

2023年11月28日

【カナダNGO来日セミナー】輸入木質ペレットの真実  
カナダのペレット生産と森林への影響

# ブリティッシュコロンビア州の 一次林から

## 日本に輸出される木質ペレット

Pellets to Japan originate from primary forests in  
British Columbia (BC)

Michelle Connolly, MSc



# 一次林

Primary forest

## 伐採の累積的影響

Cumulative impacts of logging

## 野生生物と生物多様性

Wildlife and biodiversity

## 「持続可能な森林管理」

"Sustainable forest management"

## ペレットの原料およびそれがどこから来るのか

Pellet raw material and where it comes from

## 世論に影響を与える言説

Language to influence public opinion

## 炭素認証

Carbon Certification



## 活動拠点

Where we are based



## 生物多様性条約における**一次林**の定義

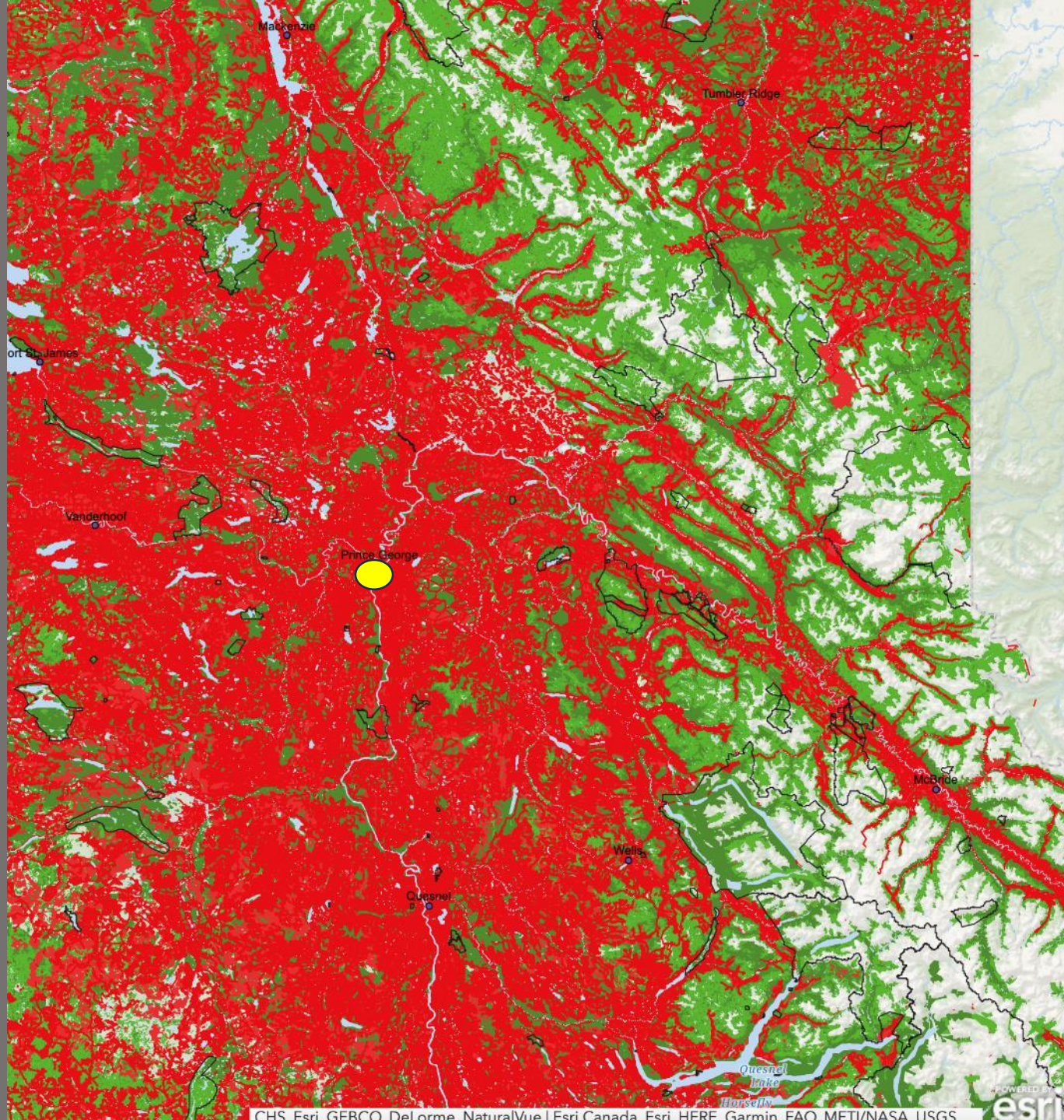
Convention on Biological Diversity definition of **primary forest**:

年数に関係なく、**伐採されたことがなく**、自然攪乱のあと自然のプロセスにより発達した森林

"...a forest that has **never been logged** and has developed following natural disturbances and under natural processes, regardless of its age."



