Excellence in Forest Management - Understanding our System

STATE OF THE FOREST REPORT - 2023

New Nouveau Brunswick

State of the Forest Excellence in Forest Management - Understanding our System

STATE OF THE FOREST REPORT - 2023

Province of New Brunswick PO 6000, Fredericton NB

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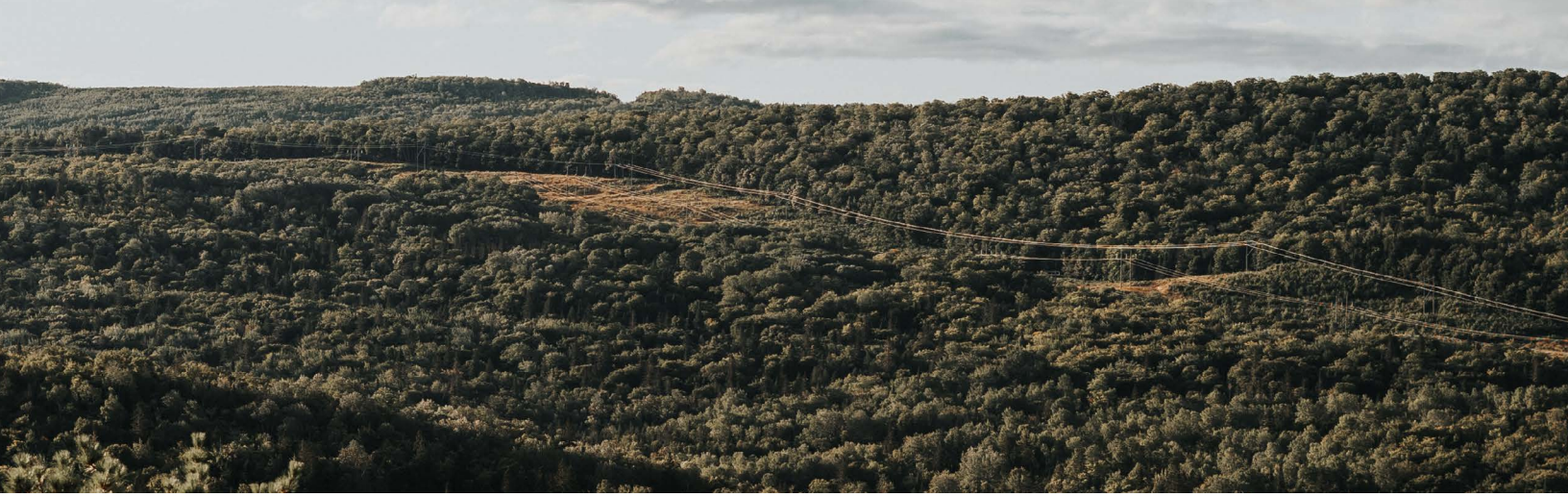

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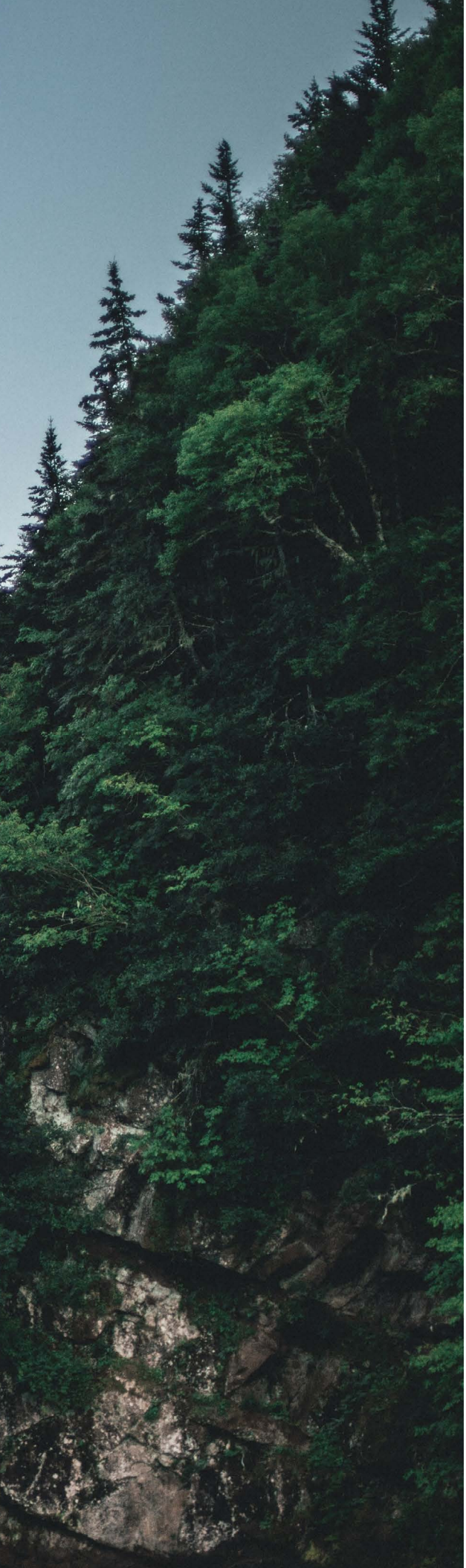
PURPOSE OF THIS REPORT

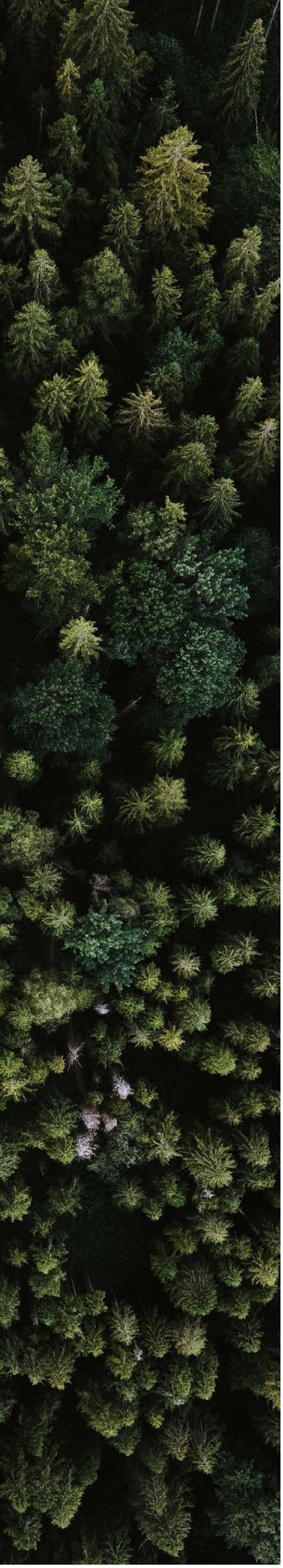
New Brunswick's *State of the Forest* report is designed to provide a comprehensive and up-to-date understanding of forest resources in New Brunswick.



This report is intended to provide easy-to-understand information using publicly available data about our forests and the forest management system in our province, along with examples of the environmental, social, and economic benefits provided to New Brunswickers. In addition, this report presents areas of innovation and advancement related to the sustainable management of our forests as a renewable natural resource.

By providing accessible and accurate information about the state of the forest, we hope to foster a greater appreciation of this vital natural resource and encourage public support for sustainable forest management practices. Our goal is to increase awareness and understanding of the importance of the forest and its management and conservation.

Each year, the State of the Forest report will represent a unique theme. Examples of themes are forest products and the forest industry, conservation, or climate change. Throughout the digital report, there are links provided for readers to find more information. You can also contact us at forests@gnb.ca to ask questions and suggest improvements. The feedback received will help the Department of Natural Resources and Energy Development (DNRED) while preparing future reports.



Minister's Message

I am pleased to release the New Brunswick State of the Forest Report on behalf of the Department of Natural Resources and Energy Development.

Our government is proud to be issuing an annual State of the Forest report. We are committed to creating more awareness and understanding among New Brunswickers of the state of our forests and how they are for everyone to enjoy.

Although it has changed dramatically over the last 200 years, forestry is still New Brunswick's largest industry, making up about five per cent of the total provincial economy and contributing more than **$1.5 BILLION** to the economy annually. New Brunswickers can also look forward to using the forest more than ever before to enjoy a variety of recreational activities, and we continue to learn about the many important benefits of biodiversity and ecological sustainability on our natural landscape.

The theme for this year's report is 'New Brunswick's Forest Management System.' It is a seven-pillar system used to guide the management of our forests.

I would like to thank the many people that contribute daily to the management of our forests; they are true professionals that use the latest science and state-of the art technology to ensure we have a healthy and well-managed forest for all New Brunswickers today, and for the generations to come.

This is an exciting starting point, and I encourage all New Brunswickers to read the report and learn about the great work being done with forest management in our province. I also encourage anyone with questions about any aspect of this report, or suggestions to improve future reports, to contact the Department of Natural Resources and Energy Development.

Our forests are for everyone, and I hope New Brunswickers will see all the ways in which the forest enriches our lives culturally, socially, and economically.

Hon. Mike Holland

MINISTER, NATURAL RESOURCES
AND ENERGY DEVELOPMENT

How to navigate this report

The theme for this year's report is 'New Brunswick's Forest Management System', which has seven pillars to guide the management of our forests. This system is described on page 14 and serves as a guide to navigate the report's main body.

	DESCRIPTION
SECTION 1	*About our Forests* introduces key topics to help better understand New Brunswick's private and public forests and their species, composition, and values. This section also introduces the importance of this natural resource to the Indigenous Peoples of New Brunswick.
SECTION 2	*The New Brunswick Forest Management System* introduces 12 components of our seven-pillar forest management system while addressing questions the department often receives about forest management. By answering these questions, this section provides a foundation to understand New Brunswick's Forest Management System, how the system works, and why each part of the system is important.
GLOSSARY & FACTS	Words in **bold** text can be found in the glossary at the end of the report. Several 'Did you Know…' and '*Key Facts*' are also distributed throughout this report.

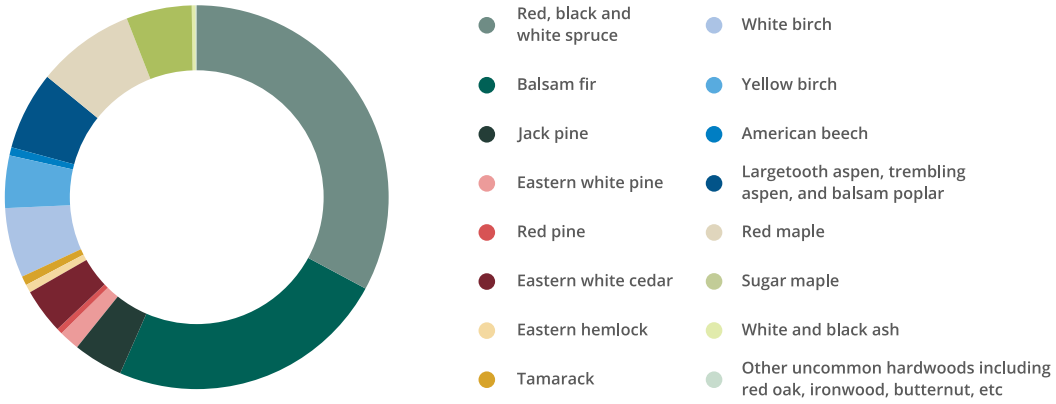
SECTION 1

About our Forests

1.1
TREE SPECIES

New Brunswick's forests contain over 20 tree species, which is remarkably diverse among Canadian forests given the province's small size. This diversity is a key trait of the Acadian Forest Region, where our forest is located. The Acadian Forest is recognized as a distinct and transitional zone between the boreal forest found to the north and the deciduous forest found to the west and south. About 68 per cent of our trees (as represented by tree volume) are softwood trees (**conifers**), while the remaining trees are hardwood (**deciduous**).

