
Forest Management Opportunities in Non-merchantable Forest Types

ADDENDUM No. 1

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By:

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CONTENTS

Introduction	1
Provincial Overview of Changes	2
Changes in Timber Supply Areas and Tree Farm Licences	2
Woodlot Licence and Provincial Totals	3
TFL Review	4
Overall Conclusion	5
Forest Region Updates	6
Cariboo Forest Region	6
Kamloops Forest Region	6
Nelson Forest Region	6
Pr. George Forest Region	7
Pr. Rupert Forest Region	7
Vancouver Forest Region	8
TFL Reports	9
<u>TFL 1</u>	10
<u>TFL 23</u>	12
<u>TFL 30</u>	14
<u>TFL 37</u>	16
<u>TFL 41</u>	17
<u>TFL 44</u>	18
<u>TFL 47</u>	19
<u>TFL 52</u>	20
Attachment: Provincial Summary of Non-merch Forest Area Deductions	22

Introduction

This addendum updates to March 31, 2001 the report, *Forest Management Opportunities in Non-merchantable Forest Types*, dated March 31, 2000. As part of the update process a separate Excel workbook, *Non-merch Forest Types ver 4 E97.xls* (current to Dec 31/99), is also updated to March 31, 2001 and renamed *Non-merch Forest Types ver 5 Mar2001.xls*.

This addendum expands upon the original report with the inclusion of detailed reviews of non-merch forest opportunities in eight tree farm licences (TFL's). These eight were chosen on the basis of having more than 10,000 ha's of non-merchantable forest deducted during the timber supply analysis process.

Another new feature in this addendum is the initiation of tracking woodlot licence Schedule B data for land area and allowable annual cut (AAC). Because the creation of new woodlots usually causes a corresponding reduction in timber supply area timber harvesting land base and AAC, tracking woodlot data is necessary to maintain the provincial "balance sheet" for these items.¹ It is assumed that there is little, if any, non-merchantable forest within woodlots.

The second timber supply review (TSR 2) is now about one-half complete. As of March 31, 2001 the chief forester has issued eleven timber supply area (TSA) allowable annual cut determinations and twelve timber supply analysis reports in advance of making an AAC determination. TSR2 information is therefore available for twenty-three of thirty-seven TSA's. For tree farm licenses (TFL's), the chief forester has made a total of sixteen out of thirty-four TSR2 AAC determinations. In total, thirty-nine of seventy-one TSA's & TFL's have had determinations or analysis reports issued. The program appears to be running behind schedule and there will likely be a relatively high number of analysis reports and determinations coming out in the next year.

Lastly, the author would like to thank the seven TFL licensee representatives who gave of their time to discuss the non-merch opportunities within their respective areas.

¹ TFL's and woodlot licences contain a mixture of private land (known as Schedule A land) and Crown land (Schedule B land). Woodlot data in this reports consists of Schedule B land only, whereas TFL data covers both Schedule A & B land since these are not separated out in timber supply analysis and AAC rationale reports.

Provincial Overview of Changes

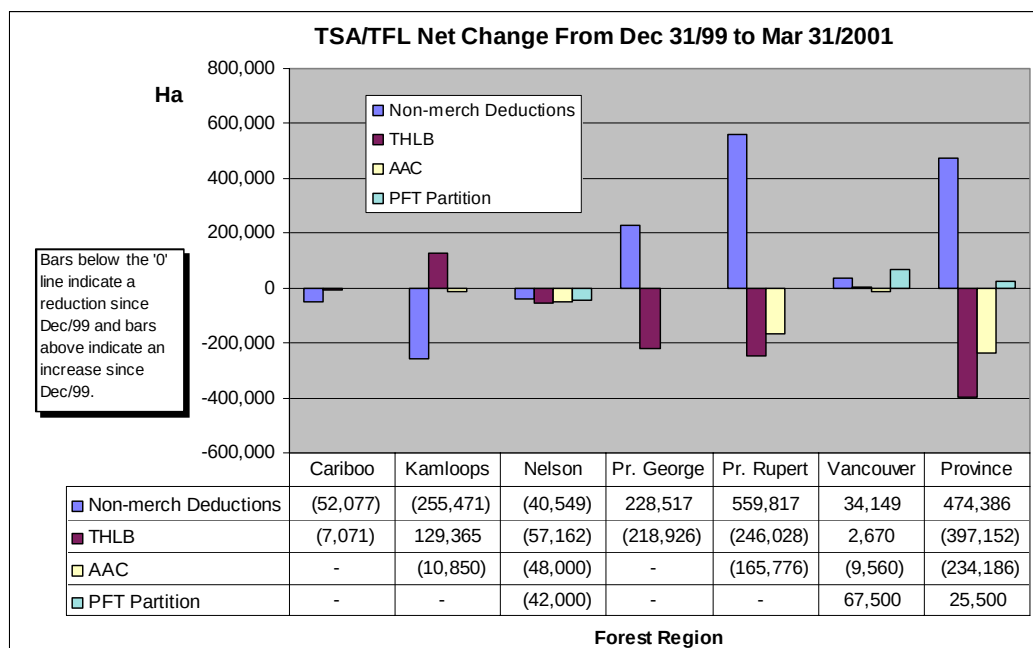
Changes in Timber Supply Areas and Tree Farm Licences

Non-merchantable Forest Deductions

Between December 31, 1999 and March 31, 2001 the total area of non-merchantable forest deducted in the timber supply review process increased by about 474 400 ha across all timber supply areas and tree farm licences in the province (see chart, below).

