



Natural Resources  
Canada

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Canada

# THE Canadian Forest Service STRATEGIC FRAMEWORK

2019

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## OVERVIEW



Natural Resources Canada's Canadian Forest Service (CFS) is the national voice for Canada's forests and forest economies. We conduct science, foster innovation, act as a convenor bringing a variety of forest stakeholders together, and deliver policy advice to ensure Canada's forests remain healthy, our sector competitive and our communities strong.

This document sets out a path for the CFS to help address some of the challenges and opportunities Canada and its forest industry face. It highlights the policy and science priorities that will form the basis of our work for the next five years. The framework sets out the key outcomes we are striving to achieve via our work at the local, national and international level.

Forests are an important part of the Canadian identity and economy. We enjoy their natural beauty and the sustainable resources they provide. Forests help regulate climate, balance ecosystems, provide wood products, and are a source of renewable heat and energy as well as habitat for two-thirds of our country's wildlife.

Forests are critical to Canada's economy and communities. In 2018, the forest sector directly employed 210,600 people and contributed \$25.8 billion to Canada's nominal GDP, and over 300 communities are dependent on the sector. As well, 85 percent of Canada's Indigenous people live in forested landscapes.

The health of our forests, the competitiveness of our sector and the well-being of our forest-dependent communities are inextricably linked. Changing environmental conditions such as a warming climate are affecting the magnitude and severity of forest pest outbreaks and wildland fires. Traditional fibre supply in some parts of Canada is declining. There are concerns around social licence and trade disputes, and there is

a growing demand for a better understanding of the cumulative effects of natural resource development on the landscape. In addition, there is strong recognition that Canada's forests are part of the solution to transitioning to a low-carbon economy. Whether supporting research and development (R&D), expanding markets, building higher and larger with wood, supporting the economic development of Indigenous communities or industry's transition to a cleaner and sometimes more value-added bioeconomy, the CFS stands ready to contribute. Key to the success of these goals is a healthy, sustainable forest resource base.

Maintaining core scientific capacity at the CFS, being adaptive and partnering with academia, industry, provincial and territorial governments, Indigenous peoples and non-governmental organizations (NGOs) will allow continued understanding of the interplay between changing environmental conditions, management practices, opportunities and challenges. The CFS will continue to evolve to ensure our scientific capacity, industry insight and programming are available to maintain a competitive forest sector grounded in sustainable forest management.

## OUR PRESENCE

*NRCan's CFS is a national network of regional centres, built on over a century of science and industry insight.*



## A CHANGING CONTEXT

Canada is a global leader in sustainable forest management and the health of our forests, as well as the communities that rely on them, are linked to a number of environmental, societal, and economic factors.

Climate change is a leading concern. When combined with other pressures, its cumulative effects are impacting the way our forests grow, the habitat they provide and the ways in which Canadians use and enjoy them. We are witnessing more and increasingly intense wildland fires, multiple forest pest infestations on a regional scale, and areas of forest drought and dieback. Multiple development activities require increased understanding of cumulative impacts across the forested landscape.

Climate change is likely to have substantial impacts on forest ecosystems and forest-dependent communities in Canada's North. There exists a growing need for data in northern forests to understand this increasing rate of change and the consequences of those changes for wildlife habitat and fire regimes, and to better inform forest management practices.

The cumulative effect of pressures such as pests, fire, conservation measures, is affecting the fibre supply – the amount of timber available to produce forest products – impacting employment and forest sector profitability as well as local and regional economies.

Technological, product and process innovation as well as diversification, particularly in support of a bio or circular economy, is fundamental to the resilience of the sector, now and in the future.

The face of Canada's forest workforce is changing as well. Fewer youth are choosing to enter this field and recruitment, combined with an aging workforce, is

becoming a key issue. And the nature of employment in the sector is changing: the increased use of artificial intelligence and automation is influencing employment prospects in what Canadians consider a traditional industry. The sector has an opportunity to diversify its workforce by recruiting, training and promoting women, Indigenous peoples and new Canadians.

