Alberta's forest economy 2021

A handbook of public economic and socioeconomic accounts

Alberta's Forest Economy 2021: A Handbook of Public Economic and Socioeconomic Accounts | Alberta Agriculture and Forestry

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Preface

Alberta’s forest economy

Alberta’s forest resources, sustainable forest management (“SFM”) regime, and world-class manufacturing facilities position the province as a global leader in the production of innovative forest products that support the economic, social and cultural fabric of over 90 rural and Indigenous communities. As a complement to Alberta’s rigorous and comprehensive forest management standards and regulations is the fact that 83 per cent of managed forest lands in the province have achieved third-party international SFM certification. This is a crowning achievement when only 11 per cent of global forests share the same status.

In the spring of 2020, the onset of the COVID-19 pandemic resulted in curtailment activity and temporary layoffs across the industry. Despite the highly uncertain operating environment, Alberta producers were well-positioned to supply the world with forest products as demand staged a comeback; first for pulp used in consumer tissue, packaging, and hygiene applications and later for solid wood products used in homebuilding and remodeling.

Statistical highlights

Statistic (units)	2019	2020
Certified area (% of managed forest)	82%	83%
Area disturbed (ha x 1,000,000)	1.639	…
Annual allowable cut (m3 x 1,000,000)	31.5	29.6
Harvest volume (m3 x 1,000,000)	24.8	22.7
Revenue ($C x 1,000,000)	7,609	…
Expenditures ($C x 1,000,000)	7,145	…
Investment ($C x 1,000,000)	860	…

Statistic (units)	2019	2020
Direct employment (full-time-equivalents)	17,490	14,884
Employee compensation ($C x 1,000,000)	1,578.3	1,465.6
Domestic sales ($C x 1,000,000)	4,080.4	…
Global exports ($C x 1,000,000)	3,528.6	4,000.7
U.S. exports ($C x 1,000,000)	2,319.2	2,939.6
Asian exports ($C x 1,000,000)	1,167.7	1,034.6
Timber royalties and fees ($C x 1,000,000)	120.7	525.6

About the publication

The purpose of this handbook is to highlight publicly-available sources of data that can be used to measure the well-being of Alberta’s forests and the contribution of forests to the economy. All tables and figures presented in this report can be replicated from online sources or are otherwise available upon request from Alberta Agriculture and Forestry.

For the purposes of analyzing national statistical accounts, the “forest industry” is considered to include North American Industry Classification System (“NAICS”) codes 113 (forestry and logging), 1153 (support activities for forestry), 321 (wood product manufacturing) and 322 (pulp and paper manufacturing). While this definition is generally accepted across Canada, it does not capture the broader supply chain, which also includes transportation providers, trading companies and building material dealers. For the purposes of analyzing trade data, “forest products” are considered to include HS 44 (wood and articles of wood), 47 (wood pulp) and 48 (paper and paperboard), as well as 940330 (wooden furniture) and 940610 (wood prefabricated buildings). Data presented in this publication was retrieved between August and September 2021 and may be subject to changes over time.

CHAPTER 1

Forest lands

FEATURED TREE

Lodgepole pine

Known as Alberta's provincial tree, lodgepole pine is recognized by most Alberta residents by its tall, straight, narrow crown. On average 24-metres in height, lodgepole pine is typically found in dense, even-aged stands formed as a result of wildfires. In Alberta, pine accounts for over 600 million cubic metres or 41 per cent of the provincial coniferous growing stock (or 26 per cent of the province's combined growing stock).

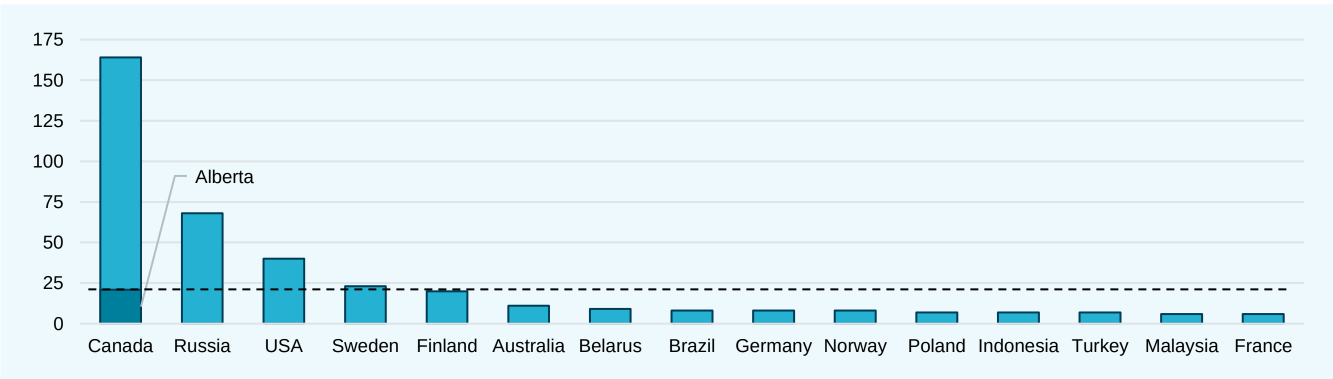
Forest certification

Forest certification is carried out by independent organizations, at the expense of forest companies, to assess operations against sustainable forest management standards. Alongside Alberta's rigorous forest management regime, certification supports the province's reputation as a source of legally and sustainably-manufactured forest products.

In 2000, Canada had 5 million hectares of certified forest area, a figure that increased to 143 million hectares by the end of the decade. Today, the certified total stands at over 164 million hectares. The story is much the same in Alberta, where the certified forest area has expanded from two million hectares in 2000 to just under 20 million hectares in 2009 and 21 million hectares today. This means that the province of Alberta has more sustainable forest management ("SFM") certified forest area than most countries. Over 83 per cent of Alberta forest lands with long-term tenure rights are third-party certified.

FIGURE 1: ALBERTA HAS MORE SFM-CERTIFIED FOREST AREA THAN MOST COUNTRIES

SFM-certified forest area by country in 2020 (hectares x 1,000,000)



Certified area, by jurisdiction	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Canada	151	148	153	162	166	168	170	164	168	164
British Columbia	54	52	52	52	53	52	51	50	52	47
Quebec	32	30	35	38	44	45	45	42	44	44
Ontario	23	24	25	27	25	27	28	28	28	28
Alberta	20	20	18	19	22	20	23	20	21	21
All Others	22	22	23	26	22	24	23	24	23	24
Russia	…	…	…	38	…	56	59	57	60	68
United States	…	…	…	41	…	47	47	39	39	40
Sweden	…	…	…	21	…	24	24	21	15	23
Finland	…	…	…	21	…	18	19	18	19	20
Australia	…	…	…	11	…	28	25	12	12	11
All others	…	…	…	…	…	…	…	…	…	128
Total, all jurisdictions	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**454**

Sources and Notes: (1) Alberta Agriculture and Forestry: calculations based on tenure rights data; (1) Certification Canada: "2000-2020 Year-End SFM Statistics"; (3) Natural Resources Canada: "Forest Resources Statistical Data (Management), 2000-2020". Double counting of areas certified to more than one standard has been removed from these figures. Totals may not add or be comparable with other tables due to rounding.

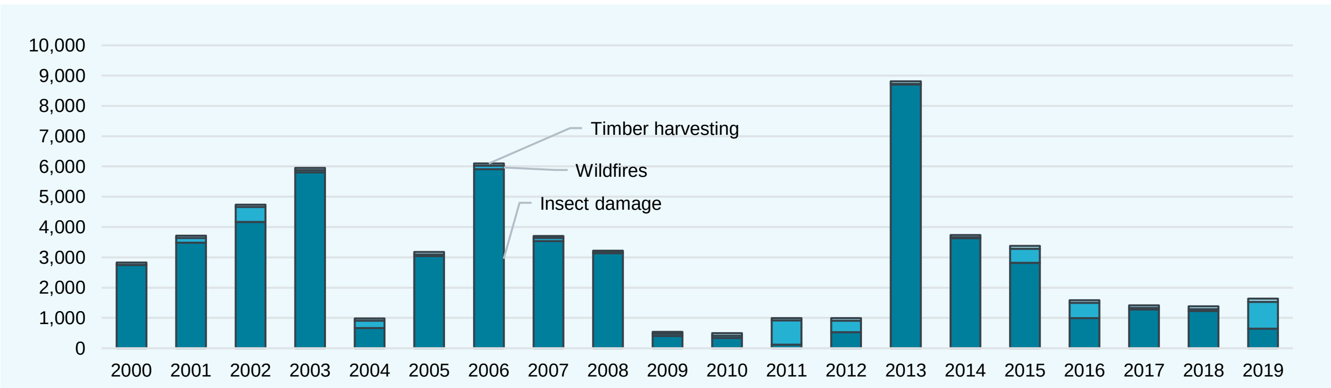
Forest disturbance

Disturbance is essential to forest health and regeneration, although it can pose challenges to tenure holders and communities. Wildfires and insect damage are the primary sources of natural disturbance and cause significantly more temporary forest loss than timber harvesting. Disturbance is often confused with deforestation, which is a permanent loss of forest cover that often supports industrial or urban development. For over 20 years, deforestation in Canada has been declining.

Insects and wildfires impacted 1.5 million hectares of land in 2019, of which, 179,000 hectares were moderately or severely damaged by mountain pine beetle infestations. While disturbance from natural disturbance can vary greatly from year-to-year, timber harvesting is relatively stable over time, depending on forest product prices and operating conditions. In 2019, the total area disturbed by harvesting represented less than 0.5 per cent of managed forest lands with long-term tenure rights.

FIGURE 2: INSECTS AND WILDFIRES ARE THE PRIMARY SOURCES OF DISTURBANCE IN ALBERTA FORESTS

Disturbed area, by type of disturbance from 2000 to 2019 (hectares x 1,000)



Disturbed area, by type	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Wildfires	806	386	20	24	466	507	49	60	886	…
Insects	115	525	8,705	3,635	2,820	993	1,278	1,229	641	…
Aspen twoleaf tier	0	0	2,118	0	1	19	0	0	131	…
Bruce spanworm	0	0	5	0	4	0	0	0	0	…
Forest tent caterpillar	79	496	6,473	3,567	1,586	525	594	273	127	…
Large aspen tortrix	0	0	2	1	54	213	294	509	2	…
Mountain pine beetle	0	0	0	0	1,121	199	213	205	179	…
Spruce beetle	0	0	0	0	1	10	3	2	2	…
Spruce budworm	35	29	37	44	52	19	17	30	47	…
All other insects	11	6	69	22	0	7	156	208	153	…
Timber harvesting	78	80	83	82	91	89	91	92	112	…
Total, all disturbance	**999**	**990**	**8,807**	**3,740**	**3,377**	**1,589**	**1,418**	**1,382**	**1,639**	…

Sources and Notes: (1) Natural Resources Canada: "7 facts on Disturbances and Deforestation"; (2) CCFM National Forestry Database, Table 3.1.2; (3) National Forestry Database, Table 4.1. National fire data includes all burned area within Alberta's forests, not including national parks. Defoliation does not imply mortality and a given area may be impacted by more than one insect. Totals may not add or be comparable with other tables due to rounding.

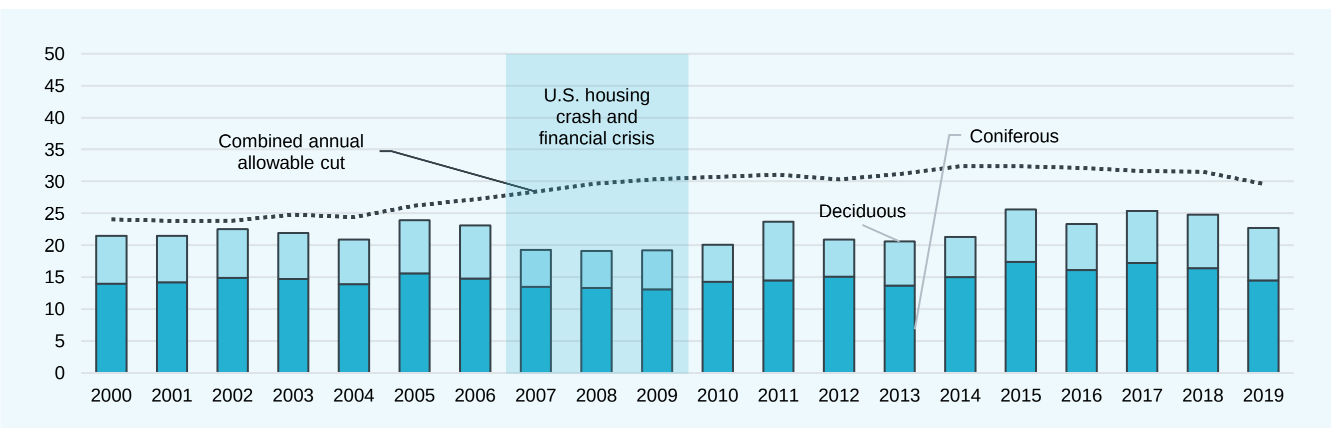
Timber harvesting

In Alberta, 90 per cent of timber is sourced from provincial lands, although private lands play an important role in the northeast, particularly as a source of deciduous timber. To ensure sustainability, each forest management agreement ("FMA") and timber quota is assigned an annual allowable cut ("AAC"), which is reconciled at the end of every five or 10-year cut control period to provide operating flexibility. Companies may choose not to utilize the AAC for the period if the timber is uneconomical to harvest, remote or difficult to access, or if there is uncertainty surrounding policy decisions. Reforestation is required on all provincial lands, with 97.6 per cent of cutblocks surveyed meeting the reforestation standard in timber year 2019-20. Monitoring reforestation in relation to provincial standards is an essential part of forest sustainability and assures the continual flow of the economic, social and environmental values that Albertans expect from their forests.

In 2019-20, a total of 14.5 million cubic metres of coniferous timber and 8.2 million cubic metres of deciduous timber was harvested on provincial lands. Private lands contributed an additional 0.7 million cubic metres of coniferous timber and 1.6 million cubic metres of deciduous timber. No timber was sourced from federal lands. In the same year, the AAC on provincial lands was 29.6 million cubic metres: 17.2 million cubic metres of coniferous timber and 12.4 million cubic metres of deciduous timber.

FIGURE 3: TIMBER IS ALWAYS HARVESTED WITHIN SUSTAINABLE LIMITS

Combined AAC and timber harvested from provincial lands, by species group (cubic metres x 1,000,000)



Harvest, by species group	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
Coniferous	14.5	15.1	13.7	15.0	17.4	16.1	17.2	16.4	14.5	…
Deciduous	9.2	5.8	6.9	6.3	8.2	7.2	8.2	8.4	8.2	…
Total, harvest volume	**23.7**	**20.1**	**20.6**	**21.3**	**25.6**	**23.3**	**25.4**	**24.8**	**22.7**	**…**

AAC, by species group	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
Coniferous	18.8	18.5	19.1	19.6	19.6	19.2	18.7	18.4	17.2	…
Deciduous	12.2	11.8	12.1	12.8	12.8	12.9	12.9	13.1	12.4	…
Total, AAC	**31.1**	**30.3**	**31.2**	**32.4**	**32.4**	**32.1**	**31.6**	**31.5**	**29.6**	…

Sources and Notes: (1) CCFM National Forestry Database, Tables 2.0 and 5.1. Please note that the time frame and calculation methodology differs from the figures provided in annual reports published by Alberta Agriculture and Forestry. Totals may not add or be comparable with other tables due to rounding.

FIGURE 4: PROVINCIAL LANDS ARE THE MAIN SOURCE OF TIMBER IN ALBERTA
Harvested volume, by species group and land ownership (cubic metres x 1,000)

Coniferous harvest, by type	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Provincial lands	14,528	15,077	13,747	14,980	17,360	16,109	17,172	16,373	14,535	…
Private lands	235	677	621	671	558	619	626	626	698	…
Federal lands	137	0	0	0	7	6	0	0	0	…
Total, harvest	**14,900**	**15,754**	**14,368**	**15,651**	**17,925**	**16,734**	**17,798**	**16,999**	**15,233**	**…**

Deciduous harvest, by type	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Provincial lands	9,213	5,809	6,855	6,280	8,187	7,202	8,176	8,414	8,210	…
Private lands	775	1,467	1,306	1,427	1,674	1,882	1,833	1,816	1,641	…
Federal lands	0	0	0	0	7	0	0	37	0	…
Total, harvest	**9,988**	**7,276**	**8,161**	**7,707**	**9,868**	**9,084**	**10,009**	**10,267**	**9,851**	**…**

Sources and Notes: (1) CCFM National Forestry Database. Totals may not add or be comparable with other tables due to rounding.

