

A photograph of a coastal garden. In the foreground, there is a dense patch of bright yellow flowers. Behind them are several clumps of tall, dry, golden-brown grasses. To the left, a young tree with a reddish-brown trunk and green leaves stands in front of a wall made of stacked stones. In the background, a blue wooden chair is visible against a light-colored wall. The sky is clear and blue.

LANDSCAPING YOUR SURF COAST GARDEN FOR BUSHFIRE



Surf Coast Shire Council makes the information contained within this booklet available on the understanding that you take reasonable care when using it. If you have any uncertainty about applying the information to your particular circumstances, you should seek professional advice.

Surf Coast Shire Council does not accept responsibility for how you apply or rely on the information in this booklet.

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About this booklet

With its bushfire history, the Surf Coast Shire is widely recognised as one of Victoria's most bushfire prone areas. As a local property owner, you have an important role to play in reducing bushfire risk by the way you design, develop and maintain your property.

This booklet aims to help you fulfil this role. It has been developed specifically for Surf Coast property owners to complement the Country Fire Authority's (CFA) publication *Landscaping For Bushfire: Garden Design and Plant Selection*.

As such, it seeks to apply the CFA's key garden design principles to our local environment and to explain what they mean for you by providing a series of simple actions for landscaping on the Surf Coast.

Four local garden styles – each accompanied by a sample landscape plan – are also included to show how you can use the actions to create and maintain your garden to reduce bushfire risk.

This booklet serves as a guide for landscaping your property to reduce bushfire risk. It is your responsibility to check what planning controls apply to your property and ensure your landscaping complies. Further information on planning controls related to bushfire can be found on page 11 of this booklet.

It is important to note that landscaping for bushfire is just one aspect of managing your bushfire risk. Don't rely on landscaping alone to protect your family and your assets. People who live in or visit bushfire prone areas should prepare a comprehensive bushfire survival plan that covers a range of actions including preparing your house, plans for leaving early, what to pack in your emergency kit and back up plans.

Refer to page 8 for further information on CFA resources available to help you prepare a bushfire survival plan.

Who should use this booklet?

The information contained in this booklet is primarily intended to help local property owners who are:

- in the process of developing new gardens or modifying established gardens
- preparing landscaping plans as part of planning permit requirements, and/or
- involved in the Surf Coast Shire Council's fuel reduction programs (see page 7).

It may also serve as a useful reference for other individuals, businesses and agencies involved in vegetation management and/or landscape design in high fire risk communities.

How to use this booklet

If you are seeking to make some simple modifications to an existing garden to reduce your fire risk, the key principles and quick start checklist on the following page will get you started. Further detail on actions relating to the principles is provided throughout the booklet.

If you have removed vegetation from your property and are seeking to replace it with more appropriate plants, the 'Plants with desirable characteristics' section on page 27 provides a sample.

If you are designing a new garden or preparing landscape plans as part of planning permit requirements, the information contained in this booklet will help to ensure your new landscaping complies with planning regulations. A range of example landscape plans are provided in the 'Garden styles for high fire risk areas' section on page 34.



Use this booklet, together with the CFA's Landscaping for Bushfire, to guide you in developing and maintaining your garden to reduce bushfire risk.

Go to www.surfcoast.vic.gov.au or call 5240 obtain a copy of the CFA publication.

Landscaping your garden for bushfire

– quick start checklist

By carefully selecting the location, arrangement and type of plants in your garden, and maintaining it over time, you can help to reduce the risk of losing your home in a bushfire.

1. Location – ensure vegetation is a minimum of 2-3 metres away from the house

Where you locate vegetation in relation to your house and neighbours will influence the impact a fire may have. Careful location of plants, in particular locating any vegetation a minimum of 2-3 metres away from the house can help to reduce your fire risk.

2. Arrangement – ensure vegetation doesn't connect vertically or horizontally

Vegetation that connects vertically or horizontally creates fuel continuity, which makes it easy for fire to spread across your property up to the house and to neighbouring properties. For example, fire in fine fuels like twigs and leaves on the ground can spread to shrubs and into the canopy of larger trees if not separated. Separating vegetation to prevent fuel continuity both vertically and horizontally will help to break up the path of fire on your property.

3. Type – use plants with desirable characteristics for high fire risk areas

All plants will burn under the right conditions; however, certain characteristics make some vegetation types less flammable, therefore making them a more desirable option for high fire risk areas. The plants suggested in this booklet have all been assessed against the CFA's Plant Selection Key and are rated as low to moderate flammability. Council seeks to find a balance with fuel management and protecting our biodiversity; the plants identified in this book are indigenous species that have been selected for their desirable characteristics.

4. Maintenance – manage vegetation over time to ensure your landscaping remains effective

Modifying or developing your garden in line with the principles and actions outlined in this booklet will contribute to reducing the bushfire risk on your property, but if left unmanaged leaf litter, debris and weeds can accumulate in the garden and vegetation can encroach on cleared areas. Regular upkeep, particularly throughout the fire danger period, will help to keep the level of bushfire risk on your property reduced. Ensure you regularly clear leaf litter and debris, remove weeds, mow grass and prune vegetation.

Landscaping for bushfire quick start checklist

- ✔ Prevent fuel continuity by having planted and non-planted areas in your garden
- ✔ Consider neighbouring properties and how you can reduce fuel loads along boundaries
- ✔ Move flammable materials, including woodpiles, at least 2-3 metres away from your house
- ✔ Remove vegetation from within 2-3 metres of your house
- ✔ Remove environmental weeds from your property
- ✔ Separate plants so the vegetation on your property doesn't connect horizontally or vertically
- ✔ Plant new trees apart so canopies do not touch
- ✔ Use the plants suggested in this booklet, or use the CFA's Plant Selection Key to ensure you choose plants with desirable characteristics



Landscaping to reduce bushfire risk

In simple terms, fire behaviour and its effect on homes is influenced by weather, fuel (i.e. vegetation and other combustible materials) and topography (i.e. slope). The major destructive forces of a bushfire can be summarised as:

- **Ember attack**, which occurs when burning fine fuels, such as twigs and leaves, are carried by the wind and land in and around houses and gardens, often igniting spot fires.
- **Radiant heat**, which can ignite surfaces without direct flame contact, crack or break windows, distort or melt materials, and dry out vegetation ahead of a bushfire so that it burns more easily.
- **Direct flame contact**.

Carefully selecting the location, arrangement and type of plants in your garden, and maintaining your garden over time can help to minimise a bushfire's major destructive forces and increase the likelihood of your home surviving.