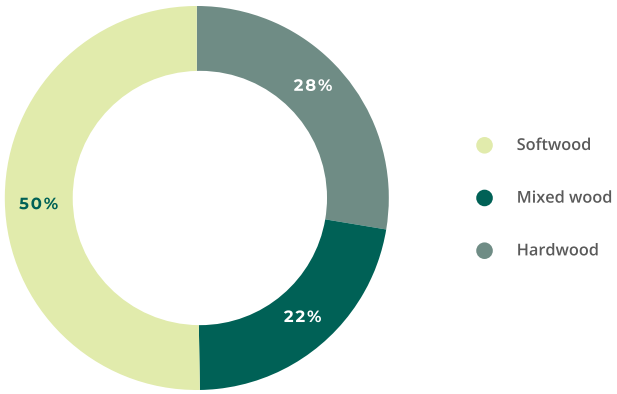
Tree Species growing in New Brunswick forests



1.2
FOREST COMPOSITION

New Brunswick's trees grow in **stands** of pure softwood, pure hardwood, and mixtures of both. These mixtures of tree species are influenced by **geophysical conditions** like soil and climate but are also influenced by disturbances like harvest, fire, and insects. The distribution of stand types in our forest is relatively predictable and is related closely to changes in soil, water availability, climate, and topography.

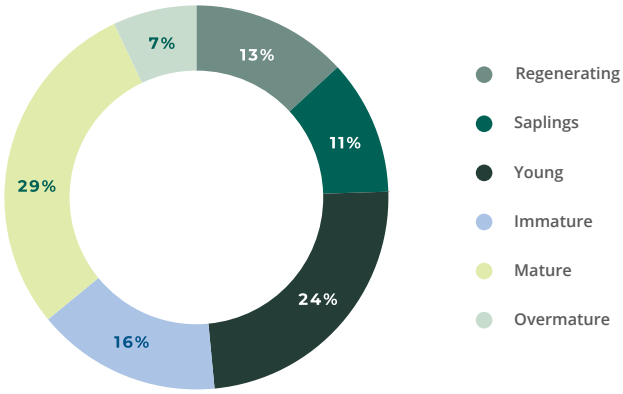
Stand types in New Brunswick forests



1.3
AGE DISTRIBUTION

The forests in New Brunswick are managed for many environmental, social, and economic values. Some values are found only in younger parts of the forest, and some are found only in older parts, and some are found where trees of a variety of ages exist together. To ensure values of importance are found dependably over time, the forest is managed to balance a relatively equal amount of tree volume across all age classes.

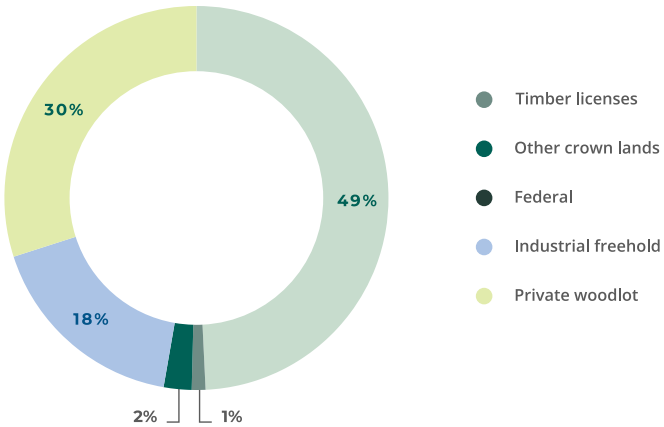
Stand age classes in New Brunswick forests

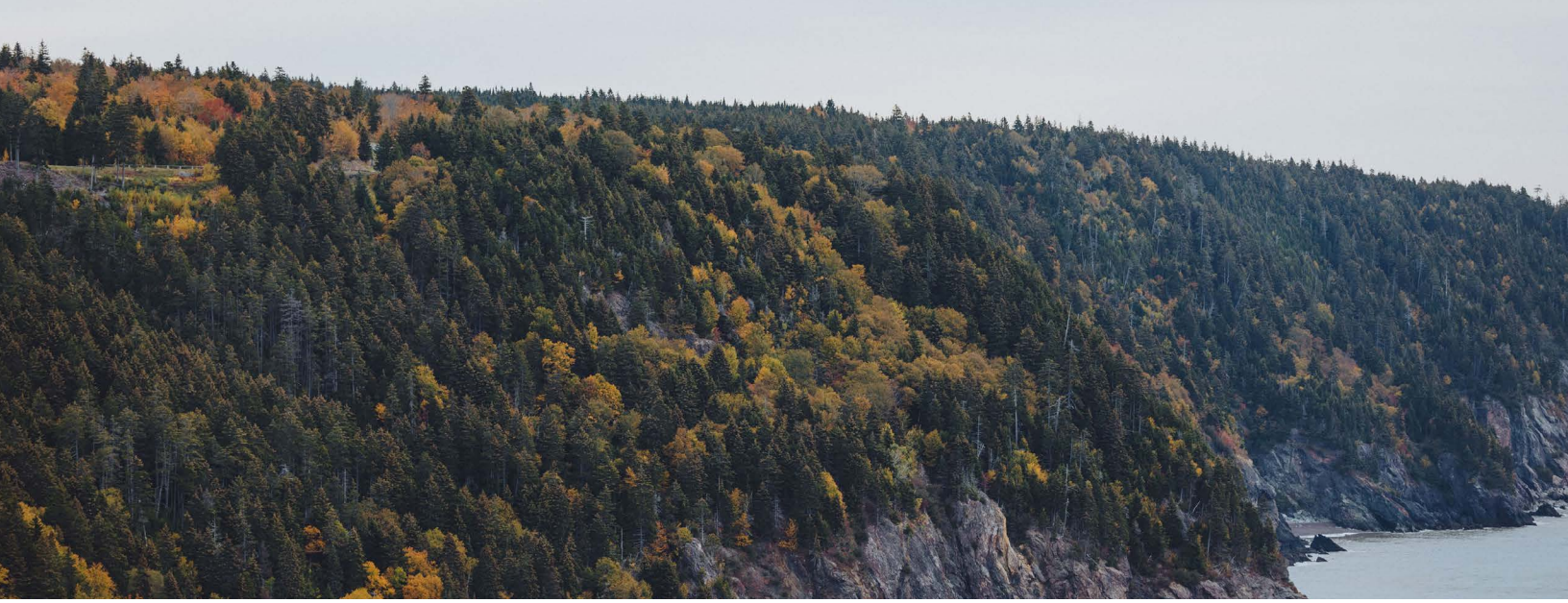


1.4
FOREST OWNERSHIP

New Brunswick is in a unique position where half of the forest is owned by the public as **Crown land**, and half is privately owned. Private forests are owned by individuals, families, and a variety of organizations. Privately-owned forests are categorized into **industrial freehold lands** (18 per cent) and **private woodlots** (30 per cent), with a small area owned by the federal government. Public land is dispersed around the province but is more prevalent in the northern half of New Brunswick. **Private woodlots** are concentrated along major river valleys, shorelines, and main travel corridors throughout the province. **Industrial freehold lands** are dispersed but mostly concentrated in the northwest.

New Brunswick's forest ownership





1.5
FOREST VALUES

Forests have been woven into the cultural and economic fabric of New Brunswick for generations. Rich in history, our forests provide different values for everyone. From food products like maple sugar to recreation, wildlife habitat, lumber, textiles, and high-value forest products, our forests have been the driving force of our social, economic, and environmental prosperity for centuries.

New Brunswick's forests provide countless outdoor recreational opportunities including hiking, boating, and birdwatching. In fact, 75 per cent of New Brunswickers enjoy some form of outdoor recreation.

Hunting and fishing are important parts of our provincial heritage and continue to be popular outdoor activities among New Brunswickers. About 20 per cent of New Brunswick residents take part in hunting and fishing, while more than 100 outfitting businesses and 3,000 guides support this industry in the province. These activities bring visitors from across North America and around the world.

The forestry industry has been an economic foundation in our province since the 1800s when rich **stands** of pine, spruce, and hemlock were harvested for timber, shipbuilding, and railroad construction both domestically and overseas. Although it has changed dramatically over the last 200 years, forestry is still New Brunswick's largest industry, making up about five per cent of the total provincial economy and contributing more than $1.5 billion each year.

Our ongoing mission is to ensure our forests are sustainably managed, and that these resources continue to exist in abundance for future generations while maximizing the positive impacts on ecosystem health and resilience. New Brunswick is the most heavily forested Canadian province, and the forest sector employs more than 24,000 people. Forest management activities including harvesting and **silviculture** happen each day in our forests thanks to hundreds of professional foresters, technicians, and skilled contractors. Several types of processing facilities and mills rely on one another to create a complex web of raw materials needed to create products such as lumber, paper, and tissue products.

When looking at all the ways in which the forest enriches our lives culturally, socially, and economically, it is clear that New Brunswick's forests are for everyone.

First Nations and Forests

The Mi'gmaq, Peskotomuhkati (Passamaquoddy), and Wolastoqey (Maliseet) Peoples, which are the Indigenous Nations in New Brunswick, have sustained their families and communities in New Brunswick for thousands of years. At the time of contact with European settlers they had vibrant cultures with economies based on the use and trade of plants, fish, seafood, and wildlife, supported by land and water networks connecting camps, villages, and spiritual places. Their relationship with the land has always been one of respect, reciprocity, and conservation of natural resources.

The Indigenous Nations in New Brunswick and the other Maritime provinces signed Peace and Friendship Treaties with Great Britain (the Crown) in the 18th century. Under these Treaties the Crown and Indigenous signatories agreed to co-exist peacefully and encouraged cooperation to help the British and other settlers establish lives in the Atlantic provinces and country we live in today.

To this day, the Peace and Friendship Treaties are the foundation of the relationship between Indigenous Nations, federal, and provincial governments. These treaties have been included in the Canadian Constitution since 1982. The Treaties protect the rights of Indigenous Nations to live on the land they have cared for since time immemorial. The Treaties protect the rights of Indigenous Nations to harvest natural resources to support their cultural, social, health, spiritual and economic wellbeing.

Treaties are signed on a nation-to-nation basis and the relationship is between the people of those respective nations. Therefore, we are all Treaty People. Let's all take our Treaty responsibilities seriously, respect differences in rights, celebrate our shared enjoyment of the lands, waters, and resources, and work as partners in protecting these precious natural resources.

