

Canadian Institute of Forestry/Institut forestier du Canada
“Voice of Forest Practitioners”

Information Paper

Forest and Climate Change

Issue

Although climate change has been the object of a great deal of press coverage, it is not a new phenomenon. Indeed, while the world’s climate has always warmed and cooled during different epochs due to natural causes, the average temperature of the earth’s surface has remained relatively constant over the past 100 000 years. More recently, however, human activities associated with production and consumption activities have increased to a point where they significantly contribute to these natural processes. Humankind’s actions have thus become a significant factor in influencing present and future climatic conditions.

Background

The most significant human impact on climate results from the increasing emissions of gases (particularly carbon dioxide, nitrous oxide, methane, chlorofluocarbons and ozone) into the atmosphere. Other impacts include changing land use (e.g. conversion of tropical and temperate forests to Savannah, and agricultural grass lands to deserts) urban heat, jet condensation trails, smoke and dust. Together these impacts have resulted in a global warming of about 0.6°C over the past century, and it is predicted that a further rise of 1 to 4.5°C will take place by the 2030s unless human impacts are greatly reduced immediately. High latitudes in both hemispheres will experience the greatest warming, and the amount of warming will be greatest in the winter months. Thus Canada is expected to bear the brunt of the impact of climate change in North America.

Potential impact of climate change on trees and forest:

1. Canada’s tree line may gradually migrate 100 km northward for every Celsius degree of warming. This should result in a northward movement of the zone of maximum growth of a given tree species.
2. Tree growth may be enhanced in areas where low temperature is now a limiting factor.



3. It is likely that new species, varieties and forms may evolve as a result of climatic change, species migration and exposure to new habitats.
4. Some currently forested areas in Canada, particularly the southern limits of some forest types, may no longer be suitable for the growth of particular indigenous tree species. Maintaining forest cover in these areas may require the introduction of tree species and varieties currently restricted to the United States.
5. The anticipated increase in temperature, and an associated decrease in summer precipitation or modification of the precipitation regime in parts of Canada is likely to increase wildfire activity and intensity.
6. The warming may affect the activity, abundance and distribution of many insects and diseases. A warmer climate will likely expand the distribution of some forest pests to higher latitudes and altitudes.
7. Reduced snow cover and warmer winters may require adjustments in forest harvesting operations, especially when heavy machinery and equipment are used.
8. Changes in the growth and composition of forests and associated ground vegetation will likely influence wildlife population.
9. In the long term Canada's network of ecological reserves and parks may have to be re-evaluated because of changing ecosystems.

CIF/IFC Position

The CIF/IFC recommends that:

- 1) the scientific community utilize appropriate climatic change models to provide estimates of the potential impact of global warming on forest dynamics such as growth and biodiversity;
- 2) the scientific community assesses the adaptability of Canada's forest ecosystems to climate change, particularly with regard to sustainability; and,
- 3) the forest sector takes measures to mitigate the effect of climate change, particularly by addressing the carbon budget of the Canadian Forest Sector through application appropriate silvicultural and management activities;
- 4) the scientific community work with the forest sector to develop appropriate sustainable forest management strategies to help ameliorate the predicted problems arising from climate change.



The CIF/IFC

The Canadian Institute of Forestry / Institut forestier du Canada (CIF/IFC) is a national voice of forest practitioners. The CIF/IFC, formed in 1908, represents members who are foresters, forest technologists and technicians, educators, scientists and others with a professional interest in forestry. The Institute's mission is *"to provide national leadership in forestry, promote competence among forestry professionals, and foster public awareness of Canadian and international forestry issues"*.

We are people with a professional interest in forestry, working in government, industry, academic and consulting fields. Our members use their education, training, and experience to help manage the forests of Canada and to make the Canadian public *aware of forestry*.

This brochure is a statement of what we stand for - the Institute's position on Forests and Climate Change.

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