Landscaping for bushfire involves:

- assessing the property, its layout, surrounds and existing vegetation, including considering prevailing weather conditions and local planning requirements;
- designing your garden in line with planning requirements and the principles/actions outlined in this booklet;
- establishing and modifying the garden as needed; and
- maintaining it over time.

As illustrated by the photos throughout this booklet, landscaping elements may be hard (e.g. gravel, pavers, walls) or soft (e.g. plants, trees, garden beds) with the ideal garden featuring a combination of both.

Bushfire is complex and dynamic. It is beyond the scope of this booklet to present landscape designs that address the specific site characteristics of your property (e.g. aspect, topography, vegetation) and predicted bushfire behaviour.

Many of the publications listed in the 'Useful Resources' section (p.44) contain more information about bushfire behaviour and landscape design. The Council's Fire Safety and Environment Officers can provide on-site advice to help local property owners in high fire risk areas. This includes information about bushfire behaviour and how to reduce the level of risk through appropriate landscaping.

Reducing fuel loads through Council's fuel reduction programs

The Surf Coast Shire Council's fuel reduction programs work to reduce fuel loads on private land located in the bush/urban interface areas of several high fire risk townships, primarily by removing woody weeds.

In focusing on private land in targeted areas, the program supports the strategic township and asset protection objectives of the Surf Coast Shire Municipal Fire Management Plan. Council works closely with other emergency services agencies in fuel reduction to ensure programs are strategically linked and are consistent with current scientific data.

Since the implementation of fuel reduction programs in 2005, participating property owners have helped to remove more than 1,000 cubic metres of mulched weeds. This equates to more than 36 rubbish truckloads full of weeds removed from the landscape.

At the same time, this has left some participants wondering about what to plant to replace the weeds that have been removed, and where and how any new plants should be located. Consequently, demand for local information about appropriate landscaping and vegetation management has increased. This booklet aims to provide this information at a general level.

The actions on the following pages focus on creating 'defendable space' around your home by modifying vegetation and other landscaping elements to reduce direct flame contact and radiant heat. Defendable space breaks up fuel continuity and reduces the amount of fuel available for to a bushfire. For new homes, defendable space is calculated as part of the planning permit process; for existing homes, it can be calculated using the CFA's online House Bushfire Self Assessment Tool.

To find out more about fuel reduction programs contact Council's Community Fire Safety and Environment Officers (Ph. 5261 0600).

Reducing Victoria's bushfire risk - an overview

Before summer each year, Victorians are reminded of the need to develop their bushfire plans, prepare themselves and their properties, and remain vigilant throughout the fire danger period. The CFA is responsible for declaring the fire danger period, which generally runs in Surf Coast Shire between mid to late December and the beginning of May.

At the individual property level, reducing bushfire risk involves:

- understanding how fire behaves in your local environment; and
- developing your bushfire survival plan and taking steps to prepare your home and property

The CFA website (www.cfa.vic.gov.au) contains a wealth of information and resources to help you become fire ready including:

- everything you need to prepare your bushfire survival plan;
- the complete Fire Ready Kit;
- online tools to assess and understand your level of bushfire risk;
- how to prepare your home and property to be fire ready;
- how to design and maintain your garden to reduce bushfire risk; and
- how to prepare back up plans.

In addition, the CFA provide a range of community bushfire safety information and advice programs such as:

- Fire Ready Victoria meetings and bushfire planning workshops, which cover how to prepare a bushfire survival plan;
- Community Fireguard to help you and your neighbours prepare for bushfire;
- Victorian Bushfire Information Line and Fire Ready Smart Phone App; and
- online bushfire information sessions.

You can access more information on these programs and other CFA resources, including Landscaping For Bushfire (the companion publication to this booklet), at the CFA website.

Being fire ready involves more than just a well-planned and maintained property. Go to www.cfa.vic.gov.au to learn more and remember on Severe, Extreme and Code Red days, leaving early will always be the safest option.

The Surf Coast Planning Scheme identifies high fire risk areas across the municipality and applies the **Bushfire Management Overlay** to these areas.

This overlay is a planning control that seeks to address the level of bushfire risk by implementing specific bushfire protection measures, primarily to areas where there is potential for extreme bushfire behaviour due to significant fuel loads (i.e. vegetation). In addition to vegetation, it takes into account prevailing weather characteristics and topographical factors.

Properties in high fire risk areas may also be affected by other overlay controls, such as those relating to the protection of significant landscapes or native flora and fauna.

Understanding how to implement the various controls can be difficult sometimes, particularly when their intentions appear to conflict (e.g. fuel reduction versus retaining vegetation).

To find out the overlay controls that apply to your property, including the Bushfire Management Overlay, and how to implement them appropriately you can:

- contact the Council's Planning Enquiries Officer (Ph. **5261 0600**), or
- access this information via **<http://planningschemes.dpcd.vic.gov.au/schemes/surfcoast>** or Planning Maps Online at the Land Channel (**www.land.vic.gov.au**).

A planning permit is not required to remove weeds. Surf Coast Shire Council provides a range of information to help you identify and control weeds on your property. Go to

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Legislating to reduce bushfire risk

In November 2011, the Victorian Government introduced permanent planning controls as part of implementing the recommendations of the 2009 Victorian Bushfires Royal Commission.

The changes include new exemptions from the requirement for a planning permit to remove native vegetation to help reduce fuel loads around existing homes.

In summary, the two main exemptions, which apply only to existing dwellings built or approved before 10 September 2009, are the:

- **10/30 rule** where property owners do not require a planning permit to clear:
 1. Any vegetation, including trees, within 10 metres of their house, or
 2. Any vegetation, except for trees, within 30 metres of their house.
- **10/50 rule**, which applies only to properties within a Bushfire Management Overlay (see page 9). Under this rule property owners within a Bushfire Management Overlay do not require a planning permit to clear:
 1. Any vegetation, including trees, within 10 metres of their house or
 2. Any vegetation, except for trees, within 50 metres of their house.

If your property is not covered by either of these exemptions, you may require a planning permit to remove native vegetation on your property. Note that if you do not meet planning permit requirements, you may be subject to financial penalties.

If you're building a new home, the planning permit process already includes consideration of clearing for bushfire protection.

For more information about planning permit requirements for native vegetation removal, please contact the Surf Coast Shire Council's Planning Enquiries Officer (Ph. 5261 0600).

Refer to the Surf Coast Planning Scheme, which sets the regulations for clearing vegetation on private properties across the Shire. Go to the My Property section at www.surfcoast.vic.gov.au or contact the Planning Department (Ph. 5261 0600).

