

Hardwood Management in the Coast Forest Region

Five year Results (2009-2014)



Acknowledgements

This report is a collaborative work prepared by members of the Coast Region Implementation Team (CRIT) Silviculture Working Group (SWG) and Coastal Broadleaf Management Specialists.

The following working group members and resource specialists contributed to the development of this report on the progress of broadleaf management within the Coast Area:

Neil Hughes RPF, North West Hardwoods,

Allan Powelson RPF, Resource Practices Branch,

George Harper, RPF, Resource Practices Branch,

Craig Wickland RPF, FLNRO Coast Area, SWG chair,

Graham Hues RPF, Western Forest Products, SWG member,

Paul Barolet RPF, North Island-Central Coast Natural Resource District, SWG member,

Shannon Pearce, RPF, Triumph Timber, SWG member,

Rick Monchak RPF, Timberwest Corp., SWG member,

Joe LeBlanc RPF, Interfor Corporation, SWG member,

Jack Sweeten RPF, Chilliwack Natural Resource District, SWG member,

Rod Negrave, PhD, RPF, FLNRO Coast Area, SWG member,

Ellery Tetz, RPF, BCTS Skeena, SWG member,

Mark Palmer, RPF, South Island Resource District, SWG member,

Table of contents

Acknowledgements	4
Background	4
Introduction	4
Figure 1	5
Implementation Results	5
Table 1	6
Table 2	7
Table 3	8
Table 4	8
Table 5	9
Discussion	10
Challenges/ Impediments to increased Broadleaf Management	11
Recommendations	12

1 Background

In support of the October 2007, Coast Forest Action Plan, which presented a vision for a competitive and sustainable coastal forest sector including encouraging the utilization and management of deciduous species, the Coast Regional FRPA Implementation Team (CRIT) developed the Hardwood Management Strategy for the Coast Forest Region.

At a broad level the strategic objectives of the Coastal Hardwood Management Strategy were to:

- Diversify the coastal fibre supply to accommodate demands for non-conifer timber products.
- Produce products to support timber supply (sawlogs)
- Address timber supply short falls in the medium and long term
- Diversify timber yields to address changing market conditions
- Maximize land-base utilization
- Manage for root disease centers as a short-rotation interim crop

The hardwood management strategy outlined the following three strategy options:

- Intensive regime – to produce a sawlog with minimum size characteristics¹ in 25-35 years
- Extensive regime –to produce a sawlog with minimum size characteristics in 30-50 years
- Mixed wood regime – to produce both broadleaf and conifer sawlogs with minimum size characteristics in 50-70 years

2 Introduction

The objective of this report is to inform CRIT, Industry, the Chief Forester and others about status of broadleaf² management across the coast over the 5 year period since the publishing of the strategy in 2008. The report focuses on the identified trends in broadleaf management and compares these trends against the interim target, to actively manage and grow, up to 1200 ha per year of broadleaf species for sawlog production. The interim target was based on a desire to grow a standing broadleaf timber inventory to support approximately 300,000 m³ of annual timber harvest. For context figure 1 below identifies the coastal broadleaf harvest levels between 2007 and 2013.

¹ Sawlog typically 13 meters in length with 20 cm diameter top

² For the purposes of this report hardwood management, deciduous management are collectively referred to as broadleaf management

