

KANGAROO ISLAND DISTRICT BUSHFIRE PREVENTION COMMITTEE



Kangaroo Island Bushfire Risk Management Plan 2009—2014

November 2009

(As Approved by Native Vegetation Council)



DEDICATION

This plan has been developed as a partnership between the Kangaroo Island community, land management agencies and the rural fire hazard leader in South Australia, to embrace a better way of managing bushfire risk across the landscape and, in so doing, improve community safety and enhance environmental management.

In the hope that the implementation of this plan will go at least some way towards achieving these things, it is dedicated in memory of

Joel Riley

who died tragically in the December 2007 fires on Kangaroo Island, aged 22 years.

TABLE OF CONTENTS

DEDICATION	1
TABLE OF CONTENTS	2
AUTHORISATION.....	3
ACKNOWLEDGEMENTS	4
GLOSSARY	5
PILOT PROJECT OVERVIEW.....	10
CHAPTER 1. INTRODUCTION.....	16
1.2 BACKGROUND	16
1.3 AIM AND OBJECTIVES	16
1.4 DESCRIPTION OF THE KANGAROO ISLAND AREA.....	17
CHAPTER 2. IDENTIFYING AND ASSESSING THE BUSHFIRE RISK.....	19
2.1 PROCESS	19
2.2 COMMUNICATION AND CONSULTATION	19
2.3 IDENTIFYING THE BUSHFIRE RISK.....	20
2.3.1 ASSETS	20
CHAPTER 3. TREATING THE RISK	24
3.1 BUSHFIRE MANAGEMENT ZONES.....	24
3.2 DISTRICT WIDE TREATMENTS.....	24
3.3 ASSET SPECIFIC TREATMENTS	28
3.4 ECOLOGICAL FIRE MANAGEMENT	29
3.5 ANNUAL WORKS PROGRAMMES	31
3.6 IMPLEMENTATION.....	31
CHAPTER 4. MONITORING, REVIEW AND REPORTING	32
4.1 REVIEW	32
4.2 MONITORING	32
4.3 RESEARCH TO SUPPORT ADAPTIVE MANAGEMENT	33
4.4 REPORTING	34
APPENDICES	35
APPENDIX 1 – REVISED FIRE DANGER RATINGS (SEPTEMBER 2009).....	35
APPENDIX 2 - COMMUNITY ENGAGEMENT STRATEGY.....	36
APPENDIX 3 - ASSET REGISTER	37
APPENDIX 4 - TREATMENT REGISTER	38
APPENDIX 5-11 - MAPS OF BFRMP AREA.....	39
APPENDIX 12 – HAZARD REDUCTION GUIDELINES: KANGAROO ISLAND	40
APPENDIX 13 - ECOLOGICAL FIRE MANAGEMENT.....	41
APPENDIX 14 - FIRE THRESHOLD MAP	45
APPENDIX 15 - GUIDELINES FOR PREPARATION OF ANNUAL WORKS PLANS.....	46
REFERENCES	49

AUTHORISATION

In accordance with Section 76 of the *Fire and Emergency Services Act 2005 (SA)*, this Plan has been prepared by the Kangaroo Island District Bushfire Prevention Committee (KIDBPC), and has been endorsed at the KIDBPC meeting on 29th September 2009.

This plan has been a State Pilot Project sponsored by South Australian Bushfire Prevention Advisory Committee, the South Australian Country Fire Service, the Department for Environment and Heritage, Kangaroo Island Council, and SA Water. This final document is endorsed by the project partners.

Recommended by:

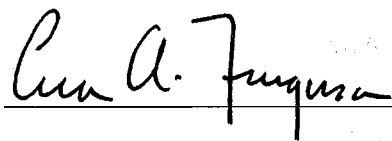


Peter Davis, Presiding Member
On behalf of the
Kangaroo Island District Bushfire Prevention
Committee

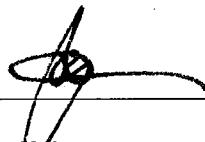
Approved by:



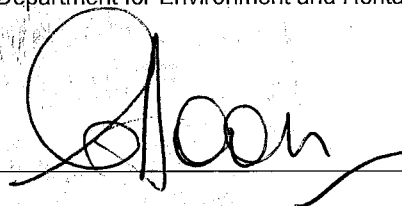
Trevor Roocke
Presiding Member
On behalf of the
South Australian Bushfire Prevention Advisory
Committee



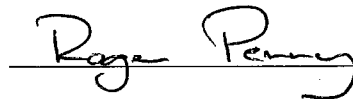
Euan Ferguson
Chief Officer
On behalf of the
South Australian Country Fire Service



Allan Holmes
Chief Executive
On behalf of the
Department for Environment and Heritage



Carmel Noon
Chief Executive Officer
On behalf of Kangaroo Island Council



Roger Perry
Head of Planning and Infrastructure
On behalf of SA Water Corporation

ACKNOWLEDGEMENTS

This project would not have been possible without the support and input of the Kangaroo Island community, and many individuals and agencies, whose determination and goodwill have made this plan a reality. Now we just have to implement it!

The constant support of the New South Wales Rural Fire Service (NSW RFS) throughout the project has been invaluable, particularly the day to day policy and planning process advice provided by Patrick Westwood and GIS assistance provided by Jonathan Nagy, and this is greatly appreciated.

The Kangaroo Island District Bushfire Prevention Committee would like to thank:

Anthea Howard - for coordinating and developing the plan, Mark Thomason, Nick Brown, Fiona Dunstan, Natasha Huber, Michelle Egel, Jeff Ayres, John Gawen, Leigh Miller, Tim Davis, Terry Hassam, Euan Ferguson, John Probert, Andrew Patten, Ray Jackson, Trevor Finney, Grant Pelton, Robert Ellis, Tina Besednjak, Mike Wouters, Bill Haddrill, Phil Pisanu, Dave Taylor, Trish Mooney, Dave Heard, Julia Ross, Sarah Jones, Peter Davis, Kevin Howard, Allen Bell, Terry May, Tim Buck, John Symons, Cheryl May, Ivan Smith, Dani Boddington, Richard Munn, Brian Murray, Jayne Bates, Allan Holmes, Mike Williams, John Schutz, Cameron King, Mark Dyall, John Fernandez, Daniel Rowley, Andrew Lieschke, Sandy Farquhar, Wolf Norkowski and Victoria Riggs.

And all the project partners and supporters:

Kangaroo Island Council
Kangaroo Island CFS Group
All Kangaroo Island CFS Brigades
South Australian Bushfire Prevention Advisory Committee
South Australian Country Fire Service
Department for Environment and Heritage
SA Water
Native Vegetation Council

We would also like to thank the following NSW RFS staff: Dr Simon Heemstra, Assistant Commissioner Rob Rogers, Bernie Brompton, Superintendent John Cook, Superintendent David Hoadley, Inspector Bob Mathieson, Lloyd Van Der Wallen, Ian Reid, Grahame Douglas, and the Sutherland Shire BFMC.

Cover Photographs:

Top – Sandhurst Track, Mouth Flat Fireground (January 2006), Southern Dudley Peninsula, Kangaroo Island (Photo: Markus Magerer)

Bottom – New South Wales Rural Fire Service Deployment, Kangaroo Island Fires Complex December 2007 (Photo: Robert Ellis)

GLOSSARY

Term	Definition
Agency burn plan	The plan, which is approved for the conduct of prescribed burning by a fire fighting authority. It contains a map identifying the area to be burnt and incorporates the specifications and conditions under which the operation is to be conducted.
AIIMS	Australasian Inter-service Incident Management System
APZ	Asset Protection Zone
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 bushfire.
Backburn(ing)	A fire started intentionally along the inner edge of a control line to consume the fuel in the path of a bushfire.
BBZ	Bushfire Buffer Zone
Bushfire	An unplanned fire. A generic term that includes grass fires, forest fires and scrub fires. At times referred to as wildfire.
Bushfire hazard	The potential severity of a bushfire, which is determined by fuel load, fuel arrangement and topography under a given climatic condition.
Bushfire risk	The chance of a bushfire igniting, spreading and causing damage to the community or the assets they value.
Bushfire 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/bushfire.
Bushfire threat	Potential bushfire exposure of an asset due to the proximity and type of a hazard and the slope on which the hazard is situated.
Campaign fire	A bushfire which requires the attendance of multiple brigades, or causes damage to property and/or injury to one or more persons, and/or extends over several days or more.
Catastrophic fire danger	The highest fire danger classification – an FFDI of 100 or above
CFS	The South Australian Country Fire Service.
CLMZ	Conservation Land Management Zone
Coarse fuels	Dead woody material, greater than 25mm in diameter, in contact with the soil surface (fallen trees and branches). Some researchers categorise forest fuels as: fine <6mm diameter; twigs 6-25mm diameter; coarse >25mm diameter.
Control line	A natural or constructed barrier, or treated fire edge, used in fire suppression and prescribed burning to limit the spread of fire.
Consequence	Outcome or impact of a bushfire event.
DEH	The South Australian Department for Environment & Heritage.
DEHWA (Cwlth)	The Commonwealth Department of Environment, Heritage, Water and the Arts
Direct attack	A method of bushfire attack involving suppression action right on the fire edge, which becomes the control line.
Discontinuous fuels	Significant gaps between clumps or patches of fuel.
DPBC	District Bushfire Prevention Committee.

Term	Definition
DWLBC	The South Australian Department of Water, Land and Biodiversity Conservation.
EAT	DEH Environmental Assessment Table. Completed for all prescribed burns (as part of the Agency Burn Plan) and other fire management works where native vegetation is being cleared and is not exempt under the <i>Native Vegetation Act 1991</i> (SA).
Emergency Response plan	A plan detailing the response for a risk or an area including the type and number of resources.
EPBC Act	The Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> .
Extreme fire behaviour	A level of bushfire behaviour characteristics that ordinarily precludes methods of direct suppression action. One or more of the following is usually involved: high rates of spread; prolific crowning and/or spotting; presence of fire whirls and/or a strong convective column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.
Extreme fire danger	The second highest fire danger classification – an FFDI or 75 or above.
FDS	Fire Danger Season
FFDI	Forest Fire Danger Index
Fine fuels	Dead grass, leaves, bark and twigs less than 6mm in diameter that ignite readily and are burnt rapidly when dry.
Fire access track	A track constructed and maintained expressly for fire management purposes.
Fire behaviour	The manner in which a fire reacts to the variables of fuel, weather and topography.
Firebreak	An area or strip of land where vegetation has been removed or modified to reduce the risk of fires starting and reduce the intensity and rate of spread of fires that may occur (GAFLC, 2008).
Fire danger	The combination of all factors, which determine whether fires start, spread and do damage, and whether and to what extent they can be controlled.
Fire effects	The physical, biological and ecological impact of fire on the environment.
Fire fighting authority	The SA Country Fire Service
Fire hazard	Any fuel which if ignited, may be difficult to extinguish.
Fire management	All activities associated with the management of fire-prone land, including the use of fire to meet land management goals and objectives.
Fire regime	The history of fire in a particular vegetation type or area including the fire frequency, interval, intensity, extent and seasonality of burning (Brooks <i>et al.</i> , 2004).
Fire scar	A destructive mark left on a landscape by fire.
Fire season	The period(s) of the year during which fires are likely to occur, spread and do sufficient damage to warrant organised fire control.
Fire suppression	The activities connected with restricting the spread of bushfire following its detection and making it safe.

Term	Definition
Fire threshold	Refers to the “threshold of potential concern” (TPC) for a vegetation type or community, which is the level of fire regime element (ie. fire interval, frequency, intensity or season) where Key Fire Response Species are likely to significantly decline if exceeded.
Fuel	Any material such as grass, leaf litter and live vegetation, which can be ignited and sustains a fire. Fuel is usually measured in tonnes per hectare.
Fuel arrangement	A general term referring to the spacing and arrangement of fuel in a given area.
Fuel hazard	The Overall Fuel Hazard is defined as the sum of the influences of bark fuel, elevated fuel and surface fine fuel (DEH, 2006)
Fuel management	Modification of fuels by prescribed burning, or other means.
Fuel reduction burning	The planned application of fire to reduce hazardous fuel quantities, undertaken in prescribed environmental conditions within defined boundaries.
Fuel type	An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause predictable rate of spread or difficulty of control under specified weather conditions.
GAFLC	South Australian Government Agencies Fire Liaison Committee.
GFDI	Grassland Fire Danger Index
Hardwood	Timber from flowering trees, such as eucalypts, irrespective of the physical hardness of the timber; also used to refer to the trees that have such timber.
Incident Controller (IC)	The individual responsible for the management of all incident operations and IMT.
IMT	Incident Management Team. The group of incident management personnel comprising the Incident Controller and the people he/she appoints to be responsible for the functions of Operations, Planning and Logistics.
Indirect attack	The use of backburning as a method of suppression to confine the fire within a defined area bounded by existing or prepared control lines. Control lines may be a considerable distance ahead of the fire.
Key Fire Response Species	In this fire management plan, these are the species most susceptible to decline due to inappropriate fire regimes: either too frequent or too infrequent fire, fire of an inappropriate intensity, or fire in a particular season.
Likelihood	The chance of a bushfire igniting and spreading
Major or campaign bushfire	A bushfire which requires the attendance of multiple brigades, or causes damage to property and/or injury to one or more persons, and/or extends over several days or more.
Map Display Area	Geographic area determined by the District Bushfire Prevention Committee which is used to provide a suitable area and scale for community participation and mapping display purposes.
MVS	Major Vegetation Sub-group.
NPW Act	The South Australian <i>National Parks and Wildlife Act 1972</i> .
NVC	Native Vegetation Council. Established under the provisions of the <i>Native Vegetation Act 1991</i> , responsible for making decisions on a wide range of matters concerning native vegetation in South Australia.
NVIS	National Vegetation Information System

Term	Definition
'Of conservation significance'	<p>In this plan, used to describe important or <u>rated</u> populations or species of flora and fauna as well as vegetation communities. These may be:</p> <ul style="list-style-type: none"> Nationally rated, that is, listed as Threatened (with a rating of Extinct, Critically Endangered, Endangered, Vulnerable or Conservation Dependent) under the federal <i>Environment Protection and Biodiversity Conservation (EPBC) Act 1999</i>; South Australian rated, listed as Threatened (with a rating of Endangered, Vulnerable or Rare) under the <i>National Parks and Wildlife Act 1972</i>, Revised Schedules 7, 8 and 9. Provisionally listed as Threatened (with a rating of Endangered or Vulnerable) in South Australia, that is, included on the unpublished DEH Provisional List of Threatened Ecosystems of South Australia (DEH, 2005).
Prescribed burning	The controlled application of fire under specified environmental conditions to a predetermined area and at the time, intensity, and rate of spread required to attain planned resource management objectives. It is undertaken in specified environmental conditions.
Recovery costs	The capacity of an asset to recover from the impacts of a bushfire
Risk assessment	The overall process of risk identification, risk analysis and risk evaluation, and to aid in developing strategies and implementing actions and works for risk mitigation.
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 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.
Severe fire danger	The third highest fire danger classification – an FFDI of 50 or above
Softwood	Timber from cone-bearing trees, such as conifers, irrespective of the physical softness of the timber; also used to refer to the trees that have such timber.
Spotting	The ignition of spot fires from sparks or embers.
Total Fire Ban	A ban on lighting and maintaining of a fire in the open, which can be invoked at any time during the year. When invoked, the Total fire Ban is imposed for a period of 24 hours, from midnight to midnight, but may also be imposed for part of a day or days. (<i>Fire and Emergency Services Act 2005</i>)

Term	Definition
TPC	<p>The <i>Threshold of Potential Concern</i> (TPC) for a vegetation type or community is the level of fire regime element (i.e. fire interval, frequency, intensity or season) where <i>Key Fire Response Species</i> are likely to significantly decline if exceeded. Fire regimes beyond that level are likely to lead to local extinction of significant biodiversity.</p> <ul style="list-style-type: none"> • TPC1 demonstrates the recommended lower limit for fire interval for a particular MVS. That is, vegetation within this MVS will be represented predominantly by early successional species if the inter-fire interval is less than the time specified, and those species that require longer to flower and set seed can disappear from a community. • TPC2 demonstrates the recommended upper limit for fire interval for a particular MVS. That is, populations of some species (e.g. obligate seeders) are likely to reduce within this MVS if fire is absent for more than the time specified.
Vulnerability	The susceptibility of an asset to the impacts of bushfire.
Weeds CRC	The Cooperative Research Centre for Australian Weed Management.
'Weed of national significance'	20 priority weeds that pose future threats to primary industries, land management, human or animal welfare, biodiversity and conservation values at a national level. These weeds were identified and ranked through the assessment of invasiveness, impacts, potential for spread and socioeconomic and environmental aspects.
Wildfire	See Bushfire

PILOT PROJECT OVERVIEW

Under the *Fire and Emergency Services Act 2005 (SA)*, prior to its amendment in September 2009, a rural Council was required to constitute a District Bushfire Prevention Committee (DBPC) for their area. Each DBPC was required to prepare a District Bushfire Prevention Plan.

The Kangaroo Island DBPC (KIDBPC) determined in August 2007 to review its District Plan, which was last prepared in 2000, but did not have the resources to commence the review at that time. Following the Kangaroo Island Fires Complex in December 2007, during which dry lightning ignitions resulted in excess of 90,000ha being burnt, the loss of one life and significant assets, the Committee, together with the SA Country Fire Service (SA CFS), the Department for Environment and Heritage (DEH) and Kangaroo Island Council (KIC), agreed that a new approach to bushfire mitigation was required.

Risk based, landscape scale bushfire management

All agencies were determined to continue the partnership approach to landscape scale, risk based bushfire management planning that had been developed on Kangaroo Island through the Cape Forbin Integrated Fire Management Plan (CFIFMP), commenced in 2005.

Building on the recommendations of the *Ministerial Review of Bushfire Management in South Australia* undertaken in 2007, the KIDBPC, the SA CFS, DEH and KIC agreed to pilot the New South Wales Rural Fire Service (NSW RFS) bushfire risk management planning framework on Kangaroo Island. The resulting plan would become the District Bushfire Prevention Plan, known as the Kangaroo Island Bushfire Risk Management Plan (KI BFRMP), and test the appropriateness of this planning framework for application in South Australia.

A partnership plan

The South Australian Bushfire Prevention Advisory Committee (SABPAC) endorsed this project as a State pilot in April 2008, and a Memorandum of Understanding for the purpose of:

...sponsoring a pilot project, to be managed by the Kangaroo Island District Bushfire Prevention Committee, being the development of a bushfire risk management plan using the New South Wales Rural Fire Service bushfire risk management planning framework...

was subsequently signed off by SABPAC, Kangaroo Island Council, Kangaroo Island District Bushfire Prevention Committee, SA Country Fire Service, the Department for Environment and Heritage and SA Water. All project partners have made significant contributions to the project, and the level of agency cooperation throughout the pilot has been excellent.

To support the pilot project, the SA CFS sent the Kangaroo Island Council Fire Prevention Officer and two officers of the SA CFS to New South Wales to be trained in the planning process by the NSW RFS in May 2008. The NSW RFS have provided ongoing high level support to the pilot project in terms of policy support, provision of the Bushfire Risk Register Software, and GIS and programming assistance with the Register. In September 2008 a NSW RFS staff member visited

Kangaroo Island to set up the Register software to support the project. The SA CFS also provided significant support for the initial stage of community engagement for the plan through CFS Community Education Unit.

Major support for the project has also been provided by CFS volunteers through the CFS Kangaroo Island Group and Brigades, in terms of input into the plan development as well as commitment to support works implementation, particularly prescribed burning.

As the lead environmental management agency, and a significant land manager on Kangaroo Island, DEH have provided major policy, scientific and GIS support for the pilot project. This has included: reviewing the modelling developed by the RFS to support the Bushfire Risk Register to confirm its appropriateness for the South Australian context; using the National Vegetation Information System (NVIS) to 'translate' the NSW vegetation association groupings used in the Register to South Australian groupings; identification of consequence ratings for listed species; provision of fire threshold ratings; and supply of extensive aerial and spatial data and GIS assistance support the operation of the Risk Register software.

Kangaroo Island Council has provided support for the project through the Fire Prevention Officer, who has coordinated the project and prepared and analysed the plan data and documentation, and the KIDBPC. The Council has taken an active interest in the project and supported the delivery of a range of risk treatments on land under its care and control.

Project Management

The project was managed by the Kangaroo Island District Bushfire Prevention Committee, with day to day coordination and development undertaken by the Kangaroo Island Council fire prevention Officer. The Committee had final sign off on each stage of the planning process, and was supported by a Working Group and a Steering Committee. The Working Group comprised representatives from CFS Region 1, CFS KI Group, DEH and the DBPC. The Steering Committee comprised senior State level representatives from DEH and CFS, and one from KI Council. Comprehensive reviews of both the risk assessment and allocation of risk treatments in the BFRMP were undertaken jointly by the Working Group and Steering Committee prior to consideration and endorsement by the DBPC at each stage of the process. The CFS KI Group Executive also participated in the risk treatment review process, in addition to specific brigade consultations undertaken in relation to treatment allocation.

Integration of Agency Management Plans

During the life of the pilot project DEH conducted a major internal review of the Flinders Chase Fire Management Plan, and SA Water prepared a Fire Management Plan for Middle River Reservoir Reserve. The development of these plans was an interactive process between the KIDBPC, Kangaroo Island CFS Group and the land management agencies. The risk treatments contained within these plans, together with those contained in the Cape Forbin IFMP, are included within the KI BFRMP. DEH also provided preliminary zoning and proposed risk treatments for land under DEH management that is not yet covered by a Fire Management Plan. This enabled development of a 'whole of Island' integrated fire management plan through this project.

Strategic Fire Management Planning

The BFRMP process operates at a strategic level. The detail of the treatments identified in the plan is to be dealt with during the implementation of annual works plans. For example, strategic areas within the landscape are identified for hazard reduction treatment, but matters of detail will be addressed at the operational planning stage. This includes ground truthing areas to be burnt, environmental assessment and approvals, and landholder consents where required. This is essentially the same process as currently exists for agency hazard reduction burns.

State Policy and Legislation

This pilot project was undertaken in fluid policy and legislative environment regarding fire management, resulting in part from lessons learned following a series of major fire incidents in South Australia and elsewhere, most recently in Victoria. Major re-appraisal of approaches to native vegetation management, asset protection, community safety and preparedness, building development and planning processes, and incident management has occurred and continues to occur. At the same time, resource scarcity, particularly for bushfire mitigation activities, remains a significant issue.

In the course of finalising the plan, there were major developments in bushfire management arrangements in South Australia.

A Bill to amend the *Fire and Emergency Services Act 2005* (SA) was passed by the South Australian parliament in September 2009. The amendments included significant changes to bushfire mitigation management in South Australia. The changes provide statutory support for restructuring of the existing district bushfire prevention committee structures, so they will be based on landscape scale stakeholder involvement, as well as for the bushfire risk management planning process piloted by this project.

As a result of the legislative changes District Bushfire Prevention Committees are no longer legal entities under the *Fire and Emergency Services Act 2005* (SA). This necessitated some amendment of responsible agencies for delivery of risk treatments under this plan, to cover the transitional phase until the new bushfire management structures are established. Further amendment of responsible agencies will be required once the new structures are in place. An interim implementation structure will also be developed to ensure that the plan is progressed during this transitional period.

On 10th September 2009 the South Australian Bushfire Taskforce has also released its report and some sixty-three recommendations. Many of the recommendations of the Taskforce had been anticipated by this plan, but some refinements have been made to appropriately reflect proposed policy changes.

Environmental Assessment

While this pilot BFRMP was under preparation, significant changes to policy concerning fire management in native vegetation commenced in South Australia. Amendments were made to the *Native Vegetation Regulations* following a Ministerial Review of Native Vegetation and Bushfire by the Minister for Environment and Conservation. These resulted in the introduction of new Guide for

Reducing the Impact of Bushfire ("hereinafter referred to as "the Guide"), released on 16th September 2009.

