CREATING AN ASSET PROTECTION ZONE

This fact sheet is designed for use on Kangaroo Island to support implementation of the pilot bushfire risk management plan.

INTRODUCTION

For thousands of years bushfires have been a natural part of the Australian landscape. They are inevitable and essential, as many Australian plants and animals have adapted to fire as part of their life cycle.

In recent years developments in bushland areas have increased the risk of bushfires harming people and their homes and property. But landowners can significantly reduce the impact of bushfires on their property by identifying and minimising bushfire hazards. There are a number of ways to reduce the level of hazard to your property, but one of the most important is the creation and maintenance of an Asset Protection Zone (APZ).

A well located and maintained APZ should be used in conjunction with other preparations such as good property maintenance, appropriate building materials and developing a Bushfire Survival Plan.

WHAT IS AN ASSET PROTECTION ZONE?

An Asset Protection Zone (APZ) is a fuel reduced area surrounding a built asset or structure. This can include any residential building or major building such as farm and machinery sheds, or industrial, commercial or heritage buildings.

An APZ provides:

- a buffer zone between a bushfire hazard and an asset;
- an area of reduced bushfire fuel that allows suppression of fire;
- an area from which back burning may be conducted; and
- an area which allows emergency services access and provides a relatively safe area for fire fighters and home owners to defend their property.

Potential bushfire fuels should be minimised within an APZ. This is so that the vegetation within the planned zone does not provide a path for the transfer of fire to the asset either from the ground level or through the tree canopy.

WHAT WILL THE APZ DO?

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

- direct flame contact on the asset;
- damage to the built asset from intense radiant heat; and
- ember attack on the asset.
WHERE SHOULD I PUT AN APZ?

An APZ is located between an asset and a bushfire hazard. The APZ should be located wholly within your land. You cannot undertake any clearing of vegetation on a neighbour’s property, including National Park estate, Crown land or land under the management of your local council, unless you have written approval.

If you believe that the land adjacent to your property is a bushfire hazard and should be part of an APZ, you can have the matter investigated by contacting the Council’s Fire Prevention Officer.

There are six steps to creating and maintaining an APZ. These are:

- Determine if an APZ is required;
- Determine what approvals are required for constructing your APZ;
- Determine the APZ width required;
- Determine what hazard reduction method is required to reduce bushfire fuel in your APZ;
- Take measures to prevent soil erosion in your APZ; and
- Landscape and regularly monitor in your APZ for fuel regrowth.

STEP 1. DETERMINE IF AN APZ IS REQUIRED

Recognising that a bushfire hazard exists is the first step in developing an APZ for your property.

If you have vegetation close to your asset and you live in a bushfire prone or high risk area, you should consider creating and maintaining an APZ.

Generally, the more flammable and dense the vegetation, the greater the hazard will be. However, the hazard potential is also influenced by factors such as slope.

- A large area of continuous vegetation on sloping land may increase the potential bushfire hazard.
- The amount of vegetation around a house will influence the intensity and severity of a bushfire.
- The higher the available fuel the more intense a fire will be.

Isolated areas of vegetation are generally not a bushfire hazard, as they are not large enough to produce fire of an intensity that will threaten dwellings.

This includes:

- bushland areas of less than one hectare that are isolated from large bushland areas; and
- narrow strips of vegetation along road and river corridors.

If you are not sure if there is a bushfire hazard in or around your property, contact your local Council Fire Prevention Officer for advice.
STEP 2. DETERMINE WHAT APPROVALS ARE REQUIRED FOR CONSTRUCTING YOUR APZ

If you intend to undertake bushfire hazard reduction works to create or maintain an APZ you must gain the written consent of the landowner.

Subdivided land or construction of a new dwelling

If you are constructing an APZ for a new dwelling you will need to comply with the requirements in your development consent for bushfire protection. Any approvals required will have to be obtained as part of the Development Application process.

Existing asset

If you wish to create or maintain an APZ for an existing structure you may need to obtain approval from the CFS for clearance of vegetation for the purpose of bushfire protection. The CFS offers a free assessment service for essential hazard reduction works. For more information see the Native Vegetation Council website: http://www.nvc.sa.gov.au for the Guide on Reducing the Impact of Bushfire, or contact CFS Region 1 on (08) 8391 1866 to determine if you need to use this approval process.

Bear in mind that all work undertaken must be consistent with any existing land management agreements (e.g. a Heritage Agreement, or land management agreement) entered into by the property owner.

