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FOREST MANAGEMENT AND DISTURBANCES

CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS

Canada

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CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS

FOREST MANAGEMENT AND DISTURBANCES

July 2025

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Forest management and disturbances

In 2022, Canada's forests made up an area of approximately 3.7 million square kilometres (about 40% of Canada's land area). These forests account for approximately 9% of the world's forests. Much of it grows in the boreal zone, throughout which over 2.8 million square kilometres of forest are interspersed with lakes, wetlands, and other ecosystems. Canada's rich forest ecosystems offer significant environmental, social and cultural benefits, as well as opportunities for responsible economic development.[1] This indicator presents a series of measures covering timber harvest, forest disturbances, and forest regeneration.

Timber harvest

This section compares the total amount of wood harvested with the sustainable wood supply. To ensure that forests can continue to provide timber, harvests must remain within sustainable limits. The sustainable wood supply is defined as the potential volume of timber which can be harvested sustainably as determined by a complex analysis of ecological, economic, and social considerations.

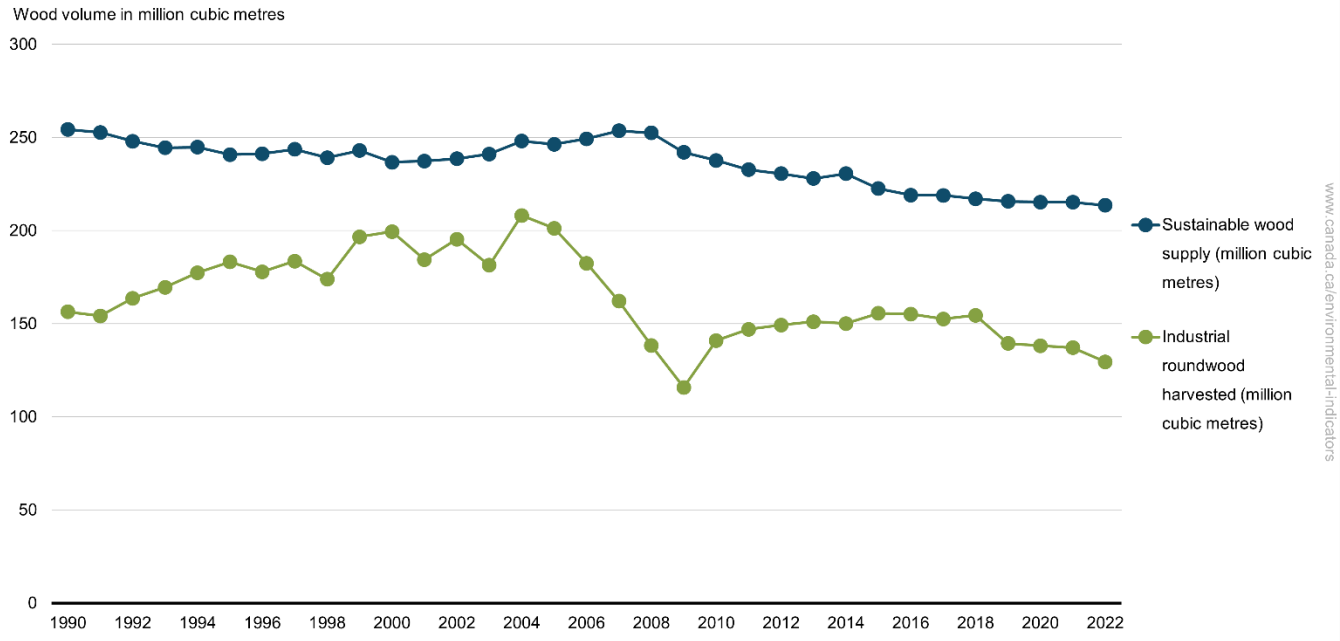
Annual timber harvest compared to the sustainable wood supply

Key results

In 2022,

- Canada's sustainable wood supply was approximately 214 million cubic metres
- the amount of industrial roundwood harvested was close to 130 million cubic metres, which represents approximately 61% of the sustainable wood supply

Figure 1. Maximum sustainable wood supply and annual harvest of industrial roundwood, Canada, 1990 to 2022



Data for Figure 1

Note: Sustainable wood supply data presented are for industrial roundwood only. Harvested industrial roundwood is intended to be delivered to a mill (for example, logs and bolts, and pulpwood) and also includes poles and pilings.
Source: Canadian Council of Forest Ministers (2024) National Forestry Database.

[1] Natural Resources Canada (2025) The State of Canada's Forests Annual Report. Retrieved on July 16, 2025.

The annual harvest of industrial roundwood reached a peak of 208 million cubic metres in 2004, then progressively declined to a low of 116 million cubic metres in 2009. In 2022, the annual harvest of industrial roundwood was approximately 130 million cubic metres. This pattern is mostly the result of economic factors, such as the collapse in the United States housing market in 2008 and subsequent global economic downturn that led to reduced demands for Canadian lumber and pulp and paper products. The 2022 decrease in harvest compared to 2021 is mostly attributable to a net decrease in timber volumes harvested in British Columbia and Quebec.

Both the sustainable wood supply and the volume of wood harvested fluctuate in response to a wide range of ecological, social and economic factors. Changes in the sustainable wood supply are largely a result of adjustments in provincial forest management objectives. For example, the sustainable wood supply can be reduced in order to conserve animal habitat, or it can be increased to harvest insect-damaged wood. Comparing the amount of timber harvested to the sustainable wood supply is one way to track forest management.

Canada is committed to sustainable forest management, which is defined as "management that maintains and enhances the long-term health of forest ecosystems for the benefit of all living things while providing environmental, economic, social and cultural opportunities for present and future generations." [2] In practice, sustainable forest management means ensuring that forests provide a broad range of goods and services over the long term. Therefore, forest managers plan for harvest levels that ensure the long-term sustainability of environmental, economic and social objectives for the managed forest.

