SFI 2019 Annual Report Survey

1. Profile

SFI would like to feature you

With a history that dates back to the 1930s, Canfor has grown to become a leader in the forest products industry. We are one of the world's largest producers of sustainable lumber, pulp and paper and we are a North American leader in green energy production. What began with two entrepreneurs has grown to become an international team of forward-thinking and committed employees located in western Canada and the southern United States. We are proud of our unwavering commitment to excellence, safety and customer satisfaction, which allows us to safely and efficiently deliver the quality products to our customers around the globe.

Our Purpose - To be the global leader in supplying sustainable and innovative, quality wood-based products to our highly valued customers.

Our Values - Safety comes first.

We succeed when our customers succeed.

We are resilient and resourceful. We always find a way forward.

We are a good neighbour in our communities and a responsible steward of the environment.

We demonstrate integrity by doing what we say we are going to do.

We take a renewable resource grown with the power of the sun and turn virtually 100% of it into useful, sustainable products. Canfor's North American facilities produce high-quality dimension lumber, value-added finishing products, and top-quality pulp & paper. We are also a leading producer of wood pellets and green energy.

Owns and/or manages forestlands in

TRUE

Owns and/or manages forestlands - list

Canada

Owns and / or manages forestlands in - Other

No answer

Has primary manufacturing operations/mills/log yards located in

TRUE

Has primary manufacturing operations/mills/log yards located in - list

Canada

Has primary manufacturing operations/mills/log yards located in - Other

No answer

Has manufacturing or processing facilities located in

TRUE

Has manufacturing or processing facilities located in - list

Canada

Has manufacturing or processing facilities located in - Other

No answer Countries your organization sells into

Canada China Japan United States of America

I. Forestland Information

The area reported in this survey is in:

Hectares

Canada (Crown License)

USA & Canada Forestlands-Ownership /Management : Provincial Total area your organization owns/manages : 19,844,417.0 Total area certified to the SFI forest management standard : 18,947,151.0 Area managed open to public for recreation : 19,844,417.0 Area certified to SFI standard open to public for recreation : 18,947,151.0 Check all that apply to areas open to recreation on your managed land : No Fee

Canada (Private Land)

USA & Canada Forestlands-Ownership /Management : Other: Area owned by Teck Resources and NCC, but managed by Canfor Total area your organization owns/manages : 45,527.0 Total area certified to the SFI forest management standard : 0.0 Area managed open to public for recreation : 0.0 Area certified to SFI standard open to public for recreation : 0.0

II. Chemicals

Do you use a WHO 1A or 1B pesticide in your operations?

No

Did you stop using a WHO 1A or 1B pesticide in your operations due to requirements in the SFI 2015-2019 Forest Management Standard in 2019?

No

Did you convert one forest cover type to another forest cover type as defined by Indicator 1.2.1

No

Did you convert any forest lands not covered under the scope of your SFI certificate to other land uses in 2019 (e.g. agriculture)?

No

I. Harvest

Canada - Program Participant Land covered under the scope of your SFI certificate

What is the total area of harvest units completed last year that would qualify as final harvest? - Canada

25,339.0

Final Total Clearcut: What is the total area of final harvest units completed last year by clearcutting? - Canada

25,055.8

Average Clearcut: What was the average area of final harvest units that were clear-cut (even-aged)? - Canada

41.8

Total Harvest NOT Classified as Final - Canada

5,765.0

Seed tree and shelterwood - Canada

TRUE

Seed Tree and shelterwood Explain - Canada

283.2

Selection Methods - Canada

No answer

Selection Methods Explain - Canada

No answer

Thinning or sanitation salvage - Canada

No answer

Thinning or sanitation salvage Explain - Canada

No answer

Other Methods - Canada

No answer

Other Methods Explain - Canada

No answer II. Reforestation

Artificial - Planting

Within 1 year of final harvest : 9,841.0 Within 2 years of final harvest : 16,750.0 More than 2 years of final harvest : 1,754.0 Total for 2019 : 26

Artificial - Direct Seeding

Within 1 year of final harvest : 0 Within 2 years of final harvest : 0 More than 2 years of final harvest : 0 Total for 2019 : 0

What was the Natural Regeneration in 2019? - Canada

3,068.1

What was the percent of harvest units regenerated after 5 growing seasons? - Canada

90.8

What was the total area regenerated after 5 growing seasons? - Canada

26,100.3

4. Raw Material Supply

(The following questions should be answered for manufacturing facilities covered under the scope of your SFI 2015-2019 Fiber Sourcing Standard certificate)

