

RISKING IT ALL: THE TOP LOGGING COMPANIES THREATENING B.C.'S MOST RARE AND AT-RISK OLD GROWTH FORESTS

Preliminary Research Brief¹

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INTRODUCTION

In November 2021, the B.C. government announced the temporary deferral of 2.6 million hectares of the best and most productive old growth forests left in the province. All of the forest types mapped for deferral are considered by the Old Growth Technical Panel (TAP) to be rare, at-risk, and irreplaceable.² This area includes big-treed old growth, ancient forests, and rare forest types. The TAP recommended these at-risk old growth forests as candidates for logging deferrals as part of the provincial commitments to the Old Growth Strategic Review.

Total remaining old growth in B.C. is estimated at 11.1 million ha, with approximately 3.5 million ha in protected areas. However, old growth such as low elevation forests are highly-prized by the industry and ancient Douglas-fir forests are already extirpated, while many other big-treed ecosystems have less than 10% remaining, and some less than 1%.³ Deferrals are in place to stem these losses, and allow time to shift to new approaches to land use that will allow these areas to be protected over the long term. Most of the candidate deferral areas are not even formally deferred yet, despite government and industry promises, and those areas in the current Timber Harvest Land Base (THLB) – roughly 50%– are still at high risk of being logged.⁴ The exception is BC Timber Sales in deferral areas, which the government ceased advertising for auction as part of their November 2021 announcement.

In response, Stand.earth Research Group (SRG) has developed a way to determine which companies are holding the rights to log the last of these rare and at-risk old growth forests. The study uses spatial analysis to calculate the proportion of unprotected forest cover that is made up of priority old growth deferral areas, and then uses that proportion to calculate the volume of allowable annual cut that could come from these old growth forests if they are not immediately deferred and subsequently protected from logging. This risk analysis identifies the old growth risk attributable to logging companies allocated an allowable annual cut in 2022. Logging companies are then ranked from highest to lowest risk based on the proportion of old growth deferrals that they could harvest if deferrals do not result in permanent protection. See below for detailed methodology.

The study reveals that the overwhelming majority of B.C.'s old growth forests, key to soil, water, and climate stability, are in the hands of a few logging companies that argue that deferrals will have a significant negative impact on the industry. Companies such as Canfor argue that logging old growth forests is part of a strong, healthy, globally-competitive B.C. forest industry – insinuating that in the absence of access to old growth forests, the industry would lose its edge.⁵ This reliance on old growth is apparent in a recent analysis showing that grade 1 and 2 timber harvested in the interior (including old growth) was an average of 88% of provincial

² Old Growth Technical Panel (TAP), Priority Deferrals: An Ecological Approach, October 2021, www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/stewardship/old-growth-forests/summary_for_g2g_package.pdf

³ Ibid.

⁴ An accurate figure could not be determined because there is no public access to the THLB.

⁵ Fischlin, J., Canfor mulls over potential impacts of B.C.'s logging deferral announcement, The Free Press, Nov. 5th, 2021. www.thefreepress.ca/news/canfor-mulls-over-potential-impacts-of-b-c-s-logging-deferral-announcement/

stumpage revenues in 2020.⁶ This suggests that taking deferrals out of company and government profit equations could indeed be devastating for some companies, especially those still reliant on a steeply declining supply of irreplaceable forests to profit and maintain their workforce.

These companies argue that the impact of deferrals will be on employees and on forest-based communities. However, companies continue to turn large profits and curtail or close mills without the implementation of logging deferrals. In the last 20 years, the number of forestry jobs has halved in B.C. without any significant decrease in access to old growth for logging, largely due to investment in bigger mills, with more mechanization, hiring smaller workforces.⁷ Job losses and other economic impacts from this process must be addressed, but should be part of the move from managing for timber to managing forests for ecosystem health. In the age of climate impact, the connection between ecosystem health and community health has never been more apparent. Old growth forests are part of the natural defense against devastating weather events such as the deadly heat, fires, and floods experienced in B.C. in 2021.

RESULTS

It's important to remember that old growth risk is an estimate of the volume that *could come from priority deferral areas if they were harvested*. The volumes of old growth risk represented in the results are not volumes that are currently being harvested, although candidate deferrals are not guaranteed protection from logging. Although only approximately 50% of the current candidates for deferral are in the Timber Harvesting Land Base, all deferrals areas are considered at-risk from logging in the analysis. This is because current exclusion from the THLB is not a measure of forest protection, as the THLB can change. As well, access to the THLB data to determine which areas are at more immediate vs. longer term risk was not possible because the THLB is not publicly available.

