



**Forest
Practices
Board**

Adequacy of Brushing in the BCTS Chinook Business Area

Complaint Investigation #16062

FPB/IRC/209

August 2017

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Introduction

The Complaint

In August 2016, the Forest Practices Board received a complaint that BC Timber Sales (BCTS) in the Chilliwack area was not doing enough to remove competing vegetation (“brushing”) on its recently planted cutblocks. The complainant had two concerns:

1. BCTS appeared to have significantly reduced its brushing program since 2013, which could result in plantations growing poorly due to competition from brushy vegetation. This could prevent BCTS from meeting its obligations to ensure that its young stands survive and grow well.
2. Competing brush could lengthen the period between planting and harvesting of trees and affect the volume of timber available for harvest.

The complainant would like BCTS to resume brushing at previous amounts to optimize growth of forest plantations and ensure a stable supply of timber into the future.

Background

BCTS in the Chinook Business Area conducts operations across four Natural Resource Districts (Chilliwack, Haida Gwaii, Sea to Sky and Sunshine Coast). This complaint is about brushing activities in the Chilliwack portion of the Chinook Business Area of BCTS (the “Chilliwack operating area”; Figure 1).

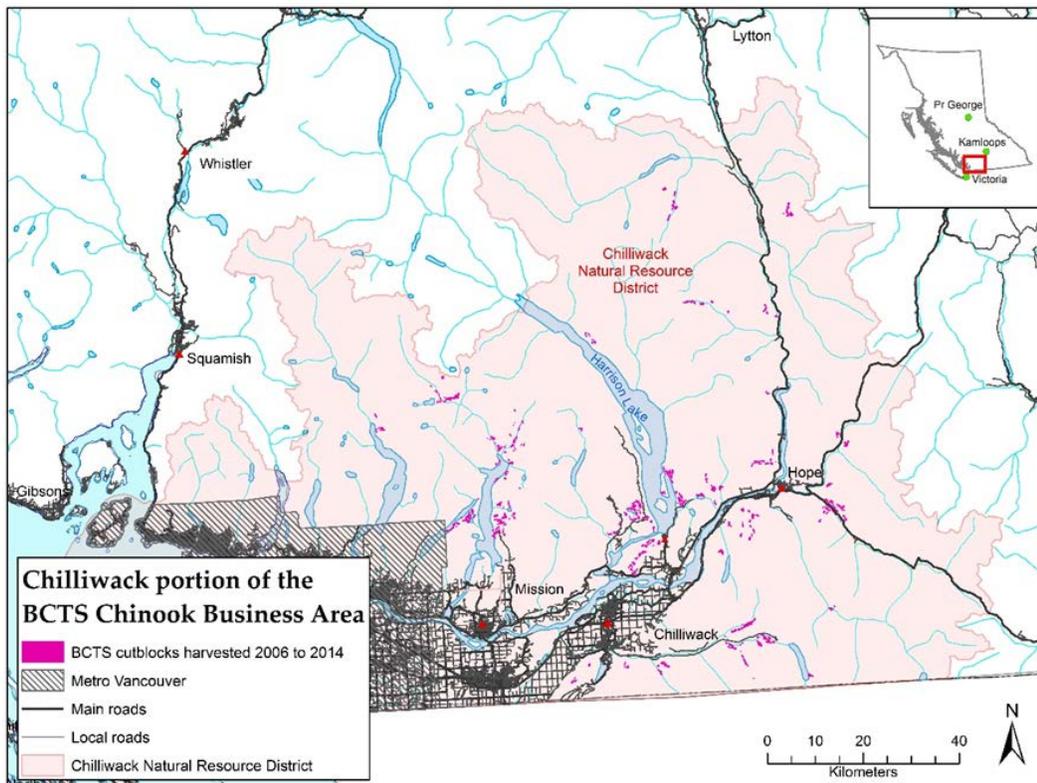


Figure 1. BCTS Chinook Business Area cutblocks within its Chilliwack operating area.

Brush competition is a chronic issue for forest plantations in the Chilliwack area because it has some of the most productive growing sites in BC. Brushy plant species (herbs, shrubs and trees) are hardy and fast growing, particularly on productive growing sites. Brush can out-compete young crop trees for light, water and nutrients, and prevent them from achieving their full growth potential.

Under the *Forest and Range Practices Act*, BCTS and major licence holders (licensees) can decide on the most appropriate course of action within their tenure areas to ensure crop trees are not outcompeted. If brush appears to be impeding tree growth, they may choose to use manual brushing (with hand or power tools) or chemical treatments to remove the competing vegetation. Alternatively, they may decide to leave the brush to reduce costs or to benefit other resource values, such as habitat for wildlife.

