

# Bushfires

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Dozens of fires erupted in New South Wales, Australia, prompting the government to declare a state of emergency in November 2019. Fires rapidly spread across all states to become some of the most devastating on record. An area about the size of South Korea, roughly 25.5 million acres, had burned.

## Features of Bushfires

- Bushfires are **fires that burn through areas of bushland**. They are a **type of wildfire**, fires that burn through wild vegetation like woodland, scrubland, grassland or savannahs. These fires are **unpredictable and difficult to control**.
- These fires are particularly common in areas that experience **hot, dry weather**, like Australia, Greece, Africa and parts of the USA, like California.
- Bushfires are actually **part of an important natural cycle**. Flames can kill insects and diseases that harm trees. Low intensity fires burn dead or decaying debris on the ground which helps return nutrients to the soil.
- Fires also make space for new shoots to grow, and for more sunlight to reach the ground, creating a valuable food source and new habitat for animals and birds.
- Bushfires become dangerous when they grow out of control and encroach on communities.
- The flames can burn through buildings, and breathing in the smoke from fires can be harmful. Windy weather conditions can fan the flames, spreading the blaze more quickly.

## Causes of Bushfires

- They can **start naturally, when lightning strikes** and ignites dry plants and trees, like the golden wattle

tree.

- But they can also be **caused by people**, for example, by someone not extinguishing their campfire properly.
- **Climate change** doesn't start bushfires, but it does **cause them to become larger and more ferocious**. That's because the warming planet is experiencing more intense periods of drought, drying out the vegetation that fuels the fires. All that's needed is a spark.

## Factors Impacting Bushfires

- **Fuel Load:** It describes the amount of fallen bark, leaf litter and small branches accumulating in the landscape. Generally speaking, the greater the fuel load, the hotter and more intense the fire.
- **Fuel Moisture:** Dry fuel will burn quickly, but damp or wet fuel may not burn at all. As a consequence, the time since rainfall and the amount of rain received is an important consideration in assessing bushfire danger.
- **Wind Speed:** Wind acts to drive a fire by blowing the flames into fresh fuel, bringing it to an ignition point and providing a continuous supply of oxygen. Wind also promotes the rapid spread of fire by spotting, which is the ignition of new fires by burning embers lofted into the air by wind.
- **Ambient Temperature:** The higher the temperature the more likely it is that a fire will start or continue to burn. This is because the fuel is closer to its ignition point at high temperatures and pre-heated fuel loads burn faster.
- **Relative Humidity:** Dry air promotes a greater intensity fire than moist air. Plants become more flammable at a low humidity because they release their moisture more easily.
- **Slope Angle:** Fires pre-heat their fuel source through radiation and convection. As a result, fires accelerate when travelling uphill and decelerate travelling

downhill. The steepness of the slope plays an important role in the rate of fire spread.