Overall, the majority of the risk to old growth deferrals (45%) is in the Southern Interior, comprising the Cariboo, Thompson-Okanagan, and Kootenay regions. 35% of the risk is in the Northern Interior, including Skeena, Peace, and Omineca, and 20% is on the Coast, including the Lower Mainland, Vancouver Island, Great Bear Rainforest, and Haida Gwaii. Figure 3 illustrates the hypothetical volume flow from these regions to logging companies and BCTS (which includes tenures auctioned off to logging companies) if these at-risk old growth forests are not afforded greater protection.

⁶ Parfitt, B., 'The Great Tree Robbery', Dec. 1st, 2021, Focus on Victoria. www.focusonvictoria.ca/forests/111/, with [database created by the author](#) and analyzed by Stand.earth Research Group; based on harvest billing data.

⁷ Seidle, J., Letter: Investment, not conservation, threatens forestry workers, accessed March 7, 2021: <https://ppwc.ca/letter-investment-not-conservation-threatens-forestry-workers/>

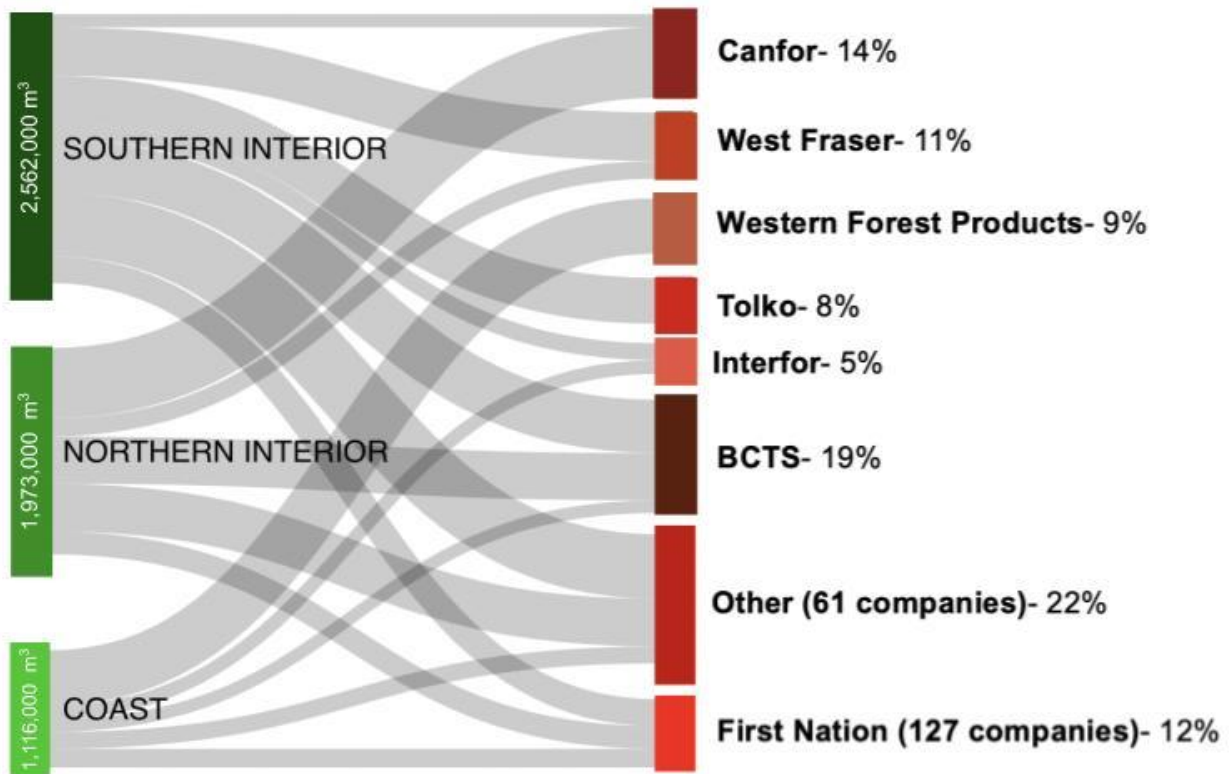


Figure 3. This graph demonstrates the risk to old growth deferral areas in the 3 major regions of the province and the allocation of this risk to licensees and BC Timber Sales (BCTS). BCTS is used to indicate tenure auctioned off to logging companies by the province, where data does not exist to identify who would actually be conducting harvesting operations. All of the top 5 companies also bid for timber sales.