FIGURE 5: TIMBER IS PRIMARILY HARVESTED FOR USE IN FOREST PRODUCT MANUFACTURING
Harvested volume, by species group and product category (cubic metres x 1,000)

Coniferous harvest, by type	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Logs and bolts	14,869	15,717	14,357	15,618	17,905	16,707	17,775	16,981	15,194	…
Pulpwood	0	0	1	0	0	0	0	0	0	…
Fuelwood and firewood	7	17	1	22	20	27	23	17	39	…
Other roundwood	23	21	9	10	0	0	1	0	0	…
Total, harvest	**14,899**	**15,755**	**14,368**	**15,650**	**17,925**	**16,734**	**17,799**	**16,998**	**15,233**	**…**

Deciduous harvest, by type	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Logs and bolts	1,165	1,746	4,458	2,593	3,454	3,555	4,028	4,207	3,068	…
Pulpwood	8,822	5,529	3,694	5,108	6,398	5,521	5,974	6,056	6,774	…
Fuelwood and firewood	1	1	8	7	9	9	8	4	9	…
Other roundwood	0	0	0	0	0	0	0	0	0	…
Total, harvest	**9,988**	**7,279**	**8,160**	**7,708**	**9,861**	**9,085**	**10,010**	**10,263**	**9,851**	**…**

Sources and Notes: (1) CCFM National Forestry Database, Table 5.1. Totals may not add or be comparable with other tables due to rounding.

CHAPTER 2

The industry

FEATURED TREE

Aspen poplar

Trembling aspen is one of the most widely distributed tree species in North America. Aspen mixed with spruce and pine form communities that dominate over half of Alberta’s forests. Once referred to as a “weed” species, it was later recognized as a huge hardwood resource. Trembling aspen, grouped together with balsam poplar, constitutes 81 per cent of Alberta’s hardwood inventory.

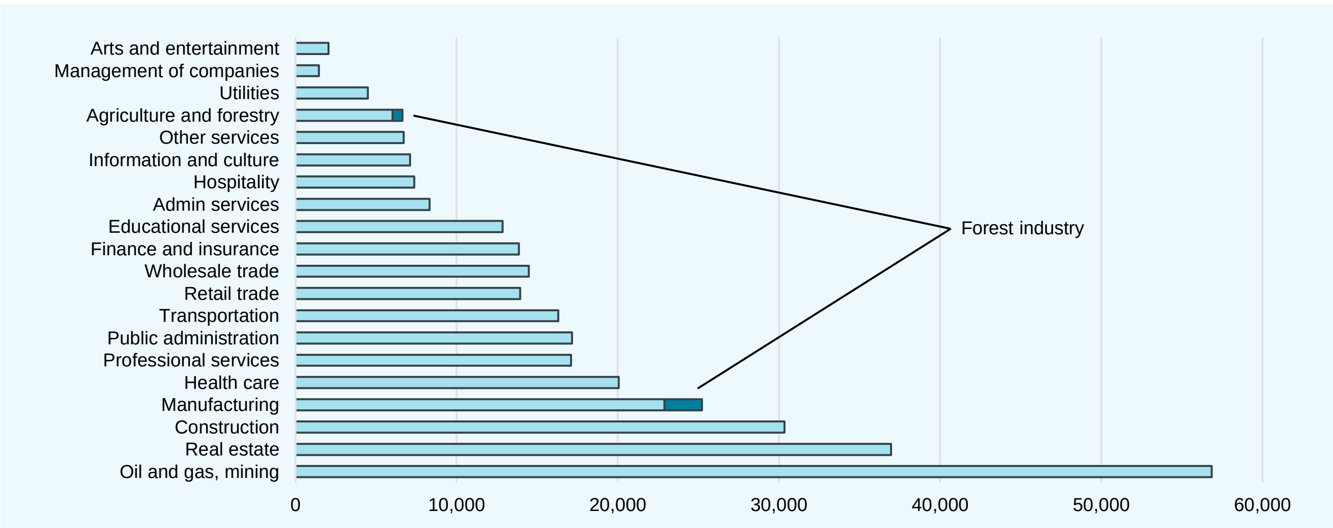
GDP contribution

Gross domestic product (“GDP”) is the total value of all final goods and services produced annually in a country, and is useful for measuring the size of an industry relative to other sectors or industries. Alberta’s forest industry spans two major economic sectors, contributing 10.2 per cent of agriculture and forestry and, separately, 10.2 per cent of manufacturing sector GDP. On an economy-wide basis, the forest industry represents approximately 1 per cent of Alberta’s GDP.

Over the past decade, from 2011 to 2020, Alberta’s forest industry has grown by 6.6 per cent on an inflation-adjusted basis. Forestry, logging, and support activities are accounted for in Alberta’s “agriculture and forestry” sector, while wood product manufacturing and pulp and paper manufacturing are accounted for in the “manufacturing” sector.

FIGURE 6: ALBERTA’S FOREST INDUSTRY SPANS TWO MAJOR ECONOMIC SECTORS

Nominal GDP by economic sector in 2017 ($C x 1,000,000)



Nominal GDP, by subsector	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Forestry and logging	370	414	313	359	392	403	430	…	…	…
Support activities	135	154	164	186	185	179	184	…	…	…
Wood product manufacturing	975	1,092	1,434	1,278	1,288	1,400	1,707	…	…	…
Pulp and paper manufacturing	578	409	495	654	668	582	624	…	…	…
Total, nominal GDP	**2,058**	**2,069**	**2,406**	**2,477**	**2,533**	**2,564**	**2,945**	**…**	**…**	**…**

Real GDP ($2012), by subsector	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Forestry and logging	392	414	421	460	462	446	436	437	402	439
Support activities	160	154.3	134	141	138	124	128	135	139	127
Wood product manufacturing	1,020	1,092	1,259	1,210	1,190	1,202	1,212	1,208	1,101	1,182
Pulp and paper manufacturing	436	409	388	431	461	461	407	410	363	393
Total, real GDP	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**

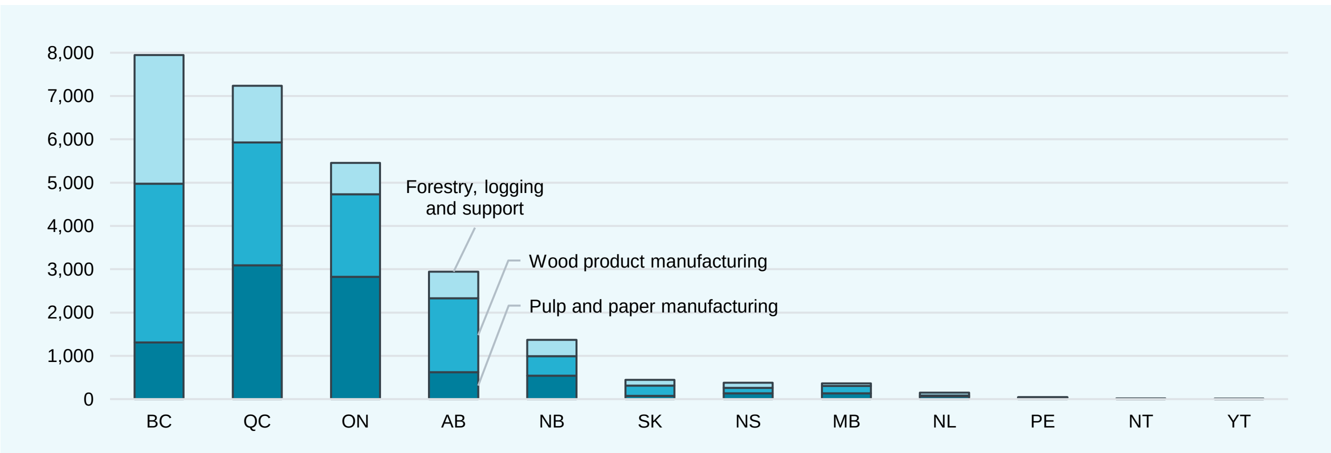
Sources and Notes: (1) Statistics Canada, Table 36-10-0402-01. Please note that real GDP is not additive at the subsector-level.

GDP comparisons

Alberta's forest industry is larger than the combined industries of all provinces and territories outside of British Columbia, Quebec, and Ontario. The industry consists of three major economic subsectors. The forestry, logging and support activities subsector contributes 21 per cent of Alberta forest industry GDP, and includes logging businesses, reforestation services and forest nurseries. The wood product manufacturing subsector contributes 58 per cent of GDP, and includes sawmills, panel mills, wood treatment plants, and secondary manufacturing. The pulp and paper subsector contributes 21 per cent of GDP, and includes pulp mills, a newsprint mill and paperboard plants.

FIGURE 7: ALBERTA HAS THE FOURTH-LARGEST FOREST INDUSTRY IN CANADA

Nominal GDP by forestry subsector and province in 2017 ($C x 1,000,000)



Province (Nominal GDP)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
British Columbia	5,942	6,303	6,566	6,936	7,017	7,421	7,946	…	…	…
Quebec	5,720	5,799	5,826	6,224	6,826	6,978	7,237	…	…	…
Ontario	4,293	4,154	4,332	4,223	4,522	4,936	5,458	…	…	…
Alberta	2,058	2,069	2,406	2,476	2,533	2,564	2,945	…	…	…
New Brunswick	989	1,104	982	1,040	1,155	1,252	1,367	…	…	…
Saskatchewan	247	324	342	341	353	390	444	…	…	…
Nova Scotia	419	288	293	343	349	369	380	…	…	…
Manitoba	270	303	349	324	312	350	365	…	…	…
Newfoundland and Labrador	124	120	124	148	157	152	149	…	…	…
Prince Edward Island	23	30	30	34	35	40	41	…	…	…
The Territories	18	18	18	20	20	20	22	…	…	…
Total, all provinces	**20,102**	**20,421**	**21,268**	**22,107**	**23,279**	**24,471**	**26,350**	**…**	**…**	**…**

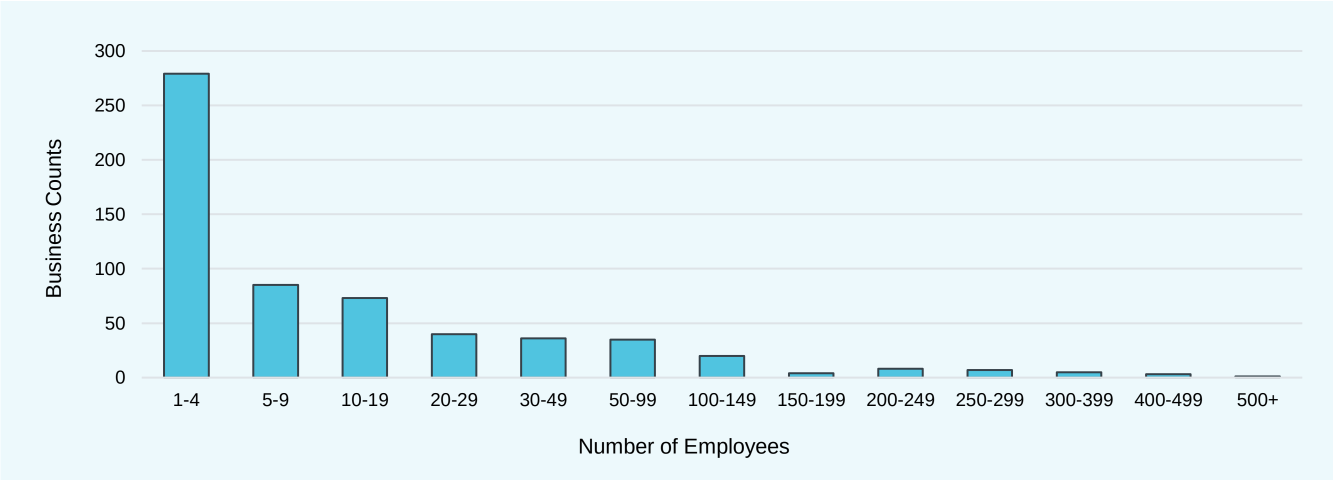
Sources and Notes: (1) Statistics Canada, Table 36-10-0402-01.

Industry structure

The forest industry is comprised of 40 medium and large mills that hold tenure rights and hundreds of small and medium-sized businesses that manufacture wood products or support forestry operations. At 2020 year-end, there were an estimated 460 businesses engaged in timber tract, logging and forestry operations. Another 242 operated wood product manufacturing businesses, including sawmills, panel mills, millwork shops and remanufacturing facilities. A total of 19 businesses were engaged in pulp and paper manufacturing, including large-scale pulp and newsprint operations and mid-sized paperboard and converted paper manufacturing operations.

FIGURE 8: THE INDUSTRY RELIES ON HUNDREDS OF SMALL AND MEDIUM BUSINESSES

Establishment counts by number of employees in 2020 (businesses >$30,000 in revenue)



Businesses, by employees	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
1 to 99 employees	…	…	…	…	820	812	769	734	722	670
100 to 199 employees	…	…	…	…	28	30	27	29	27	29
200 to 499 employees	…	…	…	…	22	19	23	23	23	22
500+ employees	…	…	…	…	3	3	1	1	1	…
Total, businesses	**…**	**…**	**…**	**…**	**873**	**864**	**820**	**787**	**773**	**721**

Businesses, by subsector	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Forestry and logging	…	…	…	…	352	352	330	322	317	294
Support activities	…	…	…	…	193	200	195	183	177	166
Wood product manufacturing	…	…	…	…	306	291	277	264	261	242
Pulp and paper manufacturing	…	…	…	…	22	21	18	18	18	19
Total, businesses	**…**	**…**	**…**	**…**	**873**	**864**	**820**	**787**	**773**	**721**

Sources and Notes: (1) Statistics Canada, Table 33-10-0214-01 (for 2020) and previous iterations of the December reference period (for 2011-2019). Businesses are counted according to the number of “statistical locations” they have. For example, a company with three sawmills and a headquarters would be counted four times in the business count data (3 sawmills + 1 HQ). Business count data may not be comparable between time periods due to variations resulting from methodological changes.

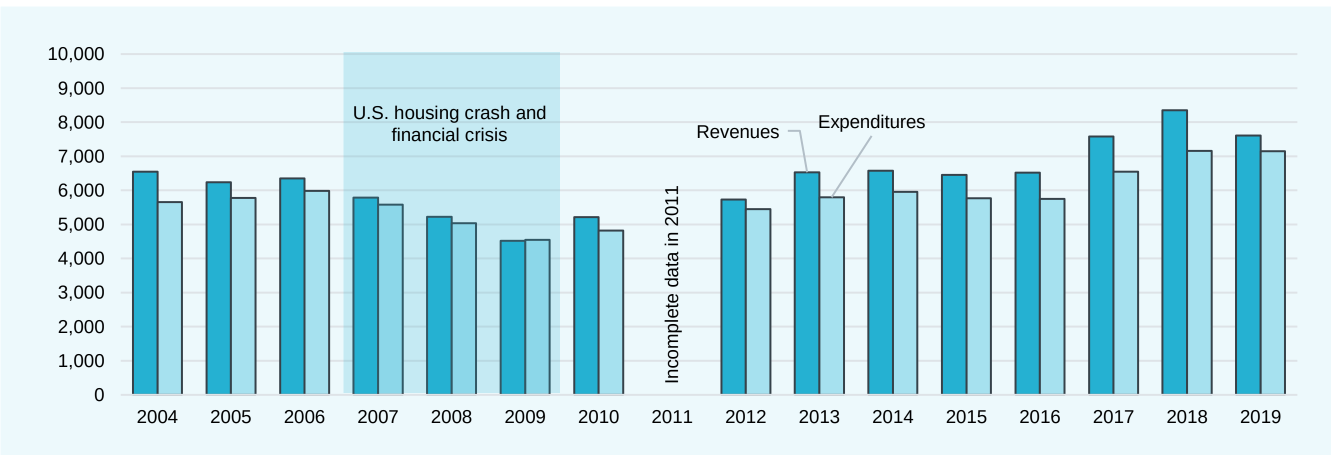
Financial performance

The financial performance of the industry is critical to communities across Alberta. Due to the nature of forestry operations, most industry spending occurs at the regional level. In 2019, forest industry revenues (excluding support activities) totaled $7.6 billion, lower than the $8.3 billion recorded in 2018 following a broad-based decline in forest product prices. Expenditures were virtually unchanged at approximately $7.1 billion.

Revenues have remained above peak levels experienced prior to the Great Recession since fully recovering in 2013. Secure access to fibre, world-class mills and competitive hosting conditions allow companies to earn returns that exceed many other jurisdictions in North America – which suggests continued investments in mills, stable employment and a continued stream of regional spending and timber royalties that benefit Albertans.

