Midlands Fire Management Area

Fire Protection Plan

2019

Document Control

Document History

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Document Endorsements

Agency	Name & Title	Signature	Date

Accepted by State Fire Management Council

FMAC Chair – Mathew Lowe, Acting District Officer - Midlands
Date: 10 April 2019

Chairman – Ian Sauer
Date: 10 May 2019

Table of Contents

Glossary

Asset	A term used to describe anything valued by the community that may be adversely impacted by bushfire. This may include residential houses, infrastructure, agriculture, industry, environmental and heritage sites.
Bushfire	Unplanned vegetation fire. A generic term which includes grass fires, forest fires and scrub fires both with and without a suppression objective.[1]
Bushfire hazard	The potential or expected behaviour of a bushfire burning under a particular set of conditions, i.e. the type, arrangement and quantity of fuel, the fuel moisture content, wind speed, topography, relative humidity, temperature and atmospheric stability.
Bushfire risk management	A systematic process to coordinate, direct and control activities relating to bushfire risk; with the aim of limiting the adverse effects of bushfire on the community.
Consequence	The outcome or impact of a bushfire event.
Fuel Break	A natural or man-made change in fuel characteristics which affects fire behaviour so that fires burning into them can be more readily controlled[2].
Risk	The effect of uncertainty on objectives.[3] (Note: Risk is often expressed in terms of a combination of the consequences of an event and the associated likelihood of occurrence.)
Risk acceptance	The informed decision to accept a risk, based on the knowledge gained during the risk assessment process.
Risk analysis	The application of consequence and likelihood to an event in order to determine the level of risk.
Risk assessment	The systematic process of identifying, analysing and evaluating risk.
Risk criteria	Standards (or statements) by which the results of risk assessments can be assessed. They relate quantitative risk estimates to qualitative value judgements about the significance of the risks. They are inexact and should be seen as guidelines rather than rules.[4]
Risk evaluation	The process of comparing the outcomes of risk analysis to the risk criteria in order to determine whether a risk is acceptable or tolerable.
Risk identification	The process of recognising, identifying and describing risks.
Risk treatment	A process to select and implement appropriate measures undertaken to modify risk.

[1] Australasian Fire and Emergency Service Authorities Council 2012, *AFAC Bushfire Glossary*, AFAC Limited, East Melbourne, Australia

[2] Tasmania Fire Service 2016, Fuel Break Guidelines, guidelines for the design of fuel breaks in the urban-rural interface (DRAFT)

[3] Standards Australia 2009, Risk management – Principles and guidelines, AS/NZS 31000:2009, Standards Australia, Sydney, Australia

[4] Emergency Management Australia 1998, Australian Emergency Manuals Series – Manual 3 Australian Management Glossary, Emergency Management Australia, Dickson, Australia

Acronyms

BPP	Bushfire Planning and Policy Unit
DPIPWE	Department of Primary Industries Parks Water and Environment
FDI	Fire Danger Index
FDR	Fire Danger Rating
FIAT	Forest Industry Association Tasmania
FMAC	Fire Management Area Committee
FPP	Fire Protection Plan
FRU	Fuel Reduction Unit
MFMA	Midlands Fire Management Area
PWS	Parks and Wildlife Service
REMC	Regional Emergency Management Council
SEMC	State Emergency Management Committee
SFMC	State Fire Management Council
STT	Sustainable Timber Tasmania
TFGA	Tasmania Farmers and Graziers Association
TFS	Tasmania Fire Service

Chapter 1 Introduction

1.1 Background

Under Section 20 of the *Fire service Act 1979,* fire management area committees are required to submit to SFMC, on an annual basis, a fire protection plan for its fire management area commencing on 1 October.

It is a requirement of the fire protection plan that it is consistent with the State Fire Protection Plan and the State Vegetation Fire Management Policy.

1.2 Aim and Objectives

The **aim** of this FPP is to document a coordinated and efficient approach towards the identification and treatment of bushfire-related risk within the Midlands Fire Management Area (MFMA).

The **objective** of this FPP is to effectively manage bushfire related risk within the MFMA in order to protect people, assets and other things valuable to the community. Specifically, the objectives of this plan are to:

- Guide and coordinate a tenure blind bushfire risk management program over a five (5) year period;
- Document the process used to identify, analyse and evaluate risk, determine priorities and develop a plan to systematically treat risk;
- Facilitate the effective use of the financial and physical resources available for bushfire risk management activities;
- Integrate bushfire risk management into the business processes of Local Government, land managers and other agencies;
- Ensure integration between stakeholders;
- Clearly and concisely communicate risk in a format that is meaningful to stakeholders and the community; and
- Monitor and review the implementation of the Plan, to ensure enhancements are made on an on-going basis.

1.3 Policy, Standards and Legislation

The following policy, standards and legislation were considered to be applicable to the development and implementation of the FPP.

- Tasmanian Emergency Management Plan
- State Fire Protection Plan
- State Vegetation Fire Management Policy
- State Strategic Fuel Management Plan

Standards

- AS/NZS ISO 31000:2009 - Risk Management – Principles and Guidelines
- AS 3959 – 2009 – Construction of Buildings in Bushfire Prone Areas
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Legislation

- *Aboriginal Relics Act 1975 (soon to be replaced)*
- *Fire Service Act 1979*
- *Emergency Management Act 2006*
- *National Parks and Reserve Management Act 2002*
- *Nature Conservation Act 2002*
- *Crown Lands Act 1976*
- *Forestry Act 1920*
- *Threatened Species Protection Act 1995*
- *Environmental Management and Pollution Control Act 1994*
- *Local Government Act 1993*
- Forest Practices Code 2000
- Tasmanian Electricity Code
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Weed Management Act 1999*
- *Historic Cultural Heritage Act 1995*

Chapter 2 Establishing the Context

2.1 Description of the Midlands Fire Protection Plan Area

2.1.1 Location, Boundaries and Land Tenure

The MFMA consists of an area of approximately 1,059,000 ha (Figure 2.1). It includes the Derwent Valley, Central Highlands and Southern Midland areas, and varies in altitude from 35 m above sea level (asl) in the Jordan River valley near Pontville to 1448 m asl at Mt Rufus near Derwent Bridge

Over half of the area (53%) consists of private property, predominantly located in the drier central and eastern parts (Figure 2.2; Table 2.1). The wetter western portion of the area consists mainly of National Parks and Reserves (occupying approximately one quarter of the area), Permanent Timber Production Zone, and Hydro managed lands.

Table 2.1: Overview of land tenure in the MFMA.

Land Manager/Agency	% of Land Managed within the FMA
Private Property	52
DPIPWE (including Parks and Wildlife Service and Crown land Services)	26
Sustainable Timber Tasmania	12
Hydro	5
Other	5

Figure 2.1: Location of the MFMA, with surrounding Fire Management Areas.

Figure 2.2: Land tenure across the MFMA.

2.1.2 Climate and Bushfire Season

The lack of moderating coastal influence results in the MFMA experiencing extremes of temperatures with cold winters and hot summers. Locations within the MFMA consistently record the states' maximum and minimum temperatures. Daily maximum and minimum temperatures across the area have a large variation due to the significant variation in altitude. For example, in lowland areas such as Ouse, mean daily maximum temperature is 18.3°C with a range from 11.7°C in July through to 25.4°C in January, whereas in highland areas such as Liawenee, mean daily maximum temperature is 12.0°C with a range from 5.6°C in July through to 18.7°C in January (Bureau of Meteorology - BOM 2014).

Similarly the mean daily minimum temperatures across lowland and highland areas vary significantly. Ouse has a mean of 5.5°C ranging from 1.0°C in July through to 10.1°C in January and Liawenee 1.5°C ranging from -1.5°C in July through to 5.2°C in January (BOM 2014).

Higher altitudes may experience snow for several months of the year. The mountain ranges in the western part of the area cause a very significant rain shadow effect, with areas in the eastern parts of the MFMA often experiencing periods of prolonged dryness. This is clearly evident with the average annual rainfall ranging from 510mm at Ouse to 1866mm at Lake St Clair (Figure 2.3; BOM, 2014).

Due to these large variations in conditions across the area, the length of the fire season can vary considerably across the MFMA. Drier parts within the MFMA can have fire seasons that run from October through to April, with areas of higher rainfall and wetter vegetation types limited to the period of December to March.

There are seven BOM weather stations located with the MFMA:

- Melton Mowbray
- Tunnack
- Butlers George
- Lake St Clair
- Liawenee
- Ouse
- Campania

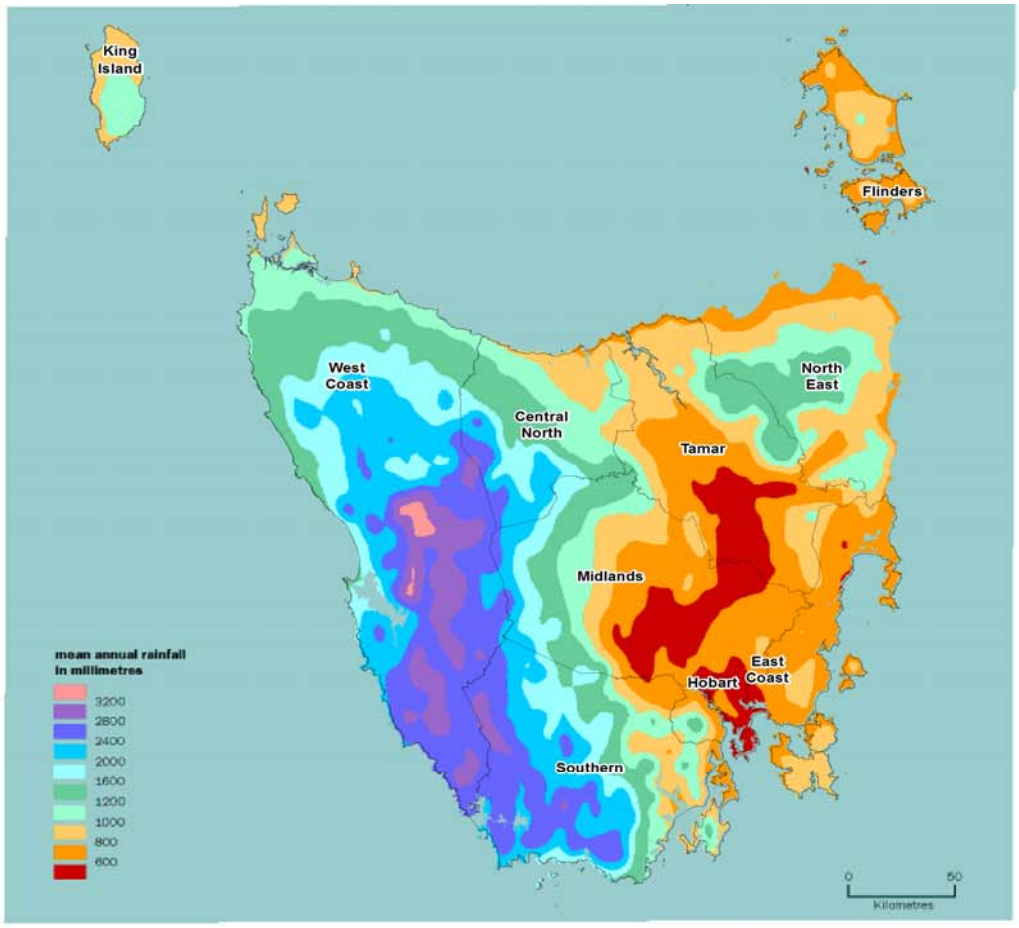


Figure 2.3: Mean annual rainfall across Tasmanian Fire Management Areas.