歴史的な伐採を示すNorthern BC大学のアーカイブ画像  
University of Northern BC archives images showing historical logging



## Seeing Red: BC's last primary forests

BC州における最後の一次林

■ Primary forest (higher productivity)

一次林 (生産性が高い)

■ Primary forest (lower productivity)

一次林 (生産性が低い)

■ Disturbed by industrial human activity

産業活動により攪乱された森林

■ Non forest (or no data)

非森林地域 (又はデータなし)

Primary forest is natural forest of any age. Primary forest includes forest disturbed naturally, for example by wildfire, insects or wind, but excludes forest that has been degraded by logging, roads, or other industrial human activities.

Park and protected area boundaries are black.

We used the Vegetation Resource Inventory data to define the forested landscape as lands having a site index of over 5. We defined lower productivity primary forest as having a site index of 5 to 10, and higher productivity primary forest as having a site index of 10 +. The industrially disturbed lands layer includes existing and approved cutblocks, roads, pipeline right of ways, major mines, transmission lines, agricultural land, and private land.

Data were downloaded in February, March and November 2020 from the BC Data Catalogue, the BC Oil and Gas Commission Centre portal, and the federal NFIS. Layers used are listed below. Provincial forest inventory data are coarse and this map may not be accurate at fine scales, or accurately depict logging prior to 1985.

Want to see how much old growth forest BC has left? [Click here](#). Visit us at [conservationnorth.org](http://conservationnorth.org) to find out how you can help protect BC's remaining primary and old growth forests.

**CONSERVATION  
NORTH**

Data used:

CHS, Esri, GEBCO, DeLorme, NaturalVue, Esri Canada, Esri, HERE, Garmin, FAO, METI/NASA, USGS

An aerial photograph of a forest landscape in British Columbia, Canada. The image shows a network of white logging roads crisscrossing a terrain of varying green shades, representing different stages of forest management. Large, irregularly shaped areas of lighter green and brownish tones indicate clearcut areas where the primary forest has been removed. The surrounding areas are darker green, representing mature forest. The overall scene illustrates the impact of logging on the natural forest environment.

# BC州の標準伐採 – 製材、パルプ、ペレットのための 一次林の皆伐

Standard logging in BC – clearcutting of primary forest for sawlogs, pulp and pellets



Grizzly bear



Fisher



Northern Goshawk



Brown Creeper



N. Flying squirrel



Am. T.T. Woodpecker



Boreal Owl



Golden-Crowned Kinglet



Pilated Woodpecker



Cougar



Mule Deer



Great Gray Owl



Hermit Thrush



Varied Thrush



Coeur d'Alene salamander



Dusky Grouse



Canada Lynx



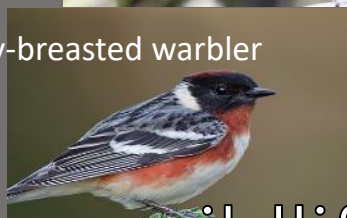
vaux's swift



Moose



Black bear



Bay-breasted warbler



Wolverine



Hermit Thrush



Pine marten



Hammond's Flycatcher



Caribou

Some wildlife in our local landscapes



**一次林／自然林には最も生物多様性豊かな場所**

Primary (natural) forests are where most of the biodiversity is.

**一次林は、最大の自然の炭素の貯蔵庫**


Primary forests are among our biggest natural repositories of stored carbon.

**一次林の約20-30%しか残っていない**

About 20-30% of Earth's primary forest remains.

**この割合は、BCでも概ね同じ**

The proportion is probably similar in BC.

An aerial photograph of a vast landscape in British Columbia, Canada. The foreground shows a cleared area with a dirt road and some remaining trees. The middle ground is a dense forest of evergreen trees. In the background, there are rolling hills and a range of mountains under a cloudy sky.

**BC州政府は、企業、先住民族コミュニティ、中小企業に、保護地域以外の公有地で木を伐採する権利を与えている。**

The BC government grants corporations, Indigenous communities and small businesses the right to log trees on the public lands outside of parks.

**これがBC州の「持続可能な森林管理」の姿**

This is what 'sustainable forest management' looks like in BC

**BC州での伐採の95%が一次林**

About 95% of what is logged in BC is primary forest.



