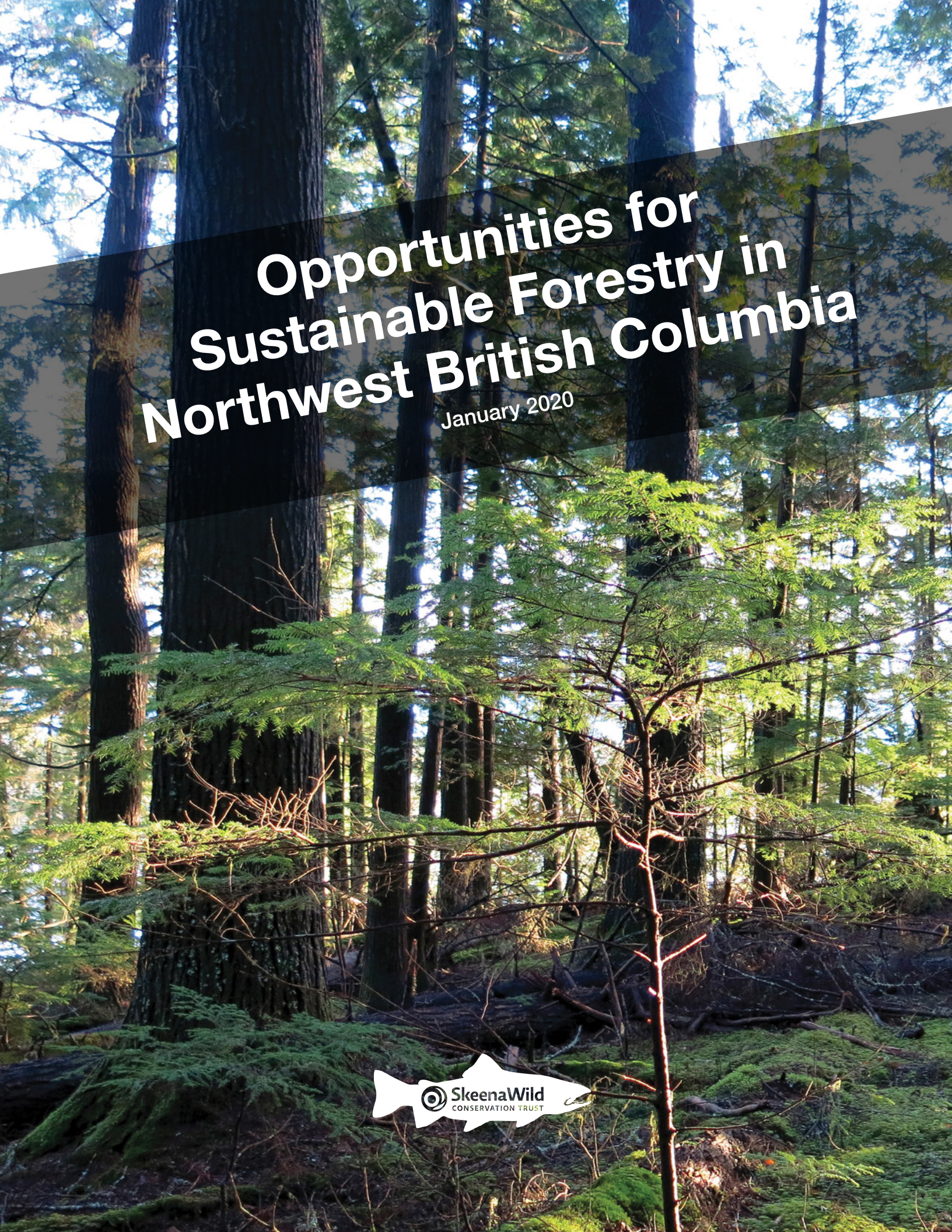

Opportunities for Sustainable Forestry in Northwest British Columbia

January 2020

SkeenaWild
CONSERVATION TRUST

Opportunities for Sustainable Forestry in Northwest British Columbia

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EXECUTIVE SUMMARY

Northwest BC is fortunate to be endowed with extensive forest assets which have historically driven the regional economy. Cyclical booms and subsequent busts have been the norm. At the time this report was written, the forestry industry in northwest BC – and across the whole province – was in a downturn, as lack of timber, forest fires, and unstable markets challenged status quo business models.

But Northwest BC is undergoing change, and recent events have galvanized communities to discuss how to move towards more resilient and sustainable communities. These discussions include how to develop northwest BC's forestry industry in new and responsible ways that support wildlife and diminishing salmon populations, provide increased resilience in the face of climate change, plus benefit the desired lifestyles of northwest BC's individuals and communities.

The purpose of this report is to provide an overview of the forestry sector in northwest BC, acknowledging that although the region's forests are unique, regional forestry activities are affected by events and markets both in-country, and elsewhere. As such, this report attempts to:

1. Understand the current status and potential future of northwest BC's forestry sector, taking into account opportunities for sustainable forestry practices; and

2. Provide information to further conversations about economic development that sustains regional ecosystems over the long term, maintains the values of northwest BC's communities, and promotes economic stability.

Sustainable forestry activities - those that balance the needs of the environment, wildlife, and forestry dependent communities while conserving our forests for future generations – are also discussed. Fortunately, Canada has three forest certification programs which provide assurance of legal, sustainable forest practices: the Forest Stewardship Council, the Sustainable Forestry Initiative, and the Canadian Standards Association. Although these certification systems differ from one another, all are based on standards that reflect the current understanding of what sustainable forest management entails.

