



# **East Coast Fire Management Area**

## **Fire Protection Plan**

### **2018**

## Document Control

### Document History

Version	Date	Author	Section
1.0		MP & ECFMAC	Draft
2.0	28/11/16	BSP & ECFMAC	Draft
2.1	9/12/16	BPS & LW	Final
2.2	21/12/17	DH & ECFMAC	Final

### Document Endorsements

Agency	Name & Title	Signature	Date

### Document Endorsement

Endorsed by East Coast FMAC A/Chair – Mark Klop

Date: 20/12/2017

### Accepted by State Fire Management Council



SFMC Chair – Ian Sauer

Date: 20 April 2018

## Table of Contents

Document Control .....	2
Document History.....	2
Document Endorsements .....	2
Endorsed by State Fire Management Council.....	
Glossary.....	5
Acronyms.....	6
Chapter 1 Introduction.....	7
1.1 Background .....	7
1.2 Aim and Objectives .....	7
1.3 Policy, Standards and Legislation.....	7
Standards .....	7
Legislation .....	8
Chapter 2 Establishing the Context.....	9
2.1 Description of the East Coast Fire Protection Plan Area .....	9
2.1.1 Location, Boundaries and Land Tenure.....	9
2.1.2 Climate and Bushfire Season.....	12
2.1.3 Vegetation .....	13
2.1.4 Population and Demographics .....	15
2.1.5 Bushfire Frequency and Causes of Ignition .....	17
Fire Ignition Cause .....	17
Chapter 3 Analysing and Evaluating Bushfire Risk .....	20
3.1 Analysing Bushfire Risk .....	20
3.2 Likelihood .....	20
3.3 Consequence (values at risk).....	20
3.4 Overall Risk.....	20
3.5 Risk Analysis for the East Coast Fire Management Area.....	21
Chapter 4 Bushfire Risk Treatment.....	25
4.1 Region Wide Controls.....	25
4.2 Asset Specific Treatment Strategies .....	25
4.3 Community Assessment.....	25
4.4 Treatment Selection and Priorities .....	28
4.5 Annual Works Programs .....	31

4.6	Implementation .....	31
4.7	TFS Community Fire Safety Programs .....	31
Chapter 5	Monitoring and Review .....	33
5.1	Review .....	33
5.2	Monitoring .....	33
5.3	Reporting .....	33
References	.....	33
Appendices	.....	34
Appendix 1	– Maps of ECFMAC selected priority areas .....	35
Appendix 2	- The Bush Fire Risk Model (BRAM) .....	41
Appendix 3	– NERAG risk assessment approach .....	46
Appendix 4	– Bushfire Risk Assessment Maps .....	52
Appendix 5	– Community specific plans already in place .....	54
Appendix 6	– Treatment schedule - annual works program .....	55
Appendix 7	– Description of vegetation types .....	60

## Glossary

<b>Asset</b>	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.
<b>Bushfire</b>	Unplanned vegetation fire. A generic term which includes grass fires, forest fires and scrub fires both with and without a suppression objective. <sup>1</sup>
<b>Bushfire hazard</b>	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.
<b>Bushfire risk management</b>	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.
<b>Consequence</b>	The outcome or impact of a bushfire event.
<b>Human Settlement Area (HSA)</b>	A spatial data set that defines an area where people live or work.
<b>Likelihood</b>	The chance of something occurring.
<b>Risk</b>	The effect of uncertainty on objectives. <sup>2</sup> (Note: Risk is often expressed in terms of a combination of the consequences of an event and the associated likelihood of occurrence.)
<b>Risk acceptance</b>	The informed decision to accept a risk, based on the knowledge gained during the risk assessment process.
<b>Risk analysis</b>	The application of consequence and likelihood to an event in order to determine the level of risk.
<b>Risk assessment</b>	The systematic process of identifying, analysing and evaluating risk.
<b>Risk criteria</b>	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. <sup>3</sup>
<b>Risk evaluation</b>	The process of comparing the outcomes of risk analysis to the risk criteria in order to determine whether a risk is acceptable or tolerable.
<b>Risk identification</b>	The process of recognising, identifying and describing risks.
<b>Risk treatment</b>	A process to select and implement appropriate measures undertaken to modify risk.

---

<sup>1</sup> Australasian Fire and Emergency Service Authorities Council 2012, *AFAC Bushfire Glossary*, AFAC Limited, East Melbourne, Australia

<sup>2</sup> Standards Australia 2009, *Risk management – Principles and guidelines*, AS/NZS 31000:2009, Standards Australia, Sydney, Australia

<sup>3</sup> 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
DoD	Department of Defence
FIAT	Forest Industry Association Tasmania
FMAC	Fire Management Area Committee
FPP	Fire Protection Plan
FRU	Fuel Reduction Unit
ECFMA	East Coast Fire Management Area
NERAG	National Emergency Risk Assessment Guide
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 East Coast Fire Management Area (ECFMA).

The **objective** of this FPP is to effectively manage bushfire related risk within the ECFMA 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

## 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*



## 2.1 Description of the East Coast Fire Protection Plan Area

### 2.1.1 Location, Boundaries and Land Tenure

The plan area covers approximately 393,000ha and follows the coastline from the Tasman Peninsular in the South, to Bicheno in the North, and extends inland approximately 35km at its widest point. Altitude varies from sea level along the coast to 742m above sea level at Moaners Tier, located just to the east of Tooms Lake.

Over half of the area (55%) consists of private property (Figure 2.2; Table 2.1). National Parks and Reserves (occupying approximately one quarter of the area), and Permanent Timber Production Zone occupying the majority of the remaining lands.

Land Manager/Agency	% of Land Managed within the FMA
Private Property	55
DPIPWE (including Parks and Wildlife Service and Crown land Services)	30
Sustainable Timber Tasmania	10
Other	5

**Table 2.1: Overview of land tenure in the ECFMA.**



Figure 2.1: Location of the ECFMA.

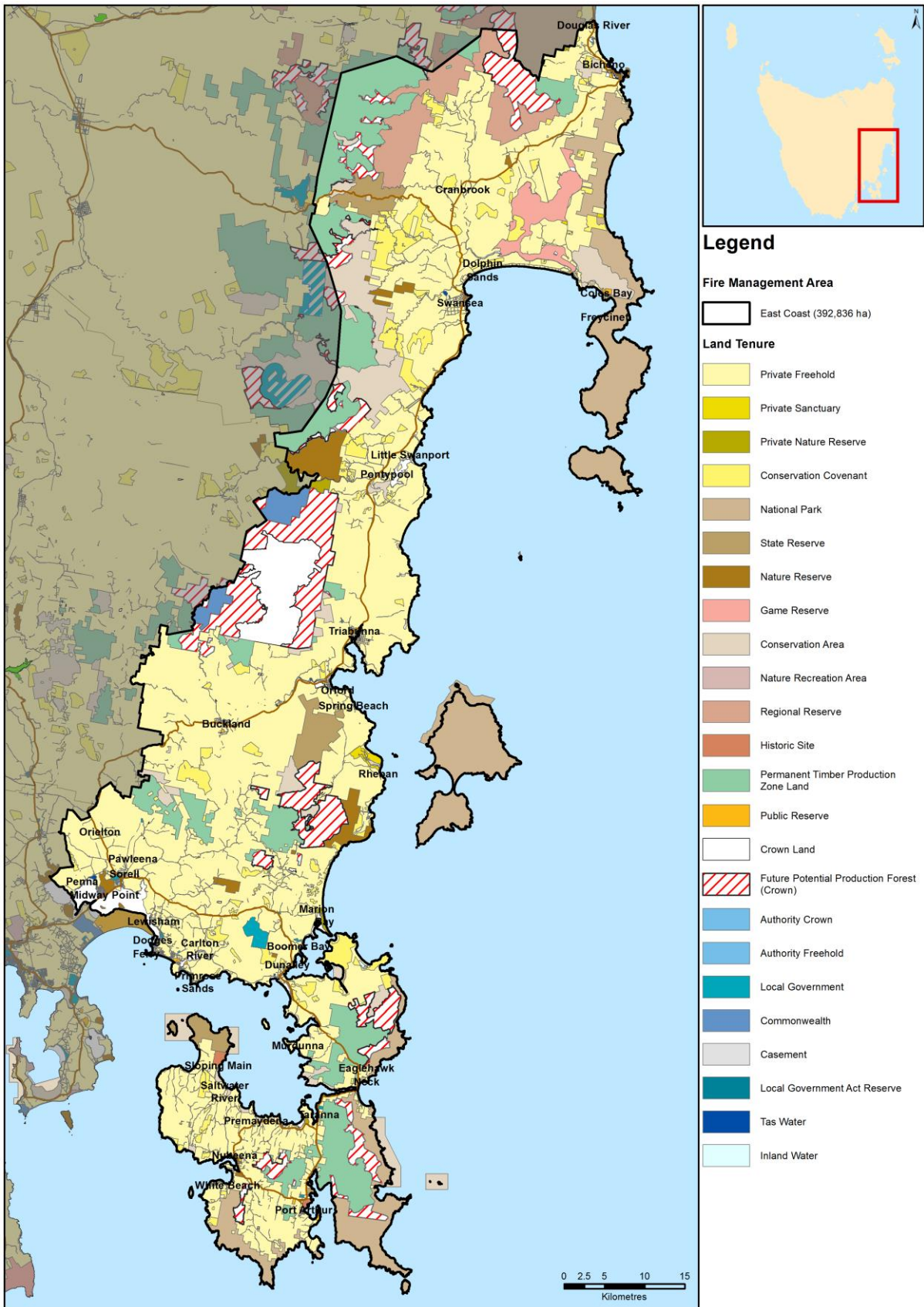


Figure 2.2: Land tenure across the ECFMA.