Forest disturbances

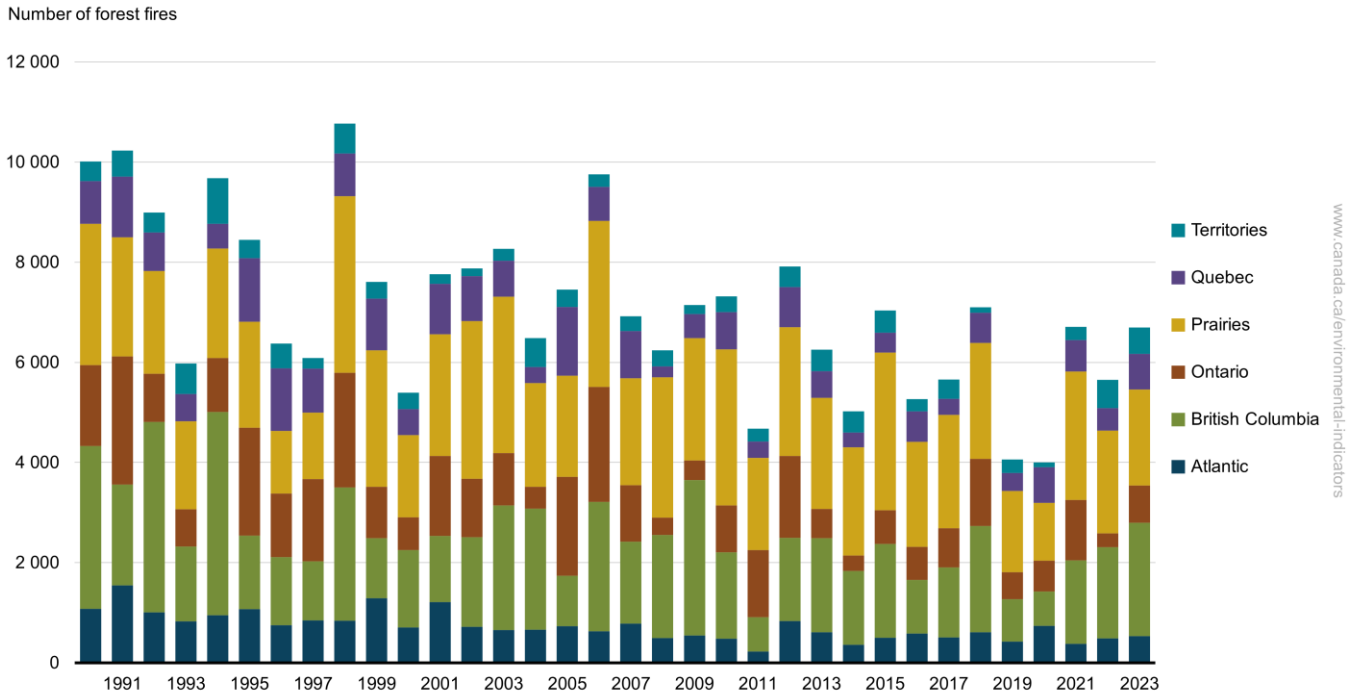
Number of forest fires and area burned

Key results

- In 2023, Canada experienced an estimated 6 694 fires that burned approximately 161 825 square kilometres of forest
- While 1998 saw the highest number of forest fires, 2023 had the most area burned by forest fires in recorded history, more than double the previous record set in 1995

[2] Natural Resources Canada, Canadian Forest Service (2020) Forestry Glossary - Sustainable forest management. Retrieved on October 23, 2024.

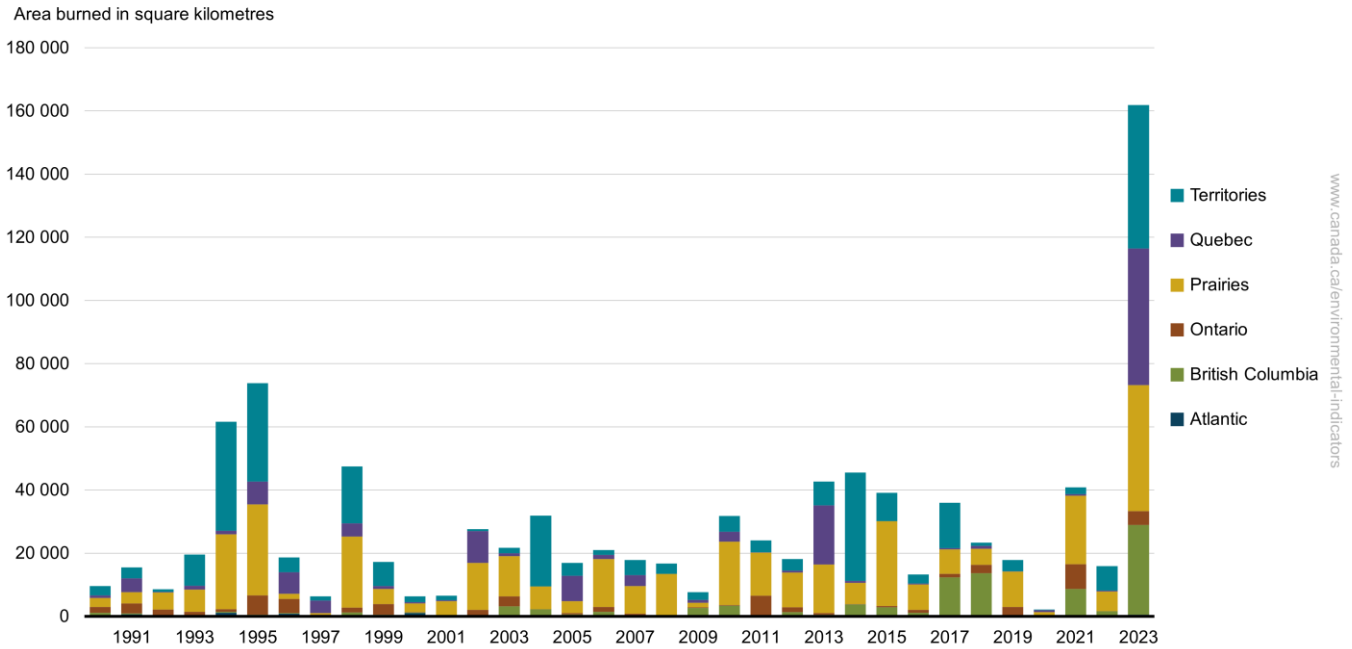
Figure 2. Number of forest fires by region, Canada, 1990 to 2023



Data for Figure 2

Note: Data include fires of known and unknown or indeterminable origin. The Territories region includes Yukon and Northwest Territories. Nunavut was not included as they are not a part of the data sharing agreement with Natural Resources Canada. The Prairies region includes Manitoba, Saskatchewan, and Alberta. The Atlantic region includes New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador. Totals for 2023 do not include all forest fires taking place in national parks as they have not been reallocated to the appropriate provinces and territories. For more information, consult the Data sources and methods section.
Source: Canadian Council of Forest Ministers (2024) National Forestry Database.

Figure 3. Area burned by forest fires by region, Canada, 1990 to 2023



Data for Figure 3

Note: Data include fires of known and unknown or indeterminable origin. The Territories region includes Yukon and Northwest Territories. Nunavut was not included as they are not a part of the data sharing agreement with Natural Resources Canada. The Prairies region includes Manitoba, Saskatchewan, and Alberta. The Atlantic region includes New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador. Totals for 2023 do not include all forest fires taking place in national parks as they have not been reallocated to the appropriate provinces and territories. For more information, consult the Data sources and methods section.
Source: Canadian Council of Forest Ministers (2024) National Forestry Database.