The final draft pilot plan released for public exhibition included a protocol for environmental assessment of bushfire hazard reduction activities, including local delegation for this approvals process. Following review of the new Guide, the protocol was removed from the plan. This has been replaced by the Guide for *Reducing the Impact of Bushfire*, together with some additional guidelines for hazard reduction activities specific to the KIBFRMP. This preserves the commitment made to the community when the final draft plan was placed on public exhibition, that while State level changes would be incorporated into the KIBFRMP, the intent of provisions contained within the final draft plan would be preserved on a 'no detriment' basis.

Development Assessment

The interface between fire management and development assessment in South Australia is currently governed under the *Development Act 1993 (SA)*. Bushfire prone areas have been designated within statutory development plans in thirty nine local government areas (including Kangaroo Island) through Ministerial Planning Amendments. Bushfire protection zoning is divided into General, Medium and High risk areas, and variously regarded as a basis for referral or otherwise to the fire agency, and/or a basis for risk assessment in different parts of the landscape. Only developments proposed in designated high risk areas currently have mandatory referral to the SA CFS Development Assessment Unit. Difficulties arise, however, where 'high' risk in the zoning framework is taken literally as defining the level of bushfire risk within an area of the landscape, where in fact the level of risk may be very high or extreme.

The table below attempts to provide a 'translation' of the existing South Australian zoning approach with AS3959 *Construction of Buildings in Bushfire Prone Areas* and AS4360 *Risk Management* (the latter underpins the BFRMP framework):

PlanningSA Bushfire Protection Zoning (2007)	AS3959 (1999)	AS4360 (2004)
General	None	Low
Medium	Level 1	Medium
High	Level 2	High
	Level 3	Very High
	Level 3	Extreme

It is recognised that the new AS3959 approved in 2009 includes further levels of differentiation between levels of potential bushfire attack, including standards for building in the flame zone, which have not been embraced by either CSIRO or the Australasian Fire Authorities Council. At the time of writing, the 1999 version of the standard remains current in application in South Australia development assessment (and in most other jurisdictions).

While the CFS Development Assessment Unit applies increasingly stringent building and development standards relative to the level of assessed bushfire risk at a given development site,

there is currently little support for these more stringent assessments (or for refusals) within Development Plans or legislation.

This pilot plan designed risk treatments on the basis of existing law and policy processes in relation to development assessment in South Australia. Asset specific treatments have been recommended where appropriate, and these can be applied as conditions on the development at the discretion of the approving authority. A recommendation is made among the district wide treatments contained in the plan to consider preparation of a Development Plan Amendment for the purpose of:

- a) amending the bushfire protection zoning within the Kangaroo Island DBPC area in accordance with the BFRMP risk ratings; and
- b) putting in place development assessment policy with specific application to areas of very high and extreme bushfire risk, including proposed development within the flame zone.

In relation to part (b), above, it is proposed that the NSW RFS rules for building single dwellings in bushfire prone areas be considered for adaptation. These rules require determination of the likely bushfire attack and required level of construction, including: vegetation types surrounding the building, distance between vegetation formations and the building, effective slope, and relevant FDI. These elements are then matched to the appropriate Asset Protection Zone (APZ) and level of construction. The rules also address water requirements and building in the flame zone. The fire agency retains decision-making power in relation to proposed development within the flame zone. The purpose of the rules is to codify assessment of development in bushfire prone areas. This process would assist in removing at least some of the uncertainty regarding development in areas of very high and extreme bushfire risk, in particular.

It is noted that the South Australian Bushfire Taskforce has made several recommendations which are similar to those made by this plan, namely:

Recommendation 29

DPLG will review the criteria for defining a "Bushfire Protection Area".

Recommendation 30

DPLG will assess current planning scheme to ensure that future developments are not planned in areas that have unacceptable bushfire risk.

Recommendation 33

DPLG will revise the Planning Minister's Code for Building in Bushfire Prone Areas (to take account of recent changes to the Australian Standard for Building in Bushfire Prone Area AS3959).

The Taskforce recommendations are supported by the recommendations for District Wide Treatments regarding development assessment that are contained within this plan.

Changes to the Fire Danger Ratings Advice

As part of the national response to the Black Saturday fires in Victoria, a new system of national warnings, including revised fire danger ratings, has been introduced across all Australian States and Territories. The system is being used as the basis for fire weather warnings and declaration of Total Fire Ban days from the 2009/2010 Fire Danger Season. This new ratings system was

announced in South Australia on 10th September 2009. The details of this rating system can be found at Appendix 1. The new ratings include 'Severe' and 'Catastrophic' categories, with the latter applying for days when the fire danger rating (FDR) is forecast to be 100+. These changes have been incorporated into the risk treatments contained in this final plan document.

Treatment Overview

In treating the bushfire risks identified in the Kangaroo Island DBPC area, the following considerations have been paramount:

- The high proportion of lightning strike ignitions requires a strong emphasis on preparedness, including:
 - Maximising capacity for containment of large scale landscape fires through prescribed burning, strategic management of vegetation wicks, and placement of fire access tracks
 - Adequate asset protection capacity to maximise fire fighter and occupant safety, and improve property defendability
 - Targeted property level community education in areas assessed as being at extreme and very high risk
 - Improvement of access and egress in areas of potential entrapment
 - Evacuation planning for areas of extreme risk without solid structure refuges such as campgrounds and day visitor areas (to be utilised at the discretion of the incident controller during an incident)
 - Recognition of the need for a heightened level of community preparedness on Catastrophic fire danger risk days
- A range of strategies considering the high levels of visitation to the Island during the peak fire danger season, including a significant number of visitors from non-English speaking backgrounds and limited experience of bushfire
- Diminishing the potential for further dwelling development in remote bushland areas of extreme risk, and improving certainty in planning policy environment in high to extreme risk areas
- Providing private landholders with improved opportunities to manage bushfire risk on their property through delegated processes managing public safety and ecological matters. These strategies assist in addressing both resource scarcity and landscape scale management requirements.

Strategic Landscape Scale Fire Management

The large area of the Island burnt in December 2007 means that vegetation within 21% of the Island's land mass is now a single age class. In allocating risk treatments involving prescribed burning, careful consideration has therefore been given to the maintenance of varied age classes of each vegetation type within and outside of fire thresholds across the landscape. For these ecological as well as for resource reasons, the general strategic focus of treatments is upon Asset Protection and Bushfire Buffer Zones. The focus of prescribed burning treatments is primarily upon Bushfire Buffer Zones, and some confined Conservation Land Management Zones targeted to areas of the landscape where there are significant tracts of vegetation outside of the maximum fire regime thresholds.

CHAPTER 1. INTRODUCTION

1.2 Background

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 bushfire to the assets. Treatments may include such things as hazard reduction burning, community education, fire access track maintenance and establishing community firesafe groups.

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

Under the legislation prior to its amendment in September 2009, a District Bushfire Prevention Plan was required to, "... take into account proper land management principles" (*Fire and Emergency Services Act 2005* (SA) s.76 (2).).

This document and the accompanying maps together form the BFRMP for Kangaroo Island.

This BFRMP was prepared by the Kangaroo Island DBPC and covers both public and private lands. This BFRMP should be reviewed and updated within each successive five year period since the plan was originally developed.

It is recognised that climate change has the potential to increase bushfire risk. The risk assessment process applied in this BFRMP is based on current climatic conditions. Once established, the new bushfire management structure will monitor information on climate change and modify the process when necessary.

1.3 Aim and Objectives

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

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

- reduce the number of human-induced bushfire ignitions that cause damage to life, property and the environment;
- manage fuel to reduce the rate of spread and intensity of bushfires, while minimising environmental/ecological impacts;
- reduce the community's vulnerability to bushfires by improving its preparedness; and
- provide strategies and actions which will contribute towards minimising the potential to cause damage to life, property and the environment.

1.4 Description of the Kangaroo Island area

1.4.1 Location and land tenure

The Kangaroo Island area encompasses the whole of Kangaroo Island. The Island is located 15km south west of the Western tip of the Fleurieu Peninsula in South Australia, across Backstairs Passage. Kangaroo Island encompasses the single LGA of Kangaroo Island Council.

The area of Kangaroo Island is 430,054 hectares. Around one third of this area is managed by the Department for Environment and Heritage in parks and reserves. Most of the remaining two thirds is privately owned and managed agricultural land and forestry plantations. Kangaroo Island Council and SA Water have relatively small areas of land under their care and control, with road reserves making up the bulk of the land under the care and control of Council.

1.4.2 Climate and bushfire season

The typical / average climate in the Kangaroo Island area is a mild Mediterranean one with a strong maritime influence. Rainfall is concentrated in the winter months, with 42-49% falling during this time, and only 10% during the summer period (Mooney and Grinter 2000). Average rainfall varies considerably in different areas of the Island, from less than 500mm in the Hundreds of Menzies, Haines and Macgillivray, to an average of 900-1000mm in the elevated western areas of the island at Gosse. The agricultural growing season usually commences with rains in April/May, and ends in October/November (Mooney and Grinter 2000). Local maritime influences can cause significant variations in wind speed and direction within the Island. The bushfire season generally runs from November to April.

Prevailing weather conditions associated with the bushfire season in the Kangaroo Island area are characterised by strong north to north westerly winds, low humidity and high temperatures. These characteristically swing west south west with strong gusty wind changes, and then around to the south east. South easterlies generally prevail from January until mid-late autumn. Dry lightning storms occur frequently in the October-December period in particular.

1.4.3 Population and demographic information

The population of Kangaroo Island is approximately 4,400 people. The major population centres are Kingscote, Penneshaw, Parndana and American River. Smaller settlements include Vivonne Bay, Island Beach, Baudin Beach, Western Cove, and Emu Bay.

The following demographic issues have been identified within the Kangaroo Island area as potentially impacting on the ability of certain sections of the community to prepare themselves for bushfire:

- Concentration of visitation during the peak Fire Danger Season (an estimated 22-25,000 visitors/month in December and January) (TOMM 2009)
- A significant proportion (12%) of visitors from non-English speaking backgrounds including locations with no experience of wildfire (TOMM 2009)

- A high proportion of off Island landholders (48% of Island landowners), linked to capacity to undertake and timeliness of appropriate land management for fire prevention (65% of s.83 notices issued in 2008/2009 were sent to off Island landholders).
- Significant number of bushland settlements and isolated rural dwellings in bushland areas characterised by extreme fire risk and single access and egress.

1.4.4 History of bushfire frequency and ignition cause

The Kangaroo Island area has on average 26-30 bushfires per year¹, of which one on average can be considered to be a major or campaign fire. Between the 1997/1998 and 2007/2008 fire danger seasons, Kangaroo Island experienced 10 major or campaign fires, with the smallest being 200ha and the largest over 90,000ha. Half of these fires were over 2,000ha. The majority of the major fires are concentrated around the Gosse and Seddon plateaus, and the southern coastal bushlands on the eastern end of the Island.

The main sources of ignition on Kangaroo Island over the past 23 years have been:

- Lightning (55%)
- Burn off/rekindle (19%)
- Mechanical (13%)
- Other (13%).

¹ Averaged over a 23 year period. Based on KIDBPC, CFS and DEH data.

CHAPTER 2. IDENTIFYING AND ASSESSING THE BUSHFIRE 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 below for the steps involved. For a detailed description of the process undertaken see the *Bushfire Risk Management Planning Guidelines for Bushfire Management Committees* on the NSW RFS website: www.rfs.nsw.gov.au (RFS 2007).

Figure 2.1 Overview of the risk assessment process



2.2 Communication and consultation

Community engagement is an integral part of risk management. The Community Engagement Strategy involved developing and implementing a process to address the needs, issues and concerns of stakeholders within the Kangaroo Island area in regards to the BFRMP. See Appendix 2 for the Community Engagement Strategy used by the Kangaroo Island DBPC in preparing this BFRMP.

2.3 Identifying the bushfire risk

Identifying the level of bushfire risk firstly involved identifying important community assets considered to be at risk from bushfire in the Kangaroo Island area, and then assessing the likelihood and consequence ratings.

2.3.1 Assets

DBPC members and the community, including CFS volunteers, DEH and SA Water, identified assets within the Kangaroo Island area that they believed were at risk of bushfire.

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 (including campgrounds); and
- Other human settlement areas, including commercial and industrial areas where distinct from major towns.

Economic

- Agricultural; e.g. processing and storage facilities, regional saleyards, cropping/grazing land;
- Commercial/industrial e.g. major industries, waste treatment plants, sawmills, hazmat locations;
- Infrastructure e.g. electricity substations, communication facilities, large power lines, (in other regions also includes gas and oil pipelines, railway lines) – particular emphasis was placed on identifying and assessing risk to critical infrastructure;
- Tourist and recreational e.g. tourist sites and facilities, resorts, retreats;
- Mines;
- Commercial forests e.g. softwood (eg. pine) plantations, hardwood (eg. eucalypt) plantations; and
- Drinking water catchments.

Environmental

- Threatened species, populations and ecological communities and Ramsar wetlands (listed species and communities);
- 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 South Australia by European or other non-indigenous settlers; and
- Other cultural assets – community halls, clubs and recreational facilities.

See Appendix 3 for the full list of assets identified as being at risk from bushfire in the Kangaroo Island area. See Appendices 5-11 (maps of BFRMP area) for the location of assets to be treated under this BFRMP.

2.3.2 Assessing the bushfire risk - consequence

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

See Appendix 3 for the consequence ratings assigned to each asset identified in the Kangaroo Island 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 bushfire was also assessed and a rating assigned. These ratings were then used to assess the consequence of a bushfire impacting upon a human settlement asset.

Special Fire Protection (SFP) assets were considered inherently more vulnerable to bushfire 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. Special attention was paid to impacts on critical infrastructure (communications, power and water supplies), and likely recovery period and costs.

These ratings were used to assess the consequence of a bushfire impacting upon an economic asset.

Environmental

Environmental assets with a known minimum fire threshold were assessed to determine if they were at risk of a bushfire 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 bushfire were used to assess the consequence of a bushfire impacting upon an environmental asset. The

Department for Environment and Heritage established the consequence ratings for environmental assets.

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 bushfire was also assessed. These ratings were then used to assess the consequence of a bushfire impacting upon a cultural asset.

2.3.3 Assessing the bushfire risk - likelihood

For all asset types the likelihood of a bushfire occurring was assessed. This involves considering fire history, including ignition cause and patterns, known fire paths, access, containment potential and potential fire run. See Appendix 3 for the likelihood ratings assigned to each asset identified in the Kangaroo Island 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 3 for the risk ratings assigned to each asset identified in the Kangaroo Island area.

2.3.5 Evaluating the bushfire 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 bushfire 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 bushfire 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. It was also necessary to prioritise within the risk levels i.e. determining which of the high risks was the most serious. This was done on the basis of the consequence and likelihood ratings. See Appendix 4 for risk treatments.

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 the risk priority and the capacity of responsible agencies to undertake works.

Within the Kangaroo Island area the level of risk acceptability is 'high'. Therefore the focus is upon managing the risks associated with assets rated as being at extreme risk of impact from bushfire. Assets identified in the risk assessment undertaken for the BFRMP as being at extreme risk of

impact from bushfire accounted for 37.8% of all assets identified. A significant number of assets with a risk priority of very high can be managed by private landholders through the application of district wide risk treatments.

Areas of high, medium or low risk will be managed by routine procedures and so do not require a specific application of resources. There are a number of assets rated at low, medium or high risk where the potential increase in risk resulting from lack of treatment was considered unacceptable. In these cases asset specific treatments have been specified to manage the potential increase in risk to these assets.

CHAPTER 3. TREATING THE RISK

3.1 Bushfire Management Zones

Bushfire Management Zones were identified within the Kangaroo Island DBPC area and mapped (see Appendices 5-11). These zones identify the fire management intent for a specific area. See Table (3.1) for descriptions of the zones and their purposes. The three categories of Bushfire Management Zones are:

- Asset Protection Zone (APZ);
- Bushfire Buffer Zone (BBZ);
- Conservation Land Management Zone (CLMZ).

Zone	Purpose	Zone Objectives	Zone Characteristics
Asset Protection Zone (APZ)	To protect human life, property and highly valued public assets.	To minimise bushfire impacts on undefended assets. To improve the safe use of suppression strategies within the zone.	Highly modified vegetation maintained at Low to Moderate fuel hazard level
Bushfire Buffer Zone (BBZ)	To provide strategic areas of fire protection advantage which will reduce the speed and intensity of bushfires, and reduce the potential for spot fire development.	To improve the safe use of suppression strategies in high to very high fire weather conditions within the zone. To reduce the rate of spread and intensity, and minimise spot fire ignition and crown fire development within the zone.	Zone identification related to suppression objectives and dependent upon: <ul style="list-style-type: none"> • Topography • Aspect • Spotting propensity • Location of adjacent firebreaks • Mosaic pattern of treatment Fuel hazard level maintained at no greater than High .
Conservation-Land Management Zone (CLMZ)	To meet relevant conservation and land management objectives in areas where APZs or BBZs are not appropriate.	As per the land management and fire protection objectives of the responsible land management agency/land manager. To reduce the likelihood of spread of fires.	As appropriate to achieve land management, eg. heritage and/or fire protection eg. broad scale mosaic burning objectives

Table 3.1 Bushfire Management Zones: Purpose, objectives and characteristics

Note: All areas that are not mapped or described as particular zones are considered as CLMZs.

3.2 District wide treatments

NOTE: As a result of legislative changes in September 2009 District Bushfire Prevention Committees are no longer legal entities under the Fire and Emergency Services Act 2005 (SA). This has necessitated some amendment of responsible agencies for delivery of risk treatments under this plan, to cover the transitional phase until the new bushfire management structures are established. Further amendment of responsible agencies will be required once the new structures

are in place. An interim implementation structure will also be developed to ensure that the plan is progressed during this transitional period.

District wide treatments are activities which reduce the overall bushfire risk within the Kangaroo Island 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 bushfire management area as designated by legislation or agency policy. The following district wide treatments apply to this BFRMP:

Reviewing bushfire protection zoning

It is recommended that Kangaroo Island Council consider preparing a Statement of Intent to initiate a Development Plan Amendment (DPA) with the intention of:

- c) amending the bushfire protection zoning within the Kangaroo Island area in accordance with the BFRMP risk ratings; and
- d) putting in place development assessment policy with specific application to areas of very high and extreme bushfire risk, including proposed development within the flame zone.

In relation to part (b), above, it is proposed that the NSW RFS rules for building single dwellings in bushfire prone areas are considered for adaptation. These rules require determination of the likely bushfire attack and required level of construction, including: vegetation types surrounding the building, distance between vegetation formations and the building, effective slope, and relevant FFDI for particular areas. These elements are then matched to the appropriate Asset Protection Zone and level of construction. The rules also address water requirements and building in the flame zone. The fire agency will retain decision-making power in relation to proposed development within the flame zone. The purpose of the rules is to codify assessment of development in bushfire prone areas.

These proposals are made in the context of recommendations 29, 30 and 33 of the SA Bushfire Taskforce.

<i>Responsibility:</i>	Kangaroo Island Council
------------------------	-------------------------

Varying the standard fire danger season as required

In years where the weather is particularly adverse the bushfire danger period may be brought in early or extended. This is assessed every year by the DBPC in consultation with the KI CFS Group and recommendations made to the Chief Officer through CFS Region 1.

<i>Responsibility:</i>	SA CFS
------------------------	--------

Requiring permits during the fire danger season

In the fire danger season a permit to burn 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.

<i>Responsibility:</i>	Region 1 Bushfire Prevention Committee, KI CFS Group
------------------------	--

Publicity of fire restrictions during the fire danger season

Annual publicity will be undertaken regarding fire restrictions applying during the fire danger season, together with maintenance of managed fire danger rating signage in key locations around the Island. Signage and information regarding Total Fire Ban days will be distributed to key locations around the Island. Restrictions on fires at campgrounds throughout the Island, regardless of tenure, will become uniform (gas fires only during the Fire Danger Season).

<i>Responsibility:</i>	Kangaroo Island Council, SA CFS
------------------------	---------------------------------

Prosecution of arsonists/offenders

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 *Fire and Emergency Services Act 2005* (SA).

<i>Responsibility:</i>	Authorised Officers (Fire Prevention Officers), SAPOL
------------------------	---

Investigation of bushfire cause

All bushfires which do not have a known cause are investigated to identify how they started. It is recommended that there be at least one fully trained fire cause investigator² based on the Island to enable this to occur.

<i>Responsibility:</i>	KI CFS Group
------------------------	--------------

Promotion of Grain Harvesting Code of Practice

Annual promotion of the SA CFS/SAFF grain harvesting code of practice³ to the cropping industry, together with Agriculture Kangaroo Island and KI CFS Group, to minimise ignitions resulting from harvest operations.

<i>Responsibility:</i>	Region 1 Bushfire Prevention Committee, KI Council
------------------------	--

Normal fire suppression activities

Responding to bushfire is a normal business activity for the fire fighting authority.

<i>Responsibility:</i>	SA CFS, DEH (as a brigade of the SA CFS)
------------------------	--

Reviewing the appropriateness of Standard Fire and Emergency Cover allocations

Within the SA CFS, fire fighting resources at Group and Brigade levels are currently allocated on the basis of the 'Standard Fire and Emergency Cover' (SFEC) formula. The SFEC has historically been based upon the number and type of callouts (eg. grass and scrub fires, RCRs⁴, structure fires etc) experienced by a Group and individual Brigades. In 2009 the SA CFS has commenced a review of the SFEC framework on the basis of risk. The development of the BFRMP process in South Australia provides an opportunity to align mitigation planning with risk based SFEC assessments to progress the implementation of a PPRR framework.

² Note that role of bushfire investigator is a volunteer role.

³ Refer http://www.cfs.sa.gov.au/site/community_information/farmers/grain_harvesting.jsp for further information regarding the Grain Harvesting Code of Practice.

⁴ RCR = Road Crash Rescue

It is recommended that the SA CFS review the SFEC allocation for Kangaroo Island on the basis of the risk assessment set out in the BFRMP.

<i>Responsibility:</i>	SA CFS
------------------------	--------

Preparation of Group Operations Management Plan

The Group Operations Management Plan (GOMP) is prepared by the KI CFS Group 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. Information collated through the BFRMP process is provided to the Group to inform review of the GOMP.

<i>Responsibility:</i>	KI CFS Group
------------------------	--------------

Fire access track auditing and maintenance

An audit of all fire access tracks on public and private land, together with public roads, will be undertaken with a view to the classification of all fire access tracks and roads in accordance with the GAFLC standards. The audit will include assessment of maintenance requirements for all fire access tracks and roads.

<i>Responsibility:</i>	Kangaroo Island Council, Department for Environment and Heritage, SA Water, KI CFS Group
------------------------	--

Agency Fire Management Plans

Land management agencies have developed fire management plans with specific fire or fuel management strategies, for example a DEH or SA Water Fire Management Plan. These plans form the basis for operational fire planning on public parks and reserves.

<i>Responsibility:</i>	DEH, SA Water
------------------------	---------------

Bushfire Hazard Complaints and Compliance

If someone is concerned about possible bushfire hazards on a neighbouring property or any other land, then this can be reported to the Fire Prevention Officer or the local CFS Brigade. The complaint will be investigated and may result in a notice being issued to the landowner or manager to reduce the hazard.

It is noted that responsibility for compliance in relation to conditions applied to development approvals, for example in relation to plantation forestry, rests with local government in the first instance.