Certification may help develop resilient and sustainable communities, but there are many issues and challenges facing Northwest BC's forestry industry. These challenges are testing current and historic forestry business models, and include:

- Increasing pressure on Northwest BC forests from disease and climate change
- Overharvesting of high value timber
- Raw log exports / loss of appurtenancy rules
- Inaccurate beliefs regarding carbon neutrality
- Incorrect information regarding carbon sinks and sources
- Overstated benefits and productivity of young forests
- Misplaced beliefs about the benefits of burning wood pellets
- Lack of recognition of the entirety of forestry benefits and costs in current production forestry models
- The need to mitigate, plan for, and adapt to climate change.

However, these challenges also provide opportunities to do things differently in the near and long term, including the following.

1. Updating the Forest and Range Practice Act (FRPA)
2. Integrating salmon habitat assessments into decision making
3. Supporting Indigenous-led land use planning initiatives
4. Reducing the Annual Allowable Cut to sustainable levels
5. Undertaking strategies for forest carbon stewardship
6. Pursuing sustainable forestry certification
7. Creating additional Old Growth Management Areas
8. Using the Forest and Range Evaluation Program (FREP) to support waterways
9. Participating in the Timber Supply Review process
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11. Considering appurtenancy clauses as a condition of forest tenure allocation
12. Extending commercial forest rotations
13. Encouraging partial cutting of forests, rather than clear cuts
14. Reducing slash burning
15. Establishing new conservation areas
16. Planting trees
17. Preventing wildfire
18. Pursuing innovation
19. Husbanding the forests we have

Addressing current challenges in the forestry industry by pursuing the above opportunities, will encourage stability and sustainability of northwest BC's forests and communities over the long term.

INTRODUCTION

1 INTRODUCTION

Northwest BC covers the upper left-hand corner of British Columbia, from Haida Gwaii in the west to the Village of Burns Lake in the east, and from the District of Kitimat in the south to the communities of Dease Lake and Atlin in the north. It includes the North Coast Regional District (NCRD), Regional District of Kitimat-Stikine (RDKS) and the western portion of Regional District of Bulkey-Nechako (RDBN).

This area is fortunate to be endowed with extensive forest assets which have historically driven the regional economy. Cyclical booms encouraged construction of multiple industrial-sized pulp mills and sawmills while subsequent busts forced their closure. Smaller forest resource businesses and business that relied on the forestry industry felt the effects of these cycles, too. At the time this report was written, the forest industry in northwest BC – and across the province – was in a downturn, as lack of timber, forest fires, and unstable markets challenge status-quo business models.

Northwest BC is also undergoing great change, and recent events have galvanized communities to discuss how to move toward more resilient and sustainable communities. This report summarizes the current challenges and some opportunities that could promote long term sustainability in northwest BC's forestry sector.

1.1 Background

SkeenaWild Conservation Trust believes that salmon are the backbone of the cultures, economy and ecosystems of the Skeena region. Hence protecting salmon is fundamental to maintaining and building a healthy Skeena River watershed, including the communities within it. So SkeenaWild is conducting a research-based Responsible Development Initiative (RDI) to advance conversations about economic development in northwest BC, and this report is an integral part of that effort.

Recent events in the Skeena watershed suggest this initiative is much needed. In approximately 2013, following a significant economic slump due to a flat-lined forestry industry, $60 billion worth of industrial projects were proposed for northwest BC. This 'gold rush' of projects in the mining, power, transportation and liquefied natural gas (LNG) sectors, resulted in regional conversations about how the area might develop. The particularly numerous proposed LNG plants and associated pipelines provoked substantial thought and discussion. Rifts developed in northwest BC communities between those who primarily supported industrial development and those who were more cautious or had concerns about the social, environmental, and lifestyle ramifications of new developments.

Some large projects went ahead - although none of them were LNG-related - increasing demand for real estate, home rentals, consumer goods and social services. Other projects continue to grind through regulatory approval and internal business decision-making processes.

As LNG prices slumped internationally and overseas LNG plants started filling international demand, most of the proposed LNG-related projects in northwest BC were cancelled or put on hold. After non-LNG related projects were completed, demand for goods and services declined and service companies left the area, slowing northwest BC's economy.

Subsequently in October 2018, LNG Canada and Coastal GasLink announced their final

investment decisions to develop a $40 billion LNG liquefaction and export facility in Kitimat (LNG Canada) and a supporting $6 billion gas pipeline (Coastal GasLink) to deliver natural gas from the Dawson Creek area of northeast BC to Kitimat.

These decisions have increased the population in the Terrace-Kitimat valley, as people flock to the area hoping for work. Knowledge of the temperate climate and high liveability of the region has also increased, with some economists and developers suggesting that the region's population will grow dramatically in the next five years[1]. Greater population will strain the health of the region's natural resources (for example water quality, fish and mammal numbers, recreational assets, and air quality), as well as municipal and regional services.

But it's not just regional economic developments that affect northwest BC's forests and the health of our greater environment. On a larger scale, climate change experts suggest the choices we all make in the next ten years will affect many generations. So it's time to consider developing northwest BC's forestry industry in new and responsible ways that support wildlife and diminishing salmon populations, provide increased resilience in the face of climate change, plus benefit the desired lifestyles of northwest BC's individuals and communities.

