

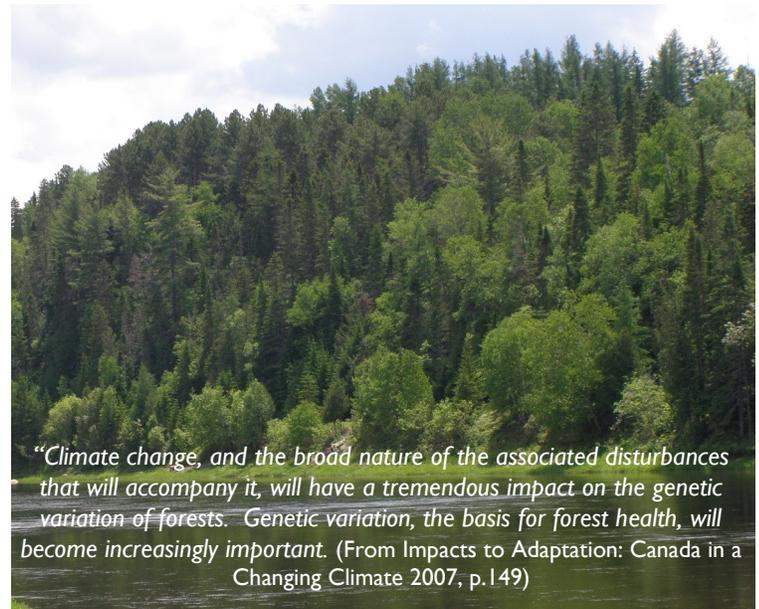
What Ecological Services Do Forests Provide to Us in a Time of Climate Change?

Forests help moderate the temperatures around our communities. They provide shade for rivers, moderating water temperatures and regulating the amount of water flowing into rivers and streams. Forest trees and plants hold onto soil and slow down soil erosion. They slowly absorb snowmelt and rainwater to help prevent floods. They help moderate the water cycle, ensuring a more consistent quality and quantity of drinking water supplies.

In a time of changing climate, with increased temperature and precipitation fluctuations, forests will buffer our communities and our natural resources from negative impacts. Without diverse forest ecosystems throughout the province, we will spend large amounts of money and resources to replace these services they provide to us naturally.

What is Predicted to Happen in New Brunswick's Forests?

- An overall increase in temperature and changing precipitation patterns will cause some tree species to have a harder time growing. The natural ranges for most species are expected to move northward or to higher elevations. Some trees and plants currently in their ideal growing zone here in New Brunswick will find themselves in marginal habitat, resulting in poorer growth, and new species of trees may move in and be more competitive.
- Tree growth and regeneration will be affected by extended periods of drought, especially inland. Some tree species with shallow root systems, like spruce and hemlock, will be particularly affected. Growth may also be slowed by the combination of climate impacts and loss of nutrients in the ground resulting from logging and biomass harvesting.
- There will be an increased likelihood of invasive insects and diseases not normally seen this far north (for example, Hemlock Woolly Adelgid). As a result, we can expect to see more infestations, especially in plantations. This could lead to more calls for using pesticides.
- The increased severity in seasonal storms may result in increased damage to our forests, especially in areas where the natural forest structure has been weakened by development or less conservation-oriented forestry practices.



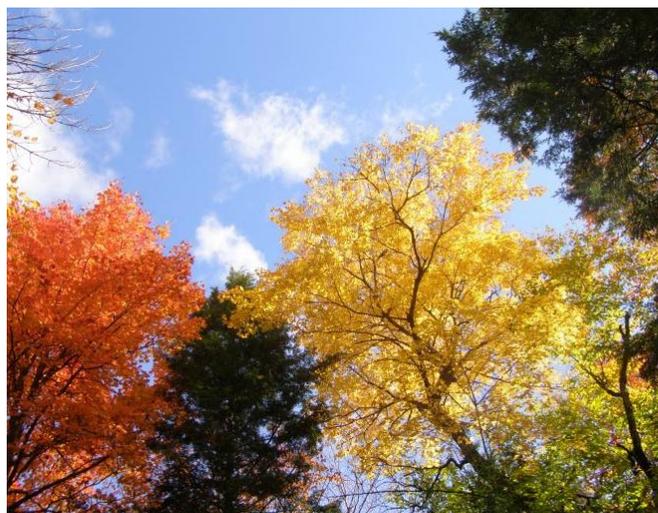
What are Possible Solutions for Forests and Climate Change?

- Forests will respond to climate change most resiliently if they are healthy and diverse, with many native plant species, and various canopy and understory habitat layers. Many insects that can cause problems for forest resources, such as spruce budworm and ash borer beetle, focus on a single species of tree. In a less diverse forest or plantation, these insects find lots of their preferred food and can rapidly degrade large tracts of forest. In a mixed-wood forest, their population growth will be slower and the resulting damage lessened.

- Songbirds, like warblers, are often the natural predator for many insects that can have large population spikes and cause problems. To encourage songbirds to live in our forests, we need to ensure that there is suitable habitat for them. This means having a variety of trees and plants of varying ages in which birds can find food and nesting habitat. As we cannot predict what new species of songbird we may expect in the future, our forests need to keep a variety of native tree species.
- Invasive ground plant species can be discouraged by retaining and encouraging undergrowth in our forests. New species will find it more difficult to gain a foothold in areas already rich in healthy ground cover.
- Forests with trees of mixed ages and structures are more capable of withstanding the ravages of severe storms. While some trees may be damaged or fall down as a result of wind, younger or stronger rooted trees mixed in with them will survive and provide protection for the remaining trees, shrubs and soil.

To Implement the Climate Change Action Plan Related to Forests:

- Forests managed through regulation and policy to conserve diversity and resilience - conserving older forests, multiple canopy and understory layers, and the widest variety of native species, will continue to help provide the ecological services we need.
- Genetic diversity of native tree species needs to be conserved or restored, to ensure that trees have the potential to adapt to new climatic conditions.
- Conserving large tracts of intact and road less forests in permanent protected areas will allow us to ensure that we have a diversity of forested habitats that are large enough to conserve the ecological integrity of forest ecosystems. Protected areas that are buffered from external developments and connected to other suitably conserved habitats will provide the kind of ecological safety net that will allow forests to respond well to climate change.
- Deforestation, or total removal of forests, through built development, road-building or other land conversion, should be minimized.
- Forest management needs to consider and plan for the combined impacts of climate change, forest harvesting and biomass removal on forest growth, diversity and the climate buffering services that forest provide to us.



Useful references:

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