Source: Map provided by Ian Barnes-Keogan, Bureau of Meteorology, Hobart

2.1.3 Vegetation

The MFMA consists of a wide range of vegetation types (Figure 2.4). The eastern and central parts of the MFMA are predominantly occupied by agricultural land and dry eucalypt forest and woodland. The dry forests and woodlands, and grasslands that occupy some of the agricultural land have high flammability, and they also occur around the higher population areas of the MFMA.

The higher rainfall western part of the MFMA consists of wetter forest types that grade to rainforest in areas where there has been negligible fire history. Moorlands are present on sites of low soil quality or poor drainage, often in close proximity to rainforest types. Alpine vegetation types are present on the higher sections of mountain ranges and plateaus. Many of these vegetation types, particularly rainforest and alpine vegetation are highly sensitive to loss and damage through fire.

The vegetation in the MFMA can be categorised into 11 broad groups that represent broad vegetation or landscape types, as shown in Figure 2.4. A description of these vegetation groups is

provided in Appendix 7.

Figure 2.4: Vegetation types across the MFMA (based on grouped TASVEG vegetation mapping units).

2.1.4 Population and Demographics

The MFMA has a low total population and low population densities across the area (Figure 2.5). The entire area has a total permanent population of around 8,000 people (Australian Bureau of Statistics – ABS, 2016), with highest densities occurring around towns and in the southeast corner of the area, closest to the outer settlements of Hobart.

The low and dispersed population correlates with the major land uses, particularly the large proportion of agricultural land and reserved areas. The major towns within the MFMA include Campania, Oatlands, Bothwell, Hamilton, Ouse, Kempton, and Bagdad. The higher population in the southeast of the area, closer to Hobart, also correlates to a growing number of lifestyle properties (small acreage) around the Mangalore, Bagdad, Broadmarsh and Campania areas.

The MFMA also contains smaller isolated communities located in the Upper Derwent Valley and Central Highlands. Many 'shack' communities are present around a number of highland lakes. The population of these shack areas is seasonally variable, with only a small proportion of owners residing on a permanent basis.

Figure 2.5: Population density in the MFMA - No. of residents per ha (Australian Bureau of Statistics 2016).

2.1.5 Bushfire Frequency and Causes of Ignition

Fire frequency is defined as the total number of fires that occurred in the same area. Fire frequency records for the MFMA have been obtained from records provided by the Tasmania Fire Service, Parks and Wildlife Service and Forestry Tasmania/Sustainable Timbers Tasmania but the records are incomplete. Figure 2.6 below indicates the areas affected by fire and the number of times that area has been affected.

Figure 2.6 Fire Frequency across the MFMA

There have been a number of major fires in the MFMA in recent decades, the largest fire burning around 14,300 ha (Table 2.2)

Fire Name	Area ha
Broadmarsh/Bluff Rd 2003	14300
Dromedary 1982	11000
Pine River 1982	13600
Lake Repulse 2013	10200
Wayatinah 2010	6300
Poatina 2012	8500
Meadowbank Rd 2012	5200

Table 2.2: Major Fires in the MFMA since 1982.

Fire Ignition Cause

The causes of fire, either through ignition by lightning or by human actions have not been well documented prior to 1990.

Of the most recent fire records available for the MFMA, the ignition cause for the majority of fires was classed as unknown (37%), closely followed by arson (33%), then escapes from planned burns (13%) and accidental (10%) see Figure 2.7.

Figure 2.7: Fire Cause

Chapter 3 Analysing and Evaluating Bushfire Risk

3.1 Analysing Bushfire Risk

Following the Australian Standard of risk (ISO 3100) bushfire risk has been considered spatially, assessing a combination of likelihood and consequence (PWS 2011). The Bushfire Risk Assessment Model (BRAM), model data run of February 2014 was used to analyse the landscape level risk for this plan. For a full analysis of the model, see Appendix 2.

To determine overall risk the NERAG (National Emergency Risk Assessment Guidelines August 2009) document (see Appendix 3) was used. The level of risk is determined by combining consequences and likelihood (see Appendix 3).

It must be noted that the BRAM and therefore the consequences, likelihood and risk outputs are based on available spatial data. The analysis has been undertaken on a statewide basis, and maps are presented as complete for Tasmania. There are however gaps in the data inside and outside areas of public land. This includes fire history information, particularly on private land, which contributes to ignition potential information (likelihood), and many of the agricultural values have not been well captured (consequence). Notwithstanding these limitations, the model does provide an objective spatial analysis of bushfire risk in a landscape context.

3.2 Likelihood

Likelihood is defined as a qualitative method to assess the likelihood rating to the consequences occurring. The likelihood of an event was generated by calculating ignition potential, suppression capabilities and fire behaviour potential, followed by assigning these output values to categories in a likelihood matrix. This is taken to mean the likelihood of a fire occurring in a specific area which surpasses the ability of the fire agencies to contain within the first 24 hours.

3.3 Consequence (values at risk)

Consequences are defined as a qualitative rating of damage from fire to values. The consequences were taken directly from the output generated through the Values at Risk spatial layer output.

While the values layer identifies a wide range of values in the MFMA, including critical infrastructure, agricultural land including grasslands and their economic significance are largely not part of the analysis (except where they are mapped as native grasslands). The agricultural grassland community is of particular importance with the loss of extensive grass impacting on the immediate viability of farming enterprises, which can have a major impact on the economy of the area.

3.4 Overall Risk

A representation of risk (see Appendix 4) is developed when you combine the factors of likelihood and consequence. The generated output map of risk shows qualitative areas of risk, not areas of perceived risk.

The model assists in objectively defining areas where genuine risk is present. In-depth analysis will indicate what factor is driving the risk for a given area

3.5 Risk Analysis for the Midlands Fire Management Area

The bush fire risk Model BRAM, discussed above, was utilised to examine risk across the MFMA. The results of this risk analysis are shown in Figure 3.1. Areas of highest risk identified are located in the southeast and northwest parts of the area, with scattered patches throughout.

In addition Phoenix Rapidfire, a bush fire simulator, developed by the University of Melbourne (Kevin Tolhurst and Derek Chong) was used to model the risk of fires impacting on communities present in the MFMA. This modelling was done as part of the state wide strategic fuel management assessment. The process involved modelling potential ignition points, incorporating severe fire weather components and examining fire behaviour based on current fuel loads to identify the potential impact on human settlement areas. Figure 3.2 shows potential ignition points that may impact on communities in the MFMA with areas (ha) of impact under current fuel loads.

An understanding of the location for potential ignition points that may impact on communities is crucial. It must be understood that such analysis has many limitations, but does provide an indication where communities may be under risk as well as identify areas where strategic burning will assist in changing fire behaviour.

Strategic fuel reduction burning is one treatment to reduce risk to communities throughout the MFMA. However, not all vegetation and land use types are treatable through burning. Figure 3.3 shows treatability of fuels through fuel reduction burning in the MFMA. In summary, 41% of fuels are treatable by burning, while 59% is untreatable.

The distinction between treatable and untreatable fuel was determined by considering the TASVEG flammability attributes and gives a general indication of suitability. At an operational level the distinction between treatable and untreatable fuels will need to be determined in the field.

The untreatable portion (59% of the area) includes agricultural land. This is primarily because whilst agricultural land will burn, it is not generally targeted for fuel reduction burning as the risk can be seasonally variable. It is likely that the dryland agricultural land through the region does contain areas of grasslands that are treatable through burning, however current TASVEG mapping does not break the agricultural land mapping unit into different categories. Land use mapping may be incorporated into future risk analyses as data become available allowing refinement of this category

Figure 3.1: BRAM Bushfire risk across the MFMA.

Figure 3.2: Potential ignition points that may impact on communities in the MFMA with areas (ha) of impact under current fuel loads, using Phoenix Rapidfire simulation modelling, State Fire Management Council.

Figure 3.3: Treatability of fuels through fuel reduction burning in the MFMA.

Chapter 4 Bushfire Risk Treatment

4.1 Region Wide Controls

The following controls are currently in place across the MFMA to assist in the strategic management of bushfire related risk:

- Legislative controls – including abatements, fire restrictions etc.
- Public education campaigns and the use of TFS and SFMC state-wide programs tailored to suit local needs; (eg Private land burning; Community Protection Planning; Bushfire Ready Neighbourhoods)
- State-wide arson prevention programs developed in conjunction with TAS Police and TFS;
- Setting of appropriate land subdivision and building standards in line with State Bushfire Prone Area Building Standards;
- Performance monitoring and reporting of FPP outcomes to the relevant Emergency Management Council and State Fire Management Council as required by the Tasmanian Emergency Management Plan and the Fire Service Act.

4.2 Asset Specific Treatment Strategies

There are five broad asset specific treatment strategies that have been used to manage the bushfire risks identified in the Community Risk Assessment. They include:

- Fuel management – Treatments include the reduction / modification of bushfire fuels through manual, chemical and prescribed burning methods;
- Ignition management - Treatments aim to reduce the occurrence of human induced ignitions in the landscape;
- Preparedness – Treatments focus on providing suitable access and water supply arrangements that will assist with fire fighting operations;
- Planning – Treatments relate to the development of plans that will improve the ability of firefighters and the community to respond to bushfire; and
- Community Engagement – Treatments seek to build relationships, raise awareness and change behaviours relating to the management of bushfire related risks within the community.

4.3 Community Assessment

Strategic assessment tools have been used to conduct a broad scale assessment across the MFMA to identify communities vulnerable to bushfire, that require more detailed assessment using more locally specific processes. These areas were identified through a process that utilised and combined local knowledge, BRAM risk assessment and phoenix ignition potential modelling. A sub-group of the MFMA Committee, consisting of members with specific fire expertise and knowledge across the area contributed to the identification of both the communities at risk and the broader strategic areas for potential actions.

The results of the strategic assessment for the MFMA are outlined in table 4.1 and mapped in appendix 1. A number of communities already have specific plans in place, these are summarised in Appendix 5. In addition to the above communities, areas of strategic importance were also identified, shown in Table 4.2 and mapped in Appendix 1.

Community	FMAC Assessment Rating
Campania	HIGH
Ellendale	HIGH
Westerway	HIGH
Derwent Bridge	HIGH
Wayatinah	MED
Brandum Bay/Breona	MED

Table 4.1: Priority communities identified in the strategic assessment process in the MFMA.

Area
Huntington Tier
East Bagdad/Quoin Mtn/Native Corners
Dromedary
Gravelly Ridge/Brown Mt

Table 4.2: Strategic areas for potential treatment in the MFMA.

It is important to note that these areas identified give a general location only. They will require field investigation to determine what mitigation options are available. To allow mitigation treatments to be carried out safely and effectively other areas not currently highlighted may need to be included.