Number of private forest landowners selling timber (stumpage, logs or chips) directly to your organization last year

Canada : 143

Raw Material Supply

Canada - Add New Region

Alberta British Columbia

		% Delivered	Alberta Enter	- % from SFI	% from ATFS	% from CSA	% fr FSC
Units	volume	by Qualified Logging Professionals	Less	only certified	only certified		only cert

Private - Fee and long-term lease	No answer					
Private - Direct purchase from TIMOs & REITs	No answer					
Private - Direct purchase from family forest owners	Cubic Meters	91	lack of available 0 QLPs	0	0	0
Private - Direct purchase from Aboriginal/Triba lands	Cubic I Meters	100	0	0	0	0
Private - Direct purchase from conservation lands	No answer					

			Alberta	% from	% from	% from	0/ f .
		% Delivered					
		hy Qualified	Reason		ATFS	CSA	FSC
Units	Volume		Less	only	only	only	only
				certified	certified	certified	cert
			sthan	forests	forests	forests	fore
			100 %				

Private - All other direct purchase from private landowners	No answer
Public - U.S. Federal lands	No answer
Public - All other U.S. public lands	No answer
Public - Crown land	No answer
Public - Non- controlled Crown land	No answer
Other Sources	No answer

			British	% from	% from	% from
		% Delivered	Columbia -		% from	
		by Qualified	Enter	SFI	ATFS	CSA
Units	Volume	•		only	only	only
			Reason	certified	certified	certified
			100%	forests	forests	forests

Private - Fee and long-term lease

No answer

	Units	Volume	% Delivered by Qualified Logging Professionals	British Columbia - Enter Reason Less than 100%	SFI only certified	% from ATFS only certified forests	CSA only certified
Private - Direct purchase from TIMOs & REITs	No answei	~		lack of			
Private - Direct purchase from family forest owners	Cubic Meters	155,684.0	91.1	QLPs, training began in 2018, received certification in 2019	0	0	0
Private - Direct purchase from Aboriginal/Triba lands	No I answei	-					
Private - Direct purchase from conservation lands	No answei	~					
Private - All other direct purchase from private landowners	No answei	-					
Public - U.S. Federal lands	No	r					
Public - All other U.S. public lands	answei No answei						

	Units	Volume	% Delivered by Qualified Logging Professionals	Enter Reason	SFI only		CSA only certified
Public - Crown land	Cubic Meters	3,228,005	49.1	lack of trained QLPs, received SFI certification in 2019, began QLP training in 2018	35.2	0	6.5
Public - Non- controlled Crown land	No answer	-					
Other Sources	No answer	-					
1							
2							
3							
4							
5							

4	
	•

- 7
- 8
- 9

10

No answer

1

Volume : 0 % PEFC certified forest content : 0 % FSC certified forest content : 0 % Dual PEFC/FSC forest content : 0 % SFI Fiber Sourcing : 0 % Other : 0 Other Countries - What Standards : no offshore fibre is purchased

2

3

- 4
- 5

6

7		
8		
9		
10		
1		
2		
3		
4		
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7		
8		
9		
10		

5. Research, Conservation and Community

Participants are required to support forest research to improve forest health, productivity, and sustainable management of forest resources, and the environmental benefits and performance of forest products. Complete the following table with research

sect 5 preload indicator

preload

Forest health, productivity, and ecosystem functions

External CAD : 534,403 Organizations worked with in 2019 : Academic Organizations Conservation Organizations Government Organizations Other Organizations Academic Organizations : University of Alberta Conservation Organizations : Forest Resource Improvement Association of Alberta Government Organizations : Gov Alberta Department Sustainable Resource Development Other Organizations : West Fraser, Millar Western Forest Products, Boucher Brother Lumber, Vanderwell Contractors, Weyerhaeuser

Chemical efficiency, use rate and integrated pest management

External CAD : 17,857 Organizations worked with in 2019 : Academic Organizations Conservation Organizations Other Organizations Academic Organizations : Woodland Operations Learning Foundation Conservation Organizations : Forest Resource Improvement Association of Alberta Other Organizations : West Fraser, Millar Western Forest Products, Boucher Brother Lumber, Vanderwell Contractors, Weyerhaeuser

Water quality and/or effectiveness of best management practices including effectiveness of water quality and best management practices for protecting the quality, diversity and distributions of fish and wildlife habitats

External CAD : 97,000 Organizations worked with in 2019 : Conservation Organizations Government Organizations Conservation Organizations : Forest Resource Improvement Association of Alberta Government Organizations : Gov Alberta Dept. Sustainable Resource Development