### 2.1.2 Climate and Bushfire Season

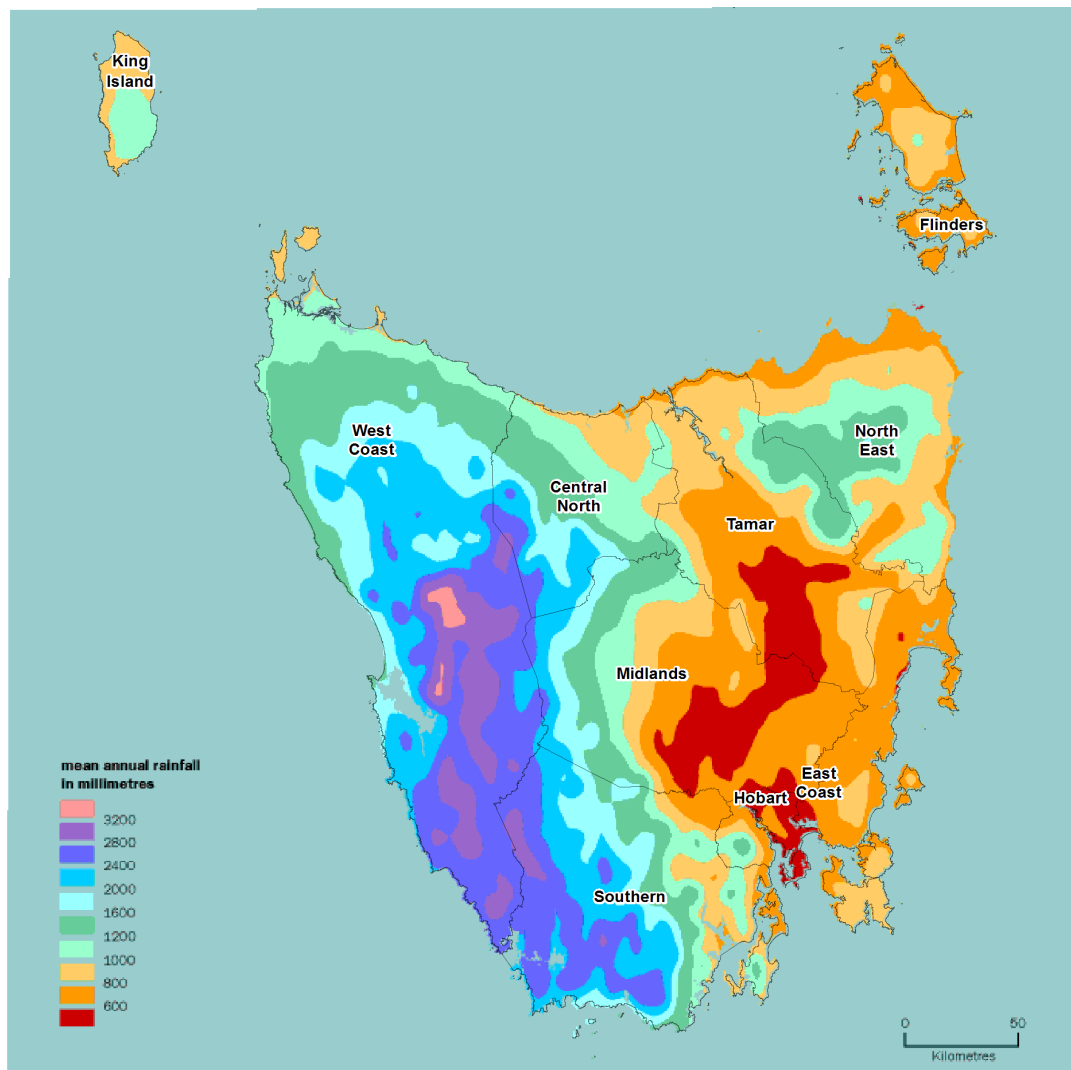
For much of the year Tasmania's weather is dominated by westerly weather patterns. This results in moist air being forced over rugged mountains in western and central areas of Tasmania causing heavy rainfall in these areas as the air moves eastward. The result is relatively dry air reaching eastern parts of Tasmania. The exception to this is the East Coast Low that forms in the Tasman Sea and brings moist easterly winds, often causing heavy localised rainfall events. Falls in excess of 100mm in a 24 hour period are not uncommon. On average one or two of these events is experienced each year. Within the ECFMA average rainfall varies from 593mm at Swansea to 1148mm at Palmers lookout on the Tasman Peninsula.

1. The ECFMA can experience long periods of dryness with the Soil Dryness Index (SDI) being above 100mm for much of the year. Fire weather can be experienced in parts of the FMA throughout the year, June/July possibly being the exceptions.

Temperatures at coastal sites are moderated by the maritime influence with areas further inland experiencing more extremes of temperature.

Relevant BoM weather stations within the ECFMA:

- Bicheno
- Swansea
- Orford
- Dunalley
- Friendly Beaches
- Maria Island
- Spring Bay
- Tasman Island



**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 ECFMA is dominated by dry Eucalypt forest (55%) and agricultural areas (23%). Wet Eucalypt forests (10%) exist on more productive soils in higher rainfall areas which are predominately located around the Tasman Peninsula and higher elevations of the Eastern Tiers. Highly flammable coastal complexes are particularly prevalent around Coles Bay, the Freycinet Peninsula and the Tasman Peninsula.

The vegetation in the ECFMA 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.