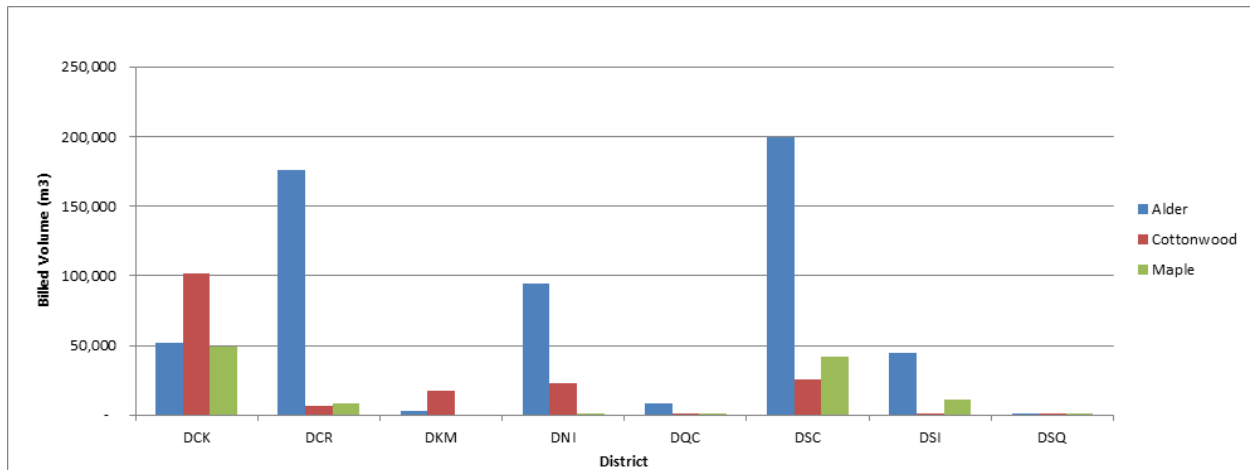


Figure 1: Broadleaf harvest levels between 2007 to 2013 total 867,434 m³ and averages 145,000 m³ per year for the Coast Area including the Kalum Timber Supply Area. The Coast Area above represents approximately 30% of the total Provincial harvest during this time.

This report also identifies challenges and impediments associated with implementation of the strategy and makes recommendations with respect to next steps in continued implementation.

The areas for targeted broadleaf management as identified in the strategy are as follows:

- Sunshine Coast Resource District – 250 ha per year³
- Chilliwack Resource District – 250 ha per year
- Campbell River Resource District – 200 ha per year
- North Island – Central Coast Resource District – 200 ha per year
- South Island Resource District – 100 ha per year
- Other Resource Districts ⁴– 100 ha per year

3. **Implementation Results**⁵

The following table identifies the amount of area established to broadleaf species⁶, through planting, by year, since 2009:

³ Includes all management units (TSA, TFL, Woodlots and Community Forests)

⁴ Other Resource Districts includes Haida Gwaii Resource District and Sea to Sky Resource District

⁵ Source: RESULTS data for stands harvested post January 1st 2009. Input from licensees

⁶ Broadleaf species refers to Red alder, paper birch, and big leaf maple

District	Area in hectares by year					
	2009	2010	2011	2012	2013	2014 ⁷
Campbell River	1.5	10.6	3.5	122.1	77.8	90.1
Chilliwack				102.7	41.3	
North Island – Central coast				10	62.0	58.6
Sunshine Coast	2.1			11.9	38.9	91.8
South Island				6.1	17.8	
Sea to Sky					3.7	
Haida Gwaii						
Total	3.6	10.6	3.5	252.8	241.5	240.5

Table 1: Amount of area planted to broadleaf species (red alder) by year

The only broadleaf species planted during the time frame between 2009 and 2014 was Red alder (Dr). The area managed to broadleaves (Dr) represents primarily the extensive and intensive management regimes although there is a minor component of mixed-wood management through conversion to broadleaf species through natural regeneration (see table 2).

⁷ Total area planted in 2014 is likely under represented since all planting has not yet been reported.

District	Area in hectares by year ⁸					
	2009	2010	2011	2012	2013	2014
Campbell River		62.5			3.9	
Chilliwack						
North Island – Central coast		10.6				
Sunshine Coast		5.2	29.4		6	
South Island				5.2		
Sea to Sky						
Haida Gwaii						
Total		78.3	29.4	5.2	9.9	

Table 2: Amount of area established to broadleaf species though natural regeneration⁹

Table 3 below identifies the average (mean) standard unit (SU) size and size range for areas being managed for broadleaf species by district by year and Table 4 identifies the average density that is being planted on these standard units being managed for sawlog production.

⁸ Includes stands harvested prior to 2009 that may have been subsequently converted to broadleaf/mixed-wood during the period from 2009 to 2014

⁹ Area likely under represented since conversion of conifer stands to broadleaves or mixed-wood may not yet have been reported in RESULTS with a broadleaf or mixed-wood stocking standard applied.