TOP TEN COMPANIES THREATENING OLD GROWTH

The top ten logging companies in B.C. threaten at least 57% of the most at-risk old growth, with 47% of the risk coming from just the top 5: Canfor, West Fraser, Western Forest Products, Tolko, and Interfor (see Table 1). The B.C. government's Timber Sales program, BCTS, threatens 19% of the most at-risk old growth, indicating the role that the government plays in either auctioning off or protecting old growth stands across the province (see Figure 1). If data existed to allocate BCTS' risk by the logging companies actually conducting logging operations, it would likely increase the share of risk held by the top logging companies. By comparison, 61 other companies have 22% of the risk, while all 127 First Nations owned companies identified as licensees are responsible for only 12% of the risk to old growth, illustrating that B.C.'s most rare, at-risk and irreplaceable old growth is predominantly in the hands of big lumber.

RANK	COMPANY	PERCENT OF TOTAL OLD GROWTH RISK	OLD GROWTH RISK (M3/YEAR)	NORTHERN INTERIOR	SOUTHERN INTERIOR	COAST
1	Canfor	14%	798,000	84%	16%	0%
2	West Fraser	11%	632,000	27%	73%	0%
3	Western Forest Products	9%	527,000	0%	0%	100%
4	Tolko	8%	437,000	0%	100%	0%
5	Interfor	5%	293,000	0%	55%	45%
6	Sinclar Group	3%	142,000	100%	0%	0%
7	Weyerhaeuser	2%	101,000	0%	100%	0%
8	Gorman Group	2%	98,000	0%	100%	0%
9	Louisiana-Pacific	2%	89,000	18%	82%	0%
10	Pacific Bioenergy	2%	85,000	3%	98%	0%
	TOTAL	57%	3,201,000	31%	48%	21%

Table 1. The top ten logging companies threatening B.C.'s most at-risk and rare old growth forests and the proportion of their risk in each major region of B.C., excluding BCTS

1. Canfor is the top company, with an estimated 14% of total old growth risk. The deferral areas at risk are predominantly in Northern BC (84% of Canfor's risk), and specifically in the Omineca region, including the Prince George TSA (48% of Canfor's risk) and Morice TSA (13%). Canfor's operations in the Southern Interior make up the other 16% of their risk, with focus in the Kootenays. Canfor is the biggest threat to old growth deferral areas in Northern B.C. and the Kootenays.

2. West Fraser has approximately 11% of the total old growth risk. This is also concentrated in the Southern Interior (73% of West Fraser's risk), and specifically focused in the Cariboo region, including Quesnel, 100 Mile House, and Williams Lake TSAs as well as TFL 52 (Bowron - Cottonwood). The other 27% of the risk is in the Northern Interior, with a majority in the Skeena region. West Fraser is the biggest threat to old growth deferrals in the Cariboo region.

3. Western Forest Products (WFP) has around 9% of the total old growth risk. Notably, the deferrals inside WFP's tenures are 100% on the Coast, especially on Vancouver Island. Out of WFP's proportion of risk, 84% is on the Island and 32% of this is in TFL 44 (Alberni) alone, including areas around Clayoquot Sound and the forests surrounding Carmanah Walbran Provincial Park. Another 13% of WFP's old growth risk is in the Haida TFL (TFL 39) which includes Haida Gwaii, Vancouver Island, the Great Bear Rainforest, and the Sunshine Coast. An additional 3% of their risk is in the Great Bear Rainforest TSAs (North and South). WFP is the biggest risk to old growth deferrals on the Coast and far and away the largest threat to old growth on Vancouver Island.

4. Tolko has an estimated 8% of total old growth risk. Of Tolko's risk, 100% is in the Southern Interior, including 51% in the Thompson-Okanagan and 48% in the Cariboo region, around

Williams Lake, Quesnel, and 100 Mile House. Tolko is the biggest risk to old growth deferrals in the Thompson- Okanagan.

5. Interfor has an estimated 5% of the total old growth risk. 55% of Interfor’s risk is in the Southern Interior, mostly in the Kootenays. The other 45% is on the Coast, with 21% in the Great Bear Rainforest, 13% on the Sunshine Coast, and 11% on Vancouver Island. Interfor is the second biggest risk to old growth deferrals on the coast, and the biggest risk to old growth deferrals in the Great Bear Rainforest.

