

**Wollondilly/ Wingecarribee  
Bush Fire Management Committee**

**Bush Fire Risk Management Plan**

## Glossary

**Assets:** anything valued by the community which includes houses, crops, heritage buildings and places, infrastructure, the environment, businesses, and forests, that may be at risk from bush fire.

**Bush Fire:** a general term used to describe fire in vegetation, includes grass fire.

**Bush Fire Hazard:** the potential severity of a bush fire, which is determined by fuel load, fuel arrangement and topography under a given climatic condition.

**Bush Fire Risk:** the chance of a bush fire igniting, spreading and causing damage to the community or the assets they value.

**Bush Fire Risk Management:** a systematic process that provides a range of treatments which contribute to the well being of communities and the environment, which suffer the adverse effects of wildfire/bush fire.

**Bush Fire Threat:** potential bush fire exposure of an asset due to the proximity and type of a hazard and the slope on which the hazard is situated.

**Consequence:** outcome or impact of a bush fire event.

**Fire Fighting Authorities:** the NSW Rural Fire Service, NSW Fire Brigades, the National Parks and Wildlife Service and Forests NSW.

**Likelihood:** the chance of a bush fire igniting and spreading.

**Major Bush Fire:** A bush fire which requires the attendance of multiple brigades, or causes damage to property or injury to one or more persons.

**Display area:** geographic area determined by the Bush Fire Management Committee which is used to provide a suitable area and scale for community participation and mapping display purposes.

**Recovery costs:** the capacity of an asset to recover from the impacts of a bush fire.

**Risk Acceptance:** an informed decision to accept the consequences and the likelihood of a particular risk.

**Risk Analysis:** a systematic process to understand the nature of and to deduce the level of risk.

**Risk Assessment:** the overall process of risk identification, risk analysis and risk evaluation.

**Risk Identification:** the process of determining what, where, when, why, and how something could happen.

**Risk Treatment:** the process of selection and implementation of measures to modify risk.

**Vulnerability:** the susceptibility of an asset to the impacts of bush fire.

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## Authorisation

In accordance with Part 3 Division 4 of the Rural Fires Act 1997, this Plan has been prepared by the Wollondilly/ Wingecarribee Bush Fire Management Committee and has been endorsed at the BFMC meeting on 10 March 2016 for submission to the Bush Fire Coordinating Committee.

### Recommended



Chairperson  
Wollondilly/ Wingecarribee Bush Fire Management  
Committee

### Approved



On behalf of the  
NSW Bush Fire Co-ordinating Committee



# Chapter 1. Introduction

## 1.1 Background

Under the *Rural Fires Act 1997* the Bush Fire Coordinating Committee (BFCC) must constitute a Bush Fire Management Committee (BFMC) for each area in the State, which is subject to the risk of bush fires. Each BFMC is required to prepare and submit to the BFCC a draft Bush Fire Risk Management Plan (BFRMP).

A BFRMP is a strategic document that identifies community assets at risk and sets out a five-year program of coordinated multi-agency treatments to reduce the risk of bush fire to the assets. Treatments may include such things as hazard reduction burning, grazing, community education, fire trail maintenance, vegetation management, and establishing community fireguard groups.

Annual programs to implement the treatments identified in this plan will be undertaken by the relevant land managers and fire fighting authorities.

In exercising its functions under the *Rural Fires Act 1997*, including the preparation of a draft bush fire risk management plan, the Wollondilly/ Wingecarribee BFMC is required to have regard to the principles of ecologically sustainable development (ESD).

This document and the accompanying maps together form the BFRMP for the Wollondilly/ Wingecarribee BFMC area.

This BFRMP has been prepared by the Wollondilly/ Wingecarribee BFMC and covers both public and private lands. This BFRMP must be reviewed and updated within each successive five-year period from the constitution of the BFMC.