If your current development consent provides for an APZ, you do not need further approvals for works that are consistent with this consent.

If you intend to burn off to reduce fuel levels on your property during the Fire Danger Season you will also need to obtain a Fire Permit through the local Council or your local CFS Permit Issuing Officer.

STEP 3. DETERMINE THE APZ WIDTH

The size of the APZ required around your asset depends on the nature of the asset, the slope of the area, the type and structure of nearby vegetation and whether the vegetation is managed.

Fires burn faster uphill than downhill, so the APZ will need to be larger if the hazard is downslope of the asset.

Different types of vegetation (for example, forests, rainforests, woodlands, grasslands) behave differently during a bushfire. For example, a forest with shrubby understorey is likely to result in a higher intensity fire than a woodland with a grassy understorey and would therefore require a greater APZ width.

A key benefit of an APZ is that it reduces radiant heat and the potential for direct flame contact on homes and other buildings. Residential dwellings require a wider APZ than sheds or stockyards because the dwelling is more likely to be used as a refuge during bushfire.

Subdivided land or construction of a new dwelling

If you are constructing a new asset, your development approval will detail the exact APZ distance required.

Existing asset

If you wish to create an APZ around an existing asset you may require approval. For further information on APZ widths see the Guide on Reducing the Impact of Bushfire.
STEP 4. DETERMINE WHAT HAZARD REDUCTION METHOD IS REQUIRED TO REDUCE BUSHFIRE FUEL IN YOUR APZ

The intensity of bushfires can be greatly reduced where there is little to no available fuel for burning. In order to control bushfire fuels you can reduce, remove or change the state of the fuel through several means.

Reduction of fuel does not require removal of all vegetation, which would cause environmental damage. Also, trees and plants can provide you with some bushfire protection from strong winds, intense heat and flying embers (by filtering embers) and changing wind patterns. Some ground cover is also needed to prevent soil erosion.

Fuels can be controlled by:

Raking or manual removal of fine fuels

Ground fuels such as fallen leaves, twigs (less than 6 mm in diameter) and bark should be removed on a regular basis. This is fuel that burns quickly and increases the intensity of a fire.

Fine fuels can be removed by hand or with tools such as rakes, hoes and shovels.

Mowing or grazing of grass

Grass needs to be kept short and, where possible, green.

Removal or pruning of trees, shrubs and understorey

The control of existing vegetation involves both selective fuel reduction (removal, thinning and pruning) and the retention of vegetation.

Prune or remove trees so that you do not have a continuous tree canopy leading from the hazard to the asset. Separate tree crowns by two to five metres. A canopy should not overhang within two to five metres of a dwelling.

Native trees and shrubs should be retained as clumps or islands and should maintain a covering of no more than 20% of the area.
When choosing plants for removal, the following basic rules should be followed:

- Remove noxious and environmental weeds first. Your local Natural Resources Management Board can provide you with a list of environmental weeds or ‘undesirable species’;
- Remove more flammable species such as those with rough, flaky or stringy bark; and
- Remove or thin understorey plants, trees and shrubs less than three metres in height

The removal of significant native species should be avoided.

**Prune in accordance with the following standards:**

- Use sharp tools. These will enable clean cuts and will minimise damage to the tree.
- Decide which branches are to be removed before commencing work. Ensure that you maintain a balanced, natural distribution of foliage and branches.
- Remove only what is necessary.
- Cut branches just beyond bark ridges, leaving a small scar.
- Remove smaller branches and deadwood first.

There are three primary methods of pruning trees in APZs:

1. **Crown lifting (skirting)**

Remove the lowest branches (up to two metres from the ground). Crown lifting may inhibit the transfer of fire between the ground fuel and the tree canopy.

2. **Thinning**

Remove smaller secondary branches whilst retaining the main structural branches of the tree. Thinning may minimise the intensity of a fire.

3. **Selective pruning**

Remove branches that are specifically identified as creating a bushfire hazard (such as those overhanging assets or those which create a continuous tree canopy). Selective pruning can be used to prevent direct flame contact between trees and assets.

See the Australian Standard 4373 (Pruning of Amenity Trees) for more information on tree pruning.