FIGURE 9: REVENUES DECLINED WITH PRICES IN 2019, WHILE EXPENDITURES WERE UNCHANGED

Industry revenue and expenditures, all subsectors (ex-support activities) (C$ x 1,000,000)



Revenues, by subsector	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Forestry and logging	793	881	873	924	992	1,004	997	1,022	1,125	…
Support activities	…	…	…	…	…	…	…	…	…	…
Wood product manufacturing	2,650	3,083	3,817	3,789	3,434	3,825	4,293	4,747	3,984	…
Pulp and paper manufacturing	…	1,770	1,843	1,862	2,033	1,690	2,294	2,600	2,500	…
Total, revenue	**…**	**5,734**	**6,533**	**6,575**	**6,459**	**6,519**	**7,584**	**8,369**	**7,609**	

Expenditures, by subsector	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Forestry and logging	761	845	858	900	966	980	957	992	1,111	…
Support activities	…	…	…	…	…	…	…	…	…	…
Wood product manufacturing	2,602	2,916	3,333	3,426	3,136	3,267	3,462	3,992	3,831	…
Pulp and paper manufacturing	…	1,693	1,609	1,633	1,669	1,507	2,129	2,203	2,203	…
Total, expenditures	**…**	**5,454**	**5,800**	**5,959**	**5,771**	**5,754**	**6,548**	**7,187**	**7,145**	

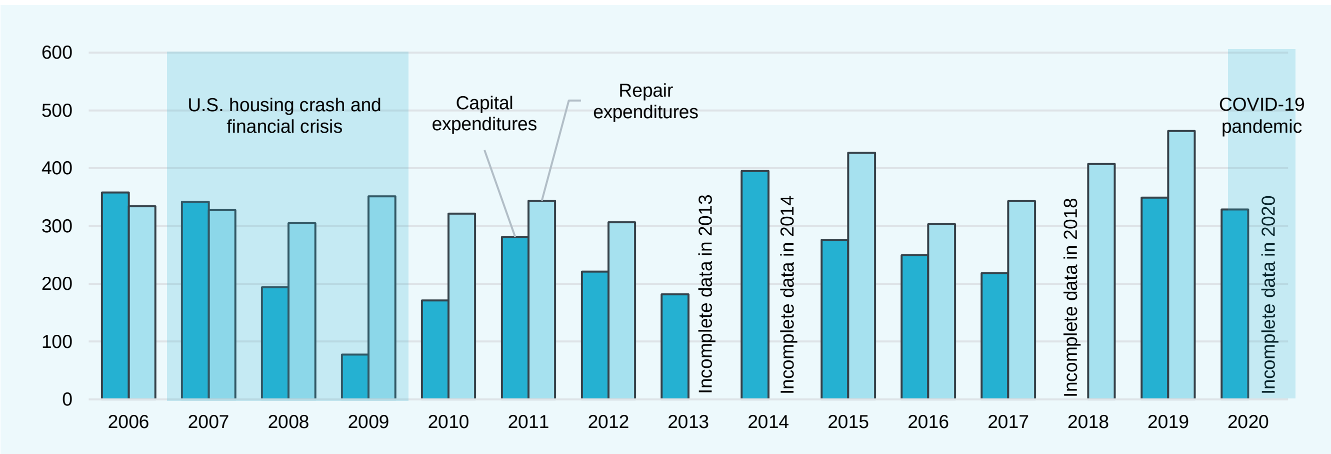
Sources and Notes: (1) Statistics Canada, Tables 16-10-0117-01 and 16-10-0114-01 and previous iterations.

Investment

The forest industry continues to invest in Alberta, ensuring that mills are competitive within North America and globally, despite a freight disadvantage to many markets. Over the past decade, capital and repair projects have resulted in an estimated $6.5 billion of investment in Alberta. In 2020 alone, forest companies invested $329 million in projects aimed at improving efficiency, adding new product lines, monetizing residual streams, enhancing health and safety, and reducing costs in 2020. Capital and repair projects support jobs within and outside of the industry.

FIGURE 10: FORESTRY OPERATIONS CONTINUE TO ATTRACT HIGH LEVELS OF INVESTMENT

Capital investment and repair expenditures, all subsectors (ex-support activities) (C$ x 1,000,000)



CAPEX, by Subsector	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Forestry and logging	22	34	46	55	57	73	64	…	50	51
Support activities	…	…	…	…	…	…	…	…	…	…
Wood product manufacturing	83	79	90	186	124	88	75	181	233	189
Pulp and paper manufacturing	175	108	43	154	94	88	80	88	112	89
Total, CAPEX	**280**	**221**	**179**	**395**	**275**	**249**	**219**	**…**	**395**	**329**

Repair Expenses, by Subsector	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Forestry and logging	27	37	…	…	69	56	98	70	64	…
Support activities	…	…	…	…	…	…	…	…	…	…
Wood product manufacturing	138	96	148	193	169	145	149	238	239	…
Pulp and paper manufacturing	178	174	161	128	189	102	96	100	162	…
Total, Repair Expenditures	**343**	**307**	**…**	**…**	**427**	**303**	**343**	**408**	**465**	**…**

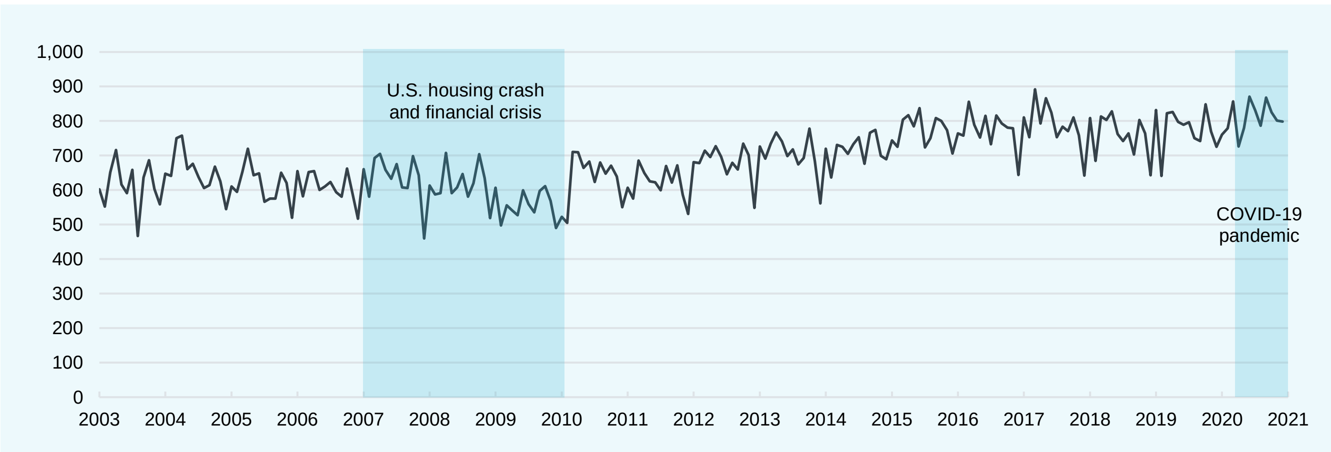
Sources and Notes: (1) Statistics Canada, Table 34-10-0035-01. For information on research and development expenditures, see Table 27-10-0341-01.

Lumber production

In terms of softwood lumber production, Alberta ranks third among provinces for the volume of softwood lumber manufactured at approximately 17.7 per cent of the Canadian total – behind only British Columbia and Quebec. Alberta sawmills manufactured 9.7 million cubic metres of softwood lumber in 2020, the highest total on record. Lumber is only one of many forest products manufactured in Alberta, but production data for other major forest products is not available in national statistical accounts at the provincial level. Please note that while cubic metres is the unit of measurement used by Statistics Canada in this instance, lumber production is typically measured in thousand board feet within North America.

FIGURE 11: ALBERTA IS THE THIRD-LARGEST MANUFACTURER OF SOFTWOOD LUMBER IN CANADA

Alberta softwood lumber production, monthly (cubic metres x 1,000)



Province	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
British Columbia	28,414	29,164	30,023	29,635	30,612	31,448	30,337	29,200	22,839	21,176
Quebec	10,256	10,951	12,194	12,188	13,720	13,983	13,720	13,971	13,573	13,488
Alberta	7,445	8,161	8,467	8,621	9,324	9,383	9,656	9,480	9,342	9,684
All other provinces	…	…	…	7,332	9,064	10,217	11,416	11,727	10,905	10,371
Total, Canada	**…**	**…**	**...**	**57,776**	**62,719**	**65,031**	**65,129**	**64,379**	**56,659**	**54,718**
Alberta's share of production (%)	…	…	…	14.9%	14.9%	14.4%	14.8%	14.7%	16.5%	17.7%

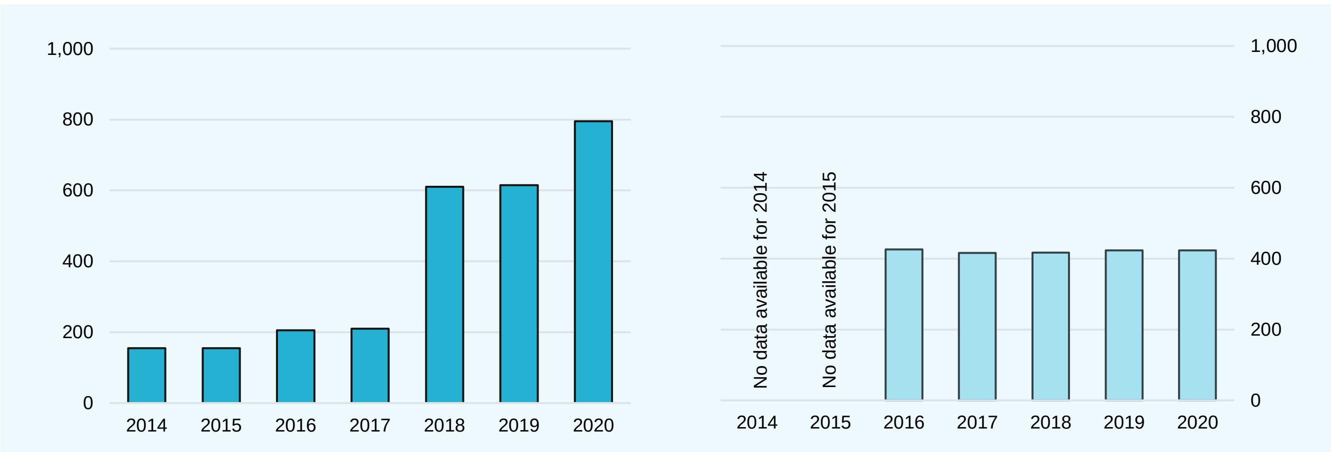
Sources and Notes: (1) Statistics Canada, Table 16-10-0017-01.

Bioenergy capacity

The forest industry has become a reliable supplier of energy and bioenergy products as companies have made significant investments in electricity generation and wood pellet production capacity. All of the province's pulp and paper mills have generating capabilities that utilize either woody biomass or natural gas – alongside two standalone power plants that utilize woody biomass exclusively. Wood pellet production capacity has expanded significantly with the addition of a greenfield pellet plant in 2018 and several pellet plant projects at sawmills that used to operate beehive burners. Companies export wood pellets internationally and sell to buyers within Canada – including buyers located within the province and in the Territories.

FIGURES 12 AND 13: FOREST INDUSTRY BIOENERGY CAPACITY CONTINUES TO EXPAND

Wood pellet production capacity (tonnes x 1,000) (left); Forest industry electricity generating capacity (MW) (right)



Pellet capacity, by facility	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Sawmills	…	…	…	155	155	205	210	210	215	395
Pellet plants	…	…	…	…	…	…	…	400	400	400

Generating capacity , by facility	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Sawmills	…	…	…	…	…	27	27	27	27	27
Paper mills	…	…	…	…	…	63	63	63	63	63
Pulp mills	…	…	…	…	…	281	281	281	290	290
Power plants	…	…	…	…	…	54	42	43	43	43

Sources and Notes: (1) Canadian Biomass Magazine: 2014 – 2021 Pellet Maps, (2) AESO: Current Supply-Demand Report.

FIGURE 14: WOODY BIOMASS ACCOUNTS FOR 0.75% OF ALBERTA'S TOTAL ELECTRICITY GENERATION

Electricity generation, by fuel type (MWh x 1,000)

Generation, by fuel type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Woody biomass	449	549	540	490	446	426	341	405	388	…
All other sources	63,509	53,649	54,890	59,335	53,766	52,943	54,662	51,081	51,638	…

Sources and Notes: (1) Statistics Canada: Table 25-10-0019-01.

CHAPTER 3

Trade and markets

FEATURED TREE

White spruce

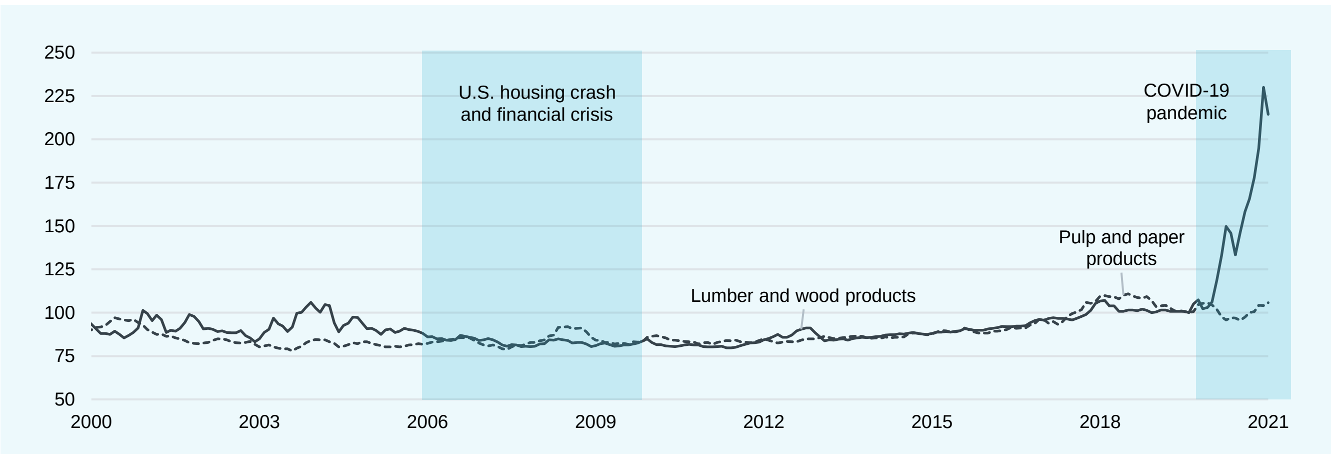
White spruce is one of the most widely distributed and hardiest native Boreal Forest conifers in North America. The species is acknowledged as one of Alberta's most valuable commercial species. It accounts for 30 per cent of the province's total forest inventory, and 48 per cent of Alberta's merchantable volume of coniferous growing stock.

Forest product prices

Forest product prices vary by product, grade and market. In general, prices have increased from the lows experienced in 2008, with a strong pricing environment in 2017-18 and an unprecedented spike in prices in 2020-21. The COVID-19 crisis initially stoked demand for consumer paper products, but later resulted in record-breaking solid wood prices as homebuilding and renovation markets boomed. After several curtailments early in the crisis, Alberta's mills were well-positioned to benefit from the price spike from mid-2020 through to early 2021 as mills elsewhere in North America remained closed.

FIGURE 15: PRICES FOR SOLID WOOD PRODUCTS CLIMBED TO RECORD HIGHS IN 2020 AND 2021

Monthly industrial product price indices for forest products, Canada (January 2020 = 100)



Benchmark prices	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Western SPF Lumber, #2andbtr.	…	…	…	385	355	404	521	622	478	746
OSB, 7/16" U.S. North Central	…	…	…	241	267	356	458	456	278	595
Plywood, 3/8" Toronto	…	…	…	429	430	432	509	548	459	593
NBSK Pulp, Canada/U.S.	…	…	…	1,131	1,243	1,296	1,437	1,744	1,644	1,531
NBHK Pulp, Canada	…	…	…	945	1,111	1,122	1,245	1,498	1,374	1,184
Newsprint, 48.8g U.S.	…	…	…	677	688	757	897	959	971	848

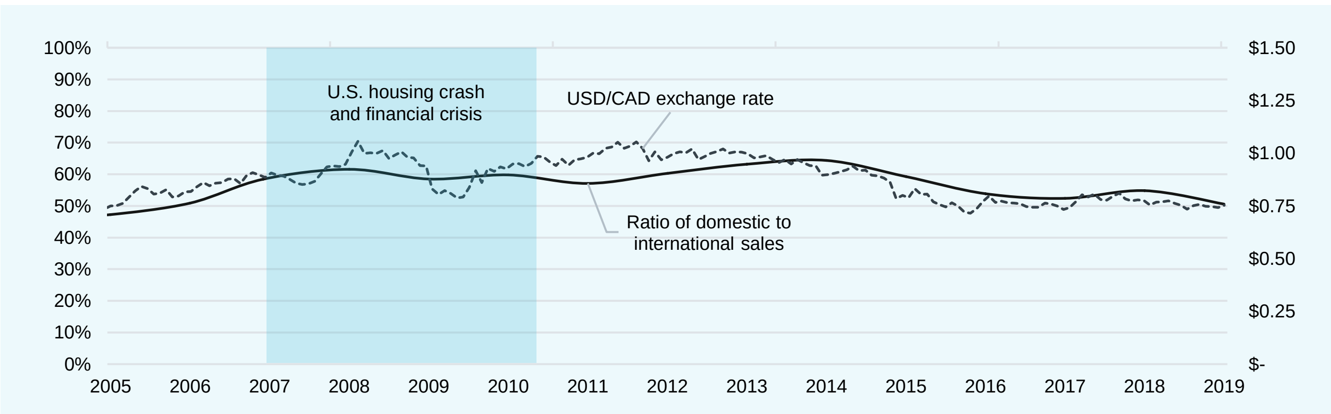
Exchange rate	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
CAD/USD	…	…	…	1.104	1.279	1.325	1.300	1.300	1.327	1.342

Sources and Notes: (1) Statistics Canada: Table 18-10-0265-01, (2) public filings of West Fraser, Norbord, and Cascades, 2014-20, (3) Bank of Canada: Historical Exchange Rates. Annual averages provided in the table are Canadian dollars per thousand board feet for lumber, Canadian dollars per thousand square feet for OSB and plywood, Canadian dollars per air-dry metric tonne for pulp, and Canadian dollars per finished tonne for newsprint.

Internal trade

Alberta wood products can be found on construction sites and retail shelves right across the country. An estimated 61.5 per cent (by value) of solid wood products, including lumber, panels and secondary wood products, are sold within Canada and the remainder is exported internationally. Pulp and paper is primarily an export product, with 22 per cent (by value) sold within Canada and the remainder exported internationally for use in paper products. When it comes to logging and forestry services, nearly all sales occur within Alberta (as would be expected given the nature of the business).