The BFCC recognises that climate change has the potential to increase bush fire risk. The risk assessment process applied in this BFRMP is based on current climatic conditions. The BFCC will monitor information on climate change and will modify the process when necessary.

## 1.2 Aim and Objectives

The **aim** of this BFRMP is to minimise the risk of adverse impact of bush fires on life, property and the environment.

The **objectives** of this BFRMP are to:

- reduce the number of human-induced bush fire ignitions that cause damage to life, property and the environment;
- manage fuel to reduce the rate of spread and intensity of bush fires, while minimising environmental/ecological impacts;
- reduce the community's vulnerability to bush fires by improving its preparedness; and



- effectively contain fires with a potential to cause damage to life, property and the environment.

### **1.3 Description of the Wollondilly/ Wingecarribee BFMC area**

#### **1.3.1 Location and land tenure**

The Wollondilly/ Wingecarribee BFMC area is located south of Sydney in New South Wales between Campbelltown and Goulburn and includes the Local Government Areas of Wollondilly & Wingecarribee Shires. The area covered by the Wollondilly/ Wingecarribee BFMC is 525,700 hectares and includes the land tenures outlined in Table 1.1. Over 60% of this area is covered by forest with well over 60% classified as water catchment.

<b>Land Manager*</b>	<b>% of BFMC area</b>
DECC & SCA	61.5
LMPA	2
Local Government	1
Private	31
Forests NSW	3.5
All other	1

**Table 1.1 Land tenure**

#### **1.3.2 Climate and bush fire season**

The typical climate in the Wollondilly/ Wingecarribee BFMC area is variable due to topographical and altitudinal differences. The low altitudinal areas north of the highlands experience a warm temperate climate with peak rainfall in the summer and autumn months. The bush fire season in this area is generally from August to December but can extend to March depending on the onset of summer rainfall. South of the highlands is considerably higher in altitude and experience a relatively cool temperate climate with predominantly summer rainfall and the bush fire season generally runs from October to March.

Prevailing weather conditions associated with the bush fire season in the Wollondilly/ Wingecarribee BFMC area usually coincide with strong southwest to northwest winds and influenced by drought and rainfall conditions. There are also frequently dry lightning storms occurring during the bush fire season.

#### **1.3.3 Population and demographic information**

The population of the Wollondilly/ Wingecarribee BFMC area is approximately 90,000 people. The major population centres are *Bundanoon, Moss Vale, Bowral, Mittagong, Picton, The Oaks, Tahmoor, and Warragamba*. The following issues have been identified within the Wollondilly/ Wingecarribee BFMC area as potentially impacting on the ability of certain sections of the community to prepare themselves for bush fire:

Residents of non-English background form a small percentage of the population and are generally dispersed throughout the Local Government Areas.

There are eighteen (18) villages and four (4) large towns that form part of an extensive urban interface with considerable bushland. This is compounded by a major state highway and the Sydney to Melbourne rail line traversing parallel to adjacent bushland interface.

Tourism has a major effect on the local economy

Close proximity to major urban centres of south west Sydney and the Illawarra exposes the area to many land owners commuting in and out of the highlands. A significant number of land owners also do not reside within the boundaries of the BFMC area.

#### **1.3.4 History of bush fire frequency and ignition cause**

The Wollondilly/ Wingecarribee BFMC area has on average 400 bush and grass fires per year, of which a number can be considered to be major fires.

A number of major fires have started in the inhabited areas of the BFMC and travelled in an easterly direction impacting on catchments. Most other major fires have ignited in the west associated with storms and have coincided with extensive dry periods coupled with hot westerly winds.

The main sources of ignition in the Wollondilly/ Wingecarribee BFMC area are:

- Lightning strikes associated with typical summer storm weather patterns
- Arson including dumping of vehicles in bushland
- Pile burns escaping private residents properties

## Chapter 2. Identifying and assessing the bush fire risk

### 2.1 Process

The Australia/New Zealand Standard *AS/NZS 4360: 2004 Risk Management* was used as the basis for the risk assessment process. See Figure 2.1 for the steps involved. For a detailed description of the process undertaken see the Bush Fire Risk Management Planning Guidelines for Bush Fire Management Committees on the RFS website: [www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au).