BCTS and licensees must establish a new stand of trees on any Crown land that they log. They have two primary silviculture requirements under the *Forest Planning and Practices Regulation (FPPR)*¹:

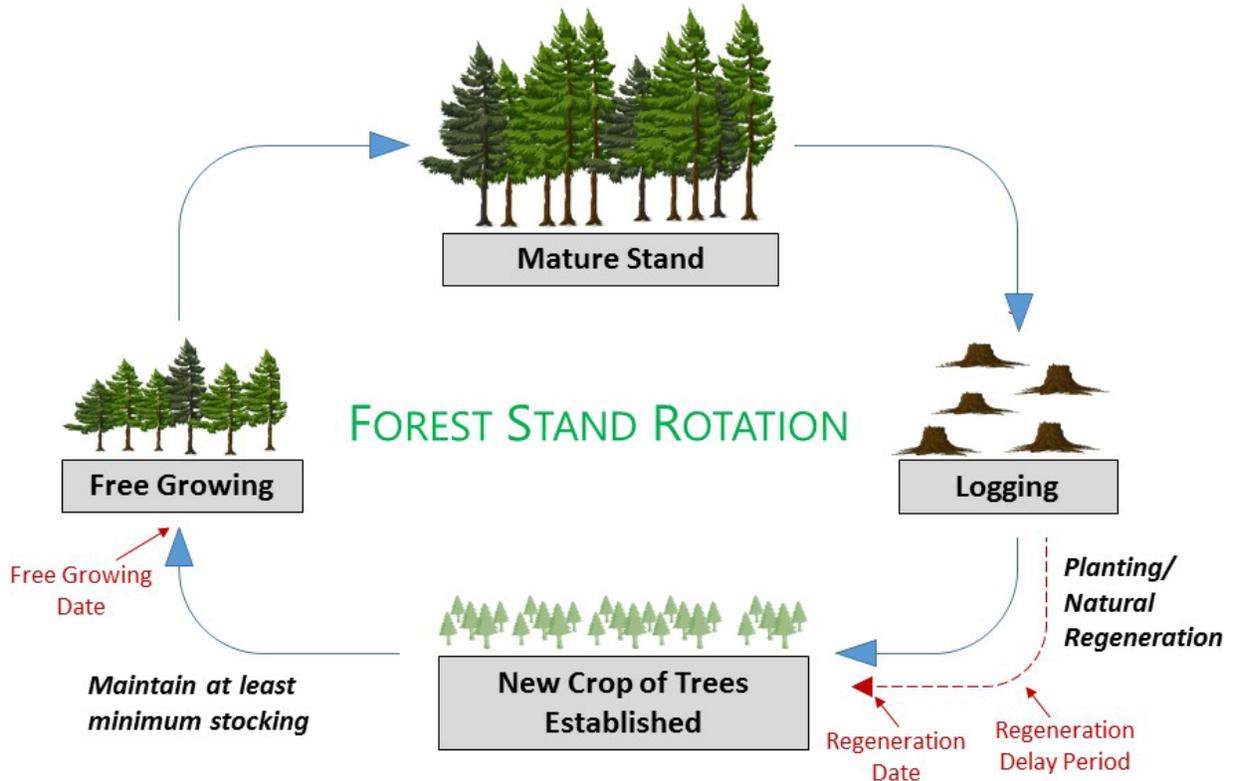
- to establish a new stand of trees by a certain date (regeneration delay); and
- for this new stand to achieve free-growing status within 20 years of logging (Figure 2).

A free-growing stand is a stand of healthy trees comprised of commercially valuable species that are of adequate stem density (i.e., there are enough trees per hectare), and tall enough that they are unlikely to be outcompeted by other vegetation. BCTS and licensees typically conduct regular silviculture surveys of stands to assess these attributes. Once a stand of trees has achieved free-growing status, the obligation to replace the stand is satisfied.

Stocking standards specify expected stem densities for replanted stands. Stocking standards set out the number of trees per hectare of each crop tree species at free growing and the date by which free-growing status will be achieved. The stocking standards allow for a range of stem densities. BCTS and licensees should aim to grow the target number of trees per hectare, but in cases where this cannot be achieved, the minimum density is acceptable. Stocking standards are approved in a forest stewardship plan and form a legally binding agreement between the plan holder and government.

¹ FPPR sections 16 (3), 44, and 46.11. http://www.bclaws.ca/civix/document/id/loo83/loo83/12_14_2004

Figure 2. Forest stand rotation, showing BCTS and licensee obligations to re-establish trees and ensure they reach free growing by dates specified in their forest stewardship plans.