Wildlife management at stand and landscape levels

External CAD : 38,347 Organizations worked with in 2019 : Research Organizations Conservation Organizations Government Organizations Other Organizations Research Organizations : National Council Air Stream Improvement Conservation Organizations : Forest Resource Improvement Association of Alberta Government Organizations : BC Ministry of Environment Other Organizations : Tsay Keh Dene, Weyerhauser, Millar Western

Conservation of biological diversity

External CAD : 1734 Organizations worked with in 2019 : Research Organizations Research Organizations : National Council Air and Stream Improvement

Ecological impacts of bioenergy feedstock removals on productivity, wildlife habitat, water quality and other ecosystem functions

External CAD: 0

Climate change research for both adaptation and mitigation

External CAD : 62,928 Organizations worked with in 2019 : Academic Organizations Research Organizations Conservation Organizations Other Organizations Academic Organizations : University of Alberta, Grande Prairie Regional College Research Organizations : Natural Sciences and Engineering Research Council of Canada Conservation Organizations : Forest Resource Improvement Association of Alberta Other Organizations : Weyerhauser, Mitacs, West Fraser

Forest operations efficiencies and economics

External CAD : 3,000 Organizations worked with in 2019 : Conservation Organizations Other Organizations **Conservation Organizations :** Forest Resource Improvement Association of Alberta **Other Organizations :** Canadian Institute of Forestry, Millar Western, West Fraser, and Alberta Pacific

Energy efficiency

Life cycle assessment

Avoidance of illegal logging

Avoidance of controversial sources

Other

II. Research, Conservation and Community Projects and Partnerships

sect 5-2 preload indicator

preload Is your organization currently involved in any conservation partnerships?

Yes

Project 1

Project Name : Recreation Site and Trail Maintenance

Project Objective : Maintain Safe facilities for enjoyment of the public

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

Canfor maintains 19 recreation sites and trails in Alberta and in NE BC in partnership with the Alberta and BC governments, providing safe, clean recreation facilities for the enjoyment of the public.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 5.

Management of Visual Quality and Recreational Benefits

Select state(s)/province(s) for this project : Alberta

British Columbia

Government Organizations : Gov of Alberta Dept Sustainable Resource Development, Gov of BC Branch of Recreation Sites and Trails

Estimated Project Start Date :

2017

Estimated Project End Date : ? Dollar amounts are in: : Canadian Dollars (CAD) Estimated total project cost : over \$50,000 Your organization contribution in 2019 : over \$50,000 Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : No Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No May SFI use this project as an example in communications to help convey

the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 2

Project Name : Partners in Boreal Education

Project Objective : To optimize the impact of forest science in northern Alberta through public awareness, science-technology transfer, and student science mentoring Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

Partners in Boreal Education is a science extension and education program for the benefit of forest practitioners, citizens, and students who live and work in forest communities in Northern Alberta. Proposed activities include: 1) extension of research and field technologies to forest practitioners; 2) community awareness of forest sciences and resources; and 3) science mentoring of high school students

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 1. Forest Management Planning

FM Objective 11. Training and Education

Select state(s)/province(s) for this project : Alberta

Academic Organizations : Northern Alberta Institute of Technology

Conservation Organizations : Forest FResource Improvement Association of Alberta **Government Organizations :** Canadian Forest Service

Other Organizations : Boucher Brothers, Zavisha Sawmills, West Fraser, Mercer International

Estimated Project Start Date : 01/01/2017

Estimated Project End Date : 30/04/2020

Dollar amounts are in: : Canadian Dollars (CAD)

Estimated total project cost : over \$50,000

Your organization contribution in 2019 : \$5,000 to \$20,000

Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : No

Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No

May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 3

Project Name : Forestry Futures Alliance

Project Objective : Three programs have formally partnered up to inform Albertans about sustainable forest management and careers in the forest sector

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

Coordinate education and outreach programs between Work Wild, Careers Next Generation, and Inside Education

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 1.

