

Why do we need to manage fuel loads in the urban/forest interface zone?

Key Points

- ⇒ Fuel loads influence bush fire intensity.
- ⇒ The lower the intensity the more options available to firefighters to suppress a fire.
- ⇒ Managing fuel loads will assist firefighters to suppress bush fires that may threaten homes.
- ⇒ A destructive fire does not need extreme weather conditions.

Definitions

- ⇒ Bush fire intensity is determined by the rate of spread of the fire, the fuel consumed and the heat yield of the burning vegetation.
- ⇒ Fire intensity is calculated by

$$\text{Rate of spread} \times \text{fuel burnt} / 2$$

By managing and reducing fuel loads firefighters are able to put bush fires out more quickly. This also reduces the impact a fire has on property and lives of the owners and surrounding neighbours.

With the correct weather conditions and planning, property owners can undertake their own prescribed burning during winter months to reduce the risk of bush fires.

This will reduce the impact a bush fire may have on the owner's property and assist firefighters in suppressing a fire.

High fuel loads in a bush fire which will burn quicker and hotter and destroy more bush.

As the intensity of the fire increases, it is harder for firefighters to put the fire out as their options become increasingly diminished. This can be seen from the head fire behaviour classes table over the page.

For example a fire which starts in the Perth hills which has 20 tonne per hectare of fuel and travels at 200 metres per hour will have a fire intensity of approximately 2,000 kilowatts per metre. The table over the page shows firefighters can put the fire out using fire appliances and machinery to cut fire breaks.

A destructive fire doesn't need extreme weather conditions.

A fire of 2,000 kilowatts per metre in the Perth hills which has 20 tonnes per hectare of fuel only needs a temperature of 30 degrees, relative humidity of 55 percent and a wind speed of 16 kilometres per hour before it exceeds the capability of firefighters to directly attack the bush fire.

The only way to stop this from occurring and to decrease fire intensity is by reducing and managing the amount of fuel available.

People undertake prescribed burning because it is the least intrusive option compared with slashing or using herbicides.

Why do we need to manage fuel loads in the urban/forest interface zone?

The table below shows the options available to firefighters when suppressing a fire at different levels of intensity and rate of spread (ROS).

HEADFIRE BEHAVIOUR CLASSES
<p>1 Readily suppressed. Intensity < 800 kW/m and/or ROS < 60 m/hr in all fuels</p>
<p>2 Hand tool attack possible Intensity < 800 kW/m and/or ROS < 140 m/hr) in forest/woodland and shrubland Intensity < 800 kW/m and/or ROS < 300 m/hr in grassland</p>
<p>3 Direct machine and tanker attack possible Intensity < 2000 kW/m and/or ROS < 400 m/hr in forest/woodland Intensity < 2000 kW/m and/or ROS < 1000 m/hr in shrubland Intensity < 5000 kW/m and/or ROS < 6500 m/hr in grassland</p>
<p>4 Direct attack not possible/unlikely to succeed. Intensity > 2000 kW/m and/or ROS > 400 m/hr in forest/woodland Intensity > 2000 kW/m and/or ROS > 1000 m/hr in shrubland Intensity > 5000 kW/m and/or ROS > 6500 m/hr in grassland</p>
<p>5 Indirect attack likely to fail Intensity > 4000 kW/m and/or ROS > 800 m/hr in forest/woodland Intensity > 8000 kW/m and/or ROS 2000 m/hr in shrubland ROS > 10000 m/hr in grassland</p>

Table from C Muller, 2008, "Bush Fire Threat Analysis" Chris Muller

<p>Key kW/m Kilowatts per metre m/h Metres per hour ROS Rate of spread</p>

Description of fuels

Forest occurs where the tall trees and dense canopies grow in the higher rainfall areas such as the Jarrah forest between Mundaring and the Karri forest near Walpole.

Woodland is an area covered in trees ranging between the higher rainfall forest areas to the arid interior of the State or on the Swan Coastal Plain. As the trees are spaced further apart than in a forest there is little leaf litter. These areas can be very floristically diverse.

Shrubland is dominated by short woody shrubs such as in mallee and mulga areas and are primarily in the low rainfall interior. These areas can also be very floristically diverse.

Grassland is an area dominated by grasses, with varying levels of over storey.

For more information contact the Bush Fire and Environmental Protection Branch on 9323 9300 or visit www.fesa.wa.gov.au