FIGURE 16: JUST OVER HALF OF ALBERTA FOREST PRODUCTS AND SERVICES (BY VALUE) ARE SOLD WITHIN CANADA
Ratio of domestic to international sales (%) versus USD/CAD exchange rate



Exports, by market	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Canada	60%	63%	64%	59%	54%	52%	55%	51%	51%	…
International	40%	37%	36%	41%	46%	48%	45%	49%	49%	…

Sources and Notes: (1) Statistics Canada: Table 16-10-0117-01 and Table 16-10-0114-01, (2) Statistics Canada: Canadian International Merchandise Trade Database. Please note that the ratio of domestic to international sales is calculated based solely on forest industry revenues and exports.

FIGURE 17: ALBERTA'S FOREST INDUSTRY EXPORTED NEARLY $4 BILLION WORTH OF FOREST PRODUCTS IN 2020
Forest industry exports, by subsector ($C x 1,000,000)

Exports, by subsector	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Forestry and logging	1.4	1.3	1.2	1.4	1.4	0.9	1.4	1.5	2.5	3.8
Support activities	…	…	…	…	…	…	…	…	…	…
Wood product manufacturing	…	…	…	…	…	…	…	…	…	…
Sawmills	351.7	397.7	514.3	612.5	662.9	838.9	1,022.5	1,073.9	893.5	1,303.5
Panel mills	106.0	110.2	174.7	306.8	388.2	476.5	631.0	794.9	549.5	983.3
Other manufacturers	59.7	53.0	36.4	49.3	43.1	33.4	43.2	48.1	89.1	46.0
Pulp and paper manufacturing	1,476.8	1,548.8	1,600.6	1,707.4	1,884.6	1,753.8	1,724.4	2,202.1	1,946.4	1,625.9
Total, exports	**1,995.6**	**2,111.0**	**2,327.2**	**2,667.4**	**2,980.2**	**3,103.5**	**3,422.5**	**4,120.5**	**3,481.0**	**3,972.5**

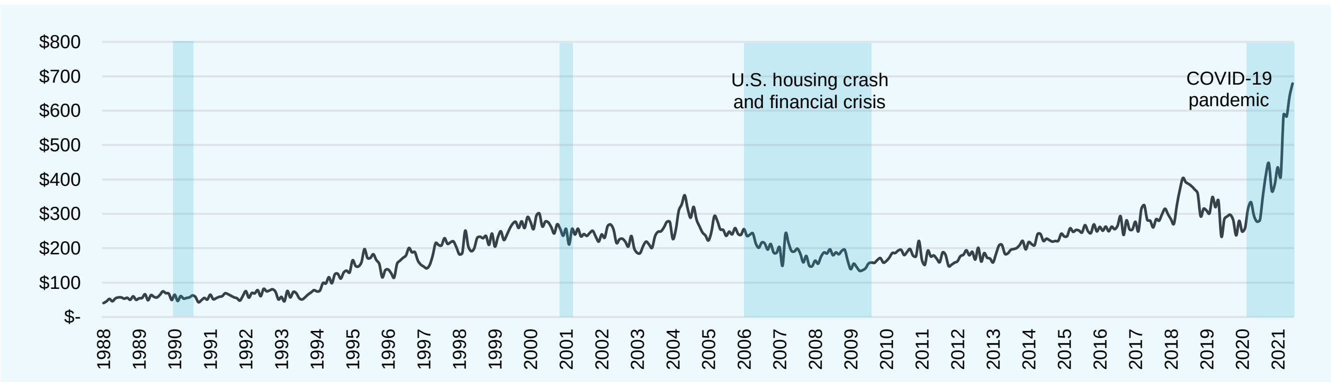
Sources and Notes: (1) Innovation, Science, and Economic Development Canada, Trade Data Online. Industry export statistics may not match forest product export statistics as some forest products are exported by businesses classified as operating within other industries.

International trade

The strong export performance of Alberta's forest industry over several decades speaks to the competitiveness of its mills and demand for its sustainable forest products. The substantial increase in the total value of Alberta forest products in the mid-1990s can be attributed largely to the start-up of several greenfield pulp and paper mills and wood product manufacturing facilities. Since 2000, the number of greenfield starts has been limited as virtually all forest tenure within the province has been allocated. However, existing operations have consolidated, added new business lines and expanded production. June 2021 was the best export month of all-time (by value), with $679 million in international sales.

FIGURE 18: THE VALUE OF ALBERTA'S FOREST PRODUCT EXPORTS SET NEW RECORDS IN EARLY 2021

Alberta forest product exports, monthly ($C x 1,000,000)



Exports, by product	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Lumber	332.6	375.0	493.7	589.7	645.6	825.3	1,008.7	1,062.5	880.9	1,290.9
NBHK/NBSK pulp	1,133.5	1,114.0	1,151.6	1,195.3	1,368.1	1,229.9	1,125.3	1,538.0	1,323.6	1,087.1
Oriented strand board	69.4	66.9	122.7	249.9	321.2	428.9	556.7	706.3	450.6	883.7
BCTMP pulp	189.7	274.1	289.6	326.4	324.3	339.1	407.3	467.5	447.8	373.0
Newsprint	108.6	109.2	102.0	119.4	123.9	123.5	124.4	120.0	99.5	90.5
Fibreboard	24.4	26.7	33.7	38.6	47.5	41.5	55.8	66.3	66.9	75.7
Wooden furniture	7.4	12.3	10.2	12.9	14.1	15.9	16.8	20.7	22.1	21.6
Windows and doors	2.4	2.1	2.3	3.3	3.6	4.4	5.4	8.0	18.7	13.8
Wood pellets	6.0	7.0	6.6	11.4	15.0	9.4	9.6	11.1	13.9	13.6
Plywood	10.6	15.3	17.1	16.8	17.7	3.3	14.0	15.7	17.1	12.3
Logs and bolts	14.3	17.2	16.5	17.8	11.5	9.9	10.0	9.1	11.4	10.7
Decking and floor boards	0.2	0.4	0.3	0.7	0.9	0.8	4.2	6.9	5.4	7.8
Prefabricated wood buildings	0.0	0.0	0.0	0.0	0.0	0.0	2.5	4.9	47.0	3.4
All other products	131.4	134.5	115.6	128.5	127.0	116.6	144.0	136.5	123.6	116.8
Total, exports	**2,030.4**	**2,154.8**	**2,361.6**	**2,710.8**	**3,020.5**	**3,148.5**	**3,485.0**	**4,173.4**	**3,528.6**	**4,000.7**

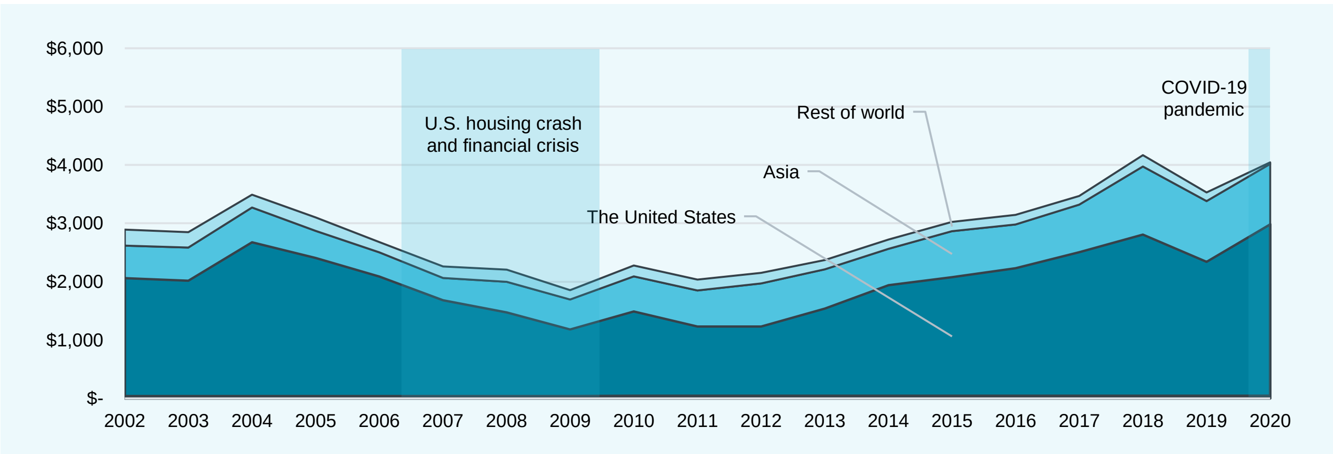
Sources and Notes: (1) Innovation, Science, and Economic Development Canada, Trade Data Online. Please note that export values by product will not match exports from Alberta's forest industry as some forest products are exported by other industries. Totals may not add due to rounding.

Export destinations

Alberta's largest export markets for forest products (by value) are the United States (73 per cent), China (16 per cent), Japan (5 per cent), South Korea (2 per cent), and Taiwan (1 per cent). Vietnam, Indonesia, the European Union, the Philippines and Mexico (all less than 1 per cent of exports) are also important markets, particularly for pulp manufacturers. Companies exported $4 billion worth of forest products to global markets in 2020, including $2.9 billion worth of products to the United States, $626 million to China, $203 million to Japan, $82 million to South Korea and $150 million to the rest of the world.

Within the United States, $279 million worth of forest products were shipped to Wisconsin, $211 million to California, $207 million to Texas and $2.2 billion to other states. Alberta companies shipped products to every U.S. state in 2020.

FIGURE 19: ALBERTA'S LARGEST EXPORT MARKETS ARE THE UNITED STATES, CHINA, AND JAPAN
Alberta forest product exports, by destination ($C x 1,000,000)



Exports, by destination	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
United States	1,222.7	1227.2	1,514.3	1,909.1	2,053.2	2,208.0	2,496.8	2,791.1	2,319.2	2,939.6
China	285.1	436.7	363.1	357.8	513.7	517.0	586.0	723.5	720.0	626.2
Japan	215.3	185.4	218.7	207.2	202.7	183.6	158.0	294.2	212.1	203.4
South Korea	121.6	123.3	105.6	82.8	96.2	74.3	95.2	160.8	114.3	82.0
Taiwan	29.3	25.2	24.1	26.2	29.1	33.4	30.0	42.9	44.7	42.6
Vietnam	1.7	1.9	1.7	3.7	3.0	2.1	7.7	22.7	20.8	18.2
Indonesia	12.6	14.3	13.2	10.7	12.5	14.8	19.9	25.6	22.2	17.5
European Union	70.5	54.4	44.8	37.7	39.4	33.9	23.2	29.5	18.2	11.1
Philippines	0.0	2.7	5.1	2.9	5.7	6.0	10.4	21.1	8.1	9.8
Mexico	17.7	40.1	35.9	30.3	25.9	19.2	2.8	4.8	11.8	7.9
New Zealand	7.0	7.9	3.6	3.8	4.0	4.1	4.5	11.0	7.3	3.7
Other Destinations	46.8	35.5	31.6	38.5	35.2	52.1	50.4	46.2	29.9	38.7
Total, exports	**2,030.4**	**2,154.8**	**2,361.6**	**2,710.8**	**3,020.5**	**3,148.5**	**3,485.0**	**4,173.4**	**3,528.6**	**4,000.7**

Sources and Notes: (1) Innovation, Science, and Economic Development Canada, Trade Data Online. Please note that export values by product will not match exports from Alberta's forest industry as some forest products are exported by other industries. Totals may not add due to rounding.

FIGURE 20: ALBERTA EXPORTS FOREST PRODUCTS TO ALL 50 U.S. STATES AND THE DISTRICT OF COLUMBIA

Alberta forest product exports, by U.S. destination ($C x 1,000,000)

Exports, by U.S. state	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Wisconsin	269.8	275.3	320.1	361.1	331.9	301.9	347.5	360.5	306.8	278.7
California	70.8	53.1	74.2	134.1	163.9	155.8	222.0	237.5	161.6	211.6
Texas	48.6	51.3	58.6	94.5	101.3	99.6	155.8	175.8	170.3	207.3
Washington	91.2	113.2	124.9	137.9	154.5	169.8	132.9	94.2	102.4	197.2
Minnesota	74.4	70.9	129.1	134.9	101.2	129.5	135.1	203.2	171.3	184.5
Idaho	46.0	44.8	63.4	78.0	76.1	119.6	128.0	163.9	110.4	146.7
Oregon	34.2	31.8	32.1	32.4	55.0	130.2	141.5	96.1	80.4	132.0
Illinois	48.4	49.3	61.4	73.1	89.3	85.2	104.2	104.1	89.9	131.9
Pennsylvania	64.5	48.8	44.7	40.2	41.1	96.0	89.8	102.0	78.6	125.1
Utah	21.3	17.3	22.0	37.0	41.8	33.3	33.2	58.9	50.8	99.5
Colorado	15.2	13.4	22.9	40.4	47.1	64.9	77.2	73.6	46.0	92.0
Tennessee	30.4	29.1	32.1	59.2	58.4	97.3	49.9	64.5	85.0	89.4
Montana	16.7	21.9	25.8	27.4	27.7	30.1	42.2	72.1	67.5	85.1
Georgia	55.7	47.2	60.2	70.4	68.0	61.5	65.2	78.7	46.0	74.5
Michigan	33.2	37.2	41.6	50.1	62.8	48.6	52.0	73.6	63.0	65.1
Arizona	12.5	11.5	14.8	31.9	55.4	41.6	48.5	66.0	49.7	64.0
Missouri	38.5	31.5	36.0	38.2	54.0	48.6	57.3	56.5	33.1	62.7
Indiana	14.7	18.5	24.1	35.1	36.6	42.0	56.8	75.0	42.2	62.7
North Carolina	8.2	9.9	15.3	17.1	18.6	22.0	34.5	44.5	42.6	54.9
Alabama	36.5	33.7	38.4	41.0	39.9	24.7	49.0	39.6	43.5	49.6
Iowa	21.1	22.3	22.7	25.5	28.0	26.5	36.5	44.8	37.6	46.6
New York	17.0	19.9	23.8	67.5	64.2	58.2	42.9	49.1	32.3	46.6
Kentucky	7.9	13.4	16.2	20.2	28.1	17.6	33.0	31.3	34.3	38.9
South Carolina	2.0	13.1	28.7	31.8	39.1	48.3	61.1	71.9	69.6	36.9
Ohio	20.2	15.1	12.4	17.1	22.1	21.5	22.5	28.2	18.7	35.3
Nebraska	12.8	15.8	18.7	22.6	24.4	19.0	34.9	33.3	23.6	33.7
Nevada	13.7	11.3	12.7	16.9	16.5	18.2	27.9	28.2	25.9	29.4
Florida	6.2	6.7	11.5	16.8	21.0	22.1	19.1	24.6	21.3	26.2
South Dakota	9.0	10.5	12.6	15.7	14.6	11.5	17.2	18.3	16.6	26.2
North Dakota	23.2	26.6	22.9	26.2	23.7	26.2	25.0	28.7	2..7	25.9
Massachusetts	3.0	3.4	9.3	25.2	32.9	22.8	22.7	22.8	22.9	21.9
Other states and territories	55.6	62.4	81.4	89.7	113.9	113.7	131.4	169.8	151.7	157.4
Total, exports	**1,222.7**	**1227.2**	**1,514.3**	**1,909.1**	**2,053.2**	**2,208.0**	**2,496.8**	**2,791.1**	**2,319.2**	**2,939.6**

Source: (1) Innovation, Science, and Economic Development Canada, Trade Data Online. Totals may not add due to rounding.

FIGURE 21: THE U.S. IS THE PRIMARY DESTINATION FOR SOLID WOOD PRODUCTS AND NEWSPRINT

Alberta forest product exports to the United States, by product ($C x 1,000,000)

Exports, by product	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Lumber	250.3	298.7	419.9	540.6	600.5	763.6	897.3	877.8	758.6	1,178.2
Oriented strand board	66.4	66.7	122.5	249.7	320.1	426.6	555.8	703.0	441.0	841.9
NBHK/NBSK pulp	577.7	526.8	668.3	776.1	786.0	709.4	679.6	826.1	713.5	578.7
Fibreboard	22.1	25.1	31.9	38.0	46.5	40.7	55.8	66.3	66.9	75.6
Newsprint	107.1	109.2	101.5	119.1	123.1	119.2	119.9	102.6	78.8	72.8
BCTMP pulp	38.4	29.8	25.9	24.2	19.6	20.2	16.5	30.6	28.0	14.0
Wooden furniture	7.1	11.4	9.4	12.0	13.0	15.4	16.1	19.6	21.3	21.2
Wood pellets	5.9	6.8	6.5	11.4	15.0	9.3	9.6	11.1	13.9	13.5
Plywood	10.5	15.2	16.9	16.7	17.6	3.3	14.0	15.6	17.1	12.2
Windows and doors	1.5	1.2	1.5	1.8	1.8	3.6	3.6	6.1	16.4	12.2
Decking and floor boards	0.0	0.4	0.3	0.7	0.8	0.7	4.1	6.8	5.3	7.8
Prefabricated wood buildings	0.0	0.0	0.0	0.0	0.0	0.0	2.3	4.9	46.8	3.4
All other products	121.4	118.9	93.5	101.0	97.8	86.0	112.1	111.6	100.2	97.5
Total, exports	**1,222.7**	**1227.2**	**1,514.3**	**1,909.1**	**2,053.2**	**2,208.0**	**2,496.8**	**2,791.1**	**2,319.2**	**2,939.6**

Sources and Notes: (1) Innovation, Science, and Economic Development Canada, Trade Data Online. Totals may not add due to rounding.