植林地 (人工林)

Plantation (artificial forest)





**Pacific Bioenergy/Sumitomoの伐採許可地 (2020)**  
Pacific Bioenergy/Sumitomo license area (2020)



Pacific Bioenergy/Sumitomo license area (2020)



Pacific Bioenergy/Sumitomo license area (2020)



Pacific Bioenergy/Sumitomo license area  
(2020)



Pacific Bioenergy/Sumitomo license area  
(2020)





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Pellets for power: liquidating rainforests for the grid

GLOBAL NEWS HOUR AT 6 BC October 16 2020 8:42pm 02:03

Global News Hour at 6 BC  
Environmentalists cry foul over logging for biofuel company

Metro Vancouver News - B.C. evening weather forecast: January 16

02:02 / 02:03

**Environmentalists cry foul over logging for biofuel company**  
 Environmentalists are raising red flags about proposed logging near Prince George that they say is going to a company that's supposed to use wood waste. Paul Johnson reports.



NEWS

**B.C. gives Pacific BioEnergy green light to log rare inland rainforest for wood pellets**

Prince George plant will grind ancient cedar and hemlock into pellets to be burned for fuel overseas, destroying forest that's home to endangered caribou and vast stores of carbon

Matt Simmons, Local Journalism Initiative reporter • Oct 9, 2020 9 min read

Conservation North director and ecologist Michelle Connolly sits in front of B.C.'s rare inland rainforest, which is set to be logged for pellets this winter. Photo: Sean O'Rourke



Pacific Bioenergy/Sumitomo license area  
(2020)



Bear den in the Pacific Bioenergy/Sumitomo license area (2020)



Pacific Bioenergy/Sumitomo pellet plant (shut down in March 2022)

# 政府と企業による森林伐採の言い訳

Language used by government and industry to describe forests

「廃棄物」

“Waste”

「残渣」

“Residuals”

「不健康」

“Unhealthy”

「価値が低い」

“Low value”

「低品質」

“Low quality”

「傷んでいる」

“Damaged”

「病気である」

“Diseased”

「燃えやすい」

“Fire-prone”

産業の成長は、BC州で利用可能な廃棄木質繊維を上回ると思うか？

**“Do you think the growth of the industry will outstrip the waste fibre available in B.C.?”**

Dr. Bull: No, it's **low-grade fibre**. The industry is pretty smart....there is a lot of **low-quality fibre** out there. What are we going to do to get that off the landscape in order to grow back a **healthier forest?** That's the priority.”

Bull博士：いや、品質が低いからそうは思わない。品質が低いものを取り払い、より健康的な森林にすることが優先課題。

From :  
<https://www.canadianbiomassmagazine.ca/wood-pellets-a-growing-climate-change-solution/>

Features > **Harvesting Pellets Sustainability**

## Wood pellets: a growing climate change solution

An interview with Gary Bull, Ph.D. Forestry Economics professor and head of department, University of British Columbia, Department of Forest Resources Management.

November 17, 2020

By The Wood Pellet Association of Canada

### Topics

Harvesting

Pellets

Sustainability



Gary Bull, professor and head of department at the University of British Columbia's Department of Forest Resources Management.

The Wood Pellet Association of Canada (WPAC) recently caught up with Gary Bull, professor and head of department at the University of British Columbia's Department of Forest Resources Management. Bull has a long and distinguished career academically, globally and across resource sectors. He has worked with various government agencies and

すべての一次林は、その構造と複雑さは昆虫と火の自然の働きによるものであり、これらの地域は人工林にはない優れた生息地を提供している。

All primary forests owe their structure and complexity to the natural workings of insects and fire and these areas provide excellent habitat that is absent from industrialized areas.



16年前に蛾によって落葉した一次林  
A primary forest that was severely defoliated  
by a moth 16 years ago.



3年前に火災で焼けた一次林  
A primary forest that was burned by fire three years ago.

ペレット工場に運ぶ前の伐採現場での破砕  
On-site chipping in a cutblock in advance of transport to a  
pellet mill