Garden design principles and landscaping actions

In landscaping your garden to reduce bushfire risk, consider using at least one of the following design principles and associated actions, which can affect bushfire behaviour. Whether you choose to apply one, some or all will be dependent on your specific circumstances, including your level of risk and your bushfire survival plan (refer to page 8 for more information on how to develop a bushfire survival plan). Pages 12-26 provide more detail on each of the landscaping actions below.

CFA DESIGN PRINCIPLE			
Create defensible space	Remove flammable objects from around the house	Break up fuel continuity	Carefully select, locate and maintain trees
LANDSCAPING ACTION			
ACTION 1: Create planted and non-planted areas	ACTION 3: Keep all combustibles at least 2-3 metres away from the house	ACTION 5: Remove environmental weeds	ACTION 7: Plant new trees apart so canopies do not touch
ACTION 2: Consider neighbouring properties. Create defensible space	ACTION 4: Keep vegetation and other flammable plant materials away from the house	ACTION 6: Plant and maintain non-connecting clusters of vegetation	ACTION 8: Use plants with desirable characteristics
LIKELY EFFECT/S ON BUSHFIRE BEHAVIOUR			
Reduces fuel loads, eliminates direct flame contact and minimises radiant heat	Minimises opportunities for direct flame contact on your house	Reduces opportunities for fire to spread from the garden to your house and between structures and neighbouring properties	Can help to reduce wind speed, absorb radiant heat and filter embers

Action 1

Create planted and non-planted areas

Designing your garden to include both planted and non-planted areas helps to create defensible space by breaking up fuel continuity across the site and minimising the 'ladder' fuel effect (where fuel carries fire from the ground into the tree canopy).

Planted areas should be arranged in non-connecting clusters with non-planted areas (e.g. gravel, lawns, driveways, entertaining/play areas) used to separate them. This can help to prevent direct flame contact and minimise the impacts of radiant heat on your house.

Other things to consider include:

- mulching with a variety of materials, particularly non-flammables (e.g. gravel, pebbles, shells, crushed bricks)
- choosing and arranging plant types to minimise the 'ladder' effect
- using appropriate landscaping features (e.g. stone walls) to create barriers to wind, radiant heat and embers, and
- managing existing vegetation appropriately, including removing loose bark, leaf litter and fine fuels.

In a bushfire, plants can provide a continual fuel path to the house and act as 'ladder' fuel from the ground into tree canopies – both major factors contributing to bushfire behaviour, which can lead to house loss. Selecting, locating, arranging and maintaining plants appropriately helps to reduce this risk.



Planting grasses, shrubs and trees together, and/or building piles of wood and other flammable materials, creates 'ladder' fuel, which carries fires from the ground up into the tree canopy.



This outdoor dining area helps to prevent direct flame contact by providing separation between house and garden.



Paved entertaining areas and other hard landscaping features help to break up vegetation.



Non-flammable pathways can be used to separate garden beds to break up fuel continuity.

The way you design and landscape your property can significantly effect the level of bushfire risk for neighbouring properties – and vice versa.

Continuity of vegetation between properties and the location of other combustible materials (e.g. wooden fences and screens) in relation to neighbouring households can compromise defensible space by increasing the potential for fire to spread quickly from one property to another.

Look at how you can use your property boundary to reduce bushfire risk including by:

- reducing fuel loads along the boundary by removing weeds and managing vegetation (e.g. mowing/slashing grass, pruning shrubs, lopping trees, removing plant debris)
- appropriate plant **selection, arrangement, location and maintenance** according to the actions in this booklet and the CFA's principles, and
- using appropriate landscaping features (e.g. non-connecting garden beds, paths, driveways, fences, screens) to create space and/or barriers between your home and neighbouring properties.

Focus on reducing the potential for fire to spread to your property from neighbouring households, and vice versa, and design and maintain your garden accordingly.



Addressing vegetation continuity across your property, including between neighbouring properties, can help to decrease a bushfire's speed and intensity.



Plants running right up to the house can carry fire directly into your home and put your neighbours' homes at risk. Vines and creepers can also carry fire from the ground up into the tree canopy, which increases the risk to your own and neighbouring properties.



Using combustible materials for boundary fences and screens exposes you and your neighbours to greater risk of property loss in a bushfire.



Artworks such as mosaics and sculptures made from non-flammable materials are ideal landscaping features that can contribute to reducing your home's bushfire risk.



Metal screens can help to shield your house from radiant heat, direct flame contact and ember attack.



Non-flammable gravel and rock for paving and mulching inside the two to three-metre perimeter around your home.

Action 3

Keep all combustibles at least 2-3 metres away from the house

Combustible materials, plant and non-plant, close to the house compromise defensible space by increasing the potential for localised direct flame contact.

Keeping them at a safe distance (two to three metres as the minimum) away from the building – particularly vulnerable components such as windows, doors, decks, pergolas and eaves – increases your home's chances of surviving a bushfire.

Some suggestions to help you achieve this include:

- locating non-flammable materials (e.g. stones, rocks, gravel, sand, paving) and features (e.g. screens, walls, sculptures, mosaics constructed using non-combustible materials) within the two to three-metre perimeter immediately around the house
- moving flammable structures and objects (e.g. caravans, outdoor furniture, barbecues, gas bottles, plant-based mulches) well away from this two to three-metre perimeter during predicted **Severe, Extreme** and **Code Red** days
- ensure wood piles are stored well away from this two to three-metre perimeter during the fire danger period
- using non-combustible planters and pots, and relocating these outside the immediate perimeter during summer
- planting trees and shrubs outside the perimeter and ensuring they don't encroach inside this area by removing overhanging branches and leaf litter, and
- using non-flammable mulching materials.

To increase the likelihood of your home surviving, the area immediately surrounding your home should be kept free of all flammable objects including wood piles, which can easily ignite during a bushfire.





Trees and shrubs abutting the home increase the effects of direct flame contact and radiant heat.



Look at overhanging branches and leaf litter as fuel sources that can lead to major property loss during a bushfire - and manage them appropriately as part of your Bushfire Survival Plan.



Use of suitable ground and low level plants, non-flammable mulching and stone features (eg. pathways and walls) helps to keep the perimeter around the home free of flammable materials.

Action 4

Keep vegetation and other flammable plant materials away from the house

As fuel sources in a bushfire, vegetation and other flammable plant materials (e.g. leaf litter, debris) cause fire to spread, increasing the potential for ember attack and direct flame contact. They therefore need to be managed appropriately, particularly in the perimeter around the house, to ensure defensible space is maintained.

