently).

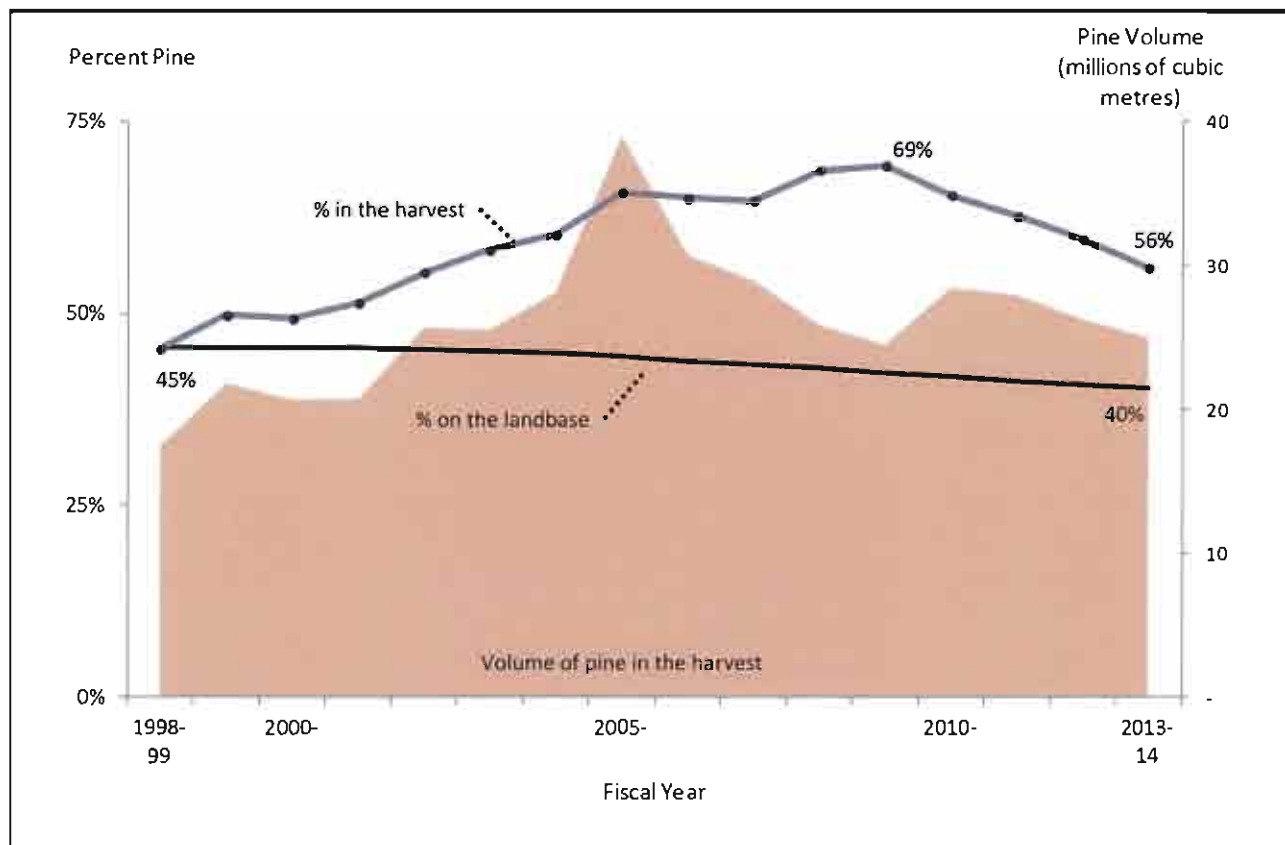


Figure 4. Percent pine and volume of pine in the harvest and percent pine on the landbase by fiscal year (fourth quarter of 2013-14 is estimated).

Figure 4 illustrates that the forest industry has focused its harvest on pine since 1999-00—the proportion of pine in the harvest has been greater than the proportion of pine on the landbase for that entire time. The percentage of pine in the harvest rose more-or-less steadily until 2009-10 when it peaked around 69 percent. Since then, the percentage of pine has decreased steadily and is estimated to be 56 percent in 2013-14.¹⁴ If this trend continues, the percentage of pine in the harvest will be back to the pre-beetle level of 45 percent by 2016-17 and it will be below the percentage of pine on the landbase by 2018-19.

The rate at which the percentage of pine in the harvest is decreasing is a matter of some debate. This is primarily because volumes reported in HBS are the net volumes (the volume that can be made into wood products), but there is an increasing volume of dead pine on the landbase that has deteriorated in quality beyond what can be used to make wood products. This additional gross volume of dead pine can be up to 20 percent higher than the volume reported to HBS through the cruise-based billing process, so it can be argued that the percentage of pine in the harvest is actually higher than what is reported to HBS. The Board estimates that the percentage of pine in the harvest during 2013-14 based on the additional gross volume may be as high as 60 percent, rather than the 56 percent obtained using the data in HBS (Figure 4). Nevertheless, there is a trend in decreasing pine percentages in the harvest.

¹⁴ See Appendices 3 and 5 for details of the projection of the last quarter of 2013-14.

This decreasing trend is dominated by the harvest in the Prince George TSA, where approximately one-quarter of the volume in the beetle-affected units is cut. Another important contributor is the Quesnel TSA, where around 10 percent of the harvest in beetle-affected units is cut. The decline in the percentage of pine in the harvest would have been greater but for the performance in Quesnel, where the percentage has slightly increased from 83 to 85 percent since 2009-10. The variability in the percent pine in the harvest by management unit is shown in Appendix 6.

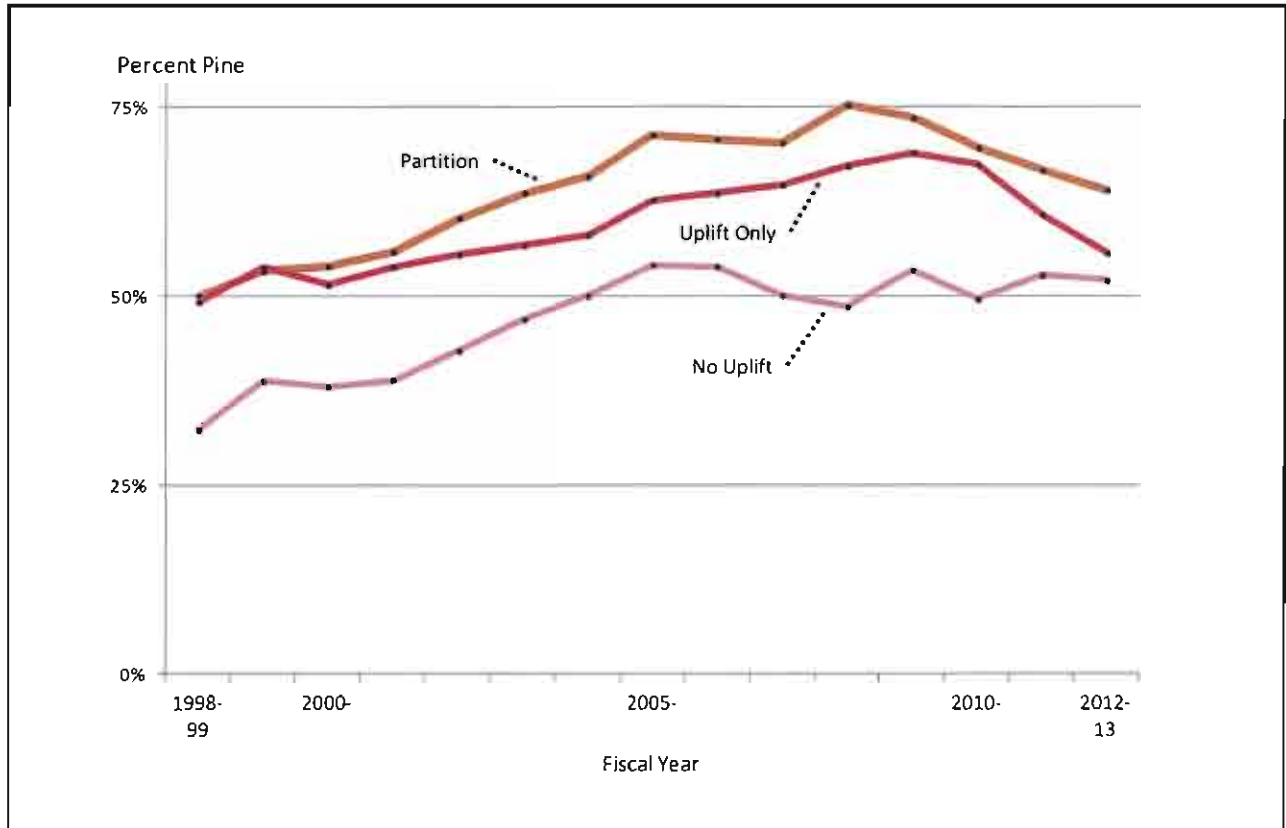


Figure 5. Percent pine in the harvest by management unit type and fiscal year.

The trend over time in the proportion of the pine harvest differs among the different types of units described earlier (Figure 5). The percentage of pine harvested in units with a partition peaked at 75 percent in 2008-09 and has decreased steadily since then. Where there was an uplift, but no partition, the percentage of pine harvested peaked in 2009-10 and has decreased since. Those beetle-affected units with no uplift rose to the challenge of harvesting pine at about the same rate as the units with an uplift, but once 50 percent pine was reached the proportion of pine in the harvest more-or-less stabilized.

The pine harvest in the Prince George TSA, which represents nearly 25 percent of the total harvest in beetle-affected units, was examined in more detail because there is a very specific expectation about the pine harvest in the AAC determination:

The timber supply analysis assumes that 92 percent of the harvest will come from pine-leading stands for as long as possible ... However, if licensees do not continue to focus their harvest on pine-leading stands, the impacts to the mid-term will be severe.^{xxv}

The Prince George TSA harvested 92 percent of its volume from pine leading stands¹⁵ in 2007 and 98 percent during 2009, prior to the most recent AAC determination in January 2011.^{xxvi}

However, in the first two years after the AAC determination, approximately 80 percent of the volume harvested came from pine leading stands (Table 5). Performance in the first three quarters of the 2013-14 fiscal year indicates that the volume harvested from pine leading stands may now be as low as 71 percent of the total harvest.

Table 5. Timber volume harvested in pine leading stands in the Prince George TSA (millions of cubic metres).

Fiscal Year	Total Volume Harvested	Total Volume in Pine Leading Stands	Pine Leading Stand Percentage
2011-12	10.9	9.0	82%
2012-13	10.3	8.0	78%
2013-14	9.6	6.8	71%

Note: Fourth quarter of 2013-14 is estimated.

It is likely that, over all the beetle-affected management units, the percentage of pine in the harvest is decreasing because:

- The quality of the dead pine is deteriorating rapidly so pine stands are losing their value and it is becoming increasingly difficult to find economically viable pine stands.
- For more than a decade much of the harvest in the beetle-affected units has been targeted at pine stands with the highest volume that are closest to roads and mills. As a result, it is becoming increasingly difficult to find pine leading stands with wood quality and volume that are economic to harvest.

¹⁵ HBS does not contain information about the species composition of individual stands. The Board uses the finest resolution in HBS – the timber mark, or cutting permit, as a surrogate. The chief forester uses the same information when setting his expectations and when reporting on performance.

How Much of the Non-Pine Partitions is Being Harvested?

Since 2008, in eight management units, the AAC determination has specified the absolute volume of non-pine species that should be harvested annually (the non-pine partition).¹⁶ Performance in those partitions was assessed using information from HBS. It is important to note that there is no legal requirement on the part of licensees to adhere to the non-pine partitions.¹⁷

Figure 6 shows the size of the non-pine partitions and performance in those partitions compared to the AAC and total harvest. Performance for each management unit is shown starting in the first full fiscal year after the AAC determination. The fourth quarter of 2013-14 has been estimated (Appendix 5).

The first non-pine partitions were established in 2008. In 2009-10, two-thirds of the total of the non-pine partitions was harvested. Since then, there has been a consistent year-over-year increase in the proportion harvested. The total non-pine partition for all eight units is currently 8.4 million cubic metres. In 2012-13, a total of 9 million cubic metres of non-pine was harvested (107 percent of all the partitions). An estimated 9.3 million cubic metres will likely be harvested in 2013-14 (112 percent of all the partitions).