<i>Responsibility:</i>	Kangaroo Island Council
------------------------	-------------------------

Hazard Reduction Provisions

Hazard reduction provisions are enabling provisions that apply throughout the planning area on private and public land under the *Native Vegetation Regulations 2003*. These provisions enable

landholders and land managers to undertake works at their own discretion in accordance with specific exemptions, and are additional to the risk treatment priorities contained within the BFRMP.

The KI BFRMP includes several additional hazard reduction provisions that complement the Native Vegetation Regulations and are to be administered under the same delegations to the CFS. These provisions are outlined in the *Hazard Reduction Guidelines – Kangaroo Island* (refer Attachment 12).

Responsibility:	SA CFS, Native Vegetation Council
------------------------	-----------------------------------

Visitor information

Visitor information regarding bushfire awareness will be prepared for and provided to key transport providers (including ferry operators, airlines, and hire car companies) and translated into multiple languages. Specific information will be provided on Total Fire Ban Days and Catastrophic fire danger risk days.

Responsibility:	Kangaroo Island Council, SA CFS, DEH
------------------------	--------------------------------------

Improved weather forecasting

Other than in major incidents, when portable Automatic Weather Stations (AWS) are brought over Kangaroo Island to support incident management, the island is reliant upon weather stations at Cape Borda, Cape Willoughby and Kingscote Airport. The weather conditions at these stations often bear little resemblance to conditions inland on the island. There has been a long term need for an additional inland AWS, probably located at Parndana, to improve the quality of weather forecasting information.

Responsibility:	KI CFS Group in consultation with relevant stakeholders
------------------------	---

3.3 Asset specific treatments

NOTE: As a result of legislative changes in September 2009 District Bushfire Prevention Committees are no longer legal entities under the Fire and Emergency Services Act 2005 (SA). This has necessitated some amendment of responsible agencies for delivery of risk treatments under this plan, to cover the transitional phase until the new bushfire management structures are established. Further amendment of responsible agencies will be required once the new structures are in place. An interim implementation structure will also be developed to ensure that the plan is progressed during this transitional period.

There are four broad strategy groups being utilised to treat the bushfire risk to assets identified in the BFRMP. The types of asset specific treatments in each strategy group used in the Kangaroo Island area are listed below. A full list of the treatment strategies in the Kangaroo Island area are in Appendix 3.

Strategy Targeted treatments used in the Kangaroo Island area

Hazard Reduction	Fuel modification, including prescribed burning, focusing on APZ and BBZ areas, and a limited number of CLMZs (together with district wide enabling provisions for hazard reduction on private land); targeted compliance for settlement areas and tourism accommodation businesses
Community Education	Targeted property level community education focusing on bushfire action planning in areas of very high and extreme risk; focus on tourism operators and visitors, bushfire action planning for tourism businesses and public venues; education for school students
Property Planning	Promotion of preparation of structures for bushfire threat; identification of discretionary development conditions (together with proposed review of bushfire protection zoning in the Development Plan as a district wide treatment)
Preparedness	Placement of fire access tracks to improve access and egress in strategic locations; preparation of evacuation plans for designated areas, including campgrounds and settlements at extreme risk; emergency response planning for Very High and above fire danger risk days for tourism businesses and public venues

Table 3.2 Asset specific treatments used in the Kangaroo Island area

3.4 Ecological Fire Management

The Department for Environment and Heritage is currently preparing ecological fire management guidelines for South Australia. In 2005 a research project funded by the Kangaroo Island Natural Resources Management Board (Dowie 2006) enabled the compilation and analysis of data and research on the impact of fire on Kangaroo Island biota. This project has since been complemented by further in-house research by the staff of the Conservation Programs Unit within DEH on the Island. A major research project currently underway assessing the impact of fire on fragmented and senescing *E. cneorifolia* (KI Narrow-leaf Mallee) communities on the eastern end of the island, known as the Eastern Plains Fire Trial, will further add to this knowledge base (Taylor 2008).

The work conducted by DEH to date has already informed the fire regimes and management strategies within the Cape Forbin Integrated Fire Management Plan (CFIFMP) and the revised Flinders Chase Fire Management Plan (FCFMP). The BFRMP utilises the same 'best available' information utilised in these plans regarding fire thresholds for primary species groups on Kangaroo Island.

An overview of the process used by DEH to develop ecological fire management guidelines is attached at Appendix 13.

The vegetation in the Kangaroo Island area has been classified into fire threshold categories (Table 3.3), based on 'best available' information. Available data is limited and effective adaptive management will require ongoing research to improve this knowledge base.

See Appendix 14 for fire threshold mapping of the vegetation in the Kangaroo Island area.

Table 3.3 Fire Thresholds for Kangaroo Island Vegetation Categories

Vegetation Formation	Bushfire Management Zone	Minimum Fire Interval
ALL – Kangaroo Island	Bushfire Buffer Zone (BBZ)*	Based on Overall Fuel Hazard level maintained at no greater than High

* It can be anticipated that the use of the frequency proposed for the BBZ will result in biodiversity loss within the landscape for which it is applied.

Vegetation Formation	Bushfire Management Zone	Minimum Fire Interval
<ul style="list-style-type: none"> • <i>Eucalyptus</i> woodlands with a shrubby understorey • <i>Casuarina</i> and <i>Allocasuarina</i> forests and woodlands • Low closed forest or tall closed shrublands (including <i>Acacia</i>, <i>Melaleuca</i> and <i>Banksia</i>) • Mallee heath and shrublands • Heath • <i>Eucalyptus</i> open woodlands with a shrubby understorey • <i>Melaleuca</i> shrublands and open shrublands 	Conservation Land Management Zone (CLMZ)	17 years
Other <i>Acacia</i> tall open shrublands and shrublands	Conservation Land Management Zone (CLMZ)	10 years

In identifying risk treatments within the BFRMP these thresholds have been applied within the context of the Ecological Fire Management framework (refer Appendix 13).

No treatments involving prescribed burning in BBZs or CLMZs have been identified for areas of native vegetation that are below the minimum threshold, or outside of the fire regime parameters. All of the areas identified for treatment by prescribed burning are outside of threshold – that is, they have not been burnt for at least 40 years. Only treatments reproduced from the DEH Flinders Chase Fire Management Plan include areas that are currently below the minimum threshold, and those plans programme treatment of those areas only once they fall within threshold (which is anticipated to be during the life of the BFRMP). The spatial extent of proposed prescribed burn treatments falls within the Ecological Fire Management Guidelines. The optimum intensity of prescribed burns will need to be addressed during the burn planning process to ensure that this element of the fire regime structure recommended by the Ecological Fire Management Guidelines is also met.

3.5 Annual works programmes

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.

Guidelines for preparation of annual works programmes can be found at Appendix 14.

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 (including EPBC Act referrals where required), smoke management and prescribed burn plans.

Prescribed burning

All prescribed burns in native vegetation of moderate or high intensity will be undertaken in accordance with an approved burn plan prepared using the current Department for Environment and Heritage burn plan template.

Local permit issuing/hazard reduction burning exclusion periods

In the Kangaroo Island area the issuing of permits/hazard reduction burning is not permitted during the Fire Danger Season other than during permit season periods determined in consultation with the KI CFS Group. Depending upon the season, this will generally exclude permit burning between the months of November and March inclusive.

The Region 1 Prevention Committee (until the new bushfire management structures are put in place) and the KI CFS Group will jointly determine when permit burning and prescribed burning outside of the Fire Danger Season may be undertaken by private landholders.⁵

⁵ It is noted that it is an internal requirement of State government land agencies that all burns undertaken by agencies are conducted in accordance with an agency burn plan.

CHAPTER 4. MONITORING, REVIEW AND REPORTING

4.1 Review

This BFRMP must be reviewed and updated within each successive five-year period from the development of the original plan. The plan will also be reviewed 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 boundaries of the area, organisational responsibilities or legislation;
- changes to the bushfire risk in the area; or
- following a major fire event.

4.2 Monitoring

Monitoring of actions taken within the BFRMP should be undertaken in at least the following forms:

- works completion
- assessing impact of works to inform adaptive management.

4.2.1 Works Completion

Until the new bushfire management structures are put into place, the interim implementation group for the plan will be required to monitor progress towards the completion of treatment works listed in the BFRMP, and the timeliness of the works.

Monitoring will involve reviewing the Annual Works Plan, identifying works not completed or partially completed and the reasons for this, as well as strategies to ensure their completion or adjustment where appropriate.

This information will be recorded at the local level in a spreadsheet format (refer Appendix 14).

4.2.2 Assessing impact of works to inform adaptive management

The measurement of the impact of the overall approach to bushfire risk management, as well as the individual strategy components (such as hazard reduction, community education and so on) set out within the BFRMP requires further consideration and development in order to develop an approach that is genuinely based upon adaptive management.

For example, measurement of the impacts of hazard reduction strategies needs to include research relevant to the areas and treatments undertaken. For example, the focus upon prescribed burning in Bushfire Buffer Zones, and continuing development of knowledge regarding the impacts of this treatment in a range of different vegetation formations, is vital to assessing the effectiveness and appropriateness of these strategies in the context of BFRMP objectives.

4.3 Research to support adaptive management

The table below sets out of the strategy elements contained in the BFRMP, some of the key treatments in each strategy area, and possible research parameters that could be used to assess the impact of the work undertaken. These proposed parameters are to be addressed in the context of the BFRMP objectives. It is noted that this impact assessment research is not currently resourced, but it has been included within the plan to support application for funding if appropriate opportunities arise.

Summary of Proposed Research Elements to Support Adaptive Management

Strategy	Treatment	Research
Hazard reduction	BBZ prescribed burns	Consider fire regime (fire interval, intensity and timing (season)) on a site specific basis and in terms of impact of zone distribution within landscape. To measure the effects of the fire regime, conduct: <ul style="list-style-type: none"> • Overall fuel hazard assessments • Assess environmental attributes Survey social perceptions of fire regime impacts (eg. is the perception that community safety is improved by the implemented fire regime)
	CLMZ prescribed burns	Consider fire regime (fire interval, intensity and timing (season)) on a site specific basis and in terms of impact of zone distribution within landscape. To measure the effects of the fire regime, conduct: <ul style="list-style-type: none"> • Overall fuel hazard assessments • Assess environmental attributes Survey social perceptions of fire regime impacts (eg. is the perception that community safety is improved by the implemented fire regime)
Community education	Bushfire Action Planning	Undertake surveys benchmarked against State data for time series analysis
	Tourism operations (accommodation and tours)	Survey tourism operators regarding uptake and understanding of bushfire preparedness strategies; Survey visitor understanding of bushfire preparedness through TOMM Visitor Exit Survey
Property planning	DPA review of bushfire protection zoning	Review changes made to bushfire protection zoning as a result of BFRMP risk assessment, for time series review at the conclusion of the plan period
	Dwelling development conditions for very high and extreme risk areas	Maintain statistics on approvals and conditions placed on developments in high-extreme risk areas, for time series review at conclusion of plan period
Preparedness	Emergency response planning	Audit of plan preparation; post incident review based on Key Lines of Inquiry regarding relevance, efficiency, effectiveness
	Evacuation planning	Audit of plan preparation; post incident review based on Key Lines of Inquiry regarding relevance, efficiency, effectiveness

4.4 Reporting

It is anticipated that, under the proposed legislative changes to fire prevention management structures, the new bushfire management structure will be required to report annually to the State Bushfire Coordinating Committee (SBCC) on its progress in implementing the bushfire risk management activities identified in this plan.

In the meantime, the interim implementation group will provide reports to the Region 1 Prevention Committee as the transitional bushfire management authority. These reports will be made available to the community to monitor the progress of implementation of the plan.

APPENDICES

Appendix 1 – Revised Fire Danger Ratings (September 2009)

NATIONAL FRAMEWORK FOR SCALED ADVICE AND WARNINGS TO THE COMMUNITY

PRINCIPLES:

- Fires impact people and communities, therefore this framework errs on the side of public safety as its primary consideration
- A fire can threaten suddenly and without warning
- People living in high risk areas need to be prepared to take protective action at any time

FIRE DANGER PERIOD – SEASONAL FORECAST

Preparedness Messages

Initiated by Bureau of Meteorology with Fire Agency Advice

Response Messages

Initiated by Fire Agencies with Bureau of Meteorology Advice

FORECAST FIRE DANGER – Before a fire starts			FIRE DANGER RATING		Actual FDI calculations on the day along with the fire location and behaviour will dictate which level of message will be used. If, for example, on a catastrophic forecast a fire starts in a location where there are no people or property threatened then an emergency warning would not be necessary.	TRIGGER POINTS – For messaging when a fire starts			
• Preparedness and education strategies • Survivability options already identified and in place			Category	Fire Danger Index		<2 hrs	2-6 hrs	6-24 hrs	24 hrs Plus
FIRE BEHAVIOUR PREDICTIONS The projected FDI along with the erratic nature of fire, the energy released and levels of area burnt are the main factors that have been used to differentiate between fire danger rating levels. Volatility of fire Flame Height Speed of spreading Ability to Suppress	IMPACT ASSESSMENT The predicted wind levels combined with the application of the building code AS3959 have been used to describe the potential danger at each rating level. Expected life and asset loss House survivability points (homes as a place of safety)	CALL TO ACTION The fire behaviour and impact assessment along with the ability to suppress a fire has been incorporated into the specific instructions and directions to the community.	CATASTROPHIC (CODE RED)	100 +	EMERGENCY WARNING + SEWS				
			EXTREME	75 – 99					
			SEVERE	50 – 74	WATCH AND ACT				
			VERY HIGH	25 – 49					
			HIGH	12 – 24	ADVICE				
			LOW – MODERATE	0 – 11					
Inherent in the different levels of fire danger ratings is the applicability of AS3959 and the ability of homes to act as places of safety when needed. AS3959 is known to apply up to a FDI of 80 – 100 depending on the location in Australia.			The Fire Danger Index is fundamentally a predictor of fire behaviour and suppression difficulty.			The message levels have taken into account the evidence that suggests over warning can contribute to complacency and delays in people taking protective action.			
Prolonged heat waves, fire weather intensity, fuel variability and topography are all major variables that influence the behaviour of a fire. Further work is required to enable technology to calculate the FDR at individual community level.			Without supporting scientific evidence no change can be made to the calculation of the fire danger index. The existing rules and parameters therefore have been retained and only the categories have been recalibrated and described.			Emergency Warning is calibrated to the highest level of risk to life and aligned with the principle message that the safest option is to not be near the fire. The standard emergency warning signal (SEWS) would be played with this message.			
Significant historical evidence exists that is guiding the thinking and approach to the recalibrated fire danger rating. There is an undeniable link between higher FDI and loss of life and property, with exponential increases in losses as the FDI increases.			There is evidence to support the addition of two additional categories above the FDI of 50. This evidence relates to the house survivability points as determined by research; future impact as predicted through climate change research and recent experiences in SA, Vic, and ACT.			Watch and act messages are identified as supporting the need for people to be aware of their situation and the circumstances around them and take action to prepare and protect themselves, their family and neighbours.			
An important component of any education campaign involves the explanation associated with the Total Fire Ban prevention measure. TFB will be incorporated into the broader preparedness messaging and education programs.			It is important that a wide range of education and media campaigns teach the public about the fire danger ratings given their current low level of understanding.			Advice messages are to keep people informed and up to date with developments.			

NOTE: Detailed descriptors and messages underpin this framework.

Appendix 2 - Community Engagement Strategy

KANGAROO ISLAND DISTRICT BUSHFIRE PREVENTION PLAN REVIEW 2008

COMMUNITY ENGAGEMENT STRATEGY

April 2008

INTRODUCTION

The Kangaroo Island District Bushfire Prevention Committee ('the Committee') is reviewing the District Bushfire Prevention Plan in 2008. The Committee is responsible for the preparation of the District Plan pursuant to Section 76(1)(c) and 76(2) of the Fire and Emergency Services Act 2005 (SA).

The review is being undertaken as a pilot utilising a bush fire risk management planning approach developed by the New South Wales Rural Fire Service (NSW RFS). In keeping with the proposals of the 2007 Ministerial Review of Bushfire Prevention Management, the plan is based on landscape scale risk assessment and treatment, and will encompass prevention, preparedness, response and recovery, rather than being limited to prevention.

The bush fire risk management plan is a strategic level document which:

- Identifies the level of bush fire risk across the Island
- Records treatment strategies identified by the Bushfire Prevention Committee which will be implemented to manage the bush fire risk
- Records the fire fighting authorities/land managers/agencies responsible for implementing the treatment strategies.

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

The **objectives** of the Plan are as follows:

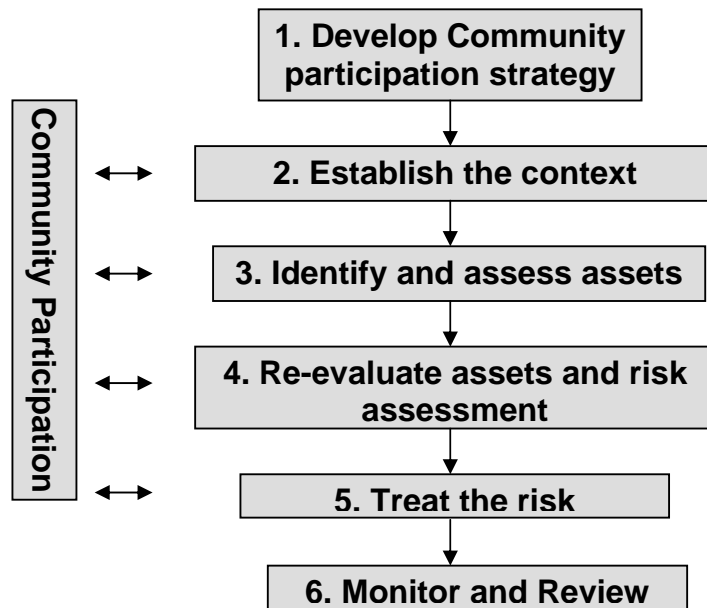
- Reduce the number of human induced bush fire ignitions that cause damage to life, property and the environment;
- Manage fuel to reduce the rate of spread and intensity of bush fires while minimising environmental/ecological impacts;
- Reduce the community's vulnerability to bush fires by improving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

The Committee will be seeking significant input into the plan review process through effective community engagement. This communications strategy sets out the elements of and processes for that engagement, namely:

- Definition of target audiences
- Outline of issues to be communicated
- Communication methods

- Implementation plan.

Community engagement occurs at each stage of the plan development, as depicted in the flow chart below:



However, the major phase of direct community participation is in the identification and assessment of assets (Project Phase 3).

Following the evaluation and risk assessment phase, the draft plan will be provided to the community for comment during a 2 month public exhibition period (Project Phase 5). All comments received will be documented and assessed, and a record kept of the response to the issues raised. This information can be provided to community members who would like to receive feedback on how their comments have been considered.

The strategies in this plan focus primarily on Project Phase 3, the initial major phase of direct community participation, and the provision of general information regarding the review to the community to support the review process. It will be necessary to review this communications strategy prior to the commencement of Project Phase 5, the public exhibition period, to ensure that appropriate strategies are in place to support that phase of the project.

1. TARGET AUDIENCES

The target audiences for the plan review process are set out below. Lists of businesses and community groups associated with these audiences are attached as [Attachment A](#).

1.1 Community

- Businesses –daily staffed businesses open to the public outside of townships and settlements (as the latter will be covered by township consultations)
- Major businesses – these are defined as those businesses outside of townships with major land holdings and infrastructure and/or significant numbers of employees and/or significant visitation:

- o Timber Creek Sawmill
- o Plantations: GSL, Insignis (on behalf of NEC, SFMA, Holdaway), ENOTS
- o Agricultural Enterprises: Trethewey's, Murray's, Blenkiron's, Thomas'
- o Southern Ocean Lodge
- o Vivonne Bay Outdoor Ed (Sealink)
- o Andermel
- Townships: Penneshaw, American River, Kingscote, Parndana
- Settlements: Baudin Beach, Island Beach, Nepean Bay, Emu Bay, Vivonne Bay
- Locality Clusters: Flour Cask Bay, D'Estrees Bay, Wisanger Hills, Stokes Bay, Middle River, Western River, De Mole, Karatta, Parndana East, Antechamber Bay
- Groups of landholders in known fire paths outside of township, settlement and locality areas (multiple fires in past 40 years):
 - 1) landholders in the area bounded by Crabbs Road in the east, Mt Taylor Road in the west and East West 2 to the north;
 - 2) landholders around Cape Cassini, north of the North Coast Road;
 - 3) landholders to the east of Latham CP;
 - 4) landholders on the southern Dudley Peninsula, south of Willson River Road;
 - 5) landholders west of Coleman Rd
 - 6) landholders other than forestry in the Church Road bloc
- Residents in protected areas
- Off Island Ratepayers
- Community Groups
- KI CFS Brigades: Penneshaw, American River, Haines/Macgillivray, Parndana, Kingscote, Wisanger, Western Districts

1.2 Special Fire Protection

Assets classed as Special Fire Protection are those where the occupants may be more vulnerable to bush fire attack for one or more of the following reasons:

- They may be less educated in relation to bush fire impacts (eg. tourists)
- They may have reduced capacity to evaluate risk and to respond adequately to the bush fire threat
- They may present organisational difficulties for relocation and/or management
- They may be more vulnerable due to the stress and anxiety arising from bush fire threat and smoke
- There may be significant communication barriers (eg. international tourists from non-English speaking countries)
- Supervision during a bush fire may be difficult
- Logistical arrangements to support the number of residents or occupants may be complicated in terms of alternative accommodation, transport, health care and food supplies.

Assets considered as Special Fire Protection include:

- School campuses
- Hospital
- Aged care
- Childcare
- Tourism accommodation

- Sports clubs

1.3 Island Agencies

- Kangaroo Island Council
- Kangaroo Island Development Board
- KI Emergency Management Committee
- Kangaroo Island Natural Resource Management Board

1.4 Government agencies

- Country Fire Service
- Department for Environment and Heritage
- Department for Water, Land and Biodiversity Conservation
- Native Vegetation Council
- Planning SA
- PIRSA
- SAFECOM
- SHLGA

Apart from provision of general information, specific strategies will need to be employed with government agencies to address information needs as the review progresses.

2. ISSUES TO BE COMMUNICATED

The following matters need to be communicated:

- The purpose, aim and objectives of the plan need to be conveyed by way of introduction to the process.
- *Community context and criteria for identifying bush fire risk in the area*
 - This will need to be prepared for each locality where consultation is occurring.
 - Context information will include: climate and bush fire season, distribution and causes of bush fire ignitions, bush fire history of the area, vegetation and fire history of the area, including fire threshold status of vegetation (where available).
 - Clarification re native vegetation policy will need to be provided.
- *Limitations and modifications to existing data*
 - Provide outline of available data and limitations. Include local fire history (eg. burns not mapped), fire behaviour and impacts
- *Identification of valuable community assets*
 - This may include areas that are locally significant but not necessarily known outside the area.
- *Risk analysis and evaluation*
 - Explanation of the risk analysis process.
 - Raising awareness of and getting community discussion and consideration of areas community members think are a bush fire hazard. Include discussion of the

likelihood ratings for the area, assets that have been identified, and methods used to determine the consequence ratings.

- *Risk treatment strategies and prioritisation*
 - Explanation of the risk treatment process.
 - Raising awareness of and getting the community involved in applying risk treatment strategies and prioritisation by getting community members to discuss and consider treatment options and prioritisation for identified risks.

Standardised communications products will assist in the communications process by ensuring that consistent messages are received by the community.