In addition there may be Fuel Reduction Burning currently planned in areas that are not listed above which may provide some protection to communities and critical infrastructure.

Note: Mitigation options include:

- Fuel Reduction Burning
- Fire trail construction and maintenance
- Water point construction
- Other prescribed activities

4.4 Treatment Selection and Priorities

The strategic bushfire risk assessment undertaken for the entire MFMA, described above, was used to identify key communities and assets considered to be at risk of bushfire and prioritise the preparation and implementation of different treatment strategies. These priorities have also been included in the work schedule in Appendix 6.

Priority Communities and Treatments (See figure 4.1):

71. Campania

Investigate mitigation options for the Coal River Sugarloaf and Gunnings Sugarloaf. FRU to prepare Mitigation plan for Gunnings Tier, Coal River Sugarloaf, Lagoon Tier and Quoin Mt. FRU to provide advice on procedures to be used when planning and undertaking burning on Private Property.

72. Derwent Bridge

Implement mitigation options identified in Community Bushfire Mitigation Plan to reduce the risk posed by surrounding button grass moorlands to the township and other nearby assets. FT/STT and PWS have undertaken burning in this area in the past. These plans should be revisited and updated include areas around the township and along sections of the Lyell Hwy to maintain access and egress.

73/74. Ellendale/Westerway

Develop mitigation options for the Jones River/Mt Bethune/Meadowbank area.

82. Wayatinah

The surrounding vegetation has limited opportunity for large scale fuel reduction burning. Develop community bushfire response protection plan for this location.

69/70. Brandum Bay/Breona

Investigate mitigation options for these communities. TFS BPP Unit to prepare community bushfire protection and response plans. PWS to prepare local mitigation strategy if appropriate.

78. Miena

Investigate mitigation options for this communities. Significant area of private property surrounding the community suitable for treatment.

Strategic Areas and Treatments:

76. Huntingdon Tier/Harry Walker Tier

Investigate mitigation options for Harry Walker Tier and Huntingdon Tier, including Andersons Nature Reserve. FRU to coordinate the development of a Mitigation plan for Harry Walker Tier/Huntingdon Tier.

77/81. East Bagdad/Quoin Mt/Native Corners

Investigate mitigation options for Quoin Mt, Alpha Pinnacle and Lagoon Tier. FRU to develop Mitigation plan for Quoin Mt, Alpha Pinnacle, Lagoon Tier and Coal River Sugarloaf. Proceed with planned fuel reduction burns on private property. FRU to provide advice on procedures to be used when planning and undertaking mitigation works on Private Property.

80. Mt Dromedary

Investigate mitigation options for Mt Dromedary, including Black Hills, Tanina Bluff, Broadmarsh, and Upper Dromedary. FRU to coordinate multi agency development of mitigation plan.

75. Gravelly Ridge/Brown Mt

Investigate mitigation options for this area. PWS to scope out mitigation strategy for this area and evaluate potential for mitigation plan.

132/133. Western Tiers/MT Field Alpine areas

Investigate mitigation options for extremely fire-sensitive, iconic alpine vegetation, including alpine conifers. Develop a Bushfire Mitigation Plan and Bushfire Response Plan to identify options to minimise the likelihood of wildfire and improve outcomes of wildfire suppression.

Note: Mitigation options include:

- Fuel Reduction Burning
- Fire trail construction and maintenance
- Water point construction
- Other prescribed activities

Figure 3.1: Priority areas in the Midlands FMA.

4.5 Annual Works Programs

The annual program of works is identified in the *Treatment Schedule* at Appendix 6. Land managers and fire agencies identified as responsible for completion of the treatments identified in the *Treatment Schedule* will be consulted with negotiation for incorporation of the works into their respective annual works programs and planning processes. The *Treatment Schedule* in Appendix 6 also includes other existing works programs of agencies and organisations with land management responsibilities in the MFMA, as represented on the MFMA Committee.

4.6 Implementation

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

4.7 TFS Community Fire Safety Programs

Community Education- Bushfire-Ready Neighbourhoods Program and Bushfire Policy and Planning-Community Protection Planning have the following plans for the Midlands FPP area:

TFS Community Bushfire Mitigation Plans

FMAC	Bushfire Protection Plan	Date of Issue
Midlands	Derwent Bridge	December 2016

TFS Bushfire Protection Plans

FMAC	Bushfire Protection Plan	Date of Issue
Midlands	Bagdad Area	March 2013
Midlands	Bushy Park & Karanja	October 2013
Midlands	Campania area	October 2013
Midlands	Colebrook	March 2017
Midlands	Derwent Bridge	October 2015
Midlands	Ellendale Area	October 2013
Midlands	Fentonbury	March 2013
Midlands	Greater Bagdad	March 2013
Midlands	Kempton Area	March 2013
Midlands	Maydena	March 2013
Midlands	National Park	July 2013
Midlands	Ouse	October 2014
Midlands	Wayatinah	August 2017
Midlands	Westerway	March 2013

TFS Bushfire Response Plans

FMAC	Bushfire Response Plan	Date of Issue
Midlands	Bagdad Area	March 2012
Midlands	Bushy Park & Karanja	September 2013
Midlands	Campania area	April 2013
Midlands	Derwent Bridge	November 2015
Midlands	Ellendale Area	October 2013
Midlands	Fentonbury	March 2012
Midlands	Greater Bagdad	March 2012
Midlands	Kempton Area	March 2012
Midlands	Maydena	March 2012
Midlands	National Park	March 2012
Midlands	Ouse	2014
Midlands	Westerway	March 2012
Midlands	*Boyer/Lawitta/Magra*	*2017*

4.8 Community Engagement and Education

Bushfire-Ready Neighbourhoods Program - Tasmanian Fire Service

A Community Development Coordinator and regionally based Community Development Officers (Hobart, Launceston and Burnie) have identified 22 communities/areas state-wide which are being targeted by the Bushfire-ready neighbourhoods program as part of round 2 (2016 to 2018) of the program. The program takes a community development ('grass roots') approach and recognises that there isn't a one size fits all approach to bushfire preparedness, highlighting that 'we all play a part' (individuals, TFS, communities). Specifically the program takes a community led approach providing local community members in higher bushfire risk areas community engagement activities for preparing for and preventing bushfire/s. The program is facilitated by accessing existing community networks and resources and developing localised strategies in bushfire preparedness. Some of the planned community engagement activities include; community forums, information sessions for communities and brigades alike, workshops, property assessments, field days, focussed group activities and establishment of Bushfire-ready neighbourhood groups.

Bushfire-Ready Neighbourhoods has been working with residents on preparedness education and community development initiatives in the areas of Campania and Native Corners from 2016 and will continue to April/May 2020.

For more information about the Bushfire-Ready Neighbourhoods Program visit: fire.tas.gov.au/brn

Chapter 5 Monitoring and Review

Monitoring and review processes are in place to ensure that the FPP remains current and valid. These processes are detailed below to ensure outcomes are achieved in accordance with the *Project Plan* and *Treatment Schedule*.

5.1 Review

This FPP, including appendices, will be subject to a comprehensive review every five (5) years from the date of approval, unless significant circumstances exist to warrant earlier review. This would include:

- Changes to the FPP area, organisational responsibilities or legislation;
- Changes to the bushfire risk in the area; or
- Following a major fire event.

5.2 Monitoring

The *Treatment Schedule* at Appendix 6 is a living document and progression towards completion of the treatments will be monitored and reviewed at least every six (6) months. The *Treatment Schedule* will be updated as treatments are progressed and completed.

5.3 Reporting

A report detailing progress towards implementation of this FPP will be provided annually.

References

Parks and Wildlife Service (unpublished). Bushfire Risk Assessment Model Project Business Process Model (2008). Department of Primary Industries, Parks, Water and Environment, Hobart.

Parks and Wildlife Service (unpublished). Tasmanian Bushfire Risk User Guide (2010). Department of Primary Industries, Parks, Water and Environment, Hobart.

Parks and Wildlife Service (unpublished). Tasmanian Bushfire Risk Assessment Model V?? (2013). Department of Primary Industries, Parks, Water and Environment, Hobart.

NERAG Risk Assessment Guidelines.

Appendices

Appendix 1 – Maps of Midlands FMAC area displaying identified priority areas

Appendix 2 – BRAM – explanatory materials

Appendix 3 – NERAG risk assessment approach

Appendix 4 – Bushfire Risk Assessment Maps – likelihood and values at risk

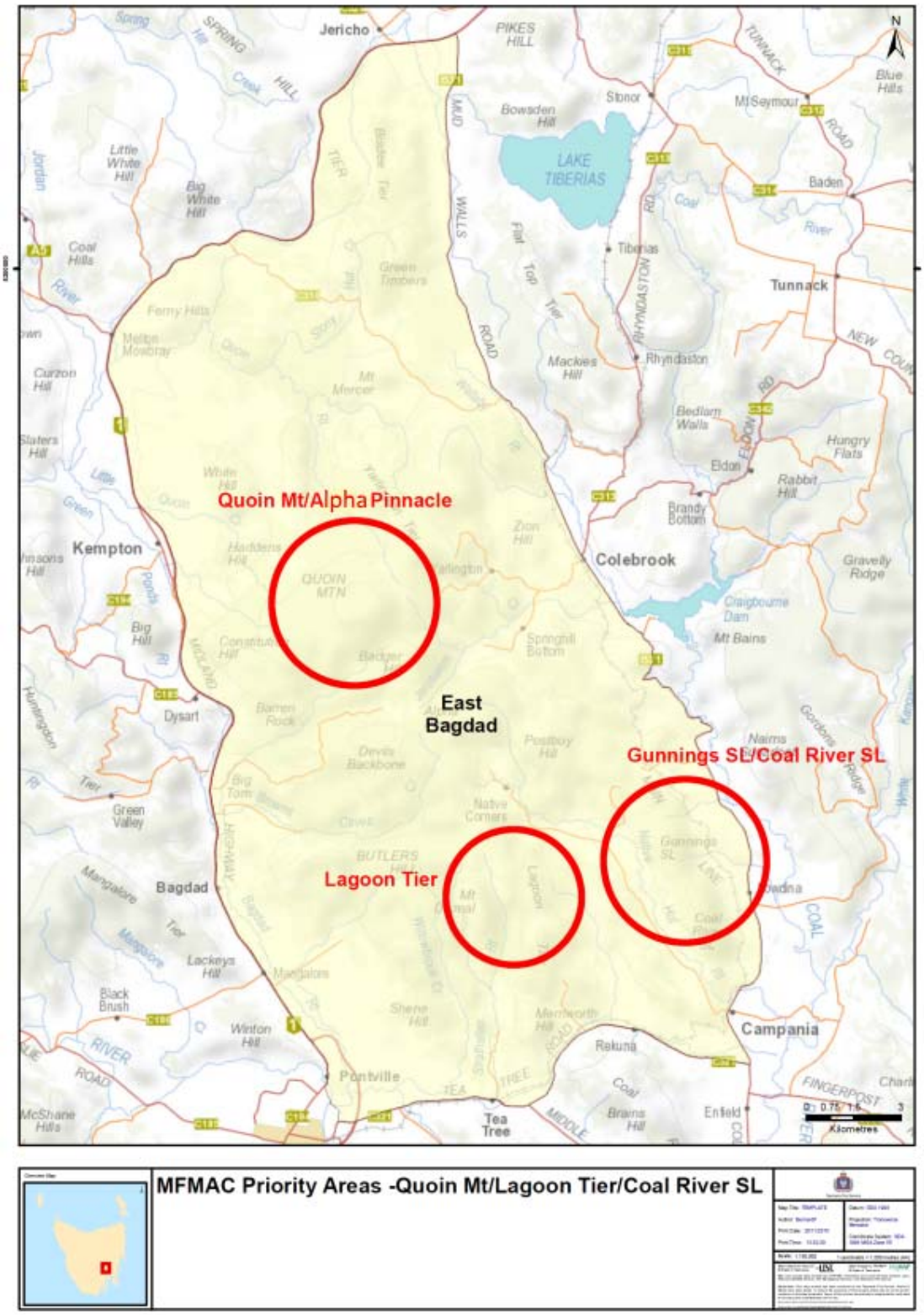
Appendix 5 – Community specific plans already in place