In Prince George, the non-pine partition is 3.5 million cubic metres. Slightly more non-pine than that was harvested in both 2011-12 and 2012-13 fiscal years¹⁸ and non-pine harvest is projected to about the same in 2013-14. Eighty seven percent of the entire 12.5 million cubic metre AAC was harvested in 2011-12 and that dropped to 82 percent in 2012-13. The total harvest is projected to be only 75 percent of the AAC in 2013-14.

In the Prince George TSA, there is a separate sub-partition for the maximum volume that should be harvested in spruce-leading 'stands'¹⁹ (875 000 cubic metres).²⁰ During 2011-12 just over half a million cubic metres was harvested. During 2012-13 just over 1.1 million cubic metres was harvested (125 percent of the sub-partition). The Board estimates that the harvest from spruce-leading stands in the Prince George TSA will be over 1.6 million cubic metres during 2013-14 (180 percent of the sub-partition).

¹⁶ The 'live tree' partition in the recent 100 Mile House TSA determination is not included in this analysis, in part because it is conceptually different from the other 'non-pine' partitions, but also because there has not been sufficient time to determine what the performance in the partition has been.

¹⁷ Although it is possible for government to put a legal requirement in place if they choose to do so, the provision of the *Forest Act* enabling this (Part 4, Division 3.01) has not been used. As noted previously, the *Forest Act* Section 8 (5) enables the chief forester to specify a partition when setting the AAC.

¹⁸ This result is consistent with a report produced by the government/industry led PGTSA steering committee.

¹⁹ Measurement of performance in spruce-leading stands has the same issue as measurement of performance in pine-leading stands, as previously discussed; that is, HBS does not contain information about the species composition of individual stands. The Board uses the finest resolution in HBS—the timber mark, or cutting permit—as a surrogate.

²⁰ This is a part of the total non-pine partition for the Prince George TSA of 3.5 million cubic metres.

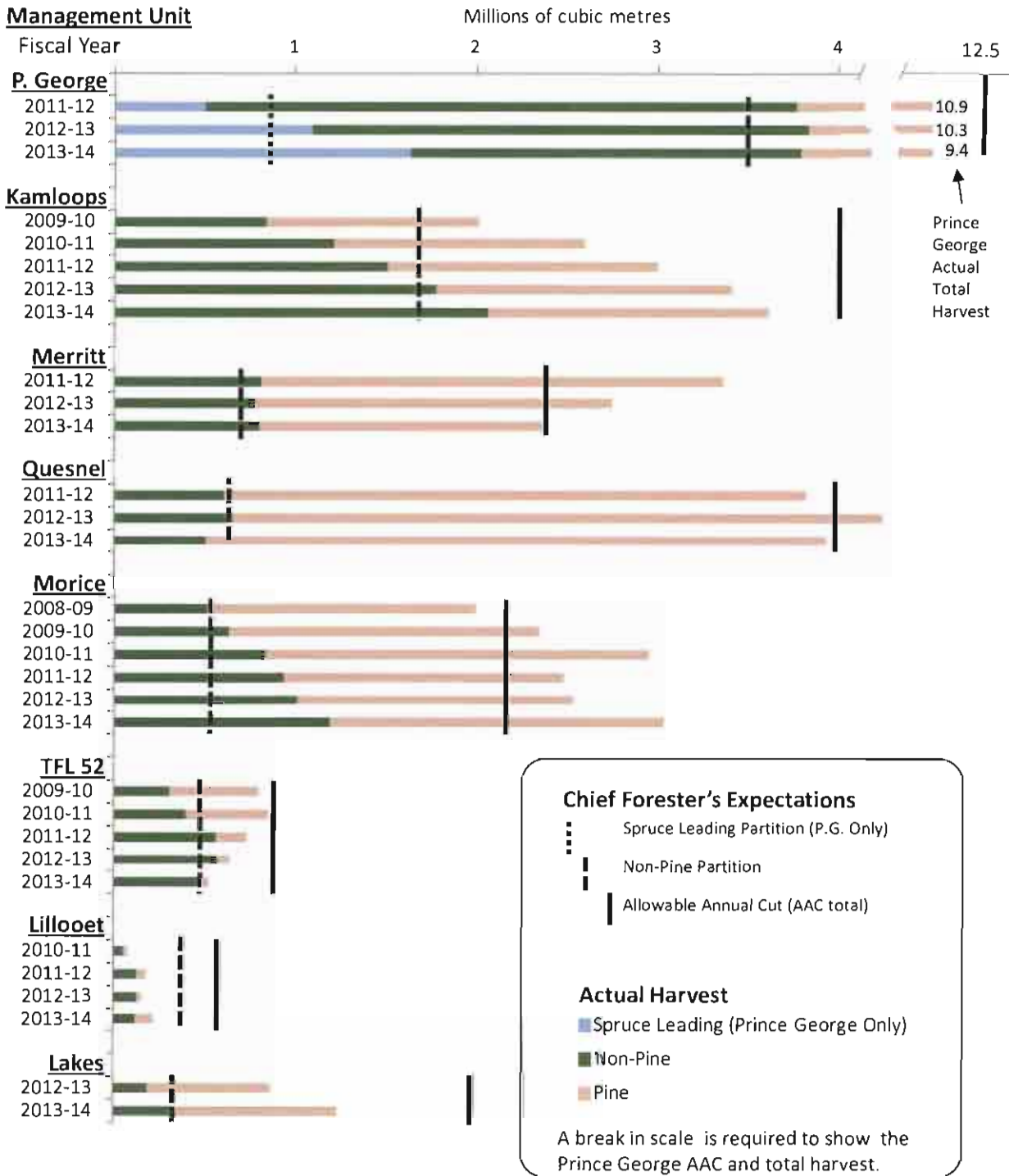


Figure 6. Volumes of non-pine and pine harvested compared to the non-pine partitions and the total AAC (fourth quarter of 2013-14 is estimated).

In the Kamloops TSA, the non-pine harvest has increased steadily over the last four years, along with the proportion of AAC that was cut. Eighty-five percent of the AAC was harvested in 2012-13 and just over 100 percent of the partition was cut. Kamloops is projected to harvest 90 percent of its AAC and over 120 percent of its non-pine partition in 2013-14.

In both Merritt and Quesnel TSAs, the non-pine harvest was approximately equal to the partition during the last two fiscal years and is projected to be the same in 2013-14. In Merritt, the volume of pine harvested has decreased since the non-pine partition has been in place.

During the last four fiscal years, the non-pine harvest in the Morice TSA has exceeded the partition and the total harvest has exceeded the AAC. Licensees harvested 185 percent of the partition in 2012-13. The non-pine harvest is projected to be about 200 percent of the partition in 2013-14. The Board is aware that major licensees in the Morice TSA and the Babine business area of the BC Timber Sales program have developed a plan intended to bring the non-pine harvest within the partition over the next year and a half.

The harvest in TFL 52 (Bowron-Cottonwood) has been below the AAC since the determination in April 2009. Pine salvage on the TFL is all but complete and 90 percent of the total harvest in 2012-13 was non-pine. That amount (575 000 cubic metres) was 115 percent of the partition. In 2013-14 the non-pine harvest in the management unit is projected to be equal to the non-pine partition and, with almost no pine being harvested, less than 60 percent of the AAC is expected to be cut.

In the Lillooet TSA, no more than 35 percent of the partition has been harvested in the last three fiscal years and no more than 32 percent of the AAC was cut.

In the Lakes TSA, there is only one full fiscal year of data (2012-13) showing that neither all of the AAC nor the partition was harvested. Assuming that the harvest in 2012-13 can be used to project the harvest during the third quarter of 2013-14, then over 60 percent of the AAC may be harvested and almost the entire non-pine partition may be harvested.

Conclusions

A general expectation of government, continually expressed by the chief forester, is that in beetle-affected areas, “licensees continue to focus harvesting on MPB-impacted pine-leading stands.”^{xxvii}

- The Board found that nearly two-thirds of the pine harvested over the last two fiscal years was dead. MFLNRO estimates that just over half the pine on the landbase is dead.^{xxviii}
 - This indicates that the forest industry has focused its harvest on dead pine; at least in the recent past.
- The Board found that the proportion of pine in the harvest has been well above the proportion of pine on the landbase since the beginning of the forest management response to the current epidemic, around the year 2000.
 - This indicates that the forest industry has been focusing its harvest on pine during the entire epidemic and its after-effects.

Notwithstanding these positive conclusions compared to the general expectation, there are several trends and indicators in the results that suggest the forest industry is losing its focus on government's specific expectations for the harvest of dead pine and pine.

- Where the Board examined specific expectations about the amount of dead pine in the harvest, the expectations were not being met (Table 3). Arguably, this may be an issue with the expectations rather than the performance. Government's expectations were based on previous harvest performance, but the situation is changing rapidly, resulting in difficulties maintaining that performance. Notably, the quality of the dead pine available for harvest is deteriorating or remains marginally economic.
- The percentage of pine in the harvest rose steadily from 2000-01 to a peak of 69 percent in 2009-10 and has been steadily decreasing ever since. A similar decrease in the percentage of pine in the harvest has been reported by MFLNRO.^{xxix} The decrease is likely caused by deterioration in the quality of the dead pine and increasing difficulty in finding economically viable pine stands. Therefore, the trend in decreasing pine in the harvest seems likely to continue. The Board projects that, if the decrease continues at the same rate, the percent of pine in the harvest will be back to pre-beetle levels (45 percent in 1998-99) by 2016-17 and it will be below the percentage of pine on the landbase by 2018-19.

This trend is evident in, and driven by, the Prince George TSA, which accounts for around one-quarter of the harvest volume in the beetle-affected area. Licensees in the Prince George TSA are harvesting far less pine than was assumed in the analysis leading to the allowable annual cut (AAC) determination—done just a few years ago—and the amount of pine harvested is decreasing. The trend would be stronger but for the notable exception—the Quesnel TSA. It is the second largest unit, by harvest volume, and the percentage of the pine in the harvest there has increased slightly since 2009.

- In eight management units, the chief forester has articulated specific expectations about the maximum amount of non-pine that should be harvested—the non-pine partitions of the AAC. The first non-pine partitions were established in 2008. In 2009-10, two-thirds of the total of the non-pine partitions was harvested. Since then, there has been a consistent year-over-year increase in the proportion of the total that has been harvested. The Board estimates that the non-pine harvest in 2013-14 will be more than 10 percent over the total of the non-pine partitions (9.3 million cubic metres harvested of the total 8.4 million cubic metre non-pine partition). In the Prince George TSA, there is also a specific sub-partition for the maximum volume that should be harvested from spruce-leading stands (875 000 cubic metres).²¹ One hundred and twenty five percent of that partition was harvested in 2012-13 and the Board estimates that over 180 percent will be harvested in 2013-14. Comparisons of the non-pine partition against the amount of non-pine in the harvest in any given year must be interpreted with some caution because there is some consensus that the partitions should be adhered to over longer time frames (possibly five years). Nevertheless, in the Morice TSA, more non-pine than the partition has been harvested for each of the last four years and the Board estimates that about 200 percent of the partition will be harvested in 2013-14. In the Kamloops TSA, there has been a four-year trend towards an increasing non-pine harvest and the Board estimates that 120 percent of the partition will be harvested in 2013-14.

As noted above, the issue may be with government's expectations rather than harvest performance. The expectations represented by the partitions are based on actual performance five to eight years in the past (2006 to 2009). It may be challenging for the forest industry to continue to meet those expectations in the face of the increasing difficulty in finding economically viable pine stands. The Board also notes that these partitions in the AAC are guidance provided by the chief forester and have no legal effect. The Crown is expecting forest managers in their respective management units to conduct harvesting that respects the partitions. Whether this expectation is reasonable seems to be in doubt.

- Over the last seven years, only three-quarters of the AAC has been harvested in the beetle-affected areas. Over the last three years, there was a 15 percent gap between the AAC and the actual harvest. This gap is largely due to volumes apportioned to non-replaceable forest licences for which there has either been no commitments (i.e., no licence agreements have been signed) or for which commitments have been made, but there has been little or no harvesting. In most cases, these NRFL volumes were intended to facilitate the harvest of dead pine, much of it for bioenergy, and secondarily for sawn wood products. Log markets did not support the harvesting on many NRFLs (until recently).

This gap between the AAC and the actual harvest may be a concern because the timber supply analyses that support the AAC determinations assume the entire AAC will be harvested. If it is not, then the area that will be promptly regenerated after harvesting will be lower than assumed and conclusions about the long-term (and possibly mid-term) timber supply need to be revisited.