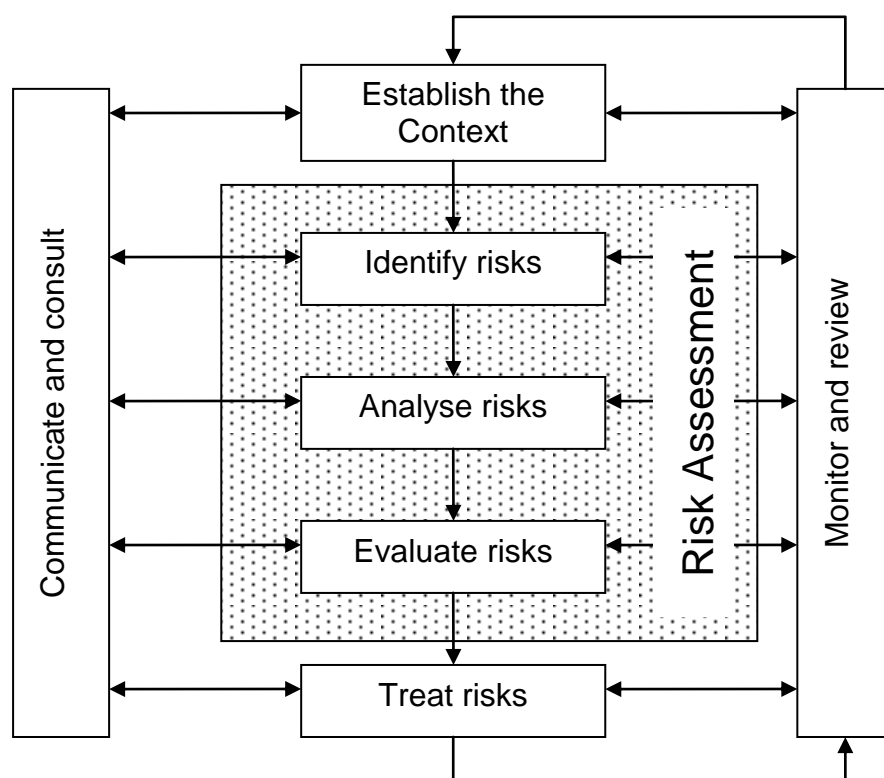


Figure 2.1 Overview of the risk assessment process

### 2.2 Communication and consultation

Community participation is an integral part of risk management. The Community Participation Strategy involved developing and implementing a process to address the needs, issues and concerns of stakeholders within the BFMC area in regards to the BFRMP. See Appendix 1 for the Community Participation Strategy used by the Wollondilly/ Wingecarribee BFMC in preparing this BFRMP.

## **2.3 Identifying the bush fire risk**

Identifying the level of bush fire risk firstly involved identifying important community assets considered to be at risk from bush fire in the *Wollondilly/ Wingecarribee* BFMC area, and then assessing the likelihood and consequence ratings.

### **2.3.1 Assets**

BFMC members and the community, including RFS volunteers, identified assets within the Wollondilly/ Wingecarribee BFMC that they believed were at risk of bush fire.

The assets were divided into four asset types:

#### **Human settlement**

- Residential areas including urban bushland interface areas and rural properties;
- Special Fire Protection areas including schools, hospitals, nursing homes, and tourist facilities; and
- Other human settlement areas including commercial and industrial areas where distinct from major towns.

#### **Economic**

- Agricultural; e.g. major silos, regional saleyards, cropping/grazing land;
- Commercial/industrial e.g. major industries, waste treatment plants, sawmills;
- Infrastructure e.g. large power lines, gas and oil pipelines, railway lines, electricity substations, communication facilities;
- Tourist and recreational e.g. tourist sites and facilities, resorts, retreats;
- Mines;
- Commercial forests e.g. pine plantations, eucalypt plantations and commercial native forests; and
- Drinking water catchments.