Forest fires are a natural part of the forest ecosystem and are important for maintaining the health and diversity of the forest. Fire is the primary means of environmental change in the boreal zone and is just as crucial to forest renewal as the sun and rain. Forest fires release valuable nutrients stored in the debris on the forest floor. They open the forest canopy to sunlight, which stimulates new growth.[3] However, they can also result in costly economic and environmental losses, as well as public health and safety concerns by directly threatening communities and infrastructure or reducing visibility and air quality through smoke. The expected hotter and drier conditions as a result of climate change may lead to more frequent and severe forest fires in Canada.[4]

Over 160 000 square kilometers were burned by wildfires across Canada during the 2023 fire season, which is defined as the annual period during which forest fires are likely to start, spread and cause damage.[5] This is more than double the previous record of approximately 73 754 square kilometers in 1995. The area burned in Quebec and Northwest Territories alone totalled just under 85 000 square kilometers in 2023.

Climate change drove the extreme weather that made this fire season especially devastating.[6] Climate change makes hotter, drier weather more common, which in turn leads to more intense and longer fire seasons.[7] The summer of 2023 was the hottest in Canada in recorded history, further contributing to the drought conditions that made forests especially prone to igniting.[8] The fires caused over 200 communities to be evacuated, with the heavy smoke causing air quality concerns across the country.[9]

The total area burned varies widely from year to year, but averages about 25 000 square kilometres annually. Only 3% of all wildland fires that start each year in Canada grow to more than 2 square kilometres in area. However, these fires account for 97% of the total area burned across the country.[10] In 2022, about 2 636 forest fires across Canada, or 47%, were caused by human activity. However, this only resulted in approximately 655 square kilometres of forest being burned, representing just over 4% of the total area burned nationally.[11] The specific causes of the 2023 fires are not yet available.

Area disturbed by insects

Key results

- In 2022, approximately 132 000 square kilometres of Canadian forests were disturbed by insects

[3] Natural Resources Canada (2024) Why forests need fires, insects and diseases. Retrieved on October 23,2024

[4] Natural Resources Canada (2025) The State of Canada's Forests Annual Report. Retrieved on July 16, 2025.

[5] Natural Resources Canada (2024) Fire weather. Retrieved on November 15, 2024

[6] Nature Communications (2024) Drivers and Impacts of the Record-Breaking 2023 Wildfire Season in Canada. Retrieved on November 4, 2024

[7] Natural Resources Canada (2024) Impacts of climate change on forests. Retrieved on November 5, 2024

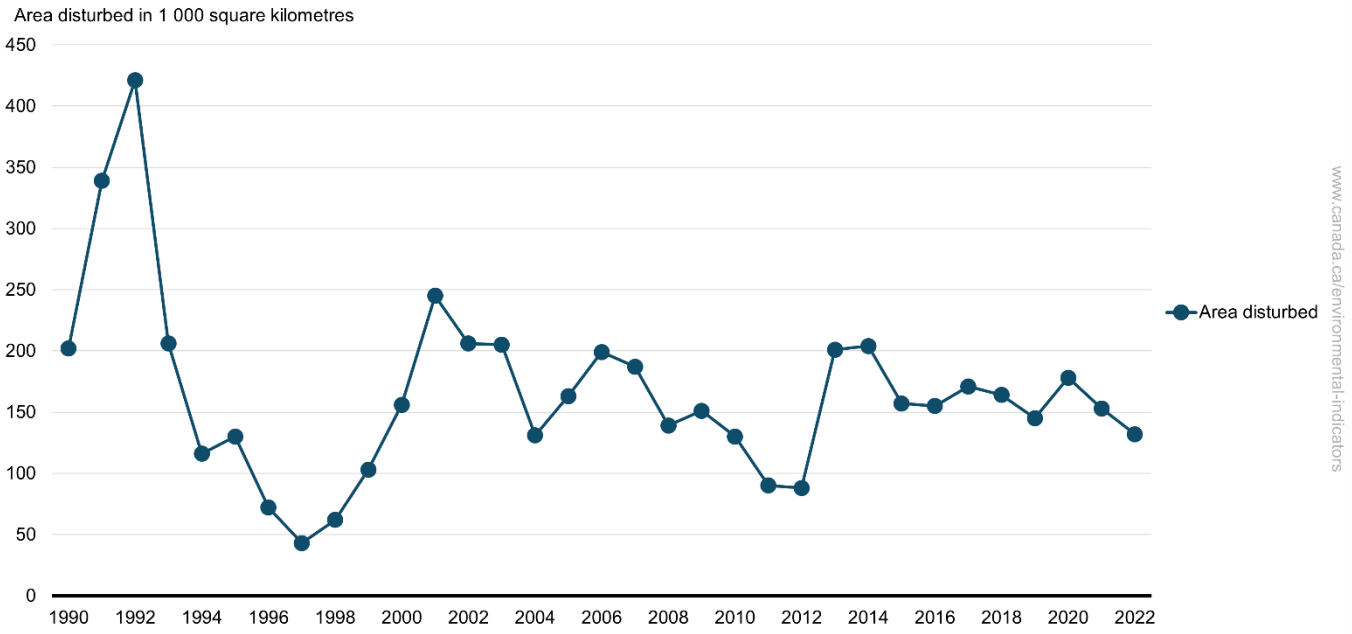
[8] Canadian Environmental Sustainability Indicators (2024) Temperature change in Canada. Retrieved on November 4, 2024

[9] Nature Communications (2024) Drivers and Impacts of the Record-Breaking 2023 Wildfire Season in Canada. Retrieved on November 4, 2024

[10] Canadian Wildland Fire Information System (2024) Canadian National Fire Database (CNFDB).Retrieved on November 4, 2024

[11] Canadian Council of Forest Ministers (2024) National Forestry Database. Retrieved on October 23, 2024

Figure 4. Area disturbed by insects, Canada, 1990 to 2022



Data for Figure 4

Note: Includes beetle-killed trees. Trees that suffer moderate to severe defoliation are those on which 30% or more of the current foliage has been removed.

Source: Canadian Council of Forest Ministers (2024) National Forestry Database.

Canada's forests are home to thousands of species of native and introduced insects. Most of the time, these species contribute a vital role to the normal functioning of forest ecosystems as prey for other species or by recycling nutrients back into the forest.[12] Only a small number of insect species kill trees and damage forests. This can occur when insect populations experience outbreaks over vast areas. Disturbance, or defoliation, is the removal of all or most of a plant's leaves by natural disturbance agents (for example, insects) or through the actions of humans (for example, the application of herbicides). These impacts can reduce Canada's timber supply and influence the functioning of forest ecosystems, which can in turn affect carbon stocks, increase fire risk and reduce the recreational and non-timber uses of forests.