²¹ This is a part of the total non-pine partition for the Prince George TSA of 3.5 million cubic metres.

However, this concern may be entirely offset because there are other concerns that the area the chief forester assumes will be harvested is too low, in the case of beetle-affected stands. These concerns exist because the volume estimates that support the chief forester's AAC determinations include some beetle-killed wood that is not included in the volumes reported to HBS. The result is that licensees need to harvest more area than expected to achieve the volumes assumed in the AAC determinations. This concern could be resolved if the analysts that support the AAC determination accommodated these differences in volume estimates in their analyses.

This latter concern about the area harvested highlights the issue that there is some considerable debate about how to measure harvest performance against expectations. This is primarily because of differences among timber volumes portrayed in the forest cover map, in the timber cruise, and volumes reported to HBS (see Appendix 4 for details).

The Board concludes that, for the purpose of monitoring harvest performance against the chief forester's expectations, the information in HBS should be the gold standard.²² It is this information that is used to set expectations and in some cases the chief forester has been explicit that this information should be used to monitor harvest against expectations. The AAC determination is the first step in apportionment. Apportionment is managed through cut control—which is managed through HBS returns—so the chief forester needs to make sure that the right volumes are being used during the timber supply review process; volumes that can be apportioned. For these reasons, the Board relied almost exclusively on the information in HBS to measure performance against expectations. However, HBS contains information from two different sources (scale based and timber cruise based), each estimated in different ways, and each with their unique sampling procedures and generally accepted sampling variability. Using that information to track harvesting expectations should include some reconciliation of the differences. This could be done through special studies or more detailed analyses, and would likely require accepting some general assumptions about the impact of the differences on the use of the information.

²² The Board notes that government ensures the information is adequate for the primary purposes of timber pricing and billing.

End Notes

Web links last accessed: March 21, 2014

- ⁱ Special Committee on Timber Supply. 2012. Growing Fibre, Growing Value. page 44. <https://www.leg.bc.ca/cmt/39thparl/session-4/timber/reports/PDF/Rpt-TIMBER-39-4-GrowingFibreGrowingValue-2012-08-15.pdf>
- ⁱⁱ *ibid.*; page 1.
- ⁱⁱⁱ MINUTES SPECIAL COMMITTEE ON TIMBER SUPPLY, Issue No. 9, Tuesday, June 19, 2012 @1125, R. Vossen, Hampton Lumber Mills, Canada, Ltd. <http://www.leg.bc.ca/cmt/39thparl/session-4/timber/hansard/f20619a.htm#9:1125>;
- ^{iv} Forest Practices Board. 2007. Tree Species Harvested In Areas Affected By Mountain Pine Beetles FPB/SR/33. http://www.fpb.gov.bc.ca/SR33_Tree_Species_Harvested_in_Areas_Affected_by_MPB.pdf
- ^v Forest Analysis and Inventory Branch. 2013. Timber Supply Review (TSR) Document Descriptions. MFLNRO http://www.for.gov.bc.ca/hts/tsa/TSR_document_description.pdf
- ^{vi} Forest Analysis and Inventory Branch. 2013. Monitoring Harvest Activity Across 28 Mountain Pine Beetle Impacted Management Units. MFLNRO. http://www.for.gov.bc.ca/hts/pubs/MPB_Monitoring_Harvest_2013.pdf
- ^{vii} Snetsinger, J. 2011. Prince George Timber Supply Area Rationale for Allowable Annual Cut (AAC) Determination. BC Ministry of Forests, Mines and Lands. <http://www.for.gov.bc.ca/hts/tsa/tsa24/tsr4/24ts11ra.pdf>
- ^{viii} Nichols, D. 2013. 100 Mile House TSA AAC Determination, MFLNRO http://www.for.gov.bc.ca/hts/tsa/tsa23/current_2012/23ts13ra.pdf
- ^{ix} Current Allowable Annual Cut (AAC) for Timber Supply Areas (TSA) <http://www.for.gov.bc.ca/hts/aactsa.htm> and Current Allowable Annual Cut (AAC) for Tree Farm Licences (TFLs) <http://www.for.gov.bc.ca/hts/tfls.htm>
- ^x Snetsinger, J. 2012. Okanagan AAC Determination. MFLNRO http://www.for.gov.bc.ca/hts/tsa/tsa22/current_2011/22ts12ra.pdf
- ^{xi} Forest Analysis and Inventory Branch. 2013. 100 Mile House TSA Timber Supply Analysis Public Discussion Paper. MFLNRO. http://www.for.gov.bc.ca/hts/tsa/tsa23/current_2012/23ts13pdp.pdf
- ^{xii} *Supra* note vii
- ^{xiii} Timber Pricing Branch, MFLNRO , Harvest Billing System (HBS), <http://www.for.gov.bc.ca/hva/hbs/>
- ^{xiv} Snetsinger, J. 2010. Merritt AAC Determination. Ministry of Forests Mines and Lands <http://www.for.gov.bc.ca/hts/tsa/tsa18/tsr2009/18ts10ra.pdf> and Snetsinger, J. 2012. Lakes AAC Determination. MFLNRO http://www.for.gov.bc.ca/hts/tsa/tsa14/current_tsr_2009/14ts11ra.pdf
- ^{xv} e.g. *Supra* note viii
- ^{xvi} Timber Pricing Branch, MFLNRO, Electronic Commerce Appraisal System (ECAS) <https://www.for.gov.bc.ca/hva/ecas/>
- ^{xvii} Timber Pricing Branch, MFLNRO, Interior Pricing Policy Changes <https://www.for.gov.bc.ca/hva/interior-pricing-changes.htm>
- ^{xviii} Walton, A. 2013. Provincial-Level Projection of the Current Mountain Pine Beetle Outbreak: Update . . 10. MFLNRO <http://www.for.gov.bc.ca/ftp/hre/external/?publish/web/bc/mpb/year10/BCMPB.v10.BeetleProjection.Update.pdf>
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- ^{xxi} *Supra* note xi
- ^{xxii} Forest Analysis and Inventory Branch. 2010. Prince George TSA Timber Supply Analysis Public Discussion Paper. Ministry of Forests and Range <http://www.for.gov.bc.ca/hts/tsa/tsa24/tsr4/24ts10pdp.pdf>
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- ^{xxiv} *Supra* note iv
- ^{xxv} *Supra* note vii
- ^{xxvi} *Supra* note vi
- ^{xxvii} e.g. *Supra* note x
- ^{xxviii} *Supra* note xviii
- ^{xxix} *Supra* note vi

Appendix 1: Information Required to Categorize Beetle-Affected Management Units

Management Unit Name	First Beetle Uplift	Non-Pine Partition (000's m ³)	Current AAC (000's m ³)	pre-beetle AAC (000's m ³)	% uplift for beetle mgmt	Current AAC Determination Date	Link to Rationale
Arrow TSA			550	550		01-Jul-05	Arrow
Boundary TSA			700	700		01-Jan-02	Boundary
Bulkley TSA			852	895		29-Jan-14	Bulkley
Cranbrook TSA			904	871		01-Nov-05	Cranbrook
Dawson Creek TSA			1,860	1,733		01-May-03	Dawson
Golden TSA			485	530		03-Jun-10	Golden
Invermere TSA			599	591		01-Nov-05	Invermere
Kamloops TSA	2004	1,700	4,000	2,679	149%	01-Jun-08	Kamloops
Kootenay Lake TSA			640	681		12-Aug-10	Kootenay
Lakes TSA	2001	350	2,000	1,500	133%	12-Jul-11	Lakes
Lillooet TSA		400	570	643		01-May-09	Lillooet
MacKenzie TSA			3,050	2,997		01-Dec-01	Mackenzie
Robson Valley TSA			536	602		04-Aug-06	Robson
Merritt TSA	2005	720	2,400	1,454	165%	02-Dec-10	Merritt
Morice TSA		550	2,165	1,986		01-Feb-08	Morice
Okanagan TSA	2006		3,100	2,615	119%	29-Feb-12	Okanagan
100 Mile House TSA	2006	See notes	2,000	1,362	147%	07-Nov-13	100 Mile
Prince George TSA	2002	3,500	12,500	9,364	133%	11-Jan-11	PG
Quesnel TSA	2001	650	4,000	2,340	171%	11-Jan-11	Quesnel
Williams Lake TSA	2007		5,770	3,807	152%	18-Apr-07	WilliamsLk
TFL 08 Boundary	2002		186	175	106%	01-Apr-09	TFL 08
TFL 14 Spilli...n			180	160		07-Apr-08	TFL 14
TFL 18 Clearwater	2006		290	176	165%	09-Mar-06	TFL 18
TFL 35 Jamieson Ck	2004		125	126		01-Mar-12	TFL 35
TFL 48 Chetwynd	2007		900	580	155%	25-May-07	TFL 48
TFL 49 Okanagan	2005		330	380		30-Nov-12	TFL 49
TFL 52 Bn.-Cttwd.	2009	500	918	870	106%	01-Apr-09	TFL 52
TFL 53 Naver	2003		219	240		30-Nov-10	TFL 53

Notes:

- *Bold dates in the "Current AAC Determination" indicate there has been a subsequent postponement order.*
- *The AAC in the Williams Lake TSA was increased in 1985 from 2,500,000 to 3,750,000 cubic metres to address the mountain pine beetle epidemic that occurred in the area around that time. In 1996 the AAC was set at 3,807,000 cubic metres.*
- *TFLs 35, 49 and 53 received uplifts in 2004, 2005 and 2003, respectively, but the recent determinations returned the AAC to at or below pre-beetle (and fire) levels.*
- *The recent determination for the 100 Mile House TSA specified a partition at 500,000 cubic metres for the total volume of live trees that should be harvested. All other partitions listed are for the total volume of non-pine species that should be harvested.*
- *TFL 14 Spilli...n = Spillimacheen; TFL 52 Bn.-Cttwd. = Bowron Cottonwood*

Appendix 2: Summary of Interior Harvest During 2012-13

Description and Notes for Column Headers in the Following Table

Management Unit

Management Units are listed in decreasing order of the percentage of the total pine harvest in 2012-13.

Management units are the beetle-affected timber supply areas (TSA) and tree farm licences (TFL) as listed in Appendix 1, except:

- The Prince George TSA is divided into the three MFLNRO Districts that make up the TSA, plus the total for the TSA itself.
- NOT affected TSA/TFL is the sum of the values for all those TSAs and TFLs in the Northern or Southern Interior that are not beetle-affects.
- Other (C.F., wd. lot,) is the sum of all interior community forests and woodlots.

TFL 14 Spillimacheen = TFL 14 Spillimacheen

TFL 52 Bn.-Cttwd.= TFL 52 Bowron Cottonwood

Harvest (000's m³)

The four columns under this heading are harvest estimates in thousands of cubic metres.

Pine = all lodgepole pine including dead pine.

Dead Pine = dead lodgepole pine only.

Non-Pine = all species other than lodgepole pine harvested; including deciduous (note relatively high non-pine harvest in Dawson Creek contains significant amounts of aspen harvest).

Total = sum of pine and non-pine.

% of AAC Harvested = harvest in the management unit as a percentage of the AAC for that unit.

% of All Pine Cut = pine harvest as a percentage of the total interior pine harvest.

Pine Harvest % of MU

The three columns under this heading are percentage of the total harvest in the MU in 2012-13.

Pine Cut = percentage of pine in the harvest.

Dead Pine = percentage of the pine harvested that was dead.

Dead Pine of Total = percentage of the total harvest that was dead pine.

% of Partition Cut = percentage of the non-pine partition harvested (see Appendix 1 for volumes of the non-pine partitions).

Summary of the BC interior harvest during the 2012-13 fiscal year.