Based on the findings from the Skeena2050 project[2], residents have indicated that their version of responsible development is development that supports healthy salmon, clean water, clean air, and resilient communities. So responsible development:

1. Is well planned, which means government and local communities playing an active role in determining appropriate sites for developments, which will in turn prevent crisis and division in our communities.

2. Includes projects that are assessed objectively, in the interest of communities and the environment.

3. Ensures a fair share of benefits remain in the communities where development takes place.

4. Embraces the shift towards First Nations' co-management.

5. Takes a long view.

SkeenaWild's Responsible Development Initiative fills a knowledge gap. It provides solid research to support economic conversations beyond the benefits and drawbacks of large industrial projects. Rather than further polarize the resource development debate, the RDI encourages respectful dialogue between those who primarily support industrial development and those who are more cautious or have concerns about the social, environmental and lifestyle ramifications of large developments, by providing up-to-date information about specific sectors, current initiatives, challenges, and opportunities.

1 Big River Analytics. ***Terrace Population Survey and Projections***. 2015. Available online: https://www.terrace.ca/sites/default/files/docs/business-development/cityofterrace-populationsurveyandprojections.pdf

2 Skeena Watershed Conservation Coalition and SkeenaWIld Conservation Trust. ***Skeena2050: What we heard, by the numbers***. 2014. Available online: https://skeenawatershed.com/projects/skeena_2050

1.2 Purpose and Scope of This Report

The purpose of this report is to provide an overview of the forestry sector in northwest BC, acknowledging that although the region's forests are unique, regional forestry activities are affected by events and markets both in-country, and elsewhere. This report attempts to:

1. Understand the current status and potential future of northwest BC's forestry sector, taking into account opportunities for sustainable forestry practices; and

2. Provide information to further conversations about economic development that sustains regional ecosystems over the long term, maintains the values of northwest BC's communities, and promotes economic stability.

Information and data presented in the report was primarily sourced from online news articles, reports, and websites. Sources are footnoted where applicable.

'…it's time to consider developing northwest BC's forestry industry in new and responsible ways...'

1.3 Limitations

Due to new science, policy changes, unforeseen events, and international market pressures, BC's forestry sector is rapidly changing. Hence the information in this report may quickly become outdated, and may not reflect ongoing developments.

WHAT IS SUSTAINABLE FORESTRY?

© Tania Millen

2 WHAT IS SUSTAINABLE FORESTRY?

Sustainable forestry can be summarized as forestry activities that balance the needs of the environment, wildlife, and forest communities while conserving our forests for future generations. While this sounds simple, it's rarely easy, and challenges generally arise between balancing economic health – and in some cases continued existence - of small resource-based communities that rely on production-scale forestry, with conservation needs of forests so they can continue to provide their many benefits aside from fibre for wood products. However, sustainable forestry – in all its variations - is practiced in some areas of BC, and the following certification options exist.

2.1 Certification

Canada has three forest certification programs which provide assurance of legal, sustainable forest practices: the Forest Stewardship Council, the Sustainable Forestry Initiative, and the Canadian Standards Association. Although the three forest certification systems differ from one another, all are based on standards that reflect the current understanding of what sustainable forest management entails. According to the Canadian Council of Forest Ministers, all three certification systems in Canada include the following.

- Involve independent third-party audits that assess a forest operation's planning, procedures, systems and performance against predetermined standards
- Require annual surveillance audits and public disclosure of findings through audit reports
- Require involvement with affected Aboriginal peoples to make sure that their rights, knowledge and values are respected
- Offer chain-of-custody assurance
- Reinforce the basics of sustainable forest management by requiring that all applicable laws be obeyed and by demonstrating that no unauthorized logging has taken place
- Go beyond simple timber harvesting by ensuring the conservation of biodiversity.

More than 48% of Canada's forests are certified[3], however, the devil is in the details of each certification system.

FOREST STEWARDSHIP COUNCIL (FSC)

The Forest Stewardship Council (FSC) is an international body that was formed in 1993, which develops and maintains the most globally respected standard for managing forests - certifying forestry businesses via strict environmental, social, and economic criteria.

The global FSC standard is comprised of ten principles that cover a range of environmental, social, and economic criteria. Although there are regional variations in how the standard is applied—to address the unique needs of forests, peoples, and economies in different parts of the world—the basic tenets of sustainable forestry remain the same.

3 www.nrcan.gc.ca/our-natural-resources/forests-and-forestry/sustainable-forest-management/forest-certification-canada

They include[4]:

1. Establish protected areas and conserve biodiversity.
2. Prevent forest conversion and protect high conservation value forests.
3. Have a management plan and harvest accordingly.
4. Tree plantations have a role to play.
5. Use reduced impact logging techniques.
6. Train employees and keep them healthy.
7. Respect local communities and foster economic development.
8. Boost income and profitability.

Canada has almost a third of the world's FSC certifications.

SUSTAINABLE FORESTRY INITIATIVE (SFI)

The Sustainable Forestry Initiative program is made up of:

- A Forest Management Standard which promotes responsible forestry practices. Its requirements include measures to protect water quality, biodiversity, wildlife habitat, species at risk and forests with exceptional conservation value.
- The SFI Fiber Sourcing Certification, which goes beyond certified forests to address the 90 percent of the world's forests that are not certified. Program Participants must show that the raw material in their supply chain comes from legal and responsible sources, whether the forests are certified or not.
- A Chain-of-Custody Standard which tracks forest fiber content (certified forest content, certified sourcing and recycled content) through production and manufacturing to the end product.
- SFI On-Product Labels that provide visual cues to help customers source products from responsibly managed forests[5].