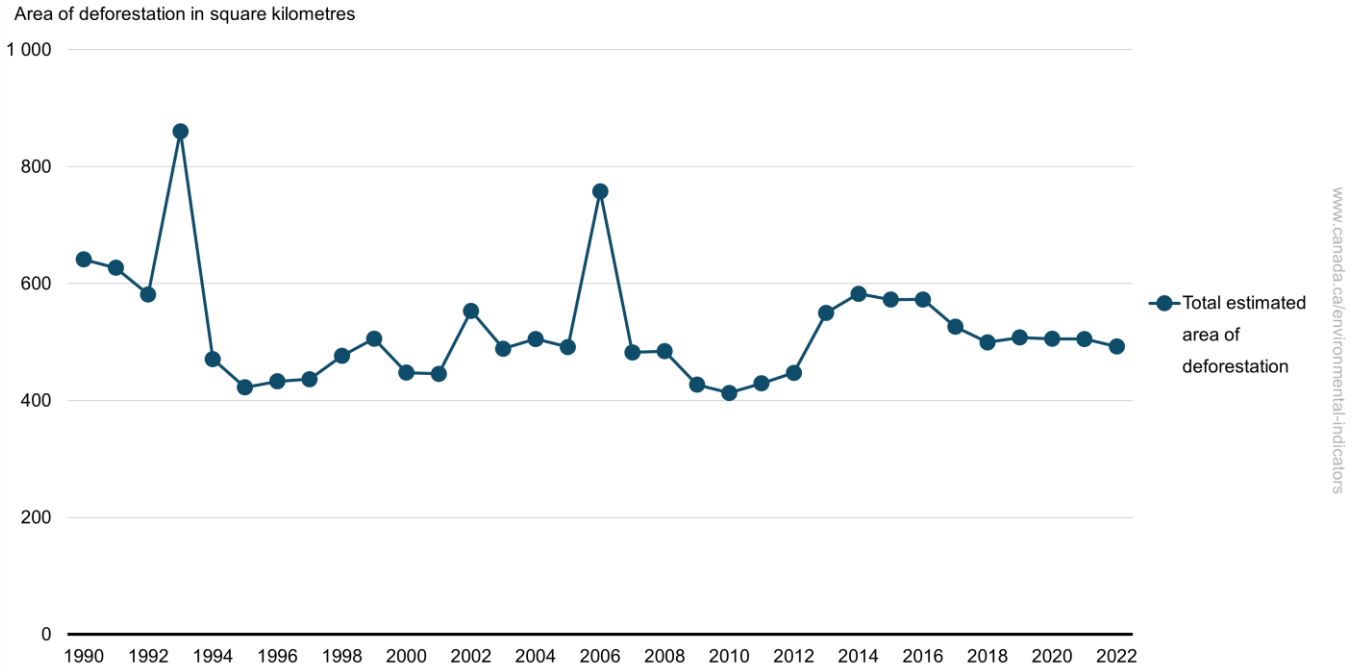
Estimated total area of annual deforestation

Key results

- In 2022, an estimated 492 square kilometres of forest were converted to non-forest uses
    - This is due to deforestation from the agriculture, forestry, mining, oil and gas, built-up (for example, industrial development and golf courses), and hydroelectric sectors

[12] Natural Resources Canada (2025) The State of Canada's Forests Annual Report. Retrieved on July 16, 2025.

Figure 5. Estimated total area of annual deforestation, Canada, 1990 to 2022



Data for Figure 5

Source: Natural Resources Canada (2025) State of Canada's Forest Annual Report.

Deforestation is the permanent clearing of forests to make way for new, non-forest land uses, such as agriculture or urban expansion. The annual estimated area of deforestation in Canada has declined from about 640 square kilometres in 1990, to about 492 square kilometres in 2022. Two (2) spikes in the overall declining trend occurred in 1993 and 2006. These were due to forest flooding for the development of hydroelectric reservoirs. As of 2022, agricultural expansion continues to be the main driver of deforestation in Canada with 225 square kilometers being converted.

Forest regeneration

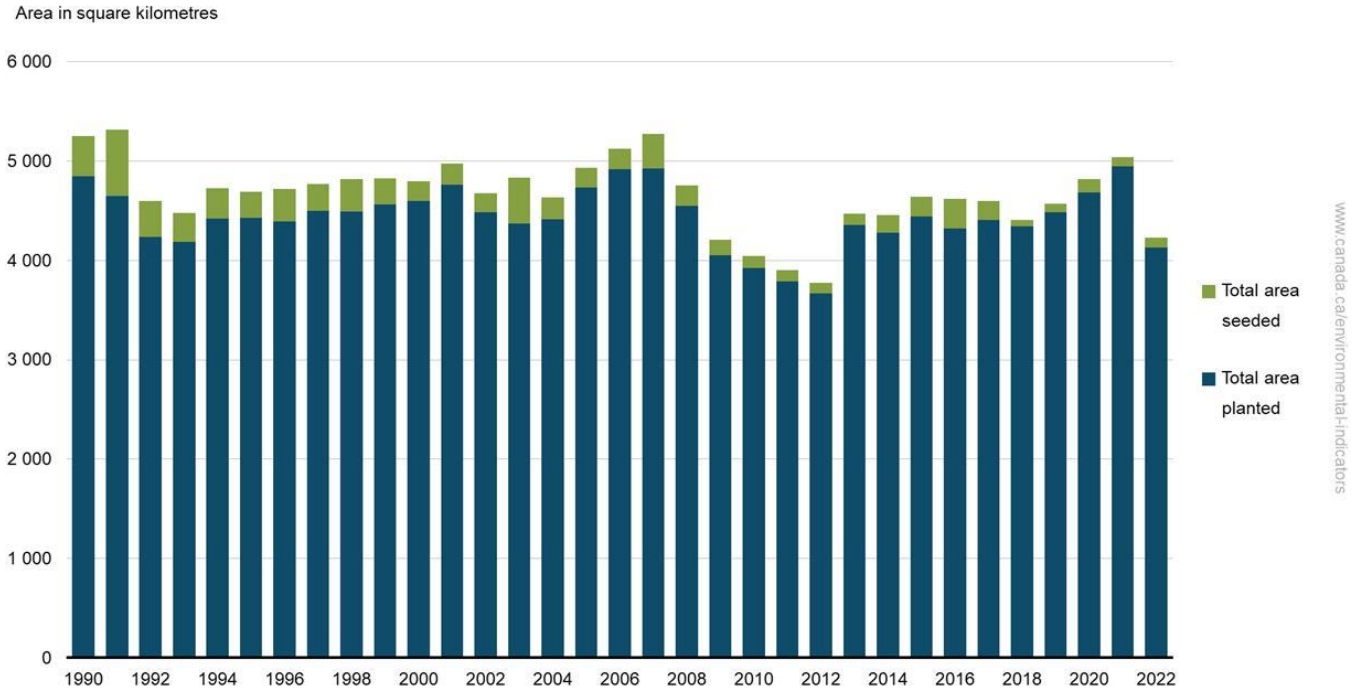
This section presents the total area of land that was regenerated by planting and seeding, as well as the number of seedlings planted in Canada between 1990 and 2022.

Key results

In 2022,

- approximately 4 131 square kilometres were planted with around 584 million seedlings
- approximately 98 square kilometres were seeded

Figure 6. Total area planted and seeded, Canada, 1990 to 2022



Data for Figure 6

Note: The data for 2022 only contains provincial land data. The data for 1990 to 2021 contains data from provincial, federal and private lands.
Source: Canadian Council of Forest Ministers (2024) National Forestry Database.