3. COMMUNICATION METHODS

3.1 *General Promotional strategies*

- Council website – set up separate page on the Council website for the review, including email address and Council phone number, for the duration of the review
- Presentations to key stakeholders
- Information circulars regarding the review:
- Targeted letters to locality groups: this will involve specific mailouts to landholders in locality areas advising them of meetings and kiosks in their area.
- Targeted letters to businesses and other community groups: Suitable for: daily staffed businesses outside of townships including tourism accommodation businesses outside of townships, commercial tour operators, special fire protection assets
- Editorial articles in *The Islander* and/or use of Council Matters will be needed to fill the information and time gaps between circulars. Can also approach community radio.
- Community displays, particularly at the exhibition stage – Morrison's has been provisionally booked, we can also use the town halls and approach the sports clubs

3.2 *Meetings and Kiosks*

- Community meetings and kiosks – these could be combined, particularly for the larger townships and settlements as a full day or day/evening event. Schedule one or two presentation sessions during the day and run the kiosk either side of the presentations. Suitable for: Kingscote, Penneshaw, Parndana, American River, Vivonne Bay
- Community meetings – these will be shorter meetings of 2-3 hours duration incorporating a presentation and discussion. Suitable for: some settlements, locality clusters, known fire path groups
- Specific agency/business meetings – suitable for brigades, major businesses, some agencies, some special fire protection assets (some will be done on request)

- Pre planned meetings – working in with existing meetings and providing presentations. Suitable for: island agencies and government agencies, community groups such as Tourism KI, Agriculture KI, Private Forestry KI, Eco Action.

An Excel spreadsheet table summarising these strategies is provided as Attachment A.

4. IMPLEMENTATION PLAN

4.1 Timeframes

The proposed timeframe for the initial phase of community engagement is June – August 2008.

Scheduling of meetings will be undertaken in consultation with CFS Community Education.

The overall project timeline is summarised below:

Stage	Key Project Tasks	Timeline
1	prepare review framework proposal	February '08
2	prepare communications plan	March '08
	prepare risk assessment framework	March/April '08
	prepare context information	April/May '08
3	community consultation/public call	June-August* '08
	asset audit	Jan/Feb '09
4	evaluation & analysis	March-May
5	exhibition	June/July '09
6	finalisation	August '09

*Note normal FDS duties will interrupt progress of plan development from Sept-Dec 2008.

It is anticipated that there will be some delays in the project resulting from requirements for agency coordination and addressing resourcing issues.

4.2 Resources

CFS Community Education have indicated that they will be able to provide some support in the community engagement phase of this project (eg. with running meetings, kiosks etc).

Resources for the Council website update, mailouts and survey production will come from the FPO budget for the project.

Ideally maps depicting currently held data etc. would be available for the community consultation phase. However, while agency policy issues are being worked through community consultation can proceed utilising aerial photography.

ATTACHMENT A

SUMMARY OF COMMUNICATIONS APPROACHES FOR ALL AREAS & GROUPS *(Excel spreadsheet)*

KANGAROO ISLAND BUSH FIRE RISK MANAGEMENT PLAN REVIEW 2008 - COMMUNICATIONS SUMMARY									
Last updated 13th August 2008									
Community Meetings									
	CFS City Ed attendance				yellow=combined mtg	confirmed venue			
CATEGORY	Location/Group Name	Time	Notify	Number	Mtg Date	Location	Time	Personnel	Admin
Locality	Church Rd Block	D	11-Jun	22	Tuesday, 24 June 2008	Flinders Chase Farm	2-5pm	AH	none
Locality	Gosse Ritchie Block (incl. Karatta)	E	11-Jun	42	Tuesday, 24 June 2008	Wonks	7.30-10pm	AH	none
Locality	Middle River	E	13-Jun	48	Thursday, 26 June 2008	Wonks	7.30-10pm	AH, JA	VR
Localities	West of Coleman's Rd	D	13-Jun	31	Thursday, 26 June 2008	Wonks	10.30am-12pm	AH, JA	VR
Locality	Western River	D	13-Jun	33	Thursday, 26 June 2008	Wonks	2-5pm	AH, JA	VR
Known Fire Path	Crabbs Rd/Mt Taylor Rd/EW2	E	19-Jun	50	Tuesday, 1 July 2008	Vivonne O/dr Ed	7.30-10pm	FD, AH	VR
Known Fire Path	Vivonne Bay Outdoor Ed (Sealink)	A/E	7-Jul	141	Monday, 21 July 2008	Vivonne O/dr Ed	2-5pm & 7.30-10pm	FD, AH	VR
Township	Parndana and surrounds	A/E	8-Jul	111	Tuesday, 22 July 2008	Parndana Town Hall	2-5pm & 7.30-10pm	FD, AH	VR
Locality	Seal Bay	A/E	8-Jul	46	Tuesday, 22 July 2008	Parndana Town Hall	2-5pm & 7.30-10pm	FD, AH	VR
Settlement	Stokes Bay	E	10-Jul	77	Thursday, 24 July 2008	Stokes Bay Hall	7.30-10pm	AH	VR
Locality	Bark Hut Rd Block	E	14-Jul	33	Monday, 28 July 2008	Stokes Bay Hall	7.30-10pm	AH	VR
Locality	Cassini	A	14-Jul	34	Monday, 28 July 2008	Stokes Bay Hall	7.30-10pm	AH	VR
Locality, Settlement	Wisanger Hills, Emu Bay	E	15-Jul	55 + 177	Tuesday, 29 July 2008	Wisanger Sports Club	7.30-10pm	AH	VR
Settlement	De Mole	D	9-Jul	21	Wednesday, 30 July 2008	Haydn's Shearing Shed	11.30am-1pm	FD, AH	none
Township	Nepean Bay (Western Cove)	E	18-Jul	174	Thursday, 31 July 2008	Kingscote Town Hall	7.30-10pm	AH	none
Known Fire Path	American River and surrounds	A/E	21-Jul	371	Monday, 4 August 2008	The Shed	2-5pm & 7.30-10pm	AH, JA	VR
Settlement	East of Pennington Bay	E	21-Jul	34	Monday, 4 August 2008	The Shed	7.30-10pm	AH, JA	VR
Locality	Flour Cask Bay	M	21-Jul	34	Monday, 4 August 2008	The Shed	10.30am-12pm	AH, JA	none
Locality	Kingscote/Brownlow	D/E	22-Jul	1127	Tuesday, 5 August 2008	Kingscote Town Hall	2.9pm	AH, JA, ME	VR
Locality	Cygnnet River	D/E	22-Jul	64	Tuesday, 5 August 2008	Kingscote Town Hall	2.9pm	AH, JA, ME	VR
Locality	Haines	D/E	24-Jul	50	Tuesday, 5 August 2008	Kingscote Town Hall	2.9pm	AH, JA, ME	VR
Settlement	Macgillivray	D/E	24-Jul	95	Tuesday, 5 August 2008	Kingscote Town Hall	2.9pm	AH, JA, ME	VR
Locality	Northern Dudley Peninsula	D/E	29-Jul	67	Thursday, 14 August 2008	Penn. Town Hall	10.30am-12pm	AH, NH	none
Township	Penneshaw and surrounds	D/E	29-Jul	358	Thursday, 14 August 2008	Penn. Town Hall	2-5pm & 7.30-10pm	AH, NH	VR
Known Fire Path	Baudin Beach and surrounds	D/E	29-Jul	184	Thursday, 14 August 2008	Penn. Town Hall	10.30am-12pm	AH, NH	VR
Locality	Island Beach & Sapphire town and surrounds	D/E	29-Jul	320	Thursday, 14 August 2008	Penn. Town Hall	7.30-10pm	AH, NH	VR
Settlement	Southern Dudley Peninsula	D/E	29-Jul	63	Thursday, 14 August 2008	Penn. Town Hall	2-5pm	AH, NH	VR
Settlement	D'Estrees Bay and surrounds	E	5-Aug	44	Monday, 18 August 2008	Haines CFS shed	7.30-10pm	AH	none
3674									
CFS Brigades									
	Penneshaw	E			Thursday, 29 May 2008	Penn CFS			
	American River	E			Monday, 4 August 2008	The Shed			
	Haines/Macgillivray	E			Thursday, 3 July 2008	H/M shed 7.30pm			
	Kingscote	E			Wednesday 9th July	Kingscote CFS			
	Wisanger	E			Tuesday, 29 July 2008	Wisanger SC			
	Parndana	E			Monday, 7 July 2008	PCC			
	Western Districts	D			Sunday, 15 June 2008	Wonks			
Businesses									
	Daily staffed o/side townships					via mailout and website			
	Commerical Tour Operators					via TKI member bulletins			
Major businesses									
	De Tong Ling (prefer weekend)								
	Timber Creek Sawmill					via email			
	GSL				Monday, 22 September 2008				
	Insignis					via email			
	ENOTS					via email			
	Southern Ocean Lodge								
	Vivonne Bay Outdoor Ed (Sealink)				Wednesday, 1 July 2009				
	Sealink (Lunch & Learn session)								
Residents on DEH land									
Off Island ratepayers									
						via mailout and website			
Community Groups									
	Group A - Tourism, Ag, Forestry, Eco Action, SES					via mailout and website			
	Group B - Progress Assns, Specific Assets, Others					via mailout and website			
SPECIAL FIRE PROTECTION									
ISLAND AGENCIES									
	Kangaroo Island Council				Friday, 14 March 2008				
	Department for Environment and Heritage KI				Wednesday, 18 June 2008				
	Kangaroo Island NRM Board				Monday, 23 June 2008				
	Kangaroo Island Emergency Advisory Cttee				Wednesday, 2 July 2008				
	Agriculture Kangaroo Island				Monday, 30 June 2008				
	Tourism Kangaroo Island					via member bulletins			
	Kangaroo Island CFS Group				Friday, 20 March 2008				
GOVERNMENT AGENCIES									
	Country Fire Service - State				Tuesday, 12 August 2008				
	Department for Environment and Heritage - KI				Tuesday, 17 June 2008				
	Department for Environment and Heritage - State				Wednesday, 1 October 2008				
	Native Vegetation Council				Wednesday, 30 April 2008				
INTERNAL COMMS									
	Senior Managers				Friday, 27 June 2008				
	Community Services				Friday, 27 June 2008				
	Planning				Friday, 27 June 2008				
	Airport				Friday, 27 June 2008				

Appendix 3 - Asset Register

ASSET REGISTER

Map reference number	Asset type	Asset sub type	Asset name	Asset Location	Display area	Likelihood	Consequence	Risk	Priority	Treatments
33	Human Settlement	Residential	Rural Dwellings - Cape Forbin	Cape Forbin, access via Snug Cove Rd	Cape Forbin	Almost certain	Catastrophic	Extreme	1A	2:56:53:54:59
8	Human Settlement	Residential	D'Estrees Bay Settlement	Government Road, D'Estrees Bay Road	Gantheaume	Almost certain	Catastrophic	Extreme	1A	1:12:2:27:56:54:53:57:61:59:62
6	Human Settlement	Residential	Parndana Township	Playford Highway	Parndana	Almost certain	Catastrophic	Extreme	1A	21:22:23:24:26:2:53:56
7	Human Settlement	Residential	Hanson Bay	Hanson Bay Road	West End	Almost certain	Catastrophic	Extreme	1A	7:19:20:28:2:56:62:61:57
12	Human Settlement	Residential	De Mole Estate Dwellings	De Mole Estate	Cape Forbin	Almost certain	Catastrophic	Extreme	1A	31:32:33:34:2:35:36:37:38:53:54:56:59:62:61:57
9	Human Settlement	Residential	Pt Ellen Shacks	Ritchie Rd.	Parndana	Almost certain	Catastrophic	Extreme	1A	16:2:27:57:56:54:53:61:62
4	Human Settlement	Residential	Vivonne Bay	Eastern Side	Parndana	Almost certain	Catastrophic	Extreme	1A	13:14:15:18:2:27:44:45:46:57:56:54:53:62:61:63:66
32	Human Settlement	Residential	Rural Dwellings - Dudley West	Bounded by North South, Hog Bay, Cathers Roads	Dudley	Almost certain	Catastrophic	Extreme	1A	2:56:53:54
1	Human Settlement	Residential	Brown's Beach North Dwellings	Hog Bay Road, Brown's Beach	Dudley	Almost certain	Catastrophic	Extreme	1A	9:2:57:54:53:27:61:62:10
31	Human Settlement	Residential	Rural Dwellings - SE Dudley Peninsula	Bounded to the north by Willoughby, Willson River Rds, to the west by North South	Dudley	Almost certain	Catastrophic	Extreme	1A	2:53:54:56:57:62:61:65
2	Human Settlement	Residential	Island Beach	Island Beach	Dudley	Almost certain	Catastrophic	Extreme	1A	8:9:2:27:57:56:54:53:62:61
3	Human Settlement	Residential	Sapphiretown Settlement	Sapphiretown	Dudley	Almost certain	Catastrophic	Extreme	1A	9:8:56:27:54:2
30	Human Settlement	Residential	Rural Dwellings - Snug Cove Rd	Snug Cove Rd	Cape Forbin	Almost certain	Catastrophic	Extreme	1A	2:56:53:54:59
18	Human Settlement	Special Fire Protection	Yacca Creeks Accommodation	Snug Cove Road	Cape Forbin	Almost certain	Catastrophic	Extreme	1A	41:40:39:36:35:37:38:57:62:61:56:53
17	Human Settlement	Special Fire Protection	Karatta Outdoor Education Centre	South Coast Road	West End	Almost certain	Catastrophic	Extreme	1A	30:56:57:62:61:59
23	Human Settlement	Special Fire Protection	Vivonne Bay Campground	Vivonne Bay	Parndana	Almost certain	Catastrophic	Extreme	1A	17:25
5	Human Settlement	Special Fire Protection	Vivonne Bay Eco-Adventures	Knofel Drive, Vivonne Bay	Parndana	Almost certain	Catastrophic	Extreme	1A	11:62:61:44:45:57
34	Human Settlement	Special Fire Protection	D'Estrees Bay Campground	Government Road, D'Estrees Bay	Gantheaume	Almost certain	Catastrophic	Extreme	1A	25:55
35	Human Settlement	Special Fire Protection	Little Sahara	off South Coast Road	Parndana	Almost certain	Catastrophic	Extreme	1A	25
25	Human Settlement	Special Fire Protection	Brown's Beach Campground	Hog Bay Road	Dudley	Almost certain	Catastrophic	Extreme	1A	25
19	Human Settlement	Special Fire Protection	Western River Valley Cottages	Western River Road	Cape Forbin	Almost certain	Catastrophic	Extreme	1A	57:62:61
27	Human Settlement	Special Fire Protection	Rileys Christian Camp	Adjacent Steve Rileys Tin Hut Rd	North Coast	Almost certain	Catastrophic	Extreme	1A	49:57:62:61
28	Human Settlement	Special Fire Protection	Eleanor River Cabins	Off South Coast Rd east of Vivonne Bay	Parndana	Almost certain	Catastrophic	Extreme	1A	57:62:61
26	Human Settlement	Special Fire Protection	Antechamber Bay Eco Cabins	Antechamber Bay	Dudley	Almost certain	Catastrophic	Extreme	1A	3:57:62:61
11	Human Settlement	Special Fire Protection	Western River Campgrounc	Western River	Cape Forbin	Almost certain	Catastrophic	Extreme	1A	25
16	Human Settlement	Special Fire Protection	Southern Ocean Lodge	West of Hanson Bay	West End	Almost certain	Catastrophic	Extreme	1A	4:5:28:60:62:61:67:68
14	Human Settlement	Special Fire Protection	KI Wilderness Retreat	South Coast Road	West End	Almost certain	Catastrophic	Extreme	1A	29:28:52:56:60:62:61:59:64
15	Human Settlement	Special Fire Protection	Hanson Bay Cabins and Shacks	Hanson Bay	West End	Almost certain	Catastrophic	Extreme	1A	6:19:28:57:56:59:62:61:53:69:70
13	Human Settlement	Special Fire Protection	Snake Lagoon Campgrounc	Flinders Chase NP	West End	Almost certain	Catastrophic	Extreme	1A	25
29	Human Settlement	Special Fire Protection	Cape Cassini Wilderness Retreat	Cape Cassini West - access from North Coast Rd	North Coast	Almost certain	Catastrophic	Extreme	1A	60:50:51:62:61
10	Human Settlement	Special Fire Protection	Parndana Area School	Parndana	Parndana	Almost certain	Catastrophic	Extreme	1A	23:24:2:58
20	Human Settlement	Special Fire Protection	Hanson Bay Sanctuary	South Coast Road	West End	Almost certain	Catastrophic	Extreme	1A	29:28:62:61:52:57:56:69:70
22	Economic	Infrastructure	Telephone Exchange (Harriet)	Cnr East West Two and Crabbs Road	Parndana	Almost certain	Catastrophic	Extreme	1A	47
24	Economic	Infrastructure	Telephone Exchange (Parndana East)	Timber Creek Rd	Parndana	Almost certain	Catastrophic	Extreme	1A	48
21	Economic	Infrastructure	Telephone Exchange (Gosse)	Corner, Coleman's and North Coast Roads	Cape Forbin	Almost certain	Catastrophic	Extreme	1A	42:43
48	Human Settlement	Residential	'Mad Mile' Dwellings	Hog Bay Road	Dudley	Likely	Catastrophic	Extreme	1B	9:2:53:54:56:59
50	Human Settlement	Residential	Rural Dwellings - Flour Cask Bay Locality	Flour Cask Bay, Florance, Old Salt Lake Rds	Gantheaume	Likely	Catastrophic	Extreme	1B	2:57:53:62:61
55	Human Settlement	Residential	Rural Dwelling - Congdor	Pratts Rd	North Coast	Likely	Catastrophic	Extreme	1B	2:56
38	Human Settlement	Residential	Rural Dwellings - Dover Farm	Dover Farm to Bellmore Rd	Menzies	Likely	Catastrophic	Extreme	1B	53:2
36	Human Settlement	Residential	Island Beach East Dwellings	Hog Bay Road, Island Beach	Dudley	Likely	Catastrophic	Extreme	1B	9:2:57:54:53:56:62:61

ASSET REGISTER

Map reference number	Asset type	Asset sub type	Asset name	Asset Location	Display area	Likelihood	Consequence	Risk	Priority	Treatments
45	Human Settlement	Residential	Rural Dwellings - Constitution Hill and surrounds	North Coast Road, Government Rd	North Coast	Likely	Catastrophic	Extreme	1B	2;57;56;54;53;27;62;61
52	Human Settlement	Residential	Rural Dwellings - Playford Hwy Parndana	Playford Hwy Parndana	North Coast	Likely	Catastrophic	Extreme	1B	23;56;53;26;2
42	Human Settlement	Residential	Western Cove Eastern End Dwellings	Sea Vista Rd	Menzies	Likely	Catastrophic	Extreme	1B	26
37	Human Settlement	Residential	Rocky Point Dwellings	Hog Bay Road, Rocky Point	Dudley	Likely	Catastrophic	Extreme	1B	9;2;54;53;56
47	Human Settlement	Residential	Rural Dwellings - Chapman River Precinct	Shorty Rd, Willoughby Rd	Dudley	Likely	Catastrophic	Extreme	1B	2;53;54;56;57;59;62;61
39	Human Settlement	Residential	Brown's Beach North Dwellings	Hog Bay Road	Dudley	Likely	Catastrophic	Extreme	1B	9;2;57;54;53;27;62;61
41	Human Settlement	Residential	Baudin Beach South	Baudin Beach	Dudley	Likely	Catastrophic	Extreme	1B	71;26;2;57;54;53;62;61
40	Human Settlement	Residential	South East Penneshaw	Tretheway Tce/Wrights Rd/Cheopis St	Dudley	Likely	Catastrophic	Extreme	1B	72;73;74;75;76;77;78;26;2;53;79
51	Human Settlement	Residential	Rural Dwellings - Muston Road (South)	Muston Road	Gantheaume	Likely	Catastrophic	Extreme	1B	2;53
49	Human Settlement	Residential	Rural Dwellings - Pennington Bay	Hog Bay Road, Pennington Bay Road	Dudley	Likely	Catastrophic	Extreme	1B	2;57;56;54;53;62;61
60	Human Settlement	Special Fire Protection	King George and Surrounds Accom	King George Beach, 'Dutton Park'	North Coast	Likely	Catastrophic	Extreme	1B	57;62;61
53	Human Settlement	Special Fire Protection	Stokes Bay West Accom	Beach front west Stokes Bay	North Coast	Likely	Catastrophic	Extreme	1B	57;56;62;61
54	Human Settlement	Special Fire Protection	Stokes Bay East Accom	Coast Hummocky to Cassini	North Coast	Likely	Catastrophic	Extreme	1B	50;51;57;56;62;61
58	Human Settlement	Special Fire Protection	Eleanor River Homestead	Lot 5 off Gregors Rd	Parndana	Likely	Catastrophic	Extreme	1B	57;62;61
59	Human Settlement	Special Fire Protection	Snellings Beach/Middle River Dwellings	Snellings Beach and surrounds	North Coast	Likely	Catastrophic	Extreme	1B	2;57;56;62;61;54;53
46	Economic	Infrastructure	ETSA Substation (Penneshaw)	Willoughby Road	Dudley	Likely	Catastrophic	Extreme	1B	
44	Economic	Infrastructure	ETSA Substation (Parndana)	Wedgewood Road	Parndana	Likely	Catastrophic	Extreme	1B	
43	Economic	Infrastructure	Telephone Exchange (Stokes Bay)	Stokes Bay Road	North Coast	Likely	Catastrophic	Extreme	1B	
57	Economic	Infrastructure	Telephone Exchange (Cygnet River)	Cygnet River	Menzies	Likely	Catastrophic	Extreme	1B	
56	Economic	Infrastructure	Telephone Exchange (Macgillivray)	Wattle Grove Rd	Gantheaume	Likely	Catastrophic	Extreme	1B	
125	Human Settlement	Residential	Rural Dwellings - Borda Road West	Borda Road	Cape Forbin	Almost certain	Major	Extreme	1C	2;88;89;90;91;53;56;59
109	Human Settlement	Residential	Rural Dwellings - Gosse	Berrymans Rd, Coopers Rd, Nth Coast Rd	North Coast	Almost certain	Major	Extreme	1C	100;101;102
119	Human Settlement	Residential	Rural Dwellings - Vivonne Bay North	Harriet Road, South Coast Road	Parndana	Almost certain	Major	Extreme	1C	2;44;45;46;56;53
118	Human Settlement	Residential	Rural Dwellings - Hummocky North	Hummocky Road	North Coast	Almost certain	Major	Extreme	1C	2;50;51;57;56;54;53;62;61
105	Human Settlement	Residential	Rural Dwellings - Church Rd Block	Church Rd, West End Hwy, South Coast Rd	West End	Almost certain	Major	Extreme	1C	2;80;81;29;82;52;59
108	Human Settlement	Residential	Rural Dwellings - Karatta	South Coast Rd	West End	Almost certain	Major	Extreme	1C	2;84;57;56;53;59;62;61
107	Human Settlement	Residential	Rural Dwellings - Western River	Western River Rd ,SheridansRd	Cape Forbin	Almost certain	Major	Extreme	1C	2;54;56;53;57;59;62;61
106	Human Settlement	Residential	Rural Dwellings - Jump Off Rd	Borda Rd, Jump Off Rd	Cape Forbin	Almost certain	Major	Extreme	1C	2;31;32;33;34;56;53;59
104	Human Settlement	Residential	Rural Dwellings - South EW2	Harriet, EW2, Hickmans, Sth Coast Rds	Parndana	Almost certain	Major	Extreme	1C	2;56;53
102	Human Settlement	Residential	Rural Dwellings - Gosse Ritchie/Harriet	GRitchie, Playford Hwy, Harriet, South Coast Rds	Parndana	Almost certain	Major	Extreme	1C	2;44;45;46;59;106
120	Human Settlement	Residential	Rural Dwellings - Colemans Rd	Colemans Rd, Berryman's Rd	Cape Forbin	Almost certain	Major	Extreme	1C	2;41;40;94;95;96;56;53
128	Human Settlement	Residential	Karatta House (DEH)	South Coast Road	West End	Almost certain	Major	Extreme	1C	30;2;56;53;59;104
80	Human Settlement	Special Fire Protection	Western KI Caravan Park	South Coast Road	West End	Almost certain	Major	Extreme	1C	80;81;28;29;62;52;60;61
117	Human Settlement	Special Fire Protection	Flour Cask Bay Sanctuary	Off Flour Cask Bay Rd	Gantheaume	Almost certain	Major	Extreme	1C	57;62;61
81	Human Settlement	Special Fire Protection	Wilderness Valley Studio Accommodation	Church Road	West End	Almost certain	Major	Extreme	1C	82;57;62;61
101	Economic	Infrastructure	Timber Creek Softwood Sawmill	Timber Creek Road (access)	Parndana	Almost certain	Major	Extreme	1C	
70	Economic	Infrastructure	Cape Borda AWS	Cape Borda	West End	Almost certain	Major	Extreme	1C	
127	Economic	Infrastructure	Telstra Mobile Tower and GRN Tower - Johnsons	Playford Hwy, Parndana	Parndana	Almost certain	Major	Extreme	1C	
126	Economic	Infrastructure	Telstra Mobile Tower & GRN Tower - Jarmyns	West End Hwy	West End	Almost certain	Major	Extreme	1C	29
103	Economic	Tourist and Recreational	Seal Bay Tourist Park	Cnr Seal Bay South Coast Rd	Gantheaume	Almost certain	Major	Extreme	1C	99;105;61