*The Indigenous Forestry Initiative has provided funding for nearly 70 projects with over 110 Indigenous communities across Canada since 2011. This program encourages the participation of Indigenous peoples in Canada's forest industry and supports the growth of a skilled Indigenous labour force.*



## THE NEXT 5 YEARS



For 120 years, the CFS has been a voice for Canada's forests and a world leader in the development and delivery of forest science, policy and industry programming. Over the next five years, the CFS will continue to take on a leadership role by supporting Canadians and industry through excellence in science, policy, and programming. We will continue to act as a convener to hold national dialogues on key issues affecting the forest sector, whether it be climate change, wildland fire, forest pests or cumulative effects. We will continue our leadership at the international level to address issues that are critical to the Canadian forest sector with an aim to support other countries that are implementing sustainable forest management practices, transitioning to a low-carbon economy and moving to more value-added and bio-products.

### INTERNATIONALLY, THE CFS WILL:

- Expand markets for Canadian forest products through education, training, building code development, taller building and eco-city demonstration projects, new products and standards codification.
- Defend industry against unfair duties imposed on Canadian forest product exports.
- Enhance public perception and Canadian leadership in sustainable forestry management practices through the generation of authoritative data and knowledge as well as participating at and supporting international fora.
- Become a world leader in the bioeconomy.
- Provide scientific leadership and excellence in areas of climate change, pest management, and wildland fire prevention and management.

### AT THE NATIONAL LEVEL, THE CFS WILL:

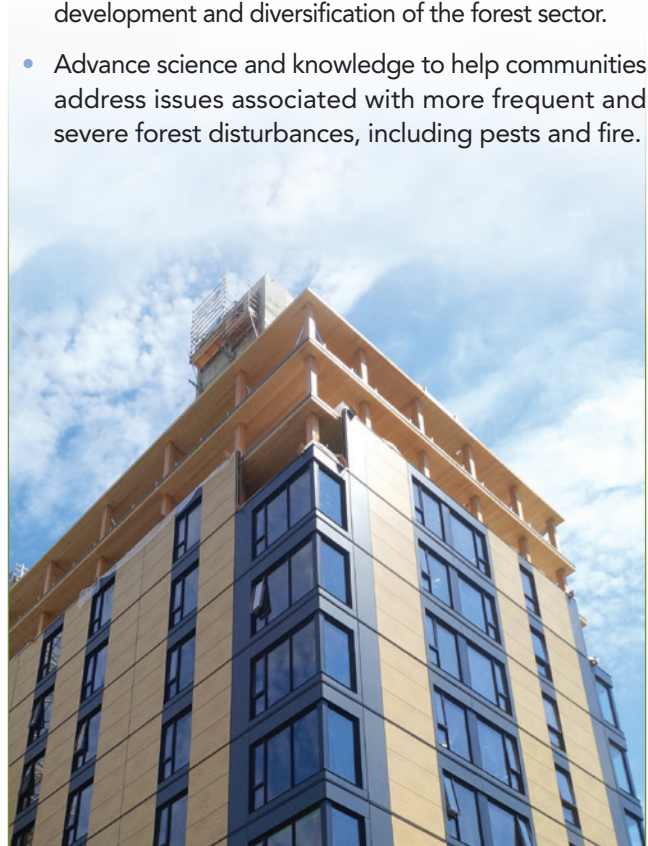
- Conduct research to understand the impacts of climate change on forests and enhance capacity to

contribute to Canada's climate mitigation efforts.

- Enhance our knowledge and industry intelligence to inform policies to help mitigate the impacts of forest sector challenges such as trade disputes and species at risk recovery and protection.
- Re-establish national leadership in wildland fire management, building on scientific assessment of risk and supported by modernized decision-support tools.
- Advance reconciliation with Indigenous peoples by enabling greater participation in the forest sector.
- Support the Canadian forest sector labour force to increase the participation of women, Indigenous peoples and new Canadians.
- Support development of highly qualified personnel (HQP) and integrate their talent into the full forest sector value chain.