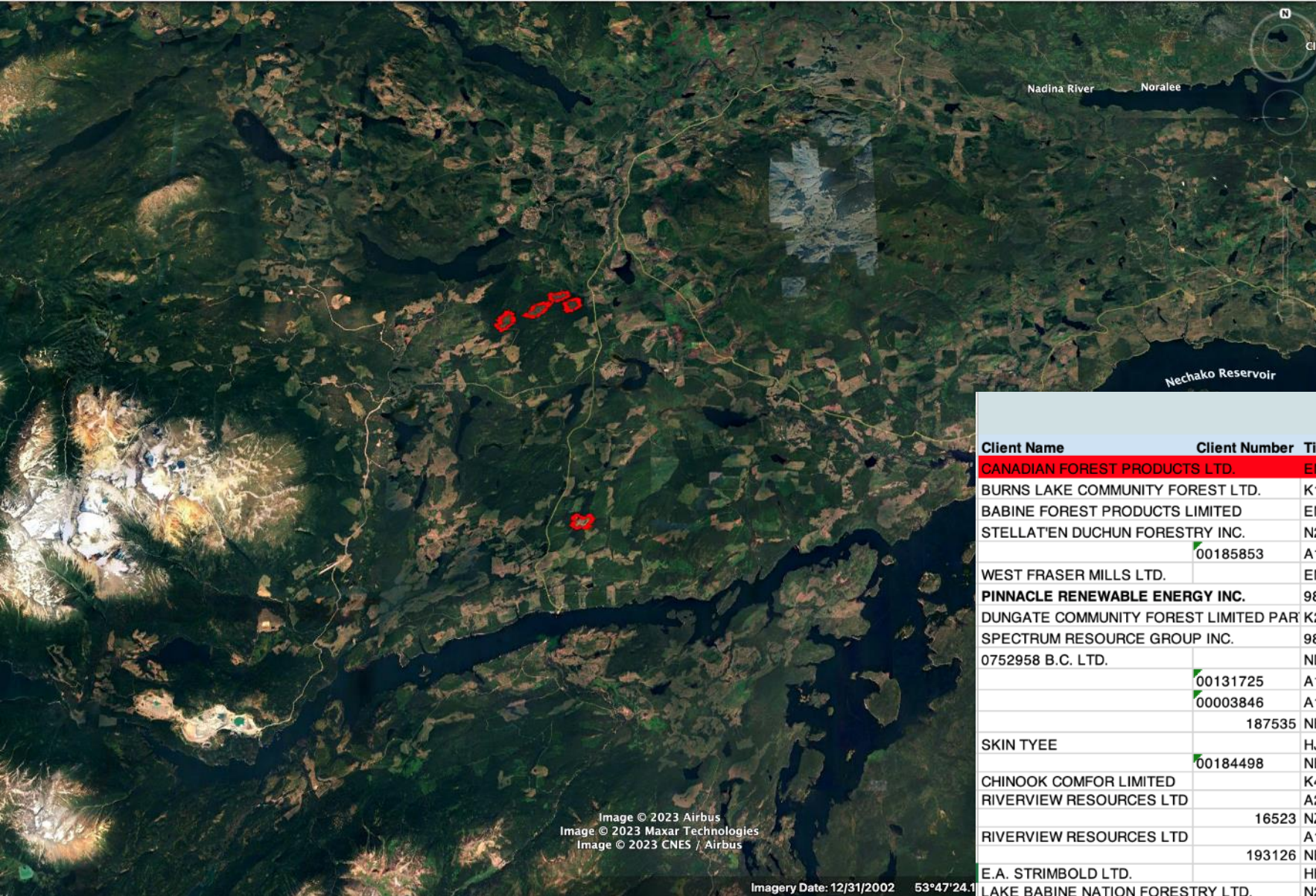






ドラックスのペレット工場に供給するための他社による伐採  
 Logging by other companies to feed Drax pellet mills