4. **Slashing, trittering and hydroaxeing**

Slashing, trittering and hydroaxeing are economical methods of fuel reduction for large APZs that have good access. However, these methods may leave large amounts of slashed fuels (grass clippings etc) which, when dry, may become a fire hazard. For slashing or trittering to be effective, the cut material must be removed or allowed to decompose well before summer starts.
If clippings are removed, dispose of them in a green waste bin if available or compost on site (dumping clippings in the bush is illegal and it increases the bushfire hazard on your or your neighbour’s property).

Although slashing and trittering are effective in inhibiting the growth of weeds, it is preferable that weeds are completely removed.

Care must be taken not to leave sharp stakes and stumps that may be a safety hazard.

5. Ploughing and grading

Ploughing and grading can produce effective firebreaks. However, in areas where this method is applied, frequent maintenance may be required to minimise the potential for erosion. Loose soil from ploughed or graded ground may erode in steep areas, particularly where there is high rainfall and strong winds.

6. Burning (hazard reduction burning)

Hazard reduction burning is a method of removing ground litter and fine fuels by fire. Hazard reduction burning of vegetation is often used by land management agencies for broad area bushfire control, or to provide a fuel reduced buffer around urban areas.

Any hazard reduction burning, including heap burns, must be planned carefully and carried out with extreme caution under correct weather conditions. Otherwise there is a real danger that the fire will become out of control. More bushfires result from escaped burning off work than from any other single cause.

It is YOUR responsibility to contain any fire lit on your property. If the fire escapes your property boundaries you may be liable for the damage it causes.

Hazard reduction burns must therefore be carefully planned to ensure that they are safe, controlled, effective and environmentally sound. There are many factors that need to be considered in a burn plan. These include smoke control, scorch height, frequency of burning and cut off points (or control lines) for the fire.

For further information contact the Council’s Fire Prevention Officer or your local CFS brigade for advice.

7. Burning (heap burning)

In some cases, where fuel removal is impractical due to the terrain, or where material cannot be disposed of at a resource recovery centre or composted on site, you may use pile burning to dispose of material that has been removed in creating or maintaining an APZ.

See the diagram over the page for some ‘do’s’ and ‘don’ts’ on heap burning.

During the Fire Danger Season a Permit to Burn will also be required.
**Wrong**

WRONG: Pile burns are not bonfires, they don’t need to be high. This pile will be too hot. Pile Burns must be constructed from natural vegetation only, not household or building rubbish.

WRONG: Never construct piles under or near power lines. Smoke and ash can cause power lines to arc, and the heat will damage the lines.

WRONG: Don’t pile vegetation around the base of trees or directly under low canopy. Don’t plant new trees near piles that are planned for burning.

WRONG: Avoid piling vegetation close to neighbouring properties.

**Right**

Make the pile wide and long rather than high. This will spread the heat and be safer.

Give power lines a wide berth. Consider the radiant heat and smoke the burn will generate.

Try to choose a space with open canopy away from the base of trees. Wait until the piles have been burnt or removed before planting.

Stay away from fences and property boundaries. Consider local residents and their needs. Maintain a clear area between piles and any other combustible material.
STEP 5. TAKE MEASURES TO PREVENT SOIL EROSION

While the removal of fuel is necessary to reduce a bushfire hazard, you also need to consider soil stability, particularly on sloping areas.

Soil erosion can greatly reduce the quality of your land through:

- loss of top soil, nutrients, vegetation and seeds
- reduced soil structure, stability and quality
- blocking and polluting water courses and drainage lines

A small amount of ground cover can greatly improve soil stability and does not constitute a significant bushfire hazard. Ground cover includes any material which directly covers the soil surface such as vegetation, twigs, leaf litter, clippings or rocks. A permanent ground cover should be established (for example, short grass). This will provide an area that is easy to maintain and prevent soil erosion.

When using mechanical hazard reduction methods, you should retain a ground cover of at least 75% to prevent soil erosion. However, if your area is particularly susceptible to soil erosion, your Hazard Reduction Certificate may require that 90% ground cover be retained.

To reduce the incidence of soil erosion caused by the use of heavy machinery such as ploughs, dozers and graders, machinery must be used parallel to the contours. Vegetation should be allowed to regenerate, but be managed to maintain a low fuel load.
**STEP 6. ONGOING MANAGEMENT AND LANDSCAPING**

Your home and garden can blend with the natural environment and be landscaped to minimise the impact of fire at the same time. To provide an effective APZ, you need to plan the layout of your garden to include features such as fire resistant plants, radiant heat barriers and windbreaks.