These changes are largely driven by new THLB estimates for the Ft. Nelson and Cassiar TSA's where non-merch forest deductions increased by about 208 700 ha and 613 100 ha respectively. The Cassiar changes appear to be largely driven by a change in the THLB netdown order.²

Excluding the Ft. Nelson and Cassiar TSA's, provincial non merch forest deductions fell by about 347 000 ha, largely attributable to changes in TSA's.



Provincial THLB

The primary downward influences on the provincial TSA/TFL timber harvesting land base have been newly created protected areas, increased reserves (e.g., riparian and wildlife reserves) to meet forest practices code requirements, transfers to woodlots, and increased deductions for non-merchantable forest types – the latter most significantly in the Ft. Nelson and Cassiar TSA's.

² For example, low productivity sites being deducted before inoperable areas in TSR2 and vice versa in TSR1.

Upward influences have been the inclusion of aerial-operable areas and reduced deductions for non-merchantable forest types – the latter most significantly in Kamloops Forest Region TSA's. In addition, analysts may change the THLB netdown order. All these make assessment of the impact of changes in non-merch forest deductions on the net THLB difficult.

The timber harvesting land base for TSA's and TFL's shrank 1.7% (about 397 200 ha) between December 1999 and March 2001 – from 23.15 to 22.75 million ha. A significant part of this, however, was due to the 214,000 ha and 195 000 ha THLB reductions in the Ft Nelson and Cassiar TSA's respectively. As noted previously, the Cassiar changes appear to be largely driven by a change in the THLB netdown order.

Excluding the Ft. Nelson and Cassiar TSA's, the provincial THLB increased by about 12 000 ha.

On a percentage equivalency to the provincial THLB basis, the provincial non-merch forest type area deducted increased slightly – to 47.7% as of March 2001 from 44.9% as of Dec/99. This corresponds with the increased area deducted and decreased net THLB between these dates.

The area deducted as non-merchantable is almost half again the size of the entire provincial THLB. However, this statistic should be viewed with some caution when assessing the extent of the opportunity for expansion of the THLB. The majority of non-merchantable forests are either truly non-merchantable (e.g., alpine forest or extremely low site productivity) and/or provide valuable environmental services.

Provincial AAC

Excluding woodlots, provincial AAC fell by 0.3% – from 70.52 to 70.28 million m³. AAC partitions associated with non-merch forest types rose by 100,500 m³/yr in TSA's and fell by 75,000 m³/yr in TFL's, for a net increase of 25,500 m³/yr. The rounded provincial total non-merch partition has consequently risen slightly from 5.15 to 5.17 million m³, about 7.4% of total AAC.

For TSA's, the chief forester changed partitioned non-merch AAC as follows:

- a new 33,000 m³/yr partition in the Cranbrook TSA for dense Pl and restoring fire maintained ecosystems;
- a 70,000 m³/yr increase (to 200,000 m³/yr) in an existing partition attributable to poor and low-site CH stands in the Mid-Coast TSA; and
- removal of an unused 2,500 m³/yr deciduous partition in the Soo TSA.

The fall in the provincial TFL partition total was due to incorporation of a previous 75,000 m³/yr partition in TFL 23 for hemlock dominated forest types into the general AAC. The licensee had successfully demonstrated harvesting performance in these stands and therefore the chief forester incorporated the volume in basic AAC in the TSR2 determination.

Woodlot Licence and Provincial Totals

As noted above, the timber harvesting land base of a TSA is reduced during a timber supply analysis by the amount of area that has been transferred to woodlot licences since the previous analysis. To account for this transfer of land and AAC out of TSA's but not out of timber

production, the tracking of woodlot Crown land THLB and AAC is initiated with this addendum. The following table shows the combined status of woodlots, TSA's and TFL's.

	THLB	AAC
TSA + TFL	22,749,788	70,277,848
Woodlot	424,368	1,040,147
Prov. Total	23,174,156	71,317,995

Source for woodlot data – Resource Tenures and Engineering Branch, MoF.

TSA/TFL data as of Mar 31, 2001. Woodlot as of Jan 31, 2001.

TFL includes private & Crown land. Woodlot includes Crown only.

TFL Review

Eight tree farm licenses were selected for an in-depth review of potential opportunities in non-merchantable forest areas. Each one had over 10 000 ha in non-merch area deducted in the latest timber supply analysis.

Only one of the eight TFL's (TFL 23) had a silviculture strategy published on the Ministry of Forests' silviculture strategy web site. Telephone interviews with licensee staff were held with the other seven. Following is a summary of the findings.

Tree Farm Licence No. & Owner	Opportunities to Bring Non-merchantable Forest Area into the Timber Harvesting Land Base
TFL 1 – Skeena Cellulose	Site index may be under-estimated on 2 000 ha of old burned area that have been deducted as low site. Surveys are required to confirm this.
TFL 23 – Pope & Talbot	An opportunity exists to bring age class 1 deciduous areas under management. The first step in the process is to assess the extent and dynamics of these stands. Estimated cost is (1,000 ha X \$10/ha =) \$10,000.
TFL 30 – Canfor	Easy NC Br area has been treated. Type II silv. analysis required before undertaking more rehab treatments in this type. An opportunity for conifer release exists on about 1 500 ha. This will also be assessed in upcoming Type II analysis. Potential treatment areas for both NCBBr rehab and conifer release have high habitat values.
TFL 37 – Canfor	No opportunity.
TFL 41 – West Fraser	No opportunities identified. The large NCBBr area of 45 300 reported in the TSR1 AAC rationale appears to be incorrectly stated as the TSR2 analysis figure is 236 ha.

