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Human-caused wildland fires in Canada:

why prevention matters

The State of Canada's Forests
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Canada

Wildland fire causes and trends in Canada: national and regional perspectives

Wildland fires are a natural and recurring part of Canada's forest ecosystems, shaping landscapes and supporting renewal and biodiversity. However, rising average temperatures, prolonged droughts, and changing weather patterns are causing wildland fires to burn much larger areas than in the past, increasing risks to communities, ecosystems, and people across the country.

Table 1. Fire ignition by cause in Canada, 1995–2024[1]

Year	Cause of fire ignition, No. of fires (%)[a]		
	Natural	Human activity	Unspecified
1995–2024			
1995–2004	34,398 (46)	36,446 (48)	4,397 (6)
2005–2014	32,337 (47)	34,344 (50)	2,026 (3)
2015–2024	27,529 (47)	28,773 (50)	1,893 (3)
Overall	**94,264 (47)**	**99,563 (49)**	**8,316 (4)**
2023–2024[b]			
2023	3,827 (56)	2,697 (39)	313 (5)
2024	3,097 (53)	2,571 (44)	176 (3)
Overall	**6,924 (55)**	**5,268 (42)**	**489 (4)**

[a] Totals may not sum to 100% due to rounding.
[b] Record-setting fire seasons.

In Canada, wildland fires are attributed to 2 categories of causes: human activity (e.g., accidents involving power lines, vehicles and campfires, as well as deliberate acts such as arson) and those caused by natural factors (lightning). In some cases, fire causes cannot be determined. Analysis from 1995 to 2024 shows that human activity accounts for just under half (49%) of all fire ignitions, whereas natural causes account for 47%, with the remaining 4% attributed to unspecified causes (**Table 1**). However, natural-caused fires are responsible for a large share of area burned (89%; **Table 2**).[1,2]

Table 2. Area burned by cause in Canada, 1995–2024[1]

Year	Cause of area burned, ha (%)[a]		
	Natural	Human activity	Unspecified
1995–2024			
1995–2004	22,793,635 (88)	1,831,618 (7)	1,420,718 (6)
2005–2014	21,940,691 (91)	1,545,434 (6)	717,643 (3)
2015–2024	37,027,768 (89)	2,224,169 (5)	2,532,302 (6)
Overall	**81,762,094 (89)**	**5,601,221 (6)**	**4,670,663 (5)**
2023–2024[b]			
2023	16,222,259 (92)	496,763 (3)	887,525 (5)
2024	5,232,133 (97)	81,569 (2)	60,642 (1)
Overall	**21,454,392 (93)**	**578,332 (3)**	**948,167 (4)**

[a] Totals may not sum to 100% due to rounding.
[b] Record-setting fire seasons.

Although national trends show that this pattern has remained largely stable over time, climate change is amplifying natural ignitions, which are the primary driver behind recent extreme fire seasons. During the record-setting fire years of 2023 and 2024, lightning was responsible for the majority of ignitions—56% in 2023 and 53% in 2024[2]—and accounted for approximately 93% of the total area burned.

Because lightning-caused fires tend to ignite in remote, forested regions, they are more likely to threaten northern and remote communities that are often small and isolated, making detection and emergency response more challenging. Many of these northern and remote communities are Indigenous, meaning the impacts of wildland fire are felt disproportionally by Indigenous Peoples. These communities are often evacuated for longer periods—sometimes multiple times per year—and are exposed to higher smoke levels. They may also face compounding challenges, including more limited access to health services, as well as drinking water contamination and food system disruptions due to wildland fires. At the same time, Indigenous people hold deep, place-based knowledge of fire that can contribute to more effective fire prevention and reduce impacts when fires occur.