**Layout of gardens in an APZ**

When creating and maintaining a garden that is part of an APZ you should:

- ensure that vegetation does not provide a continuous path to the house;
- remove all noxious and environmental weeds;
- plant or clear vegetation into clumps rather than continuous rows;
- prune low branches two metres from the ground to prevent a ground fire from spreading into trees;
- locate vegetation far enough away from the asset so that plants will not ignite the asset by direct flame contact or radiant heat emission;
- plant and maintain short green grass around the house as this will slow the fire and reduce fire intensity.

Alternatively, provide non-flammable pathways directly around the dwelling;

- ensure that shrubs and other plants do not directly abut the dwelling. Where this does occur, gardens should contain low-flammability plants and non flammable ground cover such as pebbles and crush tile; and
- avoid erecting brush type fencing and planting “pencil pine” type trees next to buildings, as these are highly flammable.

![Diagram of Asset Protection Zone](image)

**Removal of other materials**

Woodpiles, wooden sheds, combustible material, storage areas, large quantities of garden mulch, stacked flammable building materials etc. should be located away from the house. These items should preferably be located in a designated cleared location with no direct contact with bushfire hazard vegetation.

**Other protective features**

You can also take advantage of existing or proposed protective features such as fire trails, gravel paths, rows of trees, dams, creeks, swimming pools, tennis courts and vegetable gardens as part of the property’s APZ.
PLANTS FOR BUSHFIRE PRONE GARDENS

When designing your garden it is important to consider the type of plant species and their flammability as well as their placement and arrangement.

Plants that are less flammable, have the following features:

- high moisture content
- high levels of salt
- low volatile oil content of leaves
- smooth barks without “ribbons” hanging from branches or trunks; and
- dense crown and elevated branches.

Given the right conditions, all plants will burn. However, some plants are less flammable than others.

Trees with loose, fibrous or stringy bark should be avoided. These trees can easily ignite and encourage the ground fire to spread up to, and then through, the crown of the trees.

When choosing less flammable plants, be sure not to introduce noxious or environmental weed species into your garden that can cause greater long-term environmental damage.

For further information on appropriate plant species for your locality, contact your local natural resources management board.

WIND BREAKS

Rows of trees can provide a wind break to trap embers and flying debris that could otherwise reach the house or asset.

You need to be aware of local wind conditions associated with bushfires and position the wind break accordingly. Your local Council Fire Prevention Officer can provide you with further advice.

When choosing trees and shrubs, make sure you seek advice as to their maximum height. Their height may vary depending on location of planting and local conditions. As a general rule, plant trees at the same distance away from the asset as their maximum height.

When creating a wind break, remember that the object is to slow the wind and to catch embers rather than trying to block the wind. In trying to block the wind, turbulence is created on both sides of the wind break making fire behaviour erratic.
## Native vegetation management decision-making matrix

<table>
<thead>
<tr>
<th>Reason?</th>
<th>What can be done?</th>
<th>Is approval needed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>To protect a building</td>
<td>You can reduce, modify or remove native vegetation within 20m of a building (including overhanging limbs). Significant trees may be protected under Development Act 1993. Contact your local Council for further information.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>You can modify or remove native vegetation further than 20m from a building to reduce fuel loads</td>
<td>Yes</td>
</tr>
<tr>
<td>To protect a structure</td>
<td>You can reduce, modify or remove native vegetation within 5m of a structure (including overhanging limbs). Significant trees may be protected under Development Act 1993. Contact your local Council for further information.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>You can modify or remove native vegetation further than 5m from a structure to reduce fuel loads</td>
<td>Yes</td>
</tr>
<tr>
<td>To reduce fuel strategically</td>
<td>Fuel loads can be strategically reduced or modified on any private or public land</td>
<td>Yes</td>
</tr>
<tr>
<td>To construct a fuel break</td>
<td>You can remove vegetation to construct a fuel break up to 5m wide.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>In some regions you can remove native vegetation to construct a fuel break up to 7.5m wide (see Appendix 2 for a list of regions).</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>On a property used for primary production, you can remove native vegetation to construct a fuel break up to 20m wide</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>You can remove native vegetation to construct fuel breaks greater than 20m wide</td>
<td>Yes</td>
</tr>
<tr>
<td>To construct fire access tracks</td>
<td>You can remove native vegetation to construct fire access tracks that are consistent with the standards detailed in Appendix 3</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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