SECTION 2

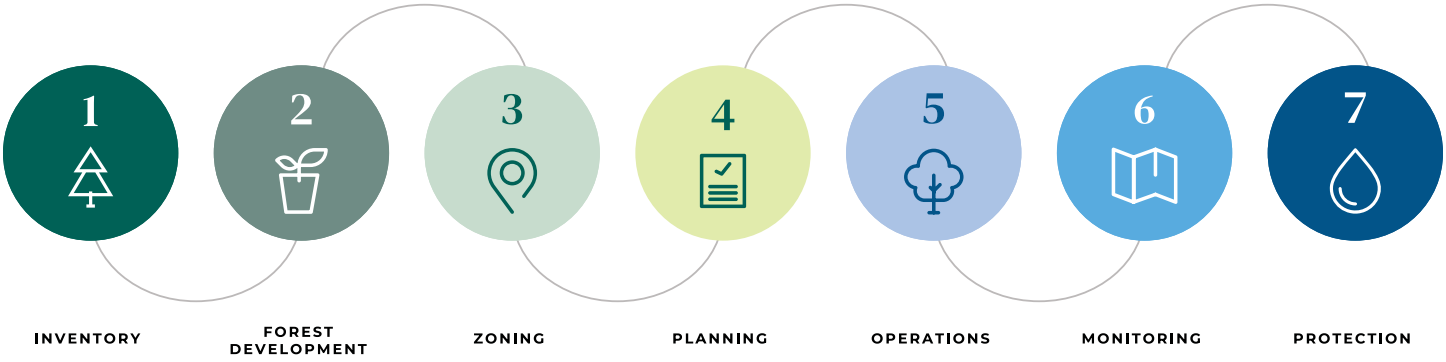
The New Brunswick Forest Management System

The sustainable forest management system applied to New Brunswick **Crown lands** was established in the early 1980s and has been evolving ever since. A long-standing commitment to science, technology, innovation, and continuous improvement has made the system adaptable to changing values and priorities over time.

The management system on **Crown lands** relies on thousands of people each year from government, **Crown timber licensees, Crown timber sub-licensees**, **First Nations**, contractors, truckers, many small businesses, and the public. The management system helps to sustain habitats for thousands of species, timber for 45 mills in the province, and a variety of recreational opportunities for New Brunswickers. This system utilizes seven key pillars that ensure its long-term sustainability and success. These pillars include:

1. **Inventory:** how do we know what's available in the forest?
2. **Forest Development:** how is the forest changing with and without management?
3. **Zoning:** what areas should be managed for what values?
4. **Planning:** what short and long-term actions should take place to sustain important values?
5. **Operations:** how do daily activities connect to the long-term vision for the forest?
6. **Monitoring:** are operations following regulations and management expectations?
7. **Protection:** how to ensure natural disturbances do not negatively affect important values?

Pillars of the New Brunswick Crown Forest Management System



The forest management system described above connects resource and conservation sciences, planning, social interests, industrial operations, and resource regulations. The system looks into the future to ensure actions taken today maintain or improve the long-term sustainability of the forest and its species. When an activity is taking place in the forest, we ensure that activity is informed by a system that uses an extensive inventory, long-term planning, and continued monitoring to ensure compliance with best practices and sustainability.

The following pages include examples from the current forest management system. For each of the pillars described above, one or more indicators will explain how that pillar works, why it is important for sustainability, and why it matters in the context of the broader forest management system. Each page is framed by a question that the department is often asked about forest management.

PILLAR 1

Inventory

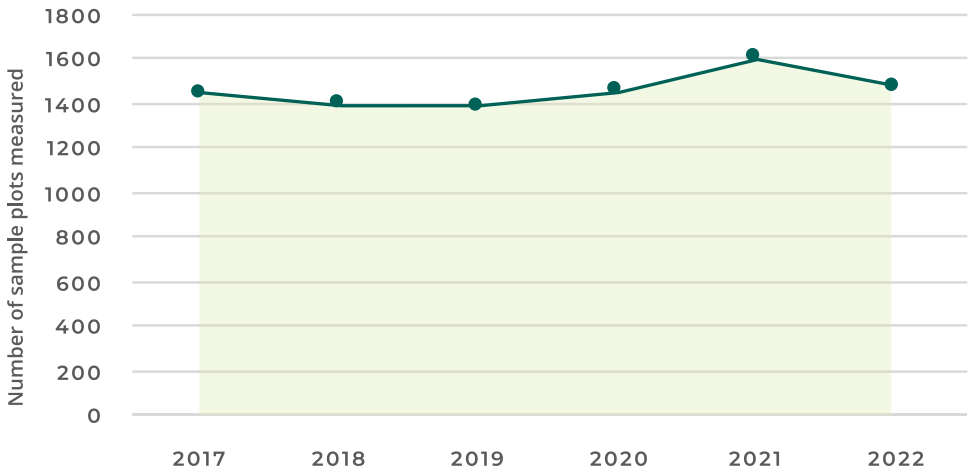
How do we know what's available in the forest?

How does the system work?

An accurate inventory of tree species in the forest is needed before responsible management can take place. Every year, we invest considerable time and money to improve the provincial forest inventory so that information about tree species, size, and age is current and as accurate as possible. This work is completed with tools such as satellite imagery, **LiDAR** (Light Detection and Ranging), and aerial imagery collected regularly across the province. In addition, DNRED implements a continuous landscape inventory field program where forestry professionals measure trees in over 1,000 sample ground plots each year.

This comprehensive inventory assists in the production of long-term forest management plans and helps guide decision making. Our inventory is also used to map water (such as rivers, lakes, and streams), wetlands, non-forested areas, and other important ecosystems.

Number of inventory sample plots measured by year



How do I interpret this indicator?

Ground plots, areas where trees are carefully measured to describe their size, growth, and health, are essential to understand the actual condition of our forest resources. Accurate inventory requires that we measure plots in certain areas of the province each year to ensure we keep up with changes in the forest. From 2017 to 2022, between 1,400 and 1,600 forested ground plots were measured annually by DNRED staff. At each plot, tree species, tree size, dead/dying trees, coarse woody debris, and regenerating trees are counted and measured. This program will continue long into the future to ensure a full understanding of the state of the forest resource, its ecological health, and its biodiversity.

Why is this important?

Sustainability is a key aspect of New Brunswick's forest management system, and a clear understanding of the current forest resource is critical to understanding and guiding what will be available in the future. The accuracy of New Brunswick's forest inventory is second to none in Canada, which not only helps us ensure the long-term availability of our forest resources, but also directs the management of many other values. For example, the measurement of **downed woody debris** on the forest floor has been added to this program to better understand habitat conditions in our forests, which then informs wildlife habitat management.

KEY FACTS

100- Wetland sites visited each year to describe local ecosystem function and health

100,000- Dead and alive trees measured yearly by DNRED staff in the continuous land inventory program

188,000,000- Enhanced forest inventory points used to describe height, diameter, density, and volume

DID YOU KNOW?

We have started using satellite imagery, acquired annually, to help us monitor activity in the forest.

This information supplements our other technologies like **LiDAR**, aerial imagery, and global positioning systems (GPS) to give us an extremely accurate image of our forests. Forest management is high tech!

Have thoughts on what you just read?

Contact us today! More information is available through the department's website and open-data portal.

PILLAR 2

Forest Development

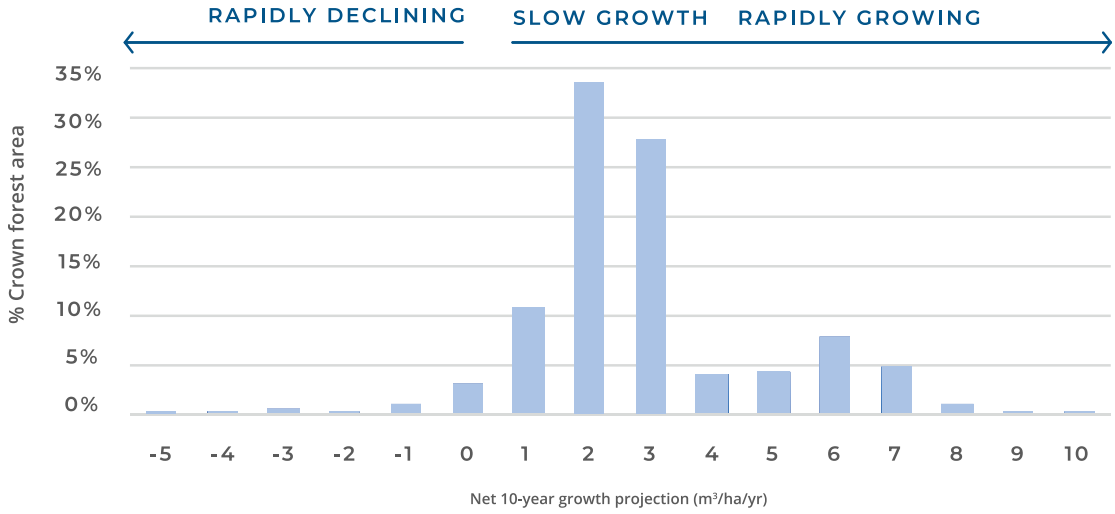
How much is the forest changing over time?

How does the system work?

Like inventory, understanding how the forest is changing over time is critical to developing sustainable forest management strategies. DNRED has maintained a series of 4,000 permanent tree growth research plots throughout the province over the last 40 years. The detailed data measured from these plots, coupled with data from over 16,000 plots from similar forests in the Maritimes and Maine, allows our foresters and biologists to understand how trees and forests are growing and changing over time. This data is used to develop **models** of tree, stand, and forest development to help predict and ensure the sustainability of forest resources for New Brunswickers into the future.

The department also uses remote sensing techniques, such as satellite imagery and **LiDAR**, to gather data on the forest canopy, topography, and other features. This data can be used to identify changes in forest cover, detect disturbances such as insect outbreaks or fires, and monitor forest health. Understanding how forests change over time is essential for ensuring that forestry activities are conducted in a way that minimizes negative impacts on the forest ecosystem and maximizes the benefits that forests provide to society.

Forecast change in forest inventory on Crown land over next decade



How do I interpret this indicator?

Management of the Crown forest over the past 30 years, including investments in **silviculture**, has resulted in a fast-growing forest today. Most forest area on **Crown land** is expected to experience a net growth in wood volume over the next decade (measured in **cubic metres** of new wood produced in the trees on each hectare of land over each year), with about 18 per cent of the total area experiencing rapid growth. In contrast, very little Crown forest area (less than two per cent) is expected to experience decline in the next 10 years, due to natural factors such as insects and diseases that could cause tree mortality over a wide area.

Why is this important?

Forests are dynamic ecosystems that undergo natural and artificial processes of development, disturbance, and renewal. These processes and **silviculture** can affect the structure, composition, and function of a forest, which, in turn, can impact its ability to provide ecosystem services such as timber production, **carbon sequestration**, and biodiversity conservation. By monitoring and analyzing these changes, forest managers can identify patterns, predict future trends, and implement management practices that promote forest health, resilience, and productivity. When growth, mortality, planned tree harvesting, planting, and thinning treatments are considered, the harvest of wood is less than the growth over the long term — one of the goals of sustainable forestry management.