Tree Farm Licence No. & Owner	Opportunities to Bring Non-merchantable Forest Area into the Timber Harvesting Land Base
TFL 44 – Weyerhaeuser	Alder stands are likely to come under management and be included in future THLB estimates.
TFL 47 – TimberWest	No opportunity.
TFL 52 – West Fraser	A new timber supply analysis has recently been completed. TSR2 non-merch deductions are less than TSR1. Opportunities have been identified by the licensee and are being acted upon. These are reclass surveys in about 750 ha of low site productivity stands and prescription and surveys in about 2 000 ha of balsam residual stands. This will be accomplished within current funding levels.

In short, although there is a general trend towards lower non-merchantable forest area deductions, the detailed review of eight TFL's did not identify new opportunities of any great magnitude.

Overall Conclusion

Most of the changes documented in this Addendum were foreseen in the initial report. The detailed review of eight TFL's did not identify new opportunities of any great magnitude. Therefore, the findings of the initial report remain valid and unchanged.

Forest Region Updates

This section presents a summary by forest region of the changes in non-merchantable forest area deductions between December 31, 1999 and March 31, 2001. For further details see the workbook *Non-merch Forest Types ver 5 Mar2001.xls*. The provincial summary table from this workbook is attached at the back of this addendum.

Cariboo Forest Region

Updated for: Quesnel TSA timber supply analysis for “urgent” AAC increase due to bark beetle attack.

A new TSR2 AAC was scheduled to be determined for the Quesnel TSA before the end of 2001 but a mountain pine beetle epidemic has resulted in an urgent request for an AAC increase. The Ministry of Forests released a special analysis report in Feb/01 for public review prior to a new AAC determination. This report includes a new THLB definition in which non-merch forest deductions were reduced by about 52 000 ha. However, this appears to be offset by land area transfers to woodlots and parks as the net THLB fell by about 7 000 ha.

Kamloops Forest Region

Updated for: Lillooet, Okanagan, and Merritt TSA analyses, TFL's 18 & 33 AAC rationales.

Non-merch forest deductions in TSA's went down by about 257,400 ha. TFL's were more or less unchanged. Lillooet TSA deductions were reduced by about one-half, from 84,500 to 44,100 ha. Okanagan deductions fell from 170,700 to 115,600 ha. The largest change was a 162,000 ha lower deduction in the Merritt TSA.

Because of changes in deduction methodology between TSR's it is difficult to pin down the precise origins of the cause for these changes. In the Okanagan, it appears that the volumes deducted for old hemlock stands have been reduced substantially. The Merritt TSA change is due to the inclusion of small diameter pine in the THLB.

Nelson Forest Region

Updated for: Arrow and Golden TSA rationales, Cranbrook, Boundary, Invermere, and Kootenay Lake TSA analyses, TFL's 14 & 23 rationales.

Non-merch forest deductions only changed in the TSA's with about 33,000 fewer ha's deducted. The deductions in the Boundary, Cranbrook and Invermere TSA's all fell about equally, in the order of 10,000 ha each. In the Kootenay Lake TSA, non-merch forest deductions decreased by about 8 400 ha from those of TSR1, or by about 16%. Nevertheless, because of increased parks and woodlots, the overall THLB in this TSA decreased by about 39 000 ha.

Arrow TSA, Golden TSA & TFL 23 deductions did not change because the March 31, 2000 non-merch report already had the TSR2 analysis report results - they were updated in the ver 5 Excel workbook only for the new AAC determinations. TFL 14 deductions only changed marginally from those of TSR1.

Pr. George Forest Region

Updated for: Ft Nelson & Robson Valley TSA analyses.

Ft Nelson non-merch forest deductions went up about 200,000 ha but this appears to be largely a result of a change in the order of THLB net-downs rather than an actual change in classification criteria or merchantability status. In TSR2, low productivity sites were removed before economic accessibility. This appears to be a different net-down order from TSR1.

The Ft Nelson THLB fell by about the same amount as non-merch forest area deductions increased (roughly 200,000 ha). The TSR2 analysis report notes that the conifer portion of the THLB has doubled from the previous analysis. Substantial uncertainty remains about the size of the THLB in the Ft Nelson TSA.

On a relative basis, the Robson Valley non-merch deductions increased by about 20 000 ha, or from about 20% equivalent THLB to about 30%. Again, there was a change in deduction criteria/methodology, so direct comparisons are difficult. The low-site deduction fell by about 20,000 ha while the low-quality deduction increased by about 42,400 ha, giving the net 20,000 ha increase.

Pr. Rupert Forest Region

Updated for: North Coast TSA rationale, Cassiar TSA analysis, Lakes TSA analysis for "urgent" AAC increase (due to mountain pine beetle attack), AAC reductions to 3 other units to reflect the Nishga Treaty (no analysis).

