

# Bushfire Fuel and Prescribed Burning

Fuels are often referred to when people talk about the risk of bushfire in an environment, but what does that really mean? Which fuels are actually the most hazardous and what can we do about it?

## What is bushfire fuel?

Materials referred to as bushfire fuels are the parts of the environment that burn and carry a fire forward. This means living and dead vegetation that accumulates over time.

Fuels can be characterised by type, size, quantity, arrangement and moisture content.

Common bushfire fuels include:

- forest litter lying on the ground (twigs & leaves)
- shrubs and heathy plants
- grasses
- trees, logs, stumps and bark

## Fine fuels

Fine fuels are defined as any materials less than 6mm wide, or smaller than your little finger. This includes fallen bark, leaf litter, grass, tussocks, heath and some shrubs. These fuels dry out fast and heat up quickly as a fire approaches, which means they catch alight and burn easily.

This fuel type catch the easiest and carry the fire front, making them the most dangerous fuels of all. This is the main fuel type targeted in prescribed burns.

## Coarse fuels

Larger fuels such as tree branches and fallen logs typically don't burn in the fire front or carry the fire, they generally burn for some time after the front has passed. People are often concerned about this fuel type as it is more visible and large, but it is far less combustibile than the fine fuels.

Larger branches and logs do not contribute to the rate of spread or flame size, but add substantially to the total amount of heat released and make fire suppression more difficult.

## Bark fuels

Wind can carry burning bark fragments long distances and create spot fires ahead of the main fire. Burning the bark of rough barked trees during a prescribed burn can reduce the risk of intense bushfires for a longer period of time than just burning fine fuels. Under extreme weather conditions fire can climb the bark fuels to the canopy, creating far greater intensity.



Bark fuels - rough or loose bark on tree trunks and branches

Elevated fuels – these might be shrubs or heathy plants

Fine fuels on the ground (bark and leaf litter)

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## Fuel arrangement

The way in which fuels are arranged in the environment can have a big impact on how they burn which affects fire behaviour.

When shrubs, branches and bark provide a continuous ladder of fuel up into the tree canopy, a bushfire can burn high in the trees and produce a lot of heat. This is called a crown fire and typically occurs on days of catastrophic fire danger.

Fuel that is tightly packed together is less likely to burn and will smoulder due to lack of oxygen, whereas loosely arranged fuel will burn with more ferocity.

Fuel that is separated is less likely to carry fire than fuel that is continuous. In addition, more fuel means larger flames and greater fire intensity. Continuous fine fuels which are surface fuels and near surface fuels are an important focus of fuel assessments and reducing these is often the main target of prescribed burns.

## Canopy Fuels

Canopy fuels are the leaves and branches at the tops of the trees. Fire will only enter the canopy when conditions are extreme, and burning them is generally not an aim of prescribed burns which are conducted at low or moderate intensity.

## Fuels over time

Bushfire fuels are not constant over time. Immediately following a fire there will be very little fuel available, but bark and leaf litter accumulate as time passes. Plants regrow and re-establish surface and elevated fuel layers over time. Depending on the type of vegetation it can take as little as 5 years or as long as 30 years for the fuel level to return to how it was before the fire.

## For more information

### To find out more about the program contact:

Fire Management Unit  
81-95 Weymouth St, Adelaide  
P: 8124 4833

[www.environment.sa.gov.au/fire-management](http://www.environment.sa.gov.au/fire-management)

### For more information about how DEWNR staff undertake fuel assessments:

<http://www.environment.sa.gov.au/managing-natural-resources/fire-management/bushfire-risk-and-recovery/assessing-fuel-hazards>



**Three months after a prescribed burn.  
Fuel hazard is LOW**

**Eight years after a prescribed burn.  
Fuel hazard is MODERATE**