

PULP FICTION

Canada's Largest Pulp Producers' Actions Do Not Match Their Sustainability Claims

ACKNOWLEDGMENTS

The authors would like to express gratitude to all those who shared their time and expertise with us in the development of the report. Thank you to the Canada-based experts on Indigenous rights, forest management, caribou habitat, and certification who provided invaluable feedback during the drafting of this report. At NRDC, thank you to Anthony Swift, who oversaw the conception and creation of this report, and to Dr. Tina Swanson, Leah Stecher, and Josh Mukhopadhyay for their detailed review and valuable input. The report benefited greatly from the input of Jennifer Skene, Shelley Vinyard, Josh Axelrod, and Zak Smith, as well as from the expert communications support from Margie Kelly and Kyler Sumter. Thank you to Alex Spacher, Jen Ng, and Tyler Weingart for their work and support in creating sharp visuals, and to Elise Marton for detailed copyediting.

About NRDC

NRDC is an international nonprofit environmental organization with more than 3 million members and online activists. Since 1970, our lawyers, scientists, and other environmental specialists have worked to protect the planet's wildlife and wild places and to ensure the rights of all people to clean air, clean water, and healthy communities. NRDC has offices in New York City, Washington, D.C., Los Angeles, San Francisco, Chicago, Montana, and Beijing. Visit us at nrdc.org.

NRDC Chief Communications Officer: Michelle Egan NRDC Managing Directors of Communications: Lisa Goffredi and Jenny Powers NRDC Policy Publications Editor: Leah Stecher













STATEMENT FROM CANADIAN ENVIRONMENTAL ORGANIZATIONS, OCTOBER 7, 2021

"The findings in this report echo our concerns that there are major logging companies and pulp producers operating without achieving key social and environmental safeguards on the ground. Operations that threaten the rights of communities, degrade species' habitat, and/or risk globally-significant carbon stores should be held to account. We urge policymakers and companies to work with Indigenous People and stakeholders to create strong safeguards that protect our forests and those that depend on them."

Signed (alphabetically):

Alberta Wilderness Association David Suzuki Foundation Nature Canada Ontario Nature Stand.earth Wilderness Committee

Table of Contents

Executive Summary	5
Introduction	8
Scorecard and Findings	11
The Scorecard	12
Scoring	13
Findings	13
Companies' Pulp Operations	15
Scorecard Criteria	17
Recommendations	21
Appendix (Company Overviews; Details of Company Research and Company Respon	ses) 22
Company Overviews	22
Details of Company Research and Company Responses	24

Executive Summary

The world's forests are in grave danger. Widespread extractive activities are chipping away at the world's last primary forests (areas largely undisturbed by industrial activities including logging). Primary forests provide vital homes for many Indigenous communities and threatened species and store large amounts of carbon in their soil and trees—carbon that cannot be released if the global community is to have any hope of avoiding the worst impacts of climate change. Yet the current scale and practices of industrial logging are causing primary forests to disappear. Adding insult to injury, much of the material extracted from these forests are used to make wasteful, single-use products; an estimated 40 percent of all industrial wood traded globally ends up in the pulp and paper industry.



Piles of tree trunks stacked by a logging road in Ontario.

The Canadian boreal is the world's largest intact forest, and it plays a crucial role in safeguarding the earth's carbon storage and threatened species. However, Canada is also the world's second-largest wood pulp exporter, and this industry takes huge bites out of Canadian forests every day.⁴ Canadian pulp producers claim that they operate sustainably and that their activities do not cause long-term damage to forests. This report and scorecard tests those claims by examining the activities of Canada's largest pulp producers—and finds those promises to be largely fiction.

Rather than protecting globally important forests, Canada is permitting widespread logging in these areas, even though its forestry industry broadly is operating in ways that threaten communities, species, and the global climate. This has grave consequences for forests and the global life that depends on them. It also has important implications for companies buying wood and pulp from Canada, including U.S. tissue and toilet paper companies that tout the country as a sustainable source for their products' materials. By failing to implement robust supply-chain safeguards, and by creating throwaway products made of unsustainably sourced pulp, these pulp purchasers directly support and fuel the concerning practices highlighted in this report.

This report's scorecard results should prompt concern about the current state of forestry in Canada, but also hope that real change is possible. Commitments by pulp purchasers like Procter & Gamble to replace forest pulp used in their products with sustainable alternatives, combined with better forestry practices that protect primary forests and incorporate robust environmental and social standards, could bring much-needed relief to Canadian forests. At the moment, however, many of these companies are making large profits by making throwaway products reliant on pulp produced by rampant industrial logging which is removing vital carbon stores and species' habitat.

To produce this scorecard, we broadly assessed the seven largest pulp producers in Canada on important social and environmental criteria: upholding Indigenous rights, protecting primary forests, safeguarding the habitat of threatened species, and committing to wood sourced from more sustainably managed forests. Six of the seven pulp producers (Paper Excellence/ Domtar, Canfor, West Fraser, Mercer International, Resolute Forest Products, and Aditya Birla Group) failed almost all of the criteria. These company's commitments lag far behind the slick sustainability language used in their public materials. The one notable outlier was Alberta-Pacific Forest Industries (Al-Pac), which earned either partial or full points in four of the five criteria. However, it still lacks key overarching protections for primary forests, and like the other companies it does not require free, prior and informed consent from Indigenous Peoples whose lands could be

impacted by logging supplying its mill operations (although it has made important progress in the areas it manages).

One of the most glaring omissions in all companies' policies was a public commitment to requiring the free, prior and informed consent (FPIC) of Indigenous Peoples who could be impacted by operations supplying the companies' mills. As outlined in the United Declaration on the Rights of Indigenous Peoples (UNDRIP), the principle of FPIC gives Indigenous communities the right to reject, modify, and approve projects that could impact them. That companies operating in the traditional territories of Indigenous Peoples do not guarantee this bare-minimum right should be unacceptable to corporations and consumers that purchase this pulp.

The companies all failed to meet the federal government's guidance for protecting boreal caribou habitat, and do not have operations-wide commitments to protect primary forests from logging. This means some of North America's last areas which have never been industrially-disturbed—including some of its remaining refugia for threatened caribou—are at risk of logging. Two of the companies—West Fraser and Al-Pac—have permanently protected some intact forest landscapes from logging, but they do not have company-wide policies to protect primary forest areas.

Most of Canada's largest pulp producers are even failing to require strong forest certification. Even though some of these companies sweepingly characterize forest certification as a proxy for sustainability—a position which we detail as being problematic—most do not even source most of their wood from areas certified under the widely-respected Forest Stewardship Council. All but one of the companies—Al-Pac—either source the majority, or all, of their wood from non-FSC-certified forests. Five of the seven companies either manage zero or a minority of lands certified under FSC. Additionally, FSC certification is only as strong as its implementation, and companies managing areas of primary forest and caribou habitat under the FSC standard should also have to meet FSC Canada's higher new standards in order to earn and maintain these certifications.

The pulp suppliers in this report publicly maintain that their activities benefit forests, species, and/or the global climate. The pulp operations are owned by powerful companies with collective annual revenues of tens of billions of dollars. With these resources, they could dramatically improve the human rights and sustainability requirements of their operations while supporting the well-being of local communities in the areas where they operate. Instead, Canada's largest pulp suppliers are failing to implement even baseline environmental and social standards. Meanwhile, their communications materials are greenwashing their poor behavior, concealing harmful activities with false claims of sustainability.

THE SCORECARD

Company Name	Does the company require free, prior and informed consent from Indigenous Peoples potentially impacted by logging operations supplying its mills?	Has the company committed to meeting the federal government's habitat requirement thresholds for threatened caribou?	Has the company committed to not sourcing from primary forests based on best available mapping?	Does the company exclusively manage lands certified under the Forest Stewardship Council (FSC)? ⁷	Does the company require that the wood supplying its mills come from FSC-certified forests?
Paper Excellence/ Domtar	No	No	No	Manages nearly 900,000 FSC-certified hectares and approximately I.I million non-FSC-certified hectares	No
Canfor	No	No	No	Manages nearly 1.2 million FSC hectares and over I1.7 million non-FSC-certified hectares	No
West Fraser	No	No	No commitment to not source from primary forests, but in 1994 West Fraser relinquished harvesting rights in areas of intact coastal temperate rainforest (now the Kitlope Heritage Conservancy)	Manages no FSC-certified land (only SFI)	No
Mercer International	No	No	No	Manages no FSC-certified land (only SFI)	No
Resolute Forest Products	No	No	No	Manages approximately 7.5 million FSC-certified hectares and nearly 12.5 million non-FSC-certified hectares	No
Aditya Birla Group	No	No	No	Manages over 700,000 non- FSC-certified hectares, and newly co-manages around 1.6 million FSC-certified hectares. However, it is not currently evident that these newly-certified areas will safeguard critical boreal caribou habitat	No
Alberta-Pacific Forest Industries	No, but has made important progress in this area. See p. 28	Acknowledges caribou habitat thresholds and has made some efforts to incorporate them into its policies	No commitment to not source from primary forests, but Al-Pac helped establish protected areas previously within its Forest Management Agreement area, which included overlap with intact forest landscapes	Nearly 6 million hectares out of the 6.3 million hectares that it manages are FSC-certified	Around 60 percent of mill's wood comes from FSC-certified forests
COLOR CODE FOR C	COMPANY ACTIVITIES	Fully aligned	Near alignment	Insufficient	Fails

Introduction

Extractive industries including industrial logging are rapidly degrading and destroying the world's forests, and this in turn is wreaking havoc on natural systems and communities. Over the last 20 years, the world has lost almost 10 percent of its tree cover.8 Pressures on these forests from logging will only intensify. With growing global consumption, the world's wood use is expected to triple by 2050.9 Rapid forest loss is already causing immediate and long-term problems. Biodiversity experts have sounded the alarm that one million animal and plant species are currently threatened with extinction, and forests-home to 80 percent of the world's terrestrial biodiversity—are increasingly disappearing. 10 Across the world, Indigenous Peoples are fighting to prevent widespread resource extraction in their traditional territories. 11 At the same time, as global greenhouse gas emissions continue to rise, the world's leading scientists are underscoring the need to protect and expand the world's remaining forests because of their role in capturing and storing carbon.12

Canada presents itself as an exception to global trends of unsustainable development. Its federal government claims that the country is a responsible source for products like wood and minerals—even "clean fossil fuels." 13 While Canada has been widely lambasted for the latter through environmental campaigns against projects like the defeated Keystone XL pipeline, the country still benefits from a positive reputation for its logging practices. But in reality, Canada is a hotbed of industrial extraction and globally ranks third behind Brazil and Russia in its rate of intact forest landscape loss.14 (Intact forest landscapes are expanses of forest minimally impacted by human activity, with an area of at least 500 square kilometers and a minimum width of 10 kilometers. 15) Industry logs an area the size of nearly five million NHL hockey rinks across Canada each year.¹⁶ Industrial logging is a key driver of forest species' declines, as well as other harmful impacts. 17 Canada's forest-dependent species are disappearing at alarming rates; boreal caribou alone are declining at a rate



Activists at Fairy Creek, Vancouver Island. In 2021, protests against the logging of old-growth forests in British Columbia grew to be regarded as the largest act of civil disobedience in Canadian history. Indigenous land protectors have been critical leaders in the movement.

of around 30 percent every two decades. ¹⁸ More broadly, since 1970, the overall populations of Canadian species assessed as being at risk have plummeted by an average of 59 percent. ¹⁹

Large volumes of Canadian logged wood are turned into pulp, and Canada is now the second-highest exporter of wood pulp in the world, surpassed only by Brazil. (While outside the scope of this report, Canada is also increasingly becoming a world player in wood pellet exports, which, like single-use pulp products, are a major climate threat because they quickly convert previously stored carbon into climate-destabilizing CO2.)²¹ Given Canadian pulp's considerable market share, its producers have significant influence over how wood is extracted in Canada and what the Canadian logging industry looks like. This is especially true considering that many of the country's largest pulp producers both purchase wood from third parties, and log forests themselves. (22)

This report looks at the sustainability commitments of Canada's seven largest pulp producers. These companies currently maintain that their operations support healthy forests, protect species, and/or help safeguard the global climate. Yet our report shows that these claims are largely false. In fact, we found that all of Canada's largest pulp producers are operating in ways that imperil some of the world's last large primary forests: areas that have largely not been disturbed by industrial activities including logging, with these human activities not including traditional ways Indigenous Peoples have used these forests. One outlier performs better than its peers primarily by relying heavily on superior forest certification and through some of its conservation initiatives—but even this company lacks critical sustainability and social safeguards.

PULP COMPANIES' SUSTAINABILITY CLAIMS

The seven largest pulp suppliers in Canada all publicly claim to be sustainable. Our findings reveal the hollowness of these statements:

Paper Excellence/Domtar: "Our fibre is derived from well-managed, sustainable North American and European forests."23

Canfor: "Both lumber and pulp, the two essential products at the heart of Canfor's operations, are used in a myriad of ways to mitigate climate change and contribute to a sustainable way of life."²⁴

West Fraser: "Wood products, pulp, and sustainable forestry are some of the best opportunities to fight climate change." 25

Mercer International (Mercer): "We manage or support the management of the forest cover in a way that maintains biodiversity and ecological integrity."²⁶

Resolute Forest Products (Resolute): "All of the initiatives and actions we undertake build upon our core commitment to protect, manage and renew the forest through responsible management." 27

Aditya Birla Group: "A well managed forest is a sustainable forest and a healthy silviculture attitude is at the heart of [Aditya Birla's] AV Terrace Bay." 28

Alberta-Pacific Forest Industries (Al-Pac): "Through our forest management plans and practices, every area we harvest is turned back into a healthy and productive forest."²⁹

These operations owned by are major, international companies with combined annual revenues of of tens of billions of dollars. If they were to improve the logging practices supplying their mills, it would have a significant global impact.³⁰ And if such changes were made in tandem with improved sourcing commitments from major pulp purchasers like Procter & Gamble to reduce their reliance on forest pulp and replace it with sustainable alternatives, this could ease pressures on the world's remaining forests. With more than 40 percent of the world's globally traded industrial wood going into the pulp and paper industry,

the impacts of reducing these forest impacts would be immense. At a global scale, commitments and policies that protect and expand the world's forests, while also phasing out fossil fuel use, will be critical if we are to avert mass global suffering from a rapidly changing climate.

Players up and down the pulp supply chain—including governments, logging companies and pulp producers, and corporations that make products from this pulp—must stop greenwashing and finally live up to their sustainability claims.

PAPER EXCELLENCE'S ACQUISITION OF DOMTAR

Paper Excellence has begun the process of acquiring the company Domtar, further cementing Paper Excellence's status as the largest pulp producer in Canada and significantly expanding its footprint in Canada's boreal forest.31 In the lead-up to the acquisition, environmental and human rights organizations have expressed strong opposition to the expansion of Paper Excellence and its control over Domtar's large operations. They have cited concerns with Paper Excellence's intertwined relationship with Asia Pulp and Paper (APP) Sinar Mas, an enormous conglomerate with a notorious international reputation for human rights and environmental abuses.³² In June 2021, 68 organizations wrote a letter to Domtar's shareholders, detailing these concerns and expressing fears that transitioning from being publicly traded to privately held would make Domtar less transparent and accountable.33 Nevertheless, the acquisition is in the process of moving forward, which can be expected to make Paper Excellence's pulp production capacity exceed its closest Canadian rivals by more than I.6 million air-dried metric tons per year.³⁴ When this report and scorecard refer to Paper Excellence/ Domtar as a single entity, it is based on the assumption that the acquisition will be successful soon after the publication of this report, and that Domtar's existing operations will become part of Paper Excellence. When this report and scorecard refer solely to either Domtar or Paper Excellence, it is in reference to activities, commitments, or company materials that either happened prior to the completed acquisition, or do not yet address the acquisition (for example, end-of-year annual reports).

Scorecard and Findings

For this report, we identified the largest pulp suppliers in Canada by evaluating the capacity of each company's combined pulp mills. Companies whose mills have a production capacity of less than 600,000 air-dried metric tons (ADMT) of pulp each year were not included in the analysis. Companies were assessed according to important criteria based on core principles that have been highlighted by the global community as important for sustainable development: respecting the rights of Indigenous communities, protecting the habitat of threatened species, safeguarding primary forests, and ensuring that forestry occurs under superior forest certification standards.35 For more information on these criteria, see "Scorecard Criteria."



Domtar's Dryden Mill in Ontario.

THE SCORECARD

Company Name	Does the company require free, prior and informed consent from Indigenous Peoples potentially impacted by logging operations supplying its mills?	Has the company committed to meeting the federal government's habitat requirement thresholds for threatened caribou?	Has the company committed to not sourcing from primary forests based on best available mapping?	Does the company exclusively manage lands certified under the Forest Stewardship Council (FSC)? ³⁶	Does the company require that the wood supplying its mills come from FSC-certified forests?
Paper Excellence/ Domtar	No	No	No	Manages nearly 900,000 FSC-certified hectares and approximately I.I million non-FSC-certified hectares	No
Canfor	No	No	No	Manages nearly 1.2 million FSC hectares and over II.7 million non-FSC-certified hectares	No
West Fraser	No	No	No commitment to not source from primary forests, but in 1994 West Fraser relinquished harvesting rights in areas of intact coastal temperate rainforest (now the Kitlope Heritage Conservancy)	Manages no FSC-certified land (only SFI)	No
Mercer International	No	No	No	Manages no FSC-certified land (only SFI)	No
Resolute Forest Products	No	No	No	Manages approximately 7.5 million FSC-certified hectares and nearly 12.5 million non-FSC-certified hectares	No
Aditya Birla Group	No	No	No	Manages over 700,000 non- FSC-certified hectares, and newly co-manages around 1.6 million FSC-certified hectares. However, it is not currently evident that these newly-certified areas will safeguard critical boreal caribou habitat	No
Alberta-Pacific Forest Industries	No, but has made important progress in this area. See p. 28	Acknowledges caribou habitat thresholds and has made some efforts to incorporate them into its policies	No commitment to not source from primary forests, but Al-Pac helped establish protected areas previously within its Forest Management Agreement area, which included overlap with intact forest landscapes	Nearly 6 million hectares out of the 6.3 million hectares that it manages are FSC-certified	Around 60 percent of mill's wood comes from FSC-certified forests
COLOR CODE FOR (COMPANY ACTIVITIES	Fully aligned	Near alignment	Insufficient	Fails

SCORING

1. Does the company require free, prior and informed consent from Indigenous Peoples potentially impacted by logging operations supplying its mills? Companies received either full points (green) for requiring free, prior and informed consent in their sourcing policies, or no points (red) for lacking this requirement. While we did not offer partial credit, we flag that one company has come close to having FSC Canada indicate that its managed areas meet FSC's FPIC requirements, but at the time of publication these FPIC requirements were not fully met (see "Al-Pac" under "Details of Company Research and Company Responses").