The North Coast TSA rationale did not change the THLB non-merch deductions. Similarly, the AAC reductions to reflect the Nishga Treaty were not accompanied by new timber supply analyses so there is no change to non-merch forest estimates for the affected units.

The Lakes TSA timber supply analysis report was prepared in support of an urgent request for an increase in AAC due to severe mountain pine beetle attacks. This urgency has accelerated the TSR2 process for this TSA. About 53 400 fewer ha's were deducted for non-merchantable forest types in the new THLB netdown. Timber harvesting utilization studies indicated that pine stands are being utilized down to 17.5 m ht, as opposed to the 19.5 m ht used in TSR1, resulting in about 28 400 fewer dense pine stands being deducted. Because of a substantial increase in protected areas, however, the net THLB decreased by about 45 700 ha.

The TSR2 Cassiar TSA timber supply analysis reports a huge increase in non-merch forest area deducted. However, similar to the case in the Ft Nelson TSA, much of this appears attributable to a change in the net-down order. Evidence to this effect is that the Cassiar TSA timber harvesting land base did not fall nearly as much as the non-merch forest area increased.

Regardless, there is little harvesting activity in the Cassiar TSA so it would make little sense to invest money to bring area currently considered occupied by non-merchantable forests into the THLB in order to increase AAC.

Vancouver Forest Region

Updated for: Mid Coast & Soo TSA rationales, Queen Charlotte TSA Analysis, TFL's 43 & 54 rationales.

The non-merch forest deductions for all TSA's in the Vancouver Forest Region increased by about 34,600 ha, with just about all of this (31,600 ha) being an increase in the Queen Charlotte TSA deductions. These are mostly sites not capable of growing minimum volumes required for economic operability.

The remaining differences can be mostly attributed to the Soo TSA rationale where the chief forester found several instances where the THLB was overestimated, the largest of which is about 1,000 ha of 831- and 931-labelled stands that are not being harvested.

TFL Reports

This section presents detailed information for the non-merchantable forest area deductions for the eight tree farm licenses chosen for in-depth review of opportunities in non-merchantable forest areas.

TFL 1

<i>Licence Holder:</i>	<i>Skeena Cellulose</i>	<i>Forest Region:</i>	<i>Prince Rupert</i>
<i>Licensee Contact:</i>	<i>Archie MacDonald</i> <i>Tel: 250-638-3100</i>	<i>Total Non-merch Area:</i>	<i>47,500 ha</i>

Summary

Site index may be under-estimated on 2 000 ha of old burned area that have been deducted as low site. Surveys are required to confirm this.

Detailed review of opportunities

Data in the area column is from the TSR2 AAC determination, rounded to the nearest 100 ha's. Information in the present status and conclusion columns is from the AAC rationale and discussions with licensee staff.

Non-Merch Category	Area (ha)	Present Status	Conclusion
NC Brush	1 000	<i>TSR2 Reports</i> – SCI currently does not plan to convert these sites to productive commercial forest (2B:13) <i>Licensee</i> – Small scattered bits. May be non-productive. Probably no potential.	No opportunity.
Low volume or poor quality conifers	31 000	<i>TSR2 Reports</i> – To define low volume and quality stands, SCI used the same stand age, height and crown closure criteria that were used in the 1998 analysis for the Kalum TSA (2B:15). Kalum criteria: All species, age >100, height < 22 m; All species, age >60, crown closure ≤25%; All species, age >100, volume <250 m3/ha. <i>Licensee</i> – Mostly very old ht class 2 stands bordering on the alpine. Obtaining regeneration on such areas would be an issue.	No opportunity.
Deciduous	4 000	<i>TSR2 Reports</i> – All deciduous-leading stands other than cottonwood deducted (2B:14). <i>Licensee</i> – Mostly riparian. Might be a few treatable ha's here and there, but nothing significant.	No significant opportunity.

Non-Merch Category	Area (ha)	Present Status	Conclusion																										
Low site	11 500	<p><i>TSR2 Reports</i> – Same criteria as applied in the adjacent Kalum TSA. (2B:14)</p> <p>Kalum criteria:</p> <table><tr><th><u>Species, FIZone</u></th><th><u>SI</u></th></tr><tr><td>Balsam A</td><td>< 6.5</td></tr><tr><td>Balsam J</td><td>< 6.5</td></tr><tr><td>Cedar A</td><td>< 8.5</td></tr><tr><td>Cedar J</td><td>< 9.0</td></tr><tr><td>Hemlock A</td><td>< 7.0</td></tr><tr><td>Hemlock J</td><td>< 7.5</td></tr><tr><td>Spruce A</td><td>< 3.0</td></tr><tr><td>Spruce J</td><td>< 5.0</td></tr><tr><td>Pine A</td><td>< 8.5</td></tr><tr><td>Pine J</td><td>< 9.5</td></tr><tr><td>Cottonwood A</td><td>< 8.0</td></tr><tr><td>Cottonwood J</td><td>< 7.0</td></tr></table> <p><i>Licensee</i> – Again, most of this is probably old growth close to the alpine. However, possibly 2 000 ha is in old burns that are wrongly classified. Paired-plot studies of 2nd growth indicate an avg SI increase of 11. Have been working on the SI issue for years.</p>	<u>Species, FIZone</u>	<u>SI</u>	Balsam A	< 6.5	Balsam J	< 6.5	Cedar A	< 8.5	Cedar J	< 9.0	Hemlock A	< 7.0	Hemlock J	< 7.5	Spruce A	< 3.0	Spruce J	< 5.0	Pine A	< 8.5	Pine J	< 9.5	Cottonwood A	< 8.0	Cottonwood J	< 7.0	Site index may be under-estimated on 2 000 ha. Surveys required.
<u>Species, FIZone</u>	<u>SI</u>																												
Balsam A	< 6.5																												
Balsam J	< 6.5																												
Cedar A	< 8.5																												
Cedar J	< 9.0																												
Hemlock A	< 7.0																												
Hemlock J	< 7.5																												
Spruce A	< 3.0																												
Spruce J	< 5.0																												
Pine A	< 8.5																												
Pine J	< 9.5																												
Cottonwood A	< 8.0																												
Cottonwood J	< 7.0																												