Successful regeneration ensures that harvested areas return to a forested state so that they can continue to produce timber and maintain ecosystem services, such as regulating water and providing habitat for wild species. In all provinces and territories, tree regeneration is mandatory on Crown lands after harvesting activities.[13] In 2022, there was an overall decrease in area planted, which can mostly be attributed to lower rates of planting in British Columbia compared to previous years.

[13] Natural Resources Canada (2025) The State of Canada's Forests Annual Report. Retrieved on July 16, 2025.

About the indicator

What the indicator measures

This indicator is not a single measure of the state of forests in Canada, but rather presents a series of measures that provide an overall picture of their condition. The specific measures used in this indicator are:

- Timber harvest
  - Maximum sustainable wood supply and annual harvest of industrial roundwood
- Forest disturbances
  - Number of forest fires and area burned
  - Area disturbed by insects
  - Estimated total area of annual deforestation
- Forest regeneration
  - Area planted and seeded

Why this indicator is important

Ecosystem considerations

In addition to their economic value as a key natural resource, Canada's forests constitute important ecosystems. They are home to about 180 native tree species across the country, as well as a great variety of plants, insects, fungi, birds, mosses, lichens and more. Of the 426 bird species that breed in Canada, about one-third depend on forests to survive. Forest characteristics such as age, composition and structure influence what species are able to thrive in Canada's forests. These forest characteristics are primarily driven by forest disturbances. Disturbances can be of natural origin, such as forest fires ignited by lightning, ice storms, and native insect outbreaks and diseases. They can also be human-induced, such as forest logging, land-use change and invasive pest outbreaks.

Climate change

Canadian forests are well adapted to natural disturbances, but climate change is altering the frequency, severity and size of disturbances and facilitating the movement of forest pests. The increase in disturbances may transform forest composition. For example, the anticipated increase in fire frequency and severity may benefit some species that could take advantage of the new conditions (for example, pines, white birch and red oaks), while other species could decline (for example, sugar maple, American beech and eastern hemlock). The rate of climate change in Canada also means that some tree species will not migrate quickly enough to maintain viable populations. Cumulatively, these effects will impact forest-dependent communities and make the lives of people in these areas more precarious through increasing frequency and severity of fires leading to greater needs to evacuate communities and a lower sustainable wood supply that can affect jobs in these areas.

Carbon cycle

Forests are a vital part of the constant movement of carbon from the land and water through the atmosphere and living organisms, both storing and releasing this essential element in a dynamic process of growth, decay, disturbance, and renewal.[14] Land use activities (such as timber harvesting and land conversion) as well as natural disturbances (such as forest fires and insect infestations) result in greenhouse gas emissions. Land use activities can also indirectly lead to greenhouse gas removals. For example, as forests recover, carbon is removed from the atmosphere and converted into wood by trees. In 2020, natural disturbances (such as wildfires and insect infestations) accounted for emissions of about 8.8 megatonnes of carbon dioxide equivalent (Mt CO_2 eq) and human activities (such as timber harvesting and agricultural activities) accounted for removals of 6.3 Mt CO_2 eq. For more detailed information on this specific issue see the Land-based greenhouse gas emissions and removals indicator.

Economic considerations

The forest sector is also an important contributor to Canada’s economy, serving as a key source of prosperity for people and communities across the country. The Canadian forest sector manufactures a wide variety of products,

[14] Natural Resources Canada (2023) Forest Carbon. Retrieved on October 23, 2024

such as lumber, panels, wood pulp, and various paper products. The forest sector serves as an important source of economic opportunity for people and communities, employing Canadians from every province and territory except Nunavut. The economic contributions from the sector are particularly important in many rural, remote and Indigenous communities, where forest-related work is often the main source of income.[15] In 2023, direct employment in the sector decreased slightly to approximately 199 345 people.[16]

Related Initiatives

This indicator tracks progress on the 2022 to 2026 Federal Sustainable Development Strategy, supporting the target: "Between 2023 and 2026, Canada's sustainable wood supply level (guided by sustainable forest management policies to reflect the current unique social, environmental and economic characteristics of managed forests), exceeds the annual timber harvests."

In addition, the indicator contributes to the Sustainable Development Goals of the 2030 Agenda for Sustainable Development. It is linked to Goal 15, Life on land and Target 15.2, "By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally."

The indicator also contributes towards reporting on Target 10 of the Kunming-Montreal Global Biodiversity Framework: "Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity, including through a substantial increase of the application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches contributing to the resilience and long-term efficiency and productivity of these production systems and to food security, conserving and restoring biodiversity and maintaining nature's contributions to people, including ecosystem functions and services."

Along with 11 other countries, Canada is a member of the Montréal Process, an international working group of northern and southern hemisphere nations committed to sustainable forest management. Since 1995, the Montréal Process member countries have used a common set of science-based criteria and indicators to measure progress toward the conservation and sustainable management of 90% of the world's boreal and temperate forests.

Related Indicators

The Temperature change in Canada indicator measures yearly and seasonal surface air temperature departures in Canada.

The Air quality indicators track ambient concentrations of fine particulate matter ($PM_{2.5}$), ozone (O_3), sulphur dioxide (SO_2), nitrogen dioxide (NO_2), and volatile organic compounds (VOCs) at the national and regional levels and at local monitoring stations.

The Land-use change indicator reports on the change in how land was used and converted across Canada south of 60° North from 2010 to 2015.

The Land-based greenhouse gas emissions and removals indicator tracks exchanges of greenhouse gas (GHG) emissions and removals between the atmosphere and Canada's managed lands.

Data sources and methods

Data sources

The data for the Sustainable forest indicators comes from 2 main sources; the Canadian Council of Forest Ministers National Forestry Database and the State of Canada's Forest Annual Report from Natural Resources Canada.

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[15] Natural Resources Canada (2024) How does the forest sector contribute to Canada's economy?. Retrieved on October 23, 2024

[16] Natural Resources Canada (2025) The State of Canada's Forests Annual Report. Retrieved on July 16, 2025.

More information

National Forestry Database:

The data for the following measures included in this indicator come from the National Forestry Database. The database was mandated through the Canadian Council of Forest Ministers and is maintained by the Canadian Forest Service of Natural Resources Canada.

- Annual timber harvest compared to the sustainable wood supply
  - Wood supply estimates by ownership and species group
  - Net merchantable volume of roundwood harvested by ownership, category and species group
- Number of forest fires by region
  - Number of fires by cause class
- Area burned by forest fires by region
  - Area burned by cause class
- Area disturbed by insects
  - Area of moderate to severe defoliation (including beetle-killed trees) by insects
- Area planted and seeded
  - Area of direct seeding by ownership and application method
  - Area planted by ownership and species group

The indicator includes data from 1990 to 2023 from all provinces, Yukon, the Northwest Territories and federal government departments. Data on Nunavut is not included because it is not a National Forestry Database partner and has very little forest cover.