This does not necessarily mean clearing all plants and trees; in fact, if carefully selected, located, arranged and maintained, trees can help to reduce wind speed, absorb radiant heat and filter embers. Existing vegetation may be suitable to be retained depending on its flammability, location and management regime. Refer to the actions relating to plant location and arrangement, and to the Plants with desirable characteristics section in this booklet. The Plant Selection Key at www.cfa.vic.gov.au or in Landscaping For Bushfire also provides a useful guide.

Other actions include:

- locating trees at least 1.5 times their mature height away from the house (e.g. mature height 8 metres x 1.5 = 12 metres)
- regularly removing leaf litter, particularly from areas where it tends to accumulate (e.g. house corners, doors, windows, gutters, some rooflines, decks), and
- keeping grass to no more than five centimetres high around the immediate perimeter and 10 centimetres or less elsewhere.

Trees should be located well away from the house to minimise the potential for radiant heat and direct flame contact via overhanging branches and falling limbs and trunks.

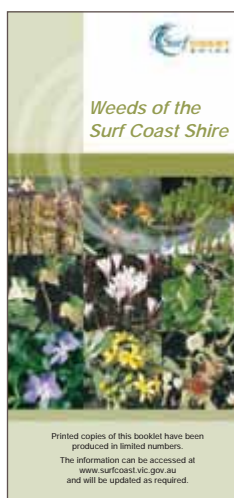
Action 5

Remove environmental weeds

In a bushfire, woody environmental weeds provide a major fuel source, which contributes to the speed and intensity at which fire spreads. Removing these weeds, and ensuring other vegetation is **located and arranged appropriately**, can help to break up fuel continuity and substantially reduce opportunities for fire to spread.

Environmental weeds are both woody and non-woody, and may be declared noxious under State legislation. In the Surf Coast Shire, environmental weeds include trees and shrubs (e.g. Pines, Coast Tea-tree, Boneseed, Cape Broom, Pittosporum, Coast Wattle), herbs and succulents (e.g. Agapanthus, Gazania, Blanket Weed), and grasses and rushes (e.g. Serrated Tussock, Pampas). The Surf Coast Shire Council's fuel reduction programs focus on removing woody environmental weeds from private land to reduce fuel loads around high fire risk townships. To find out more about this program, or for advice about removing weeds from your property and selecting, locating and arranging replacement plants to reduce bushfire risk, contact Council's Community Fire Safety and Environment Officer (Ph. 5261 0600)

The Council's website (www.surfcoast.vic.gov.au) also includes information about weeds along with local planting guides, which can help you choose local indigenous plant species that may contribute to reducing bushfire risk.



Council has developed resources to help residents identify and manage weeds on their property. Weeds of the Surf Coast Shire and Top 20 Weeds brochures can be accessed at www.surfcoast.vic.gov.au/My_Environment/Environment_Publications



Woody weeds such as pine trees should be removed as they contribute significantly to fuel loads.

Woody environmental weeds represent a major bushfire threat because they tend to invade and occupy more 'middle storey' space than local indigenous species. In a bushfire, this influences fire behaviour by increasing the intensity and speed at which fire spreads.



As major fuel sources woody weeds and other noxious plants can increase a bushfire's intensity and speed.



Fuel continuity makes it easy for fire to spread across your property up to the house and to neighbouring properties. By separating plants, garden beds and tree canopies however, you effectively break up fuel continuity and reduce or prevent the path of fuel to the house.

Use the concept of non-connecting clusters of vegetation as the basis for designing and building your garden to reduce bushfire risk. This includes:

- arranging plants and garden beds into defined areas separated by no or low fuel features (e.g. paths, lawns, pavers, walls)
- ensuring shrubs and other flammable materials are located away from trees to reduce the 'ladder' fuel effect, and
- preventing a continuous canopy by creating discrete clusters of shrubs and trees separated by no/low fuel areas.

Fire spreads easily when plants are located close together with the availability of a continuous fuel path, which makes it easier for fire to destroy your home through direct flame contact and radiant heat.



Arranging suitable plants into non-connecting clusters, separated by non-flammable mulching materials (eg. sand, gravel) breaks up the fuel continuity.



Landscaping features such as rocks can be used within and between clusters to separate plants.

Action 7

Plant new trees apart so tree canopies do not touch

A continuous tree canopy compromises defensible space by contributing to a bushfire's intensity and speed. If located too close to the house, it significantly increases your home's exposure to radiant heat and direct flame contact via falling trees and tree limbs.

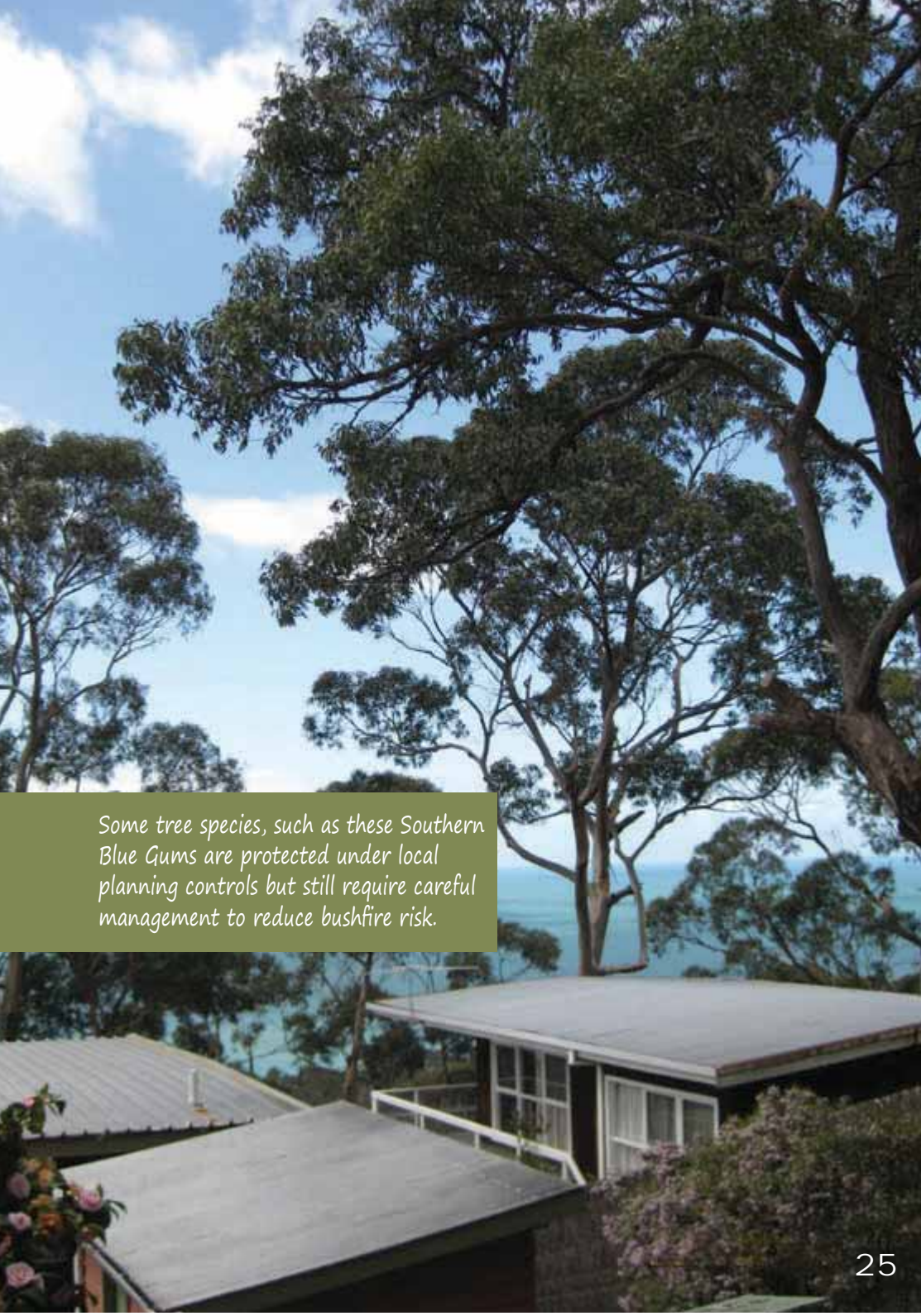
To prevent a continuous tree canopy:

- space trees apart to create breaks of at least two metres between canopies
- locate trees at least 1.5 times their mature height away from the house and other buildings and structures (e.g. power lines, water tanks) – allow even more space for tall mature trees with large canopies
- separate the canopy from ground level fuel by pruning the branches to a minimum of two metres above the ground, and
- do not plant shrubs and other flammable plants and materials directly under trees as they can carry fire into the canopy via the 'ladder' fuel effect.

Keep the area immediately under the tree canopy clear of shrubs, leaf litter, plant debris (e.g. bark twigs, branches) and other flammable materials. According to the CFA, fire is rarely sustained in the tree canopy unless there is a fire burning in the plants or leaf litter under the tree.



Groundcover, shrubs and other 'middle storey' plants need to be selected and arranged appropriately in relation to canopy trees to ensure they don't provide 'ladder' fuel in a bushfire.



Some tree species, such as these Southern Blue Gums are protected under local planning controls but still require careful management to reduce bushfire risk.

Plant **selection, arrangement and location** can reduce the risk of losing your home in a bushfire. Plants should be selected according to their flammability as a contributing factor to bushfire behaviour. Where and how they are **located** and **arranged** are critical to reducing bushfire risk as indicated by many of the actions in this booklet.

In general, when selecting plants to reduce bushfire risk choose plants that:

- are easily maintained by pruning or mowing
- require little water
- do not lose large amounts of leaves or needles
- have thick, fleshy leaves or stems
- display leaves with an open transparent branching pattern, and
- have a high moisture content (i.e. succulent).

Plants that are considered to have **good characteristics for planting in high fire risk areas** include: succulents, rushes, sedges, small shrubs with low foliage density, and eucalypts with easily removable loose bark or non stringybark. Ongoing maintenance is essential as many of these plants may become more susceptible to bushfire if not maintained properly.

Non-desirable plant species of particular note include: Cypress, Conifers, Pines and Paperbark.

Refer to the next section in this booklet and the Plant Selection Key at **www.cfa.vic.gov.au** or in Landscaping For Bushfire, and choose plants that possess desirable characteristics along with low to moderate flammability. The following pages feature some of these plants.

The Surf Coast Shire Council website (www.surfcoast.vic.gov.au/My_Environment) features photos and information about local native plants, many of which possess desirable characteristics. There is also a section devoted to weeds.

Plants with desirable characteristics

This section provides a small sample of just some of the plants, many indigenous to the Surf Coast, with good characteristics for planting in high fire risk areas. They have been assessed against the CFA's Plant Selection Key and rated as moderate to low flammability. **Note that all plants, regardless of flammability ratings, require regular and ongoing maintenance** to address anticipated bushfire behaviour. For example, some species of Wattle, such as Golden Wattle (*Acacia pycnantha*), can tend to grow in clusters that will require careful management to ensure a non-connecting tree canopy.

As indicated by the diagram on page 31, a good cross-section of plant height is shown – from climbers and scramblers, groundcover and low level plants to medium level and tall.

For more information, contact Surf Coast Shire Council's Community Safety and Environment Unit (Ph. 5261 0600). Many local community groups can also advise on local indigenous plant species and weeds. The CFA's Plant Selection Key in Landscaping for Bushfire provides a useful tool for assessing plant flammability to assist in selecting plants with desirable characteristics.

Climbers and scramblers

Coast Twin Leaf
(*Zygophyllum billardierei*)



Ruby Saltbush
(*Euchylaena tomentosa*)



Ground (less than 5cms)

Karkalla
(*Carpobrotus rossii*)



Coast Bonefruit
(*Threlkeldia diffusa*)



LOW (*less than 1m in height*)

Long Purple Flag

(*Patersonia occidentalis*)



Spiny-headed Mat-rush

(*Lomandra longifolia*)



Variable Sword-sedge

(*Lepidosperma laterale* var. *laterale*)



Knoby Club-sedge

(*Ficinia nodosa*)



Common Raspwort

(*Gonocarpus tetragynus*)



Common Everlasting

(*Chysocephalum apiculatum*)



Pale Fan-flower
(*Scaevola albida*)



Thin-leaf Wattle
(*Acacia aculeatissima*)



Ploughshare Wattle
(*Acacia gunnii*)



Sea-box
(*Alyxia buxifolia*)



Blunt Everlasting
(*Argentipallium obtusifolium*)



Grass Daisy
(*Brachyscome graminea*)



MEDIUM (1m to 4m height)

Sweet Wattle
(*Acacia suaveolens*)



Austral Indigo
(*Indigofera australis*)



Green Correa
(*Correa aff. reflexa*)



Common Boobialla
(*Myoporum petiolatum*)