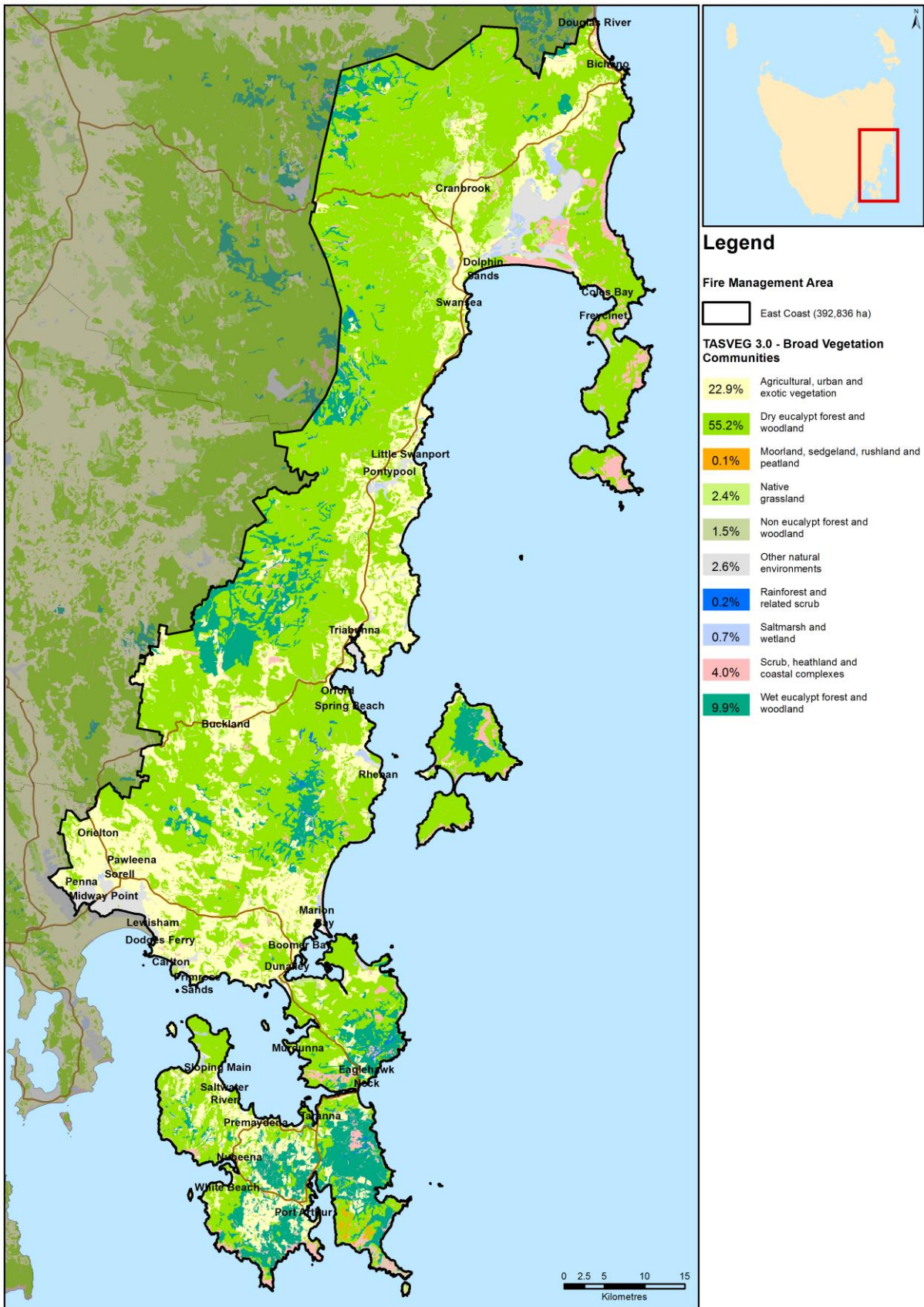


Figure 2.4: Vegetation types across the ECFMA (based on grouped TASVEG vegetation mapping units).

## 2.1.4 Population and Demographics

The ECFMA 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, 2011), with highest densities occurring around towns and in the southwest corner of the area, closest to the outer settlements of Hobart. Many areas within the ECFMA experience an increase in visitation during the summer tourism period.

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 ECFMA include:

- Nubeena
- Dunalley
- Dodges Ferry
- Sorell,
- Orford
- Triabunna
- Swansea
- Coles Bay
- Bicheno.

The main areas of growth are focussed around Dodges Ferry and Sorell with many new residential housing developments occurring in these areas.

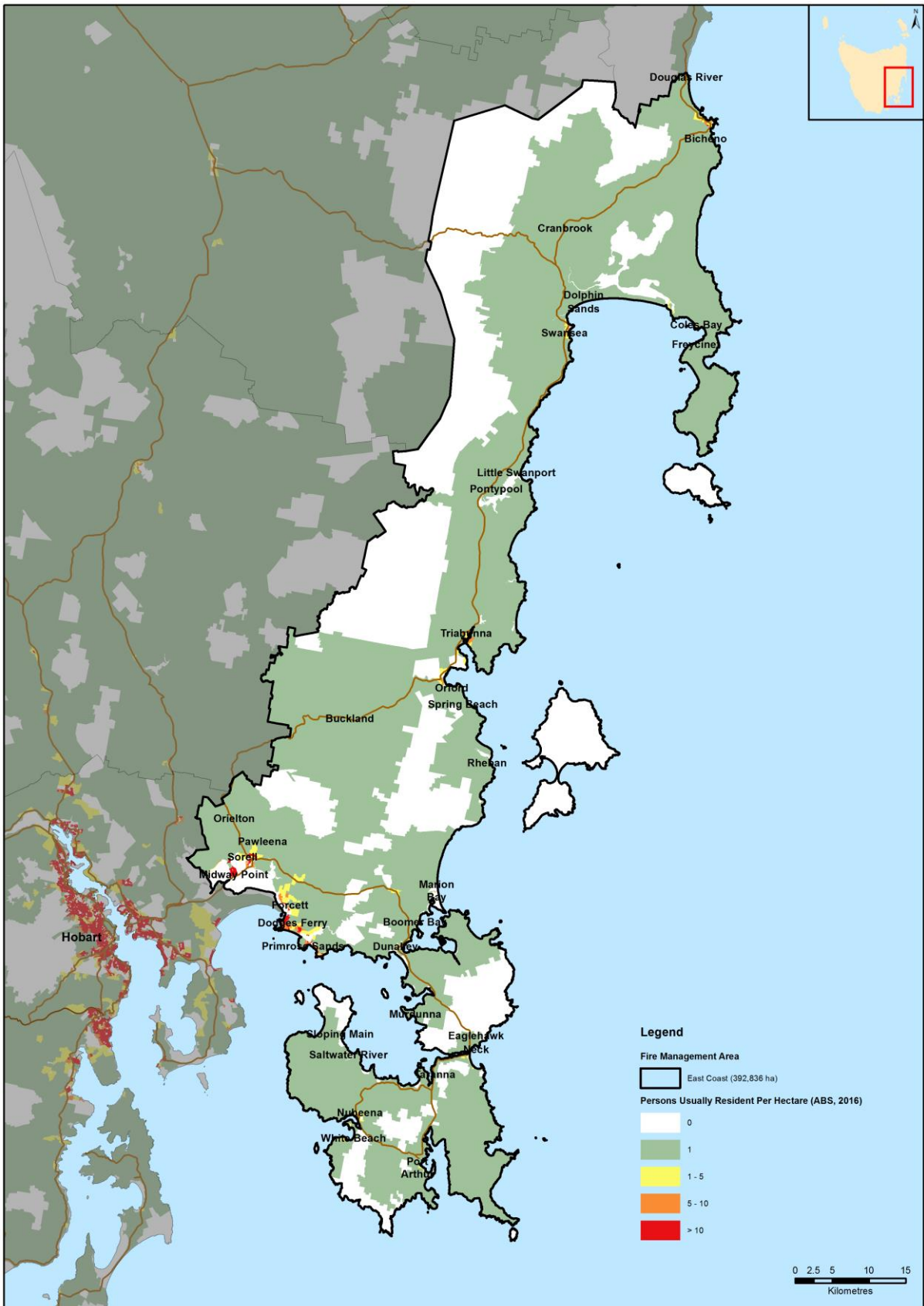


Figure 2.5: Population statistics in the ECFMA – No. of residents per ha (Australian Bureau of Statistics 2011).



### 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 ECFMA have been obtained from records provided by the Tasmania Fire Service, Parks and Wildlife Service and Sustainable Timber 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.

#### Fire Ignition Cause

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

Of the most recent fire records available for the ECFMA, the ignition cause for the majority of fires was classed as unknown (17%), recreation (17%), arson (16%), escapes from planned burns (15%), Accidental (4%), and undetermined (3%) See figure 2.7.

Fire Name	Area Burnt (ha)
Inala Rd 2013	23400
Tasman Highway Bicheno 2013	4830
Douglas Apsley FRB 2007/08	8900
Kellevie 2006	16000
Oakwood Hill 2003	4500
Thirty Acre Creek 1995	4000
Watersmeeting 1994	12400
Baldy Hill 1994	6900
Donkeys Track 1994	8327

Table 2.2: Major Fires in the ECFMA since 1982.