TFL 23

<i>Licence Holder:</i>	<i>Pope & Talbot Ltd.</i>	<i>Forest Region:</i>	<i>Nelson</i>
<i>Licensee Contact:</i>	<i>N/A. Info from silv strategy.</i>	<i>Total Non-merch Area:</i>	<i>11,800 ha</i>

Summary

An opportunity exists to bring age class 1 deciduous areas under management. The first step in the process is to assess the extent and dynamics of these stands. Estimated cost is (1,000 ha X \$10/ha =) \$10,000.

Detailed review of opportunities

Data in the area column is from the TSR2 timber supply analysis data information package (Timberline), rounded to the nearest 100 ha's. Information in the present status and conclusion columns is from *Arrow Lakes Tree Farm Licence 23 Silviculture Strategy (Interim)*, Version 1.1 – March 99.

Non-Merch Category	Area (ha)	Present Status	Conclusion
NC Brush	200	Source: MP9 (TSR2) timber supply analysis information report, p 7.)	No opportunity.
Low volume or poor quality conifers	4 100	Source: MP9 (TSR2) timber supply analysis information report, p 7. From Mar 99 silviculture strategy: Most of the non-merch H/B stands are on steep slopes. These stands contribute to biodiversity. Rehabilitating them might require the setting aside of higher timber quality stands to meet biodiversity requirements.	No opportunity.
Deciduous	5 800	Source: MP9 (TSR2) timber supply analysis information report, p 7. From Mar 99 silviculture strategy: Many deciduous areas are young regenerated stands and are a normal part of natural succession, having conifer below. The extent and dynamics of such stands need further investigation. Few, if any, large contiguous areas of mature deciduous suitable for harvest or stand conversion. Further analysis required to determine how much is age class 1 deciduous that may be able to be part of the managed THLB.	Assess the extent and dynamics of age class 1 decid for potential to add to THLB.

Non-Merch Category	Area (ha)	Present Status	Conclusion
Low site	1 700	Source: MP9 (TSR2) timber supply analysis information report, p 7. From Mar 99 silviculture strategy: No opportunity.	No opportunity.

TFL 30

<i>Licence Holder:</i>	<i>Canadian Forest Products</i>	<i>Forest Region:</i>	<i>Prince George</i>
<i>Licensee Contact:</i>	<i>Bill Wade</i>	<i>Total Non-merch Area:</i>	<i>16,000 ha</i>
	<i>Tel: 250-962-3259</i>		

Summary

Easy NC Br area has been treated. Type II silv. analysis required before undertaking more rehab treatments in this type. An opportunity for conifer release exists on about 1 500 ha. This will also be assessed in upcoming Type II analysis. Potential treatment areas for both NCB r rehab and conifer release have high habitat values.

Detailed review of opportunities

Data in the area column is from the TSR1 AAC rationale, rounded to the nearest 100 ha's. Information in the present status and conclusion columns is from the AAC rationale and discussions with licensee staff. The licensee has recently completed a new timber supply analysis and is planning to undertake a Type II silviculture analysis soon. The new TSR analysis used a combination of vegetation resources inventory and TEM information for the netdowns.

Non-Merch Category	Area (ha)	Present Status	Conclusion
NC Brush	11 200	<p><i>TSR1 Reports</i> – Largely dominated by alder. Licensee has plans to rehab a total of 6,250 ha at the rate of 125 ha/yr. for 5 decades. The conversion activity is assumed to contribute about 5% to long term THLB. Remaining area is considered untreatable. (1B:12)</p> <p><i>Licensee</i> – The TSR2 analysis figure is 10 589 ha. The reduction is a result of rehab efforts. These areas are typically an alder complex with SI's >24 and are some of the most productive sites on the TFL. However, many areas are connected with high value salmon streams or wetland complexes. The easily treated area has now been done. The new management plan commits to stopping rehab until further Type II silv analysis is done to look at the treatment cost and environmental perspectives.</p>	Easy area has been treated. Type II silv. analysis required before undertaking more rehab treatments.