Regional variation in wildland fire ignition causes

Considerable regional variation is evident:

- **Northern and western jurisdictions** (Yukon, Northwest Territories, British Columbia) consistently report lower proportions of human-caused fires (often <30%). However, lightning-caused fires tend to burn much larger areas, resulting in large fire footprints during lightning-driven seasons.
- **Atlantic provinces** (Nova Scotia, New Brunswick, Prince Edward Island) show very high proportions of human-caused ignitions (often >80%), reflecting population density and land use patterns.
- **Prairie provinces** exhibit mixed profiles, with Saskatchewan and Alberta showing nearly balanced proportions of human-caused and lightning-caused ignitions over time.[1]

These differences underline the need for region-specific prevention and mitigation approaches.

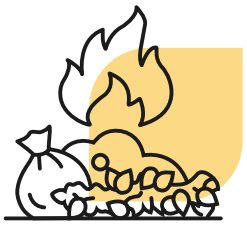
Insights from the analysis

The analysis of national fire-cause data indicates that the relative share of human-caused fire ignitions was lower during Canada's most extreme fire seasons, not necessarily because human-caused fires decreased—they were largely stable—but because lightning-caused ignitions increased under extreme conditions. The data shows that people continue to be responsible for a significant proportion of fire starts. However, in 2023 and 2024, extreme heat and drought conditions contributed to more frequent and consequential lightning-caused fires, which drove a disproportionate share of area burned. This shift highlights how changing climate conditions are reshaping Canada's wildland fire risk. Understanding cause-specific trends—nationally and regionally—is critical for effective prevention, mitigation, and long-term wildland fire resilience.

Reducing the risk of human-caused fires[3, 4]

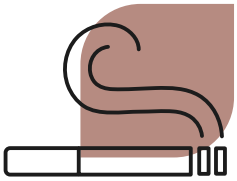
Although human activities account for a relatively small percentage of the area burned in Canada, everyone can still do their part—it starts with understanding potential ignition sources and taking appropriate precautions when lighting a fire.