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Meadowbank (Q41)												
2	2022-11-11 to 2023-11-11						2021-11-11 to 2022-11-11						
3	Client Name	Client Number	Timbermarks	LPHTM	Logs	Undefined	Client Name	Client Number	Timbermarks	LPHTM	Logs	Undefined	
4	LAKELAND MILLS	00002015 00	EJ2235	440			SPECTRUM RESOURCE GROUP INC.	00186436 00	98579	975			
5	575012 B.C. LTD.	00112701	98226 (Direct Award);	98640 (D)	274		NOT RELEASABLE	00052359 00	EG: NECCG		849		
6	EDGEWATER HOLDINGS	00163404 00	NEMVF	195			QUESNEL INVESTMENTS CORP.		CG527U			416	
7	WINTON GLOBAL LUMBER LTD.		EJ7262	189			DOUG BROPHY CONTRACTING LTD	00081365 00	97623	390	1		
8	SPECTRUM RESOURCE GROU	00186436 00	98579	158			WEST FRASER MILLS LTD	00142662 03	52/11D	329			
9	CANADIAN FOREST PRODUCT	00001271 00	L52158	157			DUNKLEY LUMBER LTD.	00187548 00	53/344	310	8		
10	DUNKLEY LUMBER	00187548 00	53/321	98	49		CLAUSON EQUIPMENT SOLUTIONS L	00192493 00	98264	211			
11	NOT RELEASABLE	00173989 00	NECCG		117		EDGEWATER HOLDINGS	00163404 00	NEMVF		150		
12	1326293 BC LTD	00194873 00	WBPNC	82			FREYA LOGGING INCORPORATED	00178717 00	97621		81		
13	PINNACLE RENEWABLE ENER	00193031 00	98385 (DA)	74			POOL'S ARROW RANCH LTD	00188088 00	NEKBX		78		
14	437218 BC LTD	00057260 00	NEPYD	51			NOVAK BROS. CONTRACTING	00068497 00	NEJBN		70		
15	QUESNEL INVESTMENTS CORP.		CG549U			37	SORINE WINTHER HOLDINGS LTD	00144702 00	WAEEGG		53		
16	ROMAN CATHOLIC EPISCOPA	00007771 02	NCKTE		20		ROMAN CATHOLIC EPISCOPAL CORPO	00007771 02	NCKTE		43		
17	HART HIGHLANDS WINTER CLUB					9	FIBRE FARMS INC	00053558 00	WAZPKK		31		
18	CORJAN CONTRACTING LTD.					6	LONE OAK RANCH	00045691 00	NEOAP		30		
19	COLLEGE OF NEW CALADONI	00155179 00	L49404		5		ARE TREES LTD	00087033 00	NEGNG		16		
20			Total	1444	465	52	WILLOW RIVER DEMONSTRATION FOR	00027679 00	WAFVGG		12		
21			Grand total	1961			630605 BL LTD	00130444 00	NEPBL		12		
22							GRANDTREES FARM LTD	00116803 00	WAFRFF		10		
23							FOREST RESOURCES LTD	00118528 00	WAZTKK		5		
24							LIKLEY XATS'ULL COMMUNITY FOREST	00132979 00	K1L00X		4		
25							BRIS HOLDING LTD	00188851 00	NEKPI		2		
26							ALEZA LAKE RESEARCH FORESTRY SC	00125408 00	L45514		1		
27									Total		2215	1456	416
28									Grand total		4087		