- 2. Has the company committed to meeting the federal government's habitat requirement thresholds for threatened caribou? Companies received no points (red) for not recognizing the habitat requirement thresholds for boreal and southern mountain caribou in the federal recovery strategies, and for not incorporating them into their policies; insufficient (orange) for acknowledging the disturbance thresholds and taking some steps to incorporate these into their policies; near alignment (yellow) for committing to stay beneath the disturbance thresholds in all the areas that they manage; or full alignment (green) for committing to requiring that logged wood supplying their mills has met the habitat thresholds.
- 3. Has the company committed to not sourcing from primary forests based on best available mapping? Companies received no points (red) for lacking policies requiring primary forest (including IFLs) protections; an insufficient mark (orange) for successful efforts to permanently protect some connected primary forest areas (that meet the definition of an IFL) from harvesting, but no company-wide sourcing policy to protect them; yellow (near alignment) for committing to not source from IFLs only; and green (fully aligned) for committing to not source from primary forests at all (based on best available science and mapping).37
- 4. Does the company exclusively manage lands certified under the Forest Stewardship Council (FSC)? Companies received no points (red) for managing no FSC-certified forest lands, insufficient (orange) if some (but less than 50 percent) of their managed lands are FSCcertified, near alignment (yellow) if 50-90 percent of their managed lands are FSC-certified, and full-alignment if more than 90 percent of all the lands they manage are FSCcertified.
- 5. Does the company require that the wood supplying its mills come from FSC-certified forests? Companies received no points (red) if zero to moderate volumes (50 percent or less) of the wood they source comes from FSC-certified forests, insufficient (orange) if they source a majority (but less than 70 percent) of wood from FSCcertified forests, near alignment (yellow) if they source 70 percent or more (but less than 90 percent) of wood

from FSC-certified forests, and full alignment (green) if 90 percent to all of the wood they source comes from FSCcertified forests.

We created a 50 percent cutoff because of the difficulty of ascertaining precisely what total volumes of wood some companies obtain from FSC-certified forests for their combined pulp mills. For example, most of the companies do not report this publicly, and failed to directly respond to this question in our pre-publication outreach. Therefore, unlike the managed lands criteria (criterion 4) which is publicly reported, it was difficult to confirm clear percentages to set companies apart from each other when their FSC-forests wood supply was in the zero to moderate range.

FINDINGS

The scorecard results reveal that broadly, these companies are failing to meet critical environmental and social criteria, which has grave implications for Canada's forests, the communities and species that depend on them, and the global climate. This is a far cry from their public materials touting strong environmental performance.

Of all the companies, only Al-Pac has notable achievements in multiple criteria, particularly by showing steadfast commitment to superior forest certification and for some of its land protection efforts. In fact, Al-Pac received partial credit in three of the five criteria, and full credit for the FSC-certified lands that it manages. Yet even Al-Pac had concerning sustainability gaps, and (like the other companies) it does not require free, prior and informed consent (FPIC) from Indigenous Peoples potentially impacted by logging supplying its mills (although it has made some important steps in the areas it manages).

Indeed, on requiring Indigenous consent, the companies collectively failed. None of them require FPIC from communities potentially impacted by logging operations. As detailed below, FPIC has been identified by UNDRIP as a critical, bare-minimum international requirement for Indigenous rights. Several of the companies highlight partnerships they have with some of the Indigenous-owned companies and Nations in the areas where they operate. While some have made important progress here, this does not fulfill all the requirements of FPIC, which guarantees the right of all potentially impacted people to influence how and whether projects move forward. It is deeply problematic that companies operating in these Nations' traditional territories still fail to guarantee this right.

Additionally, none of the companies have committed to requiring that the wood supplying their mills meets the habitat requirements outlined by Canada's federal government for the country's threatened boreal caribou and southern mountain caribou. Al-Pac earned partial credit for acknowledging these science-based thresholds, and for taking some steps to implement them into their policies.

Additionally, none of the companies broadly require the protection of primary forests in their policies, even though these areas are critical for mitigating the global biodiversity and climate crises. Al-Pac and West Fraser received partial credit for helping to establish permanent protections in some primary forest areas which overlapped with their operations, but these companies do not have company-wide policies that protect primary forests.

Both the Government of Canada and forestry companies point to forest certification in general as evidence of sustainable logging.³⁸ These blanket claims are problematic because of the varying levels of rigor in the certifications; the FSC has far stricter sustainability requirements than competing forest-certifying groups.³⁹ Yet even FSC certification is merely a bare-minimum indicator of sustainability, as it does not guarantee key primary forest and species protections. 40 Therefore it's appalling that West Fraser and Mercer do not manage any FSC lands at all. While Canfor does manage some FSC lands, it nevertheless manages around 9 times more land that is not FSC-certified. 41 Resolute, which publicly states support for FSC certification and is on the board of FSC Canada, still manages about 5 million more hectares of non-FSCcertified land than it does FSC-certified land. 42 Before it began acquiring Domtar, Paper Excellence managed no FSC-certified lands at all. Yet even with this acquisition, Paper Excellence can be expected to manage around 1.1 million non-FSC-certified hectares of land. 43 Al-Pac went beyond its competitors by certifying under FSC almost all of its managed forests, which are also the only FSCcertified lands in Alberta. 44 Aditya Birla has very recently

begun co-managing the Kenogami Forest under FSCcertification, making it the only company besides Al-Pac to manage majority FSC-certified areas. However some of the details of this management, including how it will treat primary forest and caribou habitat, are still emerging. The fact that the company has not broadly committed to meeting minimum habitat requirements for boreal caribou is worrying, considering the vast majority of these newlyapproved FSC-certified lands overlap with boreal caribou habitat. In the months ahead, we will look to Aditya Birla and its auditor to provide more details on how these areas will be managed, and whether they meet both FSC's updated standard and the federal government's guidance on caribou habitat requirements.

Finally, on sourcing from FSC-certified lands: All but one of the companies source either no or only moderate volumes of wood for their pulp mills from FSC-certified lands. The exception, Al-Pac, is the only company we assessed which majority relies on wood from FSC-certified areas for its pulp mill operations.

Additional information on these companies, and this report's criteria and scoring, follows below. "Companies' Pulp Operations" provides data on the companies' specific pulp mills (including locations and mill capacity), and "Scorecard Criteria" details why these specific criteria are important indicators for sustainability. It also indicates how we scored the criteria, including full versus partial credit. This report's Appendix details the research conducted for these assessments, our outreach to the companies for their input, and more details on the findings underpinning the scorecard.



This map shows the combined pulp mill locations of Canada's largest pulp producers, spanning six provinces. While individual companies' failures to meet social and environmental standards are concerning in and of themselves, collectively these failures threaten enormous areas of Canada's remaining forests.

Companies' Pulp Operations

This table provides details about the companies with the largest pulp production operations in Canada. It lists whether the companies are privately held or publicly traded, since the latter can push companies to be more

transparent and accountable to shareholders. It also lists these pulp mills' location and capacity to produce woodbased pulp in ADMT.

Company	Private or Public Ownership	Combined Pulp Mills' Names and Locations	Pulp Mills' Combined Capacity (ADMT)	
Paper Excellence/Domtar ⁴⁵	Private	■ Crofton—British Columbia	2,997,000	
		■ Howe Sound—British Columbia		
		Meadow Lake—Saskatchewan		
		Skookumchuck—British Columbia		
		■ Dryden—Ontario		
		■ Espanola—Ontario		
		Kamloops—British Columbia		
		■ Windsor—Quebec		
Canfor ⁴⁶	Public	■ Intercontinental (Prince George)—British Columbia		
		Northwood (Prince George) —British Columbia	1,300,000	
Gairioi		Prince George—British Columbia		
		■ Taylor—British Columbia		
	Public	Cariboo Pulp & Paper (Quesnel)—British Columbia	1,260,000	
West Fraser ⁴⁷		■ Hinton—Alberta		
West Fraser"		■ Slave Lake—Alberta		
		Quesnel River (Quesnel)—British Columbia		
	Public	Cariboo Pulp & Paper (Quesnel)—British Columbia	1,165,000	
Mercer ⁴⁸		Celgar (Castlegar) — British Columbia		
		Peace River—Alberta		
Resolute ⁴⁹	Public	■ Saint-Félicien—Quebec	671,000	
		■ Thunder Bay—Ontario		
	Public	■ Atholville—New Brunswick	631,000	
Aditya Birla Group ⁵⁰		■ Nackawic—New Brunswick		
		AV Terrace Bay—Ontario		
Al-Pac ⁵¹	Public	■ Al-Pac (Boyle) — Alberta	610,000	

Pulp producers that were not included in the analysis may still be having significant impacts on primary forest areas and species habitat; they simply did not meet the volume threshold to be included in this report. Moreover, our assessment does not necessarily indicate which of the assessed companies have the largest overall forest footprint. For example, some of the assessed companies own additional mills in Canada that produce a range of other products including lumber, paper, wood chips and newsprint. We excluded these mills in order to have a single metric (pulp volume) by which to compare the companies, and to avoid the risk of double-counting volumes (for example, if a company's pulp mill supplies its paper making facilities). We also note that although some of these companies have additional facilities outside Canada, we did not attempt to assess their global forest impact.

Additionally, each company has a distinct reach, history, and approach. For example, Canfor's operations have been specifically critiqued for having negative impacts on caribou habitat, and Resolute has aggressively litigated against environmental critics of its operations.⁵² Paper Excellence, which has begin the process of acquiring Domtar, is closely linked to Asia Pulp and Paper (APP) Sinar Mas, one of the most internationally notorious companies affiliated with deforestation and associated human rights abuses.⁵³ These details all provide important context about the companies but did not lend themselves to an "apples-to-apples" comparison of the companies and therefore are not included in the scorecard or its criteria. However, the Appendix provides a brief overview of some of the companies' operations and dynamics beyond just the criteria of the scorecard.



An aerial view of a logging operation in a boreal forest near Dryden in Ontario. August, 2019.

Scorecard Criteria

Here we offer a deeper discussion of the criteria pertaining to social and environmental responsibility that we used in our assessment of the largest pulp companies in Canada. In order to assess companies, we looked for sustainability commitments in companies' publicly available materials, and then invited them to review our findings in September, 2021. For details of companies' responses, please see "Details of Company Research and Company Responses."

1. INDIGENOUS RIGHTS: Does the company require free, prior and informed consent from Indigenous Peoples potentially impacted by logging operations supplying its mills?

Indigenous Peoples have stewarded North America's forests for thousands of years. Around the world, studies have shown that social and environmental benefits are strong when lands are managed by Indigenous Peoples.54 According to the United Nations Declaration on the Rights of Indigenous Peoples, Indigenous Peoples have the right to give or deny "free, prior and informed consent" to industrial projects that could impact them.⁵⁵ UNDRIP treats FPIC as a bare-minimum requirement for resourceextractive projects, such as commercial logging. In 2021, Canada passed Bill C-15, which requires the federal government to take all measures necessary to ensure that the country's laws are consistent with UNDRIP.⁵⁶ Yet the bill faced opposition from both Conservative members of Parliament and conservative-led provinces, and Canada and Canadian provinces broadly have not yet demonstrated how the rights outlined in UNDRIP will be guaranteed and implemented.⁵⁷ To align themselves with the intention of UNDRIP and Bill C-15, companies operating in the traditional territories of Indigenous Peoples have the responsibility to guarantee that Indigenous Peoples have given their consent to any project allowed to move forward, especially since these companies are directly degrading these areas and/or profiting from their exploitation. Companies should also provide communities—often burdened with the threats of multiple industrial proposals—with resources so they can dedicate time and capacity to review prospective projects.

2. KEY SPECIES SAFEGUARDS: Has the company committed to meeting the federal government's habitat requirement thresholds for threatened caribou?

The Canadian government has publicly identified habitat requirements for two types of caribou—boreal caribou and southern mountain caribou—that are listed as "threatened" by the federal government and are particularly imperiled by industrial activities, including widespread logging, in their habitat.⁵⁸ The current decline of these caribou

demonstrates that industrial development in the areas where they live is not occurring sustainably.⁵⁹

One way scientists measure the health of a forest ecosystem is by assessing the status of "indicator species." These are species so reliant on the stability of an ecosystem that they serve as proverbial canaries in the coalmine. Caribou are an indicator species, and the fact that all of Canada's forest-dependent types of caribou are currently at risk of extinction should serve as a blaring alarm bell for Canada's forests. 60 For example, boreal caribou require large tracts of older, undisturbed forest in order to survive long-term. 61 Worrying drops in their population signal that the larger intact forest landscapes that they depend upon are under duress. In 2012, individual herds of boreal caribou occupied a total of 51 ranges; only 14 of these local populations were deemed "self-sustaining," or likely to persist over time, due to habitat fragmentation and loss. 62 Since then much of their habitat has continued to decrease from industrial disturbances. Even when provinces require that small patches of native intact forest remain interspersed between logging operations, these requirements are currently far too small to support various woodland species. 63



Three woodland caribou standing in a river in Quebec.

At even higher immediate risk are southern mountain caribou, which in Canada reside in southern British Columbia and west-central Alberta. Southern mountain caribou populations have dropped by nearly half in the past three generations alone, causing the Committee on the Status of Endangered Wildlife in Canada—the nation's leading authority advising the government on threatened species—to classify them as "endangered."64

The Government of Canada released "recovery strategies" for boreal caribou and southern mountain caribou in 2012 and 2014, respectively; both recommended minimum habitat protection requirements for these animals and

specifically identified industrial logging as a key habitat threat.⁶⁵ The federal recovery strategy for boreal caribou called for habitat management that would maintain or restore boreal caribou ranges to be at least 65 percent undisturbed. 66 The federal recovery strategy for southern mountain caribou habitat called for habitat management that maintained or restored low elevation winter ranges to be at least 65 percent undisturbed.⁶⁷

These habitat thresholds allow forest disruption far beyond the limits recommended by wildlife experts. 68 Yet to date Canadian provinces have not protected caribou habitat even at the levels recommended by the federal government. While these provincial protections will ultimately be vital, even without provincial requirements, pulp companies should ensure that their own operations do not act as an impediment to caribou habitat protection and should meet the bare-minimum habitat thresholds recommended by the federal government.

3. PRIMARY FORESTS PROTECTIONS: Has the company committed to not sourcing from primary forests based on best available mapping?

The logging of Canada's forests has immense carbon implications for the global climate. Scientists have stressed that large areas of connected primary forest (forests largely free of industrial disturbances including logging),

are significantly better at storing carbon than logged, degraded, and even replanted forests. 69 Canada's remaining primary forests are among the densest terrestrial carbon pools in the world; the boreal currently stores nearly twice as much carbon as is contained in the world's combined recoverable oil reserves.⁷⁰ In another example, in the temperate rainforests of British Columbia, old-growth trees store carbon that has amassed over centuries. But when primary forest areas are clearcut, ancient carbon-storing trees are removed, creating a "carbon debt" that can take decades or even centuries to repay, even when saplings are replanted in the logged areas.⁷¹ Single-use products—like tissue paper that ends up in landfills, or wood chips burned in large industrial power plants—are particularly climatethreatening, in that the carbon contained in these products is rapidly released into the atmosphere, fueling the climate crisis.72

Industrial logging also erodes and releases carbon locked in forest peats and soils.73 Roads created for industrial extraction may alter vegetation and hydrology so greatly that they turn areas of peatland from carbon sinks into carbon sources.74 Moreover, roads and clearings can create long-lasting scars on forest landscapes, resulting in deforested areas with decades or more of lost carbon sequestration potential.⁷⁵



Canada's forests include some of North America's oldest trees and most intact landscapes, which are critical in the fight against climate change. Yet many of these are at imminent risk of being logged.

While forestry companies and even the Canadian government point to the practice of planting new trees in logged areas as proof of sustainability, scientists have shown that tree planting is vastly less effective if not paired with the protection of primary forests. 76 Replanted forests can sequester additional carbon and act as buffers around intact forest areas, but they cannot replace the carbon storage of primary forests on the urgent timescale needed for immediate climate action.⁷⁷

In addition to helping to stabilize the climate, large areas of primary forest appear to be more resilient to climate change than degraded forests in a number of ways. Large, undisturbed forest landscapes create cool, moist microclimates, and their lack of disturbed edges helps to create a defense against erosion and insect infestations.⁷⁸ Primary forests are also particularly effective at protecting biodiversity—especially threatened and endemic speciesfrom stressors.⁷⁹ Clearcutting a forest often weakens this resiliency; it undermines trees' genetic diversity and ability to withstand stressors like disease and extreme weather, exacerbating the impacts of climate change-induced disturbances.80

Primary forests include, but are not limited to, the large expanses of connected forest which make up "intact forest landscapes" (IFLs).81 Scientists, environmental organizations, and bodies like FSC highlight IFLs as in need of safeguarding; these large, unbroken areas are becoming increasingly rare. FSC requires forest managers to protect some—but not all—IFL areas within their area of influence (although some companies are urging FSC to scrap this obligation, and FSC is considering weakening or removing its current requirements).82 However, the minimum of 500 square kilometers which defines intact forest landscapes is a large threshold, and some primary forest areas do not fall into that size category precisely because industrial activities are chipping away at their edges. Therefore, while commitments to protect IFLs are urgent, broader commitments to protect primary forests are also critical.