Investigation Results

To address the complaint, the Board investigated two questions:

1. Has BCTS reduced the amount of brushing in its Chilliwack operating area?
2. Is BCTS taking adequate measures to remove competing brush in order to establish free-growing stands and ensure compliance with the FPPR?

Reducing competing brush will help to promote successful growth of seedlings and can increase the available volume of timber. However, for the purposes of the complainant's second concern about effect on timber volumes, the Board assumes that, as long as legal obligations to meet free-growing standards are met, forest practices will meet government's goals for maintaining timber volume.

During the investigation, the Board:

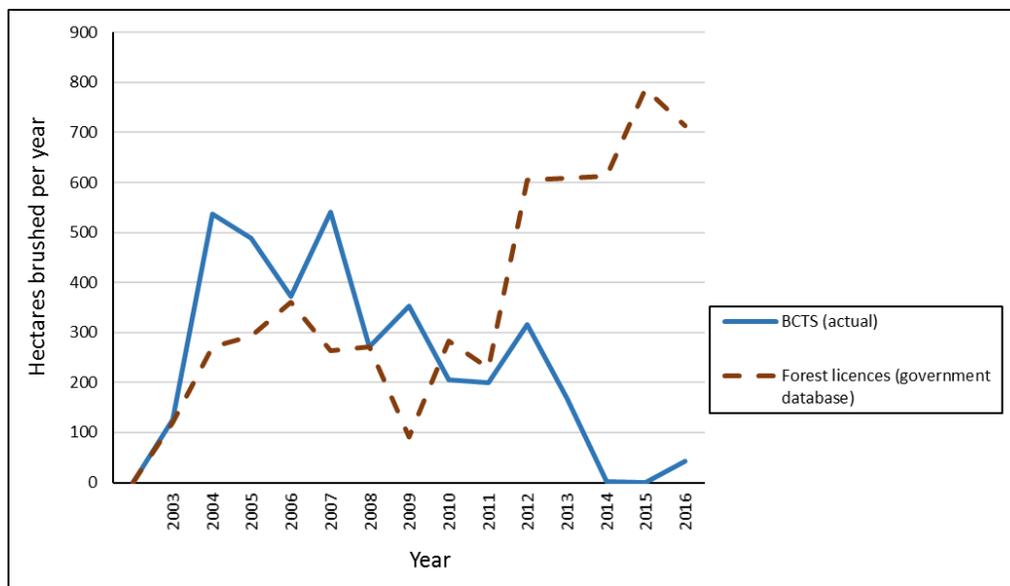
- reviewed data in government records;
- interviewed the complainant, BCTS staff, and silviculture consultants; and
- visited a sample of sites in the BCTS Chilliwack operating area.

1. Has BCTS reduced the amount of brushing in its Chilliwack operating area?

Based on data in its in-house tracking system, BCTS brushed an average of 341 hectares per year in its Chilliwack operating area between 2003 and 2012. In 2013, it brushed 169 hectares and in 2014 and 2015, there was no brushing activity at all. In 2016, BCTS brushed 43 hectares.

The Board reviewed data to see if levels of brushing by BCTS were consistent with brushing by holders of forest licences in the Chilliwack operating area.² As can be seen in Figure 3, the decline in brushing by BCTS since 2013 contrasts with levels of brushing by forest licence holders in the area (as recorded in the RESULTS³ government database).

Figure 3. Trend in hectares brushed from 2003 to 2016 by BCTS (based on in-house data) and forest licence holders in the Chilliwack operating area. Note: these are absolute amounts of brushing by hectare, not a proportion of area harvested.



When interviewed, BCTS staff explained that they greatly reduced brushing activity between 2013 and 2016 while they re-evaluated and adjusted their approach to the brushing program in the Chinook Business Area.

BCTS staff decided a re-evaluation of the brushing program was necessary because, prior to 2013, they relied directly on recommendations from forestry consultants' silviculture surveys to design their yearly brushing program, and had limited involvement in the field. The pre-2013 brushing program was aggressive and BCTS implemented most of the recommendations from silviculture surveys through manual or chemical brushing at significant expense to the organization. In 2014 and 2015, BCTS's silviculture staff stopped all brushing activities while they did field inspections to evaluate first-hand the condition of planted stands, the amount of brush, and the need for brushing.

² Forest licences are the predominant type of forest tenure in Chilliwack, followed by timber sale licences issued by BCTS. Other types of forest tenure are comparatively smaller in area.

³ Reporting Silviculture Updates and Land Status Tracking System.

Based on this work, staff determined that they had been doing approximately double the amount of brushing than was necessary.

