

Worst Possible Air Quality, Worst Wildfire Season on Record

by LEIF GREGERSEN

Deforestation is one of the biggest drivers of climate change, next to the burning of fossil fuels. As forests grow, they capture huge amounts of carbon. But each year across the globe, 15 million hectares are deforested, while regrowth replaces only five million hectares **for a net loss of 10 million hectares per year**. When these forests are cleared, the carbon they store is released into the atmosphere as carbon dioxide and contributes to climate change.

Canada has seen firsthand the devastating effects of this process. Climate change is one of the biggest factors in our record-setting forest fire year, with dry, hot weather leading to more thunderstorms, high winds and lightning.

Lightning is the ignition source for half of all forest fires, and it is responsible for 85 per cent of total area burned. When lightning is combined with an abundance of fuel, dry conditions and high winds, strikes can set fire to more than just the forest surface, sometimes even causing fires to burn underground. This is called a holdover fire, which can keep burning after a wildfire is extinguished, even over the course of an entire winter.

In Canada, we have had double the average number of fires in 2023, and the problem is hitting Eastern Canada worse than ever. The month of May this year was one of the hottest globally on record. This has contributed to 10.9 million hectares of forest and grassland scorched by fires so far in 2023. Deforestation results in warmer temperatures, and warmer temperatures initiate the vicious cycle of more deforestation.

Forest fires and the masses of smoke they create are a terrifying aspect of our changing climate. But the ecosystems in which they occur can actually benefit from smaller, less frequent fires. Fires release valuable nutrients stored in debris on the forest floor and open the forest canopy to sunlight resulting in new growth. Smaller fires also allow some species of trees to reproduce by opening their cones, allowing seeds to reach the soil. Small forest fires can also prevent larger, more dangerous fires by burning up dead vegetation that would otherwise accumulate into fuel. But when fires happen with more frequency and intensity, as they are this year, they become harmful. Larger, more frequent fires make it harder for ecosystems to recover from intense scorching.

TAKE ACTION

Counter deforestation by reducing your paper use and recycling paper and wood products whenever possible, using recycled construction materials and being responsible with fires when camping or cooking outdoors. Further actions could include writing letters to politicians and editors of newspapers and magazines, as well as participating in public gatherings and demonstrations to urge leaders to take real climate action.

One of the immediate dangers of the 868 fires which have burned so far this year in Alberta, where I am based, and the 121 fires currently burning as I write this in August 2023, is air quality. According to data tracked by The World Air Quality Index, on May 21, 2023, Alberta recorded the worst air quality in the world. During times of poor air quality, officials recommend staying indoors with windows shut and wearing N95 masks to prevent particulate matter from entering the respiratory system, bloodstream and eyes of those who are in areas of intense smoke. Frequently in Alberta this year, the air quality index has been reported at level 10+, which is the worst possible level. The smoke has affected other parts of Turtle Island/North America as well, with air traffic disrupted as far away as New York City due to forest fire smoke coming largely from Canada.

Among the hardest hit by the fires are people with disabilities, the elderly and those experiencing homelessness. Children may also experience coughing, bronchitis and other symptoms due to inhaling smoke. People with disabilities, **whose poverty rate is 14.4 per cent in Canada**, and the elderly, whose poverty rate is **6.7 per cent**, are less able to afford air conditioning, which makes staying indoors with windows shut in record-breaking heat next to impossible. These populations are also more likely to have existing respiratory conditions, making poor air quality extremely dangerous to them. People experiencing homelessness often have nowhere to go when the air quality reaches dangerous levels and often can't afford PPE like N95 masks.



Amiskwacīwāskahikan/Edmonton during a clear fall day in 2022.



The same spot during forest fire season in 2023.
PHOTOS: Leif Gregersen

It is also believed that for those in affected areas, the cumulative stress of poor air quality, the possibility of needing to be evacuated, experiencing hot weather with windows shut and not being able to go outside as frequently, along with the risk of losing everything to wildfires and having to leave animals and pets behind, can have extreme effects on a person's mental health. People with mental health disabilities – who are also at risk for higher rates of poverty and isolation – are also more likely to be **smokers**. It is estimated in Canada that half of all smokers have a mental health or substance use disorder. Using e-cigarettes or tobacco may exacerbate the effects of poor air quality on the respiratory system, further compounding the effects of forest fires on these populations.

The Alberta government has some efforts in place to support the needs of evacuees. Those who have had to leave their primary homes for seven days or more and don't have secondary residences are eligible for an evacuation benefit of \$1,250 per adult and \$500 per dependent child under 18. There are also provisions made for those who may need special accommodation in the form of social assistance payments. For many, this is a tiny fraction of what they have lost to fires. Fortunately, some jurisdictions have set up disaster relief funds and the Red Cross also helps those most affected.

One of the unfortunate realities of losing a home to wildfires is that many rural homeowners don't have adequate fire insurance. Rates for communities without close access to a fire department can be extremely high and many people in remote communities simply can't afford coverage. Even with insurance, there are things that can never be replaced. All too often, evacuees are unable to bring precious memories such as photo albums with them and there are many cases of people who just don't have the time or ability during an evacuation order to bring all their pets.

Currently (August 2023), 1,600 firefighters from Alberta and a further 900 members of the Canadian Armed Forces are fighting wildfires in Alberta. The provincial government has recruited firefighters from all over the world to join the fight, more than 2,000 of them coming from as far away as Portugal, Chile, New Zealand and Australia. In recent weeks, Alberta has fortunately experienced its fair share of rain, but this year will nonetheless easily turn out to be the worst forest fire season on record. The fear among climate scientists is that wildfires will only grow worse as the global temperatures increase.

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