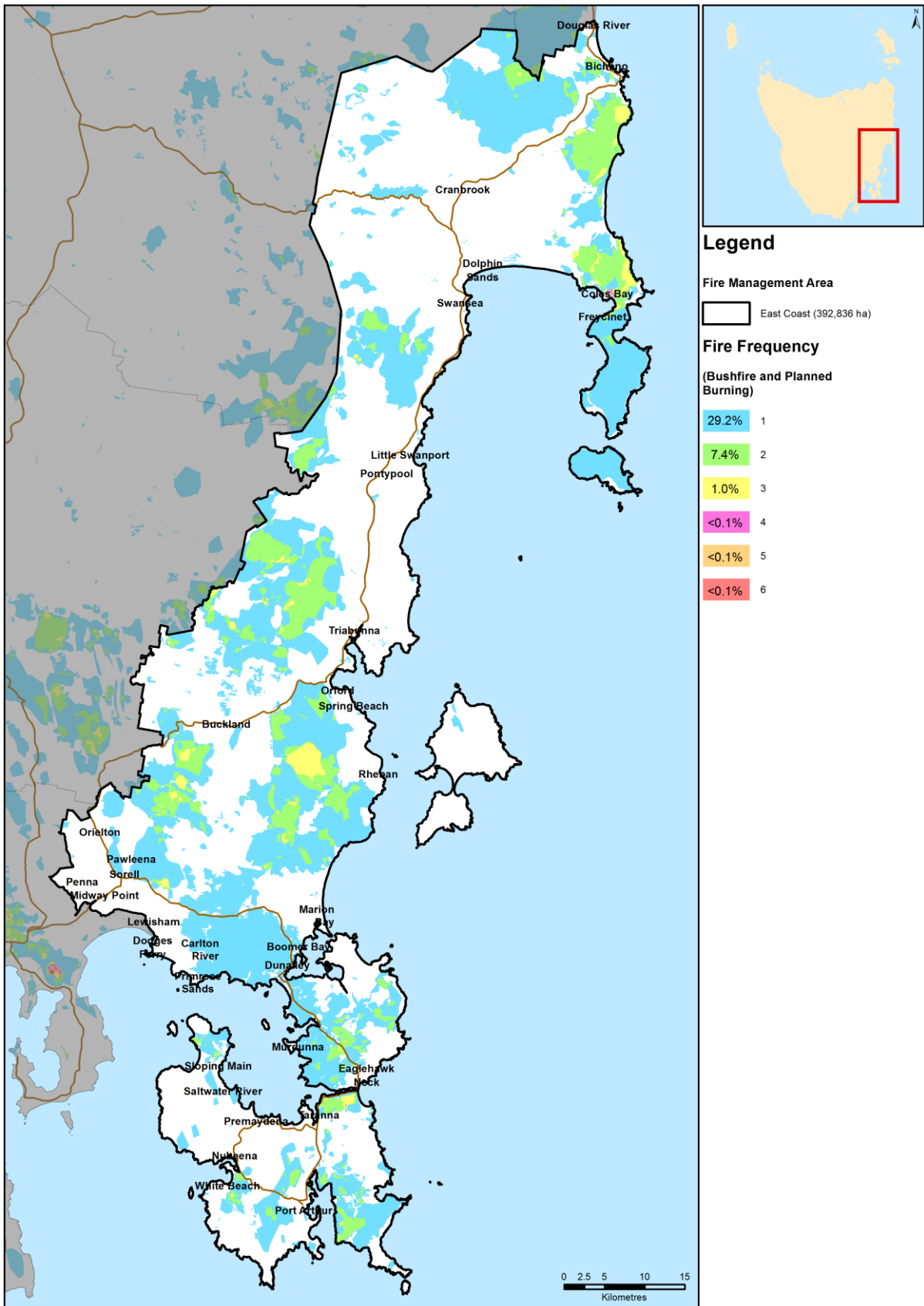


Figure 2.6: Areas affected by fire

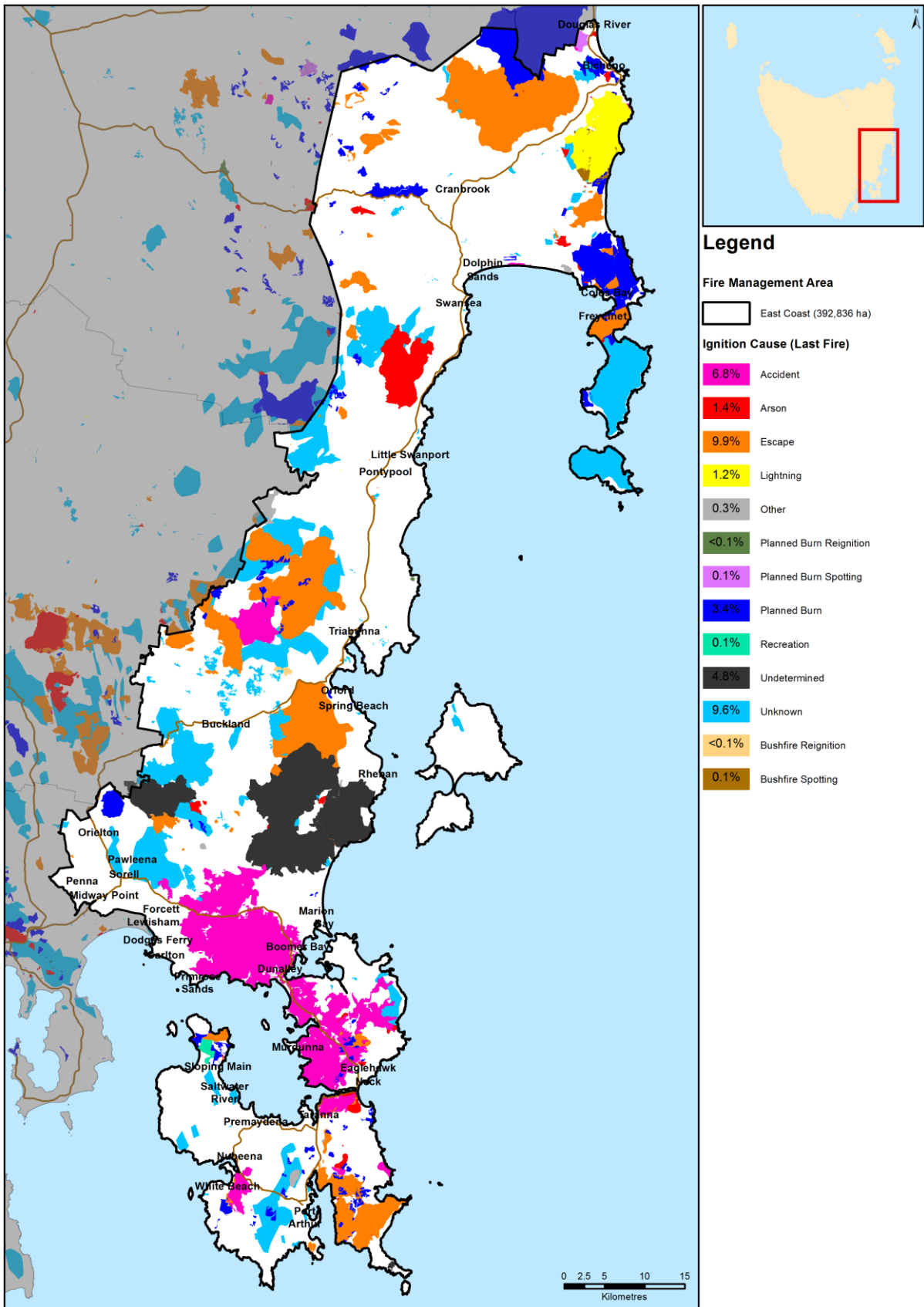


Figure 2.7: Fire Cause

## 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 state-wide 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 ECFMA, 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 East Coast Fire Management Area

The bush fire risk Model BRAM, discussed above, was utilised to examine risk across the ECFMA. 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 ECFMA. 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 ECFMA with areas (ha) of impact under current fuel loads.

An understanding of the location of 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 of 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 ECFMA. 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 ECFMA. In summary, 63% of fuels are treatable by burning, while 37% are untreatable through burning.

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 (37% 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 becomes available allowing refinement of this category.