KEY FACTS

3,500,000- Individual tree observations in tree growth plots measured since the 1980s

176,000,000- Metric tonnes of carbon estimated to be currently stored in the woody tissues (*roots, trunks, and branches*) of living trees across the Crown timber licenses

1.3- Millimeters of annual growth ring width produced by the average red spruce tree growing in New Brunswick last year (measured at breast height). *Some of the most vigorous trees grew by 2 millimeters!*

DID YOU KNOW?

On average, the productive Crown forest (three million hectares) is estimated to grow at approximately 3.1 cubic metres (m^3) each year on each hectare.

This means that every 10 years, almost one tractor trailer load of wood grows on every hectare!

Have thoughts on what you just read?

Contact us today! More information is available through the department's website and open-data portal.

PILLAR 3

Zoning

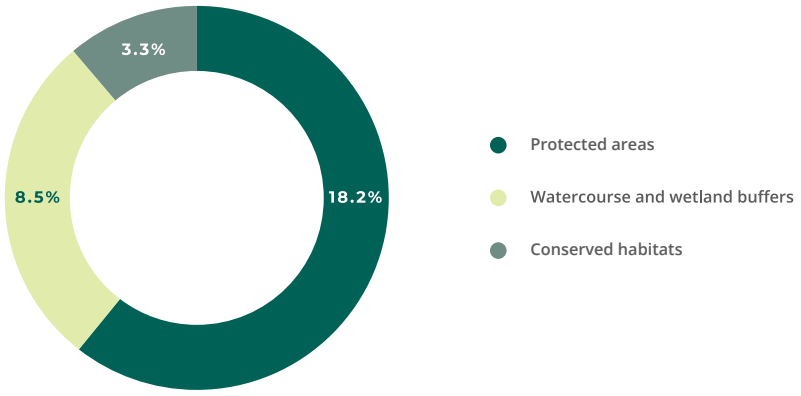
How much Crown forest is protected and conserved?

How does the system work?

Protecting the province's natural biodiversity and important ecological features requires allocating and conserving land to support species diversity and maintain the quality of both terrestrial and aquatic habitats across New Brunswick. By defining areas that contribute to the conservation of biodiversity, we can ensure these lands are managed sustainably.

Conservation goals in New Brunswick are met through a range of measures, including the establishment of **protected areas**, the implementation of conservation programs, and partnerships with **First Nations** communities, private landowners and other stakeholders. To identify areas that will maintain biodiversity across the forested landscape we use the current landscape inventory, how the forest is changing over time with and without human interference, and science related to which species use which areas. For example, some conservation goals are best met by setting aside areas with specific characteristics, like **riparian buffers** on streams or areas containing old forest. Meeting conservation goals in New Brunswick requires a collaborative and coordinated approach, involving a combination of policy, regulatory, and partnership-based measures.

Percent of Crown forest conserved



How do I interpret this indicator?

Currently, on **Crown lands**, approximately 30 per cent (907,000 **hectares**) of the forest area is designated with the primary objective of conserving biodiversity. **Protected areas**, such as provincial parks, protected natural areas, and the almost 400,000 ha of newly created Nature Legacy protected areas make up 18 per cent of **Crown land** and are typically large areas that represent the diverse habitat and landscape of the broader New Brunswick ecosystem. In addition to the **protected areas**, there are watercourse and wetland buffers (nine per cent of **Crown land**) which provide important connectivity and dispersed conservation areas across the landscape. Deer wintering habitats, old forest wildlife habitats, and site-specific habitats like **vernal pools**, raptor nests, and bear dens are contained within these **protected areas**, but also make up an additional three per cent of **Crown land** where they exist outside of **protected areas**.

Why is this important?

Since the 1980s, the department has made conservation of wildlife and aquatic habitats a part of forest management planning. The identification and management of these habitats help to ensure long-term sustainability and progress towards the goal of maintaining biodiversity and important populations of wildlife. Having accurate inventories and a strong understanding of how the forest is changing allows the department to monitor wildlife habitats and better understand the impacts of climate change. Zoning the forest to explicitly account for these values increases the department's confidence in the long-term maintenance of biodiversity in New Brunswick's forests.

KEY FACTS
100- Distance in metres used to buffer bald eagle nests from forestry operations
186,000- Number of known locations in New Brunswick where species of conservation concern have been mapped
10%- Area of provincial land and freshwater that has been legally protected for future generations

DID YOU KNOW?

Over 900,000 hectares of Crown forest land across New Brunswick are conserved and protected today and for future generations.

That's equivalent to over 1.5 million football fields!

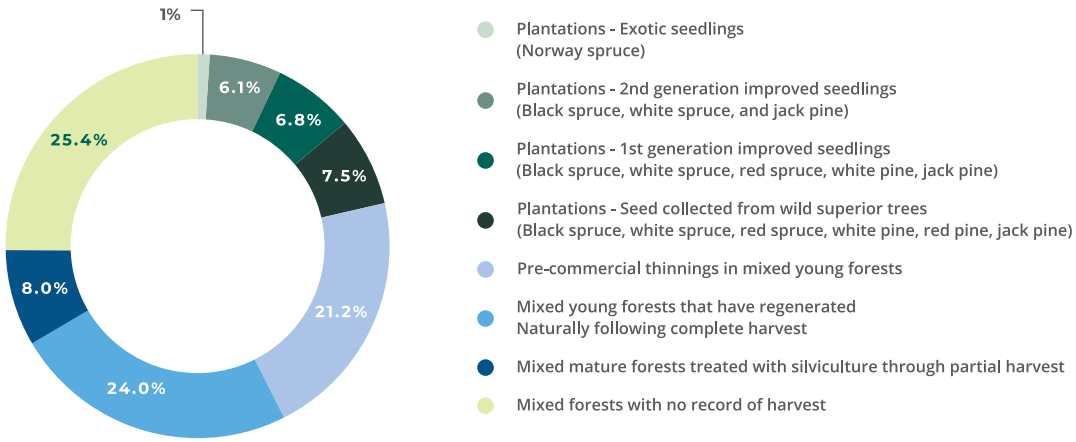
What are the values being provided outside conservation areas?

How does the system work?

Forest outside the areas that are primarily managed for conservation is referred to as the **working forest**. This is the primary place where management activities happen. While timber production is a significant aspect of forest management in the province, the **working forest** is also managed for a range of other values, including wildlife habitat, recreation, water quality, and **carbon sequestration**. New Brunswick's *Crown Lands and Forests Act* specifies that the province's forest resources are to be managed in a sustainable manner that promotes the long-term ecological, economic, and social well-being of the province, considering a wide range of values and interests. This means that long-term forest management plans are designed to balance the needs of various stakeholders and to promote the sustainable use and protection of forest resources for current and future generations. Annual **operating plans** are subsets of the plan to ensure everyday practices are aligned with the long-term vision for the forest.

Even in areas that are not allocated for conservation purposes, forest management is subject to regulations, policies, and certification requirements which influence harvesting and **silviculture** practices. Examples include low-impact **selection harvesting** in some areas and selective use of herbicides based on the landscape and species. The result of these management activities is a **working forest** that is remarkably diverse and can produce many distinct products (such as lumber, panelling, and paper) while still providing environmental benefits.

The gradient of management intensity in the working forest



How do I interpret this indicator?

In New Brunswick, mature forests, naturally regenerating forests, and plantations are all important in the sustainability of wood supply and ecosystem health. This summary focuses on providing details about the **working forest**, which is managed with a focus on sustainable timber production but also includes a variety of other forest values and objectives. Most of the **working forest** (79 per cent) is made up of **stands** that are regenerated through natural processes and consist of a diverse mixture of tree species. Only 21 per cent of the **working forest** on **Crown land** was established through tree planting, beginning with efforts decades ago to collect seed from wild superior trees. Seedlings that are planted today have benefitted from several generations of controlled breeding at our tree orchards to produce trees that are well adapted to a changing climate.

Why is this important?

Even within the **working forest**, forests are sustainably managed for a wide variety of values. For example, designated drinking watersheds are protected by limiting the size of clear-cut areas to less than 25 **hectares**. Instead, forest managers use alternate methods of partial harvesting in their **operating plans**; particularly where long-living and high-value species such as sugar maple, yellow birch, and red spruce are present. Areas of recreational use, cultural, or conservation value are also considered in managing the forest for people and species to continue to enjoy. In the big picture of sustainable forest management across the province, the goal is for balance to be achieved for the environmental, social, and economic values, not just for today, but for future generations.

KEY FACTS
78- Number of municipal watersheds and wellfields with special operating rules for forestry
80- Percentage of harvested areas that are left to regenerate naturally
3.7 million - Litres of maple syrup produced in New Brunswick in 2022. For comparison, an Olympic-sized swimming pool holds 2.5 million litres of water

DID YOU KNOW?

The forest industry supports 45 sawmills and papermills, providing an economic foundation for several rural communities across New Brunswick.

These mills range from small family-owned businesses manufacturing specialty products to large globally competitive industrial facilities!

Have thoughts on what you just read?

Contact us today! More information is available through the department's website and open-data portal.

PILLAR 4

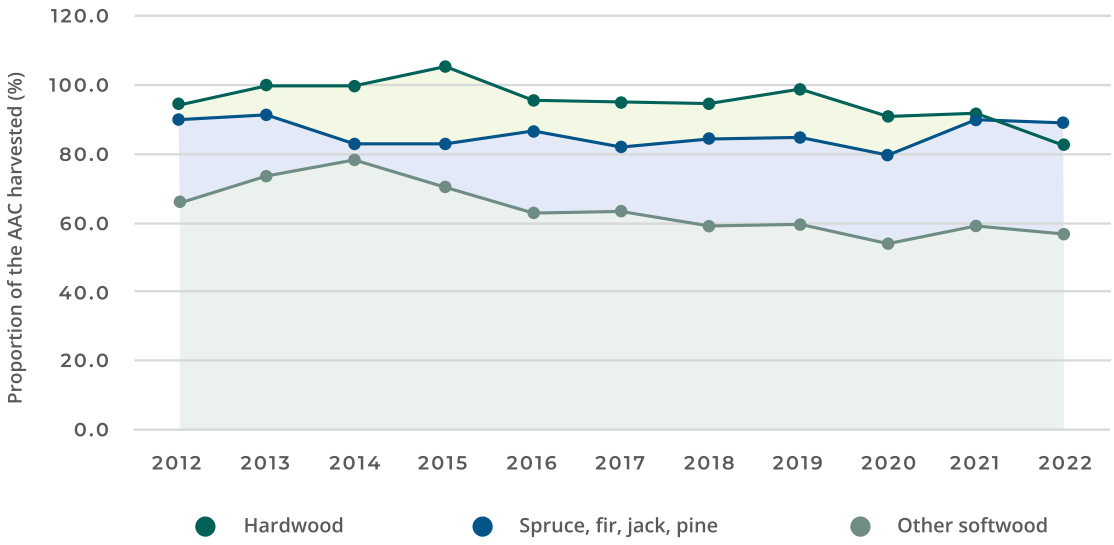
Planning

How do you ensure the long-term availability of timber?

How does the system work?