In December of every year, provinces, territories and federal agencies submit data that were collected the previous year. The data are compiled and published within 6 months of submission.

Canada's total area is estimated using the Land and freshwater area, by province and territory from Natural Resources Canada Atlas of Canada. The Canadian Forest Service uses the National Forest Inventory to track forest area over time.

The State of Canada's Forest Annual Report:

The data for the following measures included in this indicator come from the State of Canada's Forest Annual Report. The report has been a trusted and authoritative source of comprehensive information on the social, economic and environmental state of Canada's forests and forest sector for 33 years.

- Estimated total area of annual deforestation
  - Estimated area (hectares) of annual deforestation in Canada, by industrial sector

Science-based measures called sustainability indicators are helpful tools for understanding the overall condition or state of Canada's forests. They provide a way to consistently define, assess, monitor and report progress toward sustainable forest management. Reporting on these indicators over time helps to ensure and promote the long-term sustainable management of our forests. They do so by:

- providing reliable data and essential information on the state of and trends in Canada's forests
- highlighting any needs for improvement in forest management policies and practices
- supplying reliable information for discussions and initiatives related to environmental performance and trade

The State of Canada's Forests annual reports are based on the most accurate and currently available data from Canada's most trusted sources, including Statistics Canada, the National Forestry Database, and the National Forest Inventory, among others. These data and information are then analyzed by a collection of Canada's leading experts who produce the written text for the report. The report provides government, industry, researchers and the public with relevant context on the current day status, the historical trends as well as future forecasts. The report demonstrates Canada's ongoing commitment to sustainably managing its forests and forest sector.

Methods

Data from the National Forestry Database and the State of Canada's Forest Annual Report are used in this indicator. The only changes to the data are converting units to square kilometres where appropriate. There are no custom views of the data or additional data sets.

In line with the internationally agreed upon definition from the United Nation Food and Agriculture Organization, forests in Canada are defined as land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10% or trees able to reach these thresholds in their original habitat. This may also include treed areas, land cover where 10% or more of the area is covered in tree species of any size, and non-treed areas, for example, areas that have recently been harvested and that are temporarily unstocked. It does not include land that is predominantly under agricultural or urban land use.[17]

More information

Timber harvest

Maximum sustainable wood supply and annual harvest of industrial roundwood

The indicator compares wood supply to industrial roundwood harvest. Wood supplies from federal, provincial, territorial and private lands are summed to estimate Canada's wood supply. Similarly, Canada's industrial roundwood harvest is the volume of wood harvested from federal, provincial, territorial and private lands.

Wood supply is the volume of timber that can be harvested from an area over a specified period of time while meeting environmental, economic and social objectives.[18] In the indicator, wood supply refers to industrial roundwood supplies only. It does not include other types of harvest such as fuelwood (for industrial use) and firewood (for household use). Under sustainable forest management, forest managers plan for harvest levels that will not affect the long-term sustainability of forest resources.

Industrial roundwood is defined as sections of tree stems (with or without bark), logs, bolts, pulpwood, posts and pilings that are usually intended to be delivered to mills. Fuelwood and firewood are not part of the industrial roundwood harvest, although they contribute to the total roundwood harvest. Other forest products, such as Christmas trees, are not included.

Forests include both forest land and other wooded land:

- Forest land is defined as “Areas of land where tree canopies cover more than 10% of the total area and the trees, when mature, can grow to a height of more than 5 metres. This does not include land that is predominantly urban or used for agricultural purposes."
- Other wooded land is defined as "Areas of land where 1) tree canopies cover 5 to 10% of the total area and the trees, when mature, can grow to a height above 5 metres; or 2) shrubs, bushes and trees together cover more than 10% of the area. These areas include treed wetlands (swamps) and land with slow-growing and scattered trees. They do not include land that is predominantly agricultural or urban."

Wood supply estimation

Wood supply, the volume of timber that can be harvested sustainably, is estimated for each province and territory. Wood supply levels are estimated for forests that are actively managed for timber, which are a subset of forests and other wooded land. Provincial and territorial wood supplies are summed to estimate Canada's wood supply.

Wood supply is the sum of 2 values:

[17] United Nation Food and Agriculture Organization (2023) Global Forest Resources Assessments. Retrieved on October 23, 2024

[18] Canadian Council of Forest Ministers (2023) National Forestry Database, Wood Supply - Background. Retrieved on November 7, 2024

1. The estimated allowable annual cut (known as allowable annual cut in British Columbia and as guarantee of supply in Quebec) for provincial Crown lands, that is, publicly owned lands under provincial jurisdiction.

   The estimated annual allowable cut is the volume of industrial roundwood that can be harvested sustainably each year from provincial Crown lands, as estimated by professional foresters. Provincial Crown lands make up 75% of Canada's forest, [19] but the percentage varies by province. Most provinces establish annual allowable cuts for their Crown lands based on a policy of maintaining a non-declining future wood supply. They also consider a range of additional factors. For example, annual allowable cuts may be decreased in order to maintain animal habitat, or they may be increased so that insect-damaged wood can be salvaged. The importance of individual factors to the annual allowable cut varies among provinces and even among forest management areas within provinces, due to regional differences in forestry policies. Each province is responsible for the extensive rationale behind an annual allowable cut determination for individual forest management areas. Additional information is available from provincial resource management organizations.[20] The volume of wood harvested may be above or below the annual allowable cut in any one year, but it must balance out over the regulation period, which varies from 5 to 10 years depending on the jurisdiction. Annual allowable cuts are set based on an assessment of a wide range of ecological, social and economic factors.

2. Estimates of wood supply on federal, territorial and private lands.

   Federal, territorial and private lands account for 1.7%, 12.8% and 6.6%, respectively, of Canada's forest land, with Indigenous peoples owning 2.1%.[21] Wood supply estimates on federal, territorial and private lands are based on sustainable management plans (when available) or on past harvest levels. Estimation methods are not standardized and may or may not be similar to those used for the annual allowable cut on provincial lands.

Because historical harvests are often used by the Canadian Forest Service to estimate wood supply, recent declines in harvest levels have led to a decreased estimate of wood supply in some jurisdictions. This does not necessarily imply a change in forest health or harvest sustainability.

Industrial roundwood harvest estimations

Canada's total industrial roundwood harvest is the sum of the following:

1. The reported industrial roundwood harvested from provincial/territorial Crown lands.

   Provincial law requires harvest from provincial Crown lands to be reported and compared to the annual allowable cut value for individual forest management areas. The harvest must not exceed the annual allowable cut over multi-year regulation periods. However, in a given year, the volume harvested may vary by as much as 50%, depending on a range of social, economic and environmental factors.

2. The estimated industrial roundwood harvested from federal, territorial and private lands.

   Because there is generally no legislated mechanism to report the volume harvested on these lands, it is estimated by either provincial or federal forest authorities located in that jurisdiction. There is no set sustainable harvest level for federal, territorial and private lands.