Map reference number	Asset type	Asset sub type	Asset name	Asset Location	Display area	Likelihood	Consequence	Risk	Priority	Treatments
79	Economic	Commercial Forest	Leska Springs Hardwood Plantation	Church Road	West End	Almost certain	Major	Extreme	1C	82;84
110	Economic	Commercial Forest	Kelly West Softwood Plantation	Bark Hut Rd	North Coast	Almost certain	Major	Extreme	1C	
71	Economic	Commercial Forest	Triple Valley Hardwood Plantation	West End Highway/Church Road	West End	Almost certain	Major	Extreme	1C	29
72	Economic	Commercial Forest	Jarmyn's Hardwood Plantation	West End Highway	West End	Almost certain	Major	Extreme	1C	29
111	Economic	Commercial Forest	Kelly East Softwood Plantation	Bark Hut Rd	North Coast	Almost certain	Major	Extreme	1C	
73	Economic	Commercial Forest	St Andrew's Softwood Plantation	Baxter's Road	West End	Almost certain	Major	Extreme	1C	29;52
74	Economic	Commercial Forest	Greenslopes Hardwood Plantation	South Coast Road	West End	Almost certain	Major	Extreme	1C	28;29
75	Economic	Commercial Forest	Brookland Park Hardwood Plantation	Church Road	West End	Almost certain	Major	Extreme	1C	82;52
76	Economic	Commercial Forest	Wingara Plantation	Church Road/Baxter's Road	West End	Almost certain	Major	Extreme	1C	82;83;52
78	Economic	Commercial Forest	Noble A Hardwood Plantation	South Coast Road/Church Road	West End	Almost certain	Major	Extreme	1C	84
112	Economic	Commercial Forest	Gilgandra Softwood Plantation	Bark Hut Rd	North Coast	Almost certain	Major	Extreme	1C	
113	Economic	Commercial Forest	Yerda North Softwood Plantation	MacBrides Rd	North Coast	Almost certain	Major	Extreme	1C	
114	Economic	Commercial Forest	Yerda South Softwood Plantation	Bark Hut Rd	North Coast	Almost certain	Major	Extreme	1C	
115	Economic	Commercial Forest	Huxtable Softwood Plantation	Bark Hut Rd	North Coast	Almost certain	Major	Extreme	1C	
116	Economic	Commercial Forest	Mt Brown Softwood Plantation	Bark Hut Rd	North Coast	Almost certain	Major	Extreme	1C	
77	Economic	Commercial Forest	Kelly Hills Hardwood Plantation	South Coast Road	West End	Almost certain	Major	Extreme	1C	84
64	Economic	Commercial Forest	Lycurgus (Bates') Mixed Species Plantation	Jump Off Road	Cape Forbin	Almost certain	Major	Extreme	1C	90;91;92;93
121	Economic	Commercial Forest	Aroona Hardwood Plantation	Mt Taylor Rd	Parndana	Almost certain	Major	Extreme	1C	85;86
122	Economic	Commercial Forest	Hillview Hardwood Plantation	Gosse Ritchie Rd	Parndana	Almost certain	Major	Extreme	1C	85;86
63	Economic	Commercial Forest	Gum Ridge Softwood Plantation	Borda Road	Cape Forbin	Almost certain	Major	Extreme	1C	91;90;92;93
124	Economic	Commercial Forest	Waterloo Too Hardwood Plantation	Playford Hwy, Tin Hut Rd	North Coast	Almost certain	Major	Extreme	1C	
65	Economic	Commercial Forest	Gosse (Coleman's) Softwood Plantation	Coleman's Road	Cape Forbin	Almost certain	Major	Extreme	1C	95;96;94;41;40
66	Economic	Commercial Forest	Laterite Hills Hardwood Plantation	Berryman's Road	Cape Forbin	Almost certain	Major	Extreme	1C	96;95;94;40;41;97
67	Economic	Commercial Forest	Lewis Hardwood Plantation	Berryman Road/North Coast Road	Cape Forbin	Almost certain	Major	Extreme	1C	96;95;94;41;40;97
68	Economic	Commercial Forest	Thiselton's Hardwood Plantation	Western River Road	Cape Forbin	Almost certain	Major	Extreme	1C	96;95;94;41;40
69	Economic	Commercial Forest	Cooper-Couchman Hardwood Plantation	Playford Highway/Mount Taylor Road	Parndana	Almost certain	Major	Extreme	1C	85;86;87
82	Economic	Commercial Forest	Hammat Hardwood Plantation	Church Road	West End	Almost certain	Major	Extreme	1C	84
123	Economic	Commercial Forest	Minnumarra Hardwood Plantation	East West 2 Hwy	Parndana	Almost certain	Major	Extreme	1C	85;86
62	Economic	Commercial Forest	Kellendale Hardwood Plantation	Snug Cove Road/Borda Road	Cape Forbin	Almost certain	Major	Extreme	1C	38;97
99	Economic	Commercial Forest	Pentelow Hardwood Plantation	Berryman's Road	Cape Forbin	Almost certain	Major	Extreme	1C	97;98
83	Economic	Commercial Forest	Stun Sail Boom Hardwood Plantation	Gosse-Ritchie Road	West End	Almost certain	Major	Extreme	1C	86;85
100	Economic	Commercial Forest	Southern's Hardwood Plantation	Playford Highway	Cape Forbin	Almost certain	Major	Extreme	1C	97;42;43
98	Economic	Commercial Forest	Davis Hardwood Plantation	Church Road	West End	Almost certain	Major	Extreme	1C	82
97	Economic	Commercial Forest	Cronins Hardwood Plantation	East West 2/Mount Stockdale/Mount Taylor Rds	Parndana	Almost certain	Major	Extreme	1C	
96	Economic	Commercial Forest	Stockdale Hardwood Plantation	Mount Taylor Road/Mount Stockdale Road	Parndana	Almost certain	Major	Extreme	1C	85;86
95	Economic	Commercial Forest	North East River Hardwood Plantation	Mount Taylor Road	Parndana	Almost certain	Major	Extreme	1C	85;86
94	Economic	Commercial Forest	Heaths Hardwood Plantation	Mount Taylor Road	Parndana	Almost certain	Major	Extreme	1C	85;86
93	Economic	Commercial Forest	Dewell Hardwood Plantation	East West 2	Parndana	Almost certain	Major	Extreme	1C	87;86;85
91	Economic	Commercial Forest	Moreview Hardwood Plantation	Mount Taylor Road	Parndana	Almost certain	Major	Extreme	1C	85;86
90	Economic	Commercial Forest	Kangari Springs Hardwood Plantation	Mount Taylor Road	Parndana	Almost certain	Major	Extreme	1C	85;86;87
89	Economic	Commercial Forest	Anderson Hardwood Plantation	Gosse-Ritchie Road/Mount Taylor Road	Parndana	Almost certain	Major	Extreme	1C	85;86;87
88	Economic	Commercial Forest	Roo Lagoon Hardwood Plantation	Gosse-Ritchie Road	Parndana	Almost certain	Major	Extreme	1C	85;86;87
87	Economic	Commercial Forest	Stephens Hardwood Plantation	Playford Highway	Parndana	Almost certain	Major	Extreme	1C	85;86;87
84	Economic	Commercial Forest	Carnarvon Hardwood Plantation	Gosse-Ritchie Road	West End	Almost certain	Major	Extreme	1C	84
86	Economic	Commercial Forest	Birk Hardwood Plantation	Church Road	West End	Almost certain	Major	Extreme	1C	84
85	Economic	Commercial Forest	Wingara Hardwood Plantation	Baxters Road	West End	Almost certain	Major	Extreme	1C	80;81;52

ASSET REGISTER

Map reference number	Asset type	Asset sub type	Asset name	Asset Location	Display area	Likelihood	Consequence	Risk	Priority	Treatments
92	Economic	Commercial Forest	Trethewey Hardwood Plantation	Mount Taylor Road/East West 2/East West 1	Parndana	Almost certain	Major	Extreme	1C	85;86;87
61	Economic	Drinking Water Catchment	Middle River Reservoir	Johncock Road	North Coast	Almost certain	Major	Extreme	1C	107;108;109;110;111;112;113
134	Environment	Endangered	Threatened Fauna		West End	Almost certain	Major	Extreme	1C	
132	Environment	Endangered	Threatened Fauna		West End	Almost certain	Major	Extreme	1C	
133	Environment	Endangered	Threatened Fauna		West End	Almost certain	Major	Extreme	1C	
135	Environment	Endangered	Threatened Fauna		West End	Almost certain	Major	Extreme	1C	
136	Environment	Endangered	Threatened Fauna		West End	Almost certain	Major	Extreme	1C	
131	Environment	Vulnerable	Australian Sea Lion	Seal Bay	Parndana	Almost certain	Major	Extreme	1C	103
130	Cultural	Non Indigenous	Western Districts Community Club	Playford Hwy	West End	Almost certain	Major	Extreme	1C	105
129	Cultural	Non Indigenous	Parndana Sports Club	Playford Hwy, Parndana	Parndana	Almost certain	Major	Extreme	1C	105
175	Human Settlement	Residential	Rural Dwellings - North Stokes Bay Rd	West of North end SBay Rd, Pratts Rd	North Coast	Likely	Major	Very High	2A	
179	Human Settlement	Residential	Rural Dwellings - Bark Hut Rd West	Pford Hwy, Bark Hut Rd, Millers Rd, MacBrides Rd	North Coast	Likely	Major	Very High	2A	
178	Human Settlement	Residential	Rural Dwellings - Parndana North East	East Weatheralls Rd, Playford Hwy, south of forests	North Coast	Likely	Major	Very High	2A	121
177	Human Settlement	Residential	Rural Dwellings - South Stokes Bay Rd East	East SBay Rd, Pioneer Bend, Playford Hwy, Weatheralls Rd	North Coast	Likely	Major	Very High	2A	120
176	Human Settlement	Residential	Rural Dwellings - Hummocky	North Coast Rd stokes Bay to Cassini, Bark Hut Rd	North Coast	Likely	Major	Very High	2A	50;51
174	Human Settlement	Residential	Rural Dwellings - Pratts Rd	King George to Stokes, Range Rc	North Coast	Likely	Major	Very High	2A	
173	Human Settlement	Residential	Rural Dwellings - Tin Hut Rd	Coopers, Johncock, Ahwans Rds to Playford Hwy	North Coast	Likely	Major	Very High	2A	117;49;100;101;107;108;109;110;111;112;113
172	Human Settlement	Residential	Rural Dwellings - Ballast Head	Lierich Drive, Ballast Head Road	Gantheaume	Likely	Major	Very High	2A	
171	Human Settlement	Residential	Muston Settlement	Muston Road	Gantheaume	Likely	Major	Very High	2A	114;118;119;26
190	Human Settlement	Residential	Rural Dwellings - Hummocky South	North Coast Road	North Coast	Likely	Major	Very High	2A	50;51
189	Human Settlement	Residential	Rural Dwellings - Wisanger South	Rose Park, Gap, Possum Park, Springs Rds	Menzies	Likely	Major	Very High	2A	
183	Human Settlement	Residential	Rural Dwellings - East of Hickmans Rd	Hickmans, Gregors, South Coast Rds	Parndana	Likely	Major	Very High	2A	124;125
188	Human Settlement	Residential	Rural Dwellings - Kohinoor Ridge	Playford Hwy, Margries Rd, Timber Creek Rd	Parndana	Likely	Major	Very High	2A	
186	Human Settlement	Residential	Rural Dwellings - North Cape Rd	North Cape Rd and surrounds	Menzies	Likely	Major	Very High	2A	
185	Human Settlement	Residential	Rural Dwellings - Emu Bay East	Stevens Road (Wally's World" track)"	Menzies	Likely	Major	Very High	2A	
184	Human Settlement	Residential	Rural Dwellings - Cape D'Estaing	N/W Emu Bay	Menzies	Likely	Major	Very High	2A	
165	Human Settlement	Residential	Harriet River Shacks	Vivonne Bay	Parndana	Likely	Major	Very High	2A	116;2
137	Human Settlement	Residential	American River North	Falie Court and surrounds	Gantheaume	Likely	Major	Very High	2A	115;26;53;56;62;61;60;57;126
167	Human Settlement	Residential	Rural Dwellings - Willoughby Roac	Willoughby Road	Dudley	Likely	Major	Very High	2A	
193	Human Settlement	Residential	Rural Dwellings - Cuttlefish Bay	off Willoughby Road	Dudley	Likely	Major	Very High	2A	
169	Human Settlement	Residential	Rural Dwellings - Willson River Roac	Willson River Road	Dudley	Likely	Major	Very High	2A	
139	Human Settlement	Residential	Parndana East Settlement	off Timber Creek Road	Parndana	Likely	Major	Very High	2A	
142	Human Settlement	Residential	Binney's Track/The Outlook Division	Binney's Track, Penneshaw	Dudley	Likely	Major	Very High	2A	72;26
166	Human Settlement	Residential	Rural Dwellings - Pelican Lagoon North	off Mitchell Drive	Dudley	Likely	Major	Very High	2A	
168	Human Settlement	Residential	Rural Dwelling - Dudley West	Hog Bay Road	Dudley	Likely	Major	Very High	2A	

Map reference number	Asset type	Asset sub type	Asset name	Asset Location	Display area	Likelihood	Consequence	Risk	Priority	Treatments
194	Human Settlement	Residential	Rural Dwellings - Haines/Macgillivray	Bounded by Three Chain, Hog Bay, Birchmore, Seager's Rds	Gantheaume	Likely	Major	Very High	2A	
141	Human Settlement	Residential	Longview Rd	American River	Gantheaume	Likely	Major	Very High	2A	26
143	Human Settlement	Residential	American River Wharf	American River	Gantheaume	Likely	Major	Very High	2A	26
138	Human Settlement	Residential	American River Township	American River	Gantheaume	Likely	Major	Very High	2A	26
140	Human Settlement	Residential	Baudin Beach North	Baudin Beach	Dudley	Likely	Major	Very High	2A	26
191	Human Settlement	Residential	Rural Dwellings - Middle River East	North Coast Rd	North Coast	Likely	Major	Very High	2A	2
150	Human Settlement	Special Fire Protection	KI Bush Getaway (Karatta)	South Coast Road	West End	Likely	Major	Very High	2A	84;57;62;61
192	Human Settlement	Special Fire Protection	Roo Lagoon B&B and Gallery	Playford Highway	Parndana	Likely	Major	Very High	2A	2
164	Human Settlement	Special Fire Protection	Blue Hills Farmstay	Crabbs Road	Parndana	Likely	Major	Very High	2A	47;57;62;61
157	Human Settlement	Special Fire Protection	Stokes Bay Cabins	Stokes Bay off North Coast Road	North Coast	Likely	Major	Very High	2A	57;62;61
158	Economic	Agricultural	Lathami KI Vineyard	Stokes Bay Road	North Coast	Likely	Major	Very High	2A	
197	Economic	Agricultural	Chapman River Vineyard	Willoughby Rd, Antechamber Bay	Dudley	Likely	Major	Very High	2A	
159	Economic	Agricultural	Vineyard	Miller Road	North Coast	Likely	Major	Very High	2A	
160	Economic	Agricultural	Vineyard	Bark Hut Road (access)	North Coast	Likely	Major	Very High	2A	
195	Economic	Agricultural	Woolybud Vineyard	Playford Hwy, Parndana	North Coast	Likely	Major	Very High	2A	
170	Economic	Agricultural	False Cape Vineyard	Willson River/Black Point Roads	Dudley	Likely	Major	Very High	2A	
196	Economic	Agricultural	Kangaroo Island Estate Vineyard	Playford Hwy	North Coast	Likely	Major	Very High	2A	
181	Economic	Agricultural	Abbot's Vineyard	Birchmore Road	Menzies	Likely	Major	Very High	2A	
161	Economic	Agricultural	Islander Estate Vineyard	Bark Hut Road	North Coast	Likely	Major	Very High	2A	
180	Economic	Infrastructure	ETSA Substation (Macgillivray)	South Coast Road	Gantheaume	Likely	Major	Very High	2A	
151	Economic	Tourist and Recreational	Andermel Marron Farm	Harriet Road	Parndana	Likely	Major	Very High	2A	85;86;87;105;61
163	Economic	Tourist and Recreational	Seal Bay Visitor Centre	Seal Bay	Parndana	Likely	Major	Very High	2A	122;123
182	Economic	Commercial Forest	Vinkepas Plantation		Parndana	Likely	Major	Very High	2A	
145	Economic	Commercial Forest	Kelda Lea Plantation	Johncock Road/Tin Hut Road	North Coast	Likely	Major	Very High	2A	
146	Economic	Commercial Forest	Westmore Park Softwood Plantation	Johncock Road, North Coast Road	North Coast	Likely	Major	Very High	2A	
149	Economic	Commercial Forest	Alandale Hardwood Plantation	Coopers Road	North Coast	Likely	Major	Very High	2A	
147	Economic	Commercial Forest	Binnowie Hardwood Plantation	North Coast Road/Playford Highway	North Coast	Likely	Major	Very High	2A	
148	Economic	Commercial Forest	Roo Lagoon Softwood Plantation	Playford Highway	North Coast	Likely	Major	Very High	2A	
162	Economic	Commercial Forest	Kyalla Wide Spaced Softwood Plantation	Stokes Bay Road	North Coast	Likely	Major	Very High	2A	
155	Economic	Commercial Forest	MacGill's Hardwood Plantation	Playford Hwy/Turkey Lane/Tin Hut Rd	North Coast	Likely	Major	Very High	2A	
154	Economic	Commercial Forest	Martin Hardwood Plantation	Ahwans Road	North Coast	Likely	Major	Very High	2A	
153	Economic	Commercial Forest	Riley Hardwood Plantation	Tin Hut Road	North Coast	Likely	Major	Very High	2A	
152	Economic	Commercial Forest	Willmott's Hardwood Plantation	Playford Highway	North Coast	Likely	Major	Very High	2A	
156	Economic	Commercial Forest	Morlands Hardwood Plantation	Turkey Lane/Morgans Road	North Coast	Likely	Major	Very High	2A	
201	Environment	Endangered	Threatened Flora	Muston North	Gantheaume	Likely	Major	Very High	2A	
144	Cultural	Non Indigenous	Yacca Creeks Stupa	Yacca Creeks - Snug Cove Road	Cape Forbin	Likely	Major	Very High	2A	38;36;35;37;39;40;41;2
198	Cultural	Non Indigenous	Stokes Bay Hall	Stokes Bay Road	North Coast	Likely	Major	Very High	2A	105
199	Cultural	Non Indigenous	Birchmore Bowling Club	Birchmore Road	Menzies	Likely	Major	Very High	2A	105
200	Cultural	Non Indigenous	Pony and Go Kart Club	Birchmore Road	Gantheaume	Likely	Major	Very High	2A	105
187	Cultural	Non Indigenous	Duck Lagoon	Duck Lagoon Rd	Menzies	Likely	Major	Very High	2A	105
206	Human Settlement	Residential	Rural Dwellings Stokes Bay & Surrounds	Stokes Bay	North Coast	Possible	Catastrophic	Very High	2B	
203	Human Settlement	Residential	FCNP Ranger Residences	Rocky River	West End	Possible	Catastrophic	Very High	2B	129;130;2;104
208	Human Settlement	Residential	Rural Dwellings - North Coast Rd	North Coast Rd, Stokes Bay	North Coast	Possible	Catastrophic	Very High	2B	2
209	Human Settlement	Residential	D'Estrees Bay Shacks	Government Road, D'Estrees Bay	Gantheaume	Possible	Catastrophic	Very High	2B	128