Harvesting on **Crown lands** is guided by a 25-year forest management plan that considers and forecasts the abundance of environmental and societal values, natural biodiversity, and economic benefits over an 80-year period. The management plan considers the current inventory, forest change, and land allocation for different forest values, and defines a sustainable **annual allowable cut (AAC)** for the **working forest**. These plans are reviewed and updated every five years with new inventory data, science, and consideration of forest values. Annual **operating plans** are approved for harvest areas identified in the long-term management plan. This means that each harvest that happens on **Crown land** is approved based on the 80-year view of resource availability. Our strategies adapt and change over time, as the latest information and technologies become available, to best protect our resources, ecosystems, and the places people value.

Harvest volume as a proportion of long-term sustainable harvest



How do I interpret this indicator?

All harvested timber on **Crown land** is measured, tracked, and reported to the department so that harvest levels do not exceed the **annual allowable cut** (AAC). Over the past 10 years, harvest levels in the province have remained at or below the AAC for all species groups. Softwoods, like cedar and white pine, have remained between 60 and 80 per cent of the AAC. Spruce-pine-fir has remained in the 80 and 90 per cent range of the AAC, and hardwoods have been harvested at or near the AAC.

Why is this important?

Establishing annual allowable harvest levels is vital to ensuring the long-term sustainability of our forest resources. Continuing to understand and monitor the availability of timber long into the future allows the department to plan the future management of **Crown lands** and other sources of timber, including **private woodlots** and **industrial freehold lands**. By tracking and monitoring actual harvest levels, natural changes in the forest, and using new science and technology, forest managers are able to adjust plans and forecasts as new information becomes available to ensure sustainability. A significant investment of time and money is made to ensure that when a harvest does take place, it is part of a long-term view and plan.

KEY FACTS

170,000- Number of truckloads of wood harvested from **Crown lands** each year

80- Number of years in the future that wood supply sustainability is forecasted for in forest management plans

840- Typical number of samples measured by licensed scalers annually at New Brunswick mills to ensure accurate accounting of harvested volume

DID YOU KNOW?

New Brunswick is a leader in long-term modelling of forest resources.

The Department of Natural Resources and Energy Development was one of the first resource management agencies in the world to implement software such as geographic information systems and forest estate **models** that are now used as standard practice in forest management across the globe!

Have thoughts on what you just read?

Contact us today! More information is available through the department's website and open-data portal.

PILLAR 5

Operations

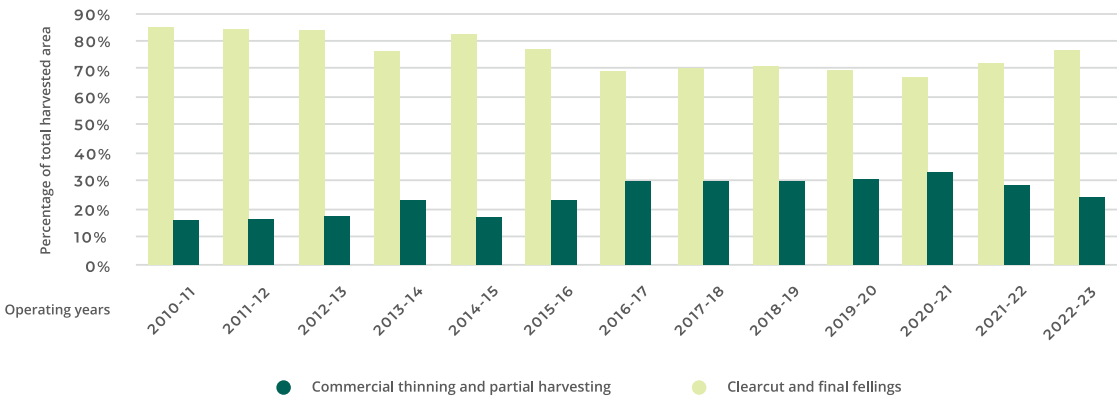
What is the balance between clearcutting and other harvesting practices?

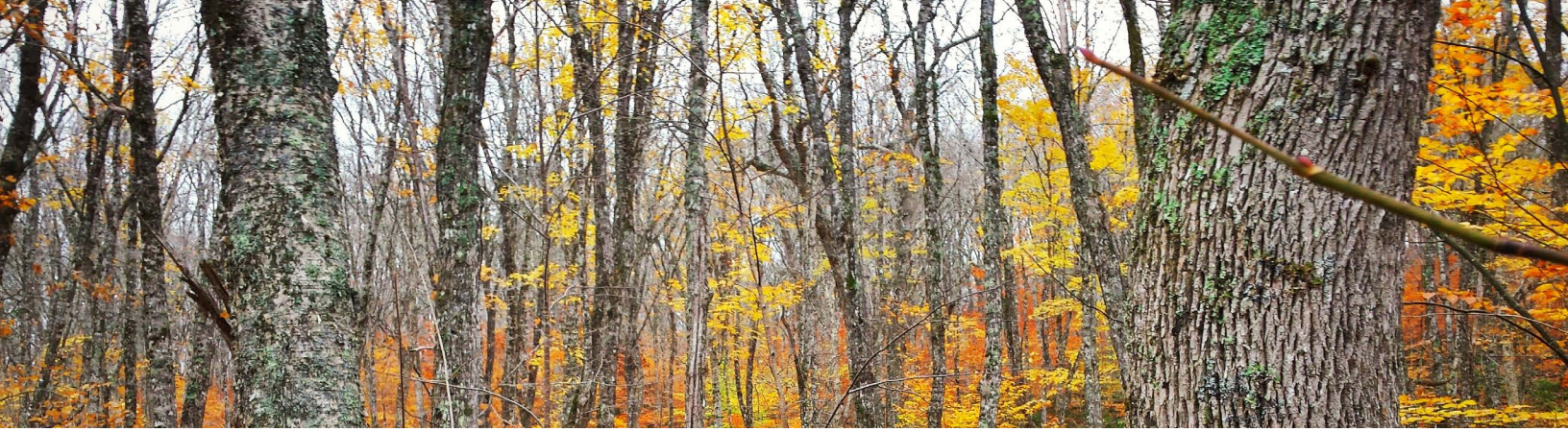
How does the system work?

Harvest blocks in the **working forest** are part of the long-term management plan and are approved as part of annual **operating plans**. The design of these **harvest blocks** considers several environmental objectives, terrain, and the planned regeneration of the site. Clearcutting, if used strategically, is a harvest treatment that replicates natural disturbances such as fire or insects that impact an entire stand at once. It can also be a good forest management tool for certain forest types, as it can promote the regeneration of shade-intolerant tree species and create young forest habitats for wildlife that depend on these conditions.

Partial harvests that leave a portion of the tree canopy intact are also common and can provide shade for other species, wildlife habitat, and promote natural regeneration. Because of lower levels of removal, partial harvests are less visible across the landscape. In New Brunswick, many of our forest **stands** are dominated by species that are not long-lived or stable in high winds and are also made up primarily of trees near the same age that are therefore ready to harvest at the same time. Despite the harvest type, before a harvest block is laid out and harvesting commences, the inventory, forest change, zoning, and long-term sustainability have all been considered.

Harvest systems used on Crown land over time





How do I interpret this indicator?

Clearcutting and natural regeneration as a **silviculture** regime represent between 70 and 80 per cent of all harvest areas on **Crown lands** whereas partial harvests represent between 20 and 30 per cent of harvest areas. Although the amount of clearcutting on **Crown land** is still higher than partial cutting, the amount of harvesting with clearcutting is decreasing over time. Over the last 10 years, the proportion of clearcutting has decreased by 13 per cent while partial-cutting treatments have increased proportionately. By better understanding the forest conditions, forestry professionals can now identify areas suitable for partial harvesting. These areas are harvested to regenerate trees that prefer shade or to increase the value of the remaining standing trees. Our management practices are evolving over time and continue to improve.

Why is this important?

The long-term management plan considers the balance between clearcut and partial-cut harvesting based on species composition, stand structure, wood supply demands, and conservation objectives. Although clearcuts stand out visually on the landscape, they are part of a larger sustainable management plan and will continue to provide forest values and objectives over time. When properly managed, forests are a renewable resource, and the regeneration of all harvested areas is a management objective in the **working forest**. Regeneration and an increase in forest value start immediately after harvest in both clearcut and partially harvested blocks. The cycle and balance of forest health, economic value, and social significance is ongoing, evolving, and adapting.

KEY FACTS

1.5- Percentage of the Crown forest harvested each year

15- Varieties of selection harvesting in the Northern Hardwood Research Institute's silvicultural prescription system app, which is used to help guide management in hardwood forests

29 **hectares**- Average clearcut size on **Crown land**

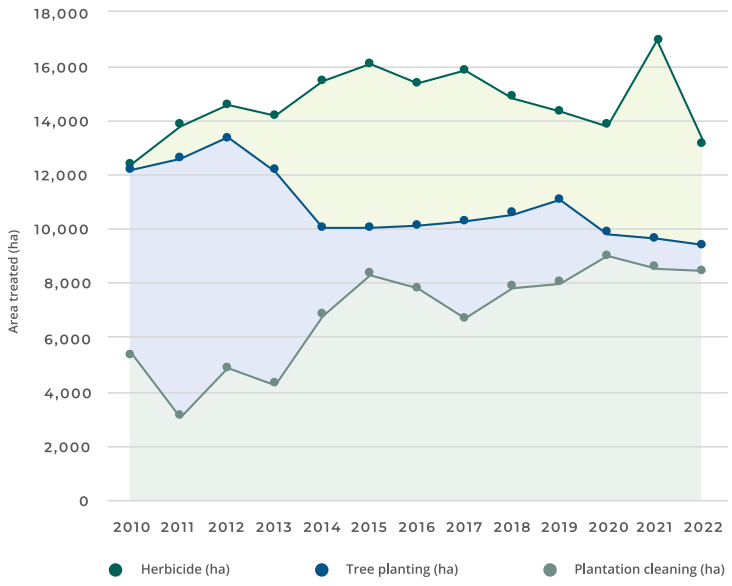
How much area is planted and treated with herbicide each year?

How does the system work?

In the **working forest**, some clear-cut areas that are exhibiting poor natural regeneration after harvest get planted with nursery-grown seedlings at a density that is ideal for growth and high-quality **sawlog** production. Herbicide application in forestry practices can help control competing vegetation in these areas and promote the growth of desirable tree species. It is used responsibly, and with appropriate safeguards to minimize any potential harm to non-target species and the environment. Properly conducted herbicide applications can target specific plants while minimizing the impact on other vegetation and wildlife.

Careful application techniques and adherence to government regulations prevent negative impacts of herbicide use on the environment and non-target species. By spacing planted seedlings in a strategic way, and reducing or removing competing vegetation with approved herbicides, planted **stands** can obtain up to four times the growth of naturally regenerating **stands** whose densities are not managed. These **stands** are often thinned at ages 10 and 25 to promote the growth and production of high-quality **sawlogs** within 40 to 50 years. Treatment of planted forest areas in the **working forest** is part of the long-term management planning process, that considers growth, inventory, the environment, and the species that use the forest as their habitat.

Silviculture treatments within the Crown working forest over time



How do I interpret this indicator?