Canada's governing party has pledged to protect at least 30 percent of the nation's terrestrial areas by 2030, but it remains unclear whether protected areas will be carbon-critical sites.83 In the absence of urgently needed safeguards for primary forests, companies operating in these areas have the responsibility to not degrade them. Identification of primary forest areas should be based on the best available mapping and should include not only IFLs but smaller areas of primary forest as well.

THE MYTH THAT TREE REPLANTING EQUALS SUSTAINABLE LOGGING

Although Canada ranks third in the world for its rate of intact forest landscape loss, the country's forestry industry has managed to largely avoid international scrutiny.84 This is in no small part thanks to an oft-repeated claim by government and industry representatives: Trees grow back. The annual State of Canada's Forests report for 2019 simply says, "A forest that has been harvested is still a forest"-a claim also made by many of the companies in this report.85 However, this argument is based on rose-tinted assumptions about forest regrowth that are not necessarily borne out. Industrial clearcutting removes nearly all the trees from a selected area and often requires clearing additional forest to create access roads.86 A recent study in Ontario found considerable areas of boreal forest that have not grown back decades after these areas were disturbed by loggingrelated activities. Indigenous experts and western scientists have indicated that forest regeneration can take decades or even centuries—time that threatened species, the global climate, and the Indigenous communities that rely on these forests do not have. 87 Ultimately, lines of newly planted seedlings cannot replicate the species richness and ecosystem services of an ancient forest on the timescale necessary to undo the far-reaching consequences of primary forest loss in Canada.88



Clearcut boreal forest in Ontario, in June 2019.

4. MANAGING LANDS RESPONSIBLY: Does the company exclusively manage lands certified under the Forest Stewardship Council?

Canada's forestry certifications vary greatly in their rigor and effectiveness at protecting forest landscapes. Forests certified under the Forest Stewardship Council are managed under considerably higher environmental standards than Canada's most widely adopted certification scheme, the Sustainable Forestry Initiative. FSC was created when businesses, environmental groups, human rights organizations, and community leaders saw the need for a system that would incentivize more sustainably managed forests. In contrast, SFI was created by timber industry associations in what effectively was a selfregulating regime.⁸⁹ Today FSC, while imperfect, has sustainability requirements that are more stringent than provincial and national requirements. 90 SFI, on the other hand, broadly offers either overly weak or vague guidance, and its requirements do little more than say that companies must follow the law (at a time when forestry industry groups also tout their ability to influence government

policy). 91 This has led a large number of environmental organizations to criticize SFI as a greenwashing operation, and dozens of companies have distanced themselves from it. 92 Environmental organizations have also lambasted the Canadian Standards Association (CSA), the last of the three certifications used in Canada (along with FSC and SFI), for mischaracterizing logging in culturally and ecologically previous old-growth forests as being sustainable.93

Some of the companies in this report have indicated a preference for FSC-certified wood in their supply chains. However, these are mostly empty words unless they are backed by actions taken to convert weakly managed logging areas to FSC certification and to ensure that those areas meet high sustainability standards. Forestry companies should move to certify all of their managed forest lands under the FSC and ensure that FSC requirements are robustly implemented. This would increase the sustainability of areas that are already under management and expand the volume of FSC-certified wood available in the marketplace. It would not, however, mean that FSCcertified lands necessarily meet all sustainability metrics, as detailed in the text box below.

PROBLEMS WITH RELYING ONLY ON CERTIFICATION

Companies that both produce and purchase pulp sometimes simply point to their reliance on forest certification as sufficient evidence of sustainable sourcing.94 However, there are several key issues with that stance. First, as outlined in this paper, certifications vary widely, and the FSC system is far superior to its competitors in Canada—SFI and CSA—which are broadly critiqued for their weak standards. Second, even the superior requirements of the FSC system have not caught up with the urgency of the global twin climate and biodiversity crises which require the immediate protection of forest landscapes around the world.95 FSC allows some logging in primary forests (including IFLs) and threatened species habitat. FSC requirements are also subject to weakening. For example, in light of FSC's representation of multiple stakeholders, proposals to strengthen its policies around IFLs and species protections are being challenged by some companies in the system. 96 Additionally, FSC's social and environmental protections cannot be strong only on paper; they require robust implementation vetted by rigorous audits in order to be effective. Finally, FSC's "controlled wood" provisions allow for some wood from areas outside FSC-certified forests to also earn the FSC seal. 97 Ultimately, even though FSC remains superior to competing certification regimes, companies sourcing and producing pulp should independently commit to key principles including obtaining FPIC, safeguarding species habitat, and protecting primary forests. These commitments can strengthen the FSC system by reinforcing the importance of key values, rather than burdening certification alone with demonstrating that all key environmental and social criterion have been met.

5. SOURCING WOOD RESPONSIBLY: Does the company require that the wood supplying its mills come from FSCcertified forests?

Companies sometimes source much larger overall volumes of wood than what is produced from lands they directly manage, including sourcing from third parties. Their sourcing practices and standards can directly impact how logging in nearby forests occurs. While there is currently

much more SFI-certified than FSC-certified wood in Canada, companies—as land managers—have the power and responsibility to increase the amount of forestland that has FSC certification.98 Companies can also require that that wood entering their facilities come from FSC-certified lands, ensuring that all of the wood they use—or at the very least, the vast majority—meets FSC's superior standards.

Recommendations



Activists protesting logging of old-growth forests, British Columbia, 2021.

This report demonstrates that Canada's largest pulp producers are operating in ways incompatible with sustainability. It is disingenuous for these companies to highlight their operations as beneficial to the environment, and use messaging that conceals their true social and environmental costs. Al-Pac is an outlier, but it is the smallest of the seven pulp producers (by volume) and does not represent the broader industry.

These findings should concern purchasers of this wood and pulp, including major tissue and toilet paper producers that echo these same sustainability claims in regards to many of their tissue products. It is vital that companies using pulp and wood in their products have sustainable supply chain requirements that protect human rights, primary forests and threatened species; in the absence of these commitments, many of these companies are complicit in deforestation and forest degradation.99

To protect the boreal forest's ability to store carbon, preserve threatened species habitat, and uphold the rights of Indigenous Peoples, companies that produce pulp and

those that purchase pulp should implement the following measures:

- Obtain free, prior and informed consent from all Indigenous Peoples potentially impacted by their operations, and stop operations where FPIC has not been secured;
- Ensure that all operations in boreal and southern mountain caribou habitat meet the bare-minimum habitat requirements prescribed by the federal government;
- Commit to not logging in or sourcing from primary forests including Intact Forest Landscapes;
- Certify managed forests under the Forest Stewardship Council, source all wood from FSC-certified areas, and ensure that these protections are robustly implemented; and
- Work to create sustainable alternatives so that primary forests are protected and not used to make single-use throwaway products like toilet paper.

Appendix (Company Overviews, Details of Company Research, and Company Responses)

COMPANY OVERVIEWS

The seven companies reviewed in this report have pulp operations spanning six Canadian provinces that produce a variety of products used around the world. Three of the pulp types these companies produce—northern bleached hardwood kraft, northern bleached softwood kraft (NBSK), and bleached chemi-thermomechanical pulp—are used to make a range of single-use products including tissues and paper towels, printing and writing paper, specialty papers, and paperboard. 100 High-content dissolving pulp, produced specifically by Aditya Birla's New Brunswick mills, is used in the manufacture of viscose staple fiber for making rayon in the apparel and home textile industry. 101 While clothing can have a longer shelf life than traditional pulp products like tissue, major brands have faced international censure for the production of "fast fashion" clothing that is worn just a few times before being discarded. 102

As noted in this paper's introduction, when this report and scorecard refer to Paper Excellence/ Domtar as a single entity, it is based on the assumption that the acquisition will be successful soon after the publication of this report, and that Domtar's existing operations will become part of Paper Excellence. When this report and scorecard refer solely to either Domtar or Paper Excellence, it is in reference to activities, commitments, or company materials that either happened prior to the completed acquisition, or do not yet address the acquisition (for example, end-of-year annual reports).

Paper Excellence/Domtar

Paper Excellence has begun the process of acquiring Domtar, but at the time of this report's publication Paper Excellence had not yet begun to include key details about Domtar in its end-of-year annual reports. We therefore looked at the websites of both Paper Excellence and Domtar to determine details about their operations and commitments.

Paper Excellence, based in Richmond, British Columbia, and the Netherlands, reported \$2.4 billion CAD in sales in 2020 and is the largest pulp and paper producer in Canada by volume. 103 Its acquisition of Domtar in 2021 can be expected to make its pulp production dwarf that of even its closest rivals in Canada (see table under "Companies' Pulp Operations," above). Its enormous forest footprint is all the more astonishing considering the recentness of the company's expansion across Canada; it began acquiring Canadian pulp mills in 2007.¹⁰⁴ Yet the family at the head

of this privately owned company has a long history of international environmental destruction and ties to human rights abuses. The Widjaja family, which also owns the notorious Asia Pulp and Paper (APP) Sinar Mas, has faced robust international condemnation for its companies' role in deforestation, displacement of local populations, and perpetration of violence against protesters in Indonesia. 105

Some of Paper Excellence's operations have faced strong opposition. In Nova Scotia, Indigenous Peoples protested and led a blockade over toxic effluents from the company's Northern Pulp mill, which ultimately led to the mill's temporary closing. 106 Canadian press reports have also highlighted economic concerns over Paper Excellence's reliance on government bailouts when its individual subsidiaries have declared themselves on the verge of bankruptcy, which has happened concurrently with the company's ongoing expansion.¹⁰⁷

In 2021, Paper Excellence began the process of acquiring Domtar, one of the world's largest producers of market pulp, with more than 20 facilities spread across North America and reported annual sales of \$3.65 billion in 2020.108 Domtar has a large presence in Canada's boreal forest, where it directly harvests wood, manages forest areas, and sources wood for its mills. Its Canadian operations span Ontario, Quebec, and British Columbia and produce pulp and paper. Domtar directly manages forest units containing key habitat for Canada's threatened boreal caribou, which it has yet to commit to protecting in spite of years promising to sustainably manage these areas. 109 Although Domtar uses higher volumes of wood from FSCcertified forests than most of the western-province-based companies assessed in this report, its operations overlap with boreal forest, making it important for Domtar to commit to protecting primary forests and boreal caribou habitat. The acquisition by Paper Excellence is expected to move the company from being publicly traded to being privately owned, which has prompted fears that this will reduce public insight into the company's operations. 110 Indeed, an anticipated reduction in transparency was one of the concerns detailed by the 68 organizations that wrote to key Domtar stakeholders in June 2021 urging the company to reject the acquisition.¹¹¹

Canfor

With reported annual sales of \$990.5 million CAD in 2020, Canfor is a leading global producer of lumber, pulp, and paper. It owns almost 40 manufacturing facilities across

North America that supply markets in North America, Europe, and Asia. 112 The company's public materials suggest that less than half of each tree it uses results in finished lumber, with significant percentages going toward single-use products including pulp, paper, and wood-based energy. 113 While outside the scope of this report, research has demonstrated that exporting wood pellets for woodbased industrial-scale power generation is extremely threatening to the global climate. 114

Canfor's Canadian pulp and paper mills are based in British Columbia and its headquarters are in Vancouver, and the company sources primarily from public lands. 115 Its Northwood pulp mill is the largest NBSK pulp facility in North America, making it a key supplier of pulp used to make tissue and paper products. 116 In 2017 and 2018, the company faced public criticism following video footage and photographs taken by Canadian NGOs revealing its forestry operations' impacts on southern mountain caribou habitat. 117 Particularly alarmingly, this logging occurred during the same period that environmental groups were urging the federal government to protect the habitat of these imperiled herds. 118

West Fraser

West Fraser reports that it is the world's largest lumber manufacturer. 119 The company reported \$5.85 billion in annual sales revenue in 2020. 120 West Fraser is headquartered in Vancouver and has more than 60 facilities spread across North America and Europe. 121 In Canada alone, West Fraser has 12 lumber mills, seven engineered wood and panel facilities, and five pulp and paper mills (two of which are 50 percent partnerships). 122 One of these mills, Cariboo Pulp & Paper, is a joint venture with Mercer. 123 In February 2021, West Fraser announced that it had completed the acquisition of Norbord, a global manufacturer of wood-based panels which was the world's largest producer of oriented strand board (OSB).124

West Fraser holds harvesting licenses representing approximately 8.5 million hectares of forests in Canada. 125 Much of the wood chip fiber supplying the company's pulp mills comes from its large lumber mills. 126 West Fraser's solid wood production makes the company a key supplier for home construction and industrial applications, as well as pulp and paper. 127

As recently as September 2021, the Mountain Metis Nation Association, an Indigenous umbrella organization of the Metis Nation of Alberta, and environmental nongovernmental organizations called on West Fraser and the Alberta government to stop logging old-growth southern mountain caribou habitat in west central Alberta, saying it threatened efforts to recover threatened caribou herds. 128

Mercer

Mercer is one of the world's largest producers of market pulp and is a growing player in solid wood production. 129 The company, which is headquartered in Vancouver, reported a total revenue of \$1.4 billion in 2020. 130 While Mercer has pulp and timber operations in Canada and Germany and sandalwood plantations in Australia, this analysis focuses only on its Canada operations. Mercer's NBSK mill in British Columbia sells most of its pulp to Asia, and its Alberta-based mills process hardwoods and softwoods and supply markets in North America, Asia, and Europe. 131 It also co-owns a pulp mill in British Columbia, Cariboo Pulp & Paper, which is a 50/50 venture with West Fraser. 132

Mercer touts itself as a "leading green energy producer" because of the tree-based fuels that are produced as byproducts of its high volume of pulp production. 133 However, research has highlighted that removing carbon-storing trees and using their wood in industrial powerplants can have a significant climate cost. 134

Resolute

Resolute, which is headquartered in Montreal, reported annual sales of \$2.8 billion in 2020.135 It produces a range of products including market pulp, tissue, wood products, and papers at the approximately 40 facilities it owns and operates across North America. ¹³⁶ In 2018, the company reported that it was the world's largest producer of newsprint by capacity. 137 Resolute has a very large boreal forest footprint due to the company's logging, managing of forest units, and sourcing wood from forest units.

Resolute's wood sourcing comes from forest units with significant overlap with threatened species' habitat, and the company has an infamous reputation with respect to both its activities in Canadian forests and its aggressive response to critics. In 2013, respected Canadian environmental organizations announced that they were suspending collaboration with the company over concerns that it was not doing "the minimum that the science says is required to protect our forests and the threatened caribou that call them home."138 When Greenpeace Canada and Forest Ethics (now Stand.earth) publicly criticized the company's logging activities as being unsustainable, Resolute launched, and lost, costly lawsuits against these organizations. 139 Resolute also sued Rainforest Alliance, a certifying organization, over an unfavorable draft audit of some of the company's operations, which environmental critics warned could have a chilling effect on future certification audits. 140 Resolute continues to source high wood volumes from forest units that contain threatened boreal caribou habitat and have weak sustainability standards, as detailed in a 2021 NRDC report.141

Aditya Birla

Aditya Birla is an international conglomerate headquartered in Mumbai, with operations across 36 countries, around 130 manufacturing facilities representing multiple industries, and global revenues of \$48 billion in $20\overline{19}.^{142}$ The company is the world's largest producer of viscose staple fiber and viscose filament varn, forestderived materials used in the apparel industry. 143 In Canada, its operations focus primarily on pulp production.

While environmental watchdogs have criticized Aditya Birla for international environmental abuses, including the release of pollution from its mills in Asia, this report specifically assessed the wood supply feeding its Canada-based pulp mills, which are in Ontario and New Brunswick. 144 However, its Asian and Canadian supply chains are closely linked. Aditya Birla's New Brunswick mills produce material for viscose staple fiber, and most of this dissolving pulp supplies the company's viscose plants in India, Indonesia, and Thailand. 145

Aditya Birla AV Terrace Bay, located in Ontario, is a NBSK pulp mill. In 2017, a Toronto Star investigation reported that AV Terrace Bay had the most environmental-related violations of any factory in Ontario.¹⁴⁶ In 2015, AV Terrace Bay pled guilty to seven offenses for environmental infractions under the Environmental Protection Act dating back to 2013.147

Al-Pac

Since opening in 1993, Al-Pac's mill in Alberta has grown into the largest single-line kraft pulp producer in North America, with 2019 output results of 530,000 tons of bleached hardwood kraft pulp and 80,000 tons of bleached softwood kraft pulp. 148 In September 2005, Al-Pac received FSC certification for 5.5 million hectares of forest management area in northeastern Alberta, representing the largest FSC-certified forest in the world. 149 In 2015, the company was acquired by its current Tokyo-based parent company, Hokuetsu Corporation, which at the time was reported as the second-largest fine-paper manufacturing company in Japan; in 2020 Hokuetsu Corporation had estimated annual net sales of \$2.43 billion. 150

DETAILS OF COMPANY RESEARCH AND COMPANY RESPONSES

The following section provides details on how each company performed on the scorecard's criteria, based on both publicly-available data, and companies' responses to our invitation to review our findings about their performance. After compiling our initial research on each of the companies, we invited them to review our findings on their activities and/or commitments on each of the criterion on September 2, 2021 (via email). We asked for responses by end of day September 15, 2021. As detailed below, we received email responses

commenting on these findings from Domtar (although not from Paper Excellence), Resolute, Al-Pac, and West Fraser. We have detailed those comments below. We did not receive responses about these findings from Aditya Birla, Canfor, and Mercer, and therefore were not able to incorporate these companies' responses into the report and scorecard findings.