#### **Environmental**

- Threatened species, populations and ecological communities and Ramsar wetlands;
- Locally important species and ecological communities, such as species and ecological communities especially sensitive to fire.

## **Cultural**

- Aboriginal significance – Aboriginal places and items of significance;
- Non-indigenous heritage – places and items arising from the early occupation of NSW by European or other non-indigenous settlers; and
- Other cultural assets – community halls, clubs and recreational facilities.

See *Appendix 2* for the full list of assets identified in the Wollondilly/ Wingecarribee BFMC area. See maps 1- 14 for the location of assets to be treated under this BFRMP.

### **2.3.2 Assessing the bush fire risk - consequence**

Once the assets were identified, the consequence of a bush fire impacting on these assets was assessed.

See *Appendix 2* for the consequence ratings assigned to each asset identified in the Wollondilly/ Wingecarribee BFMC area.

The different asset types had different assessment processes used to determine the consequence. These processes are identified below.

## **Human settlement**

A potential fire behaviour model using vegetation type, slope and separation distance was used to produce a threat rating for human settlement assets. The vulnerability of the asset to a bush fire was also assessed and a rating assigned. These ratings were then used to assess the consequence of a bush fire impacting upon a human settlement asset.

Special Fire Protection (SFP) assets were considered inherently more vulnerable to bush fire due to mobility capacity, knowledge or other issues relating to their inhabitants, (e.g. the elderly, infirm, children or tourists) and therefore stricter requirements for vulnerability assessment and rating were applied.

## **Economic**

The level of economic impact e.g. local, regional or state, as well as the economic recovery costs (how long and complicated a financial recovery will be) of the asset were identified. These ratings were used to assess the consequence of a bush fire impacting upon an economic asset.

## **Environmental**

Environmental assets with known minimum fire threshold were assessed to determine if they were at risk of a bush fire within the 5 year life of the BFRMP using fire history and fire threshold data. Those environmental assets which were within or above the fire threshold were not assessed in the BFRMP, as the negative impact of a fire within the 5 year period was determined as being low and may even be of benefit to the asset and surrounding habitat.

The vulnerability of an environmental asset was determined by its conservation status and its geographic extent (distribution across the landscape). Vulnerability and potential impact of bush fire were used to assess the consequence of a bush fire impacting upon an environmental asset.

## **Cultural**

For non-indigenous historical, Aboriginal and other cultural assets a potential fire behaviour model using fuel load, slope and proximity was used to produce a threat rating. The physical vulnerability of the asset to a bush fire was also assessed. These ratings were then used to assess the consequence of a bush fire impacting upon a cultural asset.

### **2.3.3 Assessing the bush fire risk - likelihood**

For all asset types the likelihood of a bush fire occurring was assessed. This involves considering fire history, including ignition cause and patterns, known fire paths, access, containment potential and potential fire run (size of the vegetated area). See *Appendix 2* for the likelihood ratings assigned to each asset identified in the Wollondilly/ Wingecarribee BFMC area.

### **2.3.4 Identifying the level of risk**

The consequence and likelihood ratings were then used to identify the level of risk. See *Appendix 2* for the risk ratings assigned to each asset identified in the Wollondilly/ Wingecarribee BFMC area.

### **2.3.5 Evaluating the bush fire risk**

Once the risk ratings for each asset were identified, they were evaluated to:

- a) confirm that risk levels identified in the risk analysis process are appropriate and reflect the relative seriousness of the bush fire risk;
- b) identify which assets require treatments; and
- c) identify treatment priorities.