FIGURE 22: ASIA IS THE PRIMARY DESTINATION FOR PULP PRODUCTS

Alberta forest product exports to Asia, by product ($C x 1,000,000)

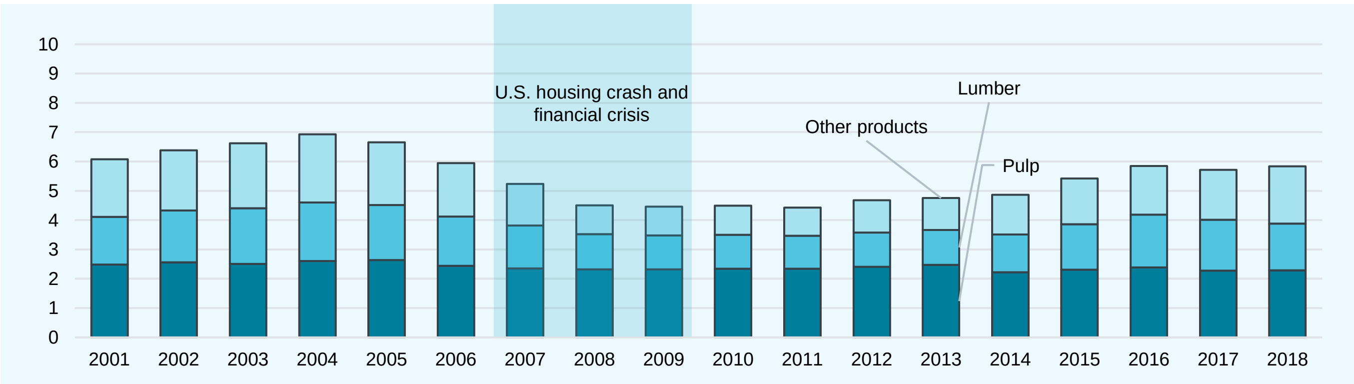
Exports, by product	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
NBHK/NBSK pulp	492.2	536.7	449.0	381.8	550.2	487.6	419.5	698.3	599.5	498.1
BCTMP pulp	98.3	181.4	203.2	250.0	258.9	275.3	367.8	401.9	394.0	348.4
Lumber	79.0	73.1	72.3	48.3	43.7	61.2	109.9	183.6	121.8	111.4
Oriented strand board	3.0	0.3	0.2	0.0	0.6	2.0	0.1	1.4	9.5	41.8
Newsprint	0.6	0.0	0.2	0.0	0.8	4.3	4.6	17.3	20.3	17.6
Windows and doors	0.7	0.8	0.8	1.0	1.1	0.8	1.5	1.0	1.0	0.3
Wood pellets	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Plywood	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Fibreboard	0.3	0.1	0.2	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Wooden furniture	0.0	0.1	0.2	0.0	0.0	0.1	0.2	0.4	0.0	0.0
Decking and floor boards	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Prefabricated wood buildings	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0
All other products	6.7	13.6	19.1	25.3	27.5	29.0	29.7	22.2	21.2	16.9
Total, exports	**681.0**	**806.5**	**745.6**	**706.6**	**882.9**	**861.0**	**933.4**	**1,326.1**	**1,167.7**	**1,034.6**

Sources and Notes: (1) Innovation, Science, and Economic Development Canada, Trade Data Online. Totals may not add due to rounding.

Transportation

Canada's rail infrastructure is critical to the success of Alberta's forest industry. Infrastructure investment and operational effectiveness are important competitiveness considerations. In 2019, nearly 5.7 million tonnes of Alberta forest products were transported by rail, including 2.2 million tonnes of pulp, 1.6 million tonnes of lumber, and 1.9 million tonnes of other forest products, including panels, newsprint, logs and other wood/paper products.

FIGURE 23: RAIL IS THE PRIMARY MODE OF TRANSPORTATION FOR ALBERTA PULP AND LUMBER
Forest products shipped by rail (tonnes x 1,000,000)



Shipments, by destination	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
United States and Mexico	2.3	2.4	2.6	2.9	3.2	3.4	3.2	3.2	3.2	…
British Columbia	1.6	1.6	1.5	1.2	1.5	1.6	1.8	1.8	1.8	…
Quebec and Ontario	0.5	0.6	0.5	0.6	0.6	0.7	0.6	0.6	0.6	…
Rest of Canada	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	…

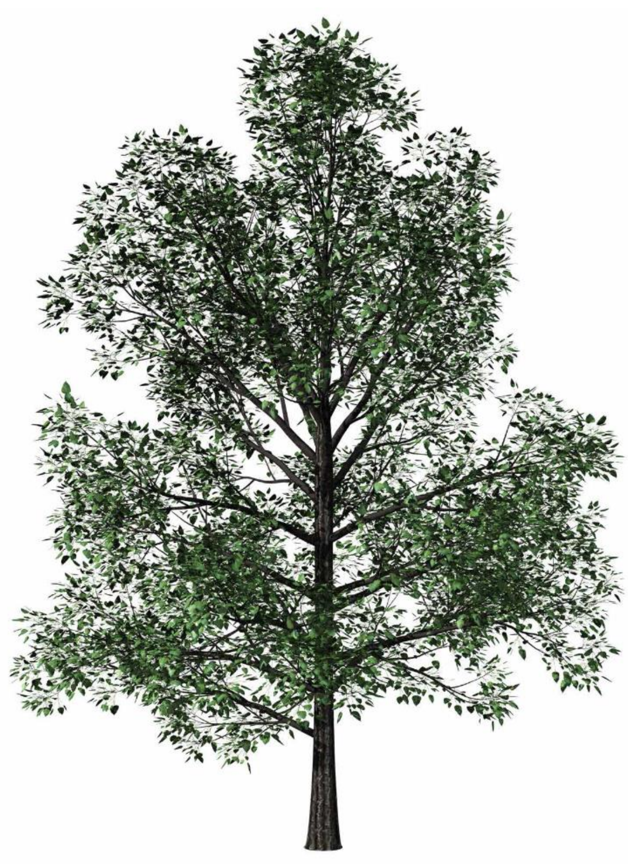
Shipments, by product	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Pulp	2.3	2.4	2.5	2.2	2.3	2.4	2.3	2.3	2.2	…
Lumber	1.1	1.2	1.2	1.3	1.6	1.8	1.7	1.6	1.6	…
All Others	1.0	1.1	1.1	1.4	1.6	1.7	1.7	1.9	1.9	…

Sources and Notes: (1) Statistics Canada, Table 23-10-0062-01.

FIGURE 24: RAIL IS THE PRIMARY MODE OF TRANSPORTATION FOR ALBERTA LUMBER EXPORTS
Alberta forest product exports to the United States, by product ($C x 1,000,000)

Lumber exports, by mode	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Rail	1,661.8	1,699.1	1,965.1	2,327.4	2,850.0	3,687.8	3,344.3	3,098.1	3,315.3	3,710.7
Truck	491.2	556.5	656.1	768.0	790.4	635.5	777.8	804.3	808.9	948.5
Water	348.5	324.2	221.4	141.4	128.6	189.8	333.1	506.1	459.7	394.5
Total, lumber exports	**2,501.5**	**2,579.8**	**2,842.6**	**3,236.7**	**3,769.1**	**4,513.2**	**4,455.2**	**4,409.1**	**4,583.8**	**5,053.7**

Source: (1) Statistics Canada: Table 16-10-0018-01.



CHAPTER 4

Employment

FEATURED TREE

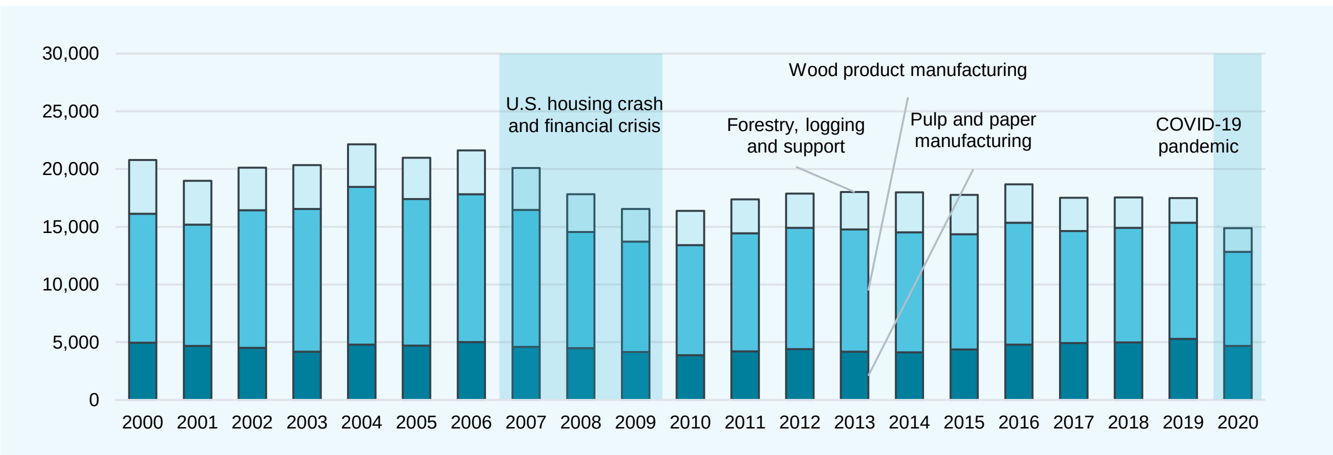
Balsam poplar

Next to trembling aspen, balsam poplar is the most prominent deciduous species in Alberta's Boreal mixed forest. Trees are medium-sized, 18 – 24 metres tall and 30 to 60cm in diameter. Balsam poplar comprises 15 per cent of Alberta's hardwood inventory and about six per cent of Alberta's total forest inventory.

Direct and support jobs

Forest industry activity creates direct jobs for workers and supporting jobs for contractors and suppliers. Jobs in other industries, such as hospitality and retail, also rely on forestry. Prior to the pandemic-related employment shock experienced in early 2020 as a result a sharp but brief drop in demand, the forest industry directly employed approximately 17,500 people and supported an estimated 23,900 jobs across the economy. Annualized 2020 data shows a decline of approximately 2,600 jobs year-over-year, which reflects the impact of temporary mill curtailments in the first half of the year and permanent closures in the value-added wood product manufacturing sector, which is dominated by small and medium-sized businesses that rely heavily on consumer spending. Estimates for 2020 are preliminary and will be revised in the May 2022 data release.

FIGURE 25: FOREST INDUSTRY EMPLOYMENT DROPPED IN 2020 DUE TO TEMPORARY CLOSURES IN SPRING 2020
Number of full-time equivalent jobs (annual)



Employment, by subsector	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Forestry and logging	2,675	2,930	2,730	2,550	2,740	3,040	3,165	3,240	3,305	3,015
Support activities	1,525	1,485	1,455	1,565	1,625	1,750	1,760	1,740	1,980	1,655
Wood product manufacturing	…	…	…	…	…	…	…	…	…	…
Sawmills and treatment plants	3,360	3,530	3,630	3,595	3,815	4,105	4,030	3,680	3,695	2,975
Panel/EWP mills	2,115	2,480	2,345	2,380	2,590	3,010	2,225	2,390	2,255	1,735
Millwork and other	4,770	4,485	4,605	4,415	3,590	3,440	3,440	3,850	4,115	3,460
Pulp and paper manufacturing	…	…	…	…	…	…	…	…	…	…
Pulp, paper, and paperboard	2,120	2,275	2,590	2,775	2,695	2,570	2,095	1,860	1,345	1,095
Converted paper products	795	675	655	695	700	755	790	785	795	950
Total, employment	**17,360**	**17,860**	**18,010**	**17,975**	**17,755**	**18,670**	**17,505**	**17,545**	**17,490**	**14,885**

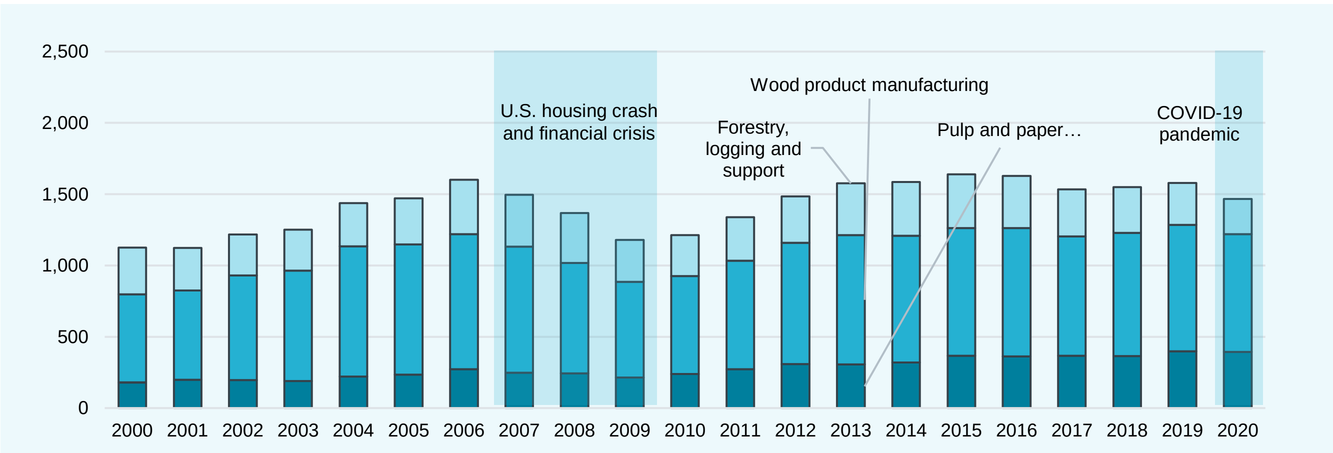
Sources and Notes: (1) Statistics Canada: Table 36-10-0489-01. Statistics Canada updates the labour statistics consistent with the System of National Accounts ("SNA") at least once each year. This means that the 2020 employment data reported here is preliminary and will be adjusted in next year's edition.

Employee compensation

Compensation typically accounts for a quarter of industry costs, making the forest industry a significant source of income and spending within rural communities. Total compensation paid to employees was $1.5 billion in 2020. The forest industry competes for workers with other industries, including the energy industry, and as such, wages and salaries are typically higher than in other provinces.

FIGURE 26: EMPLOYEE COMPENSATION DIPPED IN 2020 DUE TO TEMPORARY CLOSURES IN SPRING 2020

Total employee compensation, all subsectors ($C x 1,000,000)



Compensation, by subsector	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Forestry and logging	221.8	257.0	253.2	254.6	297.6	295.4	300.2	290.5	314.4	316.3
Support activities	50.1	51.2	52.0	65.5	68.7	67.2	67.0	73.4	84.6	77.5
Wood product manufacturing	761.7	849.9	907.3	887.3	895.8	898.9	836.2	865.4	885.9	824.8
Pulp and paper manufacturing	305.3	325.4	363.5	378.4	376.1	366.2	330.6	320.7	293.4	246.7
Total, compensation	**1,338.8**	**1,483.6**	**1,576.0**	**1,585.8**	**1,638.3**	**1,627.7**	**1,534.1**	**1,550.0**	**1,578.2**	**1,465.4**

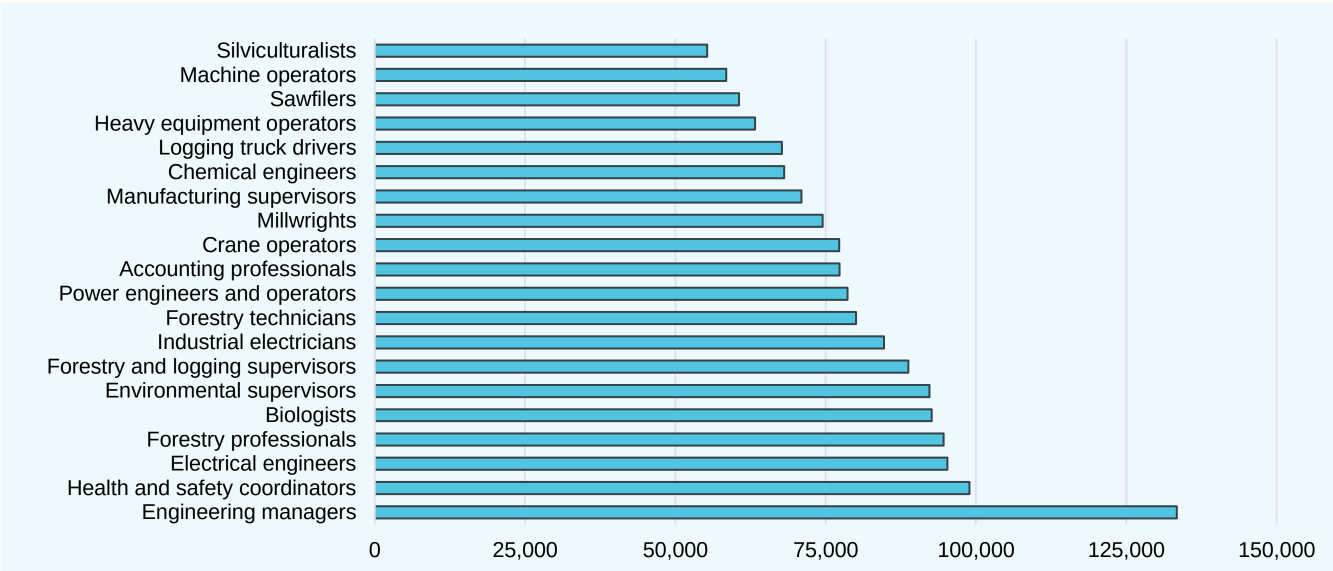
Sources and Notes: (1) Statistics Canada: Table 36-10-0480-01.