**Note:** Bushfire Risk Assessment Maps are also provided in Appendix 5.

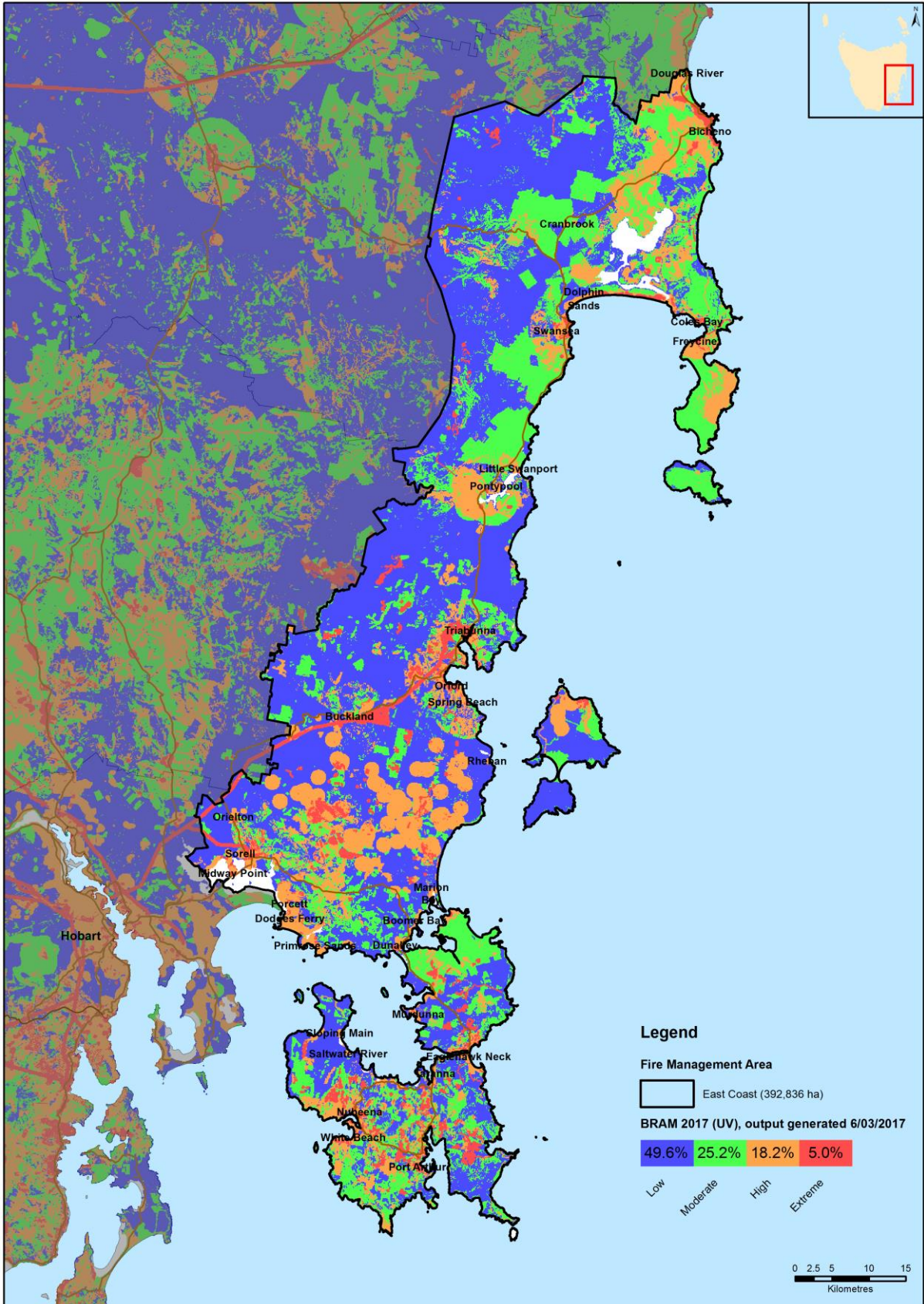
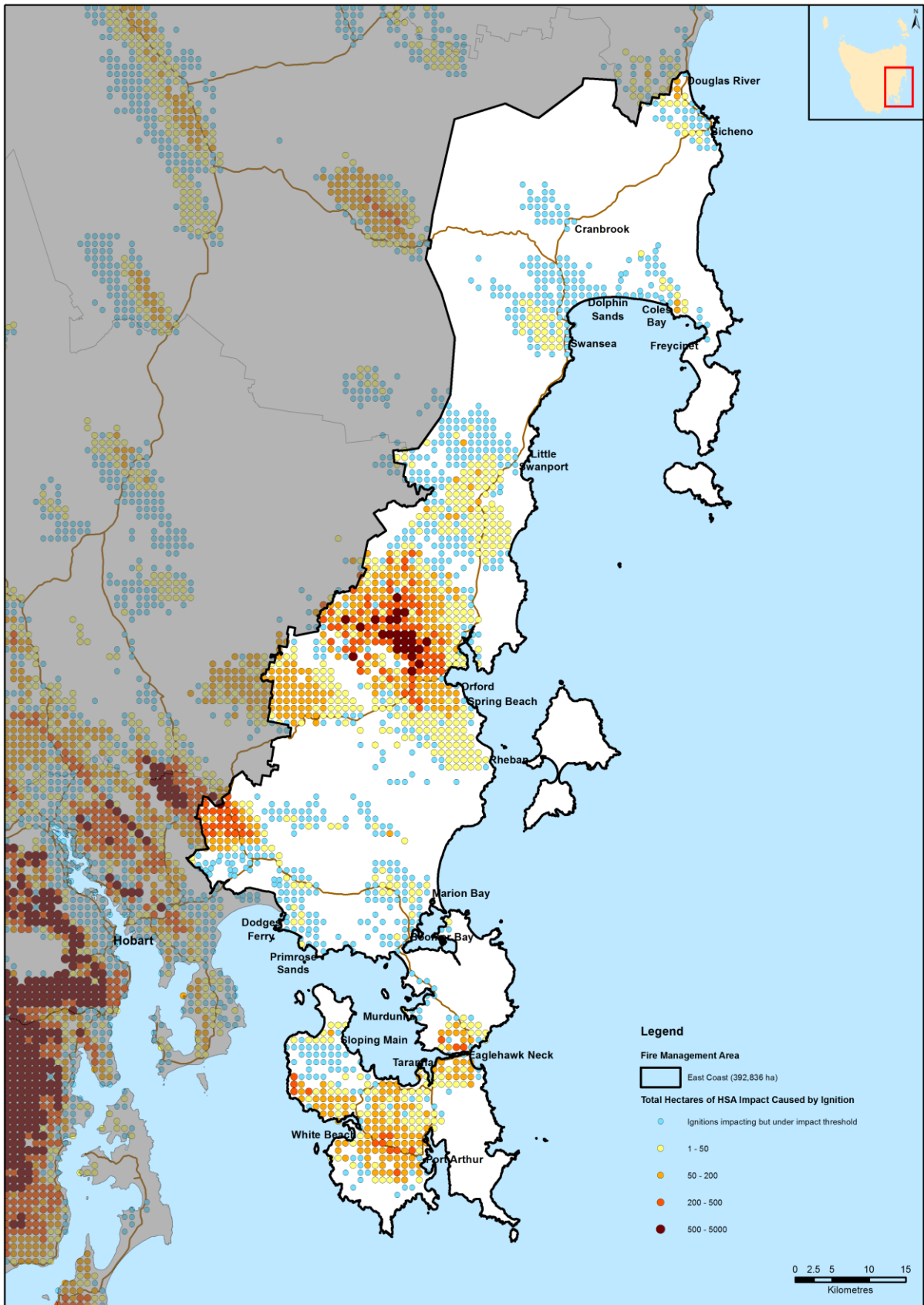


Figure 3.1: BRAM Bushfire risk across the ECFMA.