Forest Management Planning

FM Objective 11. Training and Education

Select state(s)/province(s) for this project : Alberta

Conservation Organizations : Forest Resource Improvement Association of Alberta **Other Organizations :** Millar Western

Estimated Project Start Date : 2018

Estimated Project End Date : 2020

Dollar amounts are in: : Canadian Dollars (CAD)

Estimated total project cost : over \$50,000

Your organization contribution in 2019 : \$20,000 to \$50,000

Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : No

Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No

May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 4

Project Name : Grand Prairie & Area Environmental Sciences and Education Society **Project Objective :** To increase the forest and science literacy of children in grades K-12 and to assist teachers from the Grande Prairie and surrounding area **Short project description (include main point of contact and other relevant information - max. 650 words) :** Project Description

The GP&Area Environmental Sciences and Education Society (GPSES) has build a number of resource kids and program events to assist teachers with science based forestry curriculum. This project will continue to support the Regional Director whose role is to continue to enhance the understanding of the forest resource by providing opportunities to learn about forestry and other science issues through hands on activities, field study and presentations.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 10. Forestry Research, Science and Technology

Select state(s)/province(s) for this project : Alberta

Conservation Organizations : Forest Resource Improvement Association of Alberta **Estimated Project Start Date :** 01/01/2017

Estimated Project End Date : 30/01/2022

Dollar amounts are in: : Canadian Dollars (CAD)

Estimated total project cost : over \$50,000

Your organization contribution in 2019 : \$5,000 to \$20,000

Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : No

Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No

May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 5

Project Name : Greater Hines Creek Area Campsite Enhancement Program **Project Objective :** Continue to enhance the recreational experience on nine established campsites in the greater Hines Creek area

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

Canfor understands the importance of community involvement directly or indirectly. This initiative allows Canfor to work with local governments in the Hines Creek area to contribute to initiatives that are beneficial to local residents and communities. Canfor contributes funds to three municipalities to manage and maintain nine established campsites in the area.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 5. Management of Visual Quality and Recreational Benefits

Select state(s)/province(s) for this project : Alberta

Conservation Organizations : Forest Resource Improvement Association of Alberta **Government Organizations :** Local municipal governments in the Hines Creek area of Alberta Estimated Project Start Date : 15/04/2017 Estimated Project End Date : 01/03/2022 Dollar amounts are in: : Canadian Dollars (CAD) Estimated total project cost : over \$50,000 Your organization contribution in 2019 : \$20,000 to \$50,000 Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : No Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No May SFI use this project as an example in communications to help convey

the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 6

Project Name : Boreal Caribou Nutrition

Project Objective : 1. Enhancement of caribou survival and reproduction on specific landscapes, by linking ongoing efforts in managing predation ("top-down" influences) with access to high quality year-round food supply ("bottom-up" influences). 2. The identification of good caribou habitat based on the quality of that habitat from the perspective of the caribou (and not based simply on vegetation type). This new knowledge will be oriented towards specifically what the caribou gain from a specific habitat, rather than simply where generic "habitat" is located - an extremely important and often overlooked distinction. 3. The establishment of an improved caribou body condition monitoring technique that could be used as part of a suite of field measurements to identify pressure points on specific caribou herds. Monitoring of caribou populations will continue at both the provincial and federal level - and this project could enhance the ability for governments to work collaboratively with industry to more effectively measure the success of conservation efforts. 4. New habitat models that map "nutritional content of habitat", which could look guite different from the more generalized habitat modeling that is currently undertaken models that will be extremely important for governments and industry to use as a tool for future conservation efforts, particularly in light of potential vegetation shifts with climate change

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

NCASI has made significant progress on a multi-year project to identify constructive ways in which industry can actively contribute to conservation of woodland caribou populations on the lands it manages – an approach leveraging enhanced forest management to maintain and provide new caribou habitat, rather than relying on protected areas alone as a method of conserving caribou. The central focus of this research program is to establish mathematical relationships between the dietary content of habitat and the growth and reproduction characteristics of woodland caribou. The 4-year Phase 1 baseline research for this initiative has been completed, and Phase 2 field research in BC and Ontario was launched in spring 2013, to be completed in winter 2019. Phase 3 modeling work will be undertaken between 2019 and 2021.

This project will result in the development of specific quantitative nutrition relationships that have never before been established for woodland caribou – and once they are developed, the intent is that the results from this research will become a management tool for industry to undertake enhanced approaches to conserving caribou on the ground.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 4.