Industry occupations

Forest industry occupations tend to be higher-paying than those in other industries. Alberta Labour and Immigration forecasts that the top 10 growth occupations are expected to be: 1) manufacturing technicians, 2) labourers, 3) logging and forestry supervisors, 4) manufacturing managers, 5) accountants, 6) heavy equipment operators, 7) maintenance planners, 8) power engineers, 9) crane operators, and 10) wood processing operators. The forest industry requires the skills of workers from over 60 occupations.

FIGURE 27: FORESTRY OCCUPATIONS PAY WELL

Average salary or annualized wage equivalent, by occupation ($C)



Forestry-Specific Occupations	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Forestry professional	…	…	…	…	…	…	94,273	…	94,619	…
Forestry technician	…	…	…	…	…	…	63,945	…	80,053	…
Pulp/wood manufacturing labourer	…	…	…	…	…	…	51,673	…	51,633	…
Logging truck driver	…	…	…	…	…	…	63,286	…	67,723	…
Lumber grader	…	…	…	…	…	…	60,372	…	60,372	…
Sawfiler	…	…	…	…	…	…	64,686	…	60,587	…
Sawmill machine operator	…	…	…	…	…	…	64,461	…	67,230	…
Silviculturalist	…	…	…	…	…	…	60,749	…	55,292	…
Supervisor, forestry and logging	…	…	…	…	…	…	94,119	…	88,749	…
Supervisor, manufacturing	…	…	…	…	…	…	86,017	…	70,946	…
Wood processing operator	…	…	…	…	…	…	52,685	…	58,443	…
Wood products inspector	…	…	…	…	…	…	39,747	…	43,985	…

Other Forestry Occupations	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Accounting clerk	…	…	…	…	…	…	49,961	…	49,972	…
Accounting professional	…	…	…	…	…	…	75,474	…	77,317	…
Biologist	…	…	…	…	…	…	84,998	…	92,613	…
Chemical engineer	…	…	…	…	…	…	107,372	…	96,817	…
Civil engineer	…	…	…	…	…	…	99,194	…	100,575	…
Controls system specialist	…	…	…	…	…	…	77,509	…	74,062	…
Crane operator	…	…	…	…	…	…	72,789	…	77,248	…
Credit manager	…	…	…	…	…	…	94,926	…	82,168	…
Drafting technician	…	…	…	…	…	…	68,099	…	72,157	…
Economist/risk analyst	…	…	…	…	…	…	92,846	…	94,332	…
Electrical engineer	…	…	…	…	…	…	98,528	…	95,238	…
Electrical mechanic	…	…	…	…	…	…	85,522	…	73,019	…
Electronic service technician	…	…	…	…	…	…	58,749	…	62,002	…
Engineering manager	…	…	…	…	…	…	146,586	…	133,405	…
Environmental supervisor	…	…	…	…	…	…	81,207	…	92,250	…
Health and safety coordinator	…	…	…	…	…	…	98,845	…	98,914	…
Heavy equipment operator	…	…	…	…	…	…	64,411	…	63,241	…
Heavy duty mechanic	…	…	…	…	…	…	77,905	…	82,864	…
Human resources professional	…	…	…	…	…	…	82,463	…	76,768	…
Industrial electrician	…	…	…	…	…	…	82,160	…	84,716	…
IT specialist	…	…	…	…	…	…	111,709	…	113,784	…
Lab/chemical technologist	…	…	…	…	…	…	…	…	60,911	…
Machinist	…	…	…	…	…	…	64940	…	67,602	…
Maintenance planner	…	…	…	…	…	…	94,105	…	94,105	…
Manufacturing manager	…	…	…	…	…	…	94,968	…	95,591	…
Manufacturing technician	…	…	…	…	…	…	77,160	…	66,039	…
Mechanical engineer	…	…	…	…	…	…	107,815	…	97,209	…
Millwright/industrial mechanic	…	…	…	…	…	…	84,744	…	74,496	…
Power engineers and operators	…	…	…	…	…	…	86,288	…	78,634	…
Production controllers	…	…	…	…	…	…	68,647	…	53,010	…
Purchasing agents	…	…	…	…	…	…	85,529	…	83,265	…
Steamfitter/pipefitter	…	…	…	…	…	…	75,448	…	95,661	…
Supply chain supervisor	…	…	…	…	…	…	64,405	…	69,189	…
Vibration analyst	…	…	…	…	…	…	73,179	…	77,014	…
Welder	…	…	…	…	…	…	75,289	…	78,045	…

Sources and Notes: (1) Alberta Wage and Salary Survey, 2017 and 2019.

Workforce profile

The proportion of workers aged 55+ in the forest industry has increased significantly since 2006. The increase is most pronounced in pulp and paper manufacturing. According to Alberta Labour and Immigration, the retirement rate in 2019 for wood product manufacturing was 2.3 per cent, which is about 1 per cent higher than the provincial average. The retirement rate is forecasted to increase to 3.2 per cent from 2019 through to 2023. At the same time, the proportion of under-represented demographic groups in the workforce is increasing in some subsectors and decreasing in others. An estimated 18.4 per cent of jobs in the industry are held by women and 10.5 per cent of jobs are held by Indigenous Peoples.

FIGURE 28: THE PROPORTION OF EMPLOYEES AGED 55+ IS INCREASING

Proportion of forest industry workers (%) aged 55 or older

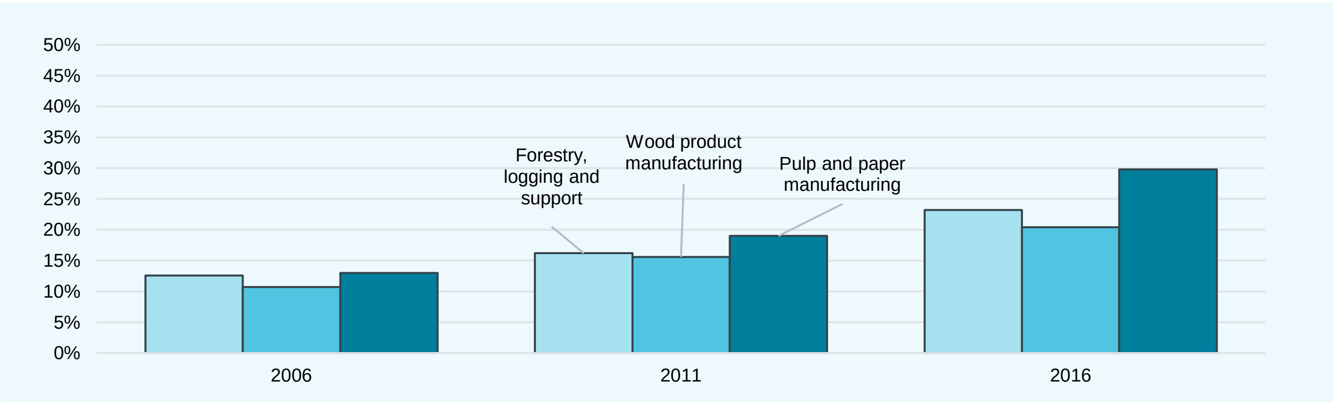


FIGURE 29: THE WORKFORCE IS AGING

Proportion of workers (%) under age 55 (left) and over age 55 (right)

Subsector	2006	2011	2016
Forestry and logging	87.4	83.8	76.8
Support activities	90.7	88.1	90.8
Wood product manufacturing	89.3	84.4	79.6
Pulp and paper manufacturing	87.0	81.0	70.2

Sources and Notes: (1) CCFM National Forestry Database, Table 5.1.

Subsector	2006	2011	2016
Forestry and logging	12.6	16.2	23.2
Support activities	9.3	11.9	9.2
Wood product manufacturing	10.7	15.6	20.4
Pulp and paper manufacturing	13.0	19.0	29.8

Sources and Notes: (1) CCFM National Forestry Database, Table 5.1.

FIGURE 30: THE PROPORTION OF WOMEN IN THE WORKFORCE REMAINS AT 25% OR BELOW IN MOST SUBSECTORS

Proportion of workers (%) identifying as men (left) and women (right)

Subsector	2006	2011	2016
Forestry and logging	83.7	89.3	83.3
Support activities	65.0	80.9	74.7
Wood product manufacturing	81.5	83.9	81.7
Pulp and paper manufacturing	80.1	81.8	79.1

Sources and Notes: (1) CCFM National Forestry Database, Table 5.1.

Subsector	2006	2011	2016
Forestry and logging	16.3	10.7	16.7
Support activities	35.0	19.1	25.3
Wood product manufacturing	18.5	16.1	18.3
Pulp and paper manufacturing	19.9	18.2	20.9

Sources and Notes: (1) CCFM National Forestry Database, Table 5.1.

FIGURE 31: THE FORESTRY AND LOGGING SUBSECTORS HAVE A HIGH PROPORTION OF INDIGENOUS WORKERS

Proportion of workers (%) identifying as non-Indigenous (left) and Indigenous (right)

Subsector	2006	2011	2016
Timber tract operations	…	92.6	71.4
Forest nurseries	…	88.5	100.0
Logging	…	89.1	89.8
Support activities	…	74.1	82.5
Sawmills and treatment plants	…	89.7	89.5
Panel and EWP mills	…	92.2	94.7
Other wood manufacturing	…	96.5	96.0
Pulp manufacturing	…	92.2	91.0
Other paper manufacturing	…	98.7	100.0

Sources and Notes: (1) CCFM National Forestry Database, Table 5.1.

Subsector	2006	2011	2016
Timber tract operations	…	7.4	28.6
Forest nurseries	…	11.5	0.0
Logging	…	10.9	10.2
Support activities	…	25.9	17.5
Sawmills and treatment plants	…	10.3	10.5
Panel and EWP mills	…	7.8	5.3
Other wood manufacturing	…	3.5	4.0
Pulp manufacturing	…	7.8	9.0
Other paper manufacturing	…	1.3	0.0

Sources and Notes: (1) CCFM National Forestry Database, Table 5.1.

Productivity

Labour productivity in Alberta's forest industry continues to lead Canada as a whole, which speaks to high levels of productive investment and competitive hosting conditions. In 2020, labour productivity (value-added dollars generated per worker hour) in wood product manufacturing was $75/hour, compared to $51/hour on average in the rest of Canada. In pulp and paper manufacturing it was $98/hour, versus $69/hour for the rest of Canada.

FIGURE 32: PRODUCTIVITY IN ALBERTA FOREST PRODUCT MANUFACTURING HAS SURGED IN RECENT YEARS

Value-added dollars generated per worker hour in pulp & paper manufacturing (C$/hour), Alberta and Canada

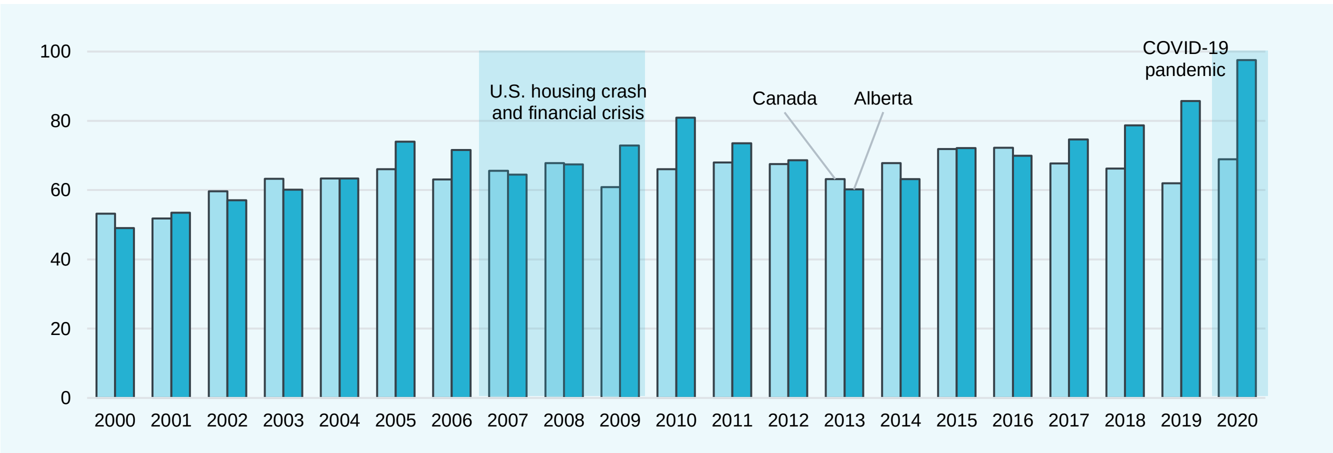


FIGURE 33: LABOUR PRODUCTIVITY IN THE FOREST INDUSTRY FOR ALBERTA (ABOVE) AND CANADA (BELOW)

Value-added dollars generated per worker hour, by jurisdiction and subsector (chained 2012 $C/hour)

C$/hour, Alberta subsectors	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Forestry and logging	68.3	62.4	69.4	79.0	71.3	53.8	57.8	59.7	51.2	68.4
Support activities	50.3	52.0	48.2	48.3	43.7	32.6	35.3	34.4	34.1	38.0
Wood product manufacturing	49.0	51.1	58.1	56.9	58.1	58.5	61.6	60.5	53.4	75.0
Pulp and paper manufacturing	73.5	68.6	60.2	63.2	72.1	69.9	74.6	78.7	85.7	97.5

C$/hour, Canadian subsectors	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Forestry and logging	52.6	56.9	57.2	61.3	60.6	55.7	58.2	57.3	56.0	67.2
Support activities	38.1	38.1	39.9	39.7	39.3	36.5	35.8	38.5	39.6	43.6
Wood product manufacturing	42.8	43.5	44.9	46.5	47.0	47.8	46.6	45.3	45.8	50.7
Pulp and paper manufacturing	68.0	67.5	63.2	67.8	71.9	72.2	67.7	66.2	65.0	68.9

Sources and Notes: (1) Statistics Canada, Table 36-10-0480-01.

CHAPTER 5

Communities

FEATURED TREE

Jack pine

Jack pine has gained recognition as the most widely distributed pine species in Canada's Boreal Forest. Inventory for jack pine also includes lodgepole pine in Alberta. Pine accounts for over 600 million cubic metres or 41 per cent of the provincial coniferous growing stock (26 per cent of the province's combined coniferous and deciduous growing stock).

Industry reliance

The forest industry is the largest employer in some municipalities and contributes nearly 27 per cent of all employment income in the most forestry-dependent community. Employment income is a measure of industry reliance, and includes all salaries, wages, and commissions derived by residents from the industry (which may have operations in nearby communities and not necessarily the community where the employee resides). In the most recent available Census year (2016), there were 91 communities that derived at least one per cent of employment income from the industry, 17 of which were reliant on the industry for over 10 per cent of employment income.