District	Mean Broadleaf management standard unit size (ha)					
	2009	2010	2011	2012	2013	2014
Campbell River	0.7	3.5 (1.2-5.5) ¹⁰	1.2 (0.6-1.5)	11.1 (1.1-29.1)	4.9 (1.0-16.1)	11.3 (0.6-26.8)
Chilliwack				14.7 (7.7-26.3)	13.8 (10.1 - 16.5)	
North Island –Central coast				10	7.8 (0.7-23.1)	14.7 (3.5-27.6)
Sunshine Coast	2.1			11.9	7.8 (2.0-13.4)	20.1 (6.0-25.0)
South Island				6.1	8.9 (3.7-15.3)	
Sea to Sky					3.7	
Coast Average	1.4 (0.7-2.1)	3.5 (1.2-5.5)	1.2 (0.6-1.5)	12.5 (1.1-29.3)	6.9 (0.7-23.1)	12.1 (0.6-27.6)

Table 3: Average standard unit (SU) size (ha) for broadleaf management

District	Average planting Density (sph)					
	2009	2010	2011	2012	2013	2014
Campbell River	1142	1390	1822	1415	1328	1152
Chilliwack				1299	1419	
North Island –Central coast				1186	1070	1400 ¹¹
Sunshine Coast	958			1588	1262	1378
South Island				1163	1135	
Sea to Sky					1398	
Coast Average	1035	1390	1822	1361	1277	1282

Table 4: Average planting density on Su's being managed for broadleaf production.

The average densities planted to broadleaf species (alder) represents primarily an extensive management regime although there are a number of standard units which have been planted to higher densities consistent with an intensive management regime.

¹⁰ Range of standard unit size

¹¹ Based on target planting density as actual numbers not yet reported into RESULTS

Under an intensive management regime the goal is to reduce the target rotation length necessary to produce sawlogs with minimum size characteristics, to fulfill midterm timber supply gaps. To achieve these shorter rotation lengths it is necessary to have higher initial establishment densities (1400-1600sph) either through planting or natural ingress to quickly capture the site and take full advantage of rapid juvenile growth. It is also necessary to actively manage live crown and stocking density through spacing to achieve the desired reduced rotation length and product objectives.

District	Area spaced (ha)						Total
	2009	2010	2011	2012	2013	2014	
Campbell River			19.3	23	6.3		48.6
Chilliwack							
North Island –Central coast			13.1	10.6	13.4		37.1
Sunshine Coast	17.7	12.0	12	117.7	49.3		208.7
South Island							
Sea to Sky							
Total	17.7	12	44.4	151.3	69		294.4

Table 5: Broadleaf area spaced by District by year

Spacing shortens rotation age through acceleration of diameter growth in young alder stands. Spacing thereby addresses the key objectives of enhancing midterm timber supply and red alder inventory limitations. Intensive management regime planting densities are designed to allow for spacing when funding is available. At present, the Forests For Tomorrow (FFT) program represents the only source of spacing funds for crown lands. Land Based Investment Strategy (LBIS) planning has allocated limited funds for alder spacing in the past through the FFT program (Table 5) however; additional funds are not expected to be available until 2016. All FFT funding allocations are based on investment priorities that assess the potential contribution of activities to the goals, objectives, and priorities outlined in the Land Based Investment Strategy (http://www.for.gov.bc.ca/ftp/hfp/external!/publish/LBIS_web/Guidance/LBIS%20Silviculture%20Funding%20Criteria.pdf). The broadleaf stands that have been spaced to date were managed under an intensive regime or an extensive regime with significant natural ingress.

4. Discussion

Based on the data that has been reported into RESULTS the amount of area being actively managed for broadleaf species is well short of the 1200 ha per year production target necessary to create a standing broadleaf timber inventory to support approximately 300,000 m³ of annual timber harvest. As a result the Coast Forest Action Plan objective of “Encouraging the utilization and management of deciduous species” has likely not yet been achieved. To develop a broadleaf lumber manufacturing sector, investors need confidence that they will have access to a sustainable long term supply of broadleaf species. One essential component of building capacity in the broadleaf manufacturing sector is to ensure that there is a sustainable supply of broadleaves (i.e., production targets identified in the strategy are realized).

Although the amount of broadleaf management across the coast is well short of the 1200 ha per year target (largest year 252.8 ha or 22 % of target) the trend has been positive. There has been an increase in the amount of area managed for broadleaf species, particularly in 2012, 2013 and 2014. Given the Hardwood Management Strategy was published in 2008 it is to be expected that there would have been minimal area planted in 2009 and 2010 since seedlings based on sowing requests from 2008 and 2009 would not be available till spring of 2009 or 2010. There has also been an increasing trend in the average standard unit size being managed for broadleaf species. However, to achieve the target 1200 ha per year something needs to change (e.g., a plan to show where the area is going to come from over the next 5 years by district administrative unit).