Non-Merch Category	Area (ha)	Present Status	Conclusion
Deciduous	4 500	<p><i>TSR1 Reports</i> – Source: (1B:11-12). Timber supply sensitivity analysis indicates inclusion of these stands in the THLB would raise mid-term harvest levels 12% and long-term 6%. Expectation in AAC rationale appears to be that these stands would be harvested rather than rehabilitated.</p> <p><i>Licensee</i> – new estimate is 2 666 ha. The reduction from TSR1 is mostly due decid being defined differently and a different net-down order. A lot is cottonwood along the McGregor flood plain. About 1 500 ha is 30-40 year old birch over-topping balsam in IU logged areas. This is excellent moose and bear habitat so there are concerns about cutting the decid overstory. Will be analyzing this in the upcoming Type II silv analysis.</p>	Opportunity for conifer release on about 1 500 ha to be assessed in upcoming Type II analysis.
Low site	200	<p><i>TSR1 Reports</i> – Data source: (1B:11) <i>Licensee</i> – This area captured in minimum economic yield (low volume) category below.</p>	No opportunity.
Low volume	18 000	<i>Licensee</i> – Areas that can't produce 140 m ³ /ha by age 200 years were deducted. Most this area is alpine meadow. Rest is treed bogs, rocky areas or low stocking in what's otherwise NC Br. The NCB _r offers some potential – see above.	No additional opportunity.

TFL 37

<i>Licence Holder:</i>	<i>Canadian Forest Products</i>	<i>Forest Region:</i>	<i>Vancouver</i>
<i>Licensee Contact:</i>	<i>Pat Bryant</i> <i>Tel: 250-281-2457</i>	<i>Total Non-merch Area:</i>	<i>17,500 ha</i>

Summary

No opportunity.

Detailed review of opportunities

Data in the area column is from the TSR2 AAC determination, rounded to the nearest 100 ha's. Information in the present status and conclusion columns is from the AAC rationale and discussions with licensee staff.

Non-Merch Category	Area (ha)	Present Status	Conclusion
NC Brush	200	<i>TSR2 Reports</i> – No site rehab is planned for these areas. (2B:11) <i>Licensee</i> – Not reviewed.	No opportunity.
Deciduous	0	<i>TSR2 Reports</i> – 557 ha of deciduous-leading stands included in the THLB. Canfor has committed to assess these stands and to develop strategies to rehabilitate, convert or enhance them over time. Current practice includes utilization of deciduous species. (2B:13-14) <i>Licensee</i> – Have been perhaps too strenuous on alder rehab in the past and may find ourselves in a biological deficit. Would prefer to harvest and manage alder areas but market has been poor for this species.	No additional opportunity.
Low site	17 300	<i>TSR2 Reports</i> – Stands with potential growth rates of less than 1.0 m ³ /yr were excluded. Licensee also excluded from the THLB uneconomic areas with insufficient stand volume or value to permit economical harvesting operations. (2B:12-13). <i>Licensee</i> – Much of the low site is alpine forest and would not be harvested due to regeneration difficulty. Potential in other low-site stands is low as mapping and classification is pretty good. Probably the biggest opportunity is in revisiting stands that are classified as uneconomic. Previously done based only on stand attributes. This time round will be looking at add'l factors such as proximity to other blocks.	No opportunity.

TFL 41

<i>Licence Holder:</i>	<i>West Fraser</i>	<i>Forest Region:</i>	<i>Prince Rupert</i>
<i>Licensee Contact:</i>	<i>Damian Keeting</i> <i>Tel: 250-638-4510</i>	<i>Total Non-merch Area:</i>	<i>50,600 ha</i>

Summary

No opportunities identified. The large NCBr area of 45 300 reported in the TSR1 AAC rationale appears to be incorrectly stated as the TSR2 analysis figure is 236 ha.

Detailed review of opportunities

Data in the area column is from the TSR2 AAC determination, rounded to the nearest 100 ha's. Information in the present status and conclusion columns is from the AAC rationale and discussions with licensee staff.

Non-Merch Category	Area (ha)	Present Status	Conclusion
NC Brush	45 300	<i>TSR 2 reports</i> – Licensee considers timber production is unlikely on these areas. (2B:13) <i>Licensee</i> – Don't know where the figure of 45 300 ha came from. Data package figure is 236 ha. Don't know of any large treatable area of NC Brush.	Assume rationale figure is incorrectly stated. No opportunity.
Low volume or poor quality conifers	1 200	<i>TSR 2 reports</i> – Licensee used a combination of volume per hectare, crown closure, age and height criteria (2B:14). <i>Licensee</i> – Mostly areas of low scrub timber, poor sites, rock knob, high water table. Inventory classification is pretty accurate. Would rather fertilize more productive sites than these areas. These areas serve as wildlife reserves, so rehabilitating them would mean some other more productive area would have to be set aside.	No opportunity.
Deciduous	4 100	<i>TSR 2 reports</i> – All deciduous-leading stands deducted as licensee does not currently harvest in these (2B:14). <i>Licensee</i> – Mostly cottonwood and alder stands within riparian reserves. Decid netted out before riparian reserve in the TSR netdown process so appears as a high number. Would not enter a reserve to do any kind of harvesting or management of decid stands.	No opportunity.
Low site	100	(2B:13) Not reviewed.	No opportunity.

TFL 44

<i>Licence Holder:</i>	<i>Weyerhaeuser</i>	<i>Forest Region:</i>	<i>Vancouver</i>
<i>Licensee Contact:</i>	<i>Peter Kofoed</i> <i>Tel: 250-755-3450</i>	<i>Total Non-merch Area:</i>	<i>11,600 ha</i>

Summary

Alder stands are likely to come under management and be included in future THLB estimates.

Detailed review of opportunities

Data in the area column is from the TSR2 AAC determination, rounded to the nearest 100 ha's. Information in the present status and conclusion columns is from the AAC rationale and discussions with licensee staff.

