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Branching Out

from the Canadian Forest Service - Laurentian Forestry Centre

Forest fire increase - a challenge for industry supply

In Canada, wood supply is currently planned on the basis of long-term sustainability. The projected increase in forest fire frequency would make this wood supply vulnerable over the next few decades in a number of management units across Canada.

Photo: NRCan

A major disturbance

Forest fires burn on average 2 million hectares of forest per year in Canada, predominantly in the boreal forest. These significant disturbances are part of the boreal forest's natural dynamics. Sustainable forest management strategies include consistent long-term harvest rates (over 100 to 150 years) with the goal of maintaining forest productivity. However, the projected increase in burned areas due to climate change suggests that maintaining these harvest rates across the territory could be impossible over the medium term.

Wood supply is threatened

Researchers assessed wood supply vulnerability based on current and future fire risks across management units in Canada's boreal and montane forests. They based their assessment on the harvest rates observed between 2001 and 2011, and on the harvest potential calculated using tree growth and current as well as projected fire risks. Results were calculated for different climate change scenarios.

Therefore, in some management units, the harvest rates observed would be greater than the estimated harvest potential by the mid-21st century. It should be noted that the increases in tree growth that are necessary to mitigate this risk generally seem unrealistic. In several other management units where wood supply is less vulnerable to the impact of fire, even a slight decrease in tree growth over time would be sufficient for the supply to go from slightly to moderately vulnerable.

Adaptation is the key

Researchers suggest adaptive measures in order to overcome this vulnerability, such as accounting for fire risk at every stage of strategic management planning, increasing salvage logging in burned forests, and increasing the proportion of hardwood species.

Other natural disturbances, such as insect outbreaks, are not included in the analysis, but their impacts on wood supply could affect these results.

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