

Briefing Note

Wildfire, Forestry, and Climate Change in Alberta

Why we cannot log our way out of the problem

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CPAWS SOUTHERN & NORTHERN ALBERTA

Purpose

This briefing summarizes current research on the interplay between wildfires, climate change, and forestry practices in Alberta. It outlines how climate-driven wildfire intensification is already imposing significant social, economic and environmental costs, and highlights science-backed strategies that reduce fire risk while also delivering significant co-benefits.

Key Context



Extreme and worsening fire seasons

Climate change is driving more frequent and severe wildfires. In 2023, roughly 2.2 million hectares burned in Alberta and the frequency of extreme wildfire seasons like 2023 is expected to sharply increase. Economic costs to the province are large, as are the social and health costs associated with evacuations, smoke and loss of infrastructure.

The role of forest management

Forest management has the potential to either mitigate or exacerbate wildfire risk. Clearcut logging, especially when re-planted with dense conifer trees can increase fire risk, fire intensity and reduce forest resilience, while alternative silvicultural systems, promotion of deciduous growth, and protection of wetlands and peatlands can reduce wildfire risk.

Location matters for wildfire mitigation

A one-size-fits-all approach to wildfire mitigation in Alberta will not work, and wildfire mitigation cannot be used as a reason to increase timber harvest across the landscape. Fuel treatments to reduce wildfire risk are most effective within, or immediately adjacent to, communities and infrastructure but typically have limited impact on broader landscape-level fire risk.

Maximizing community resilience

Increased and sustained investment in FireSmart approaches (e.g. ignition-resistance structures) to improve community resilience are needed. Investments in community resilience combined with the use of targeted fuel treatments close to communities and the development of fireguards, have been shown to provide the greatest direct protection to human values and are widely considered to be the priority for achieving community wildfire resilience.

Solution & Co-Benefits

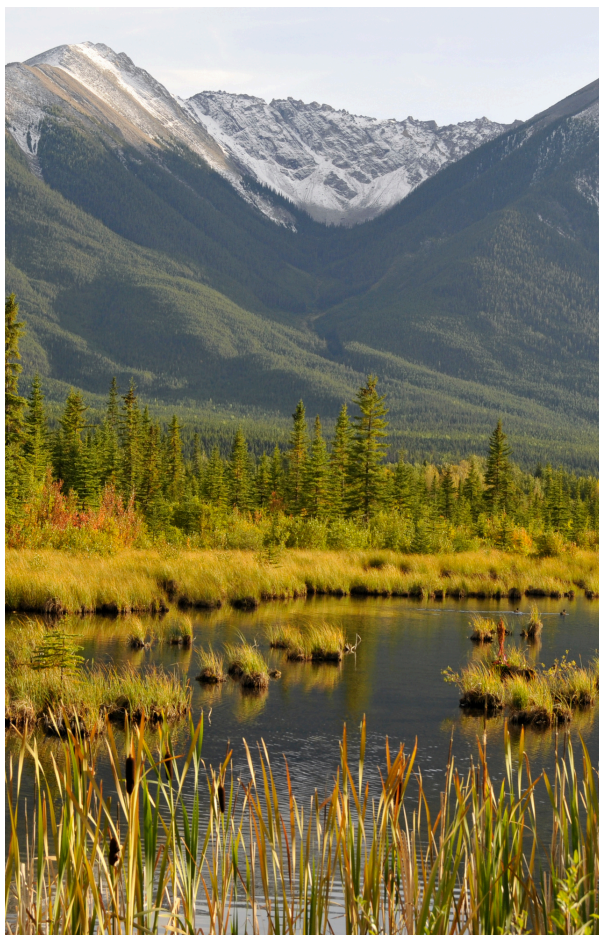
Recent research points to a range of strategies that reduce wildfire risk while yielding community or ecological benefits. No single solution in isolation is sufficient, but collectively, they are a method for achieving fire-adapted landscapes that reduce risk to communities, and benefit people and nature.

Community and Indigenous Forest management

Empowering local and Indigenous stewardship of forests can align fire mitigation with community needs. Community forestry models create more jobs than the industry average, generate substantial local economic returns, and improve environmental outcomes. Community Forest Agreements in British Columbia support 76% more local jobs than the industry average, while providing re-investments in climate change adaptation and wildfire risk reduction. Expanding community tenure models in Alberta is an opportunity to provide a system for achieving long-term fire mitigation objectives, while creating sustainable local employment, attracting investment into rural areas, and supporting reconciliation.