Canadian Standards Association Group (CSA) - Sustainable Forest Management System (SFM)

First released in 1996, SFM is Canada's official national standard for sustainable forest management. For lands to be certified to the CSA SFM standard, forest managers must follow the six criteria developed by the Canadian Council of Forest Ministers as part of an international process to create global criteria and indicators for sustainable forest management. More forests are certified to the CSA SFM standard than any other national standard in the world[6].

The CSA SFM User Group represents the organizations in Canada that are certified to the CSA Standard and in BC, includes: BC Timber Sales, Canfor, Fort St John Pilot Project, and Western Forest Products.

SUMMARY

Forest management and chain of custody certification systems play an important role in ensuring sustainable management of forest land in BC as well as in the marketing and sale of Canadian forest products. Forest certification schemes, to varying degrees, provide consumers with assurance that timber used in the production of consumer goods originates in sustainably managed forests meeting defined standards for environmental and social responsibility. However, while the concept of certification

4 Rainforest Alliance. *What is Sustainable Forestry?* July 28, 2016. https://www.rainforest-alliance.org/articles/what-is-sustainable-forestry.

5 www.sfiprogram.org

6 www.csasfmforests.ca

is a good one, challenges can exist with process, implementation, and monitoring.

FSC is generally considered the most valuable of the three forest certification systems used in BC in terms of the high degree of environmental and social responsibility the brand demands. FSC is the most expensive and difficult forest certification standard to achieve in BC compared to SFI and CSA standards. SFI and CSA forest certification standards are generally considered on par in their capacities to ensure sustainable environmental operations and responsible social outcomes.

Forest certification programs with high standards generally fetch higher market premiums at the point of sale for certified wood products than those products certified under more lenient standards. For example, FSC certification is the most costly forest certification scheme in Canada and is viewed as having a more rigorous and difficult to achieve standard of sustainability compared to standards under CSA certification. In this way, FSC certified products generally fetch a higher market price than CSA certified forest products.

In 2018, the area of SFI certified forests in BC was over 98 million hectares. In comparison, there were over 33 million hectares of CSA certified forests and 52 million hectares of FSC certified forests[7].

'More than 48% of Canada's forests are certified, however, the devil is in the details of each certification system.'

7 Forest Products Association of Canada. ***Certification Summary:2018 Year-End Status Report Canada***. January 2019. Available online: http://certificationcanada.org/wp-content/uploads/2019/04/2018-Yearend-SFM-Certification-Summary-Report.pdf

THE STATUS OF NORTHWEST BC'S FORESTRY SECTOR

3 THE STATUS OF NORTHWEST BC'S FORESTRY SECTOR

Northwest British Columbia's forestry sector is vastly different from twenty, forty and sixty years ago. Although many of the region's communities grew and developed due to the natural abundance of quality wood and seemingly endless stands of trees, the days of multiple saw and pulp mills, high wages, and strong markets, are long gone. Today, there are significantly fewer companies still involved in northwest BC's forestry sector and they tend to rely on raw log exports and a patchwork of cut blocks to stay in business. Global events now affect business decisions, and intermittent work stoppages are the new norm.

Northwest BC's forestry sector has been affected by mill closures, a high percentage of pulp quality wood, slumping prices, and changing regulations.

Ongoing issues and challenges for the sector are summarized below.

3.1 Current Issues and Challenges

There are many issues and challenges facing Northwest BC's forestry industry, which not only test current and historical forestry business models in northwest BC, but also provide opportunities to do things differently in the near and long term. These issues and challenges are summarised as follows.

1. Increasing pressure on Northwest BC forests

Reduced availability of merchantable forests in other areas of the province – such as the interior of BC where pests (pine beetle) and fire have been more prevalent – is increasing pressure on northwest BC's forests as companies try to find stands to log and mill. This increased pressure is resulting in old growth and mature forests being logged. New science suggests these old growth and mature forests may be needed to provide resilience in the face of climate change[8].

2. Inaccurate beliefs regarding carbon neutrality

BC's current climate change strategy is based on the assumption that forestry activities overall, are carbon neutral. However, logging primary forests (mature and old growth forests) and converting them into managed secondary forests releases large unrecoverable amounts of carbon to the atmosphere, even when carbon storage in wood products is taken into account[9].

3. Incorrect information regarding carbon sinks and sources

There is an inherent belief that younger forests are carbon sinks, while older forests are carbon sources. But forests take up and release carbon throughout their life and most old forests fix more carbon than they emit. Plus, old forests store significantly more carbon than young, post-logging forests. Additionally – and most importantly right now - old and mature forests have substantial time value. They are continuing to store carbon

8 University of Vermont. *Older forests resist change, climate change, that is: With age, forests in eastern US and Canada become less vulnerable to climate change, study finds*. ScienceDaily, 7 June 2019. www.sciencedaily.com/releases/2019/06/190607122408.htm

9 Pojar, Dr. Jim. *Forestry and Carbon in British Columbia: Summary*. February, 2019.

now, when we need it, while immature forests will not provide similar carbon storage for at least 75 years. Considering that international scientists have stated that slowing climate change is imperative in the next 10 years, this time value is of utmost importance[10].

4. Overstated benefits and productivity of young forests

As the climate in northwest BC becomes warmer and wetter and carbon dioxide levels rise, tree growth rates are more likely to slow than to increase, due to seasonal moisture stress in the drier parts of the region, plus increased attacks by forest pests and diseases, and reduced resilience generally.