### **2.3.6 Prioritising treatments**

No organisation has limitless resources to deal with adverse risk. It is therefore necessary to define priorities. The bush fire risk ratings determined were used to prioritise the risk treatments, i.e. areas of extreme risk were considered first for treatment, then very high, then high then medium then low.

### **2.3.7 Risk acceptability**

Risks below a certain level were assessed as not requiring treatment within the life of this plan. This is due to a combination of risk prioritisation and the capacity to undertake the work. Within the Wollondilly/ Wingecarribee BFMC area the level of acceptability is high for human settlement, economic and non- indigenous cultural assets. Areas of high, medium or low risk are likely to be managed by routine procedures and so do not require a specific application of resources. However, where practical and possible, the Wollondilly/ Wingecarribee BFMC will treat high, medium, and low risks.

For environmental and cultural assets the Wollondilly/ Wingecarribee BFMC has accepted the level of risk. In most cases it is not practical to apply specific treatments due to the isolated location and sensitive nature of these assets. The protection and management of the asset will be taken into account during bush fire and prescribed burning operations. The BFMC wide treatments are likely to contribute toward the reduction of risk to these assets

## Chapter 3. Treating the risk

### 3.1 Bush Fire Management Zones

Bush Fire Management Zones were identified within the Wollondilly/ Wingecarribee BFMC area and mapped (see maps 1-14). These zones identify the fire management intent for a specific area. See *Table (3.1)* for descriptions of the zones and their purposes. The four categories of Bush Fire Management Zones are:

- Asset Protection Zone (APZ);
- Strategic Fire Advantage Zone (SFAZ);
- Land Management Zone (LMZ); and
- Fire Exclusion Zone (FEZ).

Some of these zones (usually Land Management Zones) may be further classified within this category by the land manager, e.g. LMZ -Heritage Management Zone (NPWS).

Zone	Purpose	Suppression Objective(s)	Zone characteristics
<b>Asset Protection Zone</b>	To protect human life, property and highly valued public assets and values.	To enable the safe use of <b>Direct Attack</b> suppression strategies within the zone. To minimise bush fire impacts on undefended assets.	As per RFS document <i>Standards for Asset Protection Zones</i> .
<b>Strategic Fire Advantage Zone</b>	To provide strategic areas of fire protection advantage which will reduce the speed and intensity of bush fires, and reduce the potential for spot fire development. To aid containment of wildfires to existing management boundaries.	To improve the likelihood and safe use of: <b>Parallel Attack</b> suppression strategies within the zone. and/or <b>Indirect Attack</b> (back burning) in high to very high fire weather conditions within the zone. To reduce the likelihood of: Crown fire development within the zone. and/or Spot fire ignition potential from the zone	Zone width related to suppression objectives and dependant upon: · Topography · Aspect · Spotting propensity · Location of adjacent firebreaks · Mosaic pattern of treatment Assess Overall Fuel Hazard (OFH) once vegetation communities reach minimum fire thresholds within this plan. Management practices should aim to achieve mosaic fuel reduction patterns so that the majority of the SFAZ has an OFH of less than high.



<b>Land Management Zone</b>	To meet relevant land management objectives in areas where APZs or SFAZs are not appropriate.	As per the land management and fire protection objectives of the responsible land management agency. To reduce the likelihood of spread of fires. To undertake mosaic burning	As appropriate to achieve land management e.g. heritage and/or fire protection e.g. broad scale mosaic burning objectives.
<b>Fire Exclusion Zone</b>	To exclude bush fires.	N/A	Variable dependant on size of fire sensitive area requiring protection.

**Table 3.1 Bush Fire Management Zones: Purpose, objectives and characteristics**

**Note:** OFH refers the Overall Fuel Hazard Guide as described in the document published by (Dept. of Sustainability and Environment 3rd ed. 1999 & NPWS version); State-wide procedures for assessment of fuel hazard will be developed in conjunction with the BFCC.

All areas that are not mapped or described as APZ, SFAZ or FEZ are considered as LMZ.