Cultural Burning and Traditional Fire Use

Indigenous cultural burns are a proven way to reduce fuel loads and restore fire resilience in forests. Re-introducing cultural burning (alongside modern prescribed fire where appropriate) can help create more fire-tolerant forest mosaics, improve habitat, and engage Indigenous knowledge holders in stewardship. Policy and funding barriers that prevent Indigenous and local groups from leading fire management should be identified and addressed.



Protect Older Forests, Peatlands, Wetlands and Other Refugia

Despite claims by the forestry industry that old forests are a high fire risk, intact primary forests, wetlands and peatlands are natural fire buffers that provide multiple ecosystem services including flood mitigation, carbon storage, and moisture retention. Protecting these ecosystems provides additional co-benefits such as water filtration, opportunities for tourism and recreation, and fisheries protection. Protecting refugia, particularly in a changing climate, also promotes ecosystem recovery and resilience.

Fire Resistance Reforestation Practices

Reforestation practices that promote fire-resistant species and avoid fire-prone dense conifer stands reduce overall wildfire risk and, when placed strategically, can act as natural fire breaks. Policies that direct the suppression of deciduous growth through herbicides or mechanical means should be avoided.

Wildland-Urban Interface (WUI) fuel treatments

Fuel treatments (e.g. thinning, fireguards) provide the greatest direct protection when located within or immediately adjacent to communities and infrastructure. These strategies must, however, be accompanied by longer-term risk reduction strategies such as replanting at lower densities and with deciduous species.

An Alberta Success Story

Bow Valley Community Fireguard

The Bow Valley Community Fireguard serves as a model for how large-scale community fire breaks can be developed in Alberta.



Community leadership

This project is a collaborative effort between the Town of Canmore, Municipal District of Bighorn and Kananaskis Improvement District with support from Alberta Forestry and Parks. It is funded through Forest Resource Improvement Association of Alberta (FRIAA) Community Fireguard Program. Harvesting operations are performed by West Fraser. Local leadership and a collaborative approach ensure that the project meets community needs.

Treatments based on wildfire risk

Where and how fuel treatments are implemented is based on wildfire risk, rather than timber value, with the primary purpose of the project being to protect adjacent communities. Any value from marketable timber that is extracted through the project will be used to support the project.

Ecological best practice

The fireguard design follows best ecological practice by attempting to preserve wildlife corridors, meet wildlife habitat objectives, and retain patches of intact forest. Deciduous trees and Douglas fir are retained, and maintenance is planned for every 15-20 years. In addition, prior to implementing the project, experts in human-wildlife coexistence were engaged and a wildlife and avian survey was conducted to minimise impacts to wildlife.

Community Hazardous Fuels Reduction Program



Alberta's Community Hazardous Fuels Reduction (CHFR) Program is a significant step that recognizes and attempts to address wildfire threat for selected communities in Alberta. The CHFR program leverages the significant resources and expertise available within the forestry industry to apply fuel treatments around communities.

Based on the findings of our literature review, we recommend that the CHFR program avoid re-purposing existing timber supply focused forest management plans, and instead supports communities in developing locally adapted, targeted programs for improving community fire resilience. Comprehensive, locally led, long-term plans and funding for community resilience are needed. The Bow Valley Community Fireguard project provides a local model for this approach.

Conclusion

Alberta is making progress in wildfire mitigation, but the success of these efforts will be determined by how well science is integrated into program and policy. Traditional forestry practices will not solve the wildfire crisis, and are, in fact, increasing wildfire risk in some cases. Protecting timber values does not inherently protect communities and we cannot log our way out of this problem.

Forest management policy and practice therefore need to shift toward a sustained focus on increasing long-term forest resilience. Forestry companies or contractors are well placed to provide technical expertise for fuel treatment efforts, but local communities should be supported to take leading roles in developing targeted, locally specific, fire risk reduction strategies.

No single solution will be sufficient to achieve community wildfire resilience. In practice, a multi-layered approach is needed: FireSmart investments in vulnerable communities, targeted fuel treatments and fire breaks in immediate risk zones in the Wildland-Urban Interface, protection of natural fire buffers, reversing perceptions around forest stand age and fire risk, strategic support for Indigenous leadership and cultural/prescribed burning, alternative forest management models, and diverse silvicultural systems.



Supporting Analysis

This briefing note is based on findings from an extensive literature review, as well as interviews with nearly a dozen experts, on the intersection between wildfire, forestry, and climate change. The literature review cites over 650 sources; primarily peer-reviewed scientific literature but also including government policy documents.

Authors

This briefing note was created by Canadian Parks and Wilderness Society (CPAWS) Southern and Northern Alberta Chapters. To learn more, visit cpaws-southernalberta.org and cpawsnab.org.