Management Unit	HARVEST (000's m ³)				% of AAC Harvested	% of All Pine Cut	PINE HARVEST % of MU			
	Pine	Dead Pine	Non-Pine	Total			Pine Cut	Dead Pine	Dead Pine of Total	% of Partition Cut
PG TSA Ft. St. James	2,565	2,053	1,462	4,028		9	64	80	51	
PG TSA Vanderhoof	2,186	1,972	798	2,984		8	73	90	66	
PG Prince George	1,702	1,437	1,572	3,274		6	52	84	44	
Prince George ALL	6,454	5,463	3,832	10,286	82	23	63	85	53	109
Quesnel TSA	3,592	3,041	654	4,246	106	13	85	85	72	101
Williams Lake TSA	2,054	1,066	880	2,934	51	7	70	52	36	
Merritt TSA	1,964	799	789	2,754	115	7	71	41	29	110
Kamloops TSA	1,622	1,303	1,788	3,411	85	6	48	80	38	105
Morice TSA	1,521	892	1,020	2,541	117	5	60	59	35	185
MacKenzie TSA	1,508	1,196	856	2,365	78	5	64	79	51	
Okanagan TSA	1,362	339	2,031	3,394	109	5	40	25	10	
100 Mile House TSA	1,112	1,032	576	1,688	84	4	66	93	61	
Cranbrook TSA	989	67	583	1,572	174	4	63	7	4	
Dawson Creek TSA	694	308	536	1,229	66	2	56	44	25	
Lakes TSA	680	523	190	870	44	2	78	77	60	54
TFL 48 Chetwynd	558	325	474	1,032	115	2	54	58	32	
Boundary TSA	442	30	261	703	100	2	63	7	4	
Bulkley TSA	360	61	204	565	64	1	64	17	11	
Invermere TSA	237	36	312	549	92	1	43	15	7	
TFL 18 Clearwater	179	142	287	466	161	1	38	79	30	
TFL 14 Spill...n	135	5	49	184	102	0.5	73	3	2	
Kootenay Lake TSA	115	5	253	367	57	0.4	31	4	1	
TFL 08 Boundary	104	9	115	219	118	0.4	48	9	4	
Arrow TSA	95	21	594	689	125	0.3	14	22	3	
Golden TSA	77	14	347	424	87	0.3	18	18	3	
TFL 52 Bn.-Cttnwd	69	49	575	643	70	0.2	11	71	8	115
TFL 49 Okanagan	69	39	81	149	45	0.2	46	56	26	
TFL 35 Jamieson Ck	69	9	109	178	142	0.2	39	13	5	
TFL 53 Naver	32	11	351	383	175	0.1	8	35	3	
Robson Valley TSA	25	11	25	50	9	0.1	50	46	23	
Lillooet TSA	25	7	130	155	27	0.1	16	30	5	33
Beetle Affected Total	26,141	16,803	17,904	44,045	85	94	59	64	38	107
NOT affected TSA/TFL	577		3,427	4,004		2	14			
Other (C.F., wd. lot.)	1,163		1,778	2,940		4	40			
Grand Total	27,880		23,109	50,989		100	55			

Appendix 3: Description of the Information Sources and Methods

- The Board obtained harvest volumes by tree species from April 1, 1998, to December 31, 2013, from the MFLNRO harvest billing system (HBS).^{xxx} The Board used this information to report on the species composition of the harvest (i.e., the percentage of pine and the volume of non-pine in the harvest).
- The Board estimated the volume dead pine harvested from information in HBS and the MFLNRO electronic commerce and appraisal system (ECAS)^{xxxi} for the period April 1, 2011, to March 31, 2013. This time period was chosen because it includes the first full fiscal year after the implementation of the requirement to use cruise-based billing for any cutting authority with more than 35 percent pine that was red or grey MPB attack. Dead pine was calculated as the total volume of green, red and grey MPB attack in the cruise summary. Where harvesting was reported to HBS using a:
 - **weigh scale based cutting authority** (normal production and waste): the amount of dead pine was estimated using cruise information in ECAS for the timber mark where it was available. For timber marks where cruise information was not available (about one fifth of the volume) the amount of dead pine was estimated, by management unit, based on the average amounts found in the cruise data for the management unit.
 - **cruise based cutting authority**: the volumes of dead pine as reported to HBS (billing code 8) were used directly and the volume of billing code 7 pine that was green attack (also dead) was calculated based on the percentage of green attack in the cruise information (available in all but a few cases).
- Performance during the fourth quarter of the 2013-14 fiscal year was estimated for the main report (Figure 4, Table 5, and Figure 6). These projections are based on multipliers for the fourth quarter of the fiscal. For each management unit in each relevant year, the multiplier is the fourth quarter volume divided by the first three quarters volume. The average of those multipliers, over all relevant years, is used to estimate the volumes in the fourth quarter of 2013-14. Totals for 2013-14 are then calculated as the actual harvest in the first three quarters, plus the estimate for the fourth quarter. The quantities used in the projections are presented in Appendix 5.
- The proportion of pine on the timber harvesting landbase was obtained (where available) from MFLNRO report titled *Monitoring Harvest Activity Across 28 Mountain Pine Beetle Impacted Management Units*.^{xxxii}
- The overall proportion of the dead pine on the landbase was obtained from MFLNRO report titled *Provincial-Level Projection of the Current Mountain Pine Beetle Outbreak: . . .1999 through 2012 . . . (year 10)*.^{xxxiii}
- Information about the AAC, partitions and the expectations of government were obtained from documents related to the AAC determination process (the rationales for the AAC determination and public discussion papers).^{xxxiv}
- Some use was made of the information in the 2007 Board report, *Tree Species Harvested in Areas Affected by Mountain Pine Beetles*.^{xxxv}

Appendix 4: Issues Related to the Information

Government has expressed expectations about the trees species composition of the harvest. In some cases those are expressed as the minimum proportion of the harvest that should be pine. However, most commonly the explicit expectations are for the maximum absolute volume of the harvest that should be non-pine – the non-pine partitions. These expectations are based on actual performance as identified in the harvest billing system (HBS)^{xxxvi} around the close of the data package for the given allowable annual cut determination as demonstrated below.

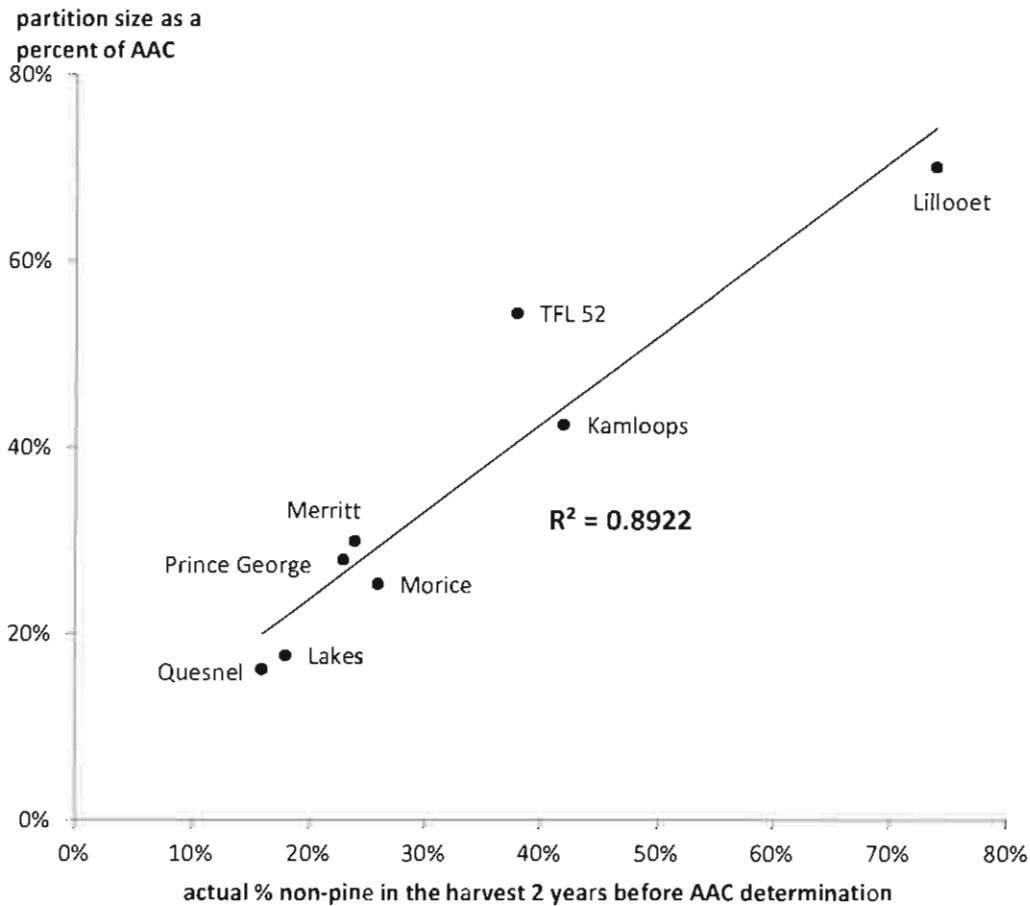


Figure A7. Relationship between actual non-pine harvest, two years before the AAC determination and the determined partition as a percent of the determined AAC.

In the eight TSAs, with non-pine partitions, nearly 90 percent of the variability in the partition size (as a percent of the AAC) can be explained by the non-pine harvest performance two years prior to the AAC determination (Figure A7), as reported by MFLNRO.

([http://www.for.gov.bc.ca/hts/pubs/Report-Monitoring%20Harvest Nov%202012.pdf](http://www.for.gov.bc.ca/hts/pubs/Report-Monitoring%20Harvest%20Nov%202012.pdf))

In addition, government has, in some cases, explicitly stated that HBS should be used to monitor ongoing performance.^{xxxvii} Therefore, the Board used HBS to measure performance about the tree species composition of the harvest.

Government has also expressed expectations about the proportion of the pine in the harvest that should be dead. With the exception of the most recent AAC determination for the 100 Mile House TSA (November 7, 2013), there is no indication how these expectations should be measured.²³ The Board used a combination of HBS returns and data obtained from the electronic commerce and appraisal system (ECAS)^{xxxviii} to estimate the amount of dead pine that is being harvested. These methods and the other information sources and methods used in this report are detailed in Appendix 3.

There are potentially significant issues in using the information in HBS and ECAS to measure harvest performance against expectations. The issues, discussed below in some detail, are of three different types:

- The primary purpose for collecting the information is to calculate stumpage (price) of timber to be harvested (in the case of ECAS), collect revenue and ensure the correct timber volume is being billed accurately and equitably (in the case of HBS). Government ensures that the information is adequate for the primary purposes of timber pricing and billing but neither system is specifically designed to collect information to monitor harvest performance.
- The information used does not represent direct measurements of every tree—all of it is estimates based on various kinds of sample measurements. The estimates contain generally accepted sampling variability.
- Since the beginning of the MPB epidemic there have been significant changes in the timber profile on the landbase, forest harvesting methods and the collection and reporting of information in the system used to measure harvest performance.

Figure A8 is a simplified schematic of the portions of government's information system related to this topic as it stood prior to the most significant change in the system, made on June 1, 2010. The change, and its implications, are discussed below.

²³ The 100 Mile House TSA determination simply states that district staff could monitor the harvest of dead pine using "cruise data."

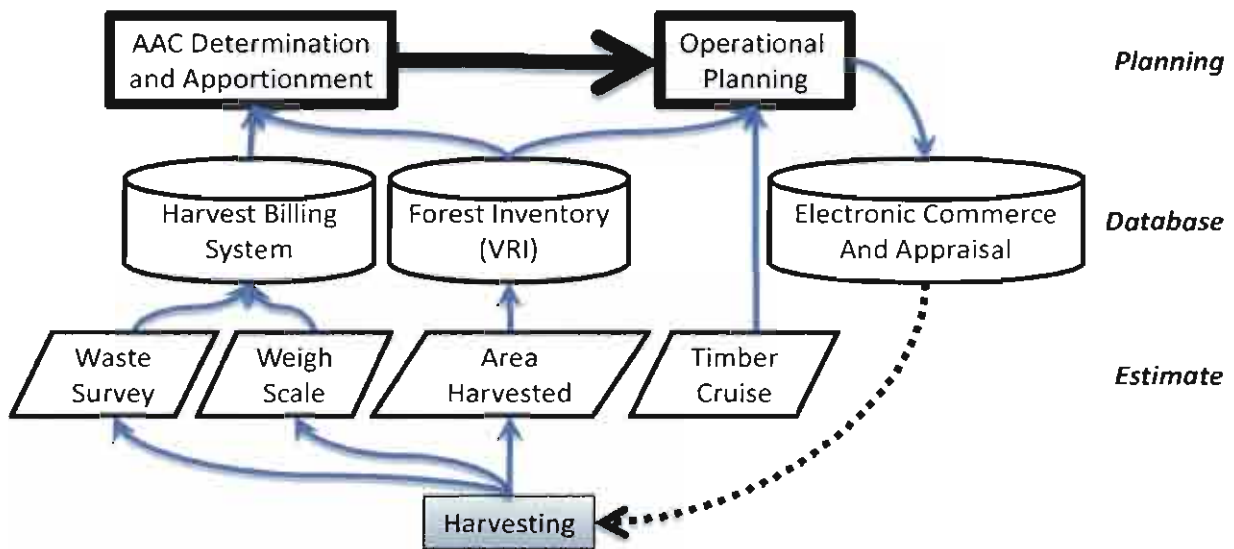


Figure A8. Simplified relationships among planning, database and measurement components of the information system used to assess harvest performance against expectations (note that this figure depicts the main information flow in the system prior to June 1, 2010 when mandatory cruise-based billing for beetle killed cut blocks was implemented).