Over the 5 years since the Hardwood Management Strategy has been in place intensive management of juvenile spacing has been completed on a total of 294.4 ha, in three districts (see table 5). The largest amount of juvenile spacing was completed in the Sunshine Coast district. Many of these stands that were spaced are on target to achieve an average 30 cm diameter sawlog in a 25 to 35 year rotation. This provides us some indication of the potential area that will come online for broadleaf harvest in a few years.

Through delivery of field based workshops (e.g., Campbell River 2009, Chilliwack 2009, Powell River 2012), on site field reviews with professionals (e.g., DNI FMLT in 2011) and associated presentations to Forest Management Leadership Teams (FMLTs) and licensees, the CRIT silviculture working group (SWG) has been actively promoting broadleaf management. Broadleaf management has also been an agenda topic on a number of Coastal Silviculture Committee (CSC) winter and summer workshops. This has resulted in a greater awareness of the benefits of broadleaf management which is

possibly reflected in the positive trend in terms of area managed. However one thing is certain, given the relatively small amount of area (200 – 250 ha per year) that currently is being managed for broadleaves on the coast, more work is needed to raise the profile of broadleaf management if we desire to develop a sustainable standing timber inventory of broadleaf species (primarily red alder) for sawlog production.

Based on a RESULTS query of area harvested on the Coast a total of 96,844 ha or approximately 15,000 ha per year occurred between January 2008 and September 8, 2014. Of this amount, 76% of harvested area has potential for management of red alder which is approximately 74,252 ha or 11,400 ha per year. Under these assumptions less than 1% of the harvested area on medium to good productivity sites would need to be managed to meet the target of 300,000 m³ per year. However, some of the suitable site series identified have specific soil moisture and nutrient regime limitations and are not 100% suitable for broadleaf management. With these limitations considered there is likely an over estimation of the amount of suitable area available for broadleaf management.

By comparison, the more productive site series suitable for broadleaf management (red alder, maple, and birch) account for approximately 10% or 1331 ha per year of the area harvested in a year. This harvest level also exceeds the requirements for the target 1200 ha per year but also represents a significant portion of the annual area harvested on the Coast.

Therefore, the scale required for red alder and broadleaf management lies between 1% for medium productivity sites, to 10% of the higher productivity sites respectively. Regardless, in order to meet the interim targets a firm commitment is required at the District management unit levels to achieve the 1200 ha per year of broadleaf management.

5. Challenges/ Impediments to increased Broadleaf Management:

A number of challenges and/ or impediments have been identified as possible reasons for the relatively small amount of area that has been actively managed for broadleaf species since implementation of the Coastal Hardwood Management Strategy. These challenges/ impediments include, in no particular order:

- Many professionals employed by licensees recognize the trade-offs of growing broadleaf species, however upper level management may have a different focus (i.e., supply of fibre to their softwood mills). Licensees/ professionals may not be confident with broadleaf management due to the lack of specific education and hands on experience.

- There is a perception that using familiar practices will minimize risk and reforestation costs which may result in practitioners avoiding the use of broadleaf management.
- The culture of conifer bias and the paradigm shift of managing for broadleaf species.
- Targets for broadleaf management have been set at the district level with no implementation strategy or local level discussions.
- Suitable sites may have thick forest floors or a lack sufficient mineral soil exposure resulting in high site preparation costs.
- Sub-maritime seed zones are more challenging due to susceptibility of alder “red stain” where arctic outflow winds occur and combined uncertainties of reliable seed and/or planting stock availability.

6. Recommendations for increasing the area being managed for Broadleaf species

- Continue to educate licensees and professionals on the benefits and implementation of broadleaf management through delivery of field based workshops, presentations and knowledge transfer (i.e., professional field days).
- Incorporate broadleaf and mixed-wood management into the type 4 silviculture strategy process for local management units (e.g. Arrowsmith TSA, Integrated Resource Management Plan pilot) and the Timber Supply Review (TSR) process once there is demonstrated performance.
- The local Forest Management Leadership Teams (FMLTs) coordinate and champion the implementation of broadleaf or mixed-wood management within their respective resource districts with one the goals being to develop local targets for contribution to the suggested management strategy.
- Complete a broadleaf seed analysis to determine gaps in seed supply.