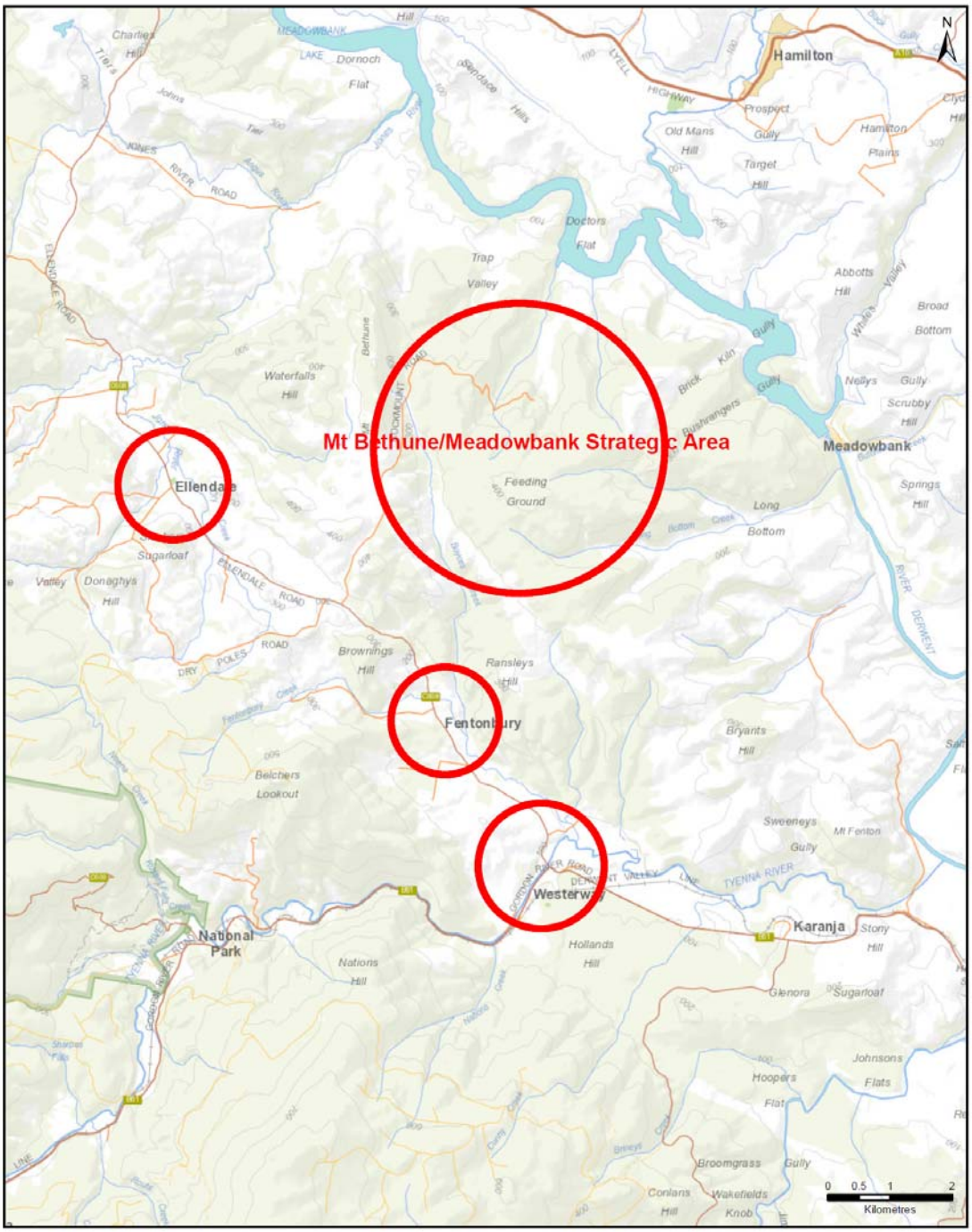
Appendix 6 – Treatment schedule - annual works program

Appendix 7 – Description of vegetation communities

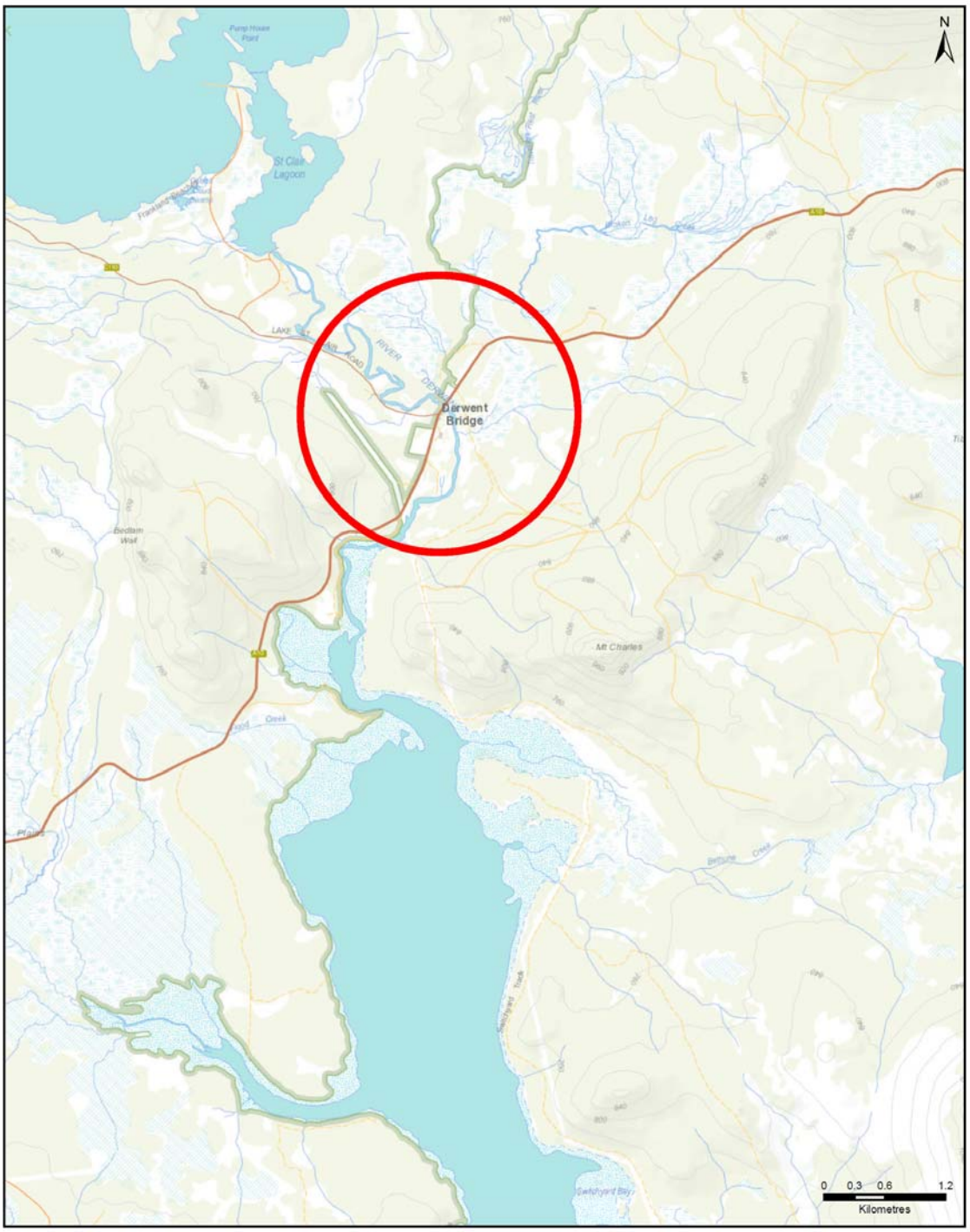
Appendix 1 – Maps of FMAC area displaying identified priority areas

It must be noted that the areas circled on these maps are to indicate the general area to be targeted for investigation and do not represent the boundaries of mitigation works. The actual boundaries for mitigation works will be determined after field investigations are undertaken.