Conservation of Biological Diversity Select state(s)/province(s) for this project : British Columbia Ontario Research Organizations : National Council Air & Stream Improvement Estimated Project Start Date : 2013 Estimated Project End Date : 2021 Dollar amounts are in: : Canadian Dollars (CAD) Estimated total project cost : over \$50,000 Your organization contribution in 2019 : \$5,000 to \$20,000 Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : *Other*: 100% Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No May SFI use this project as an example in communications to help convey

the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 7

Project Name : Effects of Habitat Change on Fisher and Marten Populations **Project Objective :** The broad goal of our project is to evaluate fisher and marten populations within the traditional territory of Tsay Keh Dene Nation to gain a better understanding of how landscape changes have affected sustainability of these populations. Our project has the following 3 primary objectives:

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

The Sub-Boreal Spruce (SBS) biogeoclimatic zone is home to several species of furbearers, including fishers and American martens, whose pelts are a highly valued

component of the fur harvest. In the Williston Basin however, this landscape has undergone significant change since the 1960s, where reservoir development and forest harvest has resulted in 37.6% of the SBS forests being flooded or logged. Habitat change is on-going as well, with approximately 20,000 ha of forests harvested each year in this landscape, in addition to natural disturbances resulting from wildfires, forest-insect outbreaks, and climate change.

Both fishers and martens are closely linked to several key forest types and their populations are sensitive to habitat change. Because of their relationships with specific forest conditions, extensive changes to the landscape of the Williston Basin from industrial developments have likely had profound effects on the sustainability of local fisher and marten populations.

Our understanding of the scope and scale of any effects due to landscape changes on fisher and marten populations is very poor; however, extreme concern exists to the sustainability of these populations. Information on the abundance, distribution, trend, and effects of habitat change of these important populations is direly needed so that First Nations, trappers, and land and resource managers can know whether, and to what extent, their actions and decisions affect the sustainability of the populations. Our project will improve understanding of the abundance, distribution, and trend of these important populations. We will produce predictive spatial tools that can be used by First Nations, trappers, land managers and stakeholders to evaluate risks and impacts from developments on functioning and sustainable furbearer populations in the Williston region.

A key outcome of value to forest licensees is that they will be able to use the spatial tool to predict, with greater confidence, the population effects of proposed forest developments on fisher and marten populations, and develop methods to minimize these disturbances or even conduct them in a manner that might enhance population sustainability.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 4.
Conservation of Biological Diversity
Select state(s)/province(s) for this project : British Columbia
Government Organizations : BBC Minsitry of Forests, Lands, Natural Resourse
Operations and Rural Development
Community Organizations : Tsay Keh Dene First Nation
Estimated Project Start Date : 2019
Estimated Project End Date : 2020
Dollar amounts are in: : Canadian Dollars (CAD)
Estimated total project cost : less than \$5,000
Your organization's contribution in 2019 : less than \$5,000
Are your organization's contribution in 2019 included in your Research
Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard :

Other: 100%

Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No

May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 8

Project Name : Effects of Habitat Alteration on Caribou Terrestrial Forage Lichens in the Omineca Area **Project Objective :** To better understand terrestrial caribou forage lichen dynamics following different harvest systems. Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description To better understand terrestrial caribou forage lichen dynamics following different harvest systems. SFI 2015-2019 Standard Objective most relevant to project : FM Objective 4. Conservation of Biological Diversity Select state(s)/province(s) for this project : Alberta British Columbia **Government Organizations :** BC Ministry of Forests Lands Natural Resource **Operations & Rural Development** Estimated Project Start Date : 2019 Estimated Project End Date: 2020 **Dollar amounts are in: :** Canadian Dollars (CAD) Estimated total project cost : less than \$5,000 Your organization contribution in 2019 : less than \$5,000 Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : Other: 100% Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation

Project 9

Project Name : Southern AB Silviculture Adaptation Project- Implementing Silviculture Strategies to Adapt to Future Climate Uncertainty **Project Objective :**

and community engagement? : Share - don't use our organization's name

This project was developed to address the anticipated challenge of maintaining the coniferous forest resource in montane region of southern Alberta under climate uncertainty.

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

This project has three objectives: 1) A process-based evaluation of eight tree species out planted into three alternative silviculture systems with different canopy and moisture retention strategies that could be used to mitigate the effects of climate variability; and 2) common garden experiments to evaluate the effects of elevation on seedling survival and growth. The primary activity is the operational nursery production, layout, out planting, and 1st and 2nd growing season assessment of white spruce, lodge pole pine, Douglas fir, western larch, Siberian larch, ponderosa pine, white bark pine, and western white pine seedlings. Naturally regenerating lodge pole pine will act as a baseline control; and 3) develop recommendations and on-theground silviculture examples of how alternative harvesting systems and different coniferous tree species could b used by forest managers to adapt to future climate uncertainty.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 2. Forest Health and Productivity

Select state(s)/province(s) for this project : Alberta

Conservation Organizations : Forest Resource Improvement Association of Alberta **Other Organizations :** Other Forest Industry companies

Estimated Project Start Date : 05/12/2016

Estimated Project End Date : 31/08/2020

Dollar amounts are in: : Canadian Dollars (CAD)

Estimated total project cost : over \$50,000

Your organization contribution in 2019 : \$5,000 to \$20,000

Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : *Other:* 100% Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No

May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 10

Project Name : Establishment of Realized Gain Trials- Conifer **Project Objective :** Support the Controlled Parentage Programs for the respective participants in assisting with validation of the expected gain from deployment of improved stock through the implementation of realized gain trials.