ASSET REGISTER

Map reference number	Asset type	Asset sub type	Asset name	Asset Location	Display area	Likelihood	Consequence	Risk	Priority	Treatments
207	Human Settlement	Special Fire Protection	Chapman River Campgrounc	Champan River, Willoughby Rd	Dudley	Possible	Catastrophic	Very High	2B	127;25
202	Human Settlement	Special Fire Protection	West Bay Campground	West Bay	West End	Possible	Catastrophic	Very High	2B	
205	Human Settlement	Special Fire Protection	Cape du Couedic Cottages & Lighthouse	Cape due Couedic	West End	Possible	Catastrophic	Very High	2B	60;123;62;61
204	Economic	Infrastructure	Middle River Water Treatment Plant	Turkey Lane	North Coast	Possible	Catastrophic	Very High	2B	
210	Human Settlement	Special Fire Protection	Scotch College Camping Area	off Coleman's Road	Cape Forbin	Almost certain	Moderate	Very High	2C	60;62;61;59
211	Economic	Commercial	Vivonne Bay Store	South Coast Road, Vivonne Bay	Parndana	Almost certain	Moderate	Very High	2C	14;44;45;46
212	Economic	Tourist and Recreational	KI Outdoor Action	Vivonne Bay Road	Parndana	Almost certain	Moderate	Very High	2C	105;61
228	Human Settlement	Residential	Veldhoen's House	Bark Hut Rd	North Coast	Likely	Moderate	High	3A	
227	Human Settlement	Residential	Rural Dwellings - Stokes Bay South	West of SBay Rd, Playford Hwy, Turkey Lane	North Coast	Likely	Moderate	High	3A	
213	Human Settlement	Residential	Kingscote - Northern and Western Fringes	McLaren St, Seaview Rd, Karratta Tce, Vivonne Ave, Nepean Ave, to Lover's Lane	Menzies	Likely	Moderate	High	3A	26
226	Human Settlement	Residential	Rural Dwellings - Pelican Lagoon South	off Hog Bay Road	Dudley	Likely	Moderate	High	3A	
214	Human Settlement	Residential	Brownlow		Menzies	Likely	Moderate	High	3A	26
215	Human Settlement	Residential	Brownlow West	Northwest of Brownlow		Likely	Moderate	High	3A	26
216	Economic	Agricultural	Pattingale's Olive Grove	North Coast Road (access)	North Coast	Likely	Moderate	High	3A	
242	Economic	Agricultural	Modra's Eggs	Hungerford Road	Dudley	Likely	Moderate	High	3A	
230	Economic	Agricultural	Fryar's Egg Processing Facility	Hog Bay Road	Gantheaume	Likely	Moderate	High	3A	
217	Economic	Agricultural	Olive Grove	Bark Hut Road (access)	North Coast	Likely	Moderate	High	3A	
219	Economic	Agricultural	Trethewey's Processing Complex	McHugh's Road	Parndana	Likely	Moderate	High	3A	
243	Economic	Commercial	Greg Turner Transport	Birchmore Rd, Macgillivray	Parndana	Likely	Moderate	High	3A	
225	Economic	Commercial	Willson Transport	Hog Bay Road	Dudley	Likely	Moderate	High	3A	
232	Economic	Commercial	Peter Turner Transport	Hog Bay Rd	Gantheaume	Likely	Moderate	High	3A	
224	Economic	Infrastructure	Penneshaw Water Treatment Plant	Charing Cross Road/Hog Bay Roac	Dudley	Likely	Moderate	High	3A	
223	Economic	Infrastructure	KI Council Depot - Penneshaw	Willoughby Road	Dudley	Likely	Moderate	High	3A	
229	Economic	Infrastructure	Murray's Lagoon NPWS Depot	Seager's Road	Gantheaume	Likely	Moderate	High	3A	
218	Economic	Tourist and Recreational	Parndana Wildlife Park	Palyford Highway	North Coast	Likely	Moderate	High	3A	
231	Economic	Tourist and Recreational	Emu Ridge Eucalyptus Distillery	Willson's Road	Gantheaume	Likely	Moderate	High	3A	
234	Economic	Tourist and Recreational	Island Pure Sheep Dairy	Gum Creek Rd	Menzies	Likely	Moderate	High	3A	
235	Economic	Commercial Forest	Boxalls Softwood Plantation	Playford Hwy	Parndana	Likely	Moderate	High	3A	
241	Cultural	Non Indigenous	Bates Farmhouse	Penneshaw	Dudley	Likely	Moderate	High	3A	
222	Cultural	Non Indigenous	Former 'Hawk's Nest' Homestead	Seager's Road	Gantheaume	Likely	Moderate	High	3A	
221	Cultural	Non Indigenous	Former Faulding's Eucalyptus Plantation	Willson's Road	Gantheaume	Likely	Moderate	High	3A	
240	Cultural	Non Indigenous	Salt Lake Cottage	Hog Bay Rd Pelican Lagoon	Dudley	Likely	Moderate	High	3A	
220	Cultural	Non Indigenous	Majestic Plough	Timber Creek Road	Parndana	Likely	Moderate	High	3A	
236	Cultural	Non Indigenous	Eucalyptus Distillery & Dwelling	Cygnnet River	Menzies	Likely	Moderate	High	3A	
237	Cultural	Non Indigenous	Former School House	Cygnnet River	Menzies	Likely	Moderate	High	3A	
239	Cultural	Non Indigenous	Cottage - Pelican Lagoon	Pelican Lagoon	Dudley	Likely	Moderate	High	3A	
233	Cultural	Non Indigenous	Old Wisanger School	North Caost Rd	Menzies	Likely	Moderate	High	3A	
244	Cultural	Non Indigenous	Wisanger Sports Club	North Coast Road	Menzies	Likely	Moderate	High	3A	
238	Cultural	Non Indigenous	Former Post Office	Cygnnet River	Menzies	Likely	Moderate	High	3A	
259	Human Settlement	Residential	Rural Dwellings - Roper's Road South	Ropers Road (Cygnnet Park")'	Menzies	Possible	Major	High	3B	
258	Human Settlement	Residential	Rural Dwellings - Branch Creek Roac	Branch Creek Road	Menzies	Possible	Major	High	3B	

ASSET REGISTER

Map reference number	Asset type	Asset sub type	Asset name	Asset Location	Display area	Likelihood	Consequence	Risk	Priority	Treatments
257	Human Settlement	Residential	Rural Dwellings - Gum Creek Rd	Gum Creek Road	Menzies	Possible	Major	High	3B	
246	Human Settlement	Residential	Cygnnet River	Playford Hwy, Duck Lagoon, Gum Creek Rds	Menzies	Possible	Major	High	3B	26
245	Human Settlement	Residential	Emu Bay Township	Emu Bay	Menzies	Possible	Major	High	3B	26
261	Human Settlement	Residential	Rural Dwellings - Cape Dutton	North Coast Rd Cape Dutton	North Coast	Possible	Major	High	3B	
254	Human Settlement	Special Fire Protection	Highgate Farm House S/C Accom	Mount Taylor Road	Parndana	Possible	Major	High	3B	
250	Human Settlement	Special Fire Protection	Remarkable Rocks Boardwalk/Carpark	Remarkable Rocks	West End	Possible	Major	High	3B	25;131
252	Human Settlement	Special Fire Protection	Chapman's Cottages	Western River Road	North Coast	Possible	Major	High	3B	
251	Human Settlement	Special Fire Protection	Flinders Chase Farm	West End Highway	West End	Possible	Major	High	3B	29
264	Human Settlement	Special Fire Protection	Flinders Baudin Research Centre	Rocky River	West End	Possible	Major	High	3B	
265	Human Settlement	Special Fire Protection	Rocky River Accomodation	Rocky River	West End	Possible	Major	High	3B	
255	Human Settlement	Special Fire Protection	Stokes Bay Campground & Rockpool Cafe	Stokes Bay	North Coast	Possible	Major	High	3B	
247	Human Settlement	Special Fire Protection	Cape Borda Cottages and Lighthouse	Cape Borda	West End	Possible	Major	High	3B	55
249	Human Settlement	Special Fire Protection	Rocky River Campground	Rocky River	West End	Possible	Major	High	3B	25
263	Economic	Infrastructure	Telephone Exchange (Karatta)	South Coast Road, Karatta	West End	Possible	Major	High	3B	
266	Economic	Infrastructure	Telstra Mobile Tower & GRN Tower - East West 1	East West One Hwy (Harriet Rd end)	Parndana	Possible	Major	High	3B	
256	Economic	Infrastructure	Kingscote Airport	Arranmore Road	Menzies	Possible	Major	High	3B	
248	Economic	Tourist and Recreational	Rocky River Visitor Centre	Rocky River	West End	Possible	Major	High	3B	
253	Economic	Tourist and Recreational	Kelly Hills Visitor Centre	South Coast Road	West End	Possible	Major	High	3B	132
260	Cultural	Non Indigenous	Grassdale Homestead (Edward's Cottage)	Grassdale Rd, off South Coast Rd	West End	Possible	Major	High	3B	83
262	Cultural	Non Indigenous	Emu Bay Homestead	Emu Bay Rd Wisanger	Menzies	Possible	Major	High	3B	
275	Human Settlement	Residential	Rural Dwellings - Pebbly Beach	Off North Coast Rd	North Coast	Unlikely	Catastrophic	High	3C	
267	Human Settlement	Residential	Western Cove	Western Cove	Menzies	Unlikely	Catastrophic	High	3C	26;133;2;134
277	Human Settlement	Special Fire Protection	Moncrieff Bay and Surrounds	Willoughby Rd, Cape St Albans to Cape Willoughby	Dudley	Unlikely	Catastrophic	High	3C	
268	Human Settlement	Special Fire Protection	Harvey's Return Campgrounc	Borda Road	Cape Forbin	Unlikely	Catastrophic	High	3C	25
276	Human Settlement	Special Fire Protection	Kingscote Nepean Bay Tourist Park	Brownlow	Menzies	Unlikely	Catastrophic	High	3C	
269	Economic	Infrastructure	ETSA Substation (American River)	American River Rd	Gantheaume	Unlikely	Catastrophic	High	3C	
270	Economic	Infrastructure	American River - Comms Tower	American River Rd	Gantheaume	Unlikely	Catastrophic	High	3C	
274	Economic	Infrastructure	Radio Tower (Penneshaw)	Hog Bay Rd Penneshaw	Dudley	Unlikely	Catastrophic	High	3C	
272	Economic	Infrastructure	Kingscote - Comms Tower	Seaview Rd Kingscote	Menzies	Unlikely	Catastrophic	High	3C	
271	Economic	Infrastructure	Kingscote - Comms Tower	Seaview Rd Kingscote	Menzies	Unlikely	Catastrophic	High	3C	
273	Economic	Infrastructure	ETSA Substation (Kingscote)	Tinsmith Rd Kingscote	Menzies	Unlikely	Catastrophic	High	3C	
280	Economic	Infrastructure	Vivonne Crayfish Depot	Adjacent Vivonne Bay Store	Parndana	Almost certain	Minor	High	3D	
281	Economic	Infrastructure	Vivonne Bay Transfer Station	Vivonne Bay Rd	Parndana	Almost certain	Minor	High	3D	
285	Economic	Infrastructure	Fuel Storage - Pt Ellen	Vivonne Bay Road	Parndana	Almost certain	Minor	High	3D	
279	Economic	Tourist and Recreational	Raptor Domain	KI Eco Adventures Vivonne Bay	Parndana	Almost certain	Minor	High	3D	
282	Economic	Commercial Forest	Riggs Hardwood Plantation	Gosse Ritchie Rd	West End	Almost certain	Minor	High	3D	
284	Economic	Commercial Forest	Riverleas Hardwood Plantation	North Coast Rd	North Coast	Almost certain	Minor	High	3D	
283	Economic	Commercial Forest	Benneys Hardwood Plantation	Playford Hwy, North Coast Rd	Cape Forbin	Almost certain	Minor	High	3D	
286	Cultural	Non Indigenous	Parndana Golf Club	Playford Hwy, Parndana	North Coast	Almost certain	Minor	High	3D	
278	Cultural	Non Indigenous	Western River Homestead	Western River Road	Cape Forbin	Almost certain	Minor	High	3D	
310	Human Settlement	Residential	Rural Dwellings - Min Oil Rd	Nth Hog Bay, Wallers, East of Boundary Rds	Gantheaume	Unlikely	Major	Medium	4	

Map reference number	Asset type	Asset sub type	Asset name	Asset Location	Display area	Likelihood	Consequence	Risk	Priority	Treatments
321	Human Settlement	Residential	Rural Dwellings - Cygnet River East	Playford Hwy, Shell Track	Menzies	Unlikely	Major	Medium	4	
309	Human Settlement	Residential	Rural Dwellings - Redbanks Roac	Redbanks Rd and surrounds	Gantheaume	Unlikely	Major	Medium	4	
311	Human Settlement	Residential	Rural Dwellings - Western Cove	Hog Bay Rd ,Wallers Rd	Menzies	Unlikely	Major	Medium	4	
329	Human Settlement	Residential	Allambi Land Division	off Willoughby Road	Dudley	Likely	Minor	Medium	4	26
290	Human Settlement	Residential	Kingscote South		Menzies	Unlikely	Major	Medium	4	26
330	Human Settlement	Residential	Rural Dwellings - American River North	check road name	Gantheaume	Unlikely	Major	Medium	4	
287	Human Settlement	Residential	Kingscote West	Residences West of Kingscote	Menzies	Unlikely	Major	Medium	4	26
288	Human Settlement	Residential	Penneshaw Beach	Penneshaw	Dudley	Unlikely	Major	Medium	4	26
312	Human Settlement	Special Fire Protection	Nepean Bay Getaway	Min Oil Rd	Menzies	Unlikely	Major	Medium	4	
337	Human Settlement	Special Fire Protection	Cape Willoughby Precinct	Cape Willoughby Road	Dudley	Unlikely	Major	Medium	4	
293	Human Settlement	Special Fire Protection	Cape du Couedic Boardwalk/Carpark	Cape du Couedic	West End	Unlikely	Major	Medium	4	25
323	Human Settlement	Special Fire Protection	Dudley Villa	Cnr Charing Cross Rd Hog Bay Rc	Dudley	Unlikely	Major	Medium	4	
320	Human Settlement	Special Fire Protection	Wisteria Lodge	Brownlow Rd, Kingscote	Menzies	Unlikely	Major	Medium	4	
296	Economic	Agricultural	Mumford's Feedlot	Morgan's Road	North Coast	Likely	Minor	Medium	4	
334	Economic	Agricultural	Florance Wines Vineyard	Gap Road	Menzies	Unlikely	Major	Medium	4	
297	Economic	Agricultural	MacGill's Spud Shed	Turkey Lane	North Coast	Likely	Minor	Medium	4	
302	Economic	Agricultural	Marron Ponds	Playford Highway	Parndana	Likely	Minor	Medium	4	
308	Economic	Agricultural	Clifford's Honey Farm	Elsegood (Hundred Line) Rc	Gantheaume	Likely	Minor	Medium	4	
315	Economic	Agricultural	Springs Rd Vineyard	Springs Rd	Menzies	Unlikely	Major	Medium	4	
300	Economic	Agricultural	Marron Ponds	Wetherall's Road	North Coast	Likely	Minor	Medium	4	
301	Economic	Agricultural	Horse Stud	Stokes Bay Road	North Coast	Likely	Minor	Medium	4	
317	Economic	Agricultural	Feedlot	Off Playford Hwy	Parndana	Likely	Minor	Medium	4	
313	Economic	Agricultural	Cape D'Estaing	Gap Rd/North Coast Rd	Menzies	Unlikely	Major	Medium	4	
289	Economic	Agricultural	Bay of Shoals Winery/Vineyard	Bay of Shoals	Menzies	Unlikely	Major	Medium	4	
305	Economic	Commercial	Carey's Depot	off Hog Bay Road	Dudley	Likely	Minor	Medium	4	
303	Economic	Commercial	Carey's Store	Island Beach	Dudley	Likely	Minor	Medium	4	
291	Economic	Infrastructure	Parndana Super Shed	Parndana	North Coast	Likely	Minor	Medium	4	24
319	Economic	Infrastructure	Penneshaw Transfer Station	Willoughby Rd	Dudley	Likely	Minor	Medium	4	
332	Economic	Infrastructure	Telephone Exchange (American River)	Redbanks Road	Gantheaume	Unlikely	Major	Medium	4	
316	Economic	Infrastructure	ABB Grain Silos	Aranmore Rd	Menzies	Unlikely	Major	Medium	4	
314	Economic	Infrastructure	GRN Tower - Retties Bluff	Off North Coast Rd	Menzies	Unlikely	Major	Medium	4	
292	Economic	Infrastructure	Rocky River NPWS Depot	Rocky River	West End	Possible	Moderate	Medium	4	
331	Economic	Infrastructure	Telephone Exchange (Wisanger)	Gap Road	Menzies	Unlikely	Major	Medium	4	
318	Economic	Infrastructure	Parndana Transfer Station	Playford Hwy, Parndana	North Coast	Likely	Minor	Medium	4	24
307	Economic	Infrastructure	ETSA Substation (Cuttlefish Bay)	off Willoughby Road	Dudley	Unlikely	Major	Medium	4	
333	Economic	Infrastructure	GRN Tower - Penneshaw	Ian Road	Dudley	Unlikely	Major	Medium	4	
295	Economic	Tourist and Recreational	Stokes Bay Bush Garden	Stokes Bay Road	North Coast	Likely	Minor	Medium	4	
294	Economic	Tourist and Recreational	Rustic Blue Gallery	South Coast Road	Parndana	Likely	Minor	Medium	4	
299	Economic	Tourist and Recreational	Paul's Place Wildlife Sanctuary	Off Stokes Bay Road	North Coast	Likely	Minor	Medium	4	
298	Economic	Tourist and Recreational	Rare Breeds Farm	North Coast Road	North Coast	Likely	Minor	Medium	4	
0	Economic	Tourist and Recreational	Antechamber Bay Day Visitor Area	off Lashmar Road		Possible	Moderate	Medium	4	
306	Economic	Tourist and Recreational	Sunset Winery	Hog Bay Road	Dudley	Likely	Minor	Medium	4	

ASSET REGISTER

Map reference number	Asset type	Asset sub type	Asset name	Asset Location	Display area	Likelihood	Consequence	Risk	Priority	Treatments
304	Economic	Tourist and Recreational	Stonor Studios	Hog Bay Road	Dudley	Likely	Minor	Medium	4	
336	Economic	Tourist and Recreational	Prospect Hill Boardwalk	Hog Bay Road	Gantheaume	Likely	Minor	Medium	4	
322	Economic	Commercial Forest	Wyndemar Hardwood Plantation	Rowland Hill Hwy	Parndana	Likely	Minor	Medium	4	
338	Cultural	Aboriginal Significance	Aboriginal Heritage Sites	Rocky River area	West End	Possible	Moderate	Medium	4	
335	Cultural	Non Indigenous	David Kirkpatrick's Grave	near Snake Lagoon, FCNP	West End	Possible	Moderate	Medium	4	
325	Cultural	Non Indigenous	Ruin - Tilka	Duck Lagoon Rd	Menzies	Unlikely	Major	Medium	4	
326	Cultural	Non Indigenous	Eucalyptus Distillery	Duck Lagoon Rd	Menzies	Unlikely	Major	Medium	4	
324	Cultural	Non Indigenous	Ruin - North Coast Rd	North Coast Rd Wisanger	Menzies	Unlikely	Major	Medium	4	
327	Cultural	Non Indigenous	Former School	North Coast Rd Bay of Shoals	Menzies	Unlikely	Major	Medium	4	
328	Cultural	Non Indigenous	Reeves Point	Kingscote	Menzies	Unlikely	Major	Medium	4	
354	Human Settlement	Residential	Kingscote Rural Living (Brownlow Area)	Playford Hwy, Burdon Dve	Menzies	Unlikely	Moderate	Low	NA	26
353	Human Settlement	Residential	Kingscote Rural Living	Playford Highway, Bullock Track	Menzies	Unlikely	Moderate	Low	NA	26
339	Human Settlement	Residential	Penneshaw West	Penneshaw	Dudley	Unlikely	Moderate	Low	NA	26
340	Human Settlement	Residential	Kingscote Township	Kingscote	Menzies	Unlikely	Moderate	Low	NA	26
345	Human Settlement	Special Fire Protection	Stranraer Homestead B&B	Cnr Wheaton's, Lade's and Wattle Roads	Gantheaume	Unlikely	Moderate	Low	NA	
356	Human Settlement	Special Fire Protection	Fillmore's Lombardy	North Coast Rd	Menzies	Unlikely	Moderate	Low	NA	
346	Economic	Agricultural	Abalone Farm	Smiths Bay	North Coast	Unlikely	Moderate	Low	NA	
349	Economic	Commercial	KI Abbatoirs	North Coast Rd	Menzies	Unlikely	Minor	Low	NA	
355	Economic	Commercial	Duffy 's Earthworks Depot	Willoughby Rd	Dudley	Unlikely	Moderate	Low	NA	
344	Economic	Infrastructure	SA Water Penneshaw Desalination Plant	off William Walkers Way	Dudley	Unlikely	Moderate	Low	NA	
357	Economic	Infrastructure	American River Waste Transfer	Redbanks Rd American River	Gantheaume	Unlikely	Minor	Low	NA	
348	Economic	Infrastructure	KI Resource Recovery Centre	North Coast RD	Menzies	Unlikely	Moderate	Low	NA	
350	Economic	Infrastructure	Kingscote Depot	Acacia Drive	Menzies	Unlikely	Moderate	Low	NA	
352	Economic	Infrastructure	SA Water	Karatta Tce, Kingscote	Menzies	Unlikely	Minor	Low	NA	
351	Economic	Infrastructure	ABB Grain Silo	Karatta Tce	Menzies	Unlikely	Minor	Low	NA	
347	Economic	Tourist and Recreational	Emu Bay Lavender Farm	Emu Bay Rd	Menzies	Unlikely	Minor	Low	NA	
367	Economic	Tourist and Recreational	Birchmore Lavender Farm	Cnr Birchmore Rd & Bomb Alley	Menzies	Unlikely	Moderate	Low	NA	
365	Cultural	Non Indigenous	Brakenmore Pug & Softwood cottage	Wilson River Rd, Dudley East	Dudley	Unlikely	Moderate	Low	NA	
368	Cultural	Non Indigenous	Lashmar Gravesite	Lashmar Road	Dudley	Unlikely	Moderate	Low	NA	
366	Cultural	Non Indigenous	Dwelling - Rock villa	Hog Bay Rd	Dudley	Unlikely	Moderate	Low	NA	
358	Cultural	Non Indigenous	Harveys Return Landing Site	Borda Rd	Cape Forbin	Unlikely	Moderate	Low	NA	
369	Cultural	Non Indigenous	Kingscote Golf Club	Links Road, Brownlow	Menzies	Unlikely	Minor	Low	NA	
343	Cultural	Non Indigenous	Bale's Hut Ruin	Bales Bay	Parndana	Possible	Minor	Low	NA	
359	Cultural	Non Indigenous	Ruin - Hawk's Nest Homestead	Seagers Rd	Gantheaume	Unlikely	Minor	Low	NA	
363	Cultural	Non Indigenous	Ruin - Arranmore Rd	Arranmore Rd	Menzies	Unlikely	Moderate	Low	NA	
361	Cultural	Non Indigenous	Ruin - Dover Farm	North Coast Rd Kingscote	Menzies	Unlikely	Moderate	Low	NA	
342	Cultural	Non Indigenous	Weir's Cove	Weir's Cove	West End	Unlikely	Moderate	Low	NA	
362	Cultural	Non Indigenous	Ruin - Eucalyptus Distillery	North Coast Rd	Menzies	Unlikely	Moderate	Low	NA	
341	Cultural	Non Indigenous	Cape Borda Cemetery	Borda Road	Cape Forbin	Unlikely	Moderate	Low	NA	
364	Cultural	Non Indigenous	Dwelling - Hope Cottage	Centenary Ave Kingscote	Menzies	Unlikely	Moderate	Low	NA	
360	Cultural	Non Indigenous	Emu Bay Cemetary	Emu Bay	Menzies	Unlikely	Moderate	Low	NA	