FIGURE 34: MUNICIPALITIES LOCATED NEAR MILLS ARE HIGHLY-RELIANT ON THE INDUSTRY FOR LOCAL INCOME
Forest industry reliance (% of total employment income) in 2016, by municipality

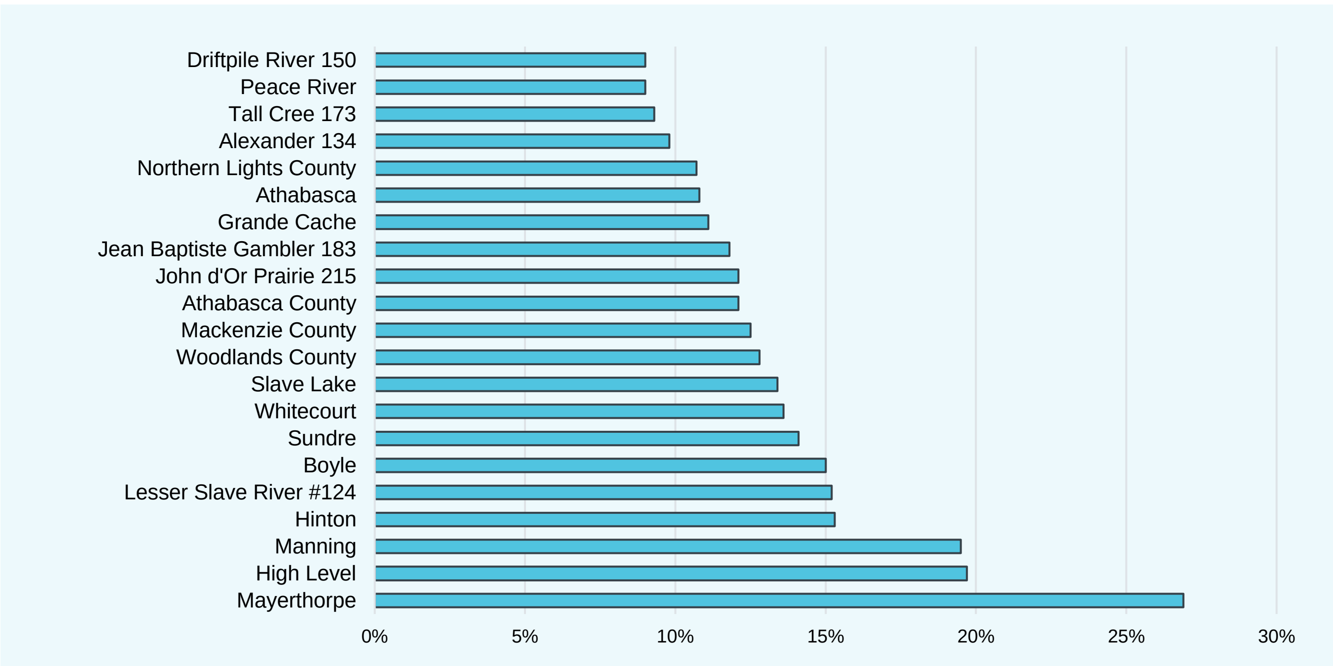


FIGURE 28: LARGE CITIES ARE LESS INDUSTRY-RELIANT, BUT STILL DRAW OVER $230 MILLION IN EMPLOYMENT INCOME
Employment income ($C x 1,000,000) (left) and industry reliance (% of all local employment income) (right)

Income, by municipality	2006	2011	2016
Calgary	101.4	…	136.6
Edmonton	75.3	…	95.8
Grande Prairie	55.0	…	89.3
Hinton	66.4	…	54.3
Whitecourt	43.8	…	52.6
Slave Lake	21.7	…	32.4
Athabasca County	22.0	…	31.0
Grande Prairie County No.1	32.8	…	30.1

Reliance, by municipality	2006	2011	2016
Mayerthorpe	27.3	25.3	26.9
High Level	20.6	38.7	19.7
Manning	22.5	37.0	19.5
Hinton	35.1	44.3	15.3
Lesser Slave River 124	20.0	34.1	15.2
Boyle	40.7	31.3	15.0
Sundre	19.3	28.1	14.1
Whitecourt	23.7	32.6	13.6

Continued on next page →

Income, by municipality	2006	2011	2016
Mackenzie County	17.3	…	29.6
Yellowhead County	15.8	…	24.7
Peace River	13.9	…	23.1
High Level	20.6	…	22.8
Woodlands County	27.2	…	22.4
Edson	12.5	…	22.1
Cochrane	6.6	…	17.1
Lethbridge	9.8	…	16.8
Lac la Biche County	…	…	15.7
Strathcona County	7.8	…	15.3
Grande Cache	9.6	…	14.4
Rocky Mountain House	6.4	…	14.1
Lac Ste. Anne County	7.8	…	14.0
Lesser Slave River No.124	9.4	…	14.0
Spruce Grove	4.6	…	13.7
Mountain View County	9.2	…	13.7
Drayton Valley	9.9	…	12.7
Northern Lights County	7.0	…	12.0
Parkland County	9.6	…	11.5
Airdrie	4.6	…	11.0
Greenview No.16	8.3	…	10.2
Wood Buffalo	4.6	…	10.1
Athabasca	11.3	…	9.7
St. Albert	8.2	…	9.5
Sundre	6.1	…	9.2
Mayerthorpe	5.5	…	9.1
Clearwater County	9.0	…	9.0
Medicine Hat	3.8	…	8.7
Big Lakes County	9.7	…	8.6
Red Deer	3.3	…	7.0
Rocky View County	6.4	…	6.8
High Prairie	9.1	…	6.0
Brazeau County	7.7	…	6.0
Manning	5.2	…	5.6
Clear Hills County	4.6	…	5.1

Continued on next page →

Reliance, by municipality	2006	2011	2016
Slave Lake	16.6	27.9	13.4
Woodlands County	27.2	24.2	12.8
Mackenzie County	17.3	45.4	12.5
Athabasca County	18.6	33.1	12.1
John d’Or Prairie 215	16.1	16.4	12.1
Jean Baptiste Gambler 183	…	46.4	11.8
Grande Cache	15.6	14.5	11.1
Athabasca	25.5	24.9	10.8
Northern Lights County	10.6	14.3	10.7
Alexander 134	8.2	5.7	9.8
Tall Cree 173	…	25.6	9.3
Peace River	13.9	19.3	9.0
Driftpile River 150	12.3	3.6	9.0
Clear Hills County	14.5	8.9	8.9
High Prairie	18.2	23.8	8.8
Sucker Creek 150A	6.2	21.2	7.5
Edson	12.5	16.5	7.2
Utikoomak Lake 155	4.7	7.6	6.9
Rocky Mountain House	5.9	5.9	6.8
Yellowhead County	15.8	18.4	6.4
Big Lakes County	14.0	32.4	6.4
Greenview No.16	8.8	6.1	6.1
Improvement District No.24	9.2	…	6.0
Lac la Biche County	4.9	…	5.7
Peace No.135	9.3	21.4	5.7
Woodland Cree 226	…	10.6	5.4
Drayton Valley	8.6	15.4	5.2
Grimshaw	11.3	15.4	5.1
Lac Ste. Anne County	6.1	5.2	4.4
Wabasca 166D	9.4	6.0	4.4
Fox Creek	4.4	4.6	3.9
Sturgeon Lake 154	9.3	11.7	3.9
Grande Prairie	7.1	12.1	3.7
Fort MacLeod	3.0	4.3	3.6
Beaverlodge	7.6	12.4	3.5

Income, by municipality	2006	2011	2016
Foothills No.31	1.2	…	4.8
Grimshaw	4.3	…	4.8
Barrhead County	2.2	…	4.0
Olds	1.1	…	3.8
Strathmore	1.6	…	3.7
Fox Creek	2.4	…	3.6
Boyle	4.8	…	3.3
Bonnyville No.87	0.5	…	3.3
Chestermere	2.0	…	3.0
Sturgeon County	2.3	…	2.9
Okotoks	0.3	…	2.9
Beaverlodge	2.5	…	2.7
Peace No.135	2.5	…	2.6
Leduc	2.7	…	2.5
Leduc County	1.6	…	2.5
Sexsmith	3.1	…	2.5
Fort MacLeod	1.0	…	2.2
Stony Plain	0.9	…	2.2
Barrhead	1.1	…	2.1
Lacombe	1.1	…	2.0
Redcliff	0.3	…	2.0
Wheatland County	2.1	…	1.9
Wetaskiwin	0.0	…	1.9
Sylvan Lake	0.0	…	1.8
Camrose	0.1	…	1.8
Fairview	0.0	…	1.8
Crowsnest Pass	8.3	…	1.7
Carstairs	0.2	…	1.5
Alexander 134	0.4	…	1.4
Opportunity No.17	4.0	…	1.4
John d'Or Prairie	0.5	…	1.0
Smoky Lake County	1.8	…	1.0
Devon	1.0	…	0.9
Sturgeon Lake 154	0.5	…	0.7
Sucker Creek 150A	0.3	…	0.7

Reliance, by municipality	2006	2011	2016
Grande Prairie County No.1	10.1	8.1	3.4
Mountain View County	4.6	10.9	3.4
Sexsmith	10.9	5.3	3.0
Wabasca 166A	4.5	7.1	2.9
Barrhead County	2.8	2.9	2.6
Hay Lake 209	0.0	11.3	2.4
Fairview	0.0	4.0	2.1
Brazeau County	5.6	…	2.1
Barrhead	2.1	2.1	2.0
Clearwater County	4.7	6.9	2.0
Opportunity No.17	10.4	4.8	1.9
Cochrane	2.6	4.8	1.6
Fox Lake 162	0.0	6.0	1.6
Wabamun 166D	9.4	2.4	1.5
Olds	1.1	1.2	1.4
Piikani 147	…	3.8	1.4
Carstairs	0.6	8.9	1.3
Redcliff	0.4	0.7	1.2
Smoky Lake County	3.7	7.5	1.1
Spruce Grove	1.4	3.3	1.1
Crowsnest Pass	9.8	2.0	1.0
Parkland County	1.8	7.0	0.9
Strathmore	1.2	0.4	0.9
Wheatland County	1.8	1.0	0.8
Lethbridge	0.9	1.0	0.8
Bonnyville No.87	0.3	…	0.7
Wetaskiwin County No.10	1.1	1.4	0.5
Leduc County	0.7	0.4	0.5
Lacombe	0.7	…	0.5
Medicine Hat	0.5	0.7	0.5
Airdrie	1.1	1.1	0.5
Devon	1.1	1.1	0.4
Foothills No.31	0.3	1.0	0.4
Chestermere	2.0	1.3	0.4
Stony Plain	0.5	3.4	0.4

Source: Statistics Canada

CHAPTER 6

Taxes and royalties

FEATURED TREE

White birch

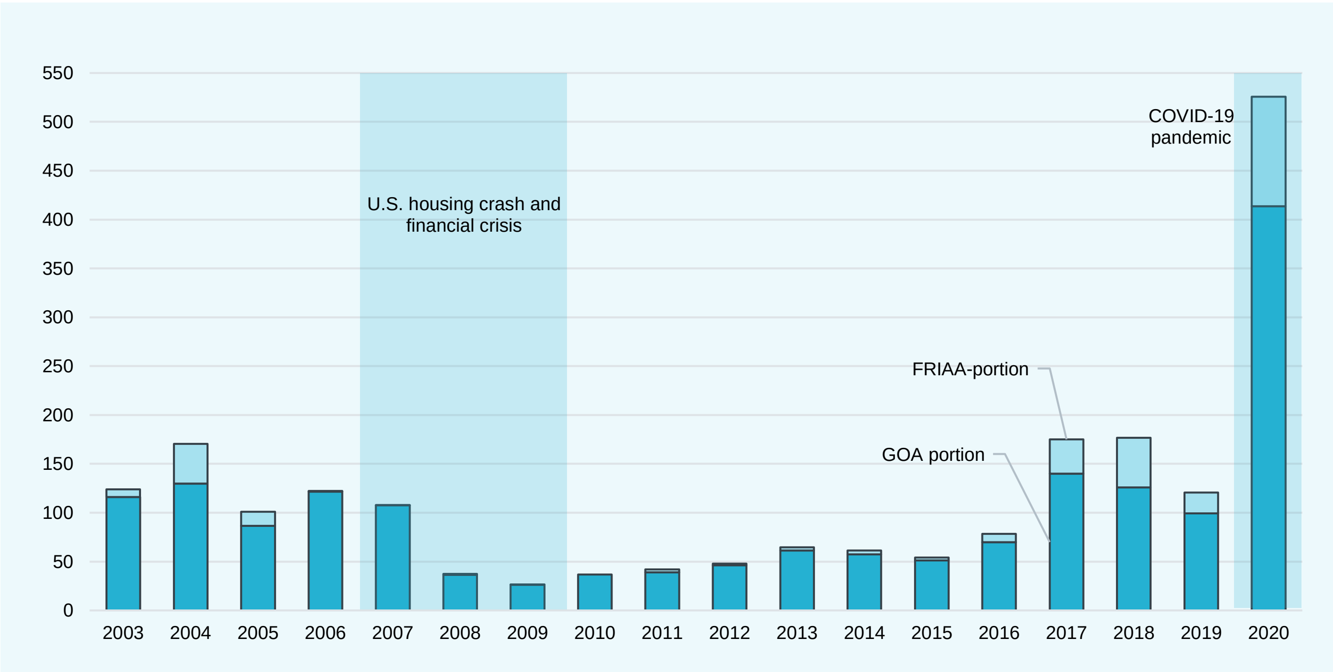
A native Alberta species, this tree is easily recognized by smooth, white peeling bark. Intolerant of shade, white birch thrives on burned-over and cut-over areas. Within Alberta, white birch constitutes only three per cent of the province's hardwood inventory and one per cent of the total provincial forest inventory.

Timber royalties and fees

Tenure holders pay timber dues when timber is harvested and scaled, in addition to other charges and fees associated with holding tenure. In fiscal year 2020-21, the Government of Alberta ("GOA") and the Forest Resource Improvement Association of Alberta ("FRIAA") collected $525.6 million in timber dues, which fund provincial programs and services and forest improvement activities. FRIAA-funded projects enhance Alberta's forest resources and improve the integrated management of Alberta's forested lands for the benefit of Albertans. FRIAA-funded projects create jobs and economic activity in rural Alberta.

FIGURE 35: TIMBER ROYALTIES AND FEES HAD A RECORD-SETTING YEAR IN 2020-21

Timber royalties and fees, by allocation ($C x 1,000,000)



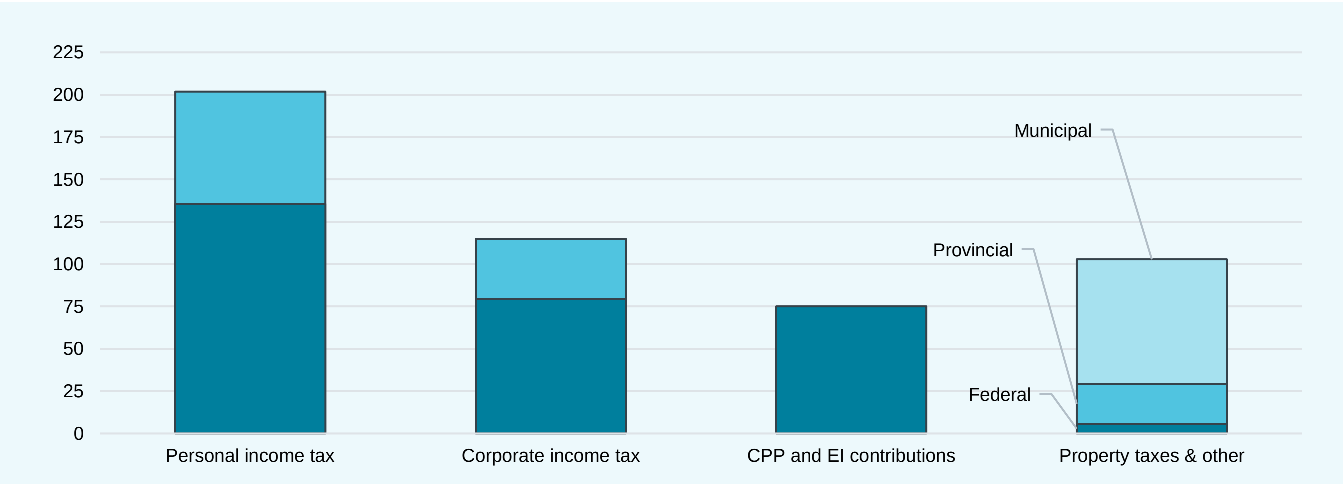
Timber dues and fees, by party	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
GOA portion of dues + fees	39.2	46.3	61.2	57.3	51.3	69.9	139.9	125.9	99.2	413.6
FRIAA portion of dues + levies	2.8	1.6	3.3	4.0	2.7	8.4	35.2	50.9	21.4	112.0
Total, dues and fees	**42.0**	**47.9**	**64.5**	**61.3**	**54.0**	**78.3**	**175.1**	**176.8**	**120.7**	**525.6**

Sources and Notes: (1) Alberta Agriculture and Forestry annual reports (2015/16-2020/21), Alberta Environment and Sustainable Resource Development annual reports (2012/13), Alberta Sustainable Resource annual reports (2001/02-2011/12); (2) Forest Resource Improvement Association of Alberta annual reports (2001/02-2020/21). A fiscal year runs from April 1 to March 31.

Tax contribution

In addition to timber royalties and fees, the forest industry and its employees contribute general tax and fee revenues to municipalities and provincial and federal governments. This includes over $200 million in personal income taxes, $115 million in corporate income taxes and $29 million in other taxes and fees. Federal Canada Pension Plan ("CPP") and Employment Insurance ("EI") contributions total approximately $75 million, and municipalities collect an estimated $73 million in property taxes. Please note that only direct tax impacts are presented in the graphic above.

FIGURE 37: THE INDUSTRY AND ITS WORKERS CONTRIBUTE TAX REVENUES TO ALL LEVELS OF GOVERNMENT
Direct tax estimates, by level of government ($C x 1,000,000)



Taxes and fees, by government	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Federal	…	…	244.4	261.8	304.6	294.4	295.7	…	…	…
Provincial	…	…	105.5	112.4	128.6	125.1	125.4	…	…	…
Municipal	…	…	69.0	70.8	74.4	74.8	73.4	…	…	…

Taxes and fees, by type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Corporate income tax	…	…	88.9	99.5	118.9	113.8	115.0	…	…	…
Personal income tax	…	…	174.3	181.5	207.3	201.7	201.8	…	…	…
Other taxes and fees	…	…	95.0	98.2	103.9	104.2	102.8	…	…	…
Other transfers	…	…	60.8	65.7	77.6	74.5	75.0	…	…	…

Sources and Notes: (1) Alberta Treasury Board and Finance, SUT Tax Module Similations (2015-2019) with data provided by Alberta Agriculture and Forestry.

APPENDIX

Maps

FEATURED TREE

Black spruce

The principal commercial use of black spruce in Western Canada is as pulpwood for making high quality pulp with balanced strength properties. Its long fibres, light colour and low resin content make it a favourite pulpwood for facial tissues and newsprint. It is used with white spruce, pine and fir where requirements for spruce-pine-fir ("SPF") are indicated, as lumber for light and medium construction.