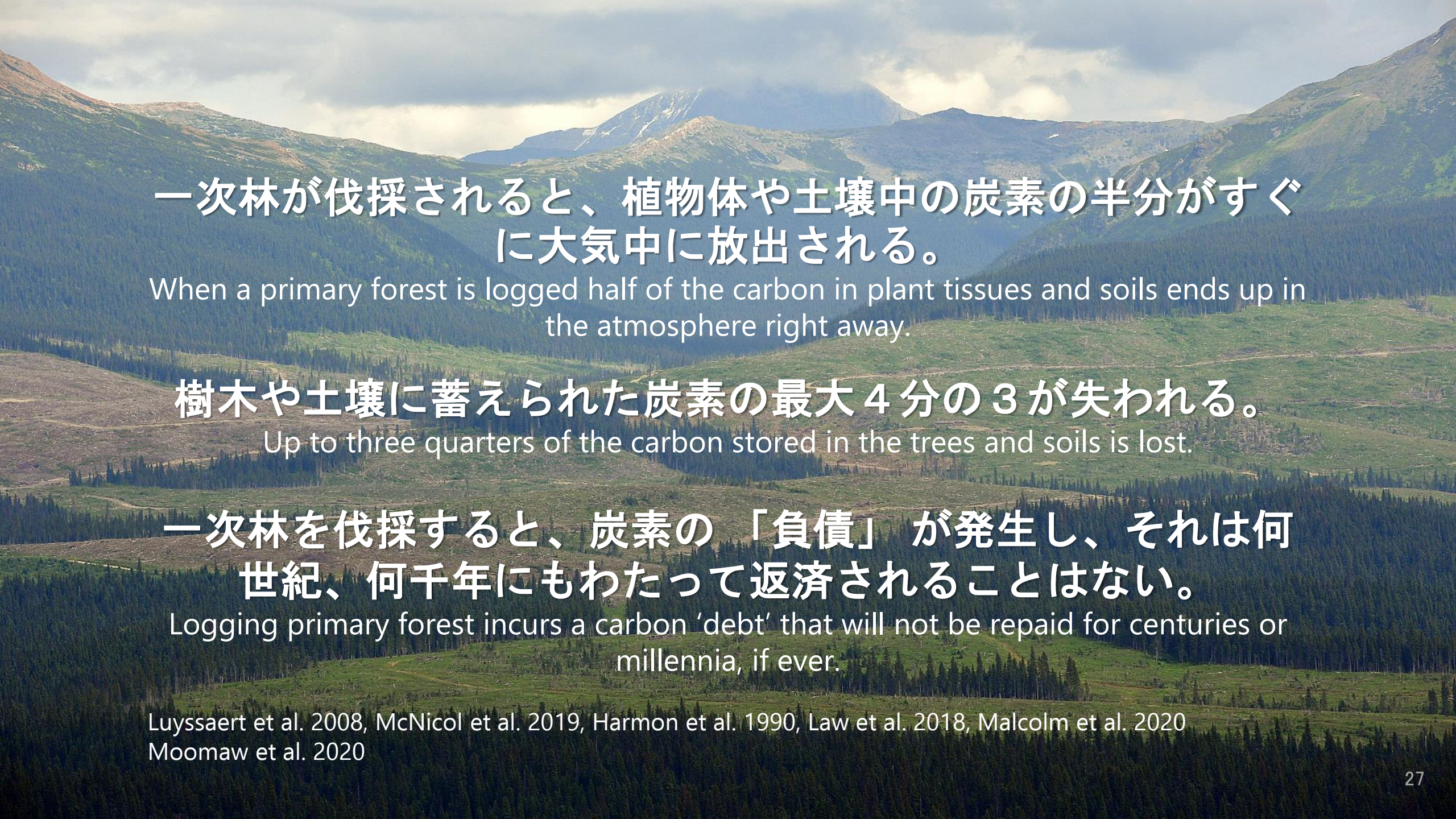
ドラックスのペレット工場に供給するための他社による伐採

Logging by other companies to feed Drax pellet mills

Image © 2023 Airbus  
Image © 2023 Maxar Technologies  
Image © 2023 CNES / Airbus

Imagery Date: 12/31/2002 53°47'24.1

Burns Lake (4440)				
2022-11-11 to 2023-11-11				
Client Name	Client Number	Timbermarks	Loads	Material
CANADIAN FOREST PRODUCTS LTD.		EM807K; EM807M; EM807W; E	1733	1488 LPHTM; 279 logs
BURNS LAKE COMMUNITY FOREST LTD.		K1AAAB	762	245 LPHTM; 495 logs
BABINE FOREST PRODUCTS LIMITED		EM2395; EM2920; EM2924; EM	701	192 LPHTM; 391 logs
STELLAT'EN DUCHUN FORESTRY INC.		N2QS03 (DA); N2QS06 (DA); N2	377	350 LPHTM, 27 loads missing
	00185853	A1583	240	Doesn't appear in weight scale invoices
WEST FRASER MILLS LTD.		EM3A00; EM3A82; EM5776	196	164 LPHTM; 23 logs
PINNACLE RENEWABLE ENERGY INC.		98733 (DA)	187	LPHTM
DUNGATE COMMUNITY FOREST LIMITED PAR		K2L125 (DA)	149	Logs (BA, LO, SP)
SPECTRUM RESOURCE GROUP INC.		98579 (DA)	145	LPHTM
0752958 B.C. LTD.		NDECZ	116	LPHTM
	00131725	A1977	103	
	00003846	A1008	102	
	187535	NEJQG	101	
SKIN TYEE		HJ9100 (DA); HJ9101 (DA)	95	
	00184498	NEHIS	93	
CHINOOK COMFOR LIMITED		K4R402 (DA)	82	
RIVERVIEW RESOURCES LTD		A2007	56	
	16523	NZECJ	54	
RIVERVIEW RESOURCES LTD		A1575	51	
	193126	NEOFI	37	
E.A. STRIMBOLD LTD.		HH554	27	
LAKE BABINE NATION FORESTRY LTD.		N2I018 (DA)	27	
	00183729	NEGUF	27	
	00120256	NDHRE	20	
593299 B.C. LTD.		NEFZL	19	
	169422	NEQDZ	18	
	00026126	NARWS	12	
	170040	WBEDD	12	
KISPIOX RIVER TIMBER LTD.		EP20AN	11	
KYAH DEVELOPMENT CORPORATION		FH5012 (DA)	11	
1168440 B.C. LTD		A1901	10	



一次林が伐採されると、植物体や土壌中の炭素の半分がすぐに大気中に放出される。

When a primary forest is logged half of the carbon in plant tissues and soils ends up in the atmosphere right away.

樹木や土壌に蓄えられた炭素の最大4分の3が失われる。

Up to three quarters of the carbon stored in the trees and soils is lost.

一次林を伐採すると、炭素の「負債」が発生し、それは何世紀、何千年にもわたって返済されることはない。

Logging primary forest incurs a carbon 'debt' that will not be repaid for centuries or millennia, if ever.

Luyssaert et al. 2008, McNicol et al. 2019, Harmon et al. 1990, Law et al. 2018, Malcolm et al. 2020  
Moomaw et al. 2020

**人工林が炭素を貯蔵し始めるのは20~30年後。**

Planted forests do not begin to store carbon for two or three decades.