A brief description of the system prior to June 1, 2010, when mandatory cruise-based billing for beetle killed cutblocks was implemented is:

- An AAC is determined (and subsequently legally apportioned^{xxxix}) based on an analysis that uses a wide variety of information, including the forest inventory (a.k.a. Vegetation Resources Inventory^{xl}) and HBS databases as input. The results of that process form a significant directive for operational planning.
- Operational planning uses a host of information (much of it about the economics of harvesting) to develop spatially explicit plans of where harvesting will occur. Often an initial step in that process is to consult the forest inventory database to identify likely areas for harvest. Those areas are usually visited to obtain cursory information about the nature of the area (a reconnaissance survey) and then, if deemed suitable, a timber cruise²⁴ is conducted.
- Some of the information from the cruise is used in the Electronic Commerce and Appraisal System (ECAS) to calculate the stumpage that will be owed when the timber is harvested.
- After the harvesting is complete:
 - The forest inventory is updated with a map of the area harvested.
 - In general, log weigh scaling is used to update HBS with estimates of the volume, species composition and grade (suitability for making wood products) of wood harvested and delivered to the timber processing facility (hereafter the mill). In that process, every logging truck is weighed and the load of logs is assigned to a pre-defined stratum. A

²⁴ The systematic measurement of a forested area designed to estimate to a specified degree of accuracy the volume of timber it contains, by evaluating the number and species of trees, their sizes, and conditions.
(<http://www.for.gov.bc.ca/hfd/library/documents/glossary/Glossary.pdf>)

sample of the logging truckloads delivered to the mill is scaled²⁵ to ensure the relationship between weight and volume for each stratum. Note that, in some cases, all of the delivered logs are measured.

- HBS is updated with an estimate of the net merchantable volume left on the site after harvest, also known as waste.

It is important to note that, in theory, the volumes estimated in the forest inventory and the timber cruise (and the waste assessment) are the net merchantable volumes and are directly comparable to the volumes actually delivered to the mills, as measured by the log weigh scaling process. That is, the timber inventory and the timber cruise contain estimates of the volume of the main stem of the tree, excluding stump and top; further reduced for an estimate of the volume that is not deliverable (also known as decay, waste and breakage). In practice, there are several reasons why the three volume estimates may be different and, in general, why the estimates of timber volume in the inventory may be higher than the estimates in the cruise, which may be higher than the volumes estimated by log weigh scaling:

- Pine volumes in the inventory may be overestimated. This is because the inventory contains estimates, including estimates of the species composition of the stand. These estimates are theoretically unbiased (i.e., neither too high nor too low). However, since the beginning of the MPB outbreak, the industry has been focusing their harvest on stands that actually have a high percentage of pine. They use the inventory, in part, to do this. This biased harvesting may have created a bias in the inventory estimates towards overestimating the amount of pine. The Board found that since 2007 an estimate of the proportion of pine harvested based on the forest cover map was seven percent higher than an estimate based on HBS returns (Table A6).
- Where there has been MPB related mortality, pine volumes in the inventory will be higher than in the operational timber cruise because the estimate in the cruise contains a reduction in the volume net down to account dead pine trees that will not be delivered (20 percent for most of the dead pine). This net down is not included in the volume estimates found in the inventory.
- Volumes of all species in the inventory and the cruise may be higher than the volumes estimated by log weigh scaling for two reasons:
 - The factors used to reduce the volume estimate to account for decay waste and breakage are based on broad regional averages published in 1976^{xii} and may not adequately reflect current conditions in MPB affected areas.
 - The estimates in the inventory and cruise are based on the assumption that the entire main stem of the tree, less the stump and the top, will be delivered to the mill; that is, whole trees will be loaded on logging trucks. However, recent changes in harvesting technology have resulted in almost all of the wood now going through an initial processing step in the woods. In this so-called 'cut-to-length' system, trees are cut into lengths that can be directly used in the mill. Depending on the log specifications of the mills and the market for pulp logs, this process may result in portions of trees being left on the harvesting site. Theoretically, this volume should be accounted for in the waste assessment, but there is growing concern that the waste assessment procedures may be under-estimating wasted volumes.^{xiii}

²⁵ "To measure or estimate the quantity, expressed as the volume, . . . of products obtained from trees after they are felled." (<http://www.for.gov.bc.ca/hfd/library/documents/glossary/Glossary.pdf>)

These issues are important in the context of this report for two reasons.

First, as discussed above, the Board has decided that, in this report, harvest performance will be measured against government expectations mainly using the information in HBS. However, the Board did use information in ECAS to estimate the amount of dead pine in the harvest. Additionally, it should be noted that, for the most part AAC determinations are not explicit about how harvest performance should be measured. Because of the issues outlined above there is often considerable, and unresolved, debate among interested parties about how harvest performance should be measured at the management unit scale. For example, the recent AAC determination for the 100 Mile House TSA states that there should be a, "report annually to the chief forester [about] harvest performance within dead stands and within the AAC partition attributable to live tree volume," but there is no specific direction about how this is to be done other than a mention in the text that district staff "indicate they could implement a partition to conserve live trees based on cruise data."^{xliii}

Secondly, and most importantly, the system described in Figure A8 underwent a significant change on June 1, 2010. After that time if an area to be harvested contained more than 35 percent red and grey MPB attacked pine, the log scaling and waste assessment processes are no longer used and the area is administered (in HBS) using a cruise-based billing system (also called stand-as-a-whole pricing).^{xliiv} The data entered into HBS is volumes and species composition estimated in the cruise. That volume is an estimate of what was planned to be harvested and delivered, rather than an estimate of what was actually delivered.

Prior to June 1, 2010, only one percent of the volume in HBS was administered using cruise-based billing. Since then approximately half the total volume (and 70 percent of the pine volume) is administered that way. That is, recently, half the volume in HBS is an estimate of what was actually harvested and delivered, and half the volume is an estimate of what was planned to be harvested. These volumes may not be comparable for the reasons discussed above. This may not be important for the primary purpose of the information system, that is, calculation and collection of stumpage owed, but it may be very important when using the information to measure harvest performance against expectations.

In summary, the primary issues related to the use of HBS and ECAS to track harvest volume in beetle affected units are:

- HBS tracks timber that was actually harvested for scale-based returns, and records what was planned for harvest (but not actually harvested) for cruise-based returns. Therefore, the system cannot be used to report on what was actually harvested – or planned to be harvested – for all areas and volume in beetle affected units.
- ECAS currently records detailed information about the type of timber planned for harvest – including dead and live volume – but it does not track the timber that is actually harvested. Furthermore, ECAS was designed to facilitate appraising stumpage, and not reporting information for tracking harvest plans. Thus, access to information from the system is difficult, and does not include some key data that would be useful in tracking harvest expectations.

The consequence of these issues is that the information systems, in their current form, do not provide easy access to consistent information about harvest in beetle-affected units needed to monitor performance against government expectations. Much of the information needed can be extracted from these systems, but assumptions and approximations must be made to. Modifications to the reporting systems and policy changes related to what information is reported would be required to solve these problems. The Board notes that these issues are unimportant in the context of the primary purpose of the information systems (collecting revenue from timber harvesting and ensuring the correct timber volume is being billed accurately and equitably).

Table A6. Differences between percent pine in the Vegetation Resources Inventory and report to HBS.

Management Unit	Percent Pine Source		
	VRI	HBS	Difference
100Mile House TSA	82%	75%	8%
Arrow TSA	30%	24%	6%
Boundary TSA	61%	54%	7%
Bulkley TSA	61%	61%	0%
Cranbrook TSA	67%	70%	-3%
Dawson Creek TSA	41%	36%	4%
Golden TSA	33%	34%	-1%
Invermere TSA	60%	58%	2%
Kamloops TSA DKA	58%	55%	2%
Kootenay Lake TSA	45%	44%	1%
Lakes TSA	81%	78%	3%
Lillooet TSA	33%	30%	3%
MacKenzie TSA	72%	66%	7%
Merritt TSA	79%	75%	4%
Morice TSA	75%	68%	7%
Okanagan TSA	61%	51%	10%
Prince George DJA	73%	68%	5%
Prince George DPG	72%	63%	9%
Prince George DVA	84%	79%	5%
Quesnel TSA	86%	83%	4%
Robson Valley TSA	58%	41%	17%
Williams Lake TSA	78%	71%	7%
All TSAs	72%	66%	7%

Harvest polygons (reported to RESULTS) for the period 2007 to 2012 were intersected with the Vegetation Resources Inventory (VRI) from 2007. Percentage pine was calculated and compared to estimates obtained from HBS.

Appendix 5: The Fourth Quarter of 2013-14 Projections

See Appendix 3 for methods. Multipliers are shown for each year and the average multiplier used to estimate the fourth quarter are shown.

Projection of Percent Pine in the Harvest (Figure 4)

Fiscal Year	Fiscal Part (Quarter)	Total Volumes for all Beetle-Affected Units		Multipliers	
		Pine	Total	Pine	Total
2009-10	1 st , 2 nd and 3 rd	15,275,641	21,745,986	0.60	0.63
	4 th	9,232,482	13,684,491		
2010-11	1 st , 2 nd and 3 rd	18,747,258	28,188,511	0.52	0.55
	4 th	9,713,646	15,381,169		
2011-12	1 st , 2 nd and 3 rd	19,284,299	30,066,915	0.45	0.48
	4 th	8,661,767	14,557,592		
2012-13	1 st , 2 nd and 3 rd	17,706,455	29,213,535	0.48	0.51
	4 th	8,576,354	14,830,983		
2013-14	1 st , 2 nd and 3 rd	16,530,984	28,997,204	0.51	0.54
	4 th Quarter Estimate	8,497,150	15,707,714		
Total 2013-14		25,028,134	44,704,918		
<i>Percent pine 2013-14</i>		<i>56%</i>			

Projection of Percent Pine Leading in the Prince George TSA Harvest (Table 5)

Time Period	Fiscal Part (Quarter)	Volume		Second Half Multipliers	
		Total Volume	Pine Leading Mark Volume	Total Volume	Pine Leading
2010-11	1 st , 2 nd and 3 rd	6,217,592	5,456,571	0.61	0.50
	4 th	3,806,695	2,705,607		
2011-12	1 st , 2 nd and 3 rd	7,613,415	6,345,256	0.44	0.42
	4 th	3,323,280	2,636,218		
2012-13	1 st , 2 nd and 3 rd	6,642,246	5,322,881	0.55	0.50
	4 th	3,643,615	2,641,721		
2013-14	1 st , 2 nd and 3 rd	6,278,769	4,644,060	0.53	0.47
	4 th Quarter Estimate	3,343,027	2,178,996		
2013-14	Full Year Estimate	9,621,796	6,823,056		
	Pine Leading	0.71			

Projection of Harvest in the Non-Pine Partitions (Figure 6)

Fourth quarter estimators applied to each management unit are shown in yellow highlight.