Of the other 5 companies, most of their risk to old growth deferrals is in the Southern Interior. Weyerhaeuser's risk is focused in the Thompson-Okanagan, in the Merritt TSA. Gorman Group risk is predominantly in the OkanaganTSA. Louisiana-Pacific’s risk is also highest in the Southern Interior, particularly in the Kootenays, but they are also threatening old growth in Northeastern BC, in the Peace region and the Okanagan. Pacific Bioenergy predominantly threatens old growth deferrals in the Quesnel TSA, in the Cariboo. Sinclair group is the one exception. Their risk is focused in the Northern Interior, in the Prince George TSA.

Notably, Pacific Bioenergy tenures supply the pellet industry, although it is not clear if old growth timber in these tenures would be used for this purpose. In total, 3% of the overall old growth risk is associated with licensees who supply the pellet industry – including Pacific Bioenergy, BioNorth Energy, and STH Biomass.

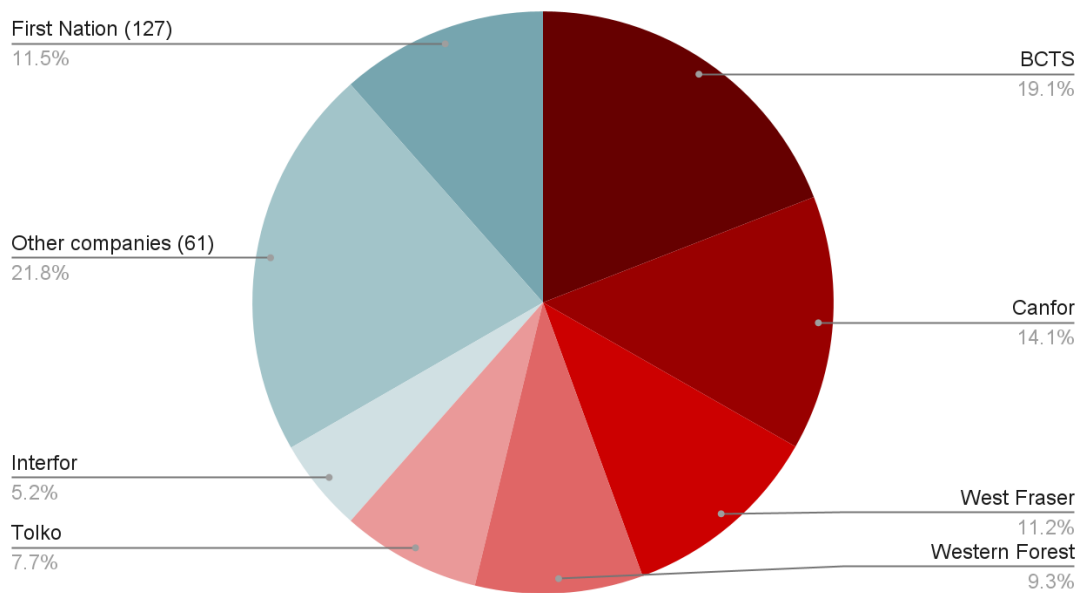


Figure 1. Breakdown of overall old growth deferral risk across BC. BCTS is 19% of the risk, while the top 5 logging companies are another 47%. Other companies and First Nations make up the remaining 33%.

THE ROLE OF BC TIMBER SALES

The FMUs where BCTS auctions off cutblocks to logging companies is the single largest threat to at-risk old growth, with 19% of total old growth risk – over 1 million m³. Although the actual licensees are not known because these areas are under deferral, if they were to be up for auction the bidders would likely include the top logging companies, expanding their risk. The provincial government estimates that there are 570,000 ha of deferrals that overlap with BCTS operating areas and they have committed to deferring logging in these areas which, while a welcome development, affects the old growth forest deferral process disproportionately. For example, it will not greatly improve deferrals in coastal rainforests. BCTS is the second largest threat to old growth deferrals in Northern B.C., especially the Peace River region where BCTS deferrals include 48% of the old growth risk in the region, but BCTS deferrals Vancouver Island make up only 11% of the old growth at risk, while deferrals in the Great Bear Rainforest only cover 10% of the risk and on Haida Gwaii, BCTS deferrals only cover 3% of the risk.

