

BACKGROUND: STATUS OF BC'S OLD FORESTS 2021

What is the status of BC's Old Forests?

There is an important conversation underway about old forests in BC. As part of that conversation, there have been a number of public statements and assertions about the amount of old forests in the province.

The BC Council of Forest Industries (COFI) believes it is important that the conversation around old forests is informed by a solid fact base. To that end, we engaged an independent, third-party firm of Registered Professional Foresters (RPF) to conduct a study to obtain an accurate overview of the status of old forests on BC Crown land, including the amount, distribution, status, and types of old forests in the province.

About the Study

The *Status of BC's Old Forests: The Situation in 2021* provides the most up-to-date, best-available data about old forests in BC. It answers commonly asked questions including: What is old growth in BC? How much is there? What protections exist?

The study was conducted by Forsite Consultants, a firm that has been delivering effective natural resource management and development services to government and industry clients for 30 years. The lead author, **Cam Brown RPF, MF**, has more than 25 years' experience in the Canadian forest sector, with expertise in resource analysis and modeling, strategic planning, forest inventory, forest carbon analysis and the use of LiDAR data. He has worked extensively with BC data and old growth requirements, including on retention strategies found in the Great Bear Land Use Order, selecting stands to meet old growth targets in the BC Interior, and modeling for timber supply review processes. **Jim Thrower, RPF and PhD** in forest biometrics provided guidance on the methodology and use of forest inventory data.

What did the Study Find?

The study provides summary statistics and analysis on old forest amounts and type by region, including areas protected, and percentage of old forest. It also details the amount of old forests growing on sites capable of producing big trees, given recent past reporting falsely suggesting this amount to be 3%. Importantly, it describes the many regulations and protections that are in place for old forests including special trees, wildlife management areas and designated areas.

Additionally, the report's author provides commentary on current data limitations and recommendations on approaches that should be used to address gaps and inform any management actions that are taken.

The report concludes the following:

- **The province has 11.4¹ million hectares of old forests located on Crown forested land.**
- **75% of old forests – 8.5 million hectares – are either protected in BC or outside the Timber Harvesting Landbase (THLB).**

¹

Methodology applied here used 2021 inventory data and updated assumptions, including: shifting nearly 1 million ha of forest in northwest BC from "old" to "mature" as identified in new inventory data; accounting for wildfire loss from 2015-2021; accounting for Mountain Pine Beetle loss; and utilizing detailed forest inventory data within all TFL's in the province.

- While all old forests contribute to biodiversity, there has been much public discussion about the amount of old forests growing on sites capable of producing big trees – with some reports falsely suggesting this amount to be 3%. In reality, the study found **over 3.3 million ha of old forests, or about 30%, are growing on high productivity sites capable of producing big trees.**
- Relying on simple statistics from BC’s inventory data to identify ecosystems at risk is not recommended as local context and data limitations are not addressed. **Detailed assessments of old growth conditions must be completed regionally** in conjunction with local experts, including First Nations and forest professionals, to ensure sufficient context is available to support discussions and management decisions.

Frequently Asked Questions

1. What is old growth?

- In British Columbia, an “old” forest is defined by the provincial government:
 - In wet and very dry ecosystems, 250+ years is considered “old”
 - In other ecosystems: Conifer at 140+ years are “old”; Deciduous at 100+ years

2. What do old forests look like?

- Old forests can look very different, depending on their location and climate
- BC has 14 ecosystem zones that have different growing conditions and different old forests
- The type and frequency of natural disturbances, such as wildfire, that occur in an ecosystem determine how much old growth there would be naturally, and the typical age range of the forest. Varying growing conditions result in a wide range of tree species and sizes, including short stands in less productive ecosystems and tall stands in highly productive ecosystems

3. How are forests measured?

Identifying forest inventory

- The province of BC maintains a database of forest stands (groups of trees) called the “Vegetation Resource Inventory” (VRI)
- The data is used for mapping BC’s forests and assessing characteristics, such as height, species, age, and density over large areas
- VRI is based mostly on manual interpretation of 3D aerial photographs of forests
- Due to known limitations of identifying ages via photography, it is very likely that the overall area of old forests in BC is underestimated