Non-Merch Category	Area (ha)	Present Status	Conclusion
Low volume or poor quality conifers	9 600	<p><i>TSR 2 reports</i> – 5920 ha excluded from THLB outside Clayoquot Sound as uneconomic to harvest. CF establishes partition of 40,000 m3 which appears related to this area but is not specifically stated as such. (2B:15-16)</p> <p>3676 ha deducted from THLB inside Clayoquot Sound as uneconomic to harvest. (2B:63)</p> <p><i>Licensee</i> – Area deducted is more of an allowance than actual stands. Not sure of any large opportunity areas as there will be some +’s and –’s when it comes to actual stands.</p>	No opportunity.
Deciduous	2 000	<p><i>TSR 2 reports</i> – All deciduous-leading stands other than cottonwood deducted (2B:17,63).</p> <p><i>Licensee</i> – Will be looking at decid differently now that Weyerhaeuser has recently bought Coast Mountain Hardwoods. Not only looking at the existing supply of alder but also will be considering planting alder.</p>	Alder stands are likely to come under management.

TFL 47

<i>Licence Holder:</i>	<i>TimberWest</i>	<i>Forest Region:</i>	<i>Vancouver</i>
<i>Licensee Contact:</i>	<i>Jim McPhalen</i> <i>Tel: 250-729-3705</i>	<i>Total Non-merch Area:</i>	<i>15,600 ha</i>

Summary

No opportunity.

Detailed review of opportunities

Data in the area column is from the TSR1 AAC determination, rounded to the nearest 100 ha's. Information in the present status and conclusion columns is from the AAC rationale and discussions with licensee staff. The licensee has recently completed a new timber supply analysis.

Non-Merch Category	Area (ha)	Present Status	Conclusion
Low volume or poor quality conifers	15 600	<p><i>TSR 1 reports</i> – Includes area that is either inaccessible or of low timber quality (1B:14).</p> <p><i>Licensee</i> – The last MP deducted approximately:</p> <p>Johnstone Strait - 6,100 ha. (Total land base 101,000 ha)</p> <p>Bonanza Lake - 4,500 ha (Total Land base 37,900 ha)</p> <p>Moresby (QCI) - 3,800 ha (Total land base 27,000 ha)</p> <p>There were also minor reductions for the Coutenay and Nanaimo Lake blocks - these blocks are private land & are no longer part of the TFL.</p> <p>Most of the inoperable area was deducted after helicopter reconnaissance mapping - we pick-up pockets of timber as market conditions permit. Cannot see these areas as ever making a significant contribution to AACs.</p>	No opportunity.
Deciduous	0	Decid included in THLB and considered available for harvesting (1B:15).	No opportunity.

TFL 52

<i>Licence Holder:</i>	<i>West Fraser</i>	<i>Forest Region:</i>	<i>Cariboo</i>
<i>Licensee Contact:</i>	<i>Al Hunter</i> <i>Tel: 250-992-0888</i>	<i>Total Non-merch Area:</i>	<i>15,600 ha</i>

Summary

A new timber supply analysis has recently been completed. TSR2 non-merch deductions are less than TSR1. Opportunities have been identified by the licensee and are being acted upon. These are reclass surveys in about 750 ha of low site productivity stands and prescription and surveys in about 2 000 ha of balsam residual stands. This will be accomplished within current funding levels.

Detailed review of opportunities

Data in the area column is from the TSR1 AAC determination, rounded to the nearest 100 ha's. Information in the present status and conclusion columns is from the AAC rationale and discussions with licensee staff. The licensee has recently submitted a new timber supply analysis to the Chief Forester for TSR2 AAC determination. A new AAC is anticipated in December, 2001. The new information is based on a complete new vegetation resources inventory as well as TEM mapping. Every polygon has been assigned a new site index label.

Non-Merch Category	Area (ha)	Present Status	Conclusion
NC Brush	1 000	<i>TSR 1 reports – (1B:13)</i> <i>Licensee – New data package figure is 48 ha.</i>	No opportunity.
Low volume or poor quality conifers	2 600	<i>TSR 1 reports – Stands may not meet the min vol requirements of 120 m³/ha at 150 yrs of age due primarily to low stocking levels. MP No. 2 states these types will likely not be harvested. (1B: 13)</i> <i>Licensee – New data package figures are 3 789 ha gross and 2 695 ha net for low productivity sites – same specs as TSR1. Suspect about 4 areas totalling about 750 ha are not low site and will be looking at these over the next 5 years. Rest is scattered small patches. Don't need extra funding for this. These areas are not candidates for treatments, just surveys and reclassification.</i>	About 750 ha will be reclass surveyed.