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

These trials will be used to determine and partition the amount of improvement in growth and volume on an area basis that is attributable to use of improved stock versus that grown from wild seed lots. The current method of estimating gain is primarily through height growth from progeny trials, which has several inherent problems when data is extrapolated out a surrogate for dedicated realized gain trials. SFI 2015-2019 Standard Objective most relevant to project : FM Objective 2. Forest Health and Productivity Select state(s)/province(s) for this project : Alberta **Conservation Organizations :** Forest Resource Improvement Association of Alberta **Other Organizations :** Other Forest Industry Companies Estimated Project Start Date : 15/10/2015 Estimated Project End Date : 28/02/2019 **Dollar amounts are in: :** Canadian Dollars (CAD) Estimated total project cost : over \$50,000 Your organization contribution in 2019 : over \$50,000 Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : Other: 100%

Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No

May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 11

Project Name : Developing and Assessing Advanced Inventory Techniques for Enhanced Forest Management in Alberta

Project Objective : The primary objectives are to: 1) Achieve more accurate and refined forest metrics at multiple scales that allow for the identification and prediction of spatially explicit individual tree and stand metrics, especially tree species, species composition and stand structure, at both strategic and operational levels; and 2) make recommendations on how to effectively implement advanced forest inventory in Alberta to achieve improved forest management for the benefits of all Albertans. **Short project description (include main point of contact and other relevant information - max. 650 words) :** Project Description

Extensive advancements have been made in applying new and improved technologies to forest inventories. The proposed research will focus on investigating and utilizing the newest technologies and developing new research methods for advanced forest inventory in Alberta to enhance forest management. the approach is to use high resolution LiDAR data and ground date to develop and calibrate models that can: 1) accurately represent or describe the tree metrics for the full population of trees in the study area; 2) allow for the identification of stand structures for integrated and enhanced biodiversity, wildlife, and watershed management; and 3) be fully automated to remove potential inconsistencies.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 1. Forest Management Planning

Select state(s)/province(s) for this project : Alberta

Conservation Organizations : Forest Resource Improvement Association of Alberta **Government Organizations :** Alberta Government Dept. of Sustainable Resource Development

Estimated Project Start Date : 25/08/2017

Estimated Project End Date : 30/09/2019

Dollar amounts are in: : Canadian Dollars (CAD)

Estimated total project cost : over \$50,000

Your organization contribution in 2019 : over \$50,000

Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : *Other*: 100% Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No

May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 12

Project Name : Combining Field and LiDAR Modelling Tools to Move Beyond Indicator-Based Approaches for Surface Erosion

Project Objective : Specific objectives include: 1) Determine the applicability of the Geomorphic Road Analysis and Inventory Package (GRAIP) to the forested regions of the Simonette watershed; 2) Determine if the NetMap GIS tools are appropriate for modelling and tracking the erosion rates for the Simonette; and 3) Deliver the NetMAP GIS data to GoA so the Forest Management Branch can explore the use of the tools for Riparian Mapping using LiDAR data.

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

This project is designed to test tools developed in different jurisdictions with LiDAR coverage to improve efficiencies for watershed management. This proposal aims to determine if new innovative tools developed in the United Sates, which estimate the erosion at site and watershed scales, can be modified for use in the foothills.

SFI 2015-2019 Standard Objective most relevant to project :

FM Objective 3. Protection and Maintenance of Water Resources FS Objective 2. Adherence to Best Management Practices Select state(s)/province(s) for this project : Alberta **Conservation Organizations :** Forest Resource Improvement Association of Alberta Government Organizations : Government of Alberta Dept. of Sustainable Resource Development Estimated Project Start Date : 31/01/2015 Estimated Project End Date : 30/06/2019 **Dollar amounts are in: :** Canadian Dollars (CAD) Estimated total project cost : over \$50,000 Your organization contribution in 2019 : \$20,000 to \$50,000 Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : Other: 100% Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation

and community engagement? : Share - don't use our organization's name

Project 13

Project Name : Southern Rockies Watershed

Project Objective : Characterizing sediment production from harvesting and roadstream crossing during harvest operation and after road retirement in Phase II of the Southern Rockies Watershed Project. This project specifically supports the "core" water monitoring of suspended sediment within the watershed.

