

# 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>