Dusty Miller
(*Spyridium parvifolium*)



Gold-dust Wattle
(*Acacia acinacea*)



Spreading Wattle

(Acacia genistifolia)

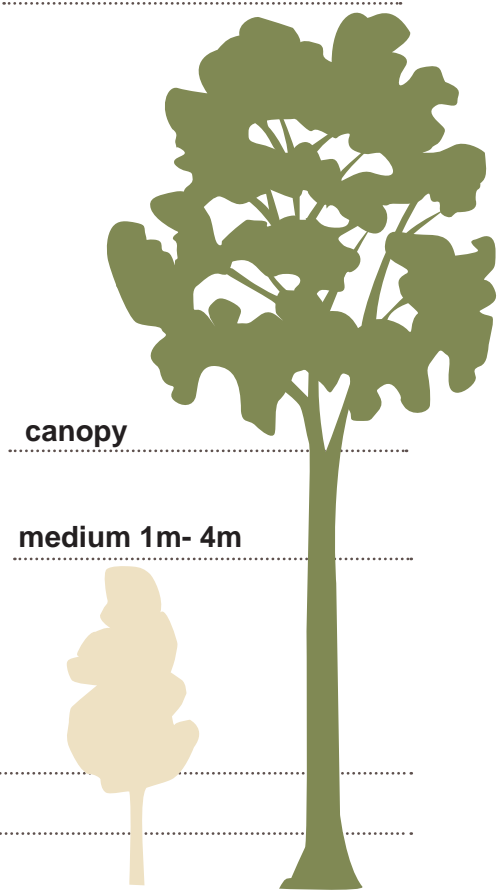


Myrtle Wattle

(Acacia myrtifolia)



tall > 4m



canopy

medium 1m- 4m



low < 1m



ground < 5cm



TALL *(Shrubs and trees more than 3m)*

Red Ironbark
(Eucalyptus tricarpa)



Golden Wattle
(Acacia pycnantha)



Narrow-leaf Wattle
(Acacia mucronata subsp. longifolia)



Blackwood
(Acacia melanoxylon)



Mountain Grey Gum
(Eucalyptus cypellocarpa)



Blue Gum
(Eucalyptus globulus subsp. globulus)



Scent-bark
(Eucalyptus aromaphloia)



Hazel Pomaderris
(*Pomaderris aspera*)



Manna Gum
(*Eucalyptus viminalis* subsp. *viminalis*)



Narrow-leaf Peppermint
(*Eucalyptus radiata*)



Shining Peppermint
(*Eucalyptus falciformis*)



Swamp Gum
(*Eucalyptus ovata*)



Garden styles for high fire risk areas

When establishing a new garden or modifying an existing one, choosing a style can help you to achieve a space that suits your needs. Applying the principles and actions outlined in this booklet to your preferred style also contributes to reducing bushfire risk in high fire risk areas.

The four garden styles appearing on the following pages have been developed to suit Surf Coast conditions. They are intended to provide a guide to landscaping your garden to reduce bushfire risk.

Using one style, or combination of each, may help you determine lay-out, **plant selection, location and arrangement**, landscaping features, access and overall usability, including **ongoing maintenance**.

Each style is accompanied by a sample landscape plan that illustrates how the bushfire garden design principles and actions can be applied to that particular style.

These plans are intended to be generic. As such, they do not indicate the attributes of adjoining properties or the nature strip/road verge. It is recommended that you review your landscaping annually, with respect to the design guidelines in this booklet and adjoining land, as part of your bushfire survival plan.

This garden style uses a paved area as an attractive garden feature that provides separation between the home and planted areas to create defensible space in a bushfire.



The CFA's *Landscaping for Bushfire* provides a series of garden design styles for generic settings (e.g. coast, hills, rural, suburban), which offer additional information related to designing your garden to reduce bushfire risk.

The following steps may be helpful when it comes to planning your fire ready garden, including choosing a garden style, or combination of styles, that meets your needs.

Develop an understanding of how your garden is or will be used by considering issues such as: access and movement of people (e.g. pathways, gates); location of productive patches, outdoor dining/relaxation and play areas; adjoining properties and garden sheds; location of firewood, water tanks clothes lines, etc.; and conserving existing native vegetation.

1. Make a sketch map of the site showing location of pathways, access points and other key features, including existing native vegetation and trees. Identify any environmental weeds to be removed.
2. Choose a range of local indigenous species in consideration of the overall garden style and which have low to moderate flammability as per the CFA Plant Selection Key.
3. Locate and arrange the plants and mulching materials according to the actions outlined on pages 14 to 28. This includes considering the arrangement of ground plants, small and tall shrubs and trees, to minimise the 'ladder' fuel effect.
4. Consider non-combustible landscape features for screening, walls and sculptures.
5. Consider contacting landscape architects and/or landscape contractors for assistance and advice.

Whatever garden style or combination you choose to go with, focus on minimising opportunities for direct flame contact and radiant heat by planting vegetation in non-connecting clusters, using species of low to moderate flammability, arranged in a manner that does not favour the 'ladder' fuel effect.

Whatever style you choose as the basis for designing your garden, focus on creating a garden you and your family can enjoy while contributing to reducing your property's bushfire risk.

Bush Garden

The bush garden style is characterised by a natural setting featuring native bushland, including local indigenous plants that support native wildlife, and little formality or apparent structure.

Whether it encompasses the entire site, or focuses on retaining or establishing discrete stands of native bushland in appropriate locations with respect to the home and other structures, **plant selection and arrangement** are critical to the level of bushfire risk.

The area's history (e.g. fire, clearing) and the presence of predominant native vegetation communities (e.g. heathland, woodland, forest, tall forest) need to be taken into consideration.

Choose appropriate local indigenous species for biodiversity and adaptation to local conditions, and maintain spaces between vegetation clusters to reduce connectivity and minimise fire spread.

Natural hard landscaping materials and features (e.g. rock and stone sculptures, walls, benches, seats, paving) complement this style and provide separation between vegetation and the home to reduce the risk of direct flame contact during a bushfire.

Although this garden style generally requires minimal attention throughout the year, regular maintenance is critical during the fire danger period to keep leaf litter and fine fuels (i.e. less than 6mm diameter) to a minimum. Continued monitoring and removal of weeds, particularly woody weeds, is essential.