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

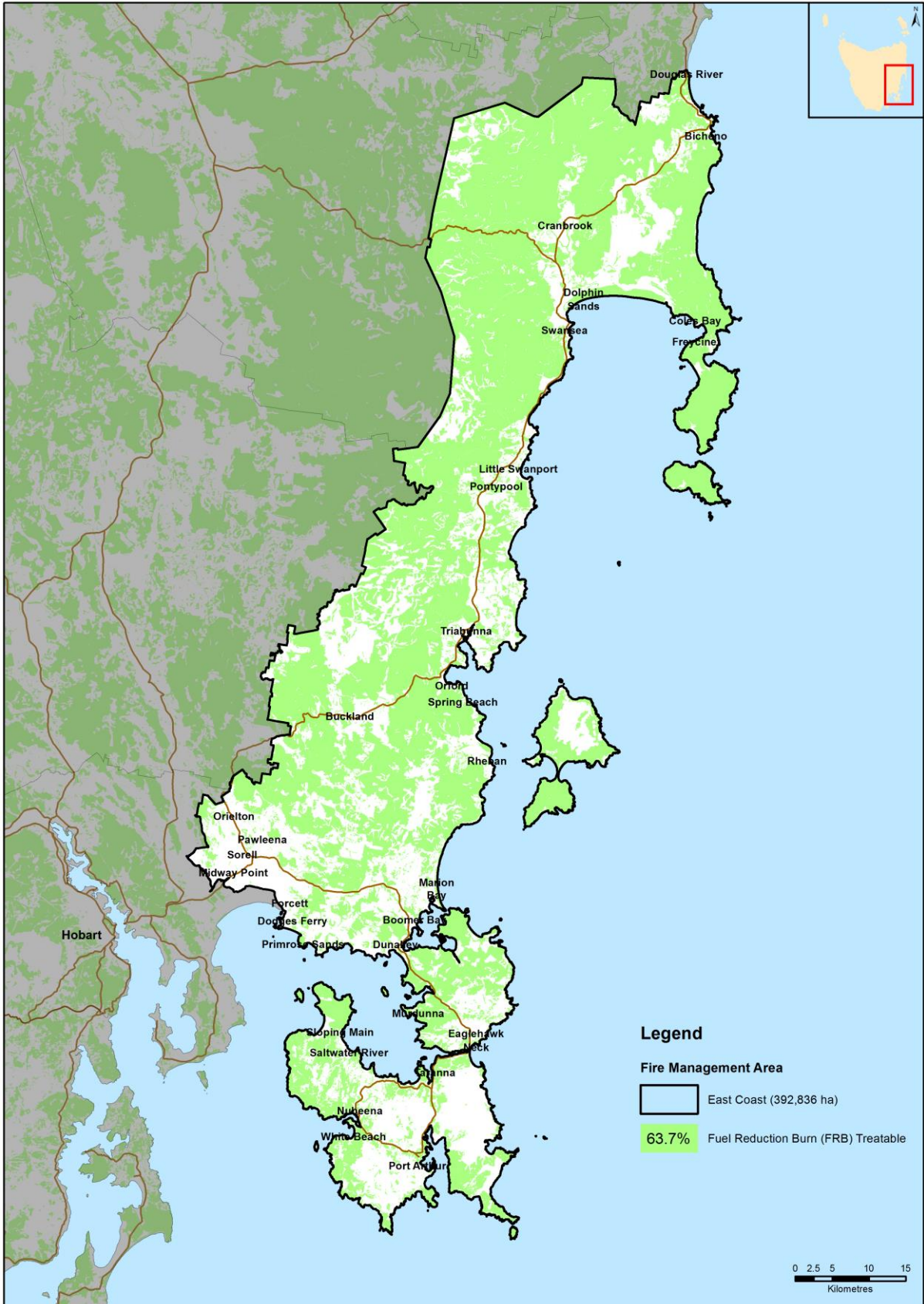


Figure 3.3: Treatability of fuels through fuel reduction burning in the ECFMA.



## Chapter 4 Bushfire Risk Treatment

### 4.1 Region Wide Controls

The following controls are currently in place across the ECFMA 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 Tasmania Police and TFS;
- Setting of appropriate land subdivision and building standards in line with State Bushfire Prone Area Building Standards;
- TFS, PWS, STT and other significant land managers (eg Norske Skog) have fire preparedness plans that ensure detection, patrolling and prepositioning of response crews is coordinated in respect to the forecast fire danger rating.
- 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 ECFMA to identify communities vulnerable to bushfire, that require more detailed assessment using more locally specific processes.

These communities were then prioritised in accordance with the *Strategic Fuel Management Plan*. The results of the strategic assessment for the ECFMA are outlined in table 4.1. A number of communities already have specific plans in place, these are summarised in Appendix 5.

Community	FMAC Assessment Rating
<b>Coles Bay</b>	HIGH
<b>Buckland</b>	HIGH
<b>Orford/Shelly Beach</b>	HIGH
<b>Bicheno</b>	HIGH
<b>Eaglehawk Neck/Doo Town</b>	HIGH
<b>Port Arthur</b>	MED
<b>Nubeena</b>	MED
<b>Dolphin Sands</b>	MED
<b>Taranna</b>	MED
<b>Dunalley</b>	MED?

See locality maps in Appendix 1

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

In addition to the above communities, areas of strategic importance were also identified, shown in Table 4.2. 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 ECFMA 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.

Area
<b>Eastern Tiers west of Swansea</b>
<b>Triabunna/Orford</b>
<b>Nugent/Orielton/Forcett</b>
<b>Tasman/Forestier</b>
<b>Dodges Ferry/Dunalley/Boomer Bay</b>

See locality maps in Appendix 1

**Table 4.2: Strategic areas for potential treatment in the ECFMA.**

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.

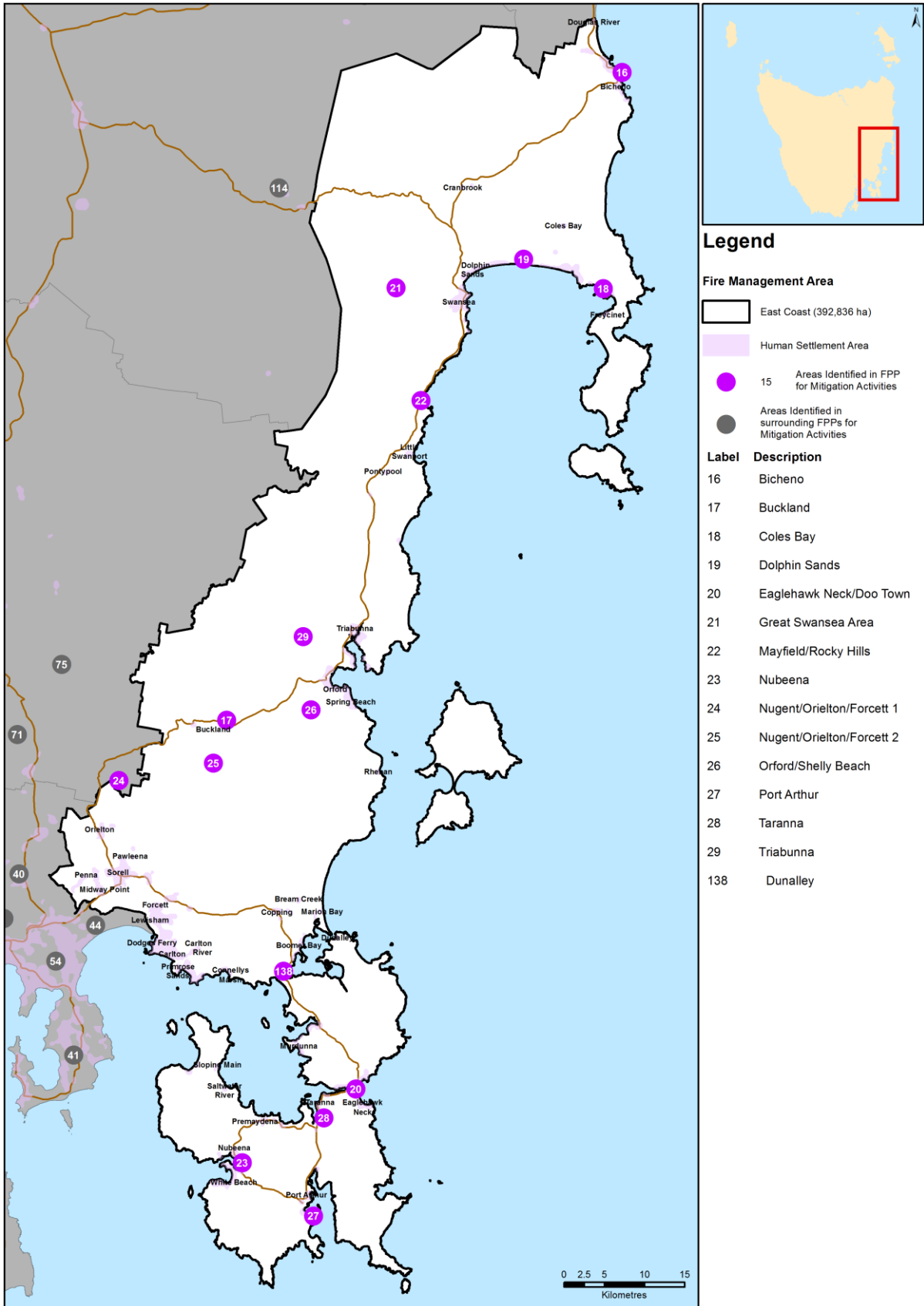


Figure 4.1: Priority areas in the ECFMA.

**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 ECFMA, 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 are also outlined in appendix 6.

#### ***Priority Communities and Treatments:***

##### **18. Coles Bay**

TFS Community Bushfire Protection and Response Plans. PWS have a local fire management strategy in place and have completed some burning. Investigate mitigation options in a tenure blind approach. High priority.

##### **17. Buckland**

DoD (Department of Defence) have a fire management plan covering the BMTA. FRU to provide necessary support to DoD to allow current plan to be implemented. FRU to provide advice on procedures to be used when planning and undertaking burning on Private Property. High priority.

##### **26. Orford/Shelly Beach**

TFS Community Bushfire Protection, Response and Mitigation Plans Three FRB's undertaken from mitigation plan with further FRB's planned. Assess adjacent areas including the Thumbs reserve, Alma Tier and parts of the BMTA and identify priority areas for treatment based on risk.. FRU to provide advice on procedures to be used when planning and undertaking mitigation works on Private Property. High priority.

##### **16. Bicheno**

TFS Community Protection, Response and Mitigation Plans completed with multiple FRB's undertaken and another planned. Continue investigating mitigation options and undertaking mitigation works. High priority.