Paper Excellence/Domtar

We sent one email containing combined estimates for Paper Excellence/Domtar to representatives at both companies. Domtar responded about Domtar's operations only, noting that the acquisition had not been completed. Paper Excellence responded to confirm that we included the correct company recipient, but did not comment on our estimates.

CRITERION I: Neither Paper Excellence's public materials nor Domtar's indicate that the companies require FPIC from Indigenous Peoples potentially impacted by logging operations supplying its mills.

Domtar's written response stated that the company follows "all applicable Canadian regulations regarding FPIC on the tenures that [Domtar] manage[s]," and that "[Domtar] do[es] not specifically require actions beyond adherence to Canadian law." However, Indigenous Peoples in instances across Canada have demonstrated that FPIC is often not enforced by provinces, which is why we independently assessed companies on this criteria.

Domtar also stated, "None of the tenures are regions that we source from are controversial or have outstanding issues regarding FPIC." Yet in cases across Canada, controversies over a lack of FPIC often arise once a community has already been harmed; and it is to avoid such instances altogether that companies need to have clear requirements around FPIC. Moreover, Indigenous responses to Domtar's operations demonstrate the urgency of the company having a binding and meaningful FPIC policy for all of its operations. For example, around two months prior to the publication of this report, Michipicoten First Nation announced that it was considering legal action against Domtar over contamination leaching from one of the company's wood waste sites in Ontario. 151 Even if this area does not fit the definition of a region that Domtar currently sources from (as cited in Domtar's correspondence), it highlights the importance of a strong FPIC policy for the company's operations and managed areas that goes beyond provincial requirements. Indeed, the July 29, 2021 press release by Michipicoten First Nation

"Despite a joint Ministry Task Force to compel Domtar to consult with Michipicoten, Domtar has neither seriously consulted with the First Nation, nor resolved the continuing contamination problem. Despite continued efforts from Michipicoten First Nation to work cooperatively and in

good faith with all parties to develop proposed solutions, Domtar has avoided meaningful engagement with the First Nation. Requests for scientific and technical data, mitigation options and environmental monitoring solutions have been deflected, gone unanswered, or ignored by Domtar. Meanwhile, the leachate is spreading and contaminating new areas of land and water systems in and around Chapleau and includes Michipicoten's traditional lands."152

This paper also refers to the history of Indigenous Peoples's resistance to one of Paper Excellence's Nova Scotia mills, due to contamination by toxic effluents leached from that site. However, Paper Excellence did not respond to our invitation to review this paper's findings about its operations.

CRITERION 2: Neither Paper Excellence nor Domtar's public materials indicate a commitment to meeting the federal government's habitat thresholds for boreal caribou and southern mountain caribou for the wood harvesting supplying its mills. Its Skookumchuck mill's FSC Public Summary Report for Controlled Wood also notes overlap between the mill's fiber supply area and woodland caribou habitat. 153 Domtar's public materials also do not indicate a commitment to meeting the federal government's habitat thresholds for threatened caribou, and its Public Certification Summary for FSC Controlled Wood notes that its fiber supply area overlaps with woodland caribou habitat.¹⁵⁴ Moreover, much of the public forest management units from which Domtar sources overlap significantly with boreal caribou habitat. 155

In its written response to us, Domtar did not contest our finding. Domtar's email stated, "There is not an agreement between the provincial and Federal governments on the set aside threshholds as of this date. This is not in Domtar's control." While Domtar may be adhering to provincial requirements for logging and sourcing wood, various provincial policies on species habitat management are at odds with science. This report did not assess the companies on whether they followed provincial law, but instead on whether their operations can be characterized as sustainable. In doing little more than meeting provincial requirements, the company is following a very low-bar threshold. For example, Canada' federal government has indicated that policies in the provinces where Domtar operates have led to ongoing declines in caribou populations. 156 The government of Ontario, where Domtar has some its key operation, has been sued by environmental organizations over its undermining of environmental protections, and has been widely criticized for failing to protect threatened species, reducing requirements for industry, undermining public participation in environmental processes, and for its plans to dramatically ramp up logging levels over the next decade. 157

Paper Excellence did not respond to our invitation to review this paper's findings about its operations.

CRITERION 3: Neither Paper Excellence's public materials nor Domtar's indicate a commitment to not sourcing from primary forests, including not sourcing from IFLs, based on best available mapping. Both Domtar and Paper Excellence's websites highlight some areas which the companies' mills have helped to permanently preserve. However, these websites do not indicate that Paper Excellence and Domtar have helped to permanently protect specific areas that meet the size and definition of an IFL. 158 Paper Excellence's Public Certification Summary for FSC Controlled Wood notes that its British Columbia supply area overlaps with IFLs. 159 Likewise, Domtar's FSC Public Certification Summary for Evaluations of Controlled Wood notes overlap between its fiber supply area and IFLs. 160

Domtar did not contest our findings. Domtar indicated that primary forest protections could be in conflict with the way Indigenous Peoples "have been utilizing and managing these natural resources for centuries" but as detailed in this report, primary forest definitions do not prohibit Indigenous Peoples from traditional activities in these areas.

Paper Excellence did not respond to our invitation to review this paper's findings about its operations.

CRITERION 4: Paper Excellence manages 244,733 hectares of non-FSC-certified (SFI-certified) land in Nova Scotia under its subsidiary Northern Pulp Nova Scotia Corp. 161 In 2020, Domtar managed 887,490 hectares of non-FSC-certified land and 886,379 FSC-certified hectares. 162

Domtar's response to our outreach provided information that allowed us to update our estimates for the company's managed lands, although this response did not change the way the Paper Excellence/Domtar was scored in the scorecard. Domtar stated, "The initial audit on the Trout Lake SFL is scheduled for November of this year. All other Domtar owned and managed lands are FSC certified. One exception is an unmanaged parcel in Ontario that is in the process of being sold." This indicated that Domtar's managed certified lands had changed from the 2020 certification reports that informed this report. However, when we asked Domtar to send us the current breakdown of areas (in hectares) that Domtar manages that are a) FSC-certified and b) non-FSC certified, the company declined to provide these hectares. Therefore, we can make the following estimates, noting that these sizes may be approximate due to the lack of information provided by the company. We can infer that, removing the 4,645 hectares lands (listed to Domtar at Espanola by Certification Canada) the company still manages approximately 882,845 hectares of non-FSC certified lands in Ontario (listed to Domtar at Dryden by Certification Canada). 163 Therefore, combined with Paper Excellence, we estimate that Paper Excellence/Domtar manages approximately 1,127,578 hectares of non-FSC certified areas. This did not impact the way we had originally scored the company.

As detailed above, Domtar indicated that if attempts to certify the Trout Lake Forest are successful, it would make all of its owned and managed areas FSC-certified. However, as highlighted in a 2021 NRDC report, Domtar has been signaling that it would eventually certify the Trout Lake forest under the FSC for around a decade, and this report and scorecard only gave credit for successfully certified areas. 164 Moreover, successful FSC certification under the new standard is meant to meet a high threshold for protecting caribou habitat, in light of the FSC Canada's new boreal caribou indicator which has specific new requirements which are meant to complement the federal boreal caribou recovery strategy. 165 Yet Domtar has not signaled that it plans to follow the federal recovery strategy. In light of the contested and controversial way that Ontario has managed primary forest and caribou habitat, Domtar will have to demonstrate that its proposed management policies in Trout Lake Forest support boreal caribou recovery with strong peer-reviewed evidence and the collaboration of self-identified stakeholders in order to successfully pass an FSC audit of this area. 166

Paper Excellence did not respond to our invitation to review this paper's findings about its operations.

CRITERION 5: Neither Paper Excellence nor Domtar's public materials indicate a requirement that the wood supplying the company's mills come from FSC-certified forests. Paper Excellence mentions its mills using a combination of FSC, PEFC (Programme for the Endorsement of Forest Certification), and SFI chain-of-custody standards. 167 While Domtar has a stated preference for FSC certification, it reports that just 18 percent of its fiber comes from FSCcertified sources. 168 Additionally, much of the non-FSC land supplying Domtar includes areas critical for threatened species including boreal caribou, meaning those areas are particularly vulnerable to unsustainable logging. 169 We conclude that less than 50 percent of Paper Excellence and Domtar's combined pulp mill sourcing comes from FSCcertified forests.

Domtar did not contest our finding about its FSC sourcing, or choose to update the public reporting stating that only 18 percent of its fiber comes from FSC-certified forests.

Paper Excellence did not respond to our invitation to review this paper's findings about its operations.

Canfor

CRITERION I: Canfor's public materials do not indicate it requires FPIC from Indigenous Peoples potentially impacted by logging operations supplying its mills.

CRITERION 2: Canfor's public materials do not indicate a commitment to meeting the federal government's habitat threshold requirements for boreal caribou and southern mountain caribou for the wood harvesting supplying its mills. The company's FSC Controlled Wood Public

Certification Summary also notes overlap between the company's fiber supply area and woodland caribou habitat.170

CRITERION 3: Canfor's public materials do not indicate a commitment to not sourcing from primary forests, including not sourcing from IFLs, based on best available mapping; nor do these materials indicate that the company has helped to permanently protect IFLs from logging. The company's FSC Public Certification Summary for Evaluations of Controlled Wood also notes overlap between its fiber supply area and IFLs.¹⁷¹

CRITERION 4: Canfor, through its subsidiary Canadian Forest Products Ltd., manages 11,719,393 hectares of non-FSCcertified land, and 1,188,135 hectares of FSC-certified land. 172 For this reason, Canfor receives only partial credit for this criterion.

CRITERION 5: Canfor reports using both FSC- and SFIcertified wood, and the company gives no indication that 50 percent or more of the wood it sources for its pulp mills comes from FSC-certified forests.¹⁷³

West Fraser

CRITERION I: West Fraser's public materials do not indicate it requires FPIC from Indigenous Peoples potentially impacted by logging operations supplying its mills.

West Fraser's written response to us also did not indicate that the company requires FPIC. West Fraser stated that it was recently designated at the "Committed Level" in the Progressive Aboriginal Relations (PAR) Program from the Canadian Council for Aboriginal Businesses (CCAB). According to the CCAB website, "PAR Committed companies are in the beginning stages of tracking and managing their Aboriginal relations strategies."174 West Fraser also said the company's "practices and interactions are informed by the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)." Having policies informed by UNDRIP is vague and does not specify adherence to its requirements, including FPIC.

CRITERION 2: West Fraser's public materials do not indicate a commitment to meeting the federal government's habitat thresholds for boreal caribou and southern mountain caribou for the wood harvesting supplying its mills. The company's Controlled Wood Public Summary Report notes overlap between its fiber supply area and woodland caribou habitat. 175 West Fraser did not refute our findings about whether it met the guidelines for habitat thresholds in the federal government's caribou recovery strategies. It referred to the fact that it follows federal and provincial laws, but as noted above, this paper assessed companies on a higher bar of sustainability than what is required by law. For example, both Alberta and British Columbia provinces where West Fraser operates—have been widely lambasted for failing to protect threatened species and

primary forests. 176 Meeting these province's requirements is therefore not the same criterion as operating sustainability.

CRITERION 3: West Fraser's public materials do not indicate a commitment to not sourcing from primary forests, including not sourcing from IFLs, based on best available mapping. Additionally, the company's Controlled Wood Public Summary Report notes its fiber supply area overlaps with IFLs. 177 However, West Fraser's public materials highlight that the company relinquished harvesting rights to 317,500 hectares of intact coastal temperate rainforest almost three decades ago, which helped lead to the establishment of the Kitlope Heritage Conservancy. 178 For this reason, the company receives partial credit for this criterion. West Fraser did not address these findings in its response.

CRITERION 4: West Fraser, along with its subsidiary Norbord, manages 13,203,796 hectares of non-FSC-certified (SFIcertified) land, but it does not manage any FSC-certified land. 179

West Fraser did not refute our finding about the certification of its managed lands. West Fraser stated, "100% of our directly-managed forest lands in Alberta and British Columbia (B.C.) are sustainable management certified," and "100% of our supply chain is third-party certified for responsibly-sourced fibre," and referred us to its webpage on certification. This only lists lands that it manages under SFI: "All of the Canadian woodlands operations directly managed by West Fraser are independently certified to the Sustainable Forestry Initiative (SFI) fibre sourcing and forest management standards." This report has detailed that SFI has considerably lower standards than FSC, which is why the latter was our certification benchmark.

CRITERION 5: West Fraser's website only mentions its use of the FSC standard for chain-of-custody certification, and the company gives no indication that 50 percent or more of the wood it sources for its pulp mills comes from FSC-certified forests.180

As mentioned above, West Fraser referred us to its certification website, but this webpage highlighted its PEFC and FSC Chain of Custody certifications (which allows wood from non-FSC certified forests to be used by facilities). 181 Our paper and scorecard specifically assessed companies on volumes sourced from FSC-certified forests, which have stronger standards than FSC Chain of Custody standards (and much stronger standards than PEFC Chain of Custody standards). 182

Mercer

CRITERION I: Mercer's public materials do not indicate it requires FPIC from Indigenous Peoples potentially impacted by logging operations supplying its mills.

CRITERION 2: Mercer's public materials do not indicate a commitment to meeting the federal government's habitat thresholds for boreal caribou and southern mountain caribou for the wood harvesting supplying its mills. The company's FSC Public Summary Reports for Controlled Wood for its fiber supply area also notes overlap with woodland caribou habitat. 183

CRITERION 3: Mercer's public materials do not indicate a commitment to not sourcing from primary forests, including not sourcing from IFLs, based on best available mapping; nor do these materials indicate that the company has helped to permanently protect IFLs from logging. Furthermore, the company's FSC Public Summary Reports for Controlled Wood notes overlap of its fiber supply area with IFLs. 184

CRITERION 4: Mercer manages 1,954,411 hectares of non-FSC-certified (SFI-certified) land in Alberta but does not manage any FSC-certified land. 185

CRITERION 5: Mercer's public materials mention purchasing both PEFC- and FSC-certified wood, and the company gives no indication that 50 percent or more of the wood it sources for its pulp mills comes from FSC-certified forests.186

Resolute

CRITERION I: Resolute's public materials do not indicate it requires FPIC from Indigenous Peoples potentially impacted by logging operations supplying its mills.

In response to our invitation to review this finding, Resolute's written response also did not state that the company requires FPIC for logging operations supplying its mills. In its written response, Resolute stated that "FPIC is not some certificate or piece of paper; it is serious work, requiring deep engagement and many years to develop." While FPIC does require deep engagement, it is nonetheless achievable, evident by the fact that Indigenous Peoples around the world and more than 140 countries that support UNDRIP-including Canada-have recognized it as an Indigenous right that should be granted before industrial projects take place. Resolute's correspondence points to a number of what it describes as "consultative relationships and business partnerships" but fails to state that the company requires FPIC. The Resolute response refers to Indigenous Peoples in its list of "stakeholders" alongside trade associations, rather than nations and governments with rights to deny or modify projects in their traditional territories.

CRITERION 2: Resolute's public materials do not indicate a commitment to meeting the federal government's habitat thresholds for boreal caribou and southern mountain caribou for the wood harvesting supplying its mills. The company's FSC Controlled Wood Public Summary also notes overlap for its fiber supply area and woodland

caribou habitat. 187 Moreover, much of the public forest management units from which the company sources overlap significantly with boreal caribou habitat. 188

In its written response to our invitation to review this finding, Resolute also failed to state this commitment. In its written response, Resolute selectively quoted the following from the federal government's amended recovery strategy for boreal caribou, to challenge the 65 percent threshold as a legitimate criterion by which the company should be assessed. Resolute quoted:

"Habitat disturbance within a range needs to be managed by the responsible jurisdiction at a level that will allow for a local population to be self-sustaining. As there is variation in habitat and population conditions between boreal caribou local populations across their distribution, for some ranges it may be necessary to manage the range above the 65% undisturbed habitat threshold, while for other ranges [...] it may be possible to manage the range below the 65% undisturbed habitat threshold."

However, the full quotation from this federal guidance is quoted below, which describes the extremely high bar of evidence that would need to be provided to not justify having a minimum disturbance threshold except in the case of SK1: a range in Saskatchewan outside of Resolute's own operations (our italics):

"Habitat disturbance within a range needs to be managed by the responsible jurisdiction at a level that will allow for a local population to be self-sustaining. As there is variation in habitat and population conditions between boreal caribou local populations across their distribution, for some ranges it may be necessary to manage the range above the 65% undisturbed habitat threshold, while for other ranges, such as SK1, it may be possible to manage the range below the 65% undisturbed habitat threshold. However, there must be strong evidence, validated by Environment and Climate Change Canada, from population data collected over an extended period of time to support the management decision to establish a lower rangespecific threshold (i.e. the lag effects of disturbance on a local population have been considered and accounted for). In the absence of strong evidence to support lowering the undisturbed habitat threshold below 65%, the amount of critical habitat for all ranges, except SKI, is at least 65% undisturbed habitat. For management purposes, the amount of critical habitat may need to be maintained or restored, depending on the level of disturbance in a range."189

In its response, Resolute failed to provide evidence which meets the bar set by the federal government.