Forest disturbances

Number of forest fires by region and Area burned by forest fires by region

Data for this measure has been taken from the National Forestry Database. Totals from all types of fires in a region have been added together to give the regional total presented in the tables and graph. Due to

[19] Canada's National Forest Inventory (2016) Standard reports. Retrieved on November 4, 2024

[20] Canadian Council of Forest Ministers (2023) National Forestry Database, Collaborators. Retrieved on November 4, 2024

[21] Canada's National Forest Inventory (2016) Standard reports. Retrieved on November 4, 2024.

data collection methods, forest fires taking place in national parks are first allocated to Parks Canada each year before being reallocated to provinces and territories as appropriate in future years. Therefore, provincial and territorial totals may change between years due to this reallocation.

Area of defoliation by insects

Data for this measure has been taken from the National Forestry Database. The data for this measure have been summarised nationally.

Estimated area of annual deforestation in Canada

Deforestation is the conversion of forest to non-forest land uses. Consistent with international definitions, deforestation does not include harvest followed by forest regrowth. The National Deforestation Monitoring System tracks changes from forest land to other land uses across Canada.

Deforestation by sector:

- Forestry sector includes the creation of new permanent forestry access roads and landings
- Hydroelectric sector includes new hydro lines and reservoir flooding
- Built-up sector includes industrial, institutional or commercial developments as well as municipal urban development, recreation (ski hills and golf courses) and transportation
- Mining, oil and gas sector includes mine development for minerals and peat as well as oil and gas developments

National deforestation estimates are calculated on a periodic basis using the method described in the National Deforestation Monitoring System description report. Data from the National Deforestation Monitoring System was provided to the Canadian Forest Service as a special tabulation, which has subsequently been used for this indicator from the State of Forest Report produced by Natural Resources Canada.

Data for this indicator has been summarized as its total, rather than being presented by industry.

Forest regeneration

The information included in this section was taken directly from the National Forestry Database.

Caveats and limitations

Area measurements used in this indicator are shown in square kilometers, where they may appear in hectares in other sources.

More information

Timber harvest

Annual roundwood harvest versus wood supply

National aggregation can mask variability between areas. In some cases, data are either unavailable or too small to be expressed or included in the national aggregate values.

National aggregation can mask Crown harvests above or below the annual allowable cut in individual provinces. Similarly, the provincial aggregates can mask variability among management areas. If harvesting above the annual allowable cut occurs in a portion of a regulation period, it may be balanced at another time or location in such a way that the overall annual allowable cut of the regulation period is not exceeded.

Detailed caveats on the quality or completeness of annual data from individual provinces and territories, including explicit indications of which data are estimates, can be found in the National Forestry Database.

Annual allowable cuts are calculations of the sustainable wood supply on Crown lands established by professional foresters with the objective of maintaining sustainable wood supplies over long periods. Annual allowable cut calculations use sophisticated growth models and scientific data to help estimate future wood supply and take into consideration fluctuating social, economic, or environmental factors.

A large percentage of forest land in Atlantic Canada is privately owned. The breakdown of private ownership across Atlantic provinces is approximately as follows:

- New Brunswick: 47%[22]
- Nova Scotia: 66%[23]
- Prince Edward Island: 88%[24]
- Newfoundland and Labrador: 4%[25]

Because of the high percentage of private land in Atlantic Canada, provincial agencies that determine annual allowable cuts must also assess the potential timber supply on private land. Because private woodlots are not regulated by legislation, there is uncertainty associated with this portion of the wood supply equation. However, as the Atlantic region accounts for only about 8% of Canada's total wood supply, the uncertainty on a national scale is small.

The Canadian Forest Service wood supply estimates for private lands are often based solely on the average of past harvests, which are generally unregulated. Although estimates are provided, it is difficult to be certain whether harvesting on those lands is sustainable.

Resources

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Annex A. Data tables for the figures presented in this document

Table A.1. Data for Figure 1. Maximum sustainable wood supply and annual harvest of industrial roundwood, Canada, 1990 to 2022

Year	Sustainable wood supply (million cubic metres)	Industrial roundwood harvested (million cubic metres)	Industrial roundwood harvested as a proportion of sustainable wood supply (percentage)
1990	248	156	63
1991	246	154	63
1992	242	164	68
1993	238	170	71
1994	238	177	74
1995	234	183	78
1996	235	178	76
1997	237	184	77
1998	235	174	74
1999	240	197	82
2000	235	200	85
2001	236	184	78
2002	237	195	82
2003	240	181	76
2004	247	208	84
2005	245	201	82
2006	248	183	74
2007	252	162	64
2008	251	138	55
2009	242	116	48
2010	238	141	59
2011	233	147	63
2012	231	149	65
2013	228	151	66
2014	231	150	65
2015	223	156	70
2016	219	155	71
2017	219	153	70
2018	217	155	71
2019	216	139	65
2020	215	138	64
2021	215	137	64
2022	214	130	61

Note: Sustainable wood supply data presented are for industrial roundwood only. Harvested industrial roundwood is intended to be delivered to a mill (for example, logs and bolts, and pulpwood) and also includes poles and pilings. The total roundwood harvested column includes

harvest of industrial roundwood, fuelwood and firewood.
Source: Canadian Council of Forest Ministers (2024) National Forestry Database.

Table A.2. Data for Figure 2. Number of forest fires by region, Canada, 1990 to 2023

Year	Atlantic (number of fires)	British Columbia (number of fires)	Ontario (number of fires)	Prairies (number of fires)	Quebec (number of fires)	Territories (number of fires)	Total (number of fires)
1990	1 077	3 255	1 612	2 825	851	390	10 010
1991	1 545	2 014	2 560	2 378	1 216	518	10 231
1992	1 005	3 805	960	2 058	765	401	8 994
1993	826	1 497	742	1 760	543	609	5 977
1994	953	4 057	1 079	2 183	499	908	9 679
1995	1 069	1 474	2 150	2 121	1 265	366	8 445
1996	748	1 360	1 275	1 247	1 250	499	6 379
1997	850	1 176	1 646	1 325	876	217	6 090
1998	841	2 663	2 291	3 522	854	597	10 768
1999	1 293	1 198	1 025	2 724	1 037	331	7 608
2000	703	1 551	653	1 643	517	330	5 397
2001	1 213	1 320	1 596	2 432	1 005	196	7 762
2002	716	1 795	1 163	3 150	899	155	7 878
2003	656	2 490	1 043	3 124	720	237	8 270
2004	660	2 418	435	2 072	322	581	6 488
2005	732	1 006	1 978	2 017	1 375	344	7 452
2006	628	2 587	2 292	3 316	684	247	9 754
2007	780	1 641	1 129	2 135	939	295	6 919
2008	495	2 058	344	2 803	223	316	6 239
2009	547	3 101	391	2 443	485	178	7 145
2010	479	1 731	933	3 120	740	313	7 316
2011	227	684	1 340	1 839	331	257	4 678
2012	837	1 659	1 635	2 573	798	416	7 918
2013	609	1 879	582	2 224	528	434	6 256
2014	358	1 478	309	2 157	296	422	5 020
2015	503	1 871	675	3 150	392	443	7 034
2016	582	1 075	657	2 100	607	246	5 267
2017	508	1 400	781	2 264	322	383	5 658
2018	613	2 123	1 339	2 317	597	114	7 103
2019	425	843	541	1 623	362	265	4 059
2020	741	684	614	1 156	712	94	4 001
2021	381	1 663	1 206	2 565	629	265	6 709
2022	489	1 818	281	2 049	453	563	5 653
2023	531	2 269	743	1 916	713	522	6 694

