

Wildfires & Climate Change in the Northwest

Large and severe fires in the Northwest are associated with warm and dry conditions. These conditions are likely to occur more frequently with climate change.



Temperatures are rising

Average annual temperature across Idaho, Oregon, and Washington has increased **2°F since 1895** and are projected to increase by **5.8° F by 2050**.



Snowpack is decreasing

Less snowpack is accumulating over the winter and melting earlier than before. More precipitation is falling as rain.



Area burned by fire has increased

Wildfires are larger and more costly than ever before. All future fire models suggest that **there will be more fire in the Northwest in the future**.



Forests are drier for longer periods

Drier soils and vegetation mean that Northwest forests are primed for wildfire to **ignite and spread**.

How will changing wildfire patterns affect Northwest forests?

- Shade-loving, thin-barked, and fire-intolerant species (e.g., western hemlock) could be replaced by fire-tolerant, thick-barked species (e.g., ponderosa pine and Douglas-fir), and species that are good at dispersing seeds after fire.
- Tree density may decrease in dry forests and woodlands with increased fire, and tree regeneration may be hampered by hot and dry conditions.
- Reburns of recently burned areas could increase and reduce conifer regrowth.
- Young forests could grow increasingly common as older forests burn, which may affect old-forest loving species like the Northern spotted owl.
- With increased fire, there will be more opportunities for invasive plant species to establish; invasive species may outcompete some native species after fire.
- Increasing fire will interact with other stressors, including drought, insect outbreaks, and invasive species, to drive forest change in a warming climate.



Can we say that a wildfire is caused by climate change?

A single fire cannot be attributed to climate change unless a scientific attribution analysis of fire conditions is conducted. Many other factors influence wildfire, including human ignitions, short-term weather conditions, winds, fuel levels, and forest management. Yet, recent trends in wildfire are consistent with climate change projections and what is expected in the future.



Additional Resources

- [Climate Change and Wildfire in the Northwest: Northwest Climate Hub](https://www.climatehubs.usda.gov/hubs/northwest/topic/climate-change-and-wildfire-northwest) <https://www.climatehubs.usda.gov/hubs/northwest/topic/climate-change-and-wildfire-northwest>
- [Changing Wildfire, Changing Forests](https://link.springer.com/article/10.1186/s42408-019-0062-8): a scientific paper explaining the effects of changing fire regimes on forests in Idaho, Oregon, Washington, and Montana. <https://link.springer.com/article/10.1186/s42408-019-0062-8>
- [Adaptation Strategies](http://adaptationpartners.org/library.php) for increasing forest resilience and decreasing wildfire intensity. <http://adaptationpartners.org/library.php>