MU Name	Fiscal Year	Fiscal Part (Quarter)	Non-Pine Volume	Total Volume	Non-Pine Multiplier	Total Volume Multiplier
Kamloops TSA	2009-10	1 st , 2 nd and 3 rd	545,382	1,183,986	0.54	0.70
		4 th	294,600	832,756		
	2010-11	1 st , 2 nd and 3 rd	788,359	1,639,133	0.54	0.59
		4 th	423,464	960,799		
	2011-12	1 st , 2 nd and 3 rd	946,735	1,906,657	0.59	0.57
		4 th	557,289	1,094,709		
	2012-13	1 st , 2 nd and 3 rd	1,286,068	2,530,614	0.38	0.35
		4 th	489,562	879,909		
2013-14	1 st , 2 nd and 3 rd	1,367,198	2,328,539	0.51	0.55	
	4 th Q Estimate	699,537	1,287,315			
Lakes TSA	2012-13	1 st , 2 nd and 3 rd	106,155	520,718	0.79	0.67
		4 th	84,103	349,408		
	2013-14	1 st , 2 nd and 3 rd	192,139	738,694	0.79	0.67
		4 th Q Estimate	152,225	495,671		
Lillooet TSA	2010-11	1 st , 2 nd and 3 rd	36,402	53,542	0.55	0.42
		4 th	20,104	22,640		
	2011-12	1 st , 2 nd and 3 rd	98,817	151,766	0.31	0.22
		4 th	30,910	32,661		
	2012-13	1 st , 2 nd and 3 rd	104,927	128,104	0.23	0.21
		4 th	23,984	26,733		
	2013-14	1 st , 2 nd and 3 rd	91,977	172,429	0.36	0.28
		4 th Q Estimate	33,530	48,666		
Merritt TSA	2011-12	1 st , 2 nd and 3 rd	525,680	2,297,710	0.54	0.46
		4 th	285,336	1,060,410		
	2012-13	1 st , 2 nd and 3 rd	495,896	1,723,247	0.57	0.60
		4 th	281,383	1,030,582		
	2013-14	1 st , 2 nd and 3 rd	519,136	1,548,699	0.56	0.53
		4 th Q Estimate	288,177	820,465		
Morice TSA	2008-09	1 st , 2 nd and 3 rd	280,429	1,099,349	0.86	0.82
		4 th	240,141	898,883		
	2009-10	1 st , 2 nd and 3 rd	313,117	1,173,113	1.04	1.01
		4 th	325,740	1,182,099		
	2010-11	1 st , 2 nd and 3 rd	439,250	1,811,082	0.91	0.63
		4 th	399,482	1,139,679		
	2011-12	1 st , 2 nd and 3 rd	589,139	1,654,918	0.59	0.50
		4 th	350,522	831,412		
	2012-13	1 st , 2 nd and 3 rd	640,318	1,632,268	0.59	0.56
		4 th	379,845	908,727		
	2013-14	1 st , 2 nd and 3 rd	662,282	1,782,625	0.80	0.70
		4 th Q Estimate	529,071	1,252,724		
Prince George TSA	2011-12	1 st , 2 nd and 3 rd	2,563,800	7,613,415	0.47	0.44
		4 th	1,198,390	3,323,280		
	2012-13	1 st , 2 nd and 3 rd	2,357,197	6,642,246	0.63	0.55
		4 th	1,474,877	3,643,615		
	2013-14	1 st , 2 nd and 3 rd	2,452,960	6,278,769	0.55	0.49
		4 th Q Estimate	1,340,688	3,092,466		

MU Name	Fiscal Year	Fiscal Part (Quarter)	Non-Pine Volume	Total Volume	Non-Pine Multiplier	Total Volume Multiplier
Quesnel TSA	2011-12	1 st , 2 nd and 3 rd	400,258	2,495,839	0.52	0.53
		4 th	208,142	1,331,121		
	2012-13	1 st , 2 nd and 3 rd	421,457	2,880,122	0.55	0.47
		4 th	232,250	1,365,716		
	2013-14	1 st , 2 nd and 3 rd	333,196	2,615,312	0.54	0.50
4 th Q Estimate		178,441	1,317,493			
TFL 52 Bowron-Cottonwood	2009-10	1 st , 2 nd and 3 rd	180,035	415,761	0.69	0.94
		4 th	125,100	389,437		
	2010-11	1 st , 2 nd and 3 rd	235,681	559,982	0.70	0.53
		4 th	164,642	296,244		
	2011-12	1 st , 2 nd and 3 rd	321,143	451,023	0.78	0.63
		4 th	251,077	285,624		
	2012-13	1 st , 2 nd and 3 rd	282,463	337,155	1.03	0.91
		4 th	292,258	306,334		
2013-14	1 st , 2 nd and 3 rd	275,677	299,683	0.80	0.75	
	4 th Q Estimate	221,227	225,329			

Appendix 6: Management Unit Scale Variability

Harvest since the 2007 Board report was examined in more detail to determine whether there has been a consistent focus among management units on harvesting pine. With one exception, the proportion of the pine in harvest in all beetle-affected TSAs²⁶ has been greater than expected based on the proportion of pine that is available on the landbase (Figure A9). This indicates a focus on pine harvest. As might be expected, this result is stronger and less variable for management units where there has been an AAC uplift, which have more explicit expectations about the amount of pine that should be harvested. This result is consistent with the findings in the 2007 Board report.

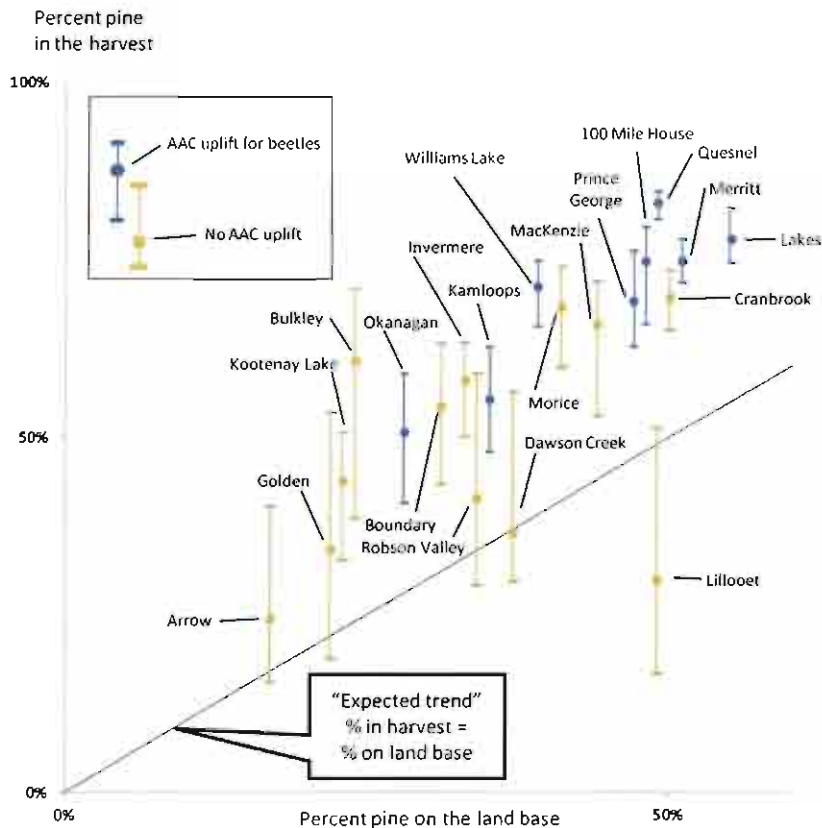


Figure A9. Average, minimum and maximum percent pine in the harvest since 2006-07 compared to the percent pine on the landbase in 2011 (as reported by MFLNRO).

The proportion of dead pine in the harvest was compared to the proportion of the dead pine on the landbase (Figure A10). As in Figure A9, a focus on harvesting dead pine would result in a management unit being above the line—that is the percentage of dead pine in the harvest should be greater than the percentage of dead pine on the landbase. This expectation is stronger for units that have an uplift in place to facilitate management of the outbreak. Although a number of units are below the line in Figure A10, the result overall the beetle-affected units is that there has been a focus on dead pine in the harvest because the units with very large dead pine harvest are predominantly above the line (Kamloops, Mackenzie, Prince George (all districts), 100 Mile House and Quesnel).

²⁶ TFLs are not included in this analysis because MFLNRO provides limited information about the volume of pine remaining on the landbase in TFLs in 2011.

Percent of pine
in the harvest
that was dead

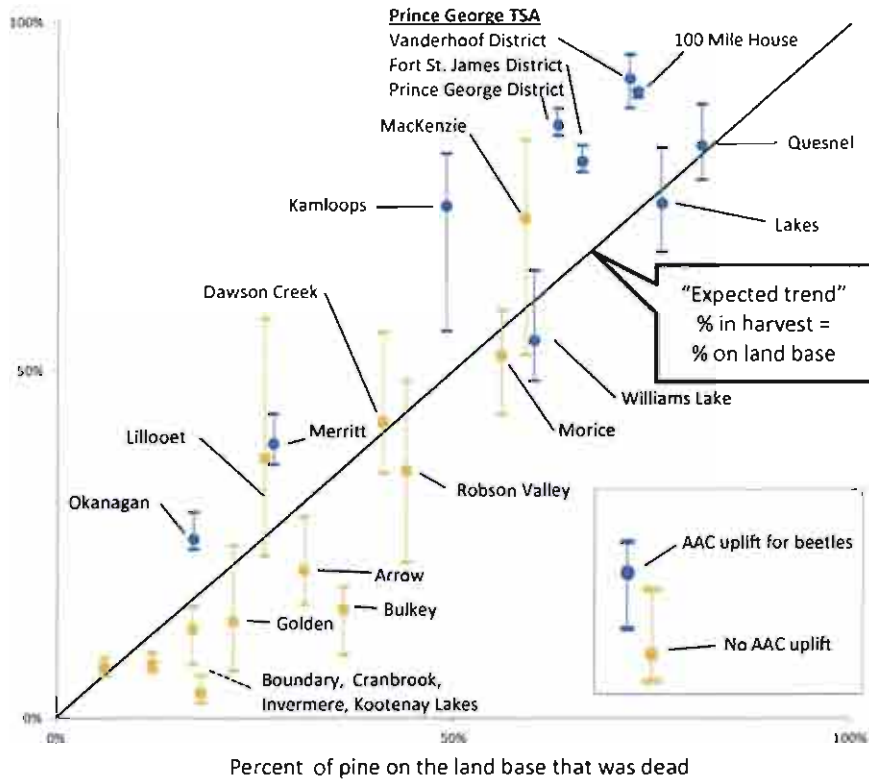


Figure A10. Average, minimum and maximum percent of the dead pine in the harvest during 2011-12 and 2012-2013 compared to the percent of dead pine on the landbase in 2012 as reported by MFLNRO <http://www.for.gov.bc.ca/hre/bcmap/>

End Notes for the Appendices

Web links last accessed March 21, 2014

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- ^{xxx} Timber Pricing Branch, MFLNRO, Harvest Billing System (HBS), <http://www.for.gov.bc.ca/hva/hbs/>
- ^{xxxii} Timber Pricing Branch, MFLNRO, Electronic Commerce Appraisal System (ECAS) <https://www.for.gov.bc.ca/hva/ecas/>
- ^{xxxiii} Forest Analysis and Inventory Branch. 2012. Monitoring Harvest Activity Across 28 Mountain Pine Beetle Impacted Management Units. MFLNRO. [http://www.for.gov.bc.ca/hts/pubs/Report-Monitoring%20Harvest Nov%202012.pdf](http://www.for.gov.bc.ca/hts/pubs/Report-Monitoring%20Harvest%20Nov%202012.pdf)
- ^{xxxiii} Walton, A. 2013. Provincial-Level Projection of the Current Mountain Pine Beetle Outbreak: Update . . 10. MFLNRO <http://www.for.gov.bc.ca/ftp/hrc/external/publish/web/bc/mpb/year10/BCMPB.v10.BeetleProjection.Update.pdf>
- ^{xxxiv} Current Allowable Annual Cut (AAC) for Timber Supply Areas (TSA) <http://www.for.gov.bc.ca/hts/aactsa.htm> and Current Allowable Annual Cut (AAC) for Tree Farm Licences (TFLs) <http://www.for.gov.bc.ca/hts/tfls.htm>
- ^{xxxv} Forest Practices Board. 2007. Tree Species Harvested In Areas Affected By Mountain Pine Beetles FPB/SR/33. http://www.fpb.gov.bc.ca/SR33_Tree_Species_Harvested_in_Areas_Affected_by_MPB.pdf
- ^{xxxvi} *Supra* note xxx
- ^{xxxvii} For example Snetsinger, J. 2010. Merritt AAC Determination. Ministry of Forests Mines and Lands <http://www.for.gov.bc.ca/hts/tsa/tsa18/tsr2009/18ts10ra.pdf>.
- ^{xxxviii} *Supra* note xxxi
- ^{xxxix} Timber Tenures Branch, MFLNRO, AAC, Apportionment and Commitment Reports <http://www.for.gov.bc.ca/hth/timber-tenures/apportionment/index.htm>
- ^{xl} Forest Analysis and Inventory Branch, MFLNRO, Vegetation Resources Inventory <http://www.for.gov.bc.ca/hts/vri/>
- ^{xli} Forest Inventory Division, BC Forest Service. 1976. Metric diameter class decay, waste and breakage factors for all forest inventory zones. <http://www.for.gov.bc.ca/hfd/library/documents/Bib37749.pdf>
- ^{xlii} Most recently Nichols, D. 2013. 100 Mile House TSA AAC Determination, MFLNRO http://www.for.gov.bc.ca/hts/tsa/tsa23/current_2012/23ts13ra.pdf at page 19, but see also Forest Practices Board. 2010. Measuring wood waste in BC. Complaint Investigation 080870. FPB/IRC/170 <http://www.fpb.gov.bc.ca/WorkArea/DownloadAsset.aspx?id=5499>
- ^{xliii} Nichols, D. 2013. 100 Mile House TSA AAC Determination, MFLNRO at page 25 and page 36. http://www.for.gov.bc.ca/hts/tsa/tsa23/current_2012/23ts13ra.pdf
- ^{xliv} Friesen, B. 2010. Memo to all interior licensees regarding planned changes to the interior market pricing system (MPS) <http://www.for.gov.bc.ca/ftp/hva/external/publish/web/InfoPaper/Proposed-Interior-Pricing-Policy.pdf>



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BOARD bulletin

Board Bulletin, Volume 16 Balancing Risk Across Resource Values in Forest Operations

March 2014

This bulletin explores risk management in BC forest operations, and suggests that it needs to be transparent and fair, while reflecting the public's interest in the resources. It is the fifth in a series of new Forest Practices Board bulletins describing important issues for forest management identified in recent Board work.