BCTS said it tightened management of its brushing program in the Chinook Business Area to be more cost effective and reduce unnecessary brushing. Now staff conduct their own field assessments to determine where and when brushing needs to occur. They use an in-house data management tool to schedule inspections and follow-up treatments and to track data on stand growth, treatments and stand condition. BCTS staff told Board investigators they have now refined the program and are resuming brushing activities, but at reduced levels compared to pre-2013. BCTS plans to brush 108 hectares in the Chilliwack operating area in 2017 and about 100 to 150 hectares yearly after that.

Findings

BCTS significantly reduced the amount of brushing in its Chilliwack operating area from 2013 to 2016 while staff assessed and refined the brushing program. BCTS plans to resume the brushing program in 2017 at levels that staff determine are necessary through their own field assessment.

2. Is BCTS taking adequate measures to remove competing brush in order to establish free-growing stands and ensure compliance with the FPPR?

The Board assessed whether crop tree establishment and growth was affected by the reduced brushing between 2013 and 2016. In October 2016, Board investigators visited 59 cutblocks in the Chilliwack operating area to assess brush levels and examine the potential for suppression or death of crop trees. The Board selected blocks based on two factors:⁴

- a) *Forest type* – Site conditions in lower elevation stands of coastal western hemlock dry sub-maritime and maritime ecosystems are most likely to support the heaviest growth of brush.⁵
- b) *Date of harvest* – At the time of the investigation in 2016, blocks harvested between 2006 and 2014 were at the age where they were particularly vulnerable to competition, and therefore most likely to be impacted by reduced brushing since 2013.

According to the forest stewardship plan for the Chinook Business Area, cutblocks must achieve free-growing standards within 20 years of the date of harvest. The sample of cutblocks harvested between 2006 and 2014 would therefore have to achieve free-growing standards between 10 and 18 years from the date of the Board's investigation in 2016. Board staff could not state definitively that free-growing standards will be met that many years into the future. However, staff are able to determine the likelihood of achieving the standards based on the current condition of the crop trees and brush in the cutblocks.

⁴ Analysis assumptions were developed based on discussions with field silviculturalists and information in the *Establishment to Free Growing Guidebook: Vancouver Forest Region*, Version 2.3, 2007, available at: <https://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/FREE/EFG-Van-print.pdf>

⁵ Blocks were selected where average elevation was less than 600 metres above sea level, and site series = Coastal Western Hemlock dry sub-maritime 1 (CWHds1; all site series) and Coastal Western Hemlock dry maritime (CWHdm; site series 04, 05, 06).

During the field visits, Board investigators found no significant brush concerns for 36 (61 percent) of the 59 blocks visited. For 23 blocks, investigators did identify brush concerns, such as crowding and over-topping of crop trees, but BCTS staff demonstrated, through their internal reporting system, that they were aware of these issues and have plans to address them (Table 1).

As a follow-up to the field visits, Board investigators reviewed silviculture survey reports to verify BCTS findings and intentions for future brushing activities. Investigators were satisfied that BCTS treatments will likely achieve the stocking requirements within the required timelines.

Table 1. Results of a Board field investigation of 59 harvested and replanted BCTS blocks in the Chilliwack operating area.

Brush Concerns in Sample Blocks	# of Blocks	% of Total	Notes
No brush concerns	36	61	Some of these blocks were treated to remove brush prior to planting.
Brush concerns	23	39	Treatments are scheduled in 2017 for 14 blocks that had priority for brushing. For 9 other blocks, BCTS is aware of potential issues and will monitor as part of a “wait-and-see” strategy before treating.
Total	59	100	

Findings

As long as BCTS staff in the Chilliwack operating area continue their planned monitoring and follow up actions, BCTS is undertaking adequate measures to comply with its legal requirement to ensure its crop trees achieve free-growing standards.

Conclusions

Brushing treatments are often necessary to ensure successful reforestation of commercially valuable timber in volumes that support a future forest economy. The complainant was rightfully concerned about the apparent significant reduction in brushing by BCTS.

The Board investigation concluded that BCTS did significantly reduce its brushing in the Chilliwack operating area between 2013 and 2016. However, this was not a long-term change; rather it was a period of re-evaluation by BCTS before resuming its brushing program in 2017.

The Board also concluded that BCTS is undertaking adequate measures to reduce competing brush and comply with its legal requirement to ensure its crop trees achieve free-growing standards. As an outcome of re-evaluating its brushing program, BCTS has set up a new process to monitor and schedule brushing as needed. As long as this process and the brushing program continue, BCTS is likely to meet free-growing requirements in its Chilliwack operating area.



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