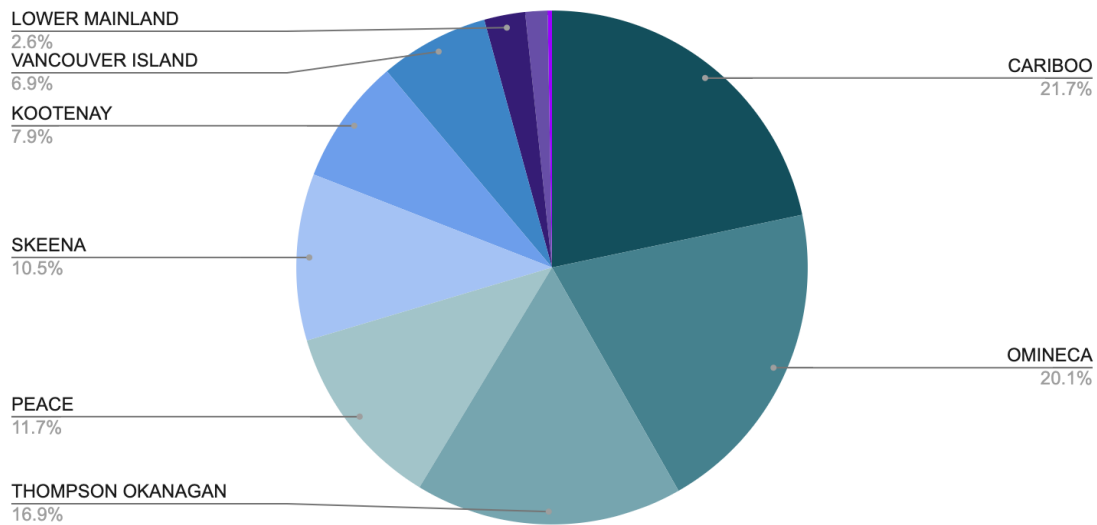


Figure 2. BCTS operating areas threaten over a million cubic meters of old growth deferrals, predominantly in the Cariboo and Omineca regions.

FIRST NATIONS CONSENT

The analysis also highlights the disparity in how old growth risks, and therefore old growth forests, are distributed across the province amongst all of the licensees. Despite First Nations companies being the largest single group of licensees, they have much less growth risk than the top ten companies in the analysis (see Figure 4). As old growth risk is based on the distribution of the most at-risk and rare old growth across the province, it could accurately be concluded that old growth forests are distributed in a similarly uneven manner. To give some perspective, there are 127 First Nations companies who hold tenures that include old growth deferrals. The overall old growth risk across all these licensees is 12%.

Canfor, with 14% of the overall old growth risk, holds more of the most rare and at-risk old growth in one company than all 127 First Nations tenure holders combined.

This is an important consideration for the process of long-term planning around deferrals, including planning for resilience and recruitment of big-treed and ancient forests and prioritizing cultural and ecological integrity that upholds and respects First Nations inherent and unceded Title and Rights. If most of the deferrals are in non-First Nation company tenures, then the emphasis on seeking consent from First Nations for temporary deferrals in their licenses, while still not seeking First Nations consent for logging, may make the whole process more regressive for First Nations communities – especially those that have economic barriers to going ahead with old-growth deferrals in their own tenures.

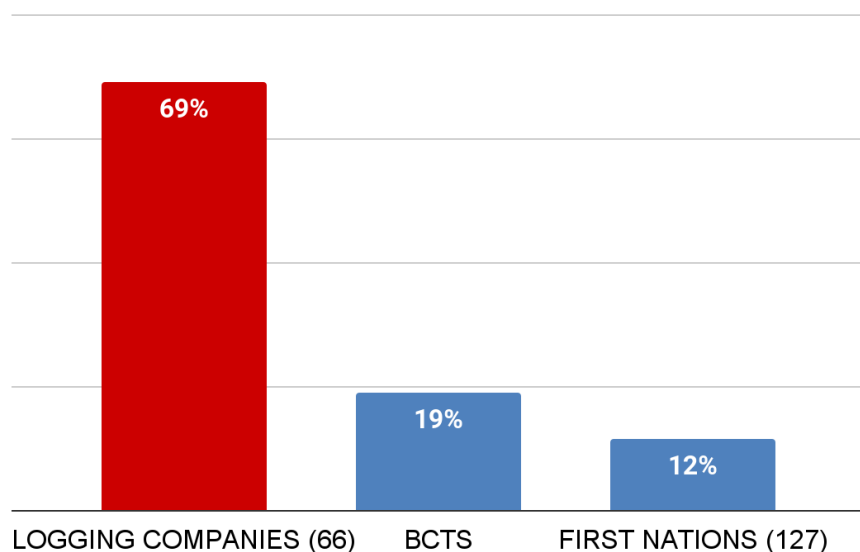


Figure 4. Logging companies not owned by First Nations have the highest risk to old growth deferrals and, by extension, hold the majority of B.C.'s rare and at-risk old growth. By comparison, First Nations owned companies have more than 5 times less old growth risk, spread over twice the number of companies.