Sources of accidental human-caused forest fires

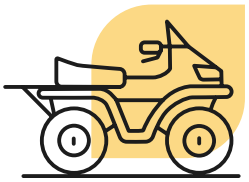


Burn waste

Hot ashes

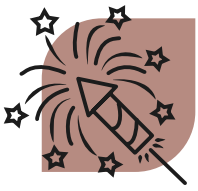


Smoking articles

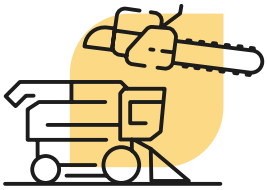


All-terrain vehicles

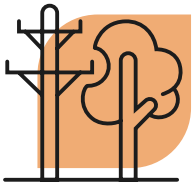
Campfires



Fireworks



Equipment and machinery



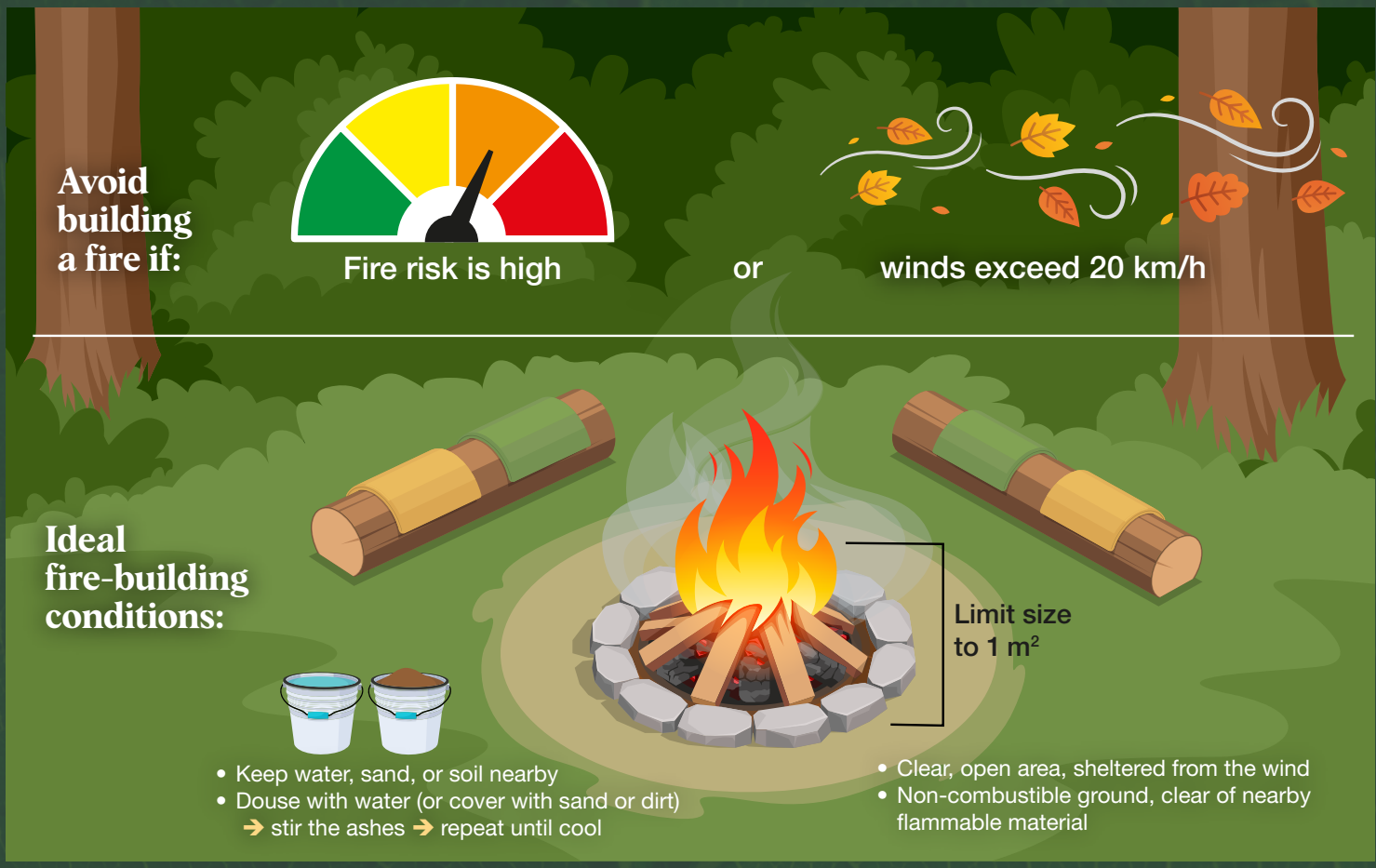
Powerlines

Railways

Construction and industrial activities

Prevention measures

Environmental and situational conditions to consider when building a fire



Additional safe practices to avoid causing fires[3,4]

- Dispose of yard waste through composting, green waste collection, or a local ecocentre rather than burning it.
- Avoid smoking while walking, working, or riding in an off-road vehicle (ORV).
- Fully extinguish cigarette butts before disposing of them.
- Avoid parking vehicles in dry grass or brush to prevent ignition from hot mechanical parts.
- Securely attach a 1 kg ABC fire extinguisher to your ORV.
- After using fireworks, inspect the site to ensure no embers or smouldering materials remain.

Sources:

1. National Forestry Database. Forest area burned and number of forest fires. 1990–2024. Natural Resources Canada; [updated 2026 Feb 13]. http://nfdp.ccfm.org/en/data/fires.php
2. State of Canada's forests: annual report 2024. Natural Resources Canada; 2024 [accessed 2026 Apr 13]. https://natural-resources.canada.ca/sites/admin/files/documents/2025-07/StateofForestReport-2024-EN.pdf
3. Wildfire facts. Canada Wildfire; [accessed 2026 May 8]. https://www.canadawildfire.org/wildfirefacts
4. Prevent wildfires. Society for the Protection of Forests Against Fire; [accessed 2026 May 20]. https://www.sopfeu.qc.ca/en/prevention/preventing-drilling-fires/