During production-based forestry, most of the forest carbon is lost in residues (ie. in slash piles of non-merchantable timber and branches). Additionally, the presence of logging roads and landings decreases the area which may be logged in the future, reducing carbon storage potential from that area. Following logging activities, it takes many years for trees to grow back – and they don't grow back with the same levels of carbon storing capability as the old forests - thus incurring a permanent carbon debt[11].

5. Misplaced beliefs about the benefits of burning wood pellets

Locally there could be environmental benefits of domestic use of wood pellets in efficient stoves. However, large-scale production of forest bio-energy products such as wood pellets are not greenhouse gas neutral, sustainable or environmentally friendly. Although forests are renewable energy sources, it takes more than 75 years for forests in BC to grow back.

While the regrowth of forests, if it happens, can eventually repay the carbon debt created by the burning of wood pellets, in the eastern USA, the payback time for that carbon ranges from 44 to 104 years. In the meantime, the carbon emitted can produce potentially irreversible impacts that may arise before the long-run benefits are realized[12].

Wood also has a low heat density, so more wood has to be burned to produce the same amount of heat provided by fossil fuels, thereby resulting is greater carbon dioxide emissions. As such, burning wood pellets will not help reduce human-caused carbon dioxide emissions by 2050[13].

6. Lack of recognition of the entirety of forest ecosystem benefits in current production forestry models

Forests are considered the lungs of the earth, acting as air purifiers and releasing oxygen needed to sustain life. Forests are critical for sustaining life and biodiversity; for maintaining ecosystem services which humans depend on (such as producing food and water, controlling climate and disease, plus cultural, spiritual and recreational benefits); for preserving natural capital (such as carbon dioxide absorption, erosion control, and supporting biodiversity); and for providing habitat connectivity that wildlife depend on. Northwest BC's forests provide a multitude of products and services, many of which humans can't live without, including clean water, wood, wildlife, food, medicinal plants, recreational opportunities, and spiritual and aesthetic values. Many of these values are often unrecognized in current production models[14].

10 Pojar. *Summary.* p2

11 Ibid.

12 McKibben, Bill. *Don't Burn Trees to Fight Climate Change – Let Them Grow*. The New Yorker. August 15, 2019.

13 Pojar, Dr. Jim. *Forestry and Carbon in British Columbia: Summary*. February, 2019.

14 Ibid.

7. The need to plan for climate change

Mean annual temperatures in Northwest BC have increased by 2 degrees Celsius over the last 100 years and extreme weather events have become more common. Climate predictions for Northwest BC between 2016 and 2055 indicate that annual mean temperatures and precipitation will increase (temperature by another three degrees Celsius), while the winter snowpack will decrease. The table below summarizes these predictions[15].

Table 1: Climate Predictions 2016 to 2055 for Northwest BC[1]

Region (Climate prediction region boundaries set by MFLNROD)	Associated Timber Supply Area (TSA)	Mean Annual Precipitation % Increase from 2016 to 2055	Mean Annual Temperature Increase (°C) from 2016 to 2055	Extreme Max Temperature Increase (°C) from 2016 to 2055	Extreme Min Temperature Increase (°C) from 2016 to 2055	Precipitation as Snow % Decrease from 2016 to 2055	Mean Summer Precipitation % Increase from 2016 to 2055
Skeena-Stikine North	Cassiar TSA	11%	3.4	2.9	4.8	15%	16%
Skeena-Stikine South	Kispiox TSA	7%	3.2	4	5.7	30%	12%
Kalum	Kalum TSA	7%	3	3.5	6.6	72%	5%
Nadina	Morice TSA	5%	3.2	4.2	5.1	22%	7%

1 Source: Foord, 2016. Technical Report 097 - Climate Patterns, Trends, and Projections for the Omineca, Skeena, and Northeast Natural Resource Regions, British Columbia

Changes in precipitation, temperature, and carbon dioxide can have substantial impacts on tree growth, fires and disease outbreaks, and impacts will vary by species and region. Planning under these changing environmental conditions will be challenging, hence a cautionary approach is needed.

'…old and mature forests have substantial time value. They are continuing to store carbon now, when we need it while immature forests will not provide similar carbon storage for at least 75 years. Considering that … slowing climate change is imperative in the next 10 years, this time value is of utmost importance.'

15 Foord, V. 2016. ***Climate patterns, trends, and projections for the Omineca, Skeena, and Northeast Natural Resource Regions, British Columbia.*** Prov. B.C., Victoria, B.C. Tech. Rep.

OPPORTUNITIES FOR SUSTAINABLE FORESTRY IN NORTHWEST BC

4 OPPORTUNITIES FOR SUSTAINABLE FORESTRY IN NORTHWEST BC

Although many challenges exist in Northwest BC's forestry sector, there are many opportunities as well. These are briefly summarised below to encourage conversation about how forestry can be done differently and in more sustainable ways.

1. Updating the Forest and Range Practice Act (FRPA)

Under the Great Bear Rainforest Order (GBRO) there are requirements to retain ecological and hydrological functions in the forest. However, under the Forest and Range Practices Act (FRPA) and the Forest Planning and Practices Regulation (FPPR), retaining ecologic function is not a requirement. Instead, these regulations prescribe buffer widths for some aquatic habitat and leave other aquatic habitat with no buffer requirements at all.