Resolute also made a number of claims related to why the company should not be expected to meet the 65 percent undisturbed habitat threshold, including pointing to other environmental threats that also pose threats to caribou as reason to not safeguard caribou habitat from logging, and

suggesting that provincial plans are effectively protecting caribou. These claims echo arguments that forestry trade groups have been making for years, which have been debunked by respected caribou experts. For example, in a 2017 letter, a dozen caribou scientists wrote to the federal government and discredited arguments that the Forest Products Association of Canada (a trade group of which Resolute is a member) has made in opposition to government initiatives that would protect caribou habitat. 190 Even more recently, scientific research has reconfirmed that industrial disturbances negatively impact boreal caribou populations. 191

CRITERION 3: Resolute's public materials do not indicate a commitment to not sourcing from primary forests, including not sourcing from IFLs, based on best available mapping; nor do these materials indicate that the company has helped to permanently protect IFLs from logging. The company's FSC Controlled Wood Public Summary also notes overlap between its fiber supply area and IFLs. 192

Resolute did not contest our finding. Resolute's response said, "In Ontario and Quebec, where Resolute operates, ecosystem-based management mimics natural disturbances and results in greater long-term carbon storage than not harvesting would." Resolute states that "Trees that are mature or over-mature are more vulnerable to being destroyed by natural disturbances like fire and insects," and that logging primary forests "allows additional carbon to be stored within long-lived forest products like lumber and books."

This report focuses on pulp and did not assess the carbon cost and opportunities of "long-lived forest products," although importantly studies have demonstrated that many wood-based products are not in fact very longlasting. 193 Nevertheless, because this report focuses on pulp specifically: pulp used for a variety of purposes advertised by Resolute including tissue, paper towels, and coffee filters is single-use, and once discarded begins emitting climatewarming gases. These products do not "store" carbon so much as rapidly release it, fueling the climate crisis.

Scientific studies have also shown that industrial logging in the boreal forest does *not* mimic natural disturbances like wildfire. 194 Resolute's characterization of primary forests' vulnerability to forest fires is overly simplistic, as the vulnerability and resilience of different forest areas depends on a number of specific factors including geography, forest area and species, the extent of future climate change, and the ways forests are managed.

CRITERION 4: Between Ontario and Quebec, Resolute manages 12,483,201 hectares of non-FSC-certified land and 7,512,689 hectares of FSC-certified land. 195 For this reason, the company receives partial credit for managing some FSC-certified lands.

In its written response to us, Resolute did not contest our findings. Resolute stated instead that the information that we sent Resolute to review "omits that Resolute remains one of the largest FSC certificate holders in North America," so we have included that information here. However, this paper also details that Resolute's non-FSCcertified managed areas are considerably higher than its FSC-certified areas. Resolute also said, "Your last report says that we have 'approximately halved the area of FSCcertified forestland' but those decreases reflect a change in circumstances, including the company's operational footprint, particularly due to a reduction of demand for newsprint." However, Resolute does not indicate why it has not moved all—or the majority—of the lands that it does currently manage to be certified under the FSC-standard.

CRITERION 5: Resolute's website notes that the company uses FSC, SFI, and PEFC certification, and 52 percent of its virgin wood fiber inputs for its pulp and paper mills are certified to these standards. 196 It does not specifically note the percentage that is FSC-certified wood, and the company gives no indication that 50 percent or more of the wood it sources for its pulp mills comes from FSC-certified forests.

In its written response to us, Resolute did not contest our findings. Resolute highlighted that its wood inputs met the various certification standards that are outlined in its public materials. However, this paper details that there are significant differences in the quality and strength of these certification systems, with wood from FSC-certified forests being widely assessed as superior to its competitors.

Aditya Birla

CRITERION I: Aditya Birla's public materials do not indicate it requires FPIC from Indigenous Peoples potentially impacted by logging operations supplying its mills.

CRITERION 2: Aditya Birla's public materials do not indicate a commitment to meeting the federal government's habitat thresholds for boreal caribou and southern mountain caribou for the wood harvesting supplying its mills. Its AV Terrace Bay mill's FSC Controlled Wood Public Certification Summary notes overlap of its fiber supply area and woodland caribou habitat. 197

CRITERION 3: Aditya Birla's public materials do not indicate a commitment to not sourcing from primary forests, including not sourcing from IFLs, based on best available mapping; nor do these materials indicate that the company has helped to permanently protect IFLs from logging. Its AV Terrace Bay mill's FSC Controlled Wood Public Certification Summary also notes overlap between its fiber supply area and IFLs. 198

CRITERION 4: Aditya Birla, through its AV Nackawic mill, manages 727,221 hectares of non-FSC-certified (SFIcertified) land. 199 In addition, Aditya Birla's AV Group,

as a member of Ogwiidachiwaning Sustainable Forest Management Inc., will co-manage the Kenogami Forest, of which 1,610,154 hectares have recently been FSCcertified.²⁰⁰ For this reason, the company receives partial credit for this criterion.

CRITERION 5: Aditya Birla has indicated that the recent FSC certification of Kenogami Forest could bring the AV Terrace Bay mill's sourcing from FSC-certified forests to 75 percent.²⁰¹ Given that the AV Terrace Bay mill has a capacity of 330,000 ADMT and the two AV Group NB mills have a total combined capacity of 301,000 ADMT, Aditya Birla would further need nearly a quarter of its AV Group NB mills' sourcing to come from FSC-certified areas in order to meet the 50 percent FSC minimum needed for the company to receive partial credit for this criterion.²⁰² However, the AV Group NB website for its Atholville and Nackawic mills does not mention using FSC-certified fiber, and company gives no indication that 50 percent or more of the overall wood volumes that it sources for its pulp mills comes from FSC-certified forests.²⁰³

Al-Pac

CRITERION I: Al-Pac's public materials do not indicate it requires FPIC from Indigenous Peoples potentially impacted by logging operations supplying its mills. However, the most recently-available (2021) public FSC audit for Al-Pac's managed areas indicates that the company has "signed agreements with all Indigenous Communities within the FMA" and "has demonstrated having taken steps in the right direction to fully meet the intent of 3.2.5," i.e. FSC Canada requirements around FPIC. Nevertheless, the auditor issued a non-conformity report, stating several outstanding measures the company would need to take to fully meet FSC Canada's requirement. FSC Canada notes that Al-Pac has until February 2022 to address these outstanding issues. 204

In its written response, Al-Pac indicated that the company is working "towards the achievement of free, prior and informed consent through the FSC® National Forest Stewardship Standard (NFSS) of Canada" but did not state that it currently requires FPIC.

CRITERION 2: Al-Pac's public materials do not indicate a commitment to meeting the federal government's habitat requirement thresholds for boreal caribou and southern mountain caribou for all of the wood harvesting supplying its mills. Al-Pac's FSC Controlled Wood Public Certification Summary notes its fiber supply area overlaps with woodland caribou habitat.205

However, the company received partial credit for acknowledging the 65 percent undisturbed habitat target for caribou ranges, and for some of the steps it has taken to better align its managed areas with federal guidance on caribou habitat, which it detailed in its written response to us. Al-Pac highlighted peer-reviewed research that has indicated that the company's reliance on science to inform its caribou policies makes it an outlier amongst many of its peers. 206 Al-Pac also stated that the company has been "certified to FSC's® NFSS, which includes an indicator that specifically addresses caribou conservation, including taking important steps to meaningfully contribute to the 65% undisturbed habitat target for each range. Please refer to NFSS 6.4.5B for details." While Al-Pac was the only company to receive some credit in this criterion, it did not receive near/full alignment with it. Specifically, the company did not broadly indicate that it would not further disturb areas that had already been disturbed beyond the thresholds indicated in the recovery strategies in its own managed areas and the wood that supplies its mills.

CRITERION 3: Al-Pac's public materials do not indicate a commitment to not sourcing from primary forests, including not sourcing from IFLs, based on best available mapping. However, the company voluntarily deferred harvest in approximately 200,000 hectares of the Gipsy Lake and Dillon River areas that have since been incorporated into wildland parks.²⁰⁷ Based on a GIS analysis of these areas and their overlap with IFLs, the protected areas set aside within Al-Pac's FMA area included overlap with primary forests.²⁰⁸ For this reason, the company received partial credit for this criterion.

In the company's written response to us, Al-Pac did not contest our finding. The company highlighted the high percentage of primary forest which makes up its management area. It did not say that it commits to not sourcing from primary forests and/ or IFLs for the wood supplying its mill.

CRITERION 4: According to Al-Pac's public materials, of the 6.4 million hectares that Al-Pac manages, 5,986,675 million are FSC-certified, making it the only company in this scorecard to meet this criterion.²⁰⁹

Al-Pac's response proposed slight modifications to these numbers, saying, "Al-Pac's FMA area is just over 6.3 million hectares (ha), and the FSC® certified portion of this area is 5,983,915 ha. Approximately 300,000 ha of Al-Pac's FMA area is influenced or affected by activities from other users who hold leases or access rights granted by the Alberta government, including the energy sector." Based on those provided figures, approximately 95 percent of Al-Pac's managed area is FSC-certified.

CRITERION 5: Al-Pac's public materials do not appear to indicate what percentage of the wood supplying the company's mill comes from FSC-certified forests. However, in response to our invitation to review this finding, Al-Pac stated, "Approximately 60% of the wood supplying Al-Pac's mill comes from an FSC® certified forest with an FSC® 100% claim. Al-Pac remains a strong advocate for FSC®. As such, we work to encourage forest companies within our supply area to become FSC® certified and will continue these efforts."

ENDNOTES

- $Convention \ on \ Biological \ Diversity, "Forest \ Biodiversity \ Definitions," \ November\ 30, 2006, https://www.cbd.int/forest/definitions.shtml.\ Brendan\ Mackey$ et al., "Policy Options for the World's Primary Forests in Multilateral Environmental Agreements," Conservation Letters 8, no.2 (March/April 2015); 139-147, https://conbio.onlinelibrary.wiley.com/doi/10.1111/conl.12120. Sarah Ruiz, "What are Primary Forests and Why Should We Protect Them?" World Resources Institute, May 18, 2020, https://www.globalforestwatch.org/blog/data-and-research/primary-forests-definition-and-protection/.
- James Watson et al., "The Exceptional Value of Intact Forest Ecosystems," Nature Ecology and Evolution 2, no. 4 (February 2018): 599-610, $https://www.researchgate.net/publication/323399911_The_exceptional_value_of_intact_forest_ecosystems.$
- World Wildlife Fund, "Pulp and Paper," https://www.worldwildlife.org/industries/pulp-and-paper (accessed June 30, 2021).
- $Natural\ Resources\ Canada, "Forest\ Products,"\ https://www.mrcan.gc.ca/our-natural-resources/forests-forestry/forest-fact-book/forest-products/21685\ (accessed)$ July 22, 2021). Food and Agriculture Organization of the United States, "Forest Product Statistics," http://www.fao.org/forestry/statistics/80938@180724/en/ (accessed July 22, 2021).
- Shelley Vinyard and Jennifer Skene, The Issue With Tissue 2.0: How the Tree-to-Toilet Pipeline Fuels Our Climate Crisis, NRDC, June 2020, https://www.nrdc.org/ sites/default/files/issue-withtissue-2-report.pdf.
- As detailed in the Appendix, annual financial reporting by company is: Paper Excellence, \$2.4 billion CAD (\$1.79 billion USD) in sales; Domtar, \$3.65 billion in sales; Canfor, \$990.5 million CAD (\$739 USD) in sales; West Fraser, \$5.85 billion in sales revenue; Mercer, \$1.4 billion in total revenue; Resolute Forest Products, \$2.8 billion in sales; Aditya Birla Group, \$48 billion in revenue; and Al-Pac's parent company, Hokuetsu Corporation, \$2.43 billion in net sales. To convert both Paper Excellence and Canfor's annual sales from Canadian dollars to U.S. dollars, we used the conversion rate of 0.746 USD per \$1 CAD provided in Canfor's 2020 financial report. Canfor Pulp Products Inc., 2020 Annual Report, 2020, p. 10, https://www.canfor.com/docs/default-source/annual-reports/2020_canfor-pulpannual-report-final.pdf?sfvrsn=5b65ef91_2.
- All non-FSC-certified lands listed for each company are SFI-certified areas. To remove for double-counting in cases where companies managed lands that are both SFI- and FSC-certified, we categorized these areas as being FSC-certified and all others as being non-FSC-certified lands.
- A World Resources Institute, "Forests," https://www.wri.org/forests (accessed July 13, 2021).
- World Wildlife Fund, "Industry Key to Conserving Forests as Demand for Wood Projected to Triple by 2050," January 28, 2013, http://wwf.panda.org/?207367/ 9 Industry-key-to-conserving-forests-as-demand-for-wood-projected-to-triple-by-2050.
- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, "Nature's Dangerous Decline 'Unprecedented'; Species Extinction Rates 'Accelerating,'" May 6, 2019, https://www.ipbes.net/news/Media-Release-Global-Assessment. World Wildlife Fund, "Forest Habitat," https://www.worldwildlife. org/habitats/forest-habitat (accessed July 7, 2021).
- Peter Veit, "5 Ways Indigenous Groups Are Fighting Back Against Land Seizures," World Resources Institute, June 20, 2018, https://www.wri.org/insights/5-waysindigenous-groups-are-fighting-back-against-land-seizures.
- Intergovernmental Panel on Climate Change, "Summary for Policymakers," in: Climate Change and Land. An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems, January 2020, https://www.ipcc.ch/report/srccl/. Hans-Otto Pörtner et al., "IPBES-IPCC Co-Sponsored Workshop Report on Biodiversity and Climate Change," Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services and Intergovernmental Panel on Climate Change, June 2021, $https://ipbes.net/sites/default/files/2021-06/20210609_workshop_report_embargo_3pm_CEST_10_june_0.pdf.$
- Natural Resources Canada, "Sustainable Forest Management," last modified June 2019, https://www.nrcan.gc.ca/our-natural-resources/forests-forestry/ sustainable-forest-management/13183. Natural Resources Canada, "Clean Fossil Fuels," last modified August 2021, https://www.nrcan.gc.ca/our-naturalresources/energy-sources-distribution/clean-fossil-fuels/22000.
- Peter Potapov et al., "The Last Frontiers of Wilderness: Tracking Loss of Intact Forest Landscapes From 2000 to 2013," Science Advances 3, no. 1 (January 2017): 1-13, http://dx.doi.org/10.1126/sciadv.1600821.
- Potapov et al., "The Last Frontiers of Wilderness," 15
- The average area logged annually in Canada from 2017 to 2019 was 748,203 hectares, and the size of an NHL hockey rink is approximately 0.15 hectare. This translates to an area the size of 4,988,020 NHL hockey rinks cleared per year. National Forestry Database (Canada), "Forest Area Harvested on Private and Crown Lands," last updated May 2020, http://nfdp.ccfm.org/en/data/harvest.php. The Measure of Things, "How Big Is 0.03542 Hectares?" https://www. themeasureofthings.com/results.php?p=1&comp=area&unit=h&amt=0.03542&sort=pr (accessed July 20, 2021).
- Committee on the Status of Endangered Wildlife in Canada (hereinafter COSEWIC), "COSEWIC Assessment and Status Report on the Caribou Rangifer tarandus Newfoundland Population, Atlantic-Gaspésie Population, Boreal Population in Canada," 2014, https://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_ Caribou_NF_Boreal_Atlantic_2014_e.pdf. Boreal Songbird Initiative, "North America's Bird Nursery," 2015, https://www.borealbirds.org/threats-boreal-birds.
- COSEWIC, "COSEWIC Assessment and Status Report."
- World Wildlife Fund, Living Planet Report Canada: Wildlife at Risk, 2020, https://wwf.ca/wp-content/uploads/2020/09/Living-Planet-Report-Canada-2020.pdf.
- Natural Resources Canada, "Statistical Data," https://cfs.nrcan.gc.ca/statsprofile/ (accessed August 11, 2021). Natural Resources Canada, "Forest Products." Food and Agriculture Organization of the United States, "Forest Product Statistics."
- $Natural\ Resources\ Canada, "Wood\ Pellets,"\ https://www.nrcan.gc.ca/our-natural-resources/forests-forestry/forest-industry-trade/forest-products-applications/policy-forest-forestry/forest-industry-trade/forest-products-applications/policy-forest-forestry/forest-industry-trade/forest-products-applications/policy-forest-forestry/forest-industry-trade/forest-products-applications/policy-forest-forestry/forest-industry-trade/forest-products-applications/policy-forest-forestry-forest-forestry-forest-forestry-forest-forestry-forest-forestry-forest-forest-forestry-forest-forestry-forest-forest-forestry-forest-forestry-forest-forestry-forest-forestry-forest-forestry-forest-forest-forestry-forest-forest-forestry-forest$ wood-pellets/13736 (accessed July 26, 2021). Jay Malcolm, Bjart Holtsmark, and Paul Piascik, "Forest Harvesting and the Carbon Debt in Boreal East-Central $Canada, "Climatic Change \ 161 \ (August \ 2020): 433-49, https://doi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s10584-020-02711-8; NRDC, "Our Forests Aren't Fuel," May \ 8, 2020, https://www.linearchi.org/10.1007/s1058-020-02711-8; NRDC,$ nrdc.org/resources/our-forests-arent-fuel.
- 22 For example, see Courtenay Lewis and Ashley Jordan, By a Thousand Cuts: How Powerful Companies' Wood Sourcing Is Degrading Canada's Boreal Forest, NRDC, April 7, 2021, https://www.nrdc.org/sites/default/files/thousand-cuts-wood-sourcing-canadas-boreal-report.pdf; also see "Company Overviews" section in
- 23 Paper Excellence, "Responsibility Starts Here," https://paperexcellence.com/wp-content/uploads/2020/10/Sustainability.pdf (July 20, 2021).
- Canfor, 2019 Sustainability Report, p. 13, https://www.canfor.com/docs/default-source/sr/canfor-and-canfor-pulp-sustainability-report.pdf?sfvrsn=40bee91_2 (accessed July 20, 2021).