MFMAC Priority Areas - Ellendale/Fentonbury/Westerway



MFMAC Priority Areas - Derwent Bridge

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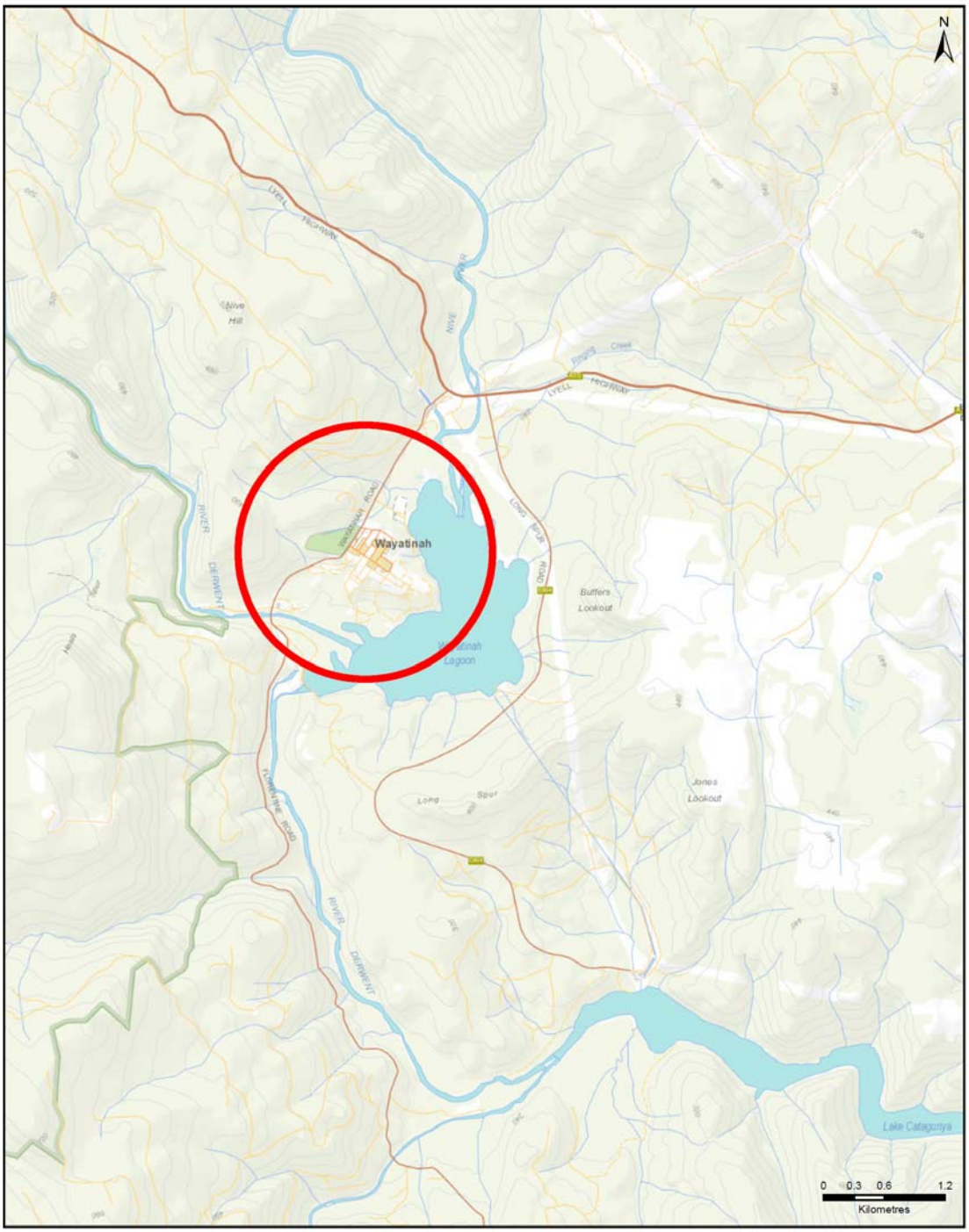
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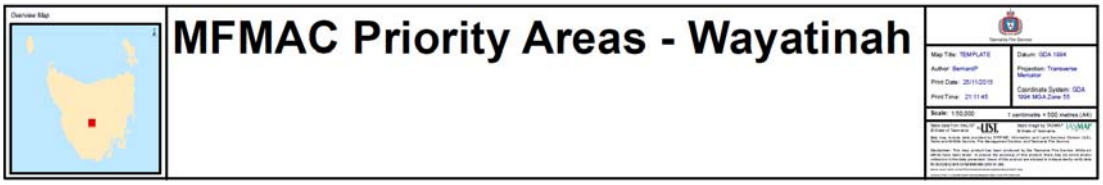
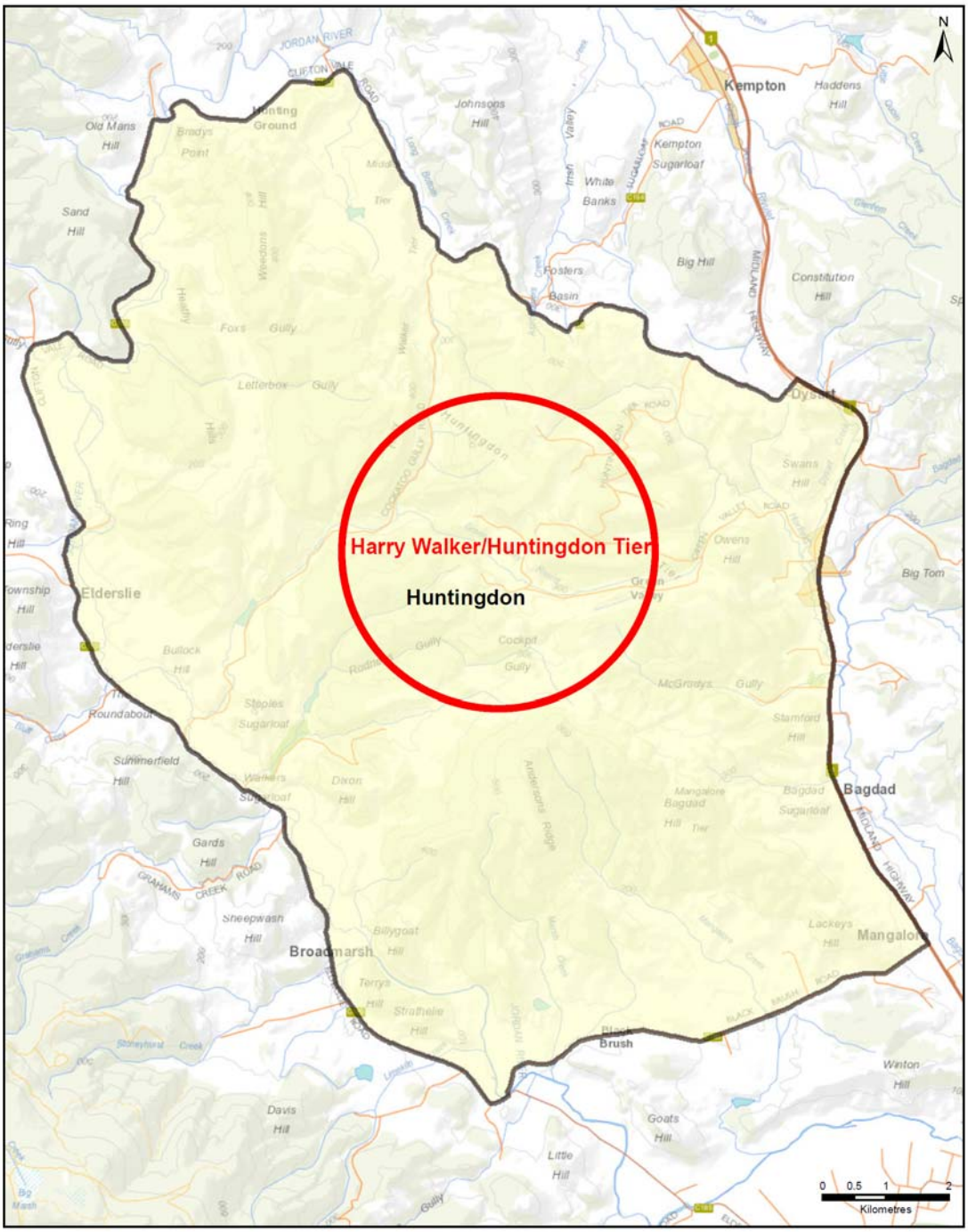

Overview Map
MFMAC Priority Areas - Wayatinah

MFMAC Priority Areas -Brandum Bay/Breona



MFMAC Priority Areas - Huntingdon Tier/Harry Walker Tier

MFMAC Priority Areas - Mt Dromedary

Appendix 2 - The Bush Fire Risk Model (BRAM)

Background

The Bushfire Risk Assessment Model (BRAM) is a software product that was developed by the Fire Management Section of the Parks and Wildlife Service (Department of Primary Industries, Parks, Water and Environment). The aim of the model is identify bush fire risk at a strategic level as well as to identify the elements driving actual bush fire risk.

A stakeholder group was set up to oversee the process. Stakeholders involved in developing the process included:

- Parks and Wildlife Service;
- Tasmania Fire Service;
- Sustainable Timber Tasmania;
- Tasmanian Farmers and Graziers Association;
- State Emergency Service:
- Forest Industries Association of Tasmania;
- Local Government Association of Tasmania;
- Natural & Cultural Heritage , DPIPWE;
- NRM ;
- Tasmanian Aboriginal land and Sea Council;

Additional working groups were set up to advise on specialist areas such as values at risk, suppression capabilities, ignition potential, and fire behaviour.

The process is aligned to the Australian/New Zealand Standard AS/NZS 4360:2004 Australian Standard Risk Management and the updated standard AS/*NZS ISO 31000:2009 Risk management – Principles and guidelines*. Risk is defined as the" effect of uncertainty on objectives" with a focus of the effect on the objectives

The process

The model is built in a geographic information system that utilizes various spatial orientated data, fire behaviour and fuel accumulation models and climate records. The data and values were developed by consensus of a range of stakeholders

The process applies the same set of assessment rules to the data contained in the model , thus it can be applied across the state. The process is tenure blind

The BRAM identifies the **likelihood and consequence of a fire** at a particular point. The risk is determined through the use of a qualitative risk matrix incorporating likely hood and values at risk (consequences). The process identifies the actual risk at that point not the perceived risk. The output is in the form of layers identifying the likelihood, values at risk and actual risk

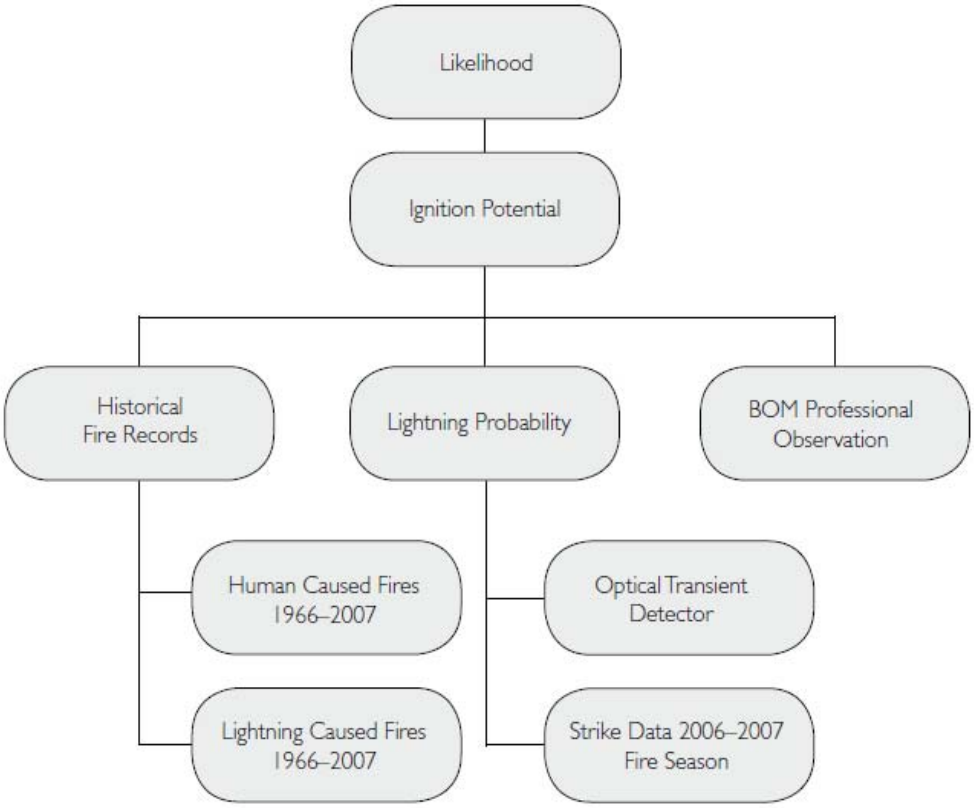
The model uses 4 major areas to calculate risk

- Fire behaviour potential - the manner in which fuel ignites, flame develops, and fire spreads and exhibits other related phenomena (likelihood).