Appendix 4 - Treatment Register

Treatment Ref No	Strategy	Priority	Action	Comment	Responsible Agency	Support Agency	Asset Ref Nos
1	Preparedness	1A	GAFLC Standard track on E side D'Estrees Stlmt	Maintain GAFLC Standard fire access track on eastern edge of D'Estrees Bay Settlement adjacent M. Lovering property	KIC	Private	8
2	Community Education	1A	Bushfire Survival Planning	Inform landholders of property preparedness exemptions and encourage bushfire action planning	CFS	KIC	31;105;30;33;8;4;9;2;1;39;37;36;48;49;50;51;55;106;107;108;102;104;125;203;118;119;120;128;12;45;191;208;7;6;3;32;40;52;41;47;38;165;10;59;192;144;267
3	Hazard Reduction	1A	Prescribed burn, grass slashing	Prescribed Land Management Zone burn in Lashmar scrub 09/10; annual grass slashing in Buffer Zone	DEH	CFS	26
4	Hazard Reduction	1A	APZ (Zone 67) fuel modified area	APZ (Zone 67) 50m fuel modified	Private		16
5	Preparedness	1A	SOL entrance upgraded to GAFLC Major track	Upgrade SOL entrance track to Major GAFLC standard	Private		16
6	Preparedness	1A	Hanson Bay Rd upgraded to GAFLC Major track	Upgrade Hanson Bay Road to GAFLC Major track standard	KIC		15
7	Preparedness	1A	BBZ (Zone 148) Prescribed burn Hanson Bay Rd	BBZ (Zone 148) Undertake 100m prescribed burn on western side of Hanson Bay Road	DEH	KIC	7
8	Preparedness	1A	Mitchell Drive upgraded to GAFLC Major track	Upgrade Mitchell Drive to GAFLC Major Track standard	KIC		2;3
9	Preparedness	1A	BBZ (Zone 71) Maintain 15m fire break	BBZ (Zone 71) Maintain 15m break along Mad Mile SWER line	Private	ETSA	2;3;48;36;37;39;1
10	Hazard Reduction	1A	BBZ (Zone 69) Prescribed burn in roadside vegetation	BBZ (Zone 69) Prescribed burn on corner of EW and Hog Bay R	CFS	KIC	1
11	Hazard Reduction	1A	APZ (Zone 58) around Viv Eco Adventures complex	APZ (Zone 58) Fuel modification within a radius of 100m of Vivonne Eco Adventures complex	Private		5
12	Hazard Reduction	1A	20m fire break along D'Estrees Bay Rd	Clear and maintain 17m break along D'Estrees Bay Road	DEH;KIC	Private;CFS	8
13	Hazard Reduction	1A	BBZ (Zone 57) on western side of township	BBZ (Zone 57) Prescribed burn between SWER line and Vivonne Bay R	CFS	KIC;Private	4
14	Hazard Reduction	1A	APZ (Zone 54) Prescribed burn north of township	APZ (Zone 54) Prescribed burn in roadside vegetation on South Coast R	CFS	KIC	4;211
15	Preparedness	1A	APZ (Zone 55) Fire track on SW edge	APZ (Zone 55) Maintain 15m fire track on SW side of Vivonne Bay Eco Adventures	Other	Private	4
16	Hazard Reduction	1A	APZ (Zone 62) to 100m around dwellings in road reserve	APZ (Zone 62) Hydroaxe road reserve to 10m	KIC	DEH;CFS	9
17	Hazard Reduction	1A	APZ (Zone 60) to 60m around campground	APZ (Zone 60) Fuel modified area to 60m around campground	KIC	CFS	23
18	Hazard Reduction	1A	BBZ (Zone 59) Prescribed burn	BBZ (Zone 59) Prescribed burn on vacant allotment in township	CFS	CFS	4
19	Hazard Reduction	1A	APZ (Zone 72) 60m on northern side of stlmt	APZ (Zone 72) Fuel modified zone to 60m	Private		7;15
20	Preparedness	1A	Hanson Bay Rd upgraded to GAFLC Major track	Hydroaxe southernmost 500m of Hanson Bay Rd to upgrade to GAFLC Major Track Standard	KIC		7
21	Hazard Reduction	1A	BBZ (Zone 30) Prescribed burn Lot 84	BBZ (Zone 30) Prescribed burn in Lot 84	CFS	KIC	6
22	Hazard Reduction	1A	APZ (Zones 31 and 32) Prescribed burn Lots 96 & 97	APZ (Zones 31 and 32) Prescribed burn in Lots 96 and 97	DEH	CFS	6
23	Hazard Reduction	1A	LMZ (Zone 33) Prescribed burn Lot 7 Playford Hwy	LMZ (Zone 33) Mosaic burn on Lot 7	CFS	Private	6;52;10
24	Hazard Reduction	1A	APZ (Zone 27) to boundary of s.82, Seddon	APZ (Zone 27) Fuel modification to boundary of s.82, H. Seddon	KIC	Private	291;318;6;10
25	Preparedness	1A	Prepare evacuation plan	Prepare incident evacuation plan for campground/day visitor area	Other	CFS	34;11;13;23;25;207;249;250;268;293;35
26	Hazard Reduction	1A	s.83 compliance programme annually	Undertake s.83 compliance programme on an annual basis	KIC	Other	40;41;137;339;340;354;353;288;287;329;290;42;267;141;140;214;246;245;215;213;138;143;171;142;6;52
27	Hazard Reduction	1A	s.83 compliance programme biennially	Undertake s.83 compliance programme biennially (every second year)	KIC	Other	8;4;9;3;2;45;1;39
28	Hazard Reduction	1A	BBZ (Zones 118 & 155) along Sanderson Track	BBZ (Zones 118 & 155) 1km BBZ along Sanderson Track, incorporating 17m APZ on western side	DEH	KIC	80;20;14;74;16;15;7
29	Hazard Reduction	1A	BBZ (Zones 117 & 118) along West End Hwy	BBZ (Zones 117 & 118) Maintain along West End Hwy	DEH		251;71;72;126;73;105;20;80;14;74
30	Hazard Reduction	1A	BBZ (Zone 150) on Kelly Hills CP adjacent bndry	BBZ (Zone 150) maintained in Kelly Hills CP adjacent DECS property boundary	DEH	DECS	128;17
31	Hazard Reduction	1A	LMZ (Zone 97) Estn bndry Cape Torns WPA	LMZ (Zone 97) prescribed burn eastern boundary of Cape Torrens WPA	DEH		106;12
32	Hazard Reduction	1A	BBZ (Zone 98) Estn bndry Cape Trns WPA	BBZ (Zone 98) Eastern boundary of Cape Torrens WPA	DEH		106;12
33	Hazard Reduction	1A	LMZ (Zone 94) Prescribed burn	LMZ (Zone 94) prescribed burn in HA on Lot 52, Hd Borda (approved within CFIFMP)	CFS	DEH;Private	106;12
34	Hazard Reduction	1A	BBZ (Zone 95) Prescribed burn adj SW bndry De Mole estates	BBZ (Zone 95) prescribed burn SW corner of De Mole estates adjacent Lot 52, Hd Borda	DEH	Private;CFS	106;12
35	Hazard Reduction	1A	BBZ (Zone 100) Prescribed burn De Mole Estates	BBZ (Zone 100) prescribed burn eastern section De Mole Estates	CFS	DEH;Private	12;144;18
36	Hazard Reduction	1A	LMZ (Zone 99) E section De Mole estates	LMZ (Zone 99) eastern section De Mole estates adjacent BBZ (Zone 100)	CFS	DEH;Private	12;144;18
37	Hazard Reduction	1A	LMZ (Zone 102) Prescribed burn NE cnr De Mole Estates	LMZ (Zone 102) prescribed burn NE corner De Mole estates	CFS	DEH;Private	12;144;18
38	Hazard Reduction	1A	BBZ (Zone 96) nthn bndry FCNP	BBZ (Zone 96) along northern boundary of FCNP adjacent Borda Rd, incorporating 17m APZ adjacent Borda R	DEH	KIC	12;62;144;18
39	Hazard Reduction	1A	LMZ (Zone 103) E of De Mole estates	LMZ (Zone 103) east of De Mole estates	CFS	DEH;Private	144;18
40	Hazard Reduction	1A	BBZ (Zone 105) Prescribed burn adj Snug Cove R	BBZ (Zone 105) prescribed burn adjacent s.23, Hd Borda on Snug Cove Road	CFS	DEH;Private	144;18;120;65;66;67;68
41	Hazard Reduction	1A	BBZ (Zone 107) Prescribed burn Snug Cove R	BBZ (Zone 107) prescribed burn adjacent Snug Cove Rd, roadside vegetation adjacent Lot 2, Hd Borda	CFS	KIC	144;18;120;65;66;67;68
42	Hazard Reduction	1A	BBZ (Zone 112) Prescribed burn	BBZ (Zone 112) prescribed burn in drainage line on Nadebaum's	CFS	Private	100;21
43	Hazard Reduction	1A	BBZ (Zone 113) Prescribed burn	BBZ (Zone 113) prescribed burn in drainage line on SW corner of Nadebaum's	CFS	Private	100;21
44	Hazard Reduction	1A	LMZ (Zone 76) Prescribed burn	LMZ (Zone 76) prescribed burn in drainage line ss.18 and 65, Hd Newland	CFS	Private	102;119;4;5;211
45	Hazard Reduction	1A	LMZ (Zone 79) Prescribed burn	LMZ (Zone 79) prescribed burn drainage line s.65, Hd Newland	CFS	Private	102;119;4;5;211

Treatment Ref No	Strategy	Priority	Action	Comment	Responsible Agency	Support Agency	Asset Ref Nos
46	Hazard Reduction	1A	BBZ (Zones 77, 78) prescribed burn	BBZ (Zones 77, 78) prescribed burn drainage line s.65, Hd Newland	CFS	Private	102;119;4;211
47	Hazard Reduction	1A	BBZ (Zone 14) Prescribed burn in roadside vegetation	BBZ (Zone 14) prescribed burn roadside vegetation, EW2 between Crabbs and Hickmans Road	CFS	KIC	164;22
48	Hazard Reduction	1A	BBZ (Zone 13) Prescribed burn in roadside vegetation	BBZ (Zone 13) prescribed burn in roadside vegetation Timber Creek Road between EW1 and Rowland Hill Hwy	CFS	Private	24
49	Hazard Reduction	1A	BBZ (Zone 46) Prescribed Burn	BBZ (Zone 46) prescribed burn on part ss. 27 and 79, Hd Duncan	SAW	Private;CFS	173;27
50	Hazard Reduction	1A	APZ (Zone 38) Roadside fire break North Coast Rd	APZ (Zone 38) 17m roadside firebreak along southern side of North Coast Rd, boundary of Latham CF	DEH	KIC	118;176;190;29;54
51	Hazard Reduction	1A	LMZ (Zone 37) Prescribed burn Latham CP	LMZ (Zone 37) Prescribed burn Latham CP adjacent boundary north of North Coast Road	DEH		118;176;190;29;54
52	Hazard Reduction	1A	LMZ (Zone 162) Prescribed burn	LMZ (162) Prescribed burn drainage line Lot 5, Hd McDonald (Church Rd	CFS	CFS	105;80;20;14;73;75;76;85
53	Community Education	1A	Bushfire Action Planning workshops	Hold workshops with residents to assist in development of Bushfire Action Plans and property preparation	CFS	KIC	31;38;12;8;9;4;6;2;32;1;33;30;45;52;40;41;39;47;37;36;48;49;50;51;106;107;108;137;104;125;118;119;120;128;15;18;59
54	Community Education	1A	Target off Island landholders	Provide annual correspondence to landholders advising of land management responsibilities under Act	KIC	CFS	12;8;9;4;3;2;31;32;1;33;30;45;41;39;47;37;36;48;49;107;118;59
55	Community Education	1A	Community Information booth/signage	Investigate development of an information booth including high fire danger area signage and AFAC guidelines regarding being in a vehicle during a bushfire - at entrance to high risk area	DEH;KIC;CFS		34;247
56	Property Planning	1A	Prepare structures for bushfire threat	Retro fitting of dwellings to improve resilience to bushfires.	Private	CFS	3;12;8;9;4;7;6;2;31;32;33;30;45;52;47;37;36;48;49;55;106;107;108;137;104;125;118;119;120;128;14;15;17;20;59;53;54;18
57	Community Education	1A	Target self contained tourism operators	Facilities providing visitor accommodation are encouraged to prepare a Bushfire Action Plan & ensure it is brought to the attention of guests.	CFS;Private	DEH;KIC	81;8;4;9;2;31;1;45;41;39;47;36;49;50;107;108;118;15;17;18;19;20;5;26;27;28;60;53;54;58;59;117;150;157;164;12;7;137
58	Community Education	1A	Education programmes for school students	Community education programmes for children delivered at schools; actively promote and encourage CFS cadet programmes.	CFS	DECS	10
59	Community Education	1A	Annual liaison by DEH with neighbours	Annual liaison by DEH with neighbouring landholders regarding fire management issues prior to commencement of FDS	DEH	Private	15;8;47;48;12;33;30;106;107;108;102;105;125;128;14;17;210
60	Preparedness	1A	Target staffed tourism accommodation	Facilities that provide visitor accommodation prepare a Bushfire Survival Plan including an emergency response plan & ensure that all staff are trained in emergency procedures.	CFS	KIC, Private	29;16;80;14;205;210;137
61	Preparedness	1A	Visitor info provided on Total Fire Ban days	Emergency information to be provided to visitors and accommodation guests on Total Fire Ban days	DEH, Private, KIC	CFS	20;5;9;8;4;12;7;2;31;1;45;41;39;47;36;49;50;107;108;118;137;14;15;16;17;18;19;26;27;28;29;60;53;54;58;59;80;81;117;150;157;164;205;210;103;151;212
62	Preparedness	1A	Tourism accommodation preparedness	Inspect accommodation premises to ensure compliance with property preparedness including BAP, visitor information.	CFS	KIC, Private	20;5;80;8;4;9;12;7;2;31;1;45;41;39;47;36;49;50;107;108;118;137;14;15;16;17;18;19;26;27;28;29;60;53;54;58;59;81;117;150;157;164;205;210
63	Preparedness	1A	GAFLC Standard fire track on boundary of Lot 2, Newland	Upgrade boundary track between Lot 2 and Lot 6, Hd Newland to GAFLC Standard Fire Access Track	Other	Private	4
64	Hazard Reduction	1A	APZ (Zone 167) fuel modification around complex	APZ (Zone 167) fuel modification to 100m radius around KI Wilderness Retreat complex	Private		14
65	Hazard Reduction	1A	APZ (Zone 178) Roadside fire break Cape Hart Rd	APZ (Zone 178) 17m firebreak including road reserve on eastern side of Cape Hart Road	DEH	Other;Private	31
66	Hazard Reduction	1A	BBZ (Zone 179) 6 Mile Lagoon fire break	BBZ (Zone 179) 50m fire break (cut during Dec '07 fires) maintained to minimum width of 20m on 6 Mile Lagoon property	Private	Other	4
67	Preparedness	1A	GAFLC Standard track SOL E/W boundary	Hydroaxe GAFLC standard track along E/W property boundary	Private		16
68	Preparedness	1A	GAFLC Standard track along SOL N/S boundary	Hydroaxe GAFLC Standard track along N/S property boundary	Private		16
69	Preparedness	1A	GAFLC Major track maintained on Sanctuary Track	Hydroaxe Sanctuary Track (E/W boundary) to GAFLC Major track	Private		15;20
70	Preparedness	1A	GAFLC Standard track on Hanson Bay Sanctuary N/S boundary	Hydroaxe GAFLC Standard track on N/S boundary, Lot 8, Hd McDonald	Private		15;20
71	Hazard Reduction	1B	BBZ (Zone 70) Prescribed burn in roadside vegetation	BBZ (Zone 70) Prescribed burn in roadside vegetation on Hog Bay Rd	CFS	KIC	41
72	Hazard Reduction	1B	BBZ (Zone 17) Prescribed burn Binneys Track	BBZ (Zone 17) Prescribed burn in roadside vegetation along Binneys Track. Note hydroaxe works may be required to achieve suitable burn.	CFS	KIC	40;142
73	Hazard Reduction	1B	LMZ (Zone 18) Prescribed burn Baudin CP	LMZ (Zone 18) Prescribed burn in Baudin CP	DEH	CFS	40
74	Hazard Reduction	1B	LMZ (Zone 19) Prescribed burn Baudin CP	LMZ (Zone 19) Prescribed burn in Baudin CP	DEH	CFS	40
75	Hazard Reduction	1B	BBZ (Zone 82) Prescribed burn	BBZ (Zone 82) Prescribed burn for hazard reduction	CFS	Private	40
76	Hazard Reduction	1B	LMZ (Zone 81) Prescribed burn in Baudin CP	LMZ (Zone 81) Prescribed burn along drainage line in Baudin CF	DEH	CFS	40

Treatment Ref No	Strategy	Priority	Action	Comment	Responsible Agency	Support Agency	Asset Ref Nos
77	Property Planning	1B	50m setback from Binney's Track	50m setback from property boundary adjacent Binney's Track - discretionary condition of development approval for proposed new dwellings along Binney's Track	KIC	Private	40
78	Preparedness	1B	Trethewey Tce upgraded to GAFLC Major track	Upgrade Trethewey Tce to GAFLC Major Fire Access Tracks	KIC	Other	40
79	Hazard Reduction	1B	Currawong Ave upgraded to GAFLC Standard track	Upgrade Currawong Ave to GAFLC Standard Fire Track	KIC	Other	40
80	Hazard Reduction	1C	BBZ (Zone 74) Prescribed burn, Wingara Plantation	BBZ (Zone 74) Prescribed burn Wingara plantation drainage line	CFS	Private	105;80;85
81	Hazard Reduction	1C	LMZ (Zone 75) Prescribed burn, s.20, Hd Ritchie	LMZ (Zone 75) Prescribed burn, following BBZ burn in Zone 74, on s.20, Hd Ritchie	CFS	Private	105;80;85
82	Hazard Reduction	1C	BBZ (Zone 147) Southern Boundary Gosselands	BBZ (Zone 147) Maintain along southern boundary of Gosselands	DEH		98;75;76;79;81;105
83	Hazard Reduction	1C	BBZ (Zone 148) NW boundary of Kelly Hills CP	BBZ (Zone 148) on western and northern boundary of Kelly Hills CP	DEH		260;76
84	Hazard Reduction	1C	BBZ (Zones 150 & 154) Nthn Bndry Kelly Hills CP	BBZ (Zones 150 & 154) along northern boundary of Kelly Hills CP to 40m	DEH		77;78;79;82;86;150;84;108
85	Hazard Reduction	1C	BBZ (Zones 8, 114, 146) East Gosselands	BBZ (Zones 8, 114, 146) maintained around East Gosselands boundary	DEH		122;83;94;95;96;121;123;91;89;88;87;93;92;90;69;151
86	Hazard Reduction	1C	LMZ (Zone 83) Prescribed burn East Gosselands	LMZ (Zone 83) Prescribed burn in East Gosselands	DEH		122;83;94;95;96;121;123;91;89;88;87;93;92;90;69;151
87	Hazard Reduction	1C	BBZ (Zone 8) prescribed burn East Gosselands	BBZ (Zone 8) prescribed burn East Gosselands boundary	Private	DEH	89;88;87;93;92;90;69;151
88	Hazard Reduction	1C	BBZ (Zones 92, 93) Northern Boundary FCNP	BBZ (Zones 92 & 93) Maintain on northern boundary of FCNP including 17m APZ against Borda Road	DEH	KIC	125
89	Hazard Reduction	1C	BBZ (Zone 91) Prescribed burn	BBZ (Zone 91) Prescribed burn in drainage line wick	CFS	Private	125
90	Hazard Reduction	1C	BBZ (Zones 88, 89) sthn bndry Cape Trns WPA	BBZ (Zones 88,89) prescribed burn on southern boundary of Cape Torrens WPA	DEH	Private;CFS	125;63;64
91	Hazard Reduction	1C	LMZ (Zone 87) prescribed burn Cape Torrens WPA	LMZ (Zone 87) prescribed burn in Cape Torrens WPA north of Borda Park	DEH		125;63;64
92	Hazard Reduction	1C	BBZ (Zone 93) Nthn bndry FCNP	BBZ (Zone 93) along northern boundary of FCNP adjacent Borda Rd, incorporating 20m APZ adjacent Borda Road	DEH		63;64
93	Hazard Reduction	1C	BBZ (Zone 90) Prescribed burn	BBZ (Zone 90) prescribed burn in drainage line on Lycurgus plantation	CFS	Private	64;63
94	Hazard Reduction	1C	BBZ (Zone 104) Prescribed burn SW bndry W River WPA	BBZ (Zone 104) prescribed burn SW boundary Western River WPA	DEH		120;65;66;67;68
95	Hazard Reduction	1C	BBZ (Zone 108) Prescribed burn S bndry W River WPA	BBZ (Zone 108) prescribed burn southern boundary Western River WPA	DEH	Private;CFS	120;65;66;67;68
96	Hazard Reduction	1C	BBZ (Zone 110) Prescribed burn	BBZ (Zone 110) prescribed burn drainage line wick Lot 52, Sheridan Rd, Hd Gosse	CFS	DEH;Private	120;65;66;67;68
97	Hazard Reduction	1C	BBZ (Zone 114) Nthn bndry Gosselands	BBZ (Zone 114) along northern boundary of Gosselands adjacent Playford Hwy/Borda Rd	DEH	KIC	100;99;66;67;62
98	Hazard Reduction	1C	BBZ (Zone 111) Prescribed burn	BBZ (Zone 111) prescribed burn in drainage line on Lot 11, Berrymans Rd, Hd Gosse	Private	CFS	99
99	Hazard Reduction	1C	BBZ (Zone 15) Prescribed burn in roadside vegetation	BBZ (Zone 15) prescribed burn in roadside vegetation EW2 between Gregors and Hickmans Roads	CFS	Private	103
100	Hazard Reduction	1C	LMZ (Zone 50) Prescribed burn	LMZ (Zone 50) Prescribed burn lots 14, 15, Hd Duncan	CFS	Private	173;109
101	Hazard Reduction	1C	BBZ (Zone 48) Fire access track	BBZ (Zone 48) between boundaries of lots 14, 15; ss.59, 60; and s.86, Hd Duncan	Other	Private	173;109
102	Hazard Reduction	1C	BBZ (Zone 49) Prescribed burn	BBZ (Zone 49) prescribed burn in drainage line s.81, Hd Duncar	CFS	Private	109
103	Hazard Reduction	1C	LMZ (Zone 166) Seal Bay	LMZ (Zone 166) incorporating seal resting habitat to be treated in accordance with management plan	DEH	DEH	131
104	Property Planning	1C	Installation of fire protection equipment	Installation of fire protection equipment on park residences.	DEH		203;128
105	Preparedness	1C	Prepare Bushfire Survival Plan for day visitors	Prepare Bushfire Action Plan including Emergency Response Plan for day visitor areas.	DEH;Private	CFS	103;151;212;130;129;198;199;200;187
106	Hazard Reduction	1C	BBZ (Zone 47) Prescribed burn Lot 137	BBZ (Zone 47) prescribed burn in drainage line Lot 137, Hd Duncar	CFS	Private	102
107	Hazard Reduction	1C	BBZ (Zone 170) prescribed burn MR Reserve	BBZ (Zone 170) prescribed burn between Dearman's Track and Dam Wall	SAW	CFS	61;173
108	Hazard Reduction	1C	BBZ (Zone 171) prescribed burn MR Reserve	BBZ (Zone 171) prescribed burn between Strepna Falls Track and Johnson Tracks north of reservoir	SAW	CFS	61;173
109	Hazard Reduction	1C	BBZ (Zone 172) fuel modification MR Reserve	BBZ (Zone 172) fuel modification by grazing	Private	SAW	61;173
110	Hazard Reduction	1C	BBZ (Zone 174) fuel modification MR Reserve	BBZ (Zone 174) fuel modification by haycutting	Private	SAW	61;173
111	Hazard Reduction	1C	BBZ (Zone 175) fuel modification	BBZ (Zone 175) fuel modification by slashing	SAW	Private	61;173
112	Hazard Reduction	1C	APZ (Zones 168, 169, 173) MR Reserve	APZ (Zones 168, 169, 173) around built assets within MR reservoir reserve	SAW		61;173
113	Hazard Reduction	1C	LMZ (Zone 176) prescribed burn MR Reserve	LMZ (Zone 176) prescribed burn within bounds of Gums Track and Weirs Track, MR reservoir reserve	SAW	CFS	61;173
114	Preparedness	2A	Upgrade access and egress Muston west	Hydroaxe Old Muston Road - to GAFLC Standard Fire Track	KIC		171
115	Preparedness	2A	APZ (Zone 73) 15m Fire Break	APZ (Zone 73) Maintain 15m firebreak on western edge of main settlement area	KIC	Private	137
116	Hazard Reduction	2A	APZ (Zone 51) Access behind Vivonne Bay shacks	APZ (Zone 51) Hydroaxe roadside vegetation behind Vivonne Bay shacks adjacent campground to improve access and egress	KIC		165
117	Hazard Reduction	2A	BBZ (Zone 46) Prescribed burn Lots 26, 27, 100, Duncan	BBZ (Zone 46) Prescribed burn in Lots 26, 27 and portion s.100, Duncar	SAW	Private;CFS	173
118	Preparedness	2A	Old Muston Road upgraded to GAFLC Standard track	Hydroaxe and upgrade old Muston Road to GAFLC Standard Track	KIC		171
119	Preparedness	2A	GAFLC Standard track west of Muston settlement	GAFLC Standard Track along boundary Lots 1 & 2, Hd Haines	Other	Private	171
120	Hazard Reduction	2A	BBZ (Zones 44, 45) Prescribed burn adj Kyalla pitn	BBZ (Zones 44, 45) prescribed burn s.76, Hd Duncan in drainage line adjacent 'Kyalla' pine plantation	CFS	Private	177
121	Hazard Reduction	2A	BBZ (Zone 157) Prescribed burn	BBZ (Zone 157) prescribed burn western boundary Parndana CF	DEH		178
122	Preparedness	2A	Review & practice response plan regularly	DEH Visitor Centre Emergency Response Plan to be reviewed & practiced regularly	DEH		163

Treatment Ref No	Strategy	Priority	Action	Comment	Responsible Agency	Support Agency	Asset Ref Nos
123	Community Education	2A	DEH visitors provided with handout on fire ban day	Provide visitors an information handout on days declared a total fire ban by the CFS.	DEH		205;163
124	Hazard Reduction	2A	BBZ (Zone 177) prescribed burn Parndana CP	BBZ (Zone 177) prescribed burn southern portion of Parndana CP, between SWER Line Track and Playford Hwy, including road reserve adjacent Playford Hwy	DEH	DTEI	183
125	Hazard Reduction	2A	BBZ (Zone 180) prescribed burn	BBZ (Zone 180) prescribed burn in roadside vegetation along South Coast Road (southern side	CFS	DEH	183
126	Preparedness	2A	GAFLC Standard track along Wattle Drive	Hydroaxe GAFLC Standard track along continuation of Wattle Drive, and grade steep section of track	KIC		137
127	Hazard Reduction	2B	Prescription burn, grass slashing	Annual slashing or burning of grass in Buffer Zone; Land Management Zone burn in Lashmar scrul	DEH	CFS	207
128	Hazard Reduction	2B	LMZ (Zone 26) Prescribed burn Southern Cape Gantheaume	LMZ (Zone 26) Aerial incendiary burn, southern Cape Gantheaume	DEH		209
129	Hazard Reduction	2B	BBZ (Zones 121, 145) Rocky River	BBZ (Zones 121, 145) Maintain Buffer Zone around and to north east of residences	DEH		203
130	Hazard Reduction	2B	APZ around dwellings Rocky River	Annual maintenance of APZ around dwellings	DEH		203
131	Hazard Reduction	3B	APZ (Zone 120) Remarkable Rocks	APZ (Zone 120) Maintain to north east of Remarkable Rocks precinct	DEH		250
132	Hazard Reduction	3B	APZ (Zone 151) around built assets Kelly Hills CP	APZ (Zone 151) Maintain around built assets at Kelly Hills Visitor Centre	DEH		253
133	Hazard Reduction	3C	BBZ (Zone 51) Prescribed burn in Lot 249	BBZ (Zone 51) Prescribed burn in Lot 249, Esplanade, Western Cove (Hd Haines'	CFS	DEH;KIC	267
134	Hazard Reduction	3C	BBZ (Zone 52) firebreak on boundary Lot 247	BBZ (Zone 52) boundary fire break on Lot 247, Sea Vista Rd, Western Cove (Hd Haines'	Private	Other	267

Appendix 5-11 - Maps of BFRMP Area

Appendix 12 – Hazard Reduction Guidelines: Kangaroo Island

The *Native Vegetation Regulations 2003* (SA), as amended September 2009, apply on Kangaroo Island. Several additional provisions have been identified within the BFRMP for application to Kangaroo Island, as set out below.