- West Fraser, Renewable Products for the World: 2019 Responsibility Report Executive Summary, September 2020, p. 8, https://www.westfraser.com/sites/default/ files/sustainability/West%20 Fraser%202019%20 Responsibility%20 Report%20 Summary.pdf.
- Mercer, "Our Forests," https://mercerint.com/sustainability/forests/ (accessed July 20, 2021). 26
- Resolute Forest Products, "Conservation and Biodiversity," https://www.resolutefp.com/Sustainability/Conservation_and_Biodiversity/ (accessed July 20, 2021). 27
- 28 AV Terrace Bay, "The Boreal Forest," http://avterracebay.com/sustainability/our-forests/ (accessed July 20, 2021).
- Alberta-Pacific Forest Industries Inc., "Forest Management," https://alpac.ca/sustainability/forest-management/ (accessed July 12, 2021). 29
- Vinyard and Skene, The Issue With Tissue 2.0.
- Domtar, "Paper Excellence Enters Into Definitive Agreement to Acquire Domtar for \$55.50 Per Share in Cash," press release, May 11, 2021, https://newsroom. domtar.com/press-release/paper-excellence-enters-into-definitive-agreement-to-acquire-domtar-for-55-50-per-share-in-cash/. Lewis and Jordan, By a Thousand
- Sergio Baffoni, "Social and Environmental Organizations Worldwide Urge Domtar Stakeholders to Reject US\$2.8 Billion Paper Excellence Deal, Stressing Social and Environmental Concerns," Environmental Paper Network, June 24, 2021, https://environmentalpaper.org/2021/06/open-letter-on-domtar-acquisition/.
- 33
- 34 See section "Companies' Pulp Operations."
- See, for example, United Nations, Department of Economic and Social Affairs, "Sustainable Development: The 17 Goals," https://sdgs.un.org/goals (accessed July 26, 2021).
- All non-FSC-certified lands listed for each company are SFI-certified areas. To remove for double-counting in cases where companies managed lands that are both 36 SFI- and FSC-certified, we categorized these areas as being FSC-certified and all others as being non-FSC-certified lands.
- For the size and definition of an IFL, please see Introduction, and Potapov et al., "The Last Frontiers of Wilderness."
- $Natural\ Resources\ Canada, ``Forest\ Certification\ in\ Canada, '`modified\ April\ 2021, https://www.nrcan.gc.ca/our-natural-resources/forests/sustainable-forest-fores$ management/forest-certification-canada/17474.
- Lewis and Jordan, By a Thousand Cuts. 39
- $Greenpeace, \textit{Destruction: Certified}, \texttt{March 2021}, \texttt{https://www.greenpeace.org/static/planet4-international-stateless/2021/04/ble486be-greenpeace-international-stateles$ report-destruction-certified_finaloptimised.pdf.
- Forest Products Association of Canada (hereinafter FPAC), Forest Management Certification in Canada: 2020 Year-End Status Report British Columbia, February 2021, https://certificationcanada.org/wp-content/uploads/2021/04/2020-Yearend-SFM-Certification-Detailed-Report-BC.pdf. FPAC, Forest ManagementCertification in Canada: 2020 Year-End Status Report Alberta, February 2021, https://certificationcanada.org/wp-content/uploads/2021/04/2020-Yearend-SFM-Certification-Detailed-Report-AB.pdf. Canfor manages 11,719,393 hectares of non-FSC-certified land and 1,188,135 hectares of FSC-certified land. All of the company's non-FSC-certified lands are SFI-certified. When comparing lands that companies manage under different certifications, in order to avoid doublecounting areas with both FSC- and SFI-certification, we classified areas as being either FSC- certified, or not FSC-certified.
- FPAC, Forest Management Certification in Canada: 2020 Year-End Status Report Ontario, February 2021, https://certificationcanada.org/wp-content/ uploads/2021/04/2020-Yearend-SFM-Certification-Detailed-Report-ON.pdf. FPAC, Forest Management Certification in Canada: 2020 Year-End Status Report Quebec, February 2021, https://certificationcanada.org/wp-content/uploads/2021/04/2020-Yearend-SFM-Certification-Detailed-Report-QC.pdf. Resolute manages 12,483,201 hectares of non-FSC-certified (SFI-certified) land and 7,512,689 hectares of FSC-certified land. All of the company's non-FSC-certified lands are SFIcertified. To avoid double-counting, we only included areas that are both FSC- and SFI-certified once as part of the company's total FSC-certified hectares.
- FPAC, Forest Management Certification in Canada: 2020 Year-End Status Report Nova Scotia, February 2021, https://certificationcanada.org/wp-content/ uploads/2021/04/2020-Yearend-SFM-Certification-Detailed-Report-NS.pdf. FPAC, Forest Management Certification Ontario. FPAC, Forest Management Certification Quebec. In 2020, Domtar managed a total of 887,490 hectares of non-FSC-certified land and 886,379 hectares of FSC-certified land. In addition, Paper Excellence, under its subsidiary Northern Pulp Nova Scotia Corp., manages 244,733 hectares of non-FSC=-certified land in Nova Scotia. All of Domtar and Paper Excellence's non-FSC-certified lands are SFI-certified. As noted in the company review section ("Details of Company Research and Company Responses"), we used input provided by Domtar to update these 2020 figures, to estimate that in 2021 Domtar manages approximately 882,845 hectares of non-FSC certified lands in $Ontario.\ Therefore, combined with Paper\ Excellence, we estimate that\ Paper\ Excellence/\ Domtar\ manages\ approximately\ 1,127,578\ hectares\ of\ non-FSC-certified$
- ${\it FPAC}, Forest\, Management\, Certification\, Alberta.$
- Paper Excellence's acquisition of Domtar is expected to make Domtar privately held. Ed Hammond and Kiel Porter, "Paper Excellence Explores Deal to Take $Domtar\ Private, "Bloomberg, May\ 3, 2021, \ https://www.bloomberg.com/news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to-take-domtar-news/articles/2021-05-03/paper-excellence-is-said-to-explore-deal-to$ private. At the time of publication, information about Domtar's mills had not yet been incorporated into Paper Excellence's website. Therefore we combined the capacity of Paper Excellence's Canadian mills with that of Domtar's Canadian mills. Paper Excellence, "Canadian Locations," https://paperexcellence.com/ locations/canada/ (accessed June 30, 2021). For each mill's capacity, see the corresponding mill web pages accessible from the "Canadian Locations" web page. This report does not include the Northern Pulp and Prince Albert mills, which remained idled at the time of publication. Domtar, Form 10-K for the fiscal year ended December 31, 2020, U.S. Securities and Exchange Commission, p. 6, https://www.domtar.com/sites/default/files/2021-03/0001564590-21-009629_0.pdf.
- 46 Canfor, 2020 Annual Report, p. 5.
- For mill locations, see West Fraser, "Mills," https://www.westfraser.com/company/locations/listing/mills?field_country_tid=6&field_province_state_ tid=All&field_type_of_mill_tid=15 (accessed June 30, 2021). For mill capacity by product type, see West Fraser, Annual Report 2020, February 2021, p. 21, https:// www.westfraser.com/sites/default/files/WFT%202020%20Annual%20Report%20-%20FINAL.pdf. Please note, West Fraser's pulp capacity figure for Cariboo Pulp & Paper is specific to its 50 percent ownership of the mill, which is 170,000 ADMT of the mill's total annual production capacity of approximately 340,000 ADMT of NBSK pulp: GlobeNewswire, "Mercer International Inc. to Acquire Daishowa-Marubeni International Ltd. ("DMI") Significantly Expanding Its Pulp Operations," Mercer International, October 4, 2018, https://www.globenewswire.com/news-release/2018/10/04/1601158/0/en/Mercer-International-Inc-to-Acquire-Daishowa-Marubeni-International-Ltd-DMI-Significantly-Expanding-Its-Pulp-Operations.html.
- 48 Mercer International, Form 10-K for the fiscal year ended December 31, 2020, U.S. Securities and Exchange Commission, p. 4, https://secureserver.cdn. net/198.71.233.72/4p3.786.myftpupload.com/wp-content/uploads/2021/02/2020-10K. As with West Fraser, Mercer's pulp capacity figure for Cariboo Pulp & Paper is specific to its 50 percent ownership of the mill, which is 170,000 ADMT of the mill's total annual production capacity.

- Resolute Forest Products, Annual Report on Form 10-K 2020, March 2021, https://www.resolutefp.com/uploadedFiles/Investors/Financial_Reports/2020_10-K_ Resolute-RFP.pdf?v=1.
- AV Terrace Bay, "About Us," http://avterracebay.com/company/ (accessed June 30, 2021). Aditya Birla Group, "Aditya Birla Group in Nackawic," p. 5, http://web1.nbed.nb.ca/sites/ASD-W/sustainability/Nackawic/Section%204%20-%20Public%20Meeting%202/4.12%20%20Nackawic%20-%20Public%202%20Meeting%202/4.12%20%20Nackawic%20-%20Public%202%20Meeting%202/4.12%20Nackawic%20-%20Public%202%20Meeting%202/4.12%20Nackawic%20-%20Public%202%20Meeting%202/4.12%20Nackawic%20-%20Public%202/4.12%20Meeting%202/4.12%20Nackawic%20-%20Public%202/4.12%20Meeting%202/4.12%20Nackawic%20-%20Public%202/4.12%20Meeting%202/4.12%20Nackawic%20-%20Public%202/4.12%20Meeting%202/4.12%20Nackawic%20-%20Public%202/4.12%20Meeting%202/4.12%20Nackawic%20-%20Public%202/4.12%20Meeting%202/4.12%20Nackawic%20-%20Public%202/4.12%20Meeting%202/4.12%20Nackawic%20-%20Public%202/4.12%20Meeting%202/4.12%20Nackawic%20-%20Public%202/4.12%20Meeting%202/4.12%200/4.12%20Meeting%202/4.12%20Meeting%202/4.12%20Meeting%202/4.12%20Meeting%202/4.12%20Meeting%202/4.12%20Meeting%202/4.12%20Meeting%202/4.12%20Meeting%202/4.12%20Meeting%202/4.12%20Meeting%202/4.12%20Meeting%202/4.12%20Meeting%202/4.12%20Meeting%202/4.12%200/4.12%2000Meeting%202/4.12%2000Meeting%202/4.12%2000Meeting%202/4.12%2000Meeting%202/4.12%2000Meeting%202/4.12%2000Meeting%202/AV%20Nackawic%20Presentation.pdf.
- Hokuetsu Corporation, Corporate Report 2020, November 2020, p. 34, http://www.hokuetsucorp.com/pdf/cr/cr2020_en.pdf.
- Wilderness Committee, "Logging Ruins Endangered Southern Mountain Caribou Habitat," June 29, 2017, https://www.wildernesscommittee.org/news/loggingruins-endangered-southern-mountain-caribou-habitat. Damien Gillis, "Endangered Caribou Habitat Clearcut During B.C. Election Uncertainty," The Narwhal, July 26, 2017, https://thenarwhal.ca/critical-b-c-mountain-caribou-habitat-clearcut-during-election-uncertainty/. Amy Moas, "10 Reasons a California Judge's Decision Is Good for the Planet," Greenpeace, January 22, 2019, https://www.greenpeace.org/usa/10-reasons-california-judges-decision-good-planet/.
- Courtenay Lewis, "Corporate Takeover Adds to Urgency for Protections in Boreal," NRDC, May 13, 2021, https://www.nrdc.org/experts/courtenay-lewis/ corporate-takeover-adds-urgency-protections-boreal.
- Hannah Mowat and Peter Viet, "The IPCC Calls for Securing Community Land Rights to Fight Climate Change," August 8, 2019, https://www.wri.org/insights/ipcccalls-securing-community-land-rights-fight-climate-change.
- United Nations, "United Nations Declaration on the Rights of Indigenous Peoples," September 13, 2007, https://www.un.org/development/desa/indigenouspeoples/ declaration-on-the-rights-of-indigenous-peoples.html.
- Parliament of Canada, Bill C-15, 2021, https://www.parl.ca/LegisInfo/BillDetails.aspx?billId=11007812&Language=E. 56
- Yves Faguy, "A New Beginning: A Law on Implementing UNDRIP Marks A Welcome Breakthrough in Advancing Reconciliation. But There Is Work Ahead to $Hold\ Government\ Accountable, "\textit{CBA National},\ July\ 15,\ 2021,\ https://www.nationalmagazine.ca/en-ca/articles/law/in-depth/2021/a-new-beginning.\ Andre\ Bear,\ https://www.nationalmagazine.ca/en-ca/articles/law/in-depth/2021/a-new-beginning.\ Andre Bear,\ https://www.nationalmagazine.\ https://www.nationalmagazine.\ https://www.nationalmagazine.\ https://www.nationalmagazine.\ https://www.nationalmagazine.\ https://www.nationalmagazine.\ https://www.nationalmagazine.\ https://www.nationalmaga$ "Whether or Not You Support Bill C-15, Canada Passing It Would Be an Important Time in Our History," CBC News, May 4, 2021, https://www.cbc.ca/news/canada/ saskatchewan/opinion-andre-bear-bill-c-15-1.6009060. Bryan Eneas, "Sask. Among 6 Provinces Asking Federal Government to Delay Bill C-15 Implementation," CBC News, December 19, 2020, https://www.cbc.ca/news/canada/saskatchewan/province-asks-federal-government-delay-bill-c-15-implementation-1.5848228. Keith Borkowsky, "Conservative Governments Voice Concerns Over Bill C-15," Toronto Star, January 18, 2021, https://www.thestar.com/news/canada/2021/01/18/ conservative-governments-voice-concerns-over-bill-c-15.html. The Canadian Press, "Senate Approves Bill to Implement UN Declaration on the Rights of Indigenous Peoples," June 16, 2021, https://www.cbc.ca/news/politics/undrip-declaration-passes-senate-1.6068524.
- Environment and Climate Change Canada (hereinafter ECCC), Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal population, in Canada, Species at Risk Act Recovery Strategy Series, 2012, https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/plans/rs_caribou_boreal_ caribou 0912 el.pdf, ECCC, Amended Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada 2020, Species at Risk Act Recovery Strategy Series, 2020, https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/plans/Rs-CaribouBorealeAmdMod-v01-2020Dec-Eng.pdf. Species at Risk Act Recovery Strategies at https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/ recovery-strategies.html. ECCC, Recovery Strategy for the Woodland Caribou, Southern Mountain Population (Rangifer tarandus caribou) in Canada, Species at Risk Act Recovery Strategy Series, 2014, https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/plans/rs_woodland_caribou_bois_s_mtn_pop_0114_e. pdf.
- $ECCC, Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.\ ECCC, Amended\ Recovery\ Strategy\ for\ the\ Woodland\ Recovery\ for\ the\ Woodland\ Recovery\ for\ the\ Woodland\ Recovery\ for\ the\ Woodland\ Recovery\ for\ the\ Woodland\ Recovery$ Recovery Strategy for the Woodland Caribou, Southern Mountain Population.
- Assembly of First Nations and David Suzuki Foundation, Cultural and Ecological Value of Boreal Woodland Caribou Habitat, July 2013, https://www.afn.ca/ uploads/files/report-caribou.pdf. The Pew Charitable Trusts, "Sustaining Caribou Means Conserving Canada's Boreal Forest: Indigenous Management Emerging as means-conserving-canadas-boreal-forest. University of Guelph, "Habitat, Food Web Changes From Logging Threatening Endangered Caribou, Study Reveals," April 15, 2020, https://news.uoguelph.ca/2020/04/habitat-food-web-changes-from-logging-threatening-caribou-study-reveals/. Parks Canada, "Jasper National Park: Woodland Caribou," https://www.pc.gc.ca/en/pn-np/ab/jasper/nature/conservation/eep-sar/caribou-jasper (accessed August 4, 2021). ECCC, "Action Plan for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada," 2018, https://registrelep-sararegistry.gc.ca/default.asp?lang=En&n=2FEAAC82-1. Justina Ray, "At Risk of Extinction," Canadian Geographic, October 31, 2018, https://www.canadiangeographic.ca/article/risk-extinction.
- ECCC, Recovery Strategy for the Woodland Caribou, Boreal Population.
- ECCC, Recovery Strategy for the Woodland Caribou, Boreal Population.
- 63 Caroline M. A. Franklin, S. Ellen Macdonald, and Scott E. Nielsen, "Can Retention Harvests Help Conserve Wildlife? Evidence for Vertebrates in the Boreal Forest," Ecosphere 10, no. 3 (March 2019), https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/ecs2.2632. Jeff Bowman et al., "Roads, Logging, and the Large-Mammal Community of an Eastern Canadian Boreal Forest," Canadian Journal of Zoology 88, no. 5 (May 2010): 454-67, https://www.researchgate.net/ publication/233516553_Roads_logging_and_the_large-mammal_community_of_an_eastern_Canadian_boreal_forest. Alberta Wilderness Association, "Alberta Forests Deserve More Than the Forests Amendment Act," October 28, 2020, https://albertawilderness.ca/alberta-forests-amendment-act/.
- 64 COSEWIC, "COSEWIC Assessment and Status Report."
- ECCC, Amended Recovery Strategy for Woodland Caribou, Boreal Population. ECCC, Recovery Strategy for the Woodland Caribou, Southern Mountain Population.
- The strategy additionally called for protecting adequate biophysical habitat for these animals' survival. For a detailed description of boreal caribou habitat requirements, see ECCC, Amended Recovery Strategy for the Woodland Caribou, Boreal Population. The recovery strategy estimates that an undisturbed range of 65 percent gives boreal caribou a 60 percent probability of self-sustainability, and that increased undisturbed area raises this likelihood. ECCC, Amended Recovery Strategy for Woodland Caribou, Boreal Population.
- The strategy additionally called for protecting adequate biophysical habitat for these animals' survival. For a detailed description of southern mountain caribou habitat requirements, see ECCC, Recovery Strategy for the Woodland Caribou, Southern Mountain population.
- Shawn McCarthy and Ivan Semeniuk, "Provinces Haven't Stopped Boreal Caribou's Decline, and Ottawa May Have to Intervene, Report Says," Globe and Mail, October 31, 2017, https://www.theglobeandmail.com/news/national/caribou/article36776410/. Vince Crichton et al., "Re: Response From Scientists to Claims Made by the Forest Products Association of Canada Regarding the Scientific Underpinnings of the Federal Boreal Caribou Recovery Strategy," letter to Catherine McKenna, Canada's Minister of Environment and Climate Change, and James Carr, Canada's Minister of Natural Resources, September 22, 2017, https:// albertawilderness.ca/wp-content/uploads/2017/11/20170922_lt_scientists_to_ecceminister_car_strong_science.pdf.
- Watson et al., "The Exceptional Value of Intact Forest Ecosystems."