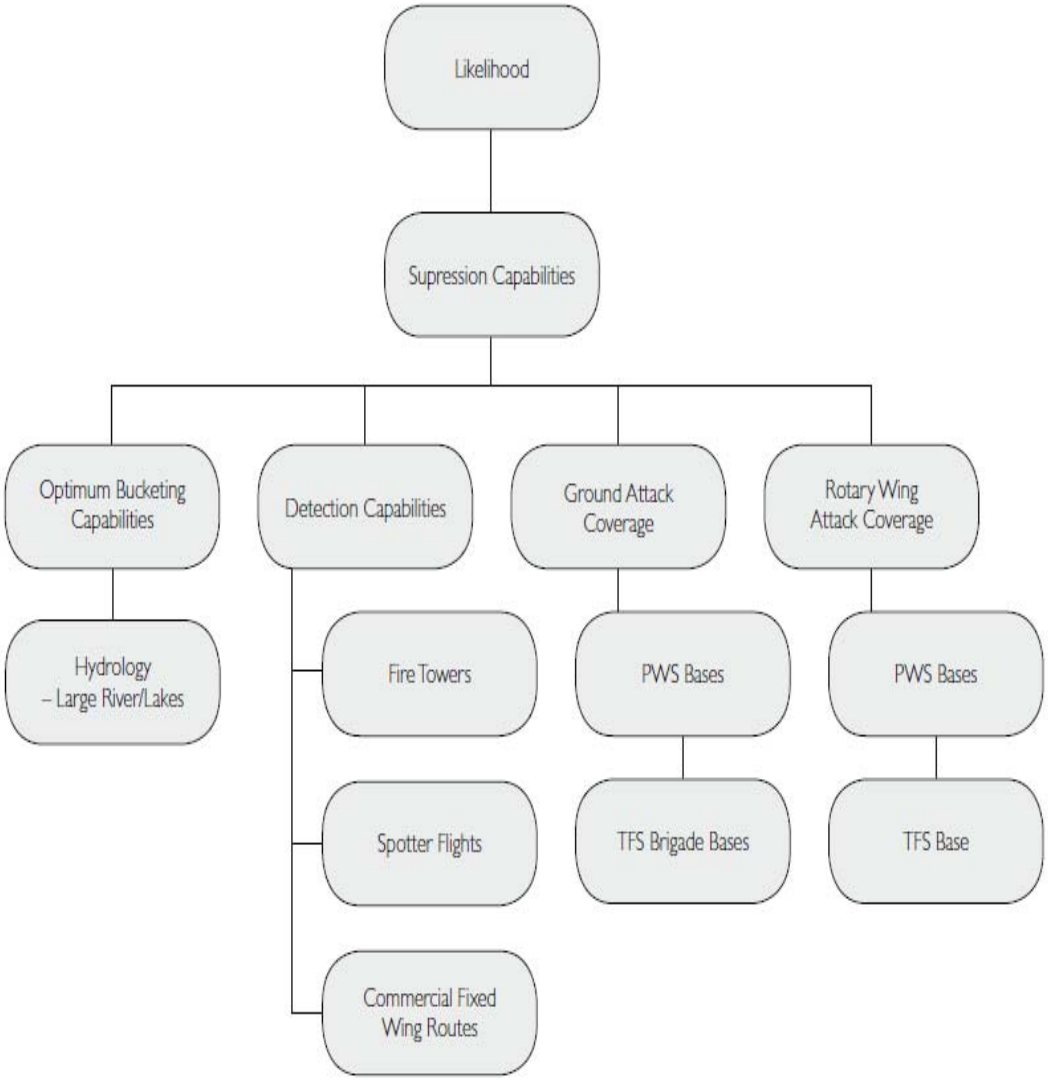
- Ignition potential - the probability or chance of fire starting as determined by the presence of causative agents (likelihood).

- Suppression capability - the factors and limitations that are related to the ability to contain a bushfire upon detection (likelihood).
- Values at risk - a specific or collective set of natural resources and man-made improvements and/or developments that have measurable or intrinsic worth, and which could potentially be destroyed or otherwise altered by fire in any given area (consequence

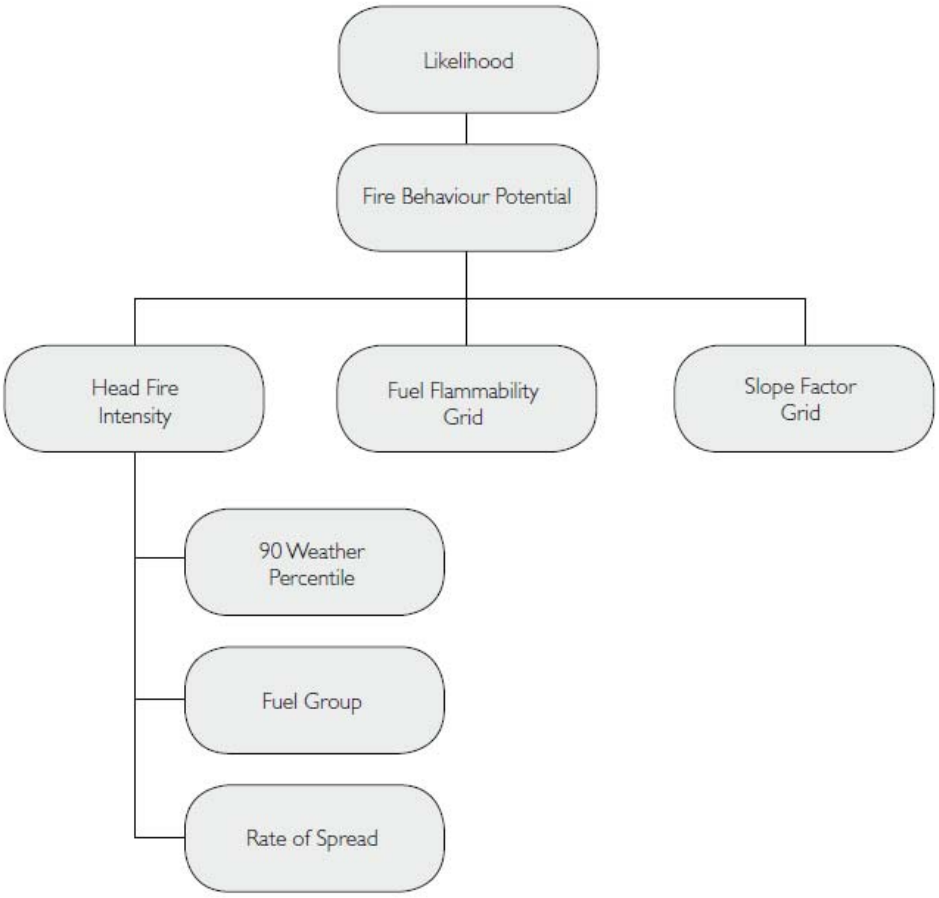
Ignition potential



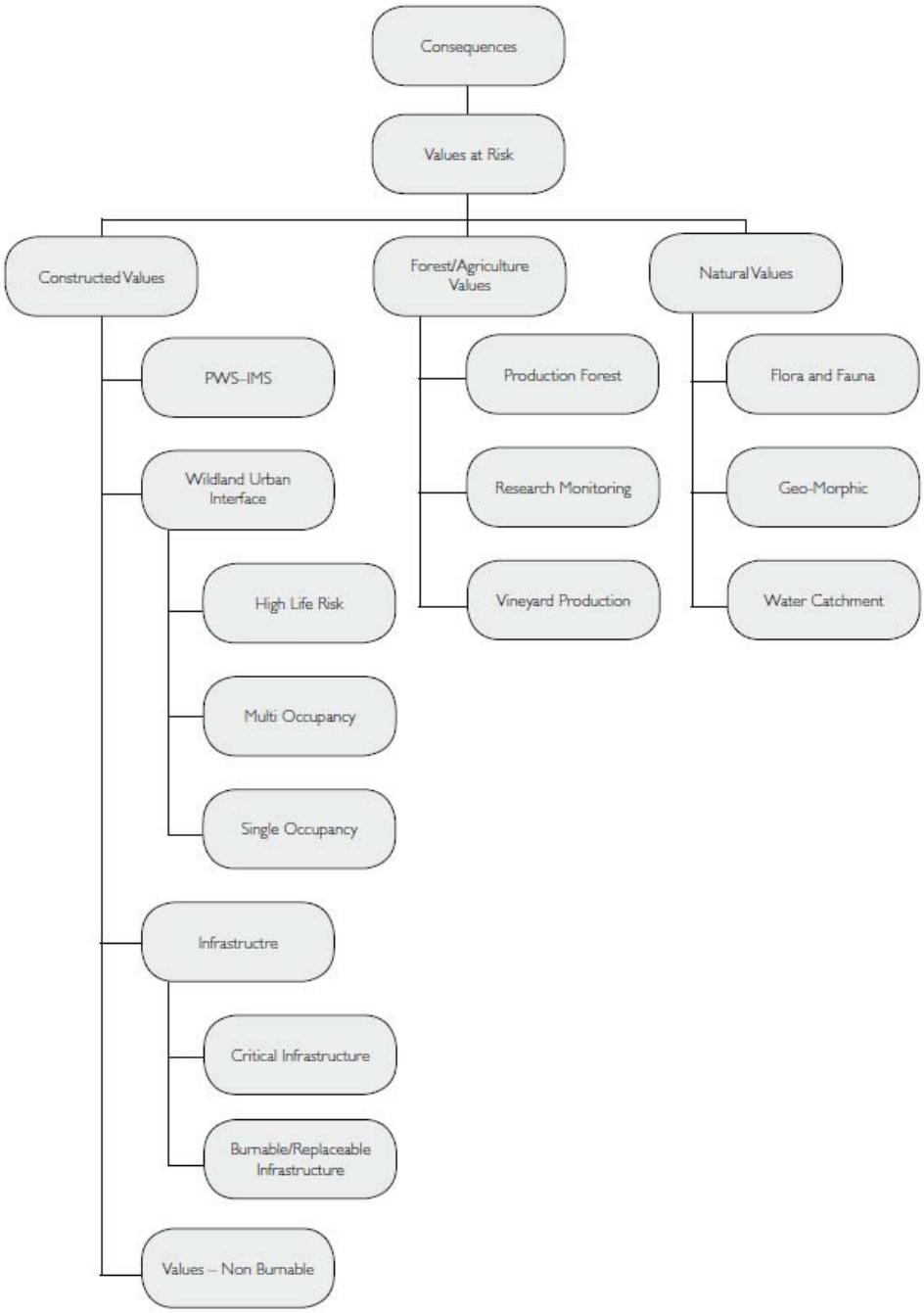
Suppression capabilities



Fire Behaviour Potential



Values at risk



Limitations of the process

- BRAM **does not** incorporate the likelihood and consequence **at the same point** from a fire occurring in an adjacent area.

- BRAM does not display the risks posed by an area adjacent to a particular point.

- Mitigation works undertaken on adjacent areas do not change the risk at a particular point.

- The process is based on available data, there are significant gaps in data eg fire history on private lands,

- Untested assumptions – may over/underestimate risk

Appendix 3 – NERAG risk assessment approach

(Derived from the National Emergency Management Committee (2010), *National Emergency Risk Assessment Guidelines*, Tasmanian State Emergency Service, Hobart)

The NERAG provide a methodology to assess risks from emergency events and are principally concerned with risk assessment**.** The NERAG methodology was utilised in development of the BRAM to develop the final risk profile

The guidelines are not intended to address the entire risk management framework or the risk management process as outlined in AS/NZS ISO 31000:2009. However, because they focus on the assessment of risks from emergency events, they ultimately direct the management of emergency risks in line with the international standards for risk management.