### **3.2 BFMC wide treatments**

BFMC wide treatments are activities which reduce the overall bush fire risk within the BFMC area and are undertaken on an ongoing basis as part of normal business. These treatments are not linked to specific assets in the BFRMP, rather they are applied across all or part of the BFMC area as designated by legislation or agency policy. BFMC wide treatments include the following:

- **Reviewing the bush fire prone land map**

These maps identify bush fire prone land and are used to trigger whether a development application is assessed using *Planning for Bush Fire Protection*<sup>1</sup>.

- **Ensuring developments in bush fire prone land comply with *Planning for Bush Fire Protection***

This assessment process requires new applications for development to include bush fire protection measures.

- **Using the Local Environment Plan/s (LEPs) to control developments in areas with a bush fire risk**

LEPs can be used to exclude development in extreme bush fire risk areas or where bush fire protection measures cannot be incorporated.

<sup>1</sup> NSW Rural Fire Service 2006 *Planning for Bush Fire Protection: A guide for councils, planners, fire authorities and developers.*

- **Varying the standard bush fire danger period as required**

In years where the weather is particularly adverse the bush fire danger period may be brought in early or extended. This is assessed every year by the BFMC.
- **Requiring permits during the bush fire danger period**

In the bush fire danger period a fire safety permit is required to light a fire in the open. Permits specify conditions such as fire fighting equipment that must be on site, or restrict burns based on weather conditions.
- **Prosecution of arsonists/offenders**

Under the *Rural Fires Act 1997* persons may be prosecuted for breaching the conditions on a fire permit, lighting a fire during a Total Fire Ban, allowing fire to escape their property, or other breaches of the Act.
- **Investigation of bush fire cause**

All bush fires which do not have a known cause are investigated to identify how they started.
- **Normal fire suppression activities**

Responding to bush fire is a normal business activity for the fire fighting authorities.
- **Assessing and managing compliance with strategic fire fighting resource allocation provisions**

Strategic fire fighting resource allocation provisions is the process used to identify the number of stations, brigades and appliances required in an area, and considers members, training, assets and hazards.
- **Preparation of a S52 Operations Coordination Plan**

The Operations Coordination Plan is prepared biannually and sets out how coordinated fire fighting will occur. It includes specific operational restrictions on fire fighting techniques in certain areas, where fires will be managed from, and how agencies involved can communicate during operations.
- **Fire Management Plans or Plans of Management**

Some land management agencies have developed fire management plans or plans of management with specific fire or fuel management strategies, for example a Forests NSW Regional Fuel Management Risk Plan, a NPWS Fire Management Strategy. These publicly exhibited plans form the basis for operational fire planning on public parks, reserves and forests.
- **Bush Fire Hazard Complaints**

If someone is concerned about possible bush fire hazards on a neighbouring property or any other land, then this can be reported to the RFS Commissioner or their local RFS Fire Control Centre. The

complaint will be investigated and may result in a notice being issued to the landowner or manager to reduce the hazard.

### **3.3 Asset specific treatments**

There are five broad strategy groups available to treat the bush fire risk to assets identified in the BFRMP.

The types of asset specific treatments in each strategy group used in the Wollondilly/ Wingecarribee BFMC area are listed below. A full list of the treatment strategies in the Wollondilly/ Wingecarribee BFMC area are in *Appendix 3*.

<b>Strategy</b>	<b>Targeted treatments used in the Wollondilly/ Wingecarribee BFMC area</b>
Ignition Management	<ul style="list-style-type: none"> <li>• Develop and implement fire tower roster</li> <li>• Lock gates and perform regular patrols</li> </ul>
Hazard Reduction	<ul style="list-style-type: none"> <li>• Conduct Hazard Reduction Burning</li> <li>• Inspect APZ annually and maintain as required</li> </ul>
Community Education	<ul style="list-style-type: none"> <li>• Conduct community engagement activities</li> </ul>
Property Planning	<ul style="list-style-type: none"> <li>• Develop community protection plan</li> <li>• Consult on bush fire preparedness</li> </ul>
Preparedness	<ul style="list-style-type: none"> <li>• Maintain fire trails</li> </ul>

**Table 3.2 Asset specific treatments used in the Wollondilly/ Wingecarribee BFMC area**

### 3.4 Fire thresholds

The vegetation in the Wollondilly/ Wingecarribee BFMC area was classified into fire threshold categories (Table 3.3).