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

Characterizing sediment production from harvesting and road-stream crossing during harvest operation and after road retirement in Phase II of the Southern Rockies Watershed Project. This project specifically supports the "core" water monitoring of suspended sediment within the watershed.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 3. Protection and Maintenance of Water Resources FS Objective 2. Adherence to Best Management Practices Select state(s)/province(s) for this project : Alberta Conservation Organizations : Forest Resource Improvement Association of Alberta Estimated Project Start Date : 15/10/2015 Estimated Project End Date : 31/03/2019 Dollar amounts are in: : Canadian Dollars (CAD) Estimated total project cost : over \$50,000

Your organization contribution in 2019 : \$20,000 to \$50,000 Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : *Other:* 100% Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No

May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 14

Project Name : Enhancing Values of Forest Resources by Turning Emissions from Biomass Power Plant into Microalgae Bio-products

Project Objective : Explore a sustainable solution for emission capture utilizing natural plants like microalgae.

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

A microalgae system can not only clean up emissions on site, but also turn it into beneficial products. The project will explore the ability to turn emissions from a biomass power plant into valuable microalgae bio-products. The capture efficiency of several greenhouse gases and pollutants will be assessed, on going research and development on the system, as well as communication and outreach are all key components of the project.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 7. Efficient Use of Fiber Resources

Select state(s)/province(s) for this project : Alberta Academic Organizations : Grande Prairie Regional College Conservation Organizations : Forest Resource Improvement Association of Alberta, Government Organizations : Natural Sciences and Engineering Research Council of Canada Estimated Project Start Date : 01/07/2018 Estimated Project End Date : 31/10/2021 Dollar amounts are in: : Canadian Dollars (CAD) Estimated total project cost : over \$50,000 Your organization contribution in 2019 : \$20,000 to \$50,000 Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : *Other*: 100% Is this project part of a 2019 SFI Conservation , Community or Education

Grant? :

No

May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 15

Project Name : remote Sensing Site Index

Project Objective : Develop and test models for estimating site index from remotely sensed data including Wet Areas Mapping and LiDAR

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

Examine the use of LiDAR point cloud data for estimating top height and site index as well as using LiDAR data in the development of refined models for estimating site index form environmental data. This study will provide additional evaluation of the potential to use remote sensing data such as wet areas mapping to reduce subjectivity associated with field based estimates of soil moisture regime and errors associated with field estimation of topographic variables.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 1.

Forest Management Planning

Select state(s)/province(s) for this project : Alberta

Conservation Organizations : Forest Resource Improvement Association of Alberta **Estimated Project Start Date :** 05/12/2016

Estimated Project End Date : 30/06/2019

Dollar amounts are in: : Canadian Dollars (CAD)

Estimated total project cost : over \$50,000

Your organization contribution in 2019 : \$20,000 to \$50,000

Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : *Other:* 100% Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No

May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 16

Project Name : Herbicide Training Program Development **Project Objective :** Develop a training program to strengthen skill sets and understanding of herbicides in forest management on the part of forest industry personnel, thereby enabling herbicide users to better address concerns on the part of the public and indigenous people.

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

Develop three training modules for application, planning, and public consultation, including indigenous communities, for the use of herbicides in support of forest management objectives. The training is directed toward risk identification and mitigation in the planning and implementation of forestry herbicide application programs.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 2. Forest Health and Productivity

Select state(s)/province(s) for this project : Alberta

Academic Organizations : Woodland Operations Learning Foundation,

Conservation Organizations : Forest Resource Improvement Association of Alberta **Other Organizations :** West Fraser, Millar Western Forest Products, Boucher Brother Lumber, Vanderwell Contractors, Weyerhaeuser

Estimated Project Start Date : 04/06/2018

Estimated Project End Date : 30/09/2019

Dollar amounts are in: : Canadian Dollars (CAD)

Estimated total project cost : over \$50,000

Your organization contribution in 2019 : \$20,000 to \$50,000

Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : *Other:* 100% Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No

May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 17

Project Name : Mixed Wood Growth Model - Growth FunctionsProject Objective : Development of climate sensitive growth functions for westernNorth America's boreal tree species in the Mixedwood Growth Model (MGM)