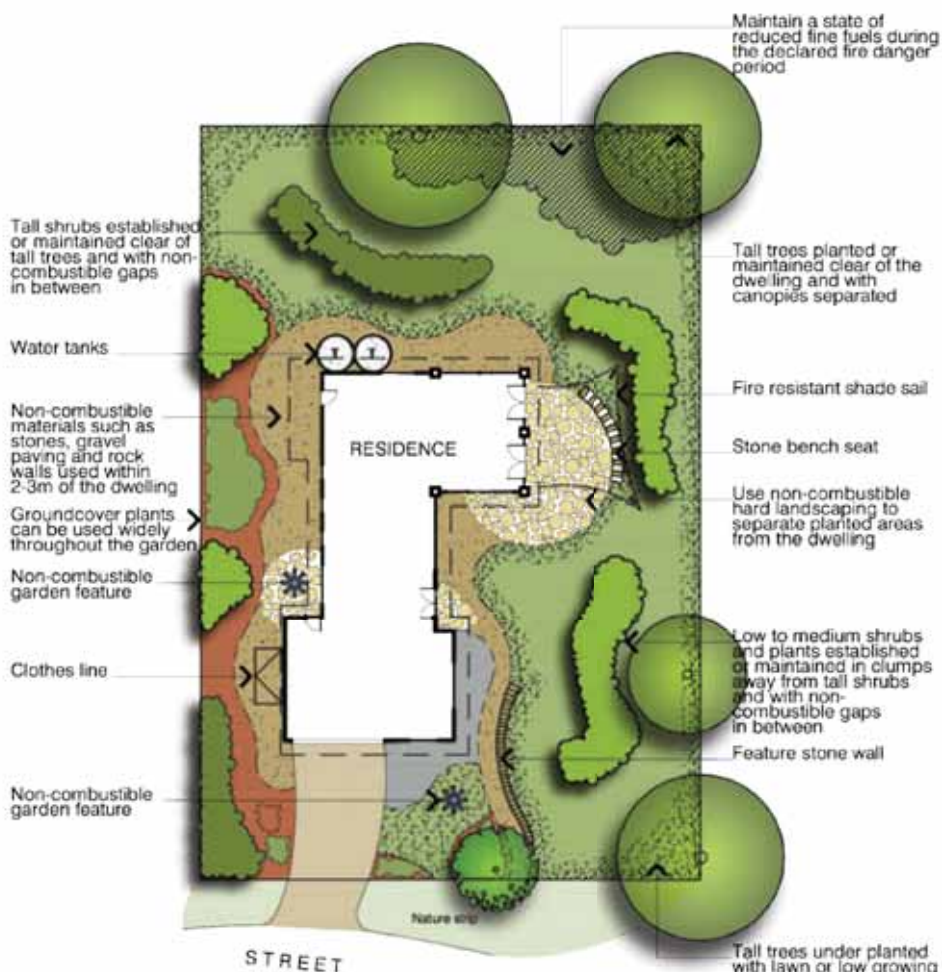


Rock walls and other hard landscaping features can be used in the bush garden to break up vegetation clusters and reduce fire spread.









Retaining low fuel areas between stands of native vegetation also reduces fire spread.

Bushfire garden design guidelines applied to the Bush Garden



Legend

-  Tall existing Eucalypt tree (>3m in height)
-  Medium canopy trees (up to 3m in height)
-  Tall shrubs (1-3m in height)
-  Low to medium shrubs and plants (up to 1m in height)
-  Groundcover planting (<5cm in height, low and spreading)
-  Native vegetation patch

-  Drought tolerant lawn.
-  Gravel pathways.
-  Stone, brick, concrete pavers.
-  Non-combustible mulch.
-  Gravel driveway.



'Bush Garden'

Family Garden

The family garden style focuses on creating an environment that nurtures children's play and imagination while providing areas for adult relaxation and entertaining.

Key components generally include:

- a combination of spaces for enjoyment and function
- minimal, low-key vegetation with an emphasis on safety and visual appeal
- children's play equipment
- outdoor furniture
- safety fencing, and
- grassed areas.

As well as addressing bushfire risk, plant selection for the family garden should consider children's safety and allergy concerns. Some plants can cause hay fever or skin irritations while others contain toxic elements (e.g. castor oil plant, oleander, arum lily, some bulbs, flax lily, rhubarb). 'Soft' plants (i.e. no hard spines) are also safest around children.

In terms of using this style to reduce bushfire risk, locating entertainment and play areas (constructed using non-flammable materials), low fuel areas (e.g. lawn) and other landscaping features (e.g. paths, fences, screens) in the perimeter around the home will separate it from planted areas and contribute to defensible space.

The family garden, like all garden styles, generally requires regular upkeep (e.g. mowing, pruning, weeding) throughout the year and more intensive maintenance during the fire danger period to keep leaf litter and fine fuels to a minimum, particularly in vulnerable areas around the home (e.g. roof gutters, windows, decks, doors, corners).

The family garden style can add to bushfire risk if flammable plants and materials feature in the perimeter around the home. Ensure they are kept a safe distance away and pay attention to leaf litter, plant debris and other fine fuels, which must be cleared during the fire danger period.



In the family garden, lawns, entertainment and play areas close to the house provide enjoyment while reducing opportunities for direct flame contact.

Bushfire garden design guidelines applied to the Family Garden



Productive Garden

Of the four garden styles outlined in this booklet, the productive garden requires the most planning, ongoing care and maintenance due to its focus on growing and using plants for food and other purposes.

In terms of designing a productive garden to reduce bushfire risk, the same guidelines apply in relation to creating defensible space around the home. This garden style, which often takes up just a section of the site, can also be successfully incorporated within the other garden styles.

Things to take into account when designing a productive garden include its aspect in relation to the sun, access to water and proximity to shade (i.e. adjacent vegetation and tree canopies).

Understanding the movement of sunlight across the site over the different seasons also determines plant selection (many productive plants require at least six hours sunlight a day). Pots can also be useful additions as they can be used all year round and easily moved to accommodate changes in seasons and sunlight.

Composting areas, pathways, wind protection and trees (including fruit trees) should also be considered in using this style.

Remember to incorporate the bushfire garden design guidelines and actions in designing your productive garden. Ongoing care and maintenance all year round are vital to a successful productive garden that also contributes to reducing bushfire risk.



The same principles and actions apply to the location and arrangement of planted and non-planted areas in the productive garden as for the other garden styles.



Bushfire garden design guidelines applied to the Productive Garden



Park Garden

The park garden style is quite distinctive and generally consists of a well maintained and manicured ground layer, a few grasses and groundcovers or shrubs, and a number of small to large trees featuring interspersed canopies.

This style is characteristic of many reserves and parks across the Surf Coast Shire, and can be seen around the boundaries of many acreage properties in Aireys Inlet, Lorne and other bushland townships.