Note: Data include fires of known and unknown or indeterminable origin. The Territories region includes Yukon and Northwest Territories. Nunavut was not included as they are not a part of the data sharing agreement with Natural Resources Canada. The Prairies region includes Manitoba, Saskatchewan and Alberta. The Atlantic region includes New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador. Totals for 2023 do not include forest fires taking place in national parks as they have not been reallocated to the appropriate provinces and territories.
Source: Canadian Council of Forest Ministers (2024) National Forestry Database.

Table A.3. Data for Figure 3. Area burned by forest fires by region, Canada, 1990 to 2023

Year	Atlantic (square kilometres)	British Columbia (square kilometres)	Ontario (square kilometres)	Prairies (square kilometres)	Quebec (square kilometres)	Territories (square kilometres)	Total (square kilometres)
1990	320	758	1 836	2 911	833	2 875	9 533
1991	618	252	3 188	3 559	4 383	3 457	15 458
1992	84	305	1 760	5 351	271	748	8 518
1993	297	52	1 047	7 032	1 282	9 794	19 504
1994	1 114	298	836	23 715	1 160	34 490	61 613
1995	17	481	6 126	28 800	7 277	31 053	73 754
1996	840	207	4 490	1 539	6 916	4 626	18 618
1997	95	30	386	506	3 931	1 380	6 327
1998	411	768	1 582	22 440	4 183	18 027	47 410
1999	424	116	3 283	4 813	978	7 559	17 171
2000	1 045	178	68	2 800	392	1 859	6 342
2001	23	142	109	4 531	331	1 341	6 477
2002	156	86	1 822	14 802	10 138	633	27 636
2003	292	2 834	3 191	12 718	883	1 766	21 684
2004	29	2 203	17	7 180	31	22 370	31 830
2005	193	368	424	3 826	8 001	4 056	16 868
2006	62	1 394	1 500	15 123	1 364	1 564	21 007
2007	127	300	407	8 760	3 427	4 835	17 855
2008	30	153	14	13 218	16	3 219	16 649
2009	178	2 475	207	1 417	940	2 409	7 626
2010	16	3 372	148	20 116	3 149	4 979	31 780
2011	6	132	6 360	13 651	124	3 702	23 974
2012	300	1 032	1 530	10 986	640	3 628	18 117
2013	314	188	511	15 410	18 728	7 534	42 685
2014	95	3 689	64	6 725	639	34 245	45 457
2015	45	2 810	427	26 821	62	8 920	39 084
2016	118	1 005	862	8 101	339	2 771	13 196
2017	19	12 299	1 129	7 740	384	14 324	35 894
2018	9	13 609	2 657	5 122	863	1 028	23 288
2019	7	215	2 697	11 233	97	3 612	17 862
2020	64	147	155	971	600	246	2 182
2021	9	8 664	7 846	21 653	497	2 120	40 789
2022	275	1 356	26	6 153	297	7 744	15 851
2023	479	28 408	4 415	39 920	43 229	45 374	161 825

Note: Data include fires of known and unknown or indeterminable origin. The Territories region includes Yukon and Northwest Territories. Nunavut was not included as they are not a part of the data sharing agreement with Natural Resources Canada. The Prairies region includes Manitoba, Saskatchewan and Alberta. The Atlantic region includes New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador. Totals for 2023 do not include forest fires taking place in national parks as they have not been reallocated to the appropriate provinces and territories.
Source: Canadian Council of Forest Minister (2024) National Forestry Database.

Table A.4. Data for Figure 4. Area disturbed by insects, Canada, 1990 to 2022

Year	Forest area disturbed (1 000 square kilometres)
1990	202
1991	339
1992	421
1993	206
1994	116
1995	130
1996	72
1997	43
1998	62
1999	103
2000	156
2001	245
2002	206
2003	205
2004	131
2005	163
2006	199
2007	187
2008	139
2009	151
2010	130
2011	90
2012	88
2013	201
2014	204
2015	157
2016	155
2017	171
2018	164
2019	145
2020	178
2021	153
2022	132

Note: Includes beetle-killed trees. Trees that suffer moderate to severe defoliation are those on which 30% or more of the current foliage has been removed.
Source: Canadian Council of Forest Ministers (2024) National Forestry Database.

Table A.5. Data for Figure 5. Estimated total area of annual deforestation, Canada, 1990 to 2022

Year	Total estimated area of deforestation (square kilometres)
1990	641
1991	627
1992	581
1993	861
1994	471
1995	422
1996	433
1997	437
1998	476
1999	506
2000	448
2001	446
2002	553
2003	489
2004	505
2005	492
2006	758
2007	482
2008	484
2009	427
2010	413
2011	429
2012	447
2013	550
2014	583
2015	573
2016	573
2017	526
2018	500
2019	508
2020	506
2021	505
2022	492

Source: Natural Resources Canada (2025) State of Canada's Forest Annual Report.

Table A.6. Data for Figure 6. Total area planted and seeded, Canada, 1990 to 2022

Year	Total area planted (square kilometres)	Total area seeded (square kilometres)	Seedlings planted (millions)
1990	4 844	408	800
1991	4 650	667	761
1992	4 234	362	691
1993	4 186	291	675
1994	4 422	305	679
1995	4 428	266	678
1996	4 394	328	651
1997	4 499	269	684
1998	4 492	326	698
1999	4 562	263	708
2000	4 599	201	702
2001	4 765	214	702
2002	4 486	189	655
2003	4 369	461	643
2004	4 414	217	645
2005	4 737	195	681
2006	4 921	205	715
2007	4 928	346	704
2008	4 547	206	670
2009	4 052	159	584
2010	3 924	121	534
2011	3 792	112	548
2012	3 666	105	524
2013	4 354	116	585
2014	4 283	172	580
2015	4 442	198	607
2016	4 323	299	638
2017	4 409	189	633
2018	4 342	69	624
2019	4 484	88	642
2020	4 685	136	684
2021	4 949	87	711
2022	4 131	98	584

Note: The data for 2022 only contains provincial land data. The data for 1990 to 2021 contains data from provincial, federal and private lands.
Source: Canadian Council of Forest Ministers (2024) National Forestry Database.

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