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

Updated growth functions developed with the inclusion of climate, competition, and site quality (site index) will be used to update MGM. Future sand projections from the updated model are expected to be more accurate with a wider range of applicability than the older version of MGM. The result will provide forest managers an opportunity to evaluate, rank management options, and estimate yield implications of different management strategies that might be employed to mitigate climate change impacts.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 2. Forest Health and Productivity Select state(s)/province(s) for this project : Alberta Academic Organizations : University of Alberta **Other Organizations :** Mitacs, West Fraser, Weyerhauser Estimated Project Start Date : 15/082018 Estimated Project End Date : 31/12/2019 **Dollar amounts are in: :** Canadian Dollars (CAD) Estimated total project cost : over \$50,000 Your organization contribution in 2019 : \$5,000 to \$20,000 Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : Other: 100% Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation

Project 18

Project Name : Canadian Institute of Forestry Technical Session - Drones in Forestry **Project Objective :** To develop and host a workshop to increase the knowledge and understanding of UAVs (drones) and Terrestrial Laser Scanners and their application to enhance and improve sustained forest and natural resource management.

and community engagement? : Share - don't use our organization's name

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

1) Deliver a technical workshop consisting of expert speakers, discussion panels, and service providers commercial display to offer attendees the opportunity to learn, engage with experts, and obtain continuing competency credits; 2) to video capture the presentations as a permanent record of the proceedings to be posted for public access on the Canadian Institute of Forestry website.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 1. Forest Management Planning

Select state(s)/province(s) for this project : Alberta

Conservation Organizations : Forest Resource Improvement Association of Alberta **Other Organizations :** Canadian Institute of Forestry, Millar Western, West Fraser, and Alberta Pacific

Estimated Project Start Date : 01/12/2018 Estimated Project End Date : 30/06/2019

Dollar amounts are in: :

Canadian Dollars (CAD)

Estimated total project cost : \$5,000 to \$20,000 Your organization contribution in 2019 : less than \$5,000 Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : *Other:* 100% Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No

May SFI use this project as an example in communications to help convey the exemplary work of SFI Program Participants in the areas of conservation and community engagement? : Share - don't use our organization's name

Project 19

Project Name : Caribou management - Alternate prey - Deer and Moose Monitoring Project

Project Objective : Investigate whether specific timber harvesting regimes and silviculture practices can be applied to make cutblocks less attractive to primary prey species (ie: reduce forage abundance for deer, moose, and elk).

Short project description (include main point of contact and other relevant information - max. 650 words) : Project Description

Reduction in the occurance and abundance of primary prey could reduce predation risk for caribou in west-central Alberta, as decreased numbers of primary prey would sustain lower numbers of predators in caribou ranges. Deer will be captured and collared to track habitat use in relation to regenerating cutblocks; primary prey use of cutblocks will be monitored with the use of strategically placed remote cameras, and an analysis of how specific harvesting regimes and silviculture practices can make cutblocks less suitable for deer, moose, and elk, which will provide industry with information for the development of best management practices within the caribou range.

SFI 2015-2019 Standard Objective most relevant to project : FM Objective 1. Forest Management Planning FM Objective 4. Conservation of Biological Diversity FS Objective 1. Biodiversity in Fiber Sourcing Select state(s)/province(s) for this project : Alberta British Columbia Research Organizations : fRI Research Conservation Organizations : Forest Resource Improvement Association of Alberta Other Organizations : Weyerhaeuser, Millar Western Estimated Project Start Date : 01/01/2018 Estimated Project End Date : 31/03/2021 Dollar amounts are in: :

Canadian Dollars (CAD)

Estimated total project cost : over \$50,000 Your organization contribution in 2019 : \$20,000 to \$50,000 Are your organization's contribution in 2019 included in your Research Funding dollars reported above to meet SFI Standard Requirements as it relates to the research requirement in the standard : *Other*: 100% Is this project part of a 2019 SFI Conservation , Community or Education Grant? : No May SFI use this project as an example in communications to help convey

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III. SFI Implementation Committees Funding

Funding provided last year for SFI Implementation Committee activities at the state or provincial level (Support for US SICs in \$US. Support for Canadian SICs in \$CA.)

Canada: 1,500.00

Issues of Interest

Select the following Issues of Interest. This way we can keep you informed on these topics. (Optional)

Bioenergy Climate change Biodiversity and Conservation

Forest Tree Biotechnology (answer the following about your organization)

We plan on investing in research with Genetically Engineered trees via forest tree biotechnology.

No

We currently invest in research with Genetically Engineered trees via forest tree biotechnology.

No

We have legal commercial plantings of Genetically Engineered trees via forest tree biotechnology that will be available as future marketable products.

No