Estimating the amount of old forests

- The **Status of BC’s Old Forests: 2021** report contains the most up-to-date calculations of old forests in BC
- The report includes all of BC’s Crown lands in a single dataset, describing each location’s forest condition, elevation, growth potential, ecosystem (biogeoclimatic) label, protected status, and potential for future harvest
 - Calculations are current to January 2021, reflecting forest harvesting, fires and Mountain Pine Beetle impacts up to that date
 - The Government of BC’s age-based definitions for old growth were used to identify old forests in the provincial forest inventory

4. How much old forest is in BC?

- The province has 55.4 million hectares of Crown forested land, 11.4² million hectares of which is considered to be old forests
 - 43% of forests on the Coast of BC are considered “old”, while 13% in the southern Interior and 19% in the northern Interior are considered old; This reflects the differences in forest types and natural disturbance patterns
- Due to known limitations of identifying ages via imagery, it is very likely that the overall area of old forests in BC is underestimated

Table 3. Crown forested area by seral stage for Natural Resource Operations Regions in BC

Region	Early	Mid	Mature	Old	Total	Percent Old
Coast	1,257,514	1,208,089	2,138,524	3,435,752	8,039,880	43%
Northern Interior	5,300,897	9,934,680	9,922,282	5,797,732	30,955,591	19%
Southern Interior	4,894,883	3,949,598	5,389,607	2,184,422	16,418,510	13%
Province	11,453,294	15,092,367	17,450,413	11,417,906	55,413,980	21%
Vancouver Island (subset of Coast)	501,049	423,873	301,953	770,172	1,997,047	39%

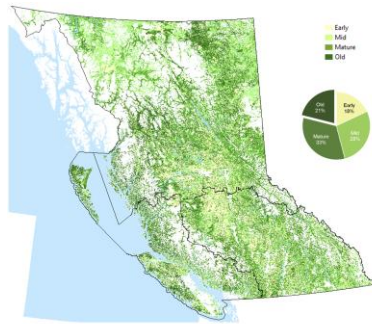


Figure 16. Distribution of early, mid, mature, and old seral forests in BC as of Jun 2021

5. How much old forest is protected?

- 75% of old forests in BC – 8.5 million hectares – are protected or outside of the Timber Harvesting Landbase
- 88% of old Crown forests on the Coast are protected or outside of the Timber Harvesting Landbase
- 66-76% of old Crown forests in the Interior are protected or outside of the Timber Harvesting Landbase

Table 4. Old forest on Crown lands by protection status

Region	Protected	Non-Timber Harvesting Landbase	Harvestable	Total	% Not Harvestable
Coast	2,228,126	796,498	411,128	3,435,752	88%
Northern Interior	1,194,009	2,639,059	1,964,665	5,797,732	66%
Southern Interior	1,015,252	637,522	531,649	2,184,422	76%
Province	4,437,386	4,073,078	2,907,442	11,417,906	75%

² Methodology applied here used 2021 inventory data and updated assumptions, including: shifting nearly 1 million ha of forest in northwest BC from “old” to “mature” as identified in new inventory data; accounting for wildfire loss from 2015-2021; accounting for Mountain Pine Beetle loss; and utilizing detailed forest inventory data within all TFLs in the province.