1. Asset protection

Major Non-residential built assets, and critical infrastructure may be protected by fuel reduced zones up to 20m in width.

2. Boundary fenceline fire breaks

Fuel reduction works up to 20m can be undertaken on all property boundary fencelines (except where that clearance would involve the clearance of roadside vegetation or clearance onto a neighbouring property).

Note: Clearance beyond 5m requires the approval of the Chief Officer, SA CFS (or delegate). Where existing cleared land is available, that must be used to form part of the 20m clearance zone.

Appendix 13 - Ecological Fire Management

(Extracted and adapted from *Cape Forbin Integrated Fire Management Plan, 2009* and the *Flinders Chase Fire Management Plan 2009*)

Fire Regimes for Biodiversity Conservation

Fire regime is described as the history of fire in a particular vegetation type or area including the fire frequency, interval, intensity, extent and seasonality of burning (Brooks *et al.*, 2004). It is therefore assumed that avoiding adverse fire regimes across the majority of the habitat for any given species should minimise the risk of adverse impacts or local extinction. That is, an adverse fire regime confined to a minor proportion of the habitat of any particular species may influence local distribution, but will have little effect on the persistence of that species across the landscape, and therefore minimal impact on the structure of the ecosystem. A range of different fire intensities, frequencies, seasons and scales of burning need to be incorporated into ecologically based regimes if they are to result in the conservation of biodiversity.

Development of Ecological Fire Management Guidelines

Vital Attributes

Currently our understanding of fire effects on biodiversity is limited due to the number and diversity of species affected, the number of variables and the complexity of the interactions involved (Whelan *et al.*, 2002). A useful way of simplifying the complexity of these interactions is to group species according to their functional response to fire (Keith *et al.* 2002). Noble and Slatyer's (1980) vital attribute scheme uses this approach to classify flora species based on their response to disturbance events such as fire. Similar classification systems are being developed for fauna species, but are less advanced (Kenny *et al.* 2003).

Ecological fire management guidelines for an area will be developed from knowledge of the vital attributes (or life histories) of the flora and fauna species that inhabit that particular area. The vital attributes of a species are the characteristics which affect its persistence at a site after fire, the environmental conditions required for re-establishment, and the longevity of the species following disturbance (Noble and Slatyer 1981). For fauna, these vital attributes are habitat and life history characteristics: shelter, food, and breeding requirements of species (Friend and Williams 1996).

Key Fire Response Species

Examination of the vital attributes of the species present in a particular area assists in defining the Key Fire Response Species for a particular community or vegetation type. These are the species most susceptible to decline due to inappropriate fire regimes: either too frequent or too infrequent fire, low or very high intensity fire, or fire in a particular season. These species and their needs in relation to fire regime provide a guide to the acceptable thresholds of fire regime (interval, season or intensity) for that particular area.

Methodology

Ecological Fire Management Guidelines for the Landscape Planning Area have been developed from research and the analysis of available data relating to the Key Fire Response Species within the Landscape Planning Area. The approach used to define the Ecological Fire Management Guidelines

involves the identification of fire regime thresholds using flora and the assessment of the potential impacts of these thresholds against known faunal requirements, particularly the requirements of species of conservation significance. The steps taken in the development of the Ecological Fire Management Guidelines are as follows:

- Vital attributes data of plant and animal species, and ecological communities are gathered and assessed;
- This knowledge is used to identify the Thresholds of Potential Concern (TPC) of fire regime (fire interval, intensity, season and type) where species significantly decrease;
- Ecological Fire Management Guidelines are formed from these thresholds and are then used to guide the fire management practices to ensure that adequate habitat is available to maintain biodiversity (i.e. species, populations and communities).

Figure 1 illustrates this process.

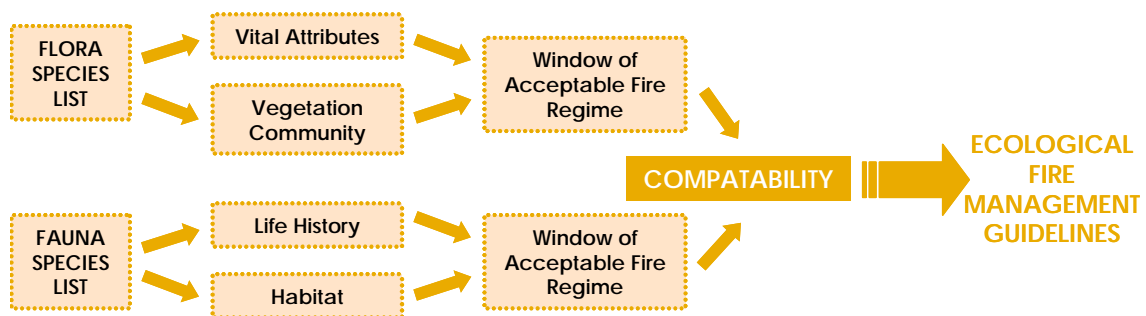


Figure 1 – Approach for Determining Ecological Fire Management Guidelines
Adapted from DEH (2006)

Interpreting Ecological Fire Management Guidelines

Vegetation Communities

Guidelines for five aspects of fire regime (interval, frequency, spatial, intensity and season) have been determined for the five Primary Species Groups that occur within the Landscape Planning Area (Table 1). The upper and lower limits of fire interval for each Primary Species Group have been proposed, as well as recommendations on the management of fire frequency. Fire intensity requirements for species regeneration and undesired seasonal burning patterns have also been identified. Ecological Fire Management Guidelines should not be used as prescriptions; instead they define a window of "acceptable" fire regime that ensures the conservation of existing species.

Threshold of Potential Concern

The Threshold of Potential Concern (TPC) for a vegetation type or community is the level of fire regime element (i.e., fire interval, frequency, intensity or season) where Key Fire Response Species are likely to significantly decline if exceeded (Table 1). Fire regimes beyond that level are likely to lead to local extinction of significant biodiversity.

- TPC1 identifies the lower threshold for fire interval for a particular Primary Species Group in years. That is, vegetation within this group will be represented predominantly by early successional

species if the inter-fire interval is less than the time specified, and those species that require longer to flower and set seed can disappear from a community.

- TPC2 identifies the upper threshold for fire interval for a particular Primary Species Group in years. That is, populations of some species (e.g. obligate seeders) are likely to reduce within this Primary Species Group if fire is absent for more than the time specified.

Table 1 – Ecological Fire Management Guidelines for the MVS in the planning area

MVS		FIRE REGIME						
		Thresholds of Potential Concern (TPC)		Spatial Criteria	Frequency		Intensity	Season
		TPC1: Lower threshold in years	TPC2: Higher threshold in years	Inter-fire intervals within TPC1 and TPC2 across more than X% of the extent of this MVS within the Landscape Planning Area	Avoid 2 or more fires less than X years apart in the same location	Avoid 3 or more fires of low intensity in the same location	Some medium to high intensity fire needed to regenerate some species	Avoid 2 or more successive fires in season ⁶
29	Mallee heath and shrublands	17	40	50	17	Y	Y	Same season
8, 47	<i>Eucalyptus</i> woodland and open woodland with a shrubby understorey	17	40	50	17	Y	Y	Same season
29	Mallee heath and shrubland	17	40	50	17	Y	Y	Same season
26	<i>Casuarina</i> and <i>Allocasuarina</i> forests and woodlands	17	40	50	17	Y	Y	Same season
30	Heath	17	40	50	17	Y	Y	Same season
28	Low closed forest or tall closed shrublands (including <i>Acacia</i> , <i>Melaleuca</i> and <i>Banksia</i>)	17	40	50	17	Y	Y	Same season
21	Other <i>Acacia</i> tall open shrublands and shrublands	10	20	50	10	Y	Y	Same season

⁶ Note that this is not restricted to the same year, but may relate to fires occurring in the same season over a number of years.

Ecological Fire Management on Kangaroo Island

For the five primary vegetation groups for which maximum and minimum fire interval thresholds have been developed, the species that is most sensitive to frequent fire is *Banksia ornata*. This species only regrows from seed, is killed by low intensity fires, requires some form of disturbance to initiate seedling recruitment and has a short-lived seedbank. *Banksia ornata* has been recorded as taking as long as 14 years to reach maturity and produce seeds on Kangaroo Island. An additional 3 reproductive years are required for a sufficient seedbank to be developed to enable successful regeneration, resulting in a recommended minimum inter-fire interval of 17 years (Dowie 2006).

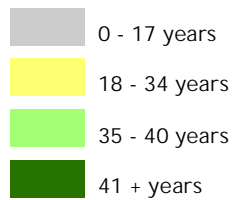
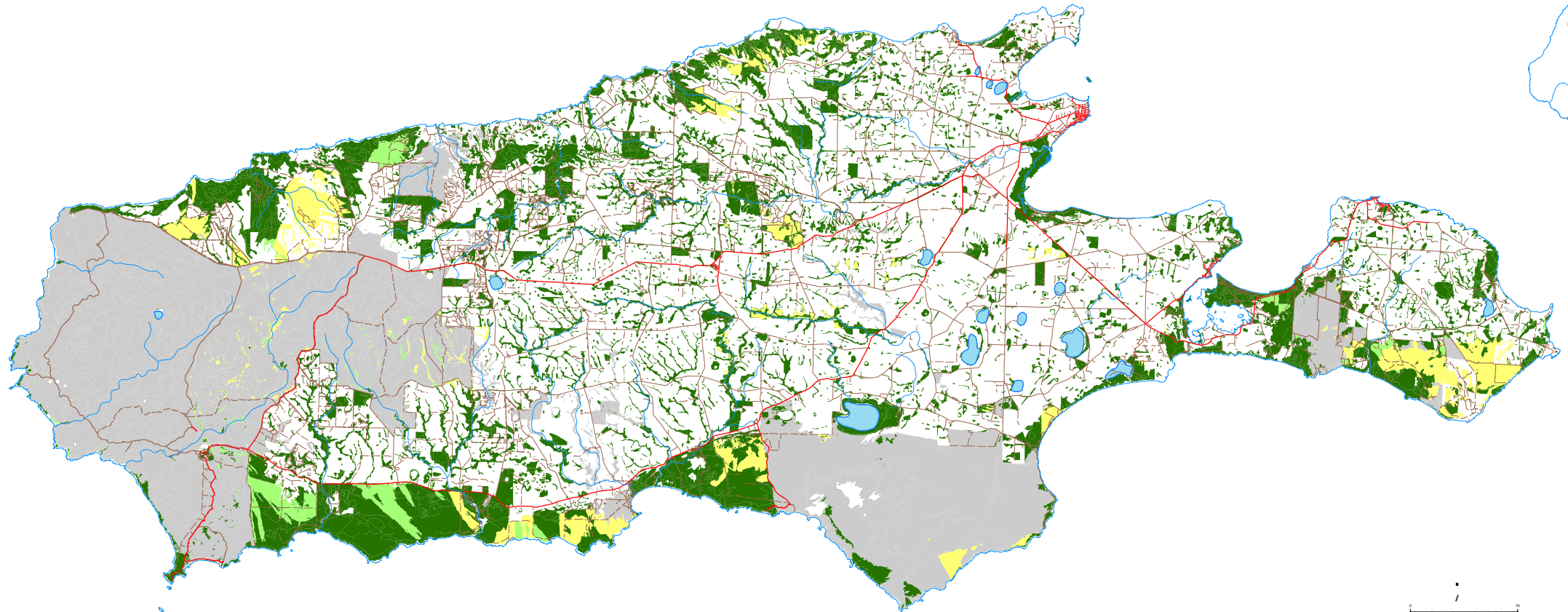
The species that are most sensitive to infrequent fire are *Acacia pycnantha*, *Goodenia ovata* and *Cassyltha pubescens*, all of which only regenerate from seed, are killed by low intensity fires, require some form of disturbance to initiate seedling recruitment and have seedbanks which are exhausted after a single disturbance event. The maximum recorded lifespan of these species and their seedbanks is 40 years. Consequently the recommended maximum inter-fire interval is 40 years (Dowie 2006).

It is recommended that at least 50% of the total area of any Primary Species Group should be within the minimum and maximum fire interval thresholds. In addition to the above minimum and maximum inter-fire intervals it is recommended that three or more successive low intensity fires should be avoided as some species may require medium or high intensity fires to initiate regeneration. Fires should generally occur between September and February, when natural ignitions would have been expected to occur in the past, and two or more successive fires in the same season should be avoided.

Appendix 14 - Fire Threshold Map

Kangaroo Island Fire Thresholds

Years Since Last Recorded Fire



Produced by Cameron King
Department for Environment and Heritage
PO Box 39 Kingscote SA 5223
Web: www.environment.sa.gov.au/mapland

Data Source egisdata.deh.sa.gov.au/sde

Projection Transverse Mercator
Compiled 25 November 2008
Datum Geodetic Datum of Australia 1994

© Copyright Department for Environment and Heritage 2008.
All Rights Reserved. All works and information displayed are subject to Copyright. For
the reproduction or publication beyond that permitted by the Copyright Act 1968 (Cth),
written permission must be sought from the Department.

Although every effort has been made to ensure the accuracy of the information displayed,
the Department, its agents, officers and employees make no representations, either express
or implied, that the information displayed is accurate or fit for any purpose and expressly
disclaims all liability for loss or damage arising from reliance upon the information displayed.



Government of South Australia
Department for Environment
and Heritage

Appendix 15 - Guidelines for Preparation of Annual Works Plans

(Adapted from the New South Wales Rural Fire Service instructions for preparation of annual works programmes, extracted from Bushfire Coordinating Committee Policy 1/2008).

While every effort needs to be made to improve the amount of hazard reduction (HR) being carried out, it is inconceivable that enough HR will ever be carried out to meet the fire frequency threshold across the State.

Accordingly, the works programme will consist of only those works indicated in the Bushfire Risk Management Plan (BFRMP) as being of extreme or major risk. Moderate or minor risk works will be contained in a contingency works schedule which can be carried out if circumstances allow.

An annual programme of works must be prepared annually by the bushfire management committee, or transitional management structure. The works programme must be in accordance with the BFRMP. This must be done by the bushfire management committee, or transitional management structure, and not by individual agencies/organisations. Committee members should review the BFRMP prior to the meeting held to develop the works plan, so that they have a good idea of what their organisation may be in a position to carry out. This will help the committee meeting to be effective in preparing the works programme on the day.

Step 1

Review the strategies and treatments in your BFRMP.

To provide for a prioritised schedule of works which treats areas on a risk basis, the committee should identify those treatments and strategies that are of the highest risk and give them the highest priority for treatment. For the 2009-2014 plan extreme and very high risks should be addressed first and will form the priority programme of works, with extreme risks forming the first priority. Treatment of high, medium and low risks will comprise a contingency works schedule of additional activities which could be done if circumstances allow.

Step 2

Discuss and decide what works will be planned for the next financial year to implement those treatments and strategies. Works should be planned for the highest priority treatments and strategies before resources are allocated to lower priorities. In preparing the programme:

- be realistic about the capacity to carry out the works;
- ensure that consultation occurs with responsible agencies regarding proposed works; and
- ensure that it reasonably addresses the treatments and strategies in the BFRMP such that over the life of the plan they will all be completed – that is, you need to consider the allocation of works across the nominal 5 year life of the plan.

Step 3

Formally endorse the works programme and ensure that the programme is recorded in the following spreadsheet format:

Works Programme Reporting Spreadsheet

What	Who	When
Enter all BFRMP treatments and their risk ratings (eg. extreme, very high etc.)	Bushfire management committee or interim implementation group	Within 28 days of approval of BFRMP by SBCC
Annual programme of works: <ul style="list-style-type: none"> • Include all works, not only physical HR burning and mechanical works • Link each work to strategies and treatments in BFRMP 	Bushfire management committee or interim implementation group	31 st May each year for the upcoming financial year
Registration of individual work proposals, create record with the following minimum information: <ul style="list-style-type: none"> • Name • Land tenure • Agency to carry out work • Risk management zone • Link to SBCC priority area (Note: when available) 	Agency responsible for carrying out the work. NB: the agency responsible needs to ensure that supporting agencies are noted in the record.	By the last day of each calendar month for the upcoming month.
Completion of record for works carried out. For APZ and BBZ work, the following minimum information: <ul style="list-style-type: none"> • Details of environmental assessment carried out (including nil) • Map • Dates • Who carried out the work • Number of properties protected 	Agency responsible for carrying out the work.	Within 5 working days of the end of the calendar month in which the work is carried out.
Complete fire access track register, with information about all fire access tracks recorded. Mandatory fields are: <ul style="list-style-type: none"> • Name • Current GAFLC standard (Major, Standard, Minor, Service) • Desired future GAFLC standard 	Bushfire management committee or interim implementation group	No later than 30 th June each year.

Fire Access Track Register

The DBPC must prepare and maintain a Fire Access Track Register in accordance with the following table:

Field name	Comment/Description	Who provides the data
Fire access track name	Allowance will be made for alias name(s)	Proposed by land manager – approved by Group and DBPC

Tenure		Land manager
Fire access track map		Initial data supplied by DEH, checked and endorsed by land manager
Fire access track classification – current	Will also include data for date of classification and identity of person entering information. Provision will be made for draft entries and later adoption by the Group and the Bushfire management committee or interim implementation group.	Proposed by land manager – approved by Group and Bushfire management committee or interim implementation group
Fire access track classification – desired future	Will also include data for date of classification and identity of person entering information. Provision will be made for draft entries and later adoption by the Group and the Bushfire management committee or interim implementation group.	Proposed by land manager – approved by the Group and Bushfire management committee or interim implementation group
Permanent signage	Identifies whether: a) the fire access track has existing signage; b) the signage is compliant with GAFLC standards; c) signage is required.	Proposed by land manager – approved by the Group and Bushfire management committee or interim implementation group
Features	Include information on dead ends, turn arounds, float access etc. Key features to be identified and then capable of being inserted onto a map.	Land manager
Access restrictions	Temporary as well as permanent restrictions can be identified – temporary restrictions include fallen trees etc. May include locked gates, bollards, grids, roads, bridges, creek crossings (width and load limits) etc.	Land manager

REFERENCES

Brooks, M., D'Antonio, C., Richardson, D., Grace, J., Keeley, J., DiTomaso, J., Hobbs, R., Pellant, M., and Pyke, D. (2004) "Effects of invasive alien plants on fire regimes," *BioScience* 54, pp.677-688.

Cape Forbin Integrated Fire Management Plan (2009), Department for Environment and Heritage, SA Country Fire Service, Kangaroo Island Council, Kangaroo Island Natural Resource Management Board.

Dowie, David (2006) *Fahrenheit 451 – A Fire Management Program for Biodiversity and Asset Protection on Kangaroo Island, Executive Summary of Reports Produced for Investment Strategies One and Two*, Department for Environment and Heritage, Kangaroo Island Natural Resources Management Board, Natural Heritage Trust.

Friend, G. and Williams, M. (1996) "The impact of fire in invertebrate communities in mallee-heath shrublands of southwestern Australia", *Pacific Conservation Biology* 2, pp.244-267.

Government Agencies Fire Liaison Committee [GAFLC] (2008) "South Australian Firebreaks, Fire Access tracks and Sign Standards Guidelines", Adelaide.

Keith, D., McCaw, M, and Whelan, R. (2002) "Fire regimes in Australian heaths and their effects on plants and animals", in *Flammable Australia: The Fire Regimes and Biodiversity of a Continent* (eds. R Bradstock, J Williams and A Gill), pp.199-237, Cambridge University Press.

Kenny, B., Sutherland, E., Tasker, E. and Bradstock, R. (2003) *Guidelines for Ecologically Sustainable Fire Management – NSW Biodiversity Strategy*, NSW National Parks and Wildlife Service, NSW Government, Hurstville.

Mooney, T. and Grinter, K. (2000) *District Plan*, prepared for the Kangaroo Island Soil Conservation Board, Kingscote.

New South Wales Rural Fire Service (2007) *Bush Fire Risk Management Planning Guidelines for Bush Fire Management Committees*, Bushfire Coordinating Committee Policy 3/2007.

Noble, I. and Slatyer, R. (1980) "The use of vital attributes to predict successional changes in plant communities subject to recurrent disturbances," *Vegetation* 43, pp.2-21.

Taylor, David for the Eastern Plains Fire Trial Working Group (2008) *The Eastern Plains Fire Trial Kangaroo Island, South Australia*, Project proposal submitted to the Native Vegetation Council, June 2008.

TOMM (2009) 2007/2008 Kangaroo Island Visitor Survey Data, <http://www.tomm.info>

Whelan, R., Rodgers, R., Dickmann, C., and Sutherland, E. (2002) "Critical life cycles of plants and animals: developing a process based understanding of population changes in fire prone

landscapes", in *Flammable Australia: The Fire Regimes and Biodiversity of a Continent* (eds. R Bradstock, J Williams and A Gill), pp.199-237, Cambridge University Press.

Willoughby, N., Oppermann, A., and Inns, W. (2001) *Biodiversity Plan for Kangaroo Island, South Australia*, Department for Environment and Heritage, South Australia.