**人工林が、伐採前の一次林の貯蔵能力に達するには  
1世紀以上かかる。**

They take more than a century to reach the storage capacity of the primary forests they replaced.

**これは、大気中の炭素濃度がこの期間に増加することを意味する。**

This means that atmospheric levels of carbon are increased for this period.

Harmon et al. 1990

An aerial photograph of a river meandering through a vast, dense forest. The river is a light, milky green color, contrasting with the dark green of the surrounding trees. The forest appears to be a mix of coniferous and deciduous trees, with some trees showing autumnal colors. The river has several sandbars and meanders, creating a complex pattern of water and land.

科学者たちは、一次林の保全、伐採の削減、二次林の管理の改善により、2039年までに地球温暖化を2°C未満に安定させるために必要な緩和策の37%を提供できると推定している。

Scientists estimate that conservation of primary forest, reduced logging and improved management of second growth forests could provide 37% of the mitigation needed to stabilize global warming below 2 degrees Celsius by 2039.

Kun et al. 2020, Griscom et al. 2017



# FSC CERTIFICATES PUBLIC DASHBOARD

2023-11-22 15:32:11



Search by Licence Code, Certificate Code, Organization Name, Local Name or State/Province

British Columbia

Certificate Type

- COC
- FM/COC
- (Blank)