METHODOLOGY

Spatial Analysis

Spatial layers were retrieved from the B.C. Data Catalogue. The primary licensee and tenure data was extracted from the Forest Development Units (FDUs) dataset, supplemented by Pulpwood Agreements data and Timber Supply Area (TSA) and BCTS Operating Areas spatial layers; collectively, we refer to these in this study as *forest management units (FMUs)*. Additionally, spatial layers for protected areas (parks, conservancies, and Order-in-Council areas), Biogeoclimatic (BEC) Zones, and Priority Deferral Areas (i.e. old growth forest areas) were also retrieved, as well as forest cover data layers from Global Forest Watch. A full list of data sources is available below. Protected areas and non-forest areas were removed and Global Forest

Watch forest cover data was applied to calculate the area of unprotected forest within each FMU.

Risk Analysis

For each FMU, the portion of the forests that are old growth was estimated by dividing the area of Priority Deferral Areas within each FMU by the total area of unprotected forests within the FMU. These ratios are represented in the formula below.

Multiplying these ratios by the harvest volume (annual allowable cut, or AAC) per tenure holder (company) per FMU yields an estimate of the volume that could be harvested from the province's best remaining old growth if these forests are not permanently protected.

Summing these figures for all FMUs attributable to each company yields a total estimate *per company* of the risk to old growth forests in B.C., expressed in cubic meters as a portion of the allowable annual cut.

This analysis can be expressed using the following formula:

$$\text{Old growth risk} = \sum_{FMU} \left(\frac{\text{OldGrowthForest}_{FMU}}{\text{ForestArea}_{FMU}} \right) (\text{HarvestVolume}_{FMU})$$

- *FMU* = either a Forest Development Unit licensee or tenure area (Tree Farm License, Timber License, Pulpwood Agreement, etc.) or Timber Supply Area or BCTS Operating Area
- *OldGrowthForest* = area of unprotected old growth forest within the FMU (in hectares)
- *ForestArea* = area of unprotected forest cover in the FMU (in hectares)
- *HarvestVolume* = the company's annual allowable cut (AAC) within the FMU. The AAC represents an estimate of the volume that each company is allocated to harvest on an annual basis.

Provincial apportionment and commitment data was used to determine the harvest volume per FMU based on each licensee's AAC, and to link tenures and licensees. Sources such as media reports, annual reports, and other credible sources were used to identify parent and subsidiary companies for all licensees.

The old growth risk per FMU was summed across parent companies for all licensees. BCTS old growth risk was not conducted on a company level and is represented separately in this study as the B.C. government's risk to old growth. Pulpwood agreements that have TSA- based apportionment but do not show up in the forest development unit data were identified by their TSA but not by licensee.

FMUs were also identified by BEC zone and region, to allow for sub-provincial analysis of the threat to at-risk old growth. The study chose three sub-provincial regions for analysis: Northern Interior, Southern Interior, and Coast.

Woodlots, Community Forest Agreements, and First Nations Woodland Licenses that are not included in the FDU database were not included in the analysis. Some of these tenures are included in the provincial apportionment by TSA, while other areas are outside of the provincial AAC summary.

The final analysis accounted for 94% of the provincial apportionment and 98% of the AAC reported by the B.C. government in 2022.⁸ The analysis also captured 100% of the provincial AAC linked to companies, with a small amount of error in distribution due to the differences between the government databases used in the analysis and likely caused by delay in updating these databases to reflect ongoing changes in tenure ownership and management.

Data limitations and impacts on the study

Overall, the old growth risk estimates presented herein are conservative, but individual estimates may be higher or lower than reported estimates, depending on several factors.