As the eucalypt trees, which are a strong feature of this style, take many years to mature, the park garden can take time to establish.

Careful **selection, location, arrangement** and **maintenance** of trees is the key consideration in using the park garden style to reduce bushfire risk. Ensuring tree canopies are well spaced and do not encroach into the defendable space perimeter around the home are critical.

The actions pertaining to removing flammable materials away from the home and breaking up fuel continuity should also be considered when designing, developing and maintaining a park style garden.

A well-designed and executed park garden, incorporating the bushfire garden design principles and actions, can substantially decrease bushfire risk. Selecting, locating and maintaining trees appropriately is the key factor in using this style.



Features of the park garden style, such as seating, pathways and manicured lawns, all contribute to reducing bushfire risk by breaking up fuel continuity to create defendable space around the home.








Many Surf Coast reserves feature the park garden style in the design and can help to provide inspiration for designing your own park garden.

Bushfire garden design guidelines applied to the Park Garden



Legend

- | | |
|---|--|
|  | Tall existing Eucalypt tree (>3m in height) |
|  | Medium canopy trees (up to 3m in height) |
|  | Tall shrubs (1-3m in height) |
|  | Low to medium shrubs and plants (up to 1m in height) |
|  | Groundcover planting (<5cm in height, low and spreading) |

- | | |
|---|--------------------------------|
|  | Drought tolerant lawn. |
|  | Gravel pathways. |
|  | Stone, brick, concrete pavers. |
|  | Non-combustible mulch. |
|  | Gravel driveway. |



'Park Garden'

Useful resources

Publications

Surf Coast Shire

(download from www.surfcoast.vic.gov.au/My_Environment/Environment_Publications or call 5261 0600)

- *Weeds of the Surf Coast Shire (2013)*
- *Top 20 Weeds of (2013):*
- *Anglesea to Eastern View*
- *Moriac, Freshwater Creek, Winchelsea, Barrabool Hills*
- *Lorne (inc. Big Hill), Deans Marsh and Bambra*
- *Jan Juc, Torquay, Bellbrae and Connewarre*
- *Municipal Fire Management Plan (2010)*
- *Rural Indigenous Planting Guide (2003)*
- *Urban Indigenous Planting Guide (2003)*

CFA (download from www.cfa.vic.gov.au or call 5240 2700)

- *Fire Ready Kit (2011)*
- *Landscaping for Bushfire: Garden Design and Plant Selection (2011)*
- *Wildfire Management Overlay Applicants Kit (2010)*

Other (access via the websites provided)

- *Landscape and Building Design for Bushfire Areas, CSIRO (2003)*
www.csiro.au
- *2009 Victorian Bushfires Royal Commission Final Report, Parliament of Victoria*
2009 Victorian Bushfires Royal Commission (2010)
www.royalcommission.vic.gov.au
- *Planning and building for bushfire protection, Department of Transport, Planning and Local Infrastructure (2009-2014)*
www.dtpli.vic.gov.au/planning/planning-and-building-for-bushfire-protection/bushfire-planning-resources
- *Surf Coast Shire Planning Scheme, Surf Coast Shire (2006)*
<http://planningschemes.dpcd.vic.gov.au/schemes/surfcoast>

Websites

- www.surfcoast.vic.gov.au (Surf Coast Shire Council)
- www.cfa.vic.gov.au (CFA – Country Fire Authority)
- www.delwp.vic.gov.au (Department of Environment, Land, Water and Planning)
- www.land.vic.gov.au (Land Channel)
- www.csiro.au (CSIRO - Commonwealth Scientific and Industrial Research Organisation)

Contacts

Surf Coast Shire Council (Ph. 5261 0600 Email info@surfcoast.vic.gov.au)

CFA – Barwon South West Region (Ph. 5240 2700)

A suitably qualified and experienced landscape architect, designer or contractor can also provide help and advice in relation to landscaping for bushfire.

Definitions

Canopy is the layer or multiple layers of branches and foliage at the crown (top) of a tree.

Combustible materials (e.g. timber, firewood) require ignition from a dominant source to burn.

Flammable materials (e.g. propane gas) are easily ignited by minimal sources (i.e. they have a lower flashpoint than combustible materials) and capable of burning rapidly.

All flammable materials are combustible but not all combustible materials are flammable.

Defendable space is an area of land around a building where vegetation is modified and managed to reduce the effects of direct flame contact and radiant heat associated with bushfire.

Direct flame contact occurs when flames touch a house or other structure.

Ember attack occurs when burning fine fuels (e.g. twigs, leaves, bark) are carried by the wind and land in and around houses and their gardens, often igniting spot fires.

Environmental weeds include:

- **noxious plants** declared as a problem under Victorian legislation and requiring landholders to control, and
- **woody plants** with hard woody parts, especially stems.

Fire danger period is a time during which fires in the open air are legally restricted due to high fire danger. Under the Country Fire Authority Act 1958, the CFA is responsible for declaring the fire danger period in a municipality. In Victoria, the fire danger period generally runs from November to April.

Fuel load refers to the amount of vegetation, plant debris, leaf litter and other flammable materials around a property that is capable of carrying fire in a bushfire. High fuel loads increase the speed and intensity at which fire travels.

Ladder fuel is where vegetation is continuous and vertical between different plant heights and types, allowing fire to carry from surface fine fuels (e.g. leaves, twigs) into the crowns of trees or shrubs.

Planning scheme generally applies to a defined municipal area such as Surf Coast Shire (and some special planning areas) and sets out the policies and provisions applying to the use and development of land in that area.

Plant height guide:

- **ground level/storey** – plants less than 50cm in height, leaf litter, twigs, branches
- **low level/storey** – plants less than 1m in height, grasses, sedges, rushes, small shrubs
- **medium level or middle storey** – plants 1m to 3m in height, medium shrubs, small trees, and
- **tall or upper level/storey** – shrubs and trees more than 3m in height.

Radiant heat is capable of igniting surfaces without direct flame contact, cracking/breaking windows, distorting/melting materials and drying out vegetation ahead of a bushfire so that it burns more easily.

Acknowledgements

Surf Coast Shire Council acknowledges the CFA for its advice and assistance in developing this booklet. The CFA publication *Landscaping For Bushfire: Garden Design and Plant Selection* was also referred to extensively during the process of finalising this booklet's content.

The four sample landscape designs were prepared by Mexted Rimmer Landscape Architects.

Additional images provided by Ocean Road Landscaping, Margaret MacDonald and Stuut Artistry and Design.

MY NOTES

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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