### AT THE LOCAL LEVEL, THE CFS WILL:

- Help communities and forest companies adapt to climate change and cumulative effects impacts.
- Enhance participation of Indigenous communities in the development and diversification of the forest sector.
- Advance science and knowledge to help communities address issues associated with more frequent and severe forest disturbances, including pests and fire.



## PARTNERSHIPS ARE KEY

Strong partnerships are the basis for everything the CFS does. The challenges we face today are too complex for any single organization to address. Integrated approaches from a variety of areas of expertise are required. Part of the CFS's work will involve strengthening existing partnerships, and building new ones.

The CFS is recognized as having strong industry insight and relationships. These assets are critical to addressing complex problems of fibre access, industry's transition to a low-carbon economy, and diversification of forest products and markets to take advantage and be a leader in the bioeconomy.

Acknowledging that forest management is the responsibility of the provinces and territories, the CFS will continue to support jurisdictions by providing science expertise relating to climate change, forest pests, wildland fire and cumulative effects to support sustainable forest management.

Renewing our relationship and building new partnerships with Indigenous people is a strong value important to the ongoing work of the CFS. Our work will value Indigenous knowledge and support the sustainable economic development endeavours of Indigenous communities.

The CFS will continue to play a key role supporting the mandates and work of other federal government departments such as Environment and Climate Change Canada (ECCC), Global Affairs Canada (GAC), Innovation, Science and Economic Development Canada (ISED), Agriculture and Agri-Food Canada (AAFC), Indigenous Services Canada (ISC), Canadian Food Inspection Agency (CFIA) and others by providing science expertise, industry insight and analysis.

The CFS will strengthen its relationships with universities, colleges and other research institutions. This collaborative work will enhance R&D output supporting the value chain and create new networks to leverage expertise across the country. These relationships will also grow the much-needed labour force, producing a new cohort of HQP and skilled labour.

There are opportunities to strengthen our international partnerships and existing memoranda of understanding (MOUs) with key countries and multilateral organizations. Environmental non-governmental organizations (ENGOs) are additional sources of forest knowledge and partnership in developing solutions to complex problems.

*The CFS, along with Agriculture and Agri-Food Canada, co-chair the International Bioeconomy forum with the European Commission to drive global research and innovation on common challenges in the bioeconomy.*





# CFS PROGRAMS – RESPONSIVE, AGILE, DESIGNED FOR THE FUTURE



transition to a low-carbon economy, while supporting rural economic development based on healthy forests and a resilient forest sector.

The CFS is uniquely positioned to catalyze innovation within the sector. Working with provinces and territories, academia, research and development partners, and key federal departments, we target our programs to accelerate the forest bioeconomy.

The science, policy, and industry expertise of the CFS positions the organization to advance the economic, regulatory and trade agendas of Canada.

The CFS delivers practical knowledge and insight regarding our forests, forest health, productivity and





### ENHANCING FOREST PEST RISK MANAGEMENT PROGRAM

Research to address forest pest impacts on forest ecosystems and forest resources.

#### National priorities:

- Reposition federal/provincial/territorial collaboration on forest pest risk management, including enhanced collaboration with academia, Indigenous communities, municipalities and NGOs/ENGOs as per the National Research Agenda for forest pest risk management.
- Expand phytosanitary research portfolio to maintain and enhance market access.
- Provide CFS science leadership with the implementation of the Early Intervention Strategy for spruce budworm and other forest pests.
- Perform genomics research on invasive species, diseases and desirable tree genes to support the protection and generation of Canada's forests and forest sector.

Examples of program successes/ accomplishments:

1. Implemented the Early Intervention Strategy for spruce budworm, a multi-stakeholder research program investigating a novel management approach aimed at suppressing growing spruce budworm populations early in the outbreak cycle in order to slow or prevent the outbreak.
2. Led the development of the National Forest Pest Strategy's risk analysis framework.
3. Provided research and analysis towards acceptance and use of a systems approach to manage pest risks associated with the movement of forest products.