First, forest cover is estimated from Global Forest Watch's global forest cover layer, which represents forest cover in a percent cover format and is recent as of 2010.⁹ Using this layer means that forest cover will be overestimated in some tenures, e.g. where forest cover is indicated but may not be actually suitable for forest harvesting. More minorly, Overestimation of forest cover is also a result of the lack of data on forest cover loss due to fires and harvesting in the last 10 years, which affects the total forest cover estimate but not the area of deferrals. In addition, Old Growth Management Areas (OGMAs) are excluded from the priority deferral areas but not from the unprotected forest cover layer. An overestimate of forest cover will decrease the proportion that is in old growth deferrals, resulting in conservative old growth risk estimates.

On the other hand, the study assumes that companies will cut to their AAC, but actual timber harvesting is 88% of the AAC on average, leading to an overestimate of total harvest when using AAC to estimate harvest levels.¹⁰ A more complex analysis could use harvest billing data to calculate the actual harvest vs. AAC at the level of the licensee, but this is outside of the scope of this project.

For licenses that do not have delineated boundaries, the proportion of unprotected forest cover that contained old growth deferrals across the TSA was multiplied by the license AAC to estimate their old growth risk. This introduces an error in the risk estimate that is unavoidable, since we cannot predict where in the TSA the license's AAC will come from without having operational level data for all licensees. Some licensees may have a higher proportion of priority old growth in their harvest areas and other licensees may have little to none. This affects 35% of the licensees in the analysis, covering 29% of the total AAC. Tenure management agreements were also reviewed when identified, as a possible source of error, but the overall AAC that is transferable from the licensee to the tenure manager made a negligible impact on the overall results.

⁸ Based on the total AAC and Apportionment from the 2021/2022 Provincial Summary-
https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-tenures/apportionment/2021-2022/aptr032_provincial_summary_report.pdf

⁹ The B.C. government's Timber Harvesting Land Base (THLB) layer would also have been used as a forest cover layer if it were accessible from the BC government. This would have allowed the study to determine which deferrals were in the THLB (immediate risk) versus outside the THLB (longer-term risk).

¹⁰ Research by Stand.earth Research Group based on actual harvest, AAC, and apportionment data from 2010 – 2020 provided by the B.C. government Apportionment and Commitment reports and from
https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/forest-industry-economics/economic-state/2020_economic_state_of_the_bc_forest_sector.pdf

Finally, accuracy in estimating old growth risk decreases with increasing tenure area (ha) so that larger tenure areas (e.g. BCTS operating areas and Pulpwood Agreements) have less accurate estimates of their old growth risk.

Spatial layers used:

- Global Forest Watch [Forest Cover data for B.C.](#) Data is from 2010.¹¹
- [Forest Development Units](#): includes all forest licensees in each FDU that are covered by the FDU's Forest Stewardship Plan.
- [Pulpwood Agreements](#): includes some tenures that are outside the FDU dataset above.
- [Timber Supply Areas](#): used to estimate ratios of Priority Deferral Areas in license areas with AACs that do not appear in either of the FDU or PA datasets above.
- [BCTS Operating Areas](#): includes all the operating areas for BCTS across the province, by Timber Supply Area (TSA).
- Priority Deferral Areas (Map 1)
- [Biogeoclimatic \(BEC\) zones](#): two spatial layers with different levels of resolution for BEC zones across the province.
- Protected areas:
 - [National Parks of Canada within British Columbia](#)
 - [BC Parks, Ecological Reserves, and Protected Areas](#)
 - [Conservancy Areas](#)
 - [Orders-in-Council](#)

Other data sources:

- Provincial '[Linkages and Licenses](#)' report
- BCTS and Pulpwood AAC per TSA from the B.C. governments '[Apportionment & Commitment Reports](#)'
- Regional breakdown based on FLNRORD [Natural Resources Regions and Districts](#), with adaptation to include Great Bear Rainforest North TSA as part of the Coast Region and not part of the North Region.

¹¹ Hansen, M. C., P. V. Potapov, R. Moore, M. Hancher, S. A. Turubanova, A. Tyukavina, D. Thau, S. V. Stehman, S. J. Goetz, T. R. Loveland, A. Kommareddy, A. Egorov, L. Chini, C. O. Justice, and J. R. G. Townshend. 2013. "High-Resolution Global Maps of 21st-Century Forest Cover Change." *Science* 342 (15 November): 850–53. Data available on-line from: <https://glad.umd.edu/dataset/global-2010-tree-cover-30-m>. Accessed through Global Forest Watch. www.globalforestwatch.org