##### **27. Port Arthur**

TFS have prepared Community Bushfire Protection and Response plans for this area. PWS have undertaken one FRB with further FRB's planned. Continue investigating mitigation options and undertaking mitigation works. Medium priority.

##### **23. Nubeena**

TFS have prepared Community Bushfire Protection and Response plans for this area. TFS BPP Unit to prepare Community Bushfire Mitigation Plan. FRU to provide advice on

procedures to be used when planning and undertaking burns on private property. Medium priority.

### **19. Dolphin Sands**

TFS have prepared Community Bushfire Protection and Response plans for this area and TFS Bushfire Ready Neighbourhood program is ongoing (2016-18). TFS have undertaken one FRB with further FRB's planned. FRU to coordinate further fuel reduction burning in association with the TFS District. Medium priority.

### **20. Eaglehawk Neck/Doo Town**

PWS have a current fire management plan for this area. Some FRB's have been undertaken and more are planned. TFS have prepared Community Bushfire Protection and Response plans for this area. Continue investigating mitigation options and undertaking mitigation works. High priority.

### **28. Taranna**

TFS have prepared a Community Bushfire Protection plan for the area. BPP Unit to Prepare Community Bushfire Response plan. Continue investigating mitigation options and undertaking mitigation works. Medium priority.

### **138. Dunalley**

TFS to prepare Community Bushfire Protection and Response Plans, liase with local brigade, monitor fuel loads and investigate future mitigation options. Medium priority

### ***Strategic Areas and Treatments:***

#### **21. Eastern Tiers West of Swansea**

Draft mitigation plan prepared by SFM. Prepare operational burn plans for priority Fuel Management Units. FRU to provide further advice in relation to resourcing for large scale FRB planning and implementation. High priority.

#### **29. Triabunna/Orford**

TFS Community Bushfire Protection, Response and Mitigation Plans completed with three FRB's undertaken and more planned. BMTA has current fire management plans in place. Implement current BMTA plans and consider including private property where appropriate. Investigate further mitigation options. High priority.

#### **25/25. Nugent/Orielton/Forcett**

One fuel reduction burn done near Orielton. Multiple bushfires since 2013 have reduced fuel loads in strategic areas.. TFS to coordinate assessment of bushfire risk and identification of priority areas for treatment. FRU to provide advice on procedures to be used when planning and undertaking burning on Private Property. High priority.

#### **22. Mayfield/Rocky Hills**

Draft mitigation plan prepared by SFM. Prepare operational burn plans for priority Fuel Management Units. FRU to provide further advice in relation to resourcing for large scale FRB planning and implementation. High priority.

#### **Tasman/Forestier**

TFS Bushfire Ready Neighbourhood program is ongoing in this area (2016 – 2018) Investigate mitigation options for these areas. Medium priority.

### **138. Dodges Ferry/Dunalley/Boomer Bay**

Investigate mitigation options for these areas. Medium priority

**Note: Mitigation options include:**

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

#### 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 ECFMA, as represented on the ECFMA 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 East Coast FPP area:

##### TFS Bushfire Protection Plans

FMAC	Bushfire Protection Plan	Date of Issue
East Coast	Bicheno	September 2013
East Coast	Coles Bay	March 2013
East Coast	Copping Area	October 2015
East Coast	Cranbrook	March 2013
East Coast	Dolphin Sands	January 2015
East Coast	Eaglehawk Neck Area	January 2013
East Coast	Nubeena	October 2014
East Coast	Orford Triabunna	October 2013
East Coast	Port Arthur	October 2014
East Coast	Swansea	March 2013
East Coast	Taranna Area	October 2014

### TFS Bushfire Response Plans

FMAC	Bushfire Response Plan	Date of Issue
East Coast	Bicheno	August 2013
East Coast	Coles Bay	March 2012
East Coast	Cranbrook	March 2012
East Coast	Dolphin Sands	March 2012
East Coast	Eaglehawk Neck Area	January 2013
East Coast	Nubeena	March 2014
East Coast	Orford Triabunna	October 2013
East Coast	Port Arthur	January 2014
East Coast	Swansea	March 2012
East Coast	Taranna Area	October 2014

### TFS Bushfire Mitigation Plans

FMAC	Bushfire Mitigation Plan	Date of Issue
East Coast	Bicheno	November 2013
East Coast	Orford	February 2015

## Community Development and Education

### Bushfire-Ready Neighbourhoods Program - Tasmania 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.



For more information about the Bushfire-Ready Neighbourhoods Program visit: [fire.tas.gov.au/brn](http://fire.tas.gov.au/brn)

Round 2 Communities 2016 to 2018 in the East Coast include Dolphin Sands, Tasman Peninsula; Eagle Hawk Neck, Koonya, Nubeena and Taranna.

Round 3 Communities 2018 – 2020; TBA

## 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 after 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 displaying ECFMAC selected priority areas**

**Appendix 2 - BRAM**

**Appendix 3 – NERAG risk assessment approach**

**Appendix 4 – Bushfire Risk Assessment Maps**

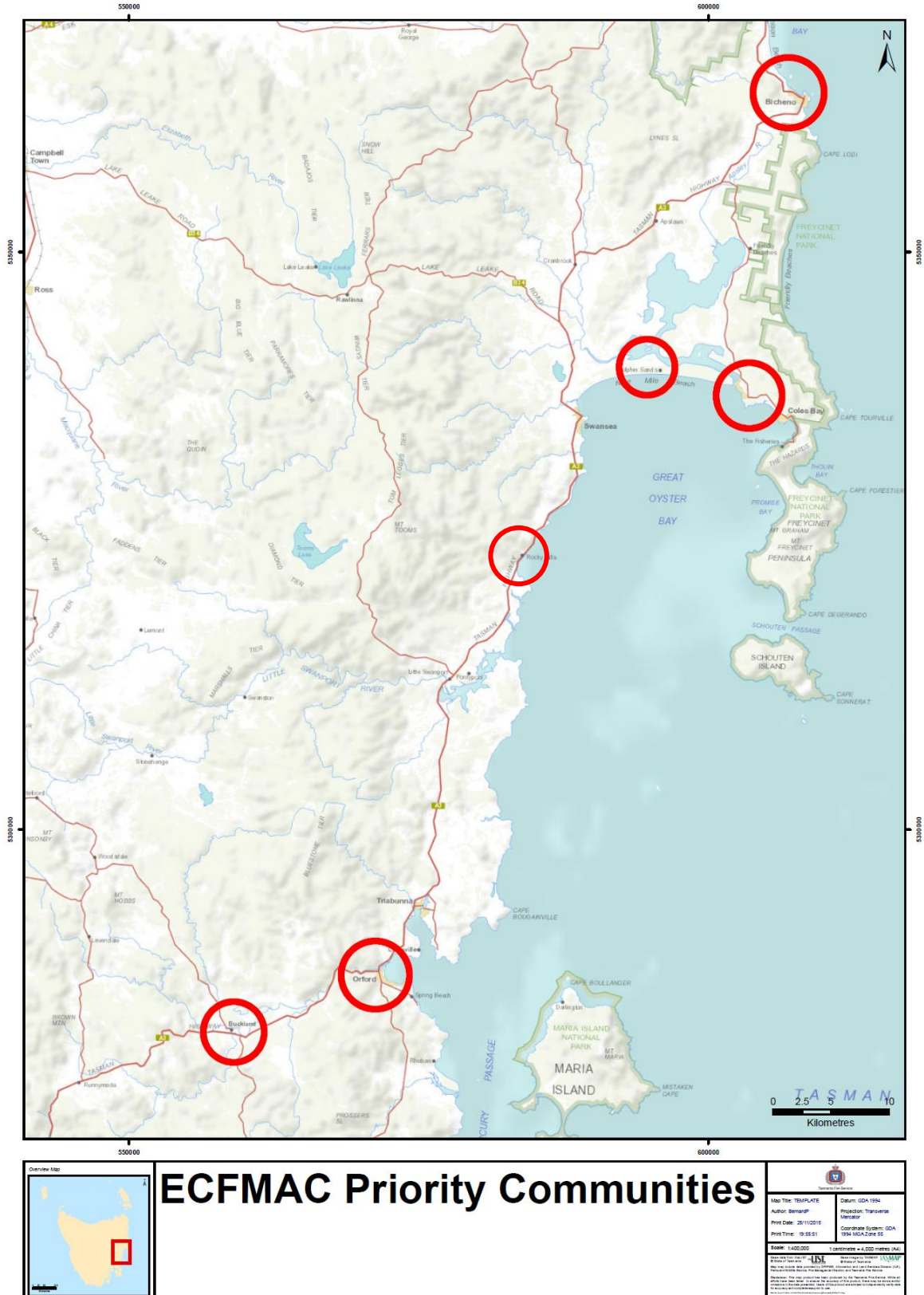
**Appendix 5 – Community specific plans already in place**