- Mackey et al., "Policy Options for the World's Primary Forests in Multilateral Environmental Agreements." Jennifer Skene, The Logging Loophole: How the Logging Industry's Unregulated Carbon Emissions Undermine Canada's Climate Goals, NRDC, July 16, 2020, https://www.nrdc.org/sites/default/files/logging-loopholeboreal-report.pdf.
- Malcolm, Holtsmark, and Piascik, "Forest Harvesting and the Carbon Debt."
- Ibid. Vinyard and Skene, The Issue With Tissue 2.0.
- Malcolm, Holtsmark, and Piascik, "Forest Harvesting and the Carbon Debt." 73
- Saraswati Saraswati et al., "Roads Impact Tree and Shrub Productivity in Adjacent Boreal Peatlands, Forests 11, no. 5 (May 2020): 594, https://www.mdpi.
- Trevor Hesselink, "Boreal Logging Scars: An Extensive and Persistent Logging Footprint in Typical Clearcuts of Northwestern Ontario, Canada," Wildlands League, 2019, https://loggingscars.ca/report/.
- Dominick A. Dellasala et al., "Primary Forests Are Undervalued in the Climate Emergency," BioScience 7, no. 6 (May 2020), https://www.researchgate.net/ publication/341277924_Primary_Forests_Are_Undervalued_in_the_Climate_Emergency.
- Mackey et al., "Policy Options for the World's Primary Forests in Multilateral Environmental Agreements."
- Caroline Greiser et al., "Monthly Microclimate Models in a Managed Boreal Forest Landscape," Agricultural and Forest Meteorology 250-51 (March 15, 2018): 147-58, https://www.sciencedirect.com/science/article/pii/S016819231730672X,
- Moreno Di Marco et al., "Wilderness Areas Halve the Extinction Risk of Terrestrial Biodiversity," Nature 573 (September 18, 2019): 582-85, https://www.nature. 79 com/articles/s41586-019-1567-7. Mackey et al., "Policy Options for the World's Primary Forests." Dellasala et al., "Primary Forests Are Undervalued."
- 80 Florian J. Alberto et al., "Potential for Evolutionary Responses to Climate Change—Evidence From Tree Populations," Global Change Biology 19, no. 6 (June $2013): 1645-61, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3664019/.\ J.\ A.\ Colin\ Bergeron\ et\ al., \\ \text{``Ecosystem\ Memory\ of\ Wildfires\ Affects\ Resilience\ of\ PMC3664019/.\ J.\ A.\ Colin\ Bergeron\ et\ al., \\ \text{``Ecosystem\ Memory\ of\ Wildfires\ Affects\ Resilience\ of\ PMC3664019/.\ J.\ A.\ Colin\ Bergeron\ et\ al., \\ \text{``Ecosystem\ Memory\ of\ Wildfires\ Affects\ Resilience\ of\ PMC3664019/.\ J.\ A.\ Colin\ Bergeron\ et\ al., \\ \text{``Ecosystem\ Memory\ of\ Wildfires\ Affects\ Resilience\ of\ PMC3664019/.\ J.\ A.\ Colin\ Bergeron\ et\ al., \\ \text{``Ecosystem\ Memory\ of\ Wildfires\ Affects\ Resilience\ of\ PMC3664019/.\ J.\ A.\ Colin\ Bergeron\ et\ al., \\ \text{``Ecosystem\ Memory\ of\ Wildfires\ Affects\ Resilience\ of\ PMC3664019/.\ J.\ A.\ Colin\ Bergeron\ et\ al., \\ \text{``Ecosystem\ Memory\ of\ Wildfires\ Affects\ Resilience\ of\ PMC3664019/.\ J.\ A.\ Colin\ Bergeron\ et\ al., \\ \text{``Ecosystem\ Memory\ of\ Wildfires\ Affects\ Resilience\ of\ PMC3664019/.\ J.\ A.\ Colin\ Bergeron\ et\ al., \\ \text{``Ecosystem\ Memory\ of\ Wildfires\ Affects\ Resilience\ of\ PMC3664019/.\ J.\ A.\ Colin\ Bergeron\ et\ al., \\ \text{``Ecosystem\ Memory\ of\ Wildfires\ Affects\ Resilience\ of\ PMC3664019/.\ J.\ A.\ Colin\ Bergeron\ et\ al., \\ \text{``Ecosystem\ Memory\ of\ Wildfires\ Affects\ Resilience\ of\ PMC3664019/.\ J.\ A.\ Colin\ Bergeron\ et\ al., \\ \text{``Ecosystem\ Memory\ of\ Wildfires\ Affects\ Affects$ Boreal Mixedwood Biodiversity After Retention Harvest," Canadian Forest Service Publications, 2017, modified December 8, 2020, https://cfs.nrcan.gc.ca/ publications?id=38719. Mike Waddington and Sophie Wilkinson, "How to Fight Wildfires and Climate Change With Wetlands," The Conversation, July 4, 2019, $https://the conversation.\ com/how-to-fight-wild fires-and-climate-change-with-wetlands-117356.$
- $International\ Union\ for\ Conservation\ of\ Nature,\ "Raising\ the\ Profile\ of\ Primary\ Forests\ Including\ Intact\ Forest\ Landscapes,"\ https://www.iucn.org/theme/forests/superiorgives/forest$ our-work/primary-and-intact-forest-landscapes/raising-profile-primary-forests-including-intact-forest-landscapes (accessed August 12, 2021).
- Forest Stewardship Council (hereinafter FSC), "Intact Forest Landscapes," https://fsc.org/en/for-forests/intact-forest-landscapes (accessed July 27, 2021). FSC, "Debate on FSC Intact Forest Landscape Protection Continues," May 12, 2020, https://fsc.org/en/newsfeed/debate-on-fsc-intactforest-landscape-protectioncontinues.
- Liberal Party of Canada, "More Conservation," https://liberal.ca/our-platform/more-conservation/ (accessed July 27, 2021).
- Potapov et al., "The Last Frontiers of Wilderness." Jennifer Skene, The Logging Loophole. 84
- $Natural\ Resources\ Canada,\ \textit{The State of Canada's Forests: Annual\ Report\ 2019}, 2020, \ https://dlied5glxfgpx8.cloudfront.net/pdfs/40084.pdf.$ 85
- 86 tissue-how-americans-are-flushing-forests-down-toilet-report.pdf. G. V. Wellburn and Mark Kuhlberg, "Forest Harvesting," Canadian Encyclopedia, May 25, 2015, https://www.thecanadianencyclopedia.ca/en/article/forest-harvesting#.
- Hesselink, "Boreal Logging Scars."
- 88 The Pew Charitable Trusts, "Sustaining Caribou Means Conserving Canada's Boreal Forest." Mackey et al., "Policy Options for the World's Primary Forests in
- FSC, "Our History," https://www.fsc-uk.org/en-uk/about-fsc/who-is-fsc/our-history (accessed June 30, 2021). Benjamin Cashore and Graeme Auld, "The United States' Race to Certify Sustainable Forestry: Non-State Environmental Governance and the Competition for Policy-Making Authority," Business and Politics 5, no. 3 (November 2003): 231, http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.529.9731&rep=rep1&type=pdf.
- Lewis and Jordan, By a Thousand Cuts.
- 91
- Stand.earth, "These Leaders Agree," https://www.stand.earth/page/forest-conservation/primary-and-intact-forests/environmental-leaders-critique-sfi (accessed July 27, 2021). Sierra Club, "Forest Stewardship Council (FSC) Handbook for State Forests," December 2014, https://www.sierraclub.org/sites/www.sierraclub. org/files/program/documents/FSC%20HANDBOOK%20State%20forests.pdf. Tyson Miller, "US Green Building Council Needs to Maintain the Gold Standard in Forest Certification," Dogwood Alliance, May 2017, https://www.dogwoodalliance.org/2016/05/us-green-building-council-needs-to-maintain-the-gold-standard $in-forest-certification/. Stand. earth, \\ ``We Applaud the Following Companies for Choosing a More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing a More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing a More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing a More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing a More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing a More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing a More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing A More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing A More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing A More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing A More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing A More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing A More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following Companies for Choosing A More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following A More Environmentally Responsible Way Forward, \\ "https://www.stand.earth.gov.org." in the following A More Environmentally Responsible Way Forward, \\ "https://wwww.stand.earth.gov.org." in the following A More Environmental$ earth/page/past-achievements/great-bear-rainforest/these-businesses-made-right-decision-forests-they %E2%80%99ve (accessed July 27, 2021).
- Rochelle Baker, Green Coalition Challenges Certification Claims that Canada's Forestry Products are Sustainable," Canada's National Observer, July 21, 2021, https://www.national observer.com/2021/07/21/news/green-coalition-challenges-certification-claims-canadas-forestry-products. The state of the control of t
- Procter & Gamble, "Environmental," https://www.pginvestor.com/esg/environmental/forestry/default.aspx (accessed August 4, 2021).
- Greenpeace, Destruction: Certified.
- FSC, "Motion 65: Revision of Default Indicator for Intact Forest Landscapes," August 30, 2016, https://fsc.org/es/node/25899.
- 97 Skene, The Issue With Tissue. Forest Stewardship Council, "Chain of Custody Certification," https://fsc.org/en/chain-of-custody-certification (accessed July 6, 2020).
- FPAC, Forest Management Certification in Canada: 2020 Year-End Status Report Canada, February 2021, https://certificationcanada.org/wp-content/ uploads/2021/04/2020-Yearend-SFM-Certification-Detailed-Report.pdf.
- Vinyard and Skene, The Issue With Tissue 2.0. Lewis and Vinyard, "P&G and Its Suppliers' Words Undercut FSC."
- 100 Resolute Forest Products, "Market Pulp," https://www.resolutefp.com/Products/Market_Pulp/ (accessed June 30, 2021). Numera Analytics, "Overview of Wood Pulp," https://numeraanalytics.com/overview-wood-pulp/ (accessed June 30, 2021).

- 101 AV Group, "Our Fibre," https://av-group.ca/our-fibre/ (accessed June 30, 2021).
- 102 Terry Nguyen, "Fast Fashion Explained," Vox, February 3, 2020, https://www.vox.com/the-goods/2020/2/3/21080364/fast-fashion-h-and-m-zara.
- 103 Bloomberg, "Paper Excellence BV," https://www.bloomberg.com/profile/company/3591336Z:NA (accessed July 26, 2021). Paper Excellence, "Overview," $https://paperexcellence.com/wp-content/uploads/2020/10/Paper_Excellence_Overview_-04_21-1.pdf (accessed June 30, 2021). In U.S. dollars, Paper (accessed June 30, 2021). In U.S. dolla$ Excellence's annual sales of \$2.4 billion CAD is approximately \$1.79 billion. To convert from Canadian dollars to U.S. dollars, we used the 0.746 US\$ per Cdn\$1.00 rate that can be found in Canfor's 2020 financial report: Canfor, 2020 Annual Report, p. 10. Paper Excellence's pulp volume is based on the total volumes of the configuration of the configurationcompany's multiple pulp mills.
- 104 Paper Excellence, "Leadership," https://paperexcellence.com/company/leadership/ (accessed June 30, 2021).
- 105 Lewis, "Corporate Takeover Adds to Urgency."
- 106 Stephanie Wood, "Who Owns Northern Pulp? The B.C. Company Embroiled in Nova Scotia's Boat Harbour Controversy," The Narwhal, July 10, 2020, https://thenarwhal.ca/bc-nova-scotia-boat-harbour-paper-excellence-northern-pulp/.
- Joan Baxter, "Northern Pulp is "Insolvent' But the Company That Owns it, Paper Excellence, is on a \$3 Billion Buying Spree," Halifax Examiner, May 12, 2021, https://www.halifaxexaminer.ca/environment/northern-pulp-is-insolvent-but-the-company-that-owns-it-paper-excellence-is-on-a-3-billion-buying-spree/.
- 108 Domtar, "Our Company," https://www.domtar.com/en/who-we-are/about-domtar/our-company (accessed June 30, 2021). Domtar, Form 10-K for 2020.
- 109 Lewis and Jordan, By a Thousand Cuts.
- 110 Hammond and Porter, "Paper Excellence Explores Deal to Take Domtar Private."
- 111 Baffoni, "Social and Environmental Organizations Worldwide." Hammond and Porter, "Paper Excellence Explores Deal."
- 112 Canfor, 2020 Annual Report, p. 10. Canfor, "Canfor at a Glance," https://www.canfor.com/our-company/canfor-at-a-glance (accessed June 30, 2021). Canfor, "Our Operations," https://www.canfor.com/our-company/operations (accessed June 30, 2021). Canfor's 2020 sales were approximately \$739 million in U.S. dollars based on the 0.746 US\$ per Cdn\$1.00 rate that the company reports in its $2020\,Annual\,Report$, p. 10.
- 113 Canfor, "Responsibility," https://www.canfor.com/responsibility/overview (accessed June 30, 2021).
- 114 NRDC, "Our Forests Aren't Fuel." Malcolm, Holtsmark, and Piascik, "Forest Harvesting and the Carbon Debt in Boreal East-Central Canada."
- 115 Canfor, "Canfor at a Glance."
- Canfor, 2020 Annual Report.
- 117 Wilderness Committee, "Logging Ruins Endangered Southern Mountain Caribou Habitat." Gillis, "Endangered Caribou Habitat Clearcut."
- 118 Ibid.
- West Fraser, "Organization," www.westfraser.com/responsibility/responsibility-report/esg-reporting/organization (accessed September 15, 2021). 119
- West Fraser, Annual Report 2020. 120
- 121 Ibid. West Fraser, "Organization."
- 122 West Fraser, "Organization."
- 123 Mercer International, "Cariboo Pulp & Paper," https://mercerint.com/operations/cariboo-pulp-paper/ (accessed June 30, 2021).
- 124 West Fraser, "West Fraser Completes Acquisition of Norbord," February 1, 2021, https://www.westfraser.com/investors/news/news-releases/west-frasercompletes-acquisition-norbord, West Fraser, "Organization,"
- 125 West Fraser, "Organizational Profile," https://www.westfraser.com/responsibility/responsibility-report/about-west-fraser/organizational-profile (accessed September 16, 2021).
- 126 West Fraser, "Pulp & Paper," https://www.westfraser.com/products/pulp-paper (accessed June 30, 2021).
- 128 Bob Weber, The Globe and Mail, September 2, 2021, https://www.theglobeandmail.com/canada/article-alberta-to-allow-more-logging-in-remnants-of-old-growth-caribou/. Bob Covey, The Local Jasper, Metis Group to File Injunction to Stop Caribou Habitat Clearcut, September 3, 2021, Alberta Wilderness Association, "The Worst Place to $Cut in Alberta?\ Caribou,\ Wolves\ and\ Endangered\ Trout\ Think\ So,"\ August\ 11,\ 2021,\ https://albertawilderness.ca/worst-place-to-clear cut-in-ab-caribou-wolves-trout/.$
- 129 Mercer International, "Our Company," https://mercerint.com/our-company/ (accessed June 30, 2021). Mercer International, "Mercer Peace River," https://mercerint.com/operations/mercer-peace-river/ (accessed June 30, 2021).
- 130 Mercer International, Form 10-K for 2020.
- 131 Mercer International, "Mercer Peace River."
- 132 Mercer International, "Cariboo Pulp & Paper."
- 133 Mercer International, "Green Energy," https://mercerint.com/products-services/green-energy/ (accessed June 30, 2021).
- 134 NRDC, "Our Forests Aren't Fuel."
- 135 Resolute Forest Products, Annual Report on Form 10-K 20201.
- 136 Resolute Forest Products, "About Us," https://www.resolutefp.com/About_Us/ (accessed June 30, 2021).
- 137 Resolute Forest Products, "Resolute-World's #1 Newsprint Producer," January 24, 2018, https://blog.resolutefp.com/2018/01/resolute-worlds-1-newsprint-
- 138 ForestEthics, "Environmental Groups Suspend Further Work With Resolute Forest Products Under Canadian Boreal Forest Agreement," Cision News, May $21, 2013, \\https://www.newswire.ca/news-releases/environmental-groups-suspend-further-work-with-resolute-forest-products-under-canadian-boreal-forest-products-products-products-products-under-canadian-boreal-forest-products-pr$ agreement-512438081.html.
- 139 Moas, "10 Reasons a California Judge's Decision Is Good for the Planet."