## STRENGTHENING FOREST SECTOR COMPETITIVENESS

Research and programs to diversify our forest products, markets and processes to support and expand our forest products industry.

### National priorities:

- Champion a federal forest-based circular economy within broader economic initiatives by supporting the development and adoption of technologies that contribute to clean economic growth by Canada's forest sector.
- Enable greater participation of Indigenous communities in the forest sector.
- Help Indigenous communities across Canada reduce their reliance on fossil fuels used for heat and power.
- Position Canada as a global centre of excellence in wood construction by supporting and promoting some of the tallest and largest engineered wood construction projects in the world.

### Examples of program successes/ accomplishments:

1. Implemented the Forest Innovation Program (FIP).
  - \* Through FIP, a \$30 million investment was made in 2018-19, primarily through partnership with FPInnovations and the Canadian Wood Fibre Centre, to support more than 40 forest product and process innovations, including 10 that have been commercialized within Canada.
  - \* The program also supported a partnership between NRCan's CanmetENERGY and FPInnovations to identify \$55 million in potential energy savings and to add energy generating opportunities in 15 pulp and paper mills in seven provinces.
2. Administered the Investments in Forest Industry Transformation (IFIT) Program.
  - \* The CFS supported innovative transformative technology adoption through this program, which received \$55 million over three years via the Softwood Lumber Action Plan. In 2018-19, IFIT invested more than \$30 million in nine projects.

3. Implemented the Strategic Innovation Fund (SIF).

- \* Developed a short list of forest fibre-based bioeconomy projects to guide \$84 million in federal investment into the forest sector.
- \* Provided due diligence and technical support to ISED, resulting in the federal investment of \$13.8 million to help develop innovative pulp and paper products and usage while creating and maintaining 743 jobs at Kruger plants in Quebec and Newfoundland and Labrador.

4. Launched the Green Construction through Wood (GCWood) Program.

- \* The CFS announced federal investments of \$4.1 million in low-carbon construction to help build Ontario's first 10-storey modern tall wood building at George Brown College's Waterfront Campus in Toronto, Ontario.
- \* The CFS also funded and launched the Advanced Education Initiative to train the next generation of engineers, architects and developers to work with low-carbon building materials in innovative ways.
- \* The CFS partnered with the National Research Council on reforms to the 2020 National Building Code, which will see twelve-storey wood structures approved.

5. Implemented the Indigenous Forestry Initiative (IFI) and the Clean Energy for Rural and Remote Communities – BioHeat Stream (CERRC-BioHeat).

- \* The CFS is supporting Gitksan Energy Inc. to install clean energy solutions that use forest-based products to generate heat and electricity in rural and remote communities.
- \* The CFS supported upgrades to the Nabakatuk sawmill in Waswanipi (Quebec), which is helping create 50 local jobs and providing sustainable employment and economic development.
- \* The CFS is collaborating with ISC's Strategic Partnership Initiative supporting the Teslin Tlingit Council to install 10 biofuel burners and construct three feedstock storage centers, displacing approximately 22,000 litres of diesel fuel and achieving nearly 7,500 tonnes of greenhouse gas emission reductions.



## ENHANCING WILDLAND FIRE RISK MANAGEMENT

Research to help Canadians adapt to, and live with, the impacts of wildland fire.

### National priorities:

- Equip Canadians to understand the changing risks of wildland fire and to take informed actions to mitigate those risks.
- Equip fire practitioners with modernized decision-support tools to make wildland fire management safer and more efficient.
- Align research, knowledge and response partnerships to support the transformation of fire management in Canada.

Examples of program successes/ accomplishments:

1. Worked closely with provinces, territories and other federal government partners to establish an all-hazards and whole-of-society approach to the growing threat of natural disasters to the safety and economic stability of Canadian communities.
2. Convened national stakeholders to develop the 10-year *Blueprint for Wildland Fire Science in Canada (2019–2029)*.