The guidelines aim to provide a risk assessment methodology that:

- enables focus on risks in small (e.g. municipal) or large (e.g. regional and/or state and/or national) areas
- is useable for both risk 'from' and risk 'to' (e.g. risk from bushfire, risk to infrastructure from all or specific sources of risk)
- uses a scenario-based approach
- samples risk across a range of credible consequence levels
- identifies current risk under existing controls and residual risk assuming implementation of additional controls or control improvements
- provides base-line qualitative risk assessments and triggers for more detailed analysis
- allows risk evaluation at varying levels of confidence
- Provides outputs that are comparable, which rate risk and suggests means to reduce risk.

Risk analysis is the element in the process through which the level of risk and its nature is determined and understood. Information from risk analysis is critical to rank the seriousness of risks and to help decide whether risks need to be treated or not. In this phase, control opportunities are also identified. The analysis involves consideration of possible consequences, the likelihood that those consequences may occur (including the factors that affect the consequences), and any existing control that tends to reduce risks. During this phase the level of confidence in the analysis is assessed by considering factors such as the divergence of opinion, level of expertise, uncertainty, quality, quantity and relevance of data and information, and limitations on modelling. At the conclusion of this step, all identified risks are categorised into risk levels and given a risk rating, and statements concerning existing controls and their adequacy are made.

NERAG takes an all hazards approach and provides a method that is suitable for considering other sources of risk beside fire

Consequence table

Consequence level	People	Environment	Economy	Public Administration	Social Setting	Infrastructure
Catastrophic	Widespread multiple loss of life(mortality > 1 in ten thousand), Health systems unable to cope, Displacement of people beyond a ability to cope	Widespread severe impairment or loss of ecosystem functions across species and landscapes, irrecoverable environmental damage	Unrecoverable financial loss > 3% of the government sector's revenues, asset destruction across industry sectors leading to widespread failures and loss of employment	Governing body unable to manage the event, disordered public administration without effective functioning, public unrest, media coverage beyond region or jurisdiction	Community unable to support itself, widespread loss of obj3ects of cultural significance, impacts beyond emotional and psychological capacity in all parts of the community	Long term failure of significant infrastructure and service delivery affecting all parts of the community, ongoing external support at large scale required
Major	Multiple loss of life (mortality > 1 in 0ne hundred Thousand), Heath system over stressed, Large numbers of displaced people(more than 24 hours)	Serious impairment or loss of ecosystem functions affecting many species or landscapes, progressive environmental damage	Financial loss 1-3% of the governments sector's revenues requiring major changes in business strategy to (partly) cover loss, significant disruptions across industry sectors leading to multiple business failures and loss of employment	Governing Body absorbed with managing the event, public administration struggles to provide merely critical services, loss of public confidence in governance, media coverage beyond region jurisdiction	Reduces quality of life within the community, significant loss or damage to objects of cultural significance, impacts beyond emotional and psychological capacity in large parts of the community	Mid- to long term failure of significant infrastructure and service delivery affecting large parts of the community, initial external support required
Moderate	Isolated cases of loss of life (mortality > 1 in one million), Health system operating at maximum capacity, isolated cases of displacement of people(less than 24 hours)	Isolated but significant cases of impairment or loss of ecosystem functions, intensive efforts for recovery required	Financial loss 0.3 – 1% of the governments sector's revenue requiring adjustments to business strategy to cover loss, disruptions to selected industry sectors leading to isolated cases of business failures and multiple loss of employment	Governing body manages the event with considerable diversion from policy, public administration functions limited by focus on critical services, widespread public protests, media coverage within region or jurisdiction.	Ongoing reduced services within community, permanent damage to objects of cultural significance, impacts beyond emotional and psychological capacity in some parts of the community	Mid-term failure of(significant) infrastructure and service delivery affecting some parts of the community, widespread inconveniences
Minor	Isolated cases of serious injury, heath system operating within Normal parameters	Isolated cases of environmental damage, one off recovery efforts required	Financial loss 0.1-0.3% of the governments sector's revenues requiring activation of reserves to cover loss, disruptions at business level leading to isolated cases of loss of unemployment	Governing body manages the event under emergency regime, Public administration functions with some disturbances, isolated expressions of public concern, media coverage within region or jurisdiction	Isolated and temporary cases of reduced services within the community, repairable damage to objects of cultural significance, impacts within emotional and psychological capacity of the community	Isolated cases of short– to mid-term failure of infrastructure and service delivery. Localised inconveniences
Insignificant	Near misses or minor injuries, no reliance on health system	Near missis or incidents without environmental damage , no recovery efforts required	Financial loss , 0.1% of the governments sector's revenues to be managed within standard financials	Governing body manages the event within normal parameters, public administration functions without	Inconsequential short-term reduction of services, no damages to objects of cultural significance, no	Inconsequential short-term failure of infrastructure and service delivery, no disruption to the public services

			provisions, inconsequential disruptions at business level	disturbances, public confidence in governance, no media attention	adverse emotional and psychological impacts	

Impact Category Definitions

Impact Category Definitions	
People	Relates to the direct impacts of the emergency on the physical health of people/ individuals and emergency services(i.e. health systems) ability to manage Mortality defined as the ration of deaths in a an area of the population to the population of that area; expressed as per 1000 per years
Environment	Relates to the impacts of the emergency and its effects on the ecosystem of the area, including fauna and flora
Economy	Relates to the economic impacts of the emergency on the governing body as reported in the annual operating statement for the relevant jurisdiction, and industry sectors as defined by the Australian Bureau of statistics
Public Administration	Relates to the impacts of the emergency on the governing body's ability to govern
Social setting	Relates to the impacts of the emergency on society and its social fabric, including its cultural heritage, resilience of community
Infrastructure	Relates to the impacts of the emergency on the areas infrastructure/ lifelines/utilities and its ability to service the community Long term failure = repairs will take longer than 6 months Mid-to long term failure = repairs may be undertaken in 3 to 6 months Mid-term failure = repairs may be undertaken in 3 to 6 months Short to mid term failure = repairs may be undertaken in 1 week to 3 months Short-term failure = repairs may be undertaken in less than 1 week

Likelihood table

Likelihood level	Frequency	Average Recurrence Interval	Annual Exceedance probability
Almost certain	One of more per year	< 3 years	.0.3
Likely	Once per 10 years	3 – 30 years	0.031 – 0.3
Possible	Once per one hundred years	31- 300 years	0.0031 – 0.03
unlikely	One per thousand years	301 – 3,000 years	0.00031 – 0.003
Rare	One per ten thousand years	3,001 – 30,000 years'	0.000031 – 0.0003
Very Rare	Once per hundred thousand years	30,001 - 300,000 years	0.0000031 – 0.0003
Almost Incredible	Less than one per million years	>300,000 years	<0.0000031

Qualitative risk matrix

The qualitative risk matrix combines a level of consequence with a level of likelihood to determine a level of risk. The risk level, together with the confidence in the overall assessment process and other factors, will determine the need for detailed analysis and inform the treatment of risks

	Consequence level				
Likelihood level	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	Medium	High	Extreme	Extreme
like	Low	Medium	High	High	Extreme
Possible	Low	Low	Medium	High	High
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Medium	Medium
Very Rare	Low	Low	Low	Low	Medium
Almost incredible	Low	Low	Low	Low	low

Appendix 4 – Bushfire Risk Assessment Maps

BRAM Likelihood map of the MFMA

BRAM – Values at risk in the MFMA

Appendix 5 – Community specific plans already in place

Town/Area	Current Plans
Campania Area	TFS Response & Protection plans
Colebrook	TFS Protection plan
Bagdad/Green Valley/East Bagdad	TFS Response & Protection plans
Dysart/Mangalore/ Broadmarsh	TFS Response & Protection plans
Ellendale	TFS Response & Protection plans
Fentonbury	TFS Response & Protection plans
Kempton/Melton Mowbray	TFS Response & Protection plans
Wayatinah	TFS Response & Protection plan
Westerway	TFS Response & Protection plans
PWS controlled land within the MFMA	PWS Southern Region Strategic Fire Management Plan

Explanation of plans:

1. Community Bushfire Response Plan:

- The purpose of a Community Bushfire Response Plan, (CBRP) is for emergency managers to better protect communities and their assets during bushfire emergencies.

2. Community Bushfire Protection Plan

- The purpose of a Community Bushfire Protection Plan, (CBPP) is for community members to be provided with local information to assist with bushfire preparation and survival.

3. Community Bushfire Mitigation Plan

- The purpose of a Community Bushfire Mitigation Plan is to provide guidance regarding bushfire fuel management; to increase community bushfire safety and provide protection to important community assets.

Appendix 6 – Treatment Schedule - annual works program

Location	Summary	Tenure	Previous Treatment including current plans	Action required	Project implementation	Timeframe for completion	Overall FMAC Priority rating	Priority 2018
COMMUNITIES								
Campania 71	Large areas of dry forest to the NW of the town, in addition to risk of fast moving grass fires on agricultural lands.	Private Property	TFS Community Bushfire Protection and Response Plans. PWS Southern Region Fire Management Plan. Multiple fuel reduction burns undertaken Bushfire-Ready Neighbourhoods program	Investigate mitigation options for private property to the north west of the community. Continue Bushfire-Ready Neighbourhoods program	Preparation and implementation of fuel reduction burns FRU to provide advice on procedures to be used when planning and undertaking burning on Private Property. BPP Unit to provide technical advice on asset protection planning	Ongoing	High	High
Derwent Bridge 72	Small isolated town surrounded by a large proportion of button grass moorland. Lyell Hwy is the main access/egress. Major tourist route.	Combination of Private Property, PWS managed land and Permanent Timber Production Zone.	TFS Community Bushfire Protection, Response and Mitigation Plans. PWS North West Region Fire Management Plan. Past FRB's by FT and PWS	PWS and STT to maintain Derwent Bridge community as a priority within future WHA burning programmes. Implement mitigation options identified in Community Bushfire Mitigation Plan to reduce the risk posed by surrounding button grass moorlands to the township and other nearby assets. FT/STT and PWS have undertaken burning in this area in the past. These plans should be revisited and updated include areas around the township and along sections of the Lyell Hwy to maintain access and egress.	PWS and STT to identify FRB's that provide property protection to Derwent Bridge as priority within future WHA program TFS, PWS and STT to prepare operational burn plans and coordinate implementation of fuel reduction burns	Ongoing	High	High