Output Category

- 
- Select all
- FSC 100%

Data last updated

Role

- Certificate holder

Certificate Status

- Terminated
- Valid

Certification Body

- APCER
- KF
- NC
- SA
- SAI
- SCS

Country/Area

- 
- Canada

Tree Species

- 
- Select all
- Abies
- Acacia
- Acer
- Alnus

Product

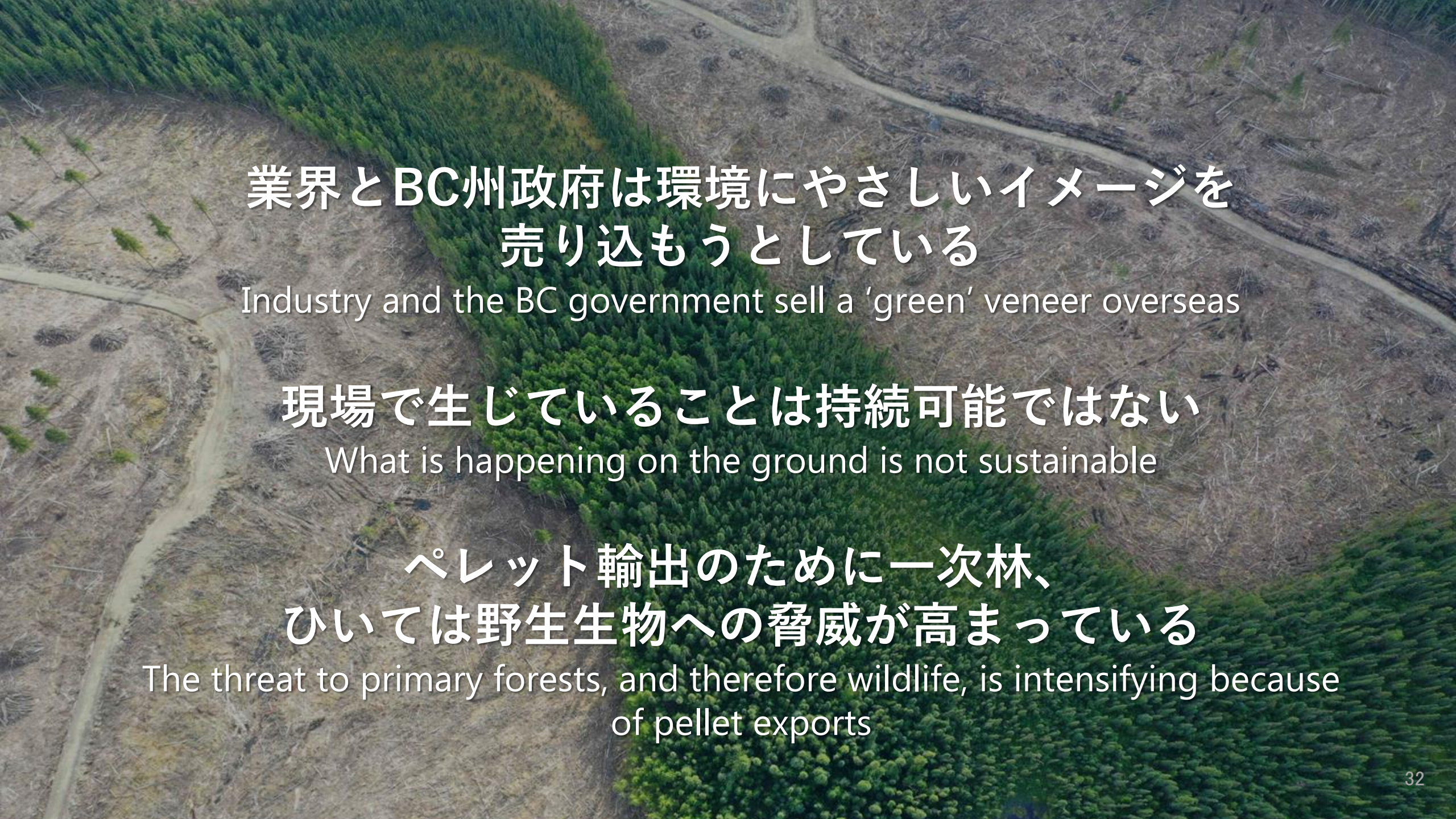
- 
- W3 Wood in chips or particles

Licence	Certificate Code	Cert Status	CW DDS	Date From	Valid To	Organization Name	Role	Site status	State/Province	Country/Area
FSC-C099993	SAI-COC-001126	Valid	Yes	2022-09-24	2027-09-23	Crown Corrugated Company Ltd, DBA Crown Packaging	Site	Valid	British Columbia	Canada
FSC-C099993	SAI-COC-001126	Valid	Yes	2022-09-24	2027-09-23	Crown Paper Group Inc., DBA The Port Townsend Group	Certificate holder	Valid	British Columbia	Canada
FSC-C012237	SA-COC-006693	Valid	Yes	2022-09-12	2027-09-11	Icon Global Supply Inc.	Site	Valid	British Columbia	Canada
FSC-C120178	APCER-COC-150472	Valid	No	2022-07-15	2024-03-02	Green Leaf Products Inc.	Site	Valid	British Columbia	Canada
FSC-C009841	SCS-COC-000320	Valid	No	2022-07-01	2027-06-30	Itochu Canada Ltd.	Site	Valid	British Columbia	Canada
FSC-C113491	SAI-COC-001433	Valid	No	2021-11-08	2026-11-07	Interex Forest Products Ltd.	Certificate holder	Valid	British Columbia	Canada
FSC-C043978	SCS-COC-005798	Valid	Yes	2021-04-29	2026-04-28	Kalesnikoff Lumber Company Ltd.	Certificate holder	Valid	British Columbia	Canada
FSC-C043978	SCS-COC-005798	Valid	Yes	2021-04-29	2026-04-28	Kalesnikoff Mass Timber	Site	Valid	British Columbia	Canada
FSC-C017908	NC-FM/COC-001758	Valid	No	2020-12-31	2025-12-30	Burns Lake Community Forest	Certificate holder	Valid	British Columbia	Canada
FSC-C018285	NC-COC-004031	Valid	No	2019-04-27	2024-04-26	P.J. White HardWoods Ltd. - Vancouver	Site	Valid	British Columbia	Canada
FSC-C018285	NC-COC-004031	Valid	No	2019-04-27	2024-04-26	P.J. White HardWoods Ltd. - Victoria	Site	Valid	British Columbia	Canada
FSC-C018285	NC-COC-004031	Valid	No	2019-04-27	2024-04-26	Team Wood Distribution, a Division of Richelieu Hardware Canada Ltd.	Site	Invalid	British Columbia	Canada

Right click and select  
Drill through > xx  
Detail to see the  
certificate details.



Burns Lake (4440)				
2022-11-11 to 2023-11-11				
Client Name	Client Number	Timbermarks	Loads	Material
CANADIAN FOREST PRODUCTS LTD.		EM807K; EM807M; EM807W; E	1733	1488 LPHTM; 279 logs
<b>BURNS LAKE COMMUNITY FOREST LTD.</b>		<b>K1AAAB</b>	<b>762</b>	<b>245 LPHTM; 495 logs</b>
BABINE FOREST PRODUCTS LIMITED		EM2395; EM2920; EM2924; EM	701	192 LPHTM; 391 logs
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	00131725	A1977	103	
	00003846	A1008	102	
	187535	NEJQG	101	
SKIN TYEE		HJ9100 (DA); HJ9101 (DA)	95	



業界とBC州政府は環境にやさしいイメージを  
売り込もうとしている

Industry and the BC government sell a 'green' veneer overseas

現場で生じていることは持続可能ではない

What is happening on the ground is not sustainable

ペレット輸出のために一次林、  
ひいては野生生物への脅威が高まっている

The threat to primary forests, and therefore wildlife, is intensifying because  
of pellet exports



ありがとう