The other bulletins in the series deal with the benefits to the BC public of having the Forest Practices Board provide independent oversight of forest and range practices, the need to manage cumulative effects, the need for better public involvement in resource management decisions, how professional reliance is working for forest management, and the need for resource managers with responsibility for an appropriately-sized landbase. These bulletins are intended to foster discussion and encourage progress toward improved stewardship of public forest and range resources.

Introduction

BC's provincial forests contain a rich diversity of resource values from which people gain a host of benefits.

Government issues of variety of licenses and tenures for different resources, often overlapping on the same land base. There are also other people who use these resources for water, recreation and other benefits. A reliable flow of some benefits, such as timber harvesting, may at times pose risks to other values. For example, roads that facilitate harvesting in steep terrain can in some areas introduce a risk to water quality from erosion and landslides. Government expects that forest licensees will effectively deal with the risks to the other resource users. Conflicts can arise when decisions about risk are made by those who benefit most, while others must live with the risk. With increasing competition for use of our forest resources, the Board is concerned that mechanisms available to resolve the resulting conflicts between resource users are limited.

A rancher in a central-BC watershed already highly affected by mountain pine beetle and past harvesting - was concerned that additional salvage harvesting by two forest licensees would further impact the water supply to his home and private hay fields. Despite indicators that flooding and stream channel change was probable, one forest licensee did not perceive any potential risk to the rancher. The other informally considered the possibility and took some protective steps before logging.

The rancher had no power to negotiate and no opportunity to appeal either licensee's decision to proceed. The Board found that, in the circumstances, the salvage harvesting added to stream flow issues already apparent in the watershed.¹

A Conflicting Role

Over the last decade the approach to regulating forest planning and practices in BC changed substantially. The *Forest and Range Practices Act* (FRPA), introduced in 2004, was intended to streamline administration, reduce costs, and encourage innovative practices, in part by giving forest licensees much of the discretion previously held by government officials. Licensees in turn rely on forest professionals to assist them in this role. FRPA provides no mechanism to help resolve disagreements between forest licensees who are expected to use their discretion to make responsible decisions, and others whose interests are potentially affected by those decisions.

In complaints to the Board, non-timber forest resource users often question how a forest licensee can be impartial when making decisions that affect the interests of other people. In their view, it is the forest licensee that stands to benefit the most from forest harvesting, while others must live with the risk of suffering an impact or loss in the future.

In north-central BC, a group of wilderness tourism operators - complained to the Board that a forest licensee had harvested timber near a lake that had been designated for protection in a government-approved, but not legally-binding, land use plan. The tourism operators used the lake for guided-wilderness moose hunts and hike-in fishing. The forest licensee decided that its harvesting plan would be adequate to manage for forest recreation.

The tourism operators disagreed but had no place to appeal the forest licensee's decision. To them, the proximity of the harvesting would result in them having to abandon the lake as part of their business operations, devaluing the businesses and the area's tourism appeal. They were left angry and frustrated that a forest licensee could decide how tourism-industry values might best be managed.ⁱⁱ

Current legislation enables, but does not require, forest licensees to conduct risk assessments related to discretionary decisions. Consequently, it is left to forest licensees to identify, assess and manage the risks that their forest activities may present to values such as public safety, water, wildlife, fish, biodiversity, soils, recreation, and visual quality—among others. It is generally expected that these assessments will help licensees to act in a manner that, as much as possible, reduces the risk and mitigates the conflict with other resource users. Yet, with no guarantee of involvement in the decision-making process, and no recourse for appeal if disagreement persists, others potentially affected by these risks see the system as biased and unfair. At the least, it is easy to perceive a conflict of interest in a system where the forest licensee that benefits from timber harvesting is also empowered to balance those benefits against the risks posed to others.

A Difficult Situation

When it established the FRPA, government assumed that good forest stewardship would result, partly because forest licensees are expected to rely on the advice of resource professionals acting in accordance with the rules of their professional associations.ⁱⁱⁱ Forest licensees depend on these professionals to identify environmental, economic, and social values potentially at risk from forest development, and to assess those risks, or bring in other specialists as needed. Such diligence helps the licensee to avoid compliance infractions and maintain public¹ trust. Professionals advising licensees are obligated by their professional associations to balance and appropriately mitigate these risks in the

¹ The public is meant to include British Columbia residents, businesses, organizations, local governments and First Nations (as per May 26, 2011, MFLNRO strategic policy – Crown allocation principles).

licensee's and the public's best interests.^{iv} Even so, the approach to risk management in licensee decision-making can be highly variable and is often unclear to those who are potentially affected.

In some situations, professionals working for a forest licensee may be challenged to balance their employer's interests with the greater public interest—potentially placing them in a difficult situation—particularly where both the risk to non-timber values and the potential benefit to the forest licensee are substantial. In such circumstances, even if the forest licensee attempts with diligence to balance resource values and manage risk in the public's best interests, neither it nor its professionals are likely to be seen by the public as being impartial.^v At best, this situation creates a perception of bias and, at worst, an unfair imbalance in the decision-making process.

The central issue is that FRPA effectively allows a forest licensee with a vested interest to introduce a risk to non-timber forest resource users on Crown land. The Board is noticing instances where this arrangement is making it challenging to maintain public trust, industry credibility or both.^{vii}

In an audit of forest planning and practices on the coast - the Board found several instances where professionally prepared plans based on earlier risk assessments were changed by forest licensees without further professional involvement, resulting in potential environmental and public safety hazards. In another complaint in the interior, the forest licensee did not implement recommendations provided in professional reports, creating unacceptable environmental and management risks.^{vi}

The Importance of Public Trust

The forest industry earns its right to access and manage public lands and resources by following rules and acting responsibly to generate more public benefit than harm (sometimes called "social license"). Indeed, all British Columbians have an interest or stake in our provincial forests. Therefore, the credibility enjoyed by BC's forest industry depends on maintaining the confidence of the public, not just its customers and shareholders. The history of forestry in BC has shown that when it comes to balancing forest resource values, how those values might be managed and by whom, contributes dramatically to public confidence and reaction.

In the Board's experience, the licensees and professionals that manage BC's forests mostly comply with the law and generally conduct acceptable practices. But all it takes is one poor decision that doesn't properly balance risks or interests, and the public trust can be broken. Once lost, it may be very difficult to regain.

One of the key challenges with managing risk is that practices today don't necessarily result in consequences until years later and, in spite of the best planning efforts, things can go wrong. Once the public's trust is lost, it may not matter whether a forest licensee assesses risk well and diligently plans to manage risks in the future. In the Board's experience, the public will not support further logging. Thus, future forest planning and developments can be negatively affected by today's riskier practices, whether or not they were diligently executed.

Some watersheds in BC - contain potentially unstable terrain and also provide drinking water. In some cases downstream residents may also be concerned about public safety should a landslide occur. At the same time, forest licensees have rights, obligations and an economic need to harvest timber from Crown lands within these watersheds.

Some years ago, the Board investigated a complaint that involved salvage harvesting in a landslide-prone area within an interior watershed. The stream below provided domestic water to over 100 homes. The residents were concerned about slope stability and risk to their water supply. The licensee was diligent; it conducted appropriate professional assessments and took adequate steps to minimize (but could not eliminate) the risk of a landslide from its activities. The harvesting proceeded and years passed. Then, despite the low risk, a harvesting-related landslide occurred, damaging intakes and making water temporarily undrinkable. The licensee again acted responsibly by providing drinking water, applying remedial measures, and helping to fix the residents' water systems. However, the residents considered the interruption of their water supply a significant and undesirable consequence from, at least in part, activities that they were critical of in the first place.

Although professional assessments were completed and sound practices followed, a damaging landslide happened and, as a consequence, public trust was compromised. It will now be challenging to garner public support for future logging in this watershed.^{viii}

The current legal framework puts the forest licensee and its professionals in the challenging, possibly no-win, situation of being the final decision maker. When conflicts arise between forest licensees and other resource users, it often involves a difference in the tolerance of the risks associated with the forest activities. In Board investigations non-timber resource users prefer risk avoidance for proposed timber harvesting, since they are focused on the consequences, no matter how uncertain or unlikely the risk. This is understandable, when the proposed harvesting provides few direct benefits to these resource users. On the other hand, the Board finds that forest licensees are more willing to accept some risk from harvesting and associated activities, since most of the direct benefits and few consequences accrue to them.

In situations where a licensee chooses not to harvest to avoid the risk, the public may not be aware of the decision. Thus, only in rare circumstances will the public ever see a licensee acting beyond their own interest. In similar situations, where a licensee chooses to proceed and conflict over acceptable risk persists, public awareness is generally high. In such circumstances, regardless of how well the risk is ultimately managed, the licensee will always be seen as acting in its interest first and, should things go wrong, to the detriment of the others. If public distrust builds, at some point the fallout may go beyond the scope of one resource management decision.

What Has The Board Suggested?

In 2010, the Board reported that FRPA provides a considerable advantage to forest licensees, which could lead to decisions unfavourable to the interests of other forest-related businesses and people.^{ix} The Board suggested that an impartial decision-maker be involved where risks are significant. Government did not agree, stating that it would be inconsistent with FRPA's increased reliance on forest licensees and professionals and that the current process of developing and approving forest stewardship plans is designed to minimize these conflicts.^x

The Board has since dealt with over a dozen additional complaints and audits that continue to reflect this dilemma. Most of these tend to involve either negative impacts to other Crown-tenured forest-related businesses or risks to important public values such as drinking water. However, the Board has also recently encountered examples that involve substantive risks to public safety and the environment, situations of particular concern with respect to maintaining the public's confidence in the stewardship of its forests.^{xi}

In the course of its work, the Board has previously suggested that, as the potential for conflict between resource users increases, so too does the importance of forest licensees and their professionals conducting systematic, transparent, and well documented risk-management and decision-making at both the site and landscape-level scales.^{xii} Open and frequent communication with the people and businesses involved at these scales is essential to success. As well, the Board has proposed that professional associations could further support public confidence by more fully standardizing responsibilities for risk management.^{xiii} Some guidance exists but more is needed.²

Lastly, in the Board's opinion, where licensee practices are responsible, in part, for undesirable outcomes, the licensee should take responsibility to mitigate impacts on other resource users and to reduce remaining environmental risks.^{xiv} While such actions may not be legally required, they support the principles of social license.

Conclusion

The goal should be that our forest management framework provides sufficient checks and balances so that the risks to important resource values are always appropriately addressed and, as much as possible, to avoid perceptions of bias and unfair process. The Board believes that beyond meeting legal requirements, the resulting decisions to balance practices on Crown land must be transparent, fair, and reflect the public's risk-benefit preferences. Further, there is a role for an impartial decision-maker, when risks are significant and potential losses or impacts are unacceptable for some resource users. The Board urges government, forest licensees, individual resource professionals, and professional organizations to explore options that will improve our risk management framework, ultimately ensuring that public trust in the stewardship and use of our vast provincial forest is not lost.