## DEVELOPING SUSTAINABLE FIBRE SOLUTIONS

Research to develop fibre-based knowledge, tools, and techniques to help the forest sector transition to a low-carbon economy and aid in climate change mitigation and adaptation activities.

### National priorities:

- Unleash the full potential of Enhanced Forest Inventory innovations to improve decision-making at reduced costs.
- Develop solutions for sustaining wood fibre supply availability in a changing global context.

- Develop high-quality feedstock assessments and innovations for Canada's forest biorefining industry.

Examples of program successes/ accomplishments:

1. Developed alternative harvesting approaches to address future fibre supply gaps that pose a high risk to viability of mills and employment in forest-dependent communities.
2. Developed effective partnerships to demonstrate innovative forest inventory solutions.



## ENHANCING SUSTAINABLE FOREST MANAGEMENT PRACTICES

Research to better understand how forest ecosystems operate and the impacts of disturbances, in order to inform responsible sustainable forest management (SFM) policies and practices.

### National priorities:

- Provide accessible forest data, including the National Forest Inventory (NFI), to monitor changes in Canada's forests through time.
- Harness remote sensing technologies, advances in modeling and statistical analyses, and long-term data to fill knowledge gaps about Canada's forests.
- Report annually on the state of Canada's forests to deliver accessible, timely, trusted data and information to diverse stakeholders and citizens.
- Increase understanding of Canada's forest ecosystems to inform SFM practices in the context of their dynamic nature and a changing climate.

- Develop knowledge, methods and tools to advance and assess impacts of SFM practices (e.g., sustainable biomass collection).

### Examples of program successes/ accomplishments:

1. Conducted long-term research on effects of the ongoing spruce budworm outbreak on forest ecosystem processes and dynamics.
2. Created a unified national database of tree-ring datasets gathered during the past 30 years, allowing for greater understanding of the state of Canada's forests.
3. Contributed to national and international reporting on Canada's forests, demonstrating Canada's commitment to sustainable forest management and developed new methods and open science and data products to support future forest assessments and reporting.



## ENHANCING FOREST CLIMATE CHANGE ADAPTATION AND MITIGATION STRATEGIES

Research to understand the risks to forests from climate change and their contribution to national climate change mitigation activities.

### National priorities:

- Provide spatially explicit reporting and projections of forest carbon to facilitate forest mitigation efforts that contribute to Canada's greenhouse gas emission reduction targets.
- Deliver forest climate science extension services, and apply tools and integrated assessments of climate change impacts, to support mainstreaming climate adaptation into forest management planning.

- Integrate assessments of climate mitigation and adaptation research and policy to identify and encourage forest management strategies that maximize outcomes for both objectives.

### Examples of program successes/ accomplishments:

1. Applied forest carbon science in international carbon accounting policy.
2. Developed *Seedwhere*, a web application that helps users match seed sources to planting sites.



## ADDRESSING CUMULATIVE EFFECTS OF NATURAL RESOURCE DEVELOPMENT

Research to understand the impacts of multiple resource development activities (forestry, oil and gas, mining) on forest ecosystems, to improve the environmental performance of natural resource sectors.

### National priorities:

- Advance terrestrial ecosystem science in support of regional assessments with emphasis on predictive tools, key indicators and thresholds as well as science-based methods for analyzing and addressing complex ecological issues.
- Improve understanding of the risks and impacts of the cumulative effects of natural and anthropogenic factors on forested ecosystems as well as on caribou populations and habitats.
- Develop forest ecosystem-based strategies and tools to prevent, minimize and mitigate cumulative effects along with restoring ecological integrity of forest landscapes impacted by resource development.

- Conduct science-based research and socioeconomic analysis to advance caribou recovery and sustainable resource development.

### Examples of program successes/ accomplishments:

1. Developed forest restoration tools and techniques to improve restoration outcomes and enhance the return of forest cover at disturbed sites.
2. Used BOWTIE risk analysis tools to assess cumulative effects of anthropogenic and natural disturbances.
3. Worked with ECCC scientists to study the factors that influence and predict where caribou are found across Canada.