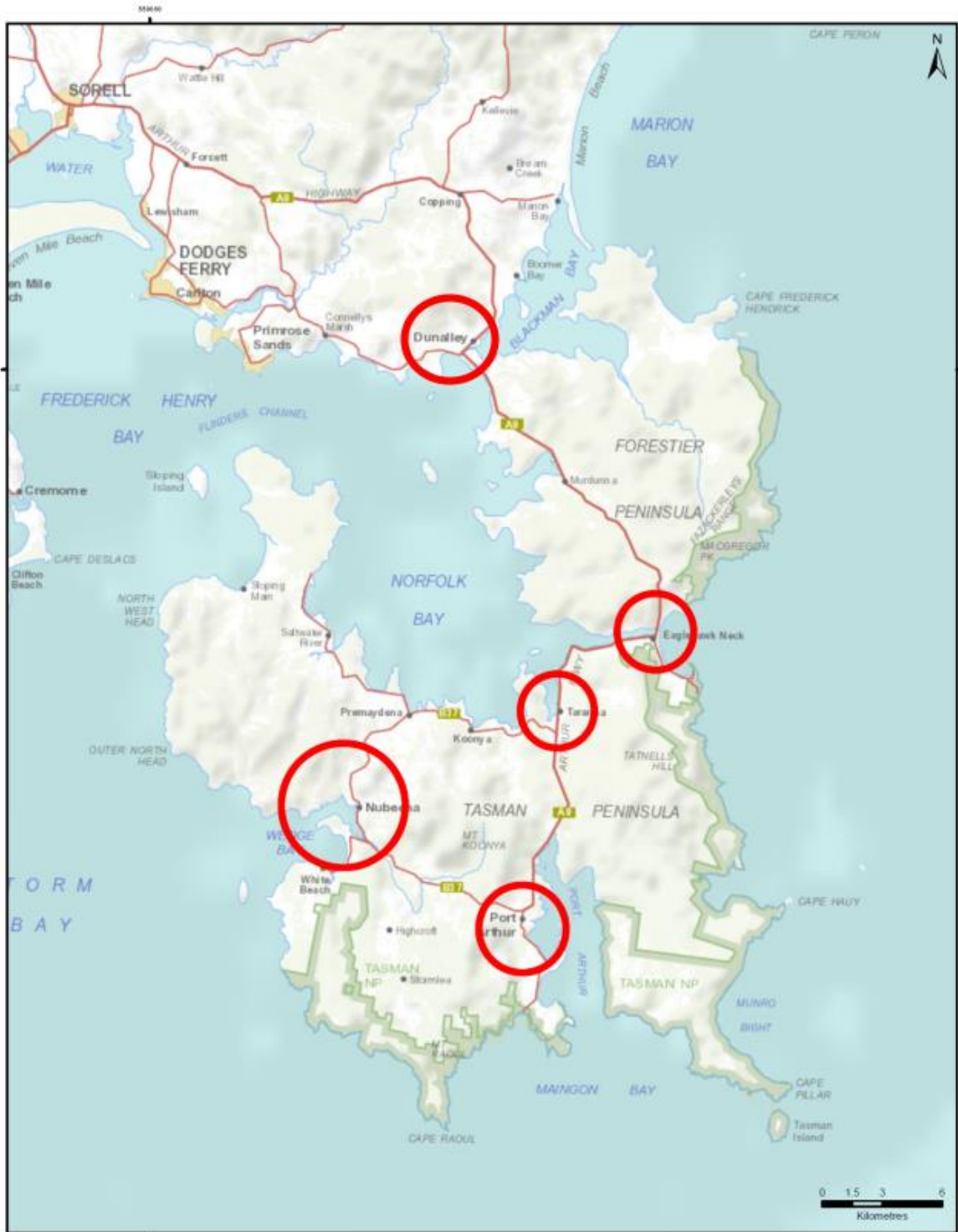
**Appendix 6 – Treatment schedule - annual works program**

**Appendix 7 – Description of vegetation communities**

## Appendix 1 – Maps of ECFMAC selected priority areas

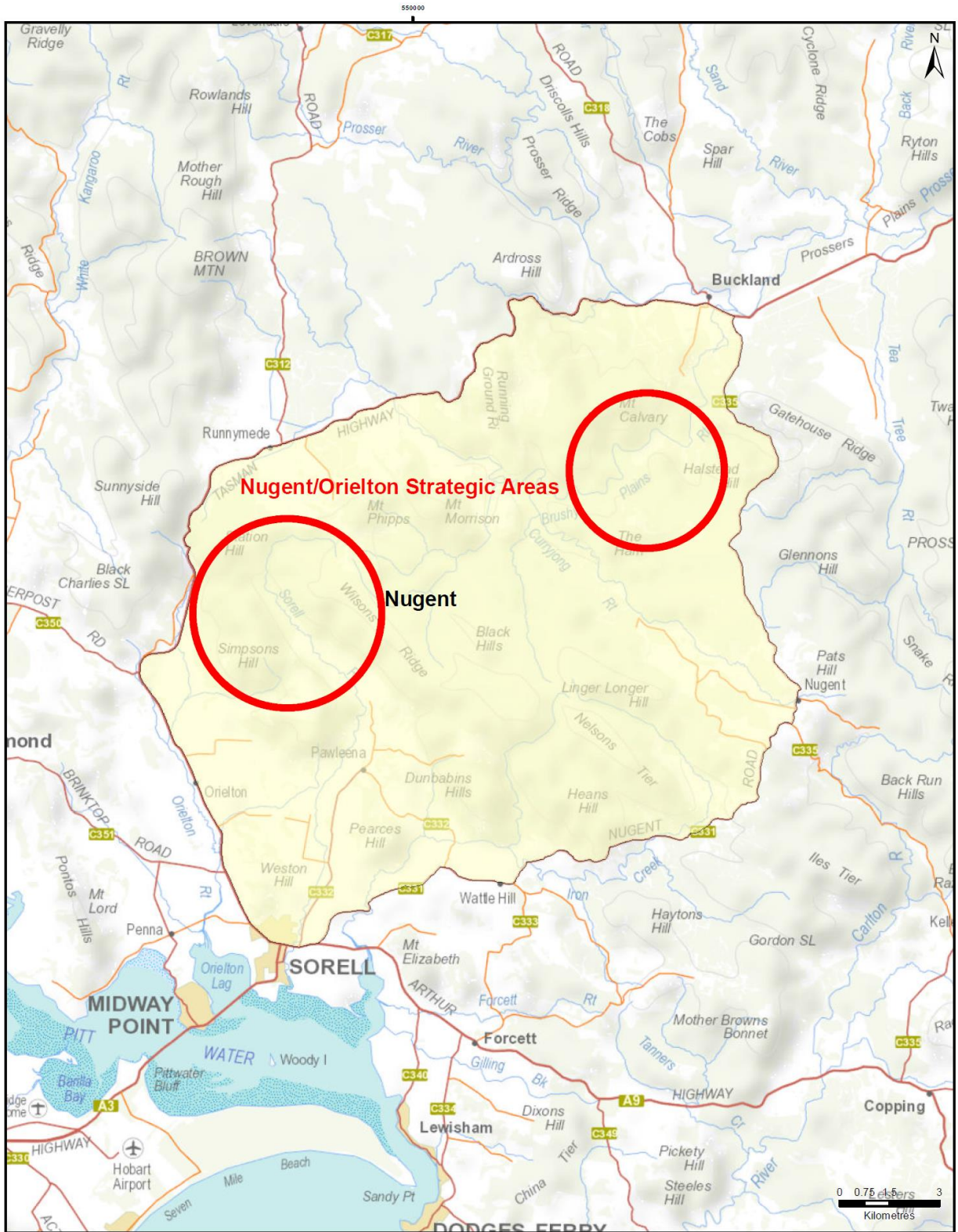
It must be noted that the areas circled on these maps are to indicate the general area to be targeted for investigation and do not represent the boundaries of mitigation works. The actual boundaries for mitigation works will be determined after field investigations are undertaken.





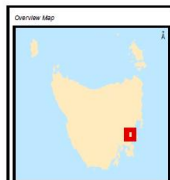