6. How are old forests protected?

Parks & Protected Areas

- BC has the largest provincial park system in Canada, with 644 parks over 10,522,672 hectares
- It also has 3 National Park Reserves, 4 National Parks covering 614,187 hectares, 6 National Wildlife areas and other National Protected Areas covering 1,159,423 hectares, which all contribute to the protection of old forests
- BC also has a number of conservation measures, such as 148 ecological reserves, 84 protected areas, 158 conservancies and 2 recreation areas

Old Growth Order and Old Growth Management Areas

- BC's 'Non-Spatial Old Growth Order' sets the broad framework for managing old growth when local Land Use Plan Orders have not done so already
- These orders establish old growth targets to ensure old growth is represented in all ecosystems which can be met a variety of ways

Special Tree Protection Regulation

- The Province of BC legislated a Special Tree Protection Regulation in 2020, prohibiting the harvesting, damage or destruction of standing trees that are of certain species, location and diameter, and providing for a 56 metre radius buffer of supporting trees
 - Examples include: Yellow Cedar at 265 cm breast height; Coastal Douglas fir at 270 cm; Interior Douglas fir at 160 cm; Coastal Western Red Cedar at 385 cm; Interior Western Red Cedar at 290 cm, and more

Great Bear Rainforest

- The Great Bear Rainforest (GBR) is a temperate rainforest comprising of 6.4 million hectares along the north and central coasts of BC
- Management is guided by the Great Bear Rainforest Land Use Order (2016) with principles of ecosystem-based management tailored to this unique area
- The GBR provides significant coastal old forest protection using both large protected areas and old seral retention targets

Old Forests Protected by Other Values

- In addition to the old-growth specific mechanisms listed above, additional conservation efforts have also helped preserve old forests including but not limited to the creation of Wildlife Management Areas, Ungulate Winter Ranges, Provincial Recovery Programs and Wildlife Habitat Areas

Old Growth Harvesting Deferrals

- The harvesting of old growth in 11 areas of the province was deferred in fall 2020, for up to 4 years while consultation with Indigenous leaders takes place and new old forest objectives are set for traditional territories
- These most recent deferrals are incremental to areas that are already protected for other reasons

7. How much of BC's old forests are located on high productivity sites capable of growing big trees?

Calculating the amount of old forests on high productivity sites in BC

- While all old forests contribute to biodiversity, there has been much public discussion about the amount of old forests growing on sites capable of producing big trees
- Past reports have used estimates of site productivity available in provincial VRI data, but this data is not well-suited to describe the presence of big tree old growth
- The BC Government's Provincial Site Productivity Layer (PSPL) data is the best available data source to map the location of stands capable of producing big trees
- Using PSPL data, **approximately 3.34 million ha of old forests, or about 30%, were found to be growing on sites capable of producing big trees**
- Using a single definition of high productivity sites (site index > 20m) for all forests in the province is not ideal and likely underestimates the amount, but was used here to provide a comparable number to past reporting that falsely suggested only 3% of BC's old forests were on sites capable of growing big trees

Table 6., Provincial level Crown forest area by seral stage and PSPL site index (SI class)

SI_CLASS	Early	Mid	Mature	Old	Total	% of Total	% Old
SI 0-5	32,739	29,826	88,709	19,319	170,594	0%	11%
SI 5-10	224,218	2,352,451	1,789,584	593,663	4,959,916	9%	12%
SI 10-15	1,388,824	4,105,014	4,732,101	1,951,041	12,176,979	22%	16%
SI 15-20	6,578,075	5,739,434	7,117,718	5,513,259	24,948,487	45%	22%
SI 20-25	2,587,609	2,062,138	2,951,540	2,546,928	10,148,216	18%	25%
SI >25	641,828	803,504	770,761	793,696	3,009,789	5%	26%
Total	11,453,294	15,092,367	17,450,413	11,417,906	55,413,980	100%	21%
% of Total	21%	27%	31%	21%	100%		

ABOUT BC'S HARVESTING PRACTICES

While the report by Forsite provides detailed information on old forests, there are some other facts that are important.

- BC is known for its world-leading sustainable harvesting and active forest management practices
- BC has more than 50 million hectares of forests certified to international sustainability standards
- Companies follow rigorous environmental standards and require permits for all operations
- Each year, BC's Chief Forester sets the Annual Allowable Cut for what can be sustainably harvested
- Less than 1% of BC's harvestable area is harvested each year
- 3 trees are planted for every tree harvested
- Approximately 200 million seedlings are planted each year; over 300 million were planted in 2020