Vegetation formation	Minimum SFAZ Threshold	Minimum LMZ Threshold	Maximum Threshold	Notes
Rainforest	NA	NA	NA	Fire should be avoided.
Alpine complex	NA	NA	NA	Fire should be avoided.
Wet Sclerophyll forest (shrubby subformation)	25	30	60	Crown fires should be avoided in the lower end of the interval range.
Wet Sclerophyll forest (grassy subformation)	10	15	50	Crown fires should be avoided in the lower end of the interval range.
Grassy woodland	5	8	40	Minimum interval of 10 years should apply in the southern Tablelands area. Occasional intervals greater than 15 years may be desirable.
Grassland	2	3	10	Occasional intervals greater than 7 years should be included in coastal areas. There was insufficient data to give a maximum interval; available evidence indicates maximum intervals should be approximately 10 years.
Dry sclerophyll forest (shrub/grass subformation)	5	8	50	Occasional intervals greater than 25 years may be desirable.
Dry sclerophyll forest (shrub subformation)	7	10	30	Occasional intervals greater than 25 years may be desirable.
Heathlands	7	10	30	Occasional intervals greater than 20 years may be desirable.
Freshwater wetlands	6	10	35	Occasional intervals greater than 30 years may be desirable.
Forested wetlands	7	10	35	Some intervals greater than 20 years may be desirable.
Saline wetlands	NA	NA	NA	Fire should be avoided.
Semi-arid woodlands (grassy subformation)	6	9	No max	Not enough data for a maximum fire interval.
Semi-arid woodlands (shrubby subformation)	10	15	No Max	Not enough data for a maximum fire interval.
Arid shrublands (chenopod subformation)	NA	NA	NA	Fire should be avoided.
Arid shrublands (acacia subformation)	10	15	No Max	Not enough data for a maximum fire interval.

**Table 3.3 Fire Thresholds for Vegetation Categories**

### **3.5 Annual works programs**

The land management agencies and fire fighting authorities responsible for implementing the treatments identified in this plan will include those treatments in their annual works programs detailing how, when, and where the required activities will be undertaken.

### **3.6 Implementation**

When the treatments identified in this BFRMP are implemented there are a number of issues that need to be considered by the responsible agency including environmental assessments and approvals, smoke management and prescribed burn plans.

Smoke will be managed in accordance with BFCC *Policy 3-01 Bush Fire Smoke Management* by relevant land managers

## **Chapter 4. Performance monitoring and reviewing**

### **4.1 Review**

This BFRMP must be reviewed and updated within each successive five-year period from the constitution of the BFMC. The Wollondilly/ Wingecarribee BFMC will also review this plan as necessary to account for any changes in context or risk. This may be triggered by a range of circumstances, including but not limited to:

- changes to the BFMC area, organisational responsibilities or legislation;
- changes to the bush fire risk in the area; or
- following a major fire event.

### **4.2 Monitoring**

The BFMC is required to monitor progress towards the completion of treatment works listed in the BFRMP, and the timeliness of the works.

### **4.3 Reporting**

The BFMC is required to report annually to the BFCC on its progress in implementing the bush fire risk management activities identified in this plan.

### **4.4 Performance Measurements**

State wide performance measurements which are linked to the BFRMP objectives have been identified within Appendix G of *BFCC Policy 03/2007*. All BFMCs must use these to monitor and report on their success in reducing the bush fire risk in their BFMC area.