We welcome your thoughts on this bulletin. You can send comments to fpboard@gov.bc.ca, or join the discussion on [Facebook](#) or [Twitter](#).



² Examples include joint practice documents that deal with standards of care for engineering and forestry professionals dealing with such activities as stream crossings and terrain stability assessments: www.degifs.com. Another example is the Association of BC Forest Professionals' practice guidelines: http://www.abcfp.ca/regulating_the_profession/guidelines.asp.

ClimateNews is a snapshot of new and emerging climate change adaptation and mitigation activities in the natural resource sector.

this issue includes:

- FLNR Climate Action Plans Update
- Funding to restore forests in exchange for carbon
- Tribal wisdom and western science: a holistic approach to conservation
- NewsBites
- And more!

What's happening with FLNR Climate Action Plans?

Parts of FLNR have started their region or program area's climate action plan, a requirement of FLNR's new [Climate Change Strategy](#). Plans are led by key personnel in regions and program areas and supported by the Competitiveness and Innovation Branch. Planners access an online workspace that includes key documents, opportunities to engage with workspace members and staff support and an FLNR Climate Action Plan Toolkit Wiki.



In addition to working with planners, communicating this initiative to the NR Sector is ongoing. An [NRS Learning Series on Climate Change](#) was

hosted January 22 by Deputy Minister Tim Sheldon and CIB staff. The strategy, climate action plans, the initiative's current status and available resources were presented. Details of the initiative and the climate action planning process are also available on the [FLNR intranet](#). For more information please contact james.sandland@gov.bc.ca.

BC Timber Sales makes headway on their FLNR climate action plan

BCTS has developed a Climate Action Strategy. The Strategy includes:

- the BCTS Climate Change Action Plan;

- a community of climate change leads in BCTS Business Areas, Nursery Services, Workgroups and Headquarters that work together to develop, implement, and monitor the BCTS Climate Change Action Plan; and
- Tools for communication and action.

BCTS
BC Timber Sales

To date, climate change leads are identified, a pulse check on where the agency is at on climate change and an action plan outline are complete. Work over coming months includes clarifying roles and reviewing climate actions already identified. Contact kerri.brownie@gov.bc.ca at BCTS for more info.

Funding available to restore naturally disturbed provincial forest land in exchange for atmospheric benefits

The Forest Carbon Partnership Program (FCPP) leverages private sector investments to restore damaged public forests in exchange for entitlement to the atmospheric benefits created by the work. The program enables restoration beyond the current funding capacity of the Ministry. FLNR is working with the Carbon Offset Aggregation Cooperative (COAC) to plant a minimum of 1,100 ha over the next five years. At least 160,000 trees will be planted in Fort Nelson in 2014 and plans are underway to restore a 50 ha area near Vanderhoof, including salvage of low value residual timber for utilization in a bioenergy facility. The FCPP is working with the Forests For Tomorrow Program to identify appropriate areas for restoration. If you have area(s) available please contact Brian.Raymer@gov.bc.ca for more information.

Tribal Wisdom & Western Science: A Holistic Approach to Conservation

FLNR is part of the [North Pacific Landscape Conservation Cooperative \(NPLCC\)](#). The NPLCC, U.S. Fish and Wildlife Service Pacific Region, and Northwest Climate Science Center (NW CSC) recently announced \$300,000 in grants to support Traditional Ecological Knowledge (TEK) pilot projects.

Indigenous knowledge (i.e. TEK) offers important perspective to inform resource management in a time of rapid environmental change. Western science can miss the complex interactions between people and the broader ecosystem. When TEK is considered along with western science, a more holistic understanding of the natural environment is gained; this enables creation of a more resilient future for the Pacific Northwest.



Wenix Red Elk with the Umatilla Tribe demonstrates to students how to make Tule mats at Salmon Camp hosted by CRITFC Credit: Meghan Kearney/USFWS

To capitalize on the strengths of TEK and western science, Pacific Northwest and Alaska Native Tribes, First Nations in Canada, and agencies launched seven unique pilot projects throughout the Pacific Northwest's coastal temperate rainforest. Through these pilot projects, Tribes, First Nations and agencies will work together to find culturally-appropriate ways for traditional knowledge to help inform resource management decisions.

Read a longer article on this work [here](#) and learn about the pilot projects [here](#). Thanks to Megan Kearney of the USWS and John Mankowski of the NPLCC for the heads up!



NEWS Bites
New videos showcase climate benefit of using wood

Forests play a significant role in the global carbon cycle as well as BC's culture. BC wood, even the

infected Mountain Pine Beetle wood, has high value to the province, residents, and environment. [Check out a new video series that showcases how BC's unique wood culture is naturally climate friendly!](#)

Mountain Pine Beetle Ted Talk

This TED talk is a great review of the mountain pine beetle epidemic. It also explains how global warming has contributed to the outbreak and includes some other trees and evidence. Check it out [here](#). Thanks for the tip Dave Hobbs, Engineering Specialist for BC Timber Sales, Chinook Business Area!

Want more Climate News?

The [North Pacific Landscape Conservation Cooperative \(NPLCC\)](#) releases Climate



Science Digest every

month. [Check out the NPLCC Climate Science Digest](#)

[March. Subscribe here.](#) For more information,

contact rorv.annett@gov.bc.ca or

chris.tunnoch@gov.bc.ca.

Finding economic instruments to enable forestry adaptation

A research project to identify economic instruments that could facilitate adaptation in Canadian forestry is beginning. The project will identify economic instruments for managing three key risk areas:


- forest fire and impacts to communities and infrastructure;
- Forest health - short-term (e.g. protecting against forest pests and disease) and longer-term (e.g. minimizing maladaptation).
- Forest resilience

For more information, contact harry.nelson@ubc.ca or paul.s.knowles@gov.bc.ca.

Got Climate News? Contact
katharine.mccallion@gov.b.c.ca

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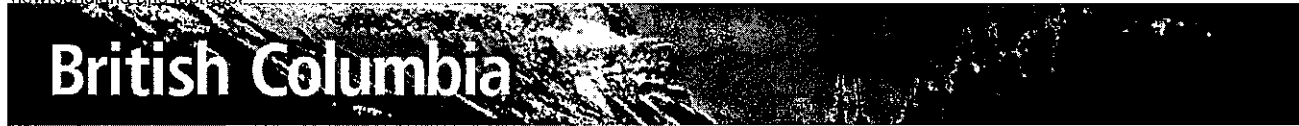


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Updated: Wed, 02 Apr 2014 13:20:19 GMT | By The Canadian Press, cbc.ca

B.C. timber supply facing tenure system revamp

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Merritt's Ardew sawmill is closing its doors afet 50 years because of a lack of timber. Canadian Press

Forests Minister Steve Thomson says the Liberal government is taking another shot at giving forest companies more rights to control British Columbia's public forest lands, but he rejects criticism that the plan would privatize provincial forests.

The move could dramatically change the way public forests are managed by granting lumber companies tenure rights, or logging rights, to large pieces of land. Companies are currently allotted timber harvest rights on a specified numbers of trees.

The proposed changes prompted immediate scorn from

an environmental group and skepticism from the Opposition New Democrats.

"We're going to go totally to the wall over this one," said Ancient Forest Alliance spokesman Ken Wu. "The large forest companies have too long been special interest groups over our public forest lands."

Plans to amend the Forest Act last year to move towards area-based tenures were dumped after a public outcry.

Thomson announced a consultation program Tuesday that will consider public and industry opinion over converting forest land management to area-based tenures from its current volume-based tenure system.

The minister said area-based tenures will not be province-wide, moving only to areas where there is public approval.

Public input accepted until May 30

He appointed Jim Snetsinger, a former B.C. chief forester, to oversee a two-month consultation process, with a report and recommendations due June 30.

Snetsinger will hold public hearings in 10 communities. Comments are also being accepted online until noon on May 30.

Forest tenures or licences are agreements between the government and a person or company to provide logging rights on Crown land. Tenure holders must make payments to the government for timber harvested on Crown land.

Thomson said moving to area-based tenures will give forest companies more certainty over the land on which they harvest timber. He said the government still owns the land, but the companies would have long-term management rights.

"This only gives them timber-harvesting rights to the area as they currently have with volume-based licences," he said. "This is not privatization and not transferring rights to that area to the land holder other than those harvesting rights."

Thomson said last March when the Liberals shelved the changes that they require broader public consultation.



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Wu said the only certainty British Columbians can expect from land-based tenures for forest companies is environmental destruction.

Opposition NDP forests critic Norm Macdonald said he understands why companies want to control forest land, but the government will have a tough time convincing the public to support the changes.

"Why the public would buy into this is beyond me," he said. "They have not made the case that this is for the public good. If this is a sales job, that's a problem."

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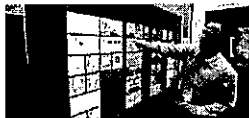
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DISPATCH

Timber companies can't see the consequences for the trees

JUSTINE HUNTER

VICTORIA — The Globe and Mail

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Last updated Monday, Mar. 31 2014, 4:53 PM EDT

British Columbia is in the midst of an unprecedented and unsustainable salvage operation in its interior forests because of the attack of the mountain pine beetle.

And yet, when two of the province's biggest forestry companies were caught going into those woods and cutting truckloads of healthy green timber meant for future harvests, Forests Minister Steve Thomson's reaction was as mild as a milk-sated kitten.

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- [Plan to swap B.C. timber harvesting rights will get competition bureau review](#)
- [Pine-beetle problem forces Canfor to close sawmill in Quesnel, B.C.](#)

After forestry-ministry staff raised alarms, Mr. Thomson signed an order that could have led to hefty penalties for Canfor and West Fraser for taking greenwood in an area where they were supposed to be targeting the dead and dying pine.

In defiance of the chief forester's order, set down in February, 2008, the two companies overcut 928,000 cubic metres worth of healthy trees in the Morice Timber Supply Area, around the community of Houston, in B.C.'s northwest.

But the minister's order was rescinded after the companies – both heavy contributors to the governing B.C. Liberal party – agreed to behave. The past is forgiven, no need for consequences.

“I had concerns about the trend we were starting to notice. We looked at the potential for the order. We got the commitments from the companies to operate within harvest management plans,” Mr. Thomson said in an interview.

“The plans are being closely monitored.”

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It is because of the dwindling supply of timber that West Fraser is shutting down its Houston sawmill. Just weeks ago, Canfor permanently closed its Quesnel mill for the same reason.

Between the pine beetle and over-harvesting, the chief forester is expected to dramatically reduce the annual allowable cut in the region.

The provincial government has swept in and helped communities in the pine beetle zone, notably Mackenzie and Burns Lake, by securing exclusive timber supply in recent years. But it can't do that everywhere – there simply won't be enough trees to sustain even the region's current, already curtailed, level of industry.

The alarm was raised last week in a special report from the Forest Practices Board, which has found that companies have shifted from harvesting dead pine trees to live non-pine trees that had been earmarked for the future.

“British Columbia is in the midst of a large-scale salvage program, the likes of which has never been seen,” the report says.

“There is nothing sustainable about this harvest; this is a one-time activity initiated by the province to recover value from the trees killed by the mountain pine beetle (MPB) epidemic and to speed regeneration of affected areas ... The issue, simply put, is that the more live trees that are harvested now, the lower the sustainable harvest level will be after the salvage program is finished.”

In the same report, the board, B.C.'s independent watchdog for forest practices, also warns the government really doesn't know how much timber is left to salvage. “There is a growing disparity between government's estimate of the amount of salvageable timber and the actual economically viable timber available on the ground.”

And it is, clearly, just an estimate. The B.C. Government and Service Employees' Union says the forest ministry's compliance and enforcement program conducts a third of the number of inspections of forest operations compared with a decade ago. And a recent report from the Professional Employees Association also warns that the number of licensed science officers, including foresters, has dropped by 15 per cent in the past five years.

NDP forestry critic Norm Macdonald said those cuts make it hard to detect overcutting, and signal to industry that there is little intent to uphold the rules. “The government has to accept responsibility – they have consciously chosen not to collect proper data, which [are] essential to properly manage the public lands,” he said in an interview. “And it means a much bigger problem in the future for communities' stability.”

The future may not be far off. The chief forester is required only to set the annual allowable cut once every decade for each timber supply area. In this case, however, Mr. Thomson says he wants an update by the end of this year in the Morice Timber Supply Area. “I expect the review

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is going to show there will need to be adjustments, downward adjustments, in the annual allowable cut in those regions.”

Canfor and West Fraser will have little grounds to complain.

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