N
W E
S

Legend

Community Marker

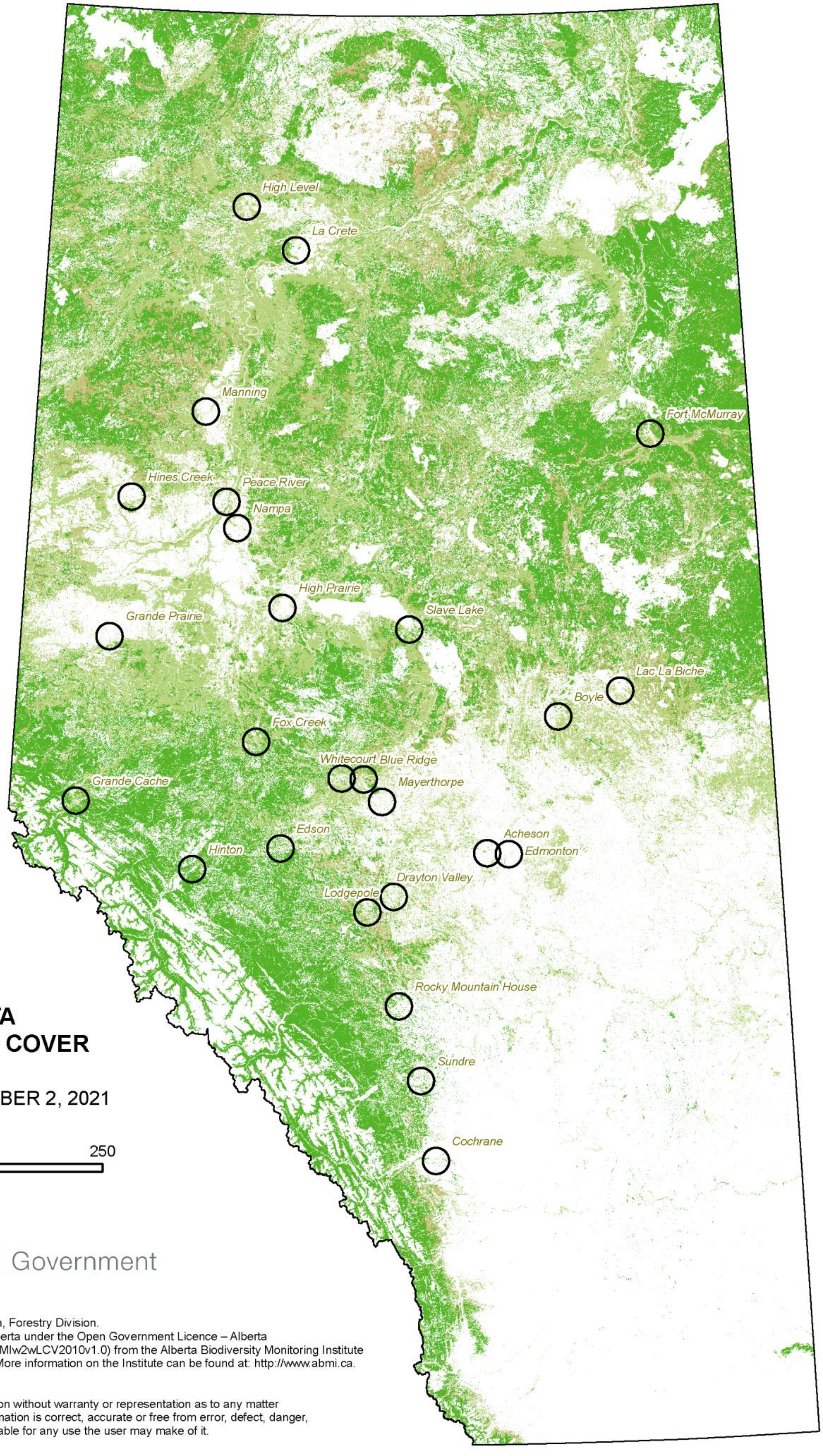
Alberta Boundary

ABMI Landcover circa 2010

Coniferous forest

Broadleaf forest

Mixed forest



ALBERTA FOREST LAND COVER

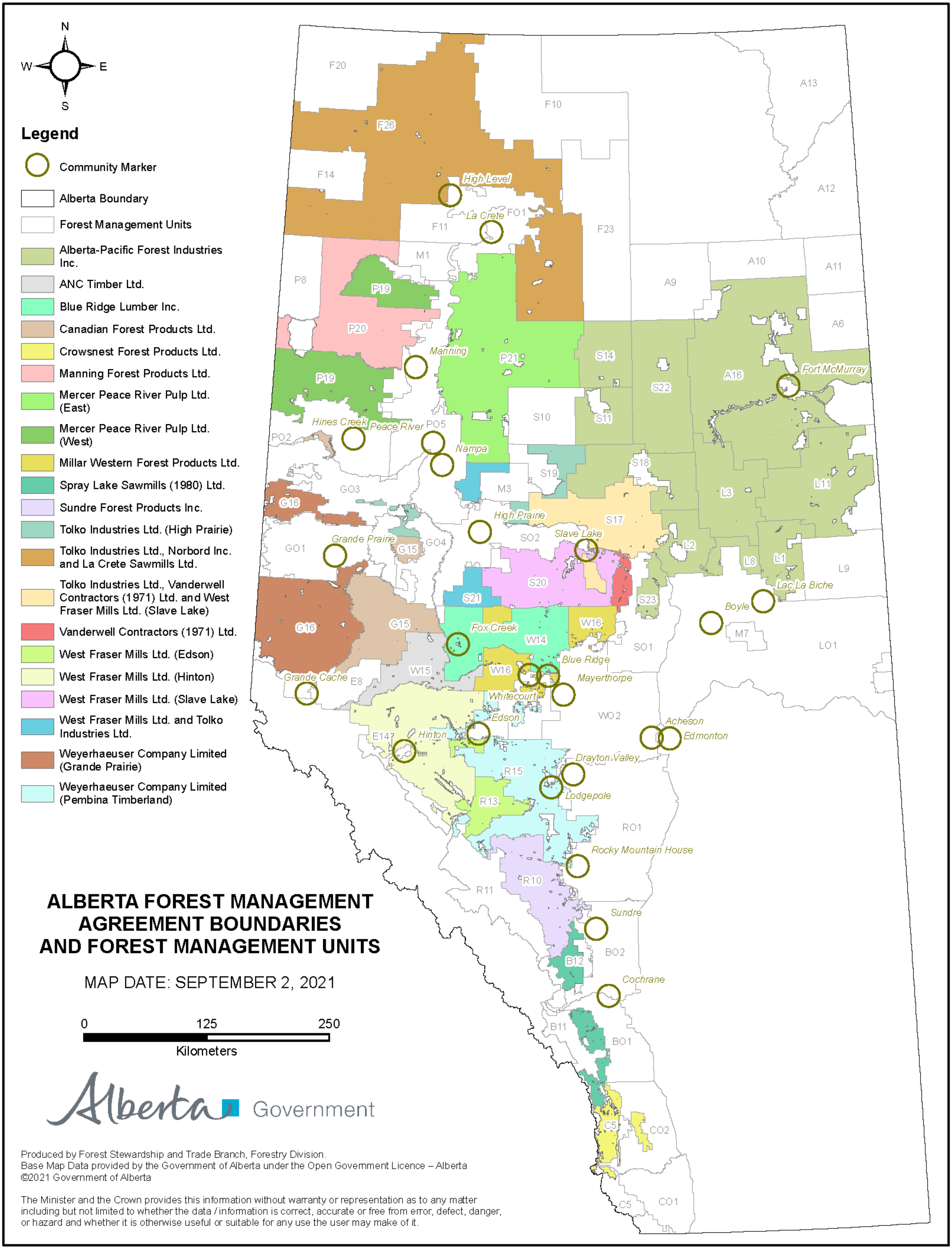
MAP DATE: SEPTEMBER 2, 2021

0 125 250

Kilometers

Alberta Government

Produced by Forest Stewardship and Trade Branch, Forestry Division.
Base Map Data provided by the Government of Alberta under the Open Government Licence – Alberta
ABMI Wall-to-wall Land Cover MapVersion 2.1 (ABMIw2wLCV2010v1.0) from the Alberta Biodiversity Monitoring Institute was used, in whole or part, to create this product. More information on the Institute can be found at: http://www.abmi.ca.



ALBERTA FOREST MANAGEMENT AGREEMENT BOUNDARIES AND FOREST MANAGEMENT UNITS

MAP DATE: SEPTEMBER 2, 2021

Alberta Government

Produced by Forest Stewardship and Trade Branch, Forestry Division.
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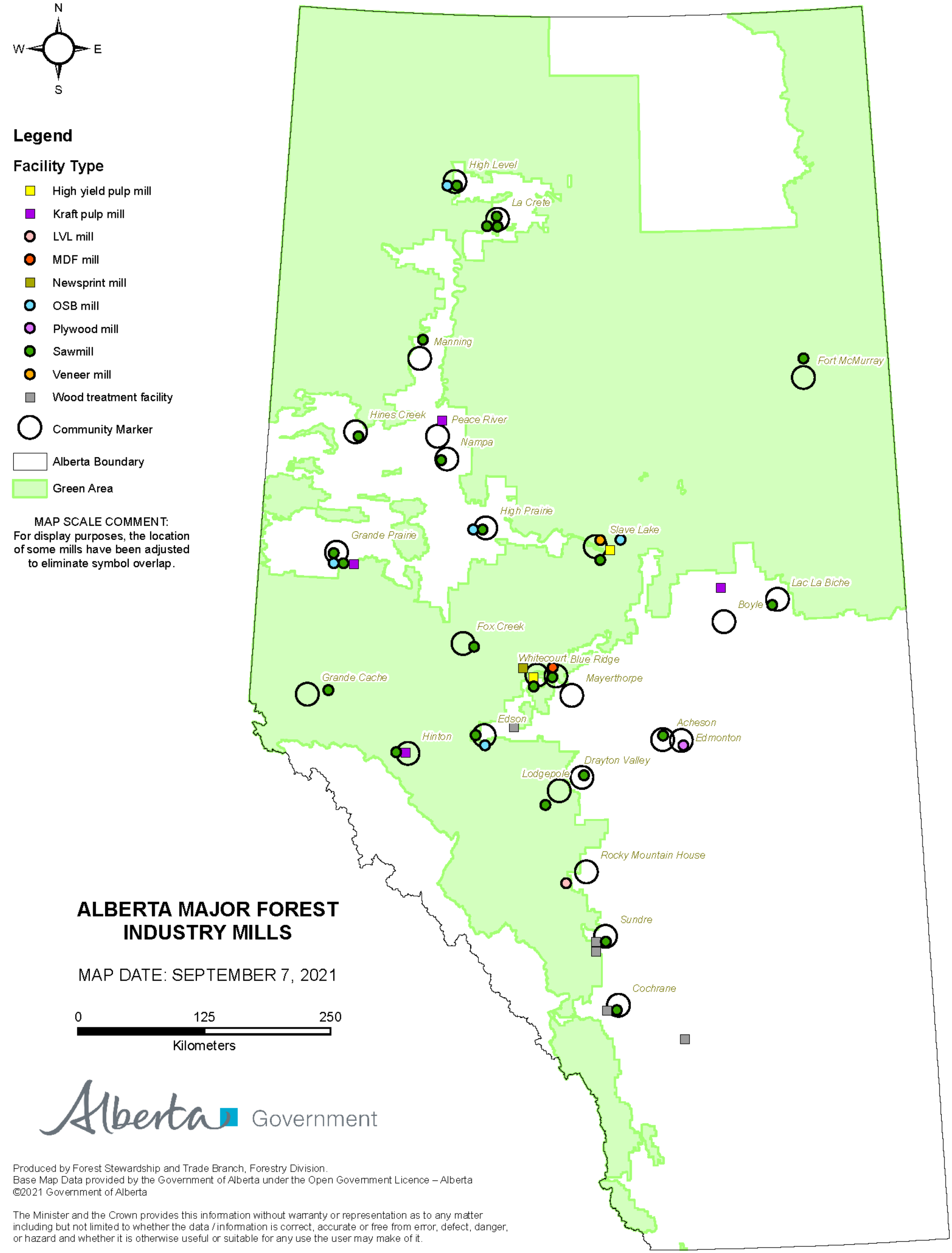
The Minister and the Crown provides this information without warranty or representation as to any matter including but not limited to whether the data / information is correct, accurate or free from error, defect, danger, or hazard and whether it is otherwise useful or suitable for any use the user may make of it.

Legend

Facility Type

- High yield pulp mill
- Kraft pulp mill
- LVL mill
- MDF mill
- Newsprint mill
- OSB mill
- Plywood mill
- Sawmill
- Veneer mill
- Wood treatment facility
- Community Marker
- Alberta Boundary
- Green Area

MAP SCALE COMMENT:
For display purposes, the location of some mills have been adjusted to eliminate symbol overlap.



ALBERTA MAJOR FOREST INDUSTRY MILLS

MAP DATE: SEPTEMBER 7, 2021

0 125 250
Kilometers

Alberta Government

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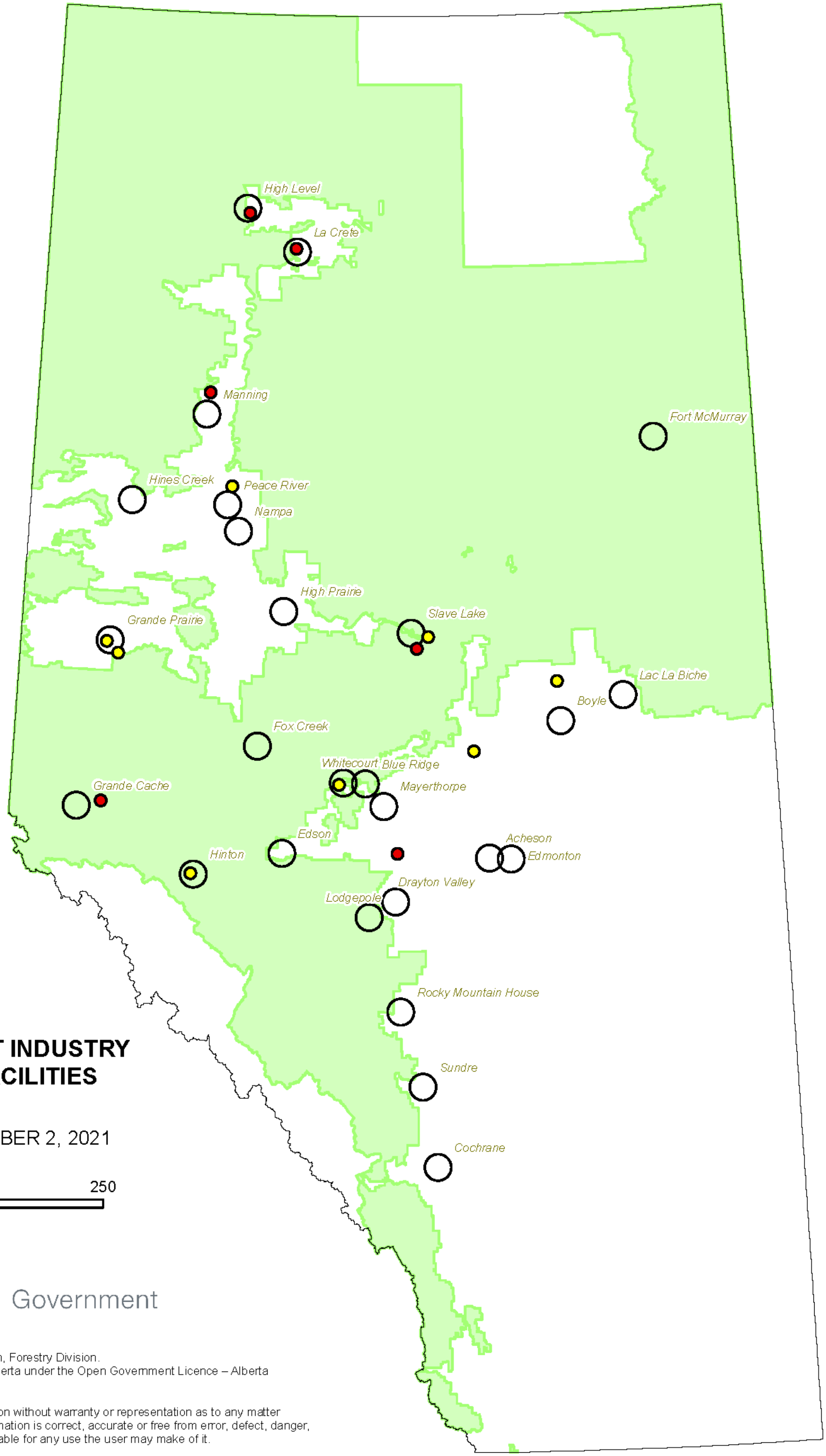
N
W E
S

Legend

Biomass Product

- Electricity
- Pellets
- Community Marker
- Alberta Boundary
- Green Area

MAP SCALE COMMENT:
For display purposes, the location of some mills have been adjusted to eliminate symbol overlap.



ALBERTA FOREST INDUSTRY BIOENERGY FACILITIES

MAP DATE: SEPTEMBER 2, 2021

0 125 250
Kilometers

Alberta Government

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