

FACT SHEET

CANADA'S BOREAL
FOREST – ALWAYS
CHANGING

The diverse forests that make up almost half of Canada's land mass are dynamic and constantly change over time.



This is especially true in the boreal forest, which began to form after the retreat of the glaciers 10,000 years ago. The boreal forest region, part of a vast global coniferous forest, stretches across Canada.

While parts of Canada's boreal region contain significant amounts of relatively undisturbed forest, most stands are replaced naturally by fire, insects, diseases and wind or ice storms every 100 years or so. Its oldest trees and stands are those that have escaped the natural catastrophic disturbances that renew forests in the region.

Older boreal forests may not be as impressive as the towering stands of majestic trees

found in more moderate climates such as British Columbia's Pacific Coast region, but they are still complex and important. Like all healthy ecosystems, forests are dynamic and have a variety of ages – the oldest forests have new growth, and older trees can be found in new forests.

Age of boreal trees

Trees in the boreal forest generally live 100 years, with the oldest trees living up to 300 years. Balsam fir stands often show old-growth characteristics at 70 to 80 years, while the old-growth onset for black spruce is closer to 110 to 160 years. Averages change depending on site conditions.

What is old growth?

There is no internationally accepted definition for old-growth forests; however, scientists agree there are some common traits. Old growth is more complex than younger forests, and tends to have more standing dead trees, or snags, and more fallen trees. The trees are older and often larger, and the forest canopy is layered with openings that allow light to penetrate, encouraging the growth of underbrush or seedlings.

The actual age, quantity of dead wood, and other old-growth attributes vary depending on the species composition and environmental conditions of a particular forest. Although the range of species and general soil conditions across Canada's vast boreal region do not change dramatically, there are substantial differences in the landscape patterns and successional trends.

Research suggests that old-growth forests may serve as natural reservoirs of genetic diversity and reproductive fitness for the constituent tree species. This has important implications for the dispersal and adaptation of trees across increasingly fragmented forest landscapes, especially in light of climate change and the introduction of new pest and disease problems.

Species	Tree longevity*	Old-growth onset age**
Trembling Aspen	50–100	90–100
Balsam Fir	60–100	70–80
Jack Pine	70–100	90–110
White Birch	70–140	90–110
Black Spruce	200–300	110–130
White Spruce	200–300	110–130

* Burns and Honkala 1990
** Uhlig et al. 2001

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As a result, Canada's old-growth conservation goes well beyond the more traditional areas of watershed and habitat protection, and includes emerging cross-sectoral issues such as the conservation of genetic resources and carbon sequestration.

Managing the boreal naturally

Forest managers in Canada ensure that silviculture practices are ecologically sensitive and support sustainable forest management.

Clearcutting is generally the most ecologically appropriate way to harvest and renew the boreal forest. Forest managers are retaining more trees and more coarse woody debris to provide structure in forest stands and the landscape, as well as planning harvest areas around natural boundaries and leaving reserves around sensitive areas such as waterways or important wildlife habitat.

In Alberta, teams of scientists are studying the important question of just how large reserves must be to maintain ecosystem integrity, and which practices best mirror natural disturbances. Their work involves both large-scale harvest-silviculture experiments and modeling based on the experimental results.

Ontario's old-growth strategy provides for the identification and conservation of old-growth conditions and values in forest ecosystems through natural heritage protection and sustainable forest management practices. Its adaptive approach to policy development ensures that the latest scientific knowledge and technology is considered in policy and management decisions.

Forest companies in Quebec must retain about 10 per cent of the mature trees in a stand to ensure there is a good source of replacement stock. Objectives to maintain biodiversity will be added to forest management plans in 2008, including silvicultural treatments that emulate the natural forest dynamic.

In Newfoundland and Labrador, researchers are studying the effects of logging on the endangered Newfoundland pine marten, which lives in old-growth boreal forests, and are looking for ways to improve habitat so marten are attracted to new areas.

Forests that reflect the working definition of old growth must be retained in each of British Columbia's ecological units to meet biodiversity needs, and government designates old-growth management areas that are excluded from harvesting.

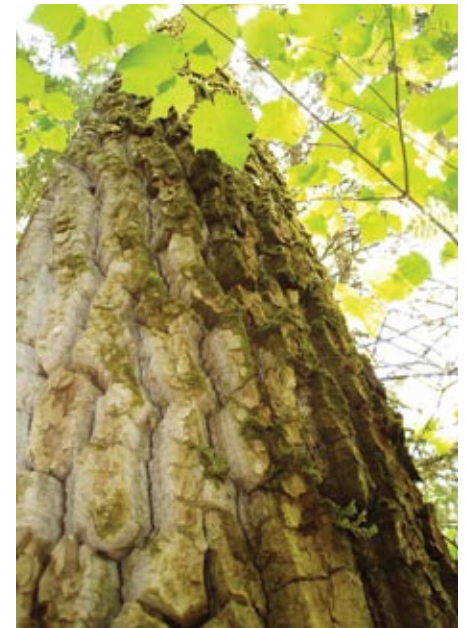
Canada leads the world in voluntary, independent forest certification. Much of the land in its boreal region is certified to one of the three globally recognized forest certification programs — all of which address conservation values in the context of biodiversity and special sites, which includes old-growth forests.

Conserving the boreal forest

About half of Canada's boreal forest has commercially productive timber, and about half of this area is managed for forestry. The rest is either unavailable because it has been designated as protected or it is currently considered inaccessible. About 750,000 hectares (1.85 million acres), or 0.2 percent of the total boreal forest, are harvested each year. Much of Canada's boreal forest is publicly owned and managed by government on behalf of Canadians.

Canada has about 90 per cent of the forested land it had before European settlement. A recent analysis estimated that less than 100,000 hectares (about 250,000 acres) of the country's 400 million hectares (almost one billion acres) of forest land are permanently converted to other uses each year. This includes a small amount of boreal forest that is converted to uses such as agriculture, oil and gas development, and hydroelectric reservoirs. Areas that are harvested for forest products are generally returned to a healthy growing forest.

Canada's network of protected areas represents all of its forest ecosystems — eight of the country's 12 ecozones are found in the boreal region. About eight per cent of Canada's boreal forest is protected, more than any other country with boreal forests.



Almost one third of the country's national parks are in the boreal region, including Wood Buffalo, Canada's largest national park and one of the largest in the world. The park protects an undisturbed expanse of boreal wilderness in northern Alberta and the Northwest Territories, and is home to the largest free-roaming herd of buffalo in the world.

There are also dozens of provincial protected areas across the region, such as Wabakimi in Ontario, one of the world's largest boreal forest reserves, and Lesser Slave Lake in Alberta, home to the boreal centre for bird conservation.