For example, small streams under GBRO management conditions have minimum retention buffers of 1.5 tree lengths for at least 90% of the adjacent forest. Under FRPA, tree retention is not required around the same small streams. This is just one example of how the GBRO protects aquatic habitat more effectively than FRPA . So there's a great opportunity to pursue more sustainable forestry in Northwest BC by ensuring that FRPA and FPPR regulations for aquatic habitat reflect those in the Great Bear Rainforest Order.

2. Integrating salmon assessments into decision making

Healthy forest ecosystems in northwest BC include healthy wild salmon populations, and forestry activities directly affect salmon health. However, wild salmon policies generally fall under federal jurisdiction, while forestry activities in BC are directed by provincial legislation. This policy gap has presented challenges in maintaining healthy forest ecosystems and the salmon that live there. As such, BC is creating a made-in-BC Wild Salmon Strategy[16] that prioritizes the health of wild salmon and directs resource-use decisions to be made using a 'salmon lens'. Fortunately, tools are already available at a federal level to assess development for impacts on salmon – and forest ecosystem – health.

The Department of Fisheries and Ocean's Wild Salmon Policy (WSP) Habitat Working Group has thresholds and benchmarks for Habitat Indicators most impacted by forest development activities (i.e. road densities, riparian vegetation disturbance, equivalent clear-cut area, linear development, and sedimentation). Using these Habitat Indicators to assess proposed forestry development activities in northwest BC and direct decision-making at operational levels can help address concerns regarding cumulative impacts related to forest ecosystem health and wild salmon.

3. Supporting Indigenous-led land use planning initiatives

Indigenous-led land use planning initiatives are an important step forward in reconciliation between the province of BC and Indigenous groups. As Indigenous groups are increasingly recognized as primary stewards of natural resources within their territories, the need for coordinated and comprehensive land use planning initiatives is apparent.

16 Wild Salmon Advisory Council. *B.C. Wild Salmon Advisory Council Recommendations for a Made-in-BC Wild Salmon Strategy*. February 2019.

Sustainable land use planning documents developed by Indigenous groups clearly outline appropriate and inappropriate areas for natural resource development and extraction activities. For example, the Gitanyow, Gitwangak, and Gitsegukla First Nations have independently developed land use plans in their respective territories. In the Gitanyow and Gitwangak territories where Indigenous-led land use plans have been implemented, forest industry licensees are abiding by the respective plans regardless of whether they have been made legal by the provincial government or not[17]. For forestry licensees operating in Gitanyow territory (where their land use plan has been legal since 2012), the plan allows greater economic certainty than in areas where Indigenous-led land use plans are not in place.

As such, supporting Indigenous-led land use planning initiatives is another opportunity to promote sustainable forestry in Northwest BC.

4. Reducing the Annual Allowable Cut (AAC) to sustainable levels

Maintaining long term sustainability of northwest BC's forests means taking into account a full range of forest values when determining the AAC - not just timber supply. Hence realistic estimates of the value of marginal forest stands (for harvesting purposes), and losses due to pests, fire, wind throw, frost damage and climate change, must be considered.

Reduction of the AAC could start with Timber Supply Areas that are due or overdue for review. Removing old forest stands from the timber harvesting land base – particularly those considered 'decadent' and only suitable for pulp - would assist in mitigating climate change, regulating climate and hydrology, conserving biodiversity, providing key ecosystem services, supporting Indigenous cultural practices, and maintaining human health and well-being[18].

5. Undertaking strategies for forest carbon stewardship

Protecting old, carbon rich forests that will provide resilience in the face of climate changes already occurring in Northwest BC will inherently protect carbon sinks for many years. Establishing 'carbon buffer forests' or 'carbon protection forests' in areas of coastal temperate rainforests, wet subalpine and inland temperate rainforest areas, would be ideal, with an initial focus on humid forests and associated peat lands[19].

Carbon credit programs can create opportunities for protecting intact old growth forests while also generating revenue that can be used to help better manage our secondary forests. Carbon credit revenue can be reinvested to help create employment through activities such as commercial thinning and chipping, pruning, fire smarting near settlements, promoting deciduous and mixed wood stands as firebreaks, and meaningful deactivation of secondary roads. *(reference: https://www.woodbusiness.ca/thinning-bc-logger-finds-sustainable-success-commercial-thinning)*

6. Pursuing sustainable forestry certification

Opportunities exist for forest companies and operators in Northwest BC to increase the value of their products through forest certification. First Nations owned and operated tenures may be more likely than other tenure arrangements to satisfy the requirements of FSC certification due to their involvement of Indigenous people in the direct business of the operation. While some challenges exist in the processes, implementation, and monitoring of certification, it remains a valuable starting point for improved forestry management.

17 Railton, Sarah for SkeenaWild Conservation Trust. *Second Draft: Forestry Initiative Report*. July 2, 2018.

18 Ibid.

19 Pojar, Dr. Jim. *Forestry and Carbon in British Columbia: Summary.* February, 2019

7. Creating additional Old Growth Management Areas

Old growth forests are increasingly rare and now, in the face of a rapidly changing climate, considered a non-renewable resource. Identifying and supporting the creation of additional old growth management areas in northwest BC could assist in moving toward more sustainable forestry and provide resilience in the face of changing climate.