Non-Merch Category	Area (ha)	Present Status	Conclusion
Deciduous	4 400	<p><i>TSR 1 reports</i> – Consists of predominantly decid stands < 35 yrs of age and older decid stands not projected to yield 120 m³/ha of conifer volume by 150 years of age (1B: 13). CF considers up to 3 400 m³/yr of additional volume could come from aspen stands as constituting a minor upward pressure on timber supply (1B: 35). CF requires development of management objectives for aspen stands to account for their non-timber values prior to next determination (1B: 37).</p> <p><i>Licensee</i> – New figures are 4 214 ha gross and 3 359 net. Cut about 6 000 m³/yr decid as part of regular harvest in conifer stands. Pure decid stands are not considered merchantable as no market. Have a couple of decid cut blocks set up in case Ainsworth needs the wood for its OSB plant. Would wait for a market rather than consider a rehab.</p>	No opportunity. Wait for commercial market.
Low site	7 600	<p><i>TSR 1 reports</i> – Net area after accounting for other factors. Low site defined as stands currently over 35 years whose SI is not sufficient to meet the min. vol requirements of 120 m³/ha of coniferous volume at age 150 (1B: 12).</p> <p><i>Licensee</i> – Not using this criteria at all now. Probably no low site left given the better site class in the re-inventory. Base case LTHL rose from 549 000 in TSR1 to 755 000 in TSR2.</p>	No opportunity.
Resid Balsam		<p><i>Licensee</i> – There are 11-12 000 ha of residual balsam stands from IU logging. These are all in the THLB and have been stratified into 3 classes – OK, NSR, and uncertain. There are about 2 000 ha in the latter two classes. The NSR sites are scheduled for a prescription and the uncertain sites will be surveyed.</p>	No additional opportunity.

Attachment: Provincial Summary of Non-merch Forest Area Deductions

Source: Non-merch Forest Types ver 5 Mar2001.xls

Management Unit	Reductions to Productive Crown Forest (ha)								Reductions Compared to THLB		Problem Forest Type AAC Partition Summary (m3)					Other Partitions		Woodlots (Jan 31/01)		
	NCC or NCB ¹	Low vol. or poor quality	too dense	Unused Decid.	Unused Conifer	Low site	Other	Total	Current THLB (ha) ¹	Equiv. % THLB	Marginal	Deciduous	Subtotal	Total AAC	% of tot AAC	Insect/ Disease	Other	#	Sch B AAC (m3/yr)	Sch B Area (ha)
Timber Supply Areas																				
Cariboo	0	0	0	0	0	0	0	1,450,187	3,385,757	42.7%	618,000	40,000	658,000	7,387,000	8.8%	650,000	350,000	150	202,790	85,781
Kamloops	3,898	228,255	0	81,793	0	89,017	27,726	430,689	2,965,224	14.5%	536,000	0	536,000	7,941,830	6.7%	550,000	0	146	161,511	72,705
Nelson	16,628	11,841	0	30,809	0	93,941	55,812	209,031	1,666,832	12.6%	33,000	0	33,000	4,172,500	0.8%	0	0	101	99,437	55,544
Prince George	888,719	682,179	62,587	520,124	428,837	2,497,639	892,049	5,770,134	7,768,364	74.3%	110,000	2,757,500	2,867,500	18,161,434	15.8%	290,000	0	233	328,045	130,815
Prince Rupert	171,392	103,923	59,909	71,353	7,090	1,703,302	216,438	2,335,407	2,528,731	92.4%	367,000	0	367,000	8,136,334	4.5%	0	154,000	104	123,714	55,640
Vancouver	3,183	3,360	0	20,852	0	179,562	196,603	403,560	1,362,772	29.6%	405,000	158,800	563,800	7,463,000	7.6%	0	103,700	72	126,650	23,883
TSA Subtotal	1,061,820	1,029,558	122,496	724,931	435,927	4,563,461	1,190,628	10,599,008	19,677,690	63.9%	2,070,000	2,956,300	5,026,300	63,272,198	9.4%	1,690,000	607,700	806	1,040,147	424,368
Tree Farm Licences																				
Cariboo	969	2,609	0	5,251	0	7,633	0	16,462	227,100	7.2%	0	1,500	1,500	671,800	0.2%	0	0			
Kamloops	164	6,841	978	5,177	0	1,102	1,843	16,105	253,249	6.4%	0	0	0	774,250	0.0%	0	0			
Nelson	670	7,570	0	6,411	0	9,318	8,557	32,526	412,422	7.9%	0	0	0	1,265,000	0.0%	0	80,000			
Prince George	11,530	2,142	0	11,654	0	1,198	908	27,432	518,148	5.3%	4,100	56,000	60,100	1,223,500	4.8%	0	0			
Prince Rupert	46,273	32,169	0	8,060	0	11,585	0	98,107	200,331	49.0%	0	0	0	1,011,000	0.0%	0	214,000			
Vancouver	941	28,298	0	9,241	0	26,981	2,448	67,909	1,460,858	4.6%	40,000	43,000	83,000	12,060,100	0.7%	0	362,200			
TFL Subtotal	60,547	79,629	978	45,814	0	57,817	13,758	258,541	3,072,108	8.4%	44,100	100,500	144,600	17,005,650	0.9%	0	656,200			
Provincial Total	1,142,367	1,109,187	123,474	770,745	435,927	4,621,278	1,204,384	10,857,549	22,749,798	47.7%	2,114,100	3,056,800	5,170,900	70,277,848	7.4%	1,690,000	1,263,900	806	1,040,147	424,368
¹ Does not include allowances for future roads. Corrected where possible for changes stated in AAC rationales related to the items reviewed. THLB - Timber Harvesting Land Base																				
Other items not reviewed (e.g., operability, ESA's, stand level biodiversity requirements, riparian, etc.) may also have caused changes to the THLB but are not accounted for here.																				
																		TSA, TFL & Woodlot		
																		AAC THLB		
																		71,317,995 23,174,156		