Over the last 10 years, an average of 10,300 **hectares** have been planted each year on **Crown land**. On average 15,000 **hectares** of these plantations have controlled herbicide applications applied each year. In any given year, less than one-half of one per cent of **Crown land** is subject to planting or controlled herbicide application. The total accumulated area of plantations on **Crown land** today is about 16 per cent of the Crown forest. As the rate of tree planting today exceeds the rate of harvesting mature planted trees, the proportion of plantations on the landscape is expected to grow over the next decade to cover 20 to 25 per cent of the Crown forest.

The herbicides used in treatments in New Brunswick to achieve the desired growth objectives are registered by the Pest Management Regulatory Agency, a branch of Health Canada. Their use is further regulated under the authority of the provincial *Pesticides Control Act* and regulations administered by the Department of Environment and Local Government (DELG).

These herbicide treatments have several control measures in place to ensure that only the targeted sites are impacted by limiting the use of herbicides adjacent to watercourses (including rivers, lakes, streams, municipal water sources, etc.) and private boundaries.

These treatments have several operational controls and restrictions which contribute to safe and effective operations including block signage, landowner and public notifications, access control, onboard GPS navigation, automated flow controls, low-drift nozzles, equipment calibration, wind speed limitations, and training and certification requirements of permit holders and applicators.

While herbicide is an effective means of controlling woody and herbaceous vegetation during the first few years following tree planting, it does not replace the need for manual plantation cleaning with brush saws as the trees grow taller. In fact, investments in annual plantation cleaning have increased steadily over the past decade, which is partly responsible for the segment of rapidly growing forests displayed earlier in this report.

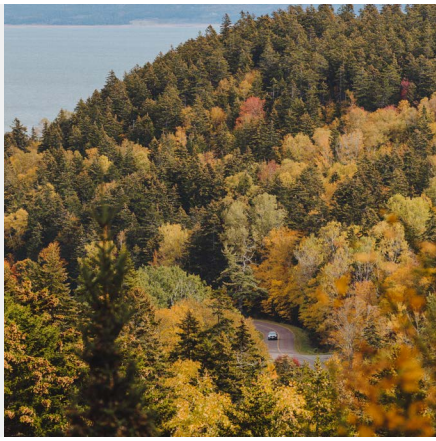
Why is this important?

The annual tree planting program is an investment for the future of the **working forest** in New Brunswick. The number of **hectares** planted each year is prescribed by the long-term forest management plan, which considers the balance of tree species in the forest, the required habitat for animal species, and the interest in maintaining the long-term sustainable wood supply. Planting and caring for tree plantations allow higher volumes and quality of trees to be grown in shorter time periods on a smaller area, which puts less pressure to grow timber on other valuable parts of the forest, protecting wildlife and significant habitats into the future.

KEY FACTS
210 million- Seedlings committed to being planted in New Brunswick by 2030
90- Summer employees at the province's tree nursery in Kingsclear
600- Number of **silviculture** workers on **Crown land** each year

DID YOU KNOW?

DNRED has partnered with the Northern Hardwood Research Institute (NHRI) to further research on the development and management of the hardwood resource in New Brunswick. The NHRI is a recognized innovation hub that is focused on finding effective solutions to pressing forestry issues. This partnership has resulted in the development of several hardwood management tools, including the institute's cornerstone silviculture prescription system.



Is the Crown forest an important economic driver in the province?

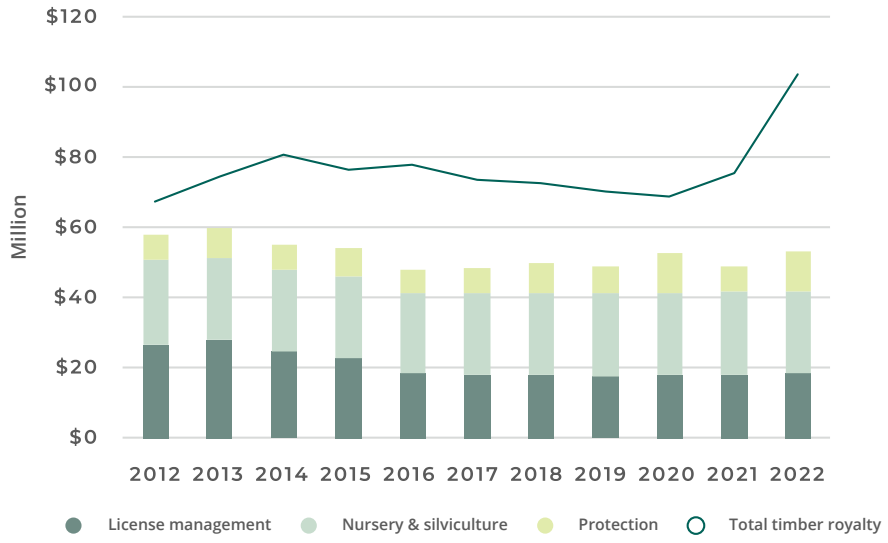
How does the system work?

The goverment generates revenue from the sale of timber. This revenue is referred to as timber royalties. Anyone who cuts Crown timber must pay timber royalties. Harvested wood is tracked, scaled, and reported to the department so accurate payments can be made. The value placed on timber on **Crown land** is based primarily on the sale of wood from **private woodlots** in the province. Revenues to the government are also generated from taxes earned from the many people and companies harvesting, trucking, and consuming timber on **Crown land**. The costs associated with forest management are relatively stable and include **silviculture**, **license management**, fire and pest protection, and department staff who work with the sector.

How do I interpret this indicator?

Revenue from Crown timber royalties has averaged $73 million per year, with a large increase in 2022 due to a change in royalties to capture a surge in commodity prices. The major costs to the department related to Crown forest management include **silviculture** spending, nursery costs, **license management** services, and fire and pest protection. Annual **silviculture** spending and nursery costs have remained relatively stable at about $23 million. However, payment for **license management** services has been reduced by almost $10 million dollars over the last 10 years from around $27 million to approximately $17 million. The department compensates licensees to conduct numerous management services on its behalf, including building and maintaining main forest roads that are used by the public and other industries, collecting harvested wood information, collecting timber royalties from mills, and producing plans and reports. Protection from fire and insects costs between approximately $7 and $12 million per year. In addition, DNRED staff work on many projects and programs within our forests that are not associated directly with producing timber royalties; an estimate of staff costs for generating timber is $3.5 million annually. Through analysis of Statistics Canada data, the tax benefits to the government from the harvest, trucking, and consumption of Crown wood is approximately $220 million in tax revenues over-and-above timber royalties.

Crown timber royalties and major costs over time



Why is this important?

Not all costs related to the Crown forest resource go towards generating revenue. Many of the department's costs are associated with programs that positively impact the forest, the environment, and wildlife on both Crown and private lands. The Crown forest is an incredible financial asset that produces revenue each year. The economic activity required to support forestry activities is an important economic driver in many rural communities and in the province as a whole.

KEY FACTS

24,000 people- Employed by the forest industry, making it one of the largest employers in the province

$2.8 billion- Value of wood products exported from the province in 2022

DID YOU KNOW?

The forest sector contributes more than $1.5 billion annually to the economy and is supported by hundreds of large and small businesses.

Have thoughts on what you just read?

Contact us today! More information is available through the department's website and open-data portal.

PILLAR 6

Monitoring

How are industry activities monitored and regulated in the forest?

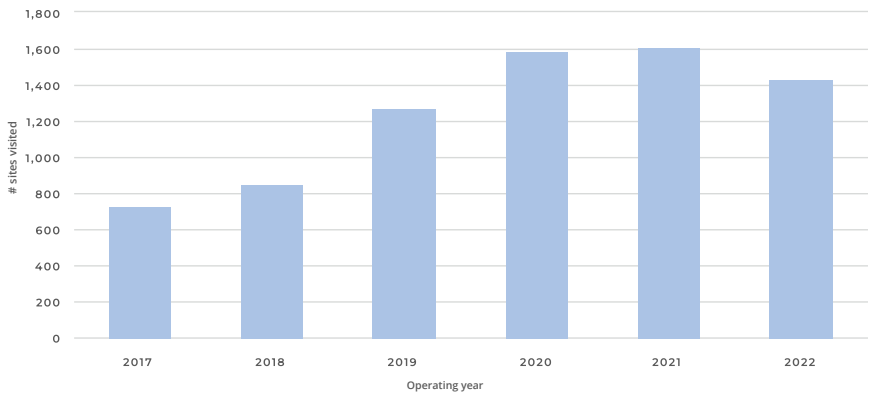
How does the system work?

Forest operations on **Crown land** work under a system where all operators are held accountable for specific and measurable results and where performance is formally evaluated regularly. This framework includes specific performance measures that are used to evaluate the effectiveness of forestry operations, such as the protection of water quality, maximizing the value of harvested trees, and the conservation of wildlife habitat.

Department staff work closely with the industry to monitor and track operations and outcomes. Ensuring outcomes are being met requires consistent and targeted on-the-ground monitoring by department staff where data is collected and analyzed to identify trends and recurring issues, and processes are in place to ensure the system and results are continuously improving. Forestry companies are also required to submit annual reports to DNRED that detail their activities, including harvesting levels, regeneration efforts, and compliance with regulations and guidelines. The department conducts audits of these reports to ensure that the forestry industry is following all the laws and regulations.

The province has established a Crown Lands Monitoring Program, which uses a combination of on-site inspections, remote sensing technologies, and stakeholder engagement to monitor forestry activities on **Crown lands**. This program is used to assess the sustainability of forestry operations and to identify areas where improvements are needed. Through these measures, the New Brunswick government ensures that the forestry industry is following all the rules and that forest resources are being managed in a sustainable and responsible manner.

Total number of operations sites assessed



How do I interpret this indicator?

In 2022, forest operations performance checks were completed on approximately 1,400 sites across **Crown land** by department staff. A team of nearly 30 forestry professionals regularly monitors many aspects of forest operations to ensure that regulations, policies, and **operating plans** are being followed. The system is designed to identify issues, track, and report results, and promote continuous improvement. The field checks assess the implementation of a wide range of environmental, economic, and social management objectives for Crown forests. The number of recorded checks has steadily increased since the program was established in 2017 through a variety of internal efforts to become more efficient and effective in the way department staff conduct their work.

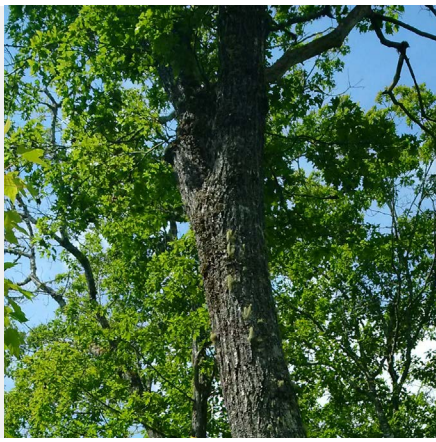
Why is this important?

Field checks by department staff ensure that operations are in line with the expectations and that issues are being identified and corrected. These checks have shown that preventative and compliance action plans have been implemented when needed and that continuous improvements have occurred in the **working forest** over time. Independent third-party audits, by international forest certification organizations such as the Sustainable Forestry Initiative, are also conducted annually to certify that operations follow internationally recognized forest management standards as well.