This isn't a new idea - objectives for old growth forest management are provided through legislation in BC, and there are target percentages of old forest that have be maintained across the province. The current array of legal orders for old growth forests represent applicable strategic land use plans and subsequent processes that have been completed over many years. Therefore, the conceptual model for old growth forest assessment – and hence creation of additional old growth management areas - is simple, however implementation may be more complicated[20]. But that doesn't mean it can't be done.

8. Using the Forest and Range Evaluation Program (FREP) to support waterways

The Forest and Range Evaluation Program (FREP) is a provincial government program which supports the Forest & Range Practices Act (FRPA) by monitoring natural resource activities. Data gathered during the FREP monitoring program is used to improve resource management practices and encourage sustainability. This includes monitoring what the BC Government is doing to conserve fish habitats that overlap areas of forestry activity under FRPA[21]

Stream channels and riparian areas are also monitored via FREP to determine whether the Forest and Range Practices Act (FRPA) is protecting fish. Over 9,000 samples have been collected since 2005, and results indicate a need for improved management around riparian areas and small streams, which has long been identified as needing improvement in BC. Additionally, under B.C.'s Forest and Range Practices Act Government Actions Regulation, and the Oil and Gas Activities Act Environmental Management and Protection Regulation, watersheds with significant fish values and watershed sensitivity can be designated as Fisheries Sensitive Watersheds (FSWs)[22]. As such, the FREP and results it has produced to date, present an opportunity to alter forestry activities - and potentially regulations - so that there's less impact on Northwest BC's waterways[23].

9. Participating in the Timber Supply Review process

Timber supply is the amount of timber that is forecasted to be available for harvesting over a specified time period and under a particular management regime. It's calculated based on the condition of the forests, rate of growth of the forests, how the forest is managed, and the selected rate of harvest.

The Timber Supply Review (TSR) process is a foundational element of forest management in British Columbia as it informs the Annual Allowable Cut (AAC) for each of the province's Timber Supply Areas (TSAs) and Tree Farm Licenses (TFLs). The AAC is generally valid for ten years, hence an evaluation and re-determination of the AAC for each TSA and TFL must take place every ten years.

20 Provincial Old Growth Forest Technical Working Group – Ministry of Forests, Lands, Natural Resource Operations and Rural Development – for the Value Foundation Steering Committee. *Interim Assessment Protocol for Old Growth Forests in British Columbia. Version 1.1*. December 2017.

21 Forest Practices Board. *Special Report: Conserving Fish Habitats Under the Forest and Range Practices Act. Part 1: A Review of the BC Government Approach*. July 2018.

22 www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/integrated-resource-monitoring/forest-range-evaluation-program/frep-monitoring-protocols/fish-watershed

23 Forest Practices Board. *Special Report: Conserving Fish Habitats Under the Forest and Range Practices Act. Part 1: A Review of the BC Government Approach.* July 2018.

The TSR process varies depending on each area, but there is an opportunity to provide public feedback that can affect the Timber Harvesting Land Base assumptions – which are used to determine the AAC, and hence the AAC itself[24].

10. Expanding Community Forest Agreements and First Nation Woodland Licenses

Community Forest Agreements (CFA) and First Nation Woodland Licenses (FNWL) are innovative tenures that allocate exclusive rights to manage timber and non-timber forest resources within a specific area. These are the only tenures that allow for the management of forest products aside from timber (ie. berries, medicinal plants, tourism, mushrooms, etc.), and they're rooted in community engagement and participation. They also stipulate that a portion of the benefits from the tenure must accrue to the community or First Nation who is the tenure holder[25].

As forest tenure reform continues, there are opportunities to expand or create additional CFA and FNWL tenures, to help create a truly sustainable regional forest economy in northwest BC.

11. Considering appurtenancy clauses as a condition of forest tenure allocation

Appurtenancy provisions ensure that forest products are milled and manufactured in proximity to communities where timber is harvested, thereby providing local employment and other benefits to communities. As such, a higher portion of benefits from forest harvesting (local employment and associated spin-off industries), is provided to the communities that experience a greater share of the costs associated with harvesting.

However, appurtenancy does not allow public timber resources to be sold on the open market at the highest possible price (ie. harvested wood is tied to specific mills), resulting in decreased revenue to forest harvesters. But the benefits of local employment and spin-off industries under appurtenancy may outweigh foregone timber revenues, hence, provisions for appurtenancy are worth revisiting.

12. Extending commercial forest rotations

Longer cutting rotations result in greater storage of carbon in biomass, dead wood and soil.

Unlike human beings, who gain most of their height in their early years, trees grow more rapidly in their middle period, and that extends far longer than most people realize. For example, a stand of white pines in southeast USA will take up twenty-two tons of carbon by its fiftieth year, which is about when it is currently cut down to make wood pellets. But, if it grows another fifty years, it adds twenty-five tons, and in the following fifty years it adds 28.5 tons. So it's a mistake to cut them down when they're forty and make plywood or wood pellets[26].

13. Encouraging partial cutting of forests, rather than clear cuts

Compared to clear cuts, partial cutting can help prevent wildfires, maintain greater ecosystem function, reduce logging debris and reduce carbon loss, while providing some timber. Partial cutting can also speed up the next harvest in uneven-aged stands through retention of younger trees. These trees could

24 Ibid.

25 National Aboriginal Forestry Association. *Fourth Report on Indigenous-Held Forest Tenures in Canada 2018*. 2018. www.nafaforestry.org

26 McKibben, Bill. *Don't Burn Trees to Fight Climate Change – Let Them Grow.* The New Yorker. August 15, 2019.

be merchantable within a few decades if left to grow, however many of these opportunities are lost due to the common practice of levelling, piling and burning in clearcuts[27].

