

Appendix 14

Rehabilitation in Asset Protection Zones

A14.1 Introduction

An Asset Protection Zone (APZ) is an area surrounding buildings and other assets that are vulnerable to bushfires. Within this area, vegetation and other combustible materials are managed to ensure that the risk to the asset is minimised. In particular, fine fuels that could easily ignite from embers, and potential paths by which a fire could move to the asset or into the canopy of woodland or forest are minimised. The size of APZ for a building or other asset is based on an assessment of slope and vegetation type. Generally the steeper the slope and the higher the fuel load of the vegetation, the greater the APZ will be.

This Appendix contains general guidelines for landscaping and managing vegetation within the APZ. It is not designed to replace a site specific bushfire assessment, however, the recommendations within it can be used to help protect existing buildings and other assets if nearby rehabilitation is planned. The information in this section is generally based on the following references, except where otherwise noted:

- Ramsy, C. and Rudolph, L. (2003) ***Landscape and Building Design for Bushfire Areas.***
- NSW Rural Fire Service (2006) ***Planning for Bushfire Protection*** - Appendix 5 contains information specifically about landscaping and property maintenance.
- ACT Planning and Land Authority (2005) ***FireWise Home Gardens*** (brochure).

Websites:

- NSW Rural Fire Service: <http://www.bushfire.nsw.gov.au/index.cfm>
- Bushfire Cooperative Research Centre: <http://www.bushfirecrc.com/>
- Australian National Botanic Gardens site - fire, gardens, and fire resistant plants: <http://www.anbg.gov.au/bibliography/fire-plants.html>

Full details of these references and other useful resources can be found in Appendix 19 (Resource List).

A14.2 Design of Plantings in APZs

The most important thing to consider when designing plantings is to ensure that there is defensible space around the asset to allow ample access for fire fighting.

Design plantings with the likely movement of a fire in mind. Use discontinuous plantings rather than large masses that can provide a path for the fire to the asset, or to other large areas of vegetation. Consider how to avoid ladder effects with vegetation height grading from short to tall, as this can result in the transfer of a ground level fire to the canopy. Generally trees and shrubs, or small groups of trees/shrubs should be well spread out rather than forming a continuous canopy. A 10 metre head separation is recommended to minimise the likelihood of a fire jumping from one area of vegetation to another.

Preferably, plants near the building/asset should be more widely spaced and lower growing than those used further away.

Trees and shrubs must not touch or overhang the building or asset. If possible, the head of the tree should not be within 5 metres of the building to minimise the potential for litter to build up around the building. They should be located far enough away from buildings that they will not ignite the building by direct flame contact or radiant heat emission.

Heathy shrubs should generally not be planted closer than 1.5 metres from buildings. Consider using decorative rock features, container plants or garden art closer to the asset. Alternatively, moisture loving alpine forbs, snow grasses and ground covers would be preferable for use near to buildings.

Consider the potential for creating a wetland water feature nearer to buildings. Although alpine bogs will burn in the right conditions, the low growing vegetation and presence of water will make a fire easier to manage in these conditions, providing that access is adequate.

On steep ground, stone retaining walls can help to reduce the steepness of the slope and deflect heat away and upwards.

A14.2 Plant Selection

It should be noted that, in a severe fire all plants will burn. Some plants, however, burn more readily and dangerously than others.

When selecting trees and shrubs for use within the APZ, aim to choose species that do not retain dead material or deposit excessive quantities of ground fuel in a short period, particularly during the summer bushfire season. Avoid plants that:

- accumulate dead leaves and twigs,
- have loose or flaky bark, masses of fine leaves, or
- dry leaves with a high oil content (particularly *Eucalyptus*).

Also avoid plants that won't flourish and are prone to frost, drought or wind damage as they will tend to die off and retain dry, flammable sections.

Some species may be damaged by fire but do not carry it well. They may slow the progress of a fire and act as a good break. In general, the following observations have been made of the reactions to different indigenous vegetation communities to fire:

- Alpine heath is generally the most flammable part of the subalpine landscape (Good and Wahren et al. in Williams 2003). Continuous areas of heath should be minimised in APZs, especially on steep slopes.
- Sphagnum bogs often support a shrubby canopy and are surrounded by heath. During the 2003 fires, it was found that, if the surrounding heath burnt, the bog also invariably burnt (Williams 2003), although these fires have been reported to move slowly and erratically on bog. Planting or preservation of bog species on wet areas near buildings is unlikely to be hazardous if there is adequate discontinuity from large expanses of heath.
- Native grassland also grows on relatively wet areas and appears to have a low flammability. Many cases have been documented where fires burnt through dense heathland, causing 100 percent scorching, but went out as soon as they came up against grassland, on both gentle and steep slopes (Williams 2003).
- Alpine complex, which includes tussock grassland and alpine herbfield also appears to have a low flammability. According to an eye witness to the 2003 fires, "the Main Range acted as a fire break. Most of the western faces have been burnt, but, as the flames came over the main ridgeline and hit the alpine herbfields they petered out... snowgrass was only able to sustain the

fire while it had the heat and winds coming from the western faces, and in the Mt Carruthers-Twynam area the fire only progressed 30-50 metres into the snowgrass area... Snowgrass wasn't particularly flammable and snow daisies and pineapple grass almost have fire retardant status." (Dr Ken Green, in Worboys 2003).

Alpine complex and native grassland appear to offer great potential for use in APZs, because of their apparent fire retardant behaviour.

- Snowgum woodlands should be considered according to whether their understorey is heathy or grass/forb dominated. The trees should be treated as detailed in A14.1, ensuring there is clearance from trees and they do not create a path for fire.

A14.3 Mulch

Mulch can help to retain moisture around plants and allow the production of moist, green foliage, however, it should be used with care. It can be very flammable and contribute to fuel availability.

Consider also using pebbles, rocks and also effective use of shade to protect the roots of plants. Use of large logs can also reduce the need for finer mulches to be used. Dense logs burn more slowly than fine fuels and are a valuable habitat feature in natural environments.

Use just enough mulch to reduce weed growth, rather than thick mats of mulch. Keeping mulch away from the trunks of trees will help avoid ring-barking due to a fire. Have a watering system for the mulch if you have adequate water during the fire season, but avoid plastic or rubber components that will melt.

A14.4 Maintenance

The following measures should be undertaken regularly to control fire hazards:

- Control weeds, which often contribute to high fuel loads.
- Keep the APZ area clean and remove litter, leaves and dry branches.
- Keep grass short (less than 10 cm).
- Remove annuals and perennials once they have gone to seed and are beginning to dry out.
- Remove plants that have been, or are constantly being damaged and have dead, dry parts.
- Carry out regular pruning of other plants to remove dead or old foliage and encourage succulent new shoots.

A14.5 Furniture and Other Structures in the APZ

Consider the use of stone where possible rather than wood. If timber is used, give preference to heavy, fire retardant timbers. If thick enough, these timbers can sometimes be planed back and reused after a fire.

Consider how and where debris is likely to build up around the structure, such as in nooks and crannies and between floor boards.

Do not store fire wood, mulch or other combustible materials within the APZ unless they are within a shed that is well sealed to prevent the entry of burning debris.