KEY FACTS
277- Number of registered professional foresters in New Brunswick
28- Average number of third-party audit days on Crown land
25- Forestry professionals from DNRED working each day with the forest sector to ensure continuous improvement in forest operations

DID YOU KNOW?

The public can access information on monitoring activities through DNRED's website, which includes annual reports, maps, and other data related to Crown land management and monitoring.

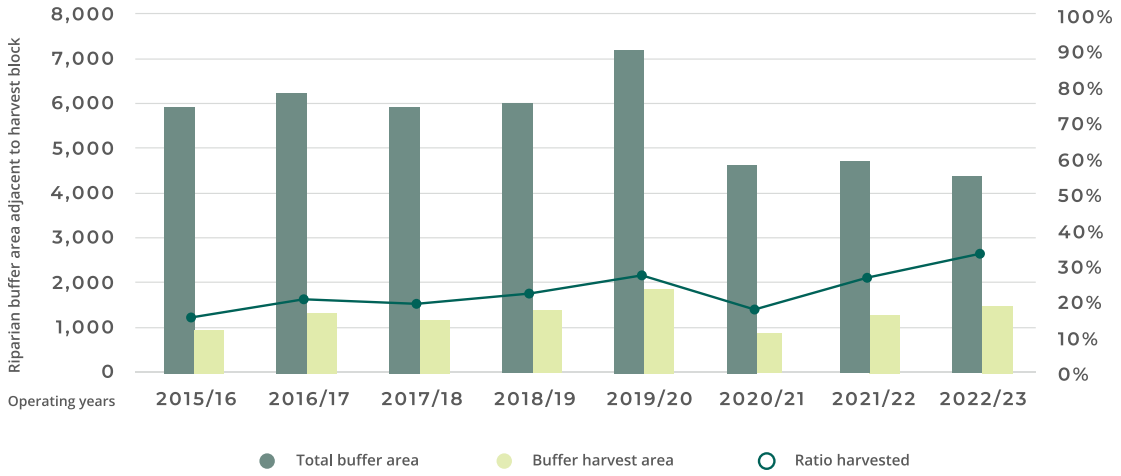


Are our water and the species that depend on it protected?

How does the system work?

Protecting water bodies is a primary focus during forest management activities. Certain water features are protected through zoning during management planning, whereas other areas are set aside for conservation and permanent protection. When forest operations take place near watercourses or wetlands, operations are carefully planned, regulated, and monitored. Strict rules are in place to protect these natural resources and habitats, and these rules have been set by DELG. DNRED also maintains additional standards and **best management practices** for working near water on **Crown land**. All watercourses and wetlands are mapped, and a **riparian buffer** is left to protect water quality and aquatic habitat and its species. To ensure accuracy during harvest operations, the location of **riparian buffers** is visibly marked in the field and provided digitally to the machine operator using technology with an onboard GPS.

Buffer area harvested vs available buffer harvest area



How do I interpret this?

The *Clean Water Act* sometimes allows for harvesting in buffers where a portion of the trees can be removed, and soil disturbance can be prevented. These removals are allowed only when the natural integrity and purpose of the buffer can be maintained. Because these natural watercourse features are so valuable, most forested watercourse and wetland areas that are adjacent to or within **harvest blocks** do not get harvested and are instead protected for the long term. The proportion of eligible **riparian buffer areas** that undergo **selection harvesting** is approximately 20 per cent.

Why is this important?

Watercourses are abundant in New Brunswick forests, so it is important that measures are in place to protect water quality and aquatic habitat as part of the forest management process and during forest operations. Accurate inventory, proper zoning, conscious operational planning, clear regulations, **best management practices**, knowledgeable forestry professionals, compliance monitoring, and ongoing research are all important tools to protect our water and the species dependent on it.

KEY FACTS

8,000- Named and unnamed rivers and streams, covering about 100,000 kilometres, exist in New Brunswick

64,792- Fishing licenses sold in 2021 in New Brunswick, including both resident and non-resident licenses

30%- Percentage of harvest removal allowed under the *Clean Water Act* for buffer harvests in New Brunswick

DID YOU KNOW?

The department has partnered with the Canadian Rivers Institute at the University of New Brunswick to conduct research on our province's waterscape.

Research findings will help to inform management decisions aimed at protecting water quality and quantity in the forest.

MONITORING

Have thoughts on what you just read?

Contact us today! More information is available through the department's website and open-data portal.

PILLAR 7

Protection

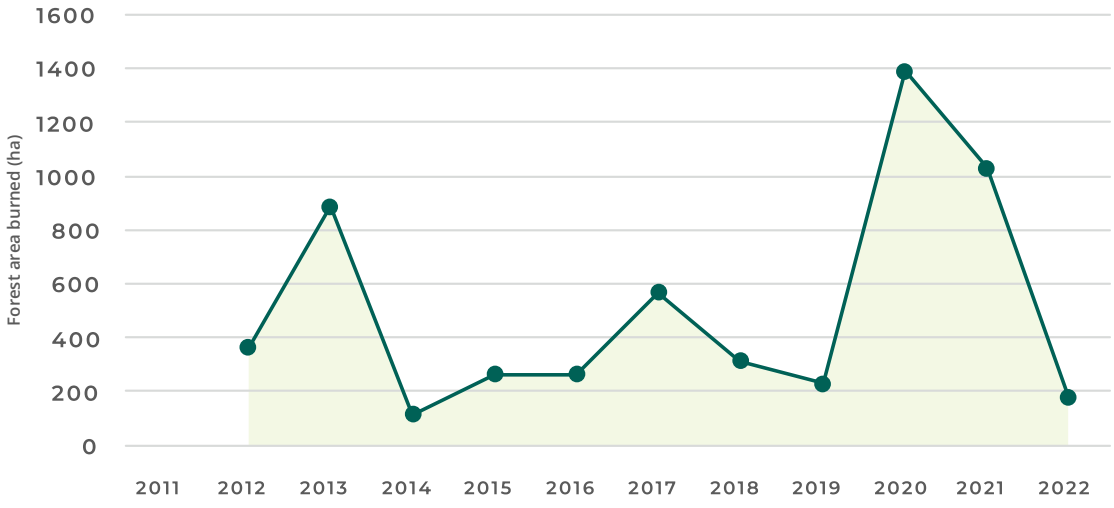
How much forest is damaged by fire each year?

How does the system work?

The prevention and management of forest fires is an important part of sustainable forest management. Forest fires have a significant impact on the overall health of the forest as they can destroy large tracts of forest if left uncontrolled. The department invests considerable resources in preventing losses to fire, including making sure aircraft, personnel, and equipment are available for immediate response to forest fires. Provincial staff are expertly trained to respond to and manage forest fires. Emerging technologies such as thermal scanning with remotely piloted aircraft are becoming more common and the province is committed to staying up-to-date on technological advances to maintain our forests and public safety.

The department maintains data related to forest fires that have occurred in the province with a system called the Wildland Fire Reporting System. This system contains data related to each fire, such as fire size, dates, time of day, weather, number of responding staff, and equipment used. This data is key to interpreting fire trends, guiding training and national reporting. The fire management program is under constant review to improve New Brunswick's response to forest fires.

Annual forest area burned



How do I interpret this?

The department aims to minimize the number and size of forest fires that occur in New Brunswick. Every forest fire within the province is tracked and studied. The two main indicators are the annual number of fires and the total area burned. This data gives us a broad view of how the fire management program is performing, and improvements we might need to make. On average, over the past 10 years, New Brunswick has seen approximately 200 fires with 340 forested **hectares** burned annually. In 2020, with the extremely dry weather and low rainfall, that number increased to 462 fires and 1,389 **hectares** burned.

Why is this important?

New Brunswick has a highly successful forest fire prevention strategy that is recognized as a leader in Canada. The province has a comprehensive approach that includes early detection and rapid response systems, fuel management techniques, and effective partnerships with stakeholders and the public. The results of this approach speak for themselves – the average size of a forest fire in New Brunswick in the last 10 years is only 1.75 **hectares**, which is relatively small compared to other provinces. Additionally, the province has not had a large, uncontrolled forest fire in over 30 years. These achievements are a testament to the effectiveness of New Brunswick's forest fire prevention strategy and highlight the importance of proactive measures in protecting the environment and communities from the risks of wildfires.

Understanding forest fire trends gives us a base from which to improve our programs to better protect the forest and the public. Keeping track of the area burned on a yearly basis influences our overall forest management plans in order to account for the loss of timber and wildlife habitat, and also helps us to prepare for the impacts of a changing climate.

KEY FACTS

97.6% in 2022- Per cent of wildfires in New Brunswick caused by people

1.75 **hectares**- The average size of a forest fire in New Brunswick (relatively small compared to other areas in Canada and around the world)

9- Number of air tankers and support aircraft always on standby for wildfire management activities including suppression, detection and mapping

DID YOU KNOW?

An average of 43,000 department personnel hours are dedicated to suppressing fires in New Brunswick each year with an estimated one million gallons (about 3,785,410 L) of water dropped on fires from aerial suppression in New Brunswick in 2020.

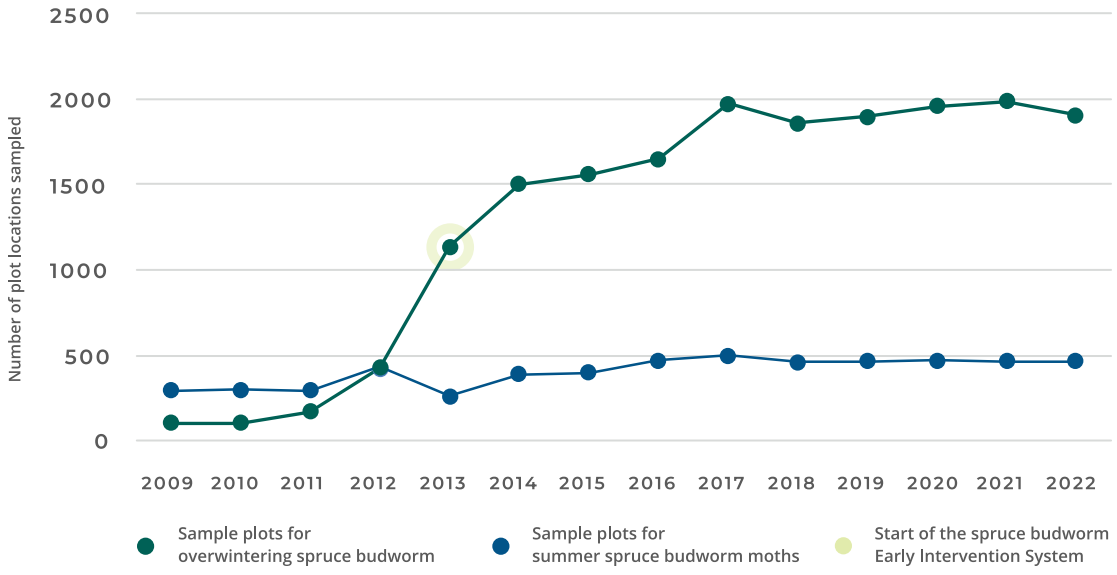
How is spruce budworm being managed in New Brunswick?