Ellendale (including Fentonbury and Westerway) 73/74	These towns are better described as locations, as there are residences in small clusters from Westerway to Ellendale. Fires have started North of these communities and run in drier vegetation types on the ridges around Jones River and Mt Bethune.	Private Property. PWS managed land around Mt Bethune	TFS Community Bushfire Protection and Response Plans. PWS Southern Region Fire Management Plan.	PWS to monitor fuel accumulation and current risk within Mt Bethune Conservation Area Investigate mitigation options for the Jones River, Mt Bethune, and Meadowbank area.	FRU to provide advice on procedures to be used when planning and undertaking mitigation works on Private Property. BPP Unit to provide technical advice on asset protection planning		High	Low
Brandum Bay/Breona 69/70	Shack communities on the western side of Great Lake.	Private Property and PWS managed land	PWS Northern Region Fire Management Plan. Two FRB's undertaken over the past 12 months by PWS	PWS and STT to maintain communities as a priority within future WHA burning programmes. Prepare TFS Community Protection and Response plans. PWS to investigate mitigation options in this area	PWS and STT to identify FRB's that provide property protection to communities as priority within future WHA program TFS to prepare Community Bushfire Protection and Response plans. PWS have completed some burning in the area.	Future WHA burning program - ongoing Protection and response plans - Oct 2019	Medium	Medium
Miena 78	Shack communities at the southern end of Great Lake.	Predominantly Private Property	None	Investigate mitigation options for private property to the north west of the community.	FRU to prepare operational burn plans for private property.		High	High
Wayatinah 82	Surrounding vegetation has limited opportunities for large scale fuel reduction burning. Has two power stations and associated infrastructure within the general area.	Predominately Hydro and Permanent Timber Production Zone	PWS Southern Region Fire Management Plan. TFS Community Bushfire Protection Plan	Develop TFS Community protections and response plans	TFS BPP Unit to Community Bushfire Response plan for this area	October 2018	Medium	Medium

Location	Issue	Tenure	Previous Treatment including current plans	Action required	Project implementation	Timeframe for completion	Overall FMAC Priority rating	
Strategic Areas								
Huntingdon Tier/Harry Walker Tier 76	Strategically important to provide protection to communities including Bagdad, Mangalore, Broadmarsh.	Private Property, PWS managed land	PWS Southern Region Fire Management Plan. TFS Community Bushfire Protection and Response plans covering Bagdad, Green Valley, Dysart, Mangalore, Broadmarsh	Identification of priority areas for treatment within strategic area based on risk levels. Investigation and prioritisation of mitigation options across area Implementation of mitigation options.	TFS to coordinate assessment of bushfire risk and identification of priority areas for treatment. Investigation and implementation of mitigation options in priority areas to be progressed by relevant agency as tenure dictates FRU to provide advice on procedures to be used when planning and undertaking mitigation works on Private Property. BPP Unit to provide technical advice on asset protection planning	Ongoing	High	High
East Bagdad/Quoin Mt/Native Corners 71/77/81	Strategically important to provide protection communities including East Bagdad, Native Corners, Campania	Private Property, PWS managed land, Tas Land Conservancy	PWS Southern Region Fire Management Plan. Tas Land Conservancy are in the early stages of preparing fire management plans for areas under their management. TFS Community Bushfire Protection and Response plans covering Campania, Native Corners, Colebrook and Yarlington Three strategic FRB's completed by TFS Ongoing Bushfire-Ready Neighbourhoods program addressing Campania & Native Corners	Identification of priority areas for treatment within strategic area based on risk levels. Investigation and prioritisation of mitigation options across area Implementation of mitigation options Continue Bushfire-Ready Neighbourhoods program	TFS to coordinate assessment of bushfire risk and identification of priority areas for treatment. Investigation and implementation of mitigation options in priority areas to be progressed by relevant agency as tenure dictates FRU to provide advice on procedures to be used when planning and undertaking mitigation works on Private Property. BPP Unit to provide technical advice on asset protection planning	Ongoing	High	High
Central Highlands Mt Field Alpine Areas 132/133	Vegetation highly sensitive to fire including Pencil Pine and King Billy Pine. Considered of high value to the community	PWS managed land	PWS have burns planned away from veg type, but will be strategically important in protection.	Investigate mitigation options for these areas that are consistent with World Heritage Area values.	PWS to incorporate areas into broader World Heritage Area Planning to: • Identify options to minimise the likelihood of wildfire and • Improve outcomes of wildfire suppression.	Ongoing	High	High

Gravely Ridge/Brown Mt 75	Strategically important to provide protection to communities surrounding this area. There have been a number of illegal fire ignitions in the past.	PWS managed land, Private Property	PWS have planned burning in this area	Identification of priority areas for treatment within strategic area based on risk levels. Investigation and prioritisation of mitigation options across area Implementation of mitigation options	PWS to coordinate assessment of bushfire risk and identification of priority areas for treatment Investigation and implementation of mitigation options in priority areas to be progressed by relevant agency as tenure dictates	Ongoing	High	High

Dromedary 80	Strategically important to communities in the lower Derwent Valley. Fires from this area have spotted across the Derwent River to the northern slopes of Mt Faulkner in the past with the potential to impact on Hobart and suburbs.	Private Property, PWS managed land, Permanent Timber Production Zone	PWS Southern Region Fire Management Plan. TFS Community Bushfire Protection and Response Plan for Broadmarsh.	Identification of priority areas for treatment within strategic area based on risk levels. Investigation and prioritisation of mitigation options across area Implementation of mitigation options	TFS to coordinate assessment of bushfire risk and identification of priority areas for treatment. Investigation and implementation of mitigation options in priority areas to be progressed by relevant agency as tenure dictates		High	High

Note: Mitigation options include:

Fuel Reduction Burning
Fire trail construction and maintenance
Water point construction
Other prescribed activities

Appendix 7 – Description of vegetation types

Description of broad veg community types contained in the TASVEG mapping dataset:

Agricultural, urban and exotic vegetation

This broad vegetation group is mainly non-native vegetation and includes agricultural land, marram grassland, Spartina marshland, plantations for silviculture, regenerating cleared land, urban areas and weed infested areas. It also includes Pteridium esculentum fernland which is dominated by the native bracken fern, and Permanent easements, which may be occupied by native vegetation.

Dry sclerophyll forests

Dry sclerophyll forests and woodlands are typically dominated by eucalypts under 40 m in height, and have a multi-layered understorey dominated by hard-leaved shrubs, including eucalypt regeneration .Dry sclerophyll forests are mainly found on dry, infertile and exposed sites and are largely confined to coastal areas.

Highland Treeless Vegetation

Highland treeless vegetation communities occur within the alpine zone where the growth of trees is impeded by climatic factors. Alpine vegetation is generally treeless, although there may be some widely scattered trees, generally less than two metres high. The altitude above which trees cannot survive in the north-east highlands of Tasmania can be as high as 1400m. Fire is, at present, the most serious threat to Highland treeless vegetation in Tasmania.

Moorland, sedgeland, rushland, and peatland

This group contains moorland, rushland, sedgeland and peatland predominantly on low-fertility substrates in high rainfall areas. Fire is a defining factor for the vegetation communities in this group, with both its intensity and frequency largely dictating the form of the vegetation.

Tasmanian buttongrass moorland is a unique vegetation type in a global context: it is the only extensive vegetation type dominated by hummock-forming tussock sedge *(G. sphaerocephalus*). Buttongrass moorland is at the interface of terrestrial and wetland systems, with much of it seasonally waterlogged.

Native Grasslands

Native grasslands are defined as areas of native vegetation dominated by native grasses with few or no emergent woody species. Different types of native grassland can be found in a variety of habitats, including coastal fore-dunes, dry slopes and valley bottoms, rock plates and subalpine flats. The lowland temperate grassland types have been recognised as some of the most threatened vegetation communities in Australia.

Some areas of native grassland are human-induced and exist as a result of heavy burning, tree clearing or dieback of the tree layer in grassy woodlands.
There are seven grassland communities recognised by TASVEG: one is coastal, four are lowland, one is highland, and one is found in both highland and lowland areas. Floristic differences, altitudinal distribution and environmental situation are used to define the communities.

Non eucalypt forest and woodland

These forest and woodland communities are grouped together either because they are native forests and woodlands not dominated by eucalypt species or because they do not fit into other forest groups. If there is a functional attribute most share, it is the widespread initiation of even-aged stands by fire and the ability of many of them to form closed–canopy forests. Some of these communities have been referred to as “dry rainforests”.

Other natural environments:
This mapping unit includes land which is largely bare of vegetation such as sand, mud, water, or sea. Natural rocky areas such as scree slopes, boulders and exposed bedrock (and associated lichen species) are also included in this broad vegetation community type.

Rainforest and related scrub
Tasmanian rainforest is structurally and floristically variable and it is defined by the presence of species of any of the genera Nothofagus, Atherosperma, Eucryphia, Athrotaxis, Lagarostrobos, Phyllocladus or Diselma. Occasionally some understorey species, for example Anodopetalum biglandulosum or Richea pandanifolia, may occur as dominants (Jarman & Brown 1983). Much rainforest falls within the structural definition of closed-forest (Specht 1970) but some types, such as scrub rainforest and subalpine rainforests, do not fit this category.
Rainforest occurs from sea level to about 1 200 m. Tasmanian cool temperate rainforest has affinities with rainforests in south-east Australia, New Zealand and the Andean region of southern Chile and Argentina. One notable difference is that Tasmanian rainforest has a lower diversity of tree species.

Saltmarsh and Wetland
Wetlands are among the most productive ecosystems on earth, fulfilling many environmental and socio-economic functions. They act as breeding grounds for many species of fish, water birds, amphibians and insects. Many wetlands are important as stopover points for migratory bird species. Plant communities in wetlands filter water and disperse heavy flow in times of flood.
Saltmarshes are saline types of wetlands. They occur predominantly on low-energy coastlines where wave action does not hinder the establishment of vascular plants. In Tasmania the best examples can be seen in sheltered inlets and bays on the east and south coasts, with other large areas present in the far north-west of the State and on some of the Bass Strait islands.

Scrub, heathland and coastal complexes
Scrubs, heathlands and the diverse complexes that they may form are, with a few notable exceptions, dominated by scleromorphic species. The canopy structure of the woody plants in these communities varies from 30 to 100% solid crown cover and is usually 5 m or less in height. While this height is the arbitrary divide between forest (including woodland) and scrub (Specht 1970), taller vegetation is included in these mapping units when it maintains a dense scrubby structure and/or a floristic composition indistinguishable from communities typically 5 m or less in height.
Scrub and heathland communities typically have only two strata; a dominant layer of shrubs comprising one to many species; and a ground layer of herbs, orchids, prostrate shrubs, ferns and occasionally grasses and/or sedges. Some heath and scrub vegetation also includes emergent trees, but where present, these never form more than 5% solid crown cover.

Wet Sclerophyll Forest communities:
Wet sclerophyll forests are typically dominated by eucalypts and have an understorey dominated by broad-leaved (soft-leaved) shrubs. Trees in mature forest generally exceed 40 m in height. As with the related mixed forest, wet sclerophyll forests typically contain only one or two eucalypt age classes - these relate to period since fire or other major disturbance (including intensive logging and regeneration burning). Often only one species of eucalypt is present. The shrub understorey is dominated by broad-leaved shrubs and is generally dense, preventing continuous regeneration of shade-intolerant species such as eucalypts. Ferns are often prominent in the ground layer.

Source:
1. Forest Practices Authority (2005). Forest Botany Manual. Forest Practices Authority, Tasmania:
2. Kitchener, A. and Harris, S. (2013). From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation. Edition 2. Department of Primary Industries, Parks, Water and Environment, Tasmania