14. Reducing slash burning

Reducing slash burning can substantially reduce the amount of greenhouse gas emissions and air pollution. The best way to reduce slash burning is to reduce the amount of debris (slash) that is left after logging. This means better utilization of the full tree is needed, rather than trees being cut to specifications in the bush, or cut to fit logging truck bunks[28].

15. Establishing new conservation areas

Creating new conservation areas that are designed to protect biodiversity and ecological services – especially carbon storage and sequestration – could increase the effectiveness of the protection network and strengthen the resilience of northwest BC's ecosystems. They could also provide incentives for those working on Crown land adjacent to conservation areas, to maximise carbon stocks and biodiversity[29].

16. Planting trees

Planting trees ensures that forest stocks will continue to sequester carbon and remove CO^2 from the atmosphere into the future, while providing opportunities for forestry activities. Additional research could help determine species that will thrive in northwest BC's changing climate, be resistant to fire, plus provide appropriate timber stock[30].

17. Preventing wildfire

Preventing catastrophic wildfire is difficult, and will require the right mix of legislation, policies, incentives, prescribed fire, and landscape level discontinuity that is sensitive to both ecological function and fire management objectives[31]. However, preventing catastrophic wildfire will strongly assist in both maintaining carbon in forest stocks and preventing emissions that contribute to climate change- imperatives to ensuring the long term sustainability of northwest BC's forests.

18. Pursuing innovation

Northwest BC's forests provide timber and non-timber resources. These can include traditional wood products such as dimensional lumber, shakes, and firewood; engineered and value-added products such as laminated timber or veneer; residue products such as limbs, tops and wood shavings for bioenergy, livestock or landscaping; health and wellness benefits; intrinsic values; and recreation, tourism and educational opportunities.

Not all of these timber and non-timber resources are currently used to produce saleable products or experiences and as such there may be opportunities for additional innovative businesses.

19. Husbanding the forests we have

At the most basic level, we need to look after the forests we have in the best way possible – so that we have healthy forests that can support humans and complex biodiverse ecosystems into an uncertain and changing future. Protecting existing carbon-rich forests and avoiding additional emissions of CO^2 into the atmosphere is becoming imperative as our climate changes[32].

27 Ibid

28 Pojar, Dr. Jim. *Forestry and Carbon in BC*. February, 2019.

29 Pojar, Dr. Jim. *Forestry and Carbon in BC*. February, 2019.

30 Ibid.

31 Pojar. *Forestry and Carbon in BC*.

32 Ibid.

CONCLUSIONS

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This report provides an overview of the current state of the forestry sector in northwest BC, summarizes seven significant challenges the sector is currently facing, and provides 19 ways to assist in ensuring northwest BC's forests – and communities - are sustainable over the long term. The challenges include:

- Increasing pressure on northwest BC's forests.
- Inaccurate beliefs regarding carbon neutrality.
- Incorrect information regarding carbon sinks and sources.
- Overstated benefits and productivity of young forests.
- Misplaced beliefs about the benefits of burning wood pellets.
- Lack of recognition of the entirety of forest ecosystem benefits in current production forestry models.
- The need to plan for climate change.

These challenges provide a range of opportunities to act differently and in doing so, ensure a long term sustainable future for the forest sector and northwest BC communities. Opportunities include but are not limited to the following.

1. Updating the Forest and Range Practice Act (FRPA)
2. Integrating salmon habitat assessments into decision making
3. Supporting Indigenous-led land use planning initiatives
4. Reducing the Annual Allowable Cut to sustainable levels
5. Undertaking strategies for forest carbon stewardship
6. Pursuing sustainable forestry certification
7. Creating additional Old Growth Management Areas
8. Using the Forest and Range Evaluation Program (FREP) to support waterways
9. Participating in the Timber Supply Review process
10. Expanding Community Forest Agreements and First Nation Woodland Licenses
11. Considering appurtenancy clauses as a condition of forest tenure allocation
12. Extending commercial forest rotations
13. Encouraging partial cutting of forests, rather than clear cuts
14. Reducing slash burning
15. Establishing new conservation areas
16. Planting trees
17. Preventing wildfire
18. Pursuing innovation
19. Husbanding the forests we have

Forests play an enormous role in ensuring we have clean water by filtering water, preventing erosion, reducing storm water runoff, and decreasing high water damage. They naturally filter water which flows into

our streams, rivers and lakes, which in turn support moose, bear, salmon and many other fish and mammals that we enjoy either recreationally or for food. Healthy forests also ensure we have clean air, diverse ecosystems, and are the cornerstone for addressing climate change.

In short, Northwest BC's forests provide extensive services that are essential to surrounding communities. As such, addressing the current challenges in the forest sector and pursuing opportunities to encourage sustainability of northwest BC's forests over the long term is imperative to the health, resilience and longevity of Northwest BC's communities.

'…we need to look after the forests we have in the best way possible – so that we have healthy forests that can support humans and complex biodiverse ecosystems into an uncertain and changing future.'

RESOURCES

RESOURCES

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ORGANIZATIONS

BC Forest Practices Board www.bcfpb.ca

Canadian Standards Association Group Sustainable Forest Management System www.csasfmforests.ca

National Aboriginal Forestry Association www.nafaforestry.org

Natural Resources Canada www.nrcan.gc.ca

Sustainable Forestry Initiative www.sfiprogram.org