How does the system work?

New Brunswick participates in an innovative research program to manage spruce budworm populations known as the Early Intervention Strategy (EIS). An outbreak of spruce budworm began in Quebec in 2007 and now covers about 13 million **hectares** of forest with thousands of **hectares** of dead and dying trees. Since then, the outbreak has expanded to Ontario, Newfoundland and Labrador, and Nova Scotia, with all experiencing considerable damage. Quebec and Ontario have adopted a traditional approach to budworm management known as foliage protection, targeting the treatment of heavily defoliated **stands** with a focus on keeping trees alive. In contrast, New Brunswick has avoided any significant defoliation or need for year-over-year large-scale treatment programs by following the EIS. Newfoundland and Labrador is also using an EIS approach.

Each year, the department and collaborators from the Healthy Forest Partnership monitor thousands of locations in New Brunswick for the presence of budworm moths and caterpillars. This data helps us to create small, targeted pesticide treatment areas that reduce budworm populations before they get out of control. The success of this approach has resulted in only scattered patches of forest defoliation in New Brunswick. If this strategy proves to be sustainable over the duration of the outbreak, this approach will result in a dramatic reduction in pesticide use in New Brunswick, a shorter outbreak cycle of budworm, and far fewer economic and environmental impacts than traditional foliage protection programs.

Spruce budworm monitoring in New Brunswick



How do I interpret this?

Since 2014, between 1,500 and 2,000 forest plots have been monitored each year in New Brunswick. At each plot location across the province, branches are removed from trees to look for evidence of the spruce budworm. In addition, close to 500 lured traps have been set to monitor moths. The defoliation area is below 5,000 **hectares**, while Quebec has suffered over 13 million **hectares** of defoliation. Our early intervention program is an example of New Brunswick's proactive approach to management.

Why is this important?

To date, the EIS has demonstrated encouraging results. Budworm populations in New Brunswick have remained low and very little defoliation has been detected despite rising populations in Quebec. This strategy is saving millions of **hectares** of forest from the impacts of budworm, leading to a healthier and more stable forest for habitat, and timber resources, and clean water. A commitment to monitoring the forest for pests is an important part of ensuring that the forest is managed sustainably into the future. Understanding threats, keeping an up-to-date inventory, continuous improvements in technology, and having 'eyes and feet on the ground' helps to ensure DNRED understands the health of the forested ecosystem when it comes to insects.

KEY FACTS

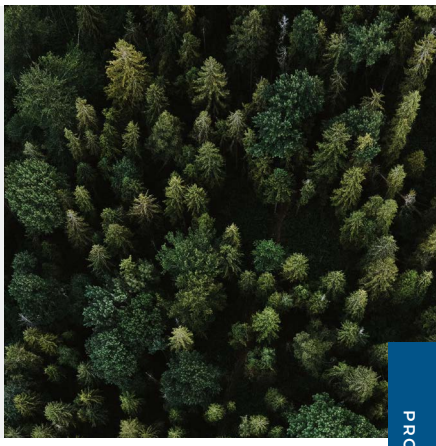
1.5- Litres of insecticide (or less) is applied over one hectare of spruce budworm infestations (that's like spreading one cup of water over an entire NHL-sized ice rink)

4 million- Estimated number of spruce budworm moths that could be produced from a single, mated female moth over three years

DID YOU KNOW?

The spruce budworm is the most destructive forest insect in North America, with naturally occurring outbreaks every 35 years.

The EIS research program in New Brunswick is working well and proving to be successful at minimizing the impacts of this insect in our forests!



Have thoughts on what you just read?

Contact us today! More information is available through the department's website and open-data portal.

Thanks for reading

We hope that you found this report informative and have learned more about New Brunswick's system for sustainable forest management. We know how important it is to show transparency around the management of our natural resources and will be regularly publishing the State of the Forest report.

More information is available through the department's website and open-data portal. We also invite readers to send feedback and comments on this report, or to suggest topics for future publications.

Finally, we invite you to spend some time in the forests of New Brunswick over the next year. **Crown lands** offer many opportunities for nature-based recreation and enjoyment. Our forests are for everyone.

Glossary

TERM	DEFINITION
CONIFERS	Trees that bear cones and needle-like leaves. The spruces, pines, balsam fir, eastern white cedar, eastern hemlock, and tamarack are examples of conifers native to New Brunswick. Except for tamarack, all our conifers keep their needles year-round. Conifers are also commonly referred to as softwoods.
DECIDUOUS	Broadleaf trees that flower and shed their foliage every fall. The maples, birches, aspens, red oak, and ashes are common deciduous trees in New Brunswick.
STANDS	A contiguous group of trees of uniform species composition, size, age, condition, and growth pattern. Grouping trees into forest stands can facilitate forest management at landscape scales where the number of individual trees may be too large to manage individually. New Brunswick's forest resource inventory currently estimates more than 1,370,000 unique forest stands exist across the province, with sizes ranging from hundreds to hundreds of thousands of grouped trees. No two stands are the same.
GEOPHYSICAL CONDITIONS	Landscape factors including soil properties, local climate, hydrology, elevation, and other characteristics of the landscape that influence the key drivers of vegetation growth: sunlight, moisture, and available nutrients.
CROWN LAND	Land held and controlled by a provincial or federal government (the Crown), specifically the Government of New Brunswick for this report.
PRIVATE WOODLOT	Land held privately by individuals, families, and organizations with forest stands present. In New Brunswick, to be considered a private woodlot owner, you must not own the land primarily for operating a wood processing facility (e.g., a sawmill or a pulp mill) and the total area owned must be less than 100,000 hectares.
INDUSTRIAL FREEHOLD LANDS	In New Brunswick, any land with a single owner with a total area over 100,000 hectares, or land held privately primarily for the purpose of supplying wood to a processing facility owned by the same organization.
FIRST NATIONS	In Canada, these are Indigenous Peoples who are distinct from the Inuit and Métis. As of late 2022, there were approximately 17,270 First Nations people in New Brunswick living in 16 communities and among the province's diverse general population.

CROWN TIMBER LICENSEE	Private organizations who own a wood processing facility which have entered into a forest management agreement with the Minister of Natural Resources and Energy Development to conduct sustainable forest management on one of New Brunswick's Crown timber licensees. Currently, there are four licensees managing nine licenses. One Crown Timber License is vacant and temporarily managed by forestry professionals contracted through DNRED.
CROWN TIMBER SUB-LICENSEE	Private organizations who own a wood processing facility who have been granted an allocation of the annual allowable cut of timber from a Crown timber license. Some sub-licensees manage harvesting equipment and operate blocks identified in the operating plan of a licensee while others instead enter into agreements to have their allocation delivered to their mill at a negotiated price.
LIDAR	Light Detection and Ranging; a technology which scans a surface using light waves and can produce detailed 3-D representations of the object. New Brunswick has acquired data from LiDAR sensors mounted on aircraft and has produced some of Canada's most sophisticated forest inventories and digital terrain models, which are freely available through the government's open-data policy.
DOWNED WOODY DEBRIS	The trunks, branches, and twigs of dead trees which have fallen in the forest but have not yet decomposed to the point of being part of the forest soil. Downed woody debris provides important habitat for a wide range of plants, animals, and fungi.
MODELS (OF TREE STANDS)	Mathematical digital representations of the important characteristics of forest stands such as the density, tree species composition, and sizes of trees. Models form the basis of forecasting how the forest may grow and change in the future in response to forest management, climate change, or other factors.
HECTARES	A metric unit of area commonly used by forestry professionals to describe land 10,000 square metres in size. A hectare is 1/100th of a square kilometre. One hectare equals approximately 2.47 acres.
RIPARIAN BUFFERS	A zone of forest vegetation surrounding a river, lake, wetland, or watercourse which performs functions like shading water from sunlight, filtering sediments which may be carried in surface runoff, and providing organic nutrients to aquatic species. Riparian buffers serve to control forest management activities and maintain the integrity, function, and qualities of the water and wetlands they surround.
VERNAL POOLS	A type of wetland characterized by a shallow localized depression in the terrain that holds water for a portion of the year (often the spring). Vernal pools can be an important habitat for many species including amphibians.

SELECTION HARVESTING	A method of harvesting trees which targets the removal of specific trees to accomplish long-term objectives for the stand. Often this harvesting system is used to accelerate the annual growth of high-quality canopy trees that are left standing. This method of harvest also results in partial sunlight reaching the forest floor which has been disturbed by machinery, creating an ideal condition for the germination and growth of new seedlings. Foresters use a wide variety of selection harvesting approaches tailored to the stand but for this report, we simply mean any harvesting that leaves a portion of the forest canopy intact.
WORKING FOREST	While all forests in New Brunswick work (producing oxygen, providing habitat, capturing atmospheric carbon, etc.), this term is used in this report to describe the portion of the Crown timber licenses which are primarily managed to produce wood products through harvesting, regeneration, and the use of silviculture. Almost all the wood harvested from Crown forests comes from the working forest.
OPERATING PLANS	Detailed maps that identify exactly where and how harvesting will take place on a Crown timber license each year. These plans are expected to align with long-term objectives for the Crown timber license and account for local stand conditions, environmental features, and applicable legislation and regulation. Operating plans are developed by Crown timber licensees, reviewed, and approved annually by DNRED.
ANNUAL ALLOWABLE CUT	The maximum volume of wood products (described in cubic metres of solid wood) that may be harvested from a geographic area over a period as described in a forest management plan that considers relevant ecological, economic, and social sustainability measures.
SAWLOG	A portion cut from the main stem of a tree which is large enough, straight enough, and contains enough solid wood to be manufactured into lumber products at a sawmill. As technology improves, sawmills have modernized to be able to accept smaller sawlogs than ever before. The New Brunswick Scaling Manual describes in detail how sawlogs are measured.
LICENSE MANAGEMENT	Within the specific context of Crown timber licensees, this term refers to services performed on behalf of the government that aid in delivering forest management plans. Examples of license management functions include writing management plans, collecting royalties, and maintaining primary forest roads.
SILVICULTURE	The art and science of controlling the establishment, growth, composition, health, and quality of forests. Silviculture is a term that captures many interventions conducted in Crown forests including site preparation, tree planting, vegetation management, and thinning.

CUBIC METRES (M^3)	For the purpose of this report, this term means a solid volume of stacked wood excluding all bark and air between pieces.
CARBON SEQUESTRATION	The capture of atmospheric carbon dioxide through photosynthesis and converting to living plant material such as wood.
PROTECTED AREA	A Protected Area is a clearly defined geographical space, recognized, dedicated and managed through legal or other effective means to achieve the long term conservation of nature associated with ecosystem services and cultural values. The area would have important conservation features like rivers, wetlands, forests, coastlines, and other habitats for wildlife. New Brunswick Protected Natural Areas and Nature Legacy protected areas are the two major types of protected areas on Crown land.
HARVEST BLOCKS	Harvest block is a specific area of Crown forest described in the Crown timber license with defined boundaries where timber is authorized to be harvested.
BEST MANAGEMENT PRACTICES	Best management practices are methods or techniques found to be the most effective and practical means of achieving an outcome.