- 140 Rainforest Alliance, "The Rainforest Alliance Announces Legal Settlement With Resolute Forest Products," press release, February 4, 2014, https://www. $rainforest-alliance.org/press-releases/resolute-forest-products-legal-settlement. Ross\ Marowits, "Rainforest\ Alliance\ Reaches\ Legal\ Settlement\ With\ Resolute-legal\ W$ $Forest\ Products, "CBC\ News, February\ 5,\ 2021, https://www.cbc.ca/news/canada/thunder-bay/rainforest-alliance-reaches-legal-settlement-with-resolute-forest-alliance-reaches-legal-settlement-with-r$ products-1.2946520.
- $141 \quad \text{Lewis and Jordan}, \textit{By a Thousand Cuts}. \textit{Forest Stewardship Council}, \textit{``Forest Management Certification,''} \textit{https://fsc.org/en/forest-management-certification}, \textit{``https://fsc.org/en/forest-management-certification,''} \textit{https://fsc.org/en/forest-management-certification,''} \textit{https://fsc.org/en/forest-management-cer$ (accessed July 14, 2021).
- 142 Aditya Birla Group, "In Perspective," November 2019, https://www.adityabirla.com/about-us/downloads/Group-presentation-Nov-2019.pdf.
- 143 Aditya Birla Group, "Fibre Research," https://www.adityabirla.com/innovation/enabling-innovation/fibre-research (accessed June 30, 2021).
- Urska Trunk, "World's Largest Viscose Supplier ABG Still in Denial Over Rampant Water Pollution," Reuters Events, March 20, 2018, https://www.reutersevents. com/sustainability/worlds-largest-viscose-supplier-abg-still-denial-over-rampant-water-pollution.
- $145 \quad Aditya \ Birla \ Group, "AV \ Group \ NB," \ https://www.adityabirla.com/businesses/companies/av-group-nb (accessed \ June 30, 2021).$
- 146 David Bruser and Jesse McLean, "Dirty Dollars," Toronto Star, November 30, 2017, http://projects.thestar.com/dirty-dollars-pollution/.
- 147 CBC News, "Terrace Bay Pulp fined \$250K for Environmental Offences," October 30, 2015, https://www.cbc.ca/news/canada/thunder-bay/terrace-bay-pulp-fined-250k-for-environmental-offences-1.3297506.
- 148 Alberta Forest Products Association, "AFPA Welcomes Alberta-Pacific to the Association," January 27, 2020, http://albertaforestproducts.ca/news-events/news/ afpa-welcomes-al-pac-to-the-association/. Hokuetsu Corporation, Corporate Report 2020. Alberta Pacific Forest Industries, "Pride in our Products, Proud of our People," https://alpac.ca/ (accessed September 17, 2021).
- 149 GreenBiz, "Alberta-Pacific Earns Certification for Sustainable Forest Management," September 21, 2005, https://www.greenbiz.com/article/alberta-pacific-earnscertification-sustainable-forest-management.
- 150 Simon Matthis, "Hokuetsu Kishu Paper Company to Acquire Alpac Forest Products," Pulpaper News, October 28, 2015, https://www.pulpapernews. com/20190804/6957/hokuetsu-kishu-paper-company-acquire-alpac-forest-products. Hokuetsu Corporation, Corporate Report 2020.
- $Angela\ Gemmill, "Michipicoten\ First\ Nation\ considers\ legal\ action\ against\ Domtar\ over\ alleged\ contamination\ near\ Chapleau,"\ CBC\ News,\ August\ 6,\ 2021,\ https://www.$ cbc.ca/news/canada/sudbury/michipicoten-legal-domtar-contamination-1.6131888. Anishinabek News, "Michipicoten First Nation Demands Accountability for Decades of Chemical Contamination, "August 10, 2021, https://anishinabeknews.ca/2021/08/10/michipicoten-first-nation-demands-accountability-for-decades-of-chemical-number of the contamination of the contacontamination/.
- 152 CISION, "Michipicoten First Nation Demands Accountability for Decades of Chemical Contamination," July 29, 2021, https://www.newswire.ca/news-releases/ michipicoten-first-nation-demands-accountability-for-decades-of-chemical-contamination-840660922. html.
- 153 KPMG Forest Certification Services Inc., Public Summary Report Controlled Wood Surveillance Audit for Skookumchuck Pulp Inc., November 2020, http://fsc.force.com/servlet/servlet.FileDownload?file=00P4y00001CJc2QEAT.
- 154 Preferred by Nature, Public Certification Summary for FSC Controlled Wood Certification (FSC-STD-40-005) for Domtar Paper LLC, November 27, 2019, http://fsc.force.com/servlet/servlet.FileDownload?file=00P4y00001ETUDcEAP.
- 155 Lewis and Jordan, By a Thousand Cuts.
- $156 \quad {\tt ECCC}, Recovery\ Strategy\ for\ the\ Woodland\ Caribou, Boreal\ Population.$
- Ecojustice, "Groups Sue Ford Government for Unlawful Failure to Consult Public on Bill 197," August 10, 2020, https://ecojustice.ca/pressrelease/groups-sue-ford $government-for-unlawful-failure-to-consult-public-on-bill-197/.\ Emma\ McIntosh, "Ontario\ Extends\ Logging\ Industry\ Exemption\ From\ Endangered\ Species\ Law,"\ Canada's\ Extends\ Logging\ Industry\ Exemption\ From\ Endangered\ Species\ Law,"\ Canada's\ Logging\ Industry\ Exemption\ From\ Endangered\ Species\ Exemption\ From\ Endangered\ Species\ Exemption\ From\ Endangered\ Exemption\ From\ Endangered\ Exemption\ Exemp$ National Observer, June 30, 2020, https://www.nationalobserver.com/2020/06/30/news/ontario-extends-logging-industry-exemption-endangered-species-law. Emma McIntosh, "Doug Ford Facing Second Lawsuit Over Environmental Assessment Changes," Canada's National Observer, August 31, 2020, https://www.nationalobserver. com/2020/08/31/news/dougford-facing-second-lawsuit-over-environmental-assessment-changes. Shawn Jeffords, "Environmental Groups Critical of Ontario Government Forestry Plan," The Canadian Press, February 5, 2020, https://nationalpost.com/pmn/ news-pmn/canada-news-pmn/environmental-groups-critical-of-ontario-governmentforestry-plan-2.
- 158 Domtar, "Windsor Mill: Precise Tree-Harvesting," December 16, 2016, https://newsroom.domtar.com/windsor-mill-precision-tree-harvesting/. Paper Excellence, "Northern Pulp," https://paperexcellence.com/mill-location/northern-pulp/ (accessed September 27, 2021).
- 159 FSC, Public Certification Summary for Evaluations of Controlled Wood According to FSC-STD-40-005 V3-1, Paper Excellence Canada, March 26, 2021, http://fsc.force.com/servlet/servlet.FileDownload?file=00P4y00001CJnKiEAL.
- 160 Preferred by Nature, FSC Controlled Wood Certification for Domtar.
- 161 FPAC, Forest Management Certification Nova Scotia.
- 162 FPAC, Forest Management Certification Ontario. FPAC, Forest Management Certification Quebec. All Paper Excellence and Domtar's non-FSC-certified lands are SFI-certified. To avoid double-counting, we only included areas that are both FSC- and SFI-certified once as part of the company's total FSC-certified hectares. Please note that these 2020 figures were updated to incorporate Domtar's more recent input to the authors of this report.
- 163 FPAC, Forest Management Certification in Canada: 2020 Year-End Status Report Ontario.
- 164 Lewis and Jordan, By a Thousand Cuts.
- 165 Forest Stewardship Council, "A New National Forest Management Standard," https://ca.fsc.org/en-ca/standards/new-national-forest-management-standard, (accessed September 26, 2021).
- 167 Paper Excellence, "Chain of Custody Policy," https://paperexcellence.com/company/fibre-supply-chain/ (accessed July 1, 2021).
- 168 Domtar, "Our Certifications." Domtar, Sustainability at Domtar, Pulp and Paper 2020 Update, 2020, https://www.domtar.com/sites/default/files/2020-08/ $Domtar_SGR_Update 2020_4pages_ENG_PP.PDF.$
- 169 Lewis and Jordan, By a Thousand Cuts.
- 170 FSC, Public Certification Summary for Evaluations of Controlled Wood According to FSC-STD-40-005 V3-1, Canfor Pulp Ltd., February 2021, http://fsc.force.com/ servlet/servlet.FileDownload?file=00P4y00001CJm8HEAT.

- 171 Ibid.
- 172 FPAC, Forest Management Certification British Columbia, FPAC, Forest Management Certification in Canada: 2020 Year-End Status Report Alberta. All of Canfor's non-FSC-certified lands are SFI-certified. To avoid double-counting, we only included areas that are both FSC- and SFI-certified once as part of the company's total FSC-certified hectares.
- 173 Canfor, "Certifications," https://www.canfor.com/responsibility/certification (accessed July 1, 2021).
- 174 Canadian Council for Aboriginal Business, PAR Companies, https://www.ccab.com/programs/par-companies/ (accessed September 26, 2021).
- 175 KPMG, Surveillance Audit Controlled Wood Public Summary Report For West Fraser Mills Ltd., October 22, 2020, http://fsc.force.com/servlet/servlet. FileDownload?file=00Pf3000017rDPwEAM.
- 176 Darron Kloster, "The greatest act of civil disobedience in Canadian history: Fairy Creek surpasses Clayoquot Sound in arrests," Vancouver Sun, September 9, 2021, https:// vancouversun.com/news/local-news/the-greatest-act-of-civil-disobedience-in-canadian-history-fairy-creek-surpasses-clayoquot-sound-in-arrests. Taylor Lambert, "Old-Growth Logging in Endangered Alberta Caribou Habitat 'Flies in the Face of Common sense,' Critics Say," The Narwhal, September 24, 2021, https://thenarwhal.ca/alberta-
- 177 Ibid.
- 178 West Fraser, "The Kitlope," https://www.westfraser.com/responsibility/stories-responsibility/kitlope (accessed July 1, 2021).
- 179 FPAC, Forest Management Certification British Columbia, FPAC, Forest Management Certification Alberta,
- 180 West Fraser, "Environmental Specifications," https://www.westfraser.com/products/pulp-paper/environmental-specifications (accessed July 1, 2021).
- West Fraser, "Forest Certification," https://www.westfraser.com/responsibility/forest-certification (accessed September 25, 2021).
- 182 Climate for Ideas, Forests of the World, Dogwood Alliance, Hnutí DUHA, Les Amis de la Terre, Greenpeace, Sierra Club of British Columbia, Suomen Luonnonsuojeluliitto, Netherlands Centre for Indigenous Peoples, "On the Ground 2011: The Controversies of PEFC and SFI," September 2011, https://dk.fsc.org/preview.on-the-ground-2011the-controversies-of-pefc-and-sfi.a-275.pdf. Jennifer Skene, The Issue With Tissue.
- 183 KPMG, Public Summary Report Controlled Wood Surveillance Audit for Mercer Peace River Pulp Ltd., October 15, 2020, http://fsc.force.com/servlet/servlet. FileDownload?file=00Pf3000017rDPXEA2. KPMG, Controlled Wood Surveillance Audit Public Summary Report for Mercer Celgar Limited Partnership, August 10, 2020, http://fsc.force.com/servlet/servlet. File Download? file = 00Pf 3000017 rDROEA2.
- 184 KPMG, Controlled Wood Audit for Mercer Peace River Pulp. KPMG, Controlled Wood Audit for Mercer Celgar.
- 185 FPAC, Forest Management Certification Alberta.
- 186 Mercer, "Certificates," https://mercerint.com/certificates/ (accessed July 1, 2021).
- SAI Global, "FSC Bois Contrôlé—Sommaire Public du Système Diligence Raisonnable," November 2020, http://fsc.force.com/servlet/servlet. FileDownload?file=00P4y00001CJpWiEAL.
- 188 Lewis and Jordan, By a Thousand Cuts.
- 189 ECCC, Amended Recovery Strategy for the Woodland Caribou, Boreal Population.
- 190 Letter to Catherine McKenna and James Carr.
- John M. Fryxell et al., "Anthropogenic Disturbance and Population Viability of Woodland Caribou in Ontario," Journal of Wildlife Management 84, no. 4 (May 2020): 636-50, https://wildlife.onlinelibrary.wiley.com/doi/full/10.1002/jwmg.21829.
- 192 SAI Global, "FSC Bois Contrôlé."
- Ann Ingerson, "Carbon Storage Potential of Harvested Wood: Summary and Policy Implications," Mitigation and Adaptation Strategies for Global Change 16, no. 3 (March 2011): 307-323, https://link.springer.com/content/pdf/10.1007/s11027-010-9267-5.pdf. Timo Pukkala, "Carbon Forestry Is Surprising," Forest Ecosystems 5, no. 11 (February 2018) https://forestecosyst.springeropen.com/articles/10.1186/s40663-018-0131-5.
- 194 Dominic Cyr et al., "Forest Management Is Driving the Eastern North American Boreal Forest Outside Its Natural Range of Variability," Frontiers in Ecology and the Environment 7, no. 10 (December 2009): 519-524, https://esajournals.onlinelibrary.wiley.com/doi/abs/10.1890/080088. Sylvie Gauthier et al., "Fire Frequency and Forest Management Based on Natural Disturbances," in Ecosystem Management in the Boreal Forest (Québec, Presses de l'Université du Québec, 2009), 59-60.
- 195 FPAC, Forest Management Certification Ontario. FPAC, Forest Management Certification Quebec. All of Resolute's non-FSC-certified lands are SFI-certified. To avoid double-counting, we only included areas that are both FSC- and SFI-certified once as part of the company's total FSC-certified hectares.
- 196 Resolute Forest Products, "Forestry and Fiber Sourcing," https://www.resolutefp.com/Sustainability/Forestry_and_Fiber_Sourcing/ (accessed July 1, 2021).
- 197 NEPCon, Public Certification Summary for FSC Controlled Wood Certification (FSC-STD-40-005) for AV Terrace Bay Inc., November 25, 2020, http://fsc.force.com/ servlet/servlet.FileDownload?file=00P4y000017rLyxEAE.
- 198 NEPCon, FSC Controlled Wood Certification for AV Terrace Bay.
- 199 FPAC, Forest Management Certification in Canada; 2020 Year-End Status Report, New Brunswick, February 2021, https://certificationcanada.org/wp-content/ uploads/2021/04/2020-Yearend-SFM-Certification-Detailed-Report-NB.pdf.
- 200 Ontario, "Ontario Supports Indigenous-Industry Partnership in Kenogami Forest," August 19, 2021, https://news.ontario.ca/en/release/1000754/ontario-supports $indigenous-industry-partnership-in-kenogami-forest.\ FSC,\ "Certificate,"\ https://info.fsc.org/details.php?id=a024y00000m4ub4AAA\&type=certificate\ (accessed\ August\ 31, accessed\ 31, accessed\ August\ 31, accessed\ 3$ 2021).
- 201 Jeff Walters, "Canadian Forestry Companies in U.S. Environmental Group's report Say Criticisms Oversimplified, Misleading," CBC News, April 15, 2021, $https://www.cbc.ca/news/canada/thunder-bay/northwestern-ontario-forestry-1.5988740\ (accessed\ August\ 25,\ 2021).$
- 202 AV Terrace Bay, "About Us"; Aditya Birla, "Economic Impact of AV Group," p. 5.
- 203 AV Group, "Certifications," https://av-group.ca/about-us/certifications/ (accessed July 1, 2021).
- 204 Preferred by Nature, "FSC Forest Management Certification 6th Surveillance Report for Alberta-Pacific Forest Industries Inc.," August 30, 2021, https://info.fsc.org/ details.php?id=a0240000005sW9nAAE&type=certificate.

- 205 NEPCon, Public Certification Summary for FSC Controlled Wood Certification (FSC-STD-40-005) for Alberta-Pacific Forest Industries Inc. (Al-Pac), July 20, 2020, http://fsc.force.com/servlet/servlet.FileDownload?file=00Pf3000015GZW0EAO.
- 206 Julee J. Boan et al., "From Climate to Caribou: How Manufactured Uncertainty Is Affecting Wildlife Management," Wildlife Society Bulletin 42, no. 2 (June 2018), https://wildlife.onlinelibrary.wiley.com/doi/full/10.1002/wsb.891.
- 207 Alberta-Pacific Forest Industries Inc., Alberta-Pacific FMA Area 2015 Forest Management Plan, p. 27, https://open.alberta.ca/dataset/35e41141-1570-4b24-95dd-912cf332ec92/resource/9420ae7d-6c4b-4a80-8f73-481e7c504e0d/download/vol-1-combined-fmp-chapters-20180625.pdf.
- $208\ Global\ Forest\ Watch, "Canada\ Intact\ Forest\ Landscapes,"\ June\ 27,\ 2016,\ https://data.globalforestwatch.org/datasets/canada-intact-forest-landscapes/particles/datasets/canada-intact-forest-landscapes/particles/datasets/canada-intact-forest-landscapes/particles/datasets/canada-intact-forest-landscapes/particles/datasets/canada-intact-forest-landscapes/particles/datasets/canada-intact-forest-landscapes/particles/datasets/canada-intact-forest-landscapes/particles/datasets/canada-intact-forest-landscapes/particles/datasets/canada-intact-forest-landscapes/particles/datasets/canada-intact-forest-landscapes/particles/datasets/canada-intact-forest-landscapes/particles/datasets/canada-intact-forest-landscapes/particles/datasets/particles/d$ $66 d 12 e d 4 f 8 d d \# summary; Alberta \ Government, \# Forest \ management \ agreement \ boundaries, "Inters://open.alberta.ca/publications/forest-management-agreement-agreement \ boundaries," and the summary \ agreement-agreement \ agreement \ boundaries, and the summary \ agreement \ agr$ boundaries-map#summary (accessed August 24, 2021).
- $209\ Alberta-Pacific Forest\ Industries\ Inc., "Forest\ Management."\ Alberta-Pacific Forest\ Industries\ Inc., "Certifications,"\ https://alpac.ca/sustainability/certifications/alberta-Pacific Forest\ Industries\ Inc., "Certifications,"\ https://alpac.ca/sustainability/certifications/alberta-Pacific Forest\ Industries\ Inc., "Certifications," https://alberta-Pacific Forest\ Industries\ Inc., "Certifications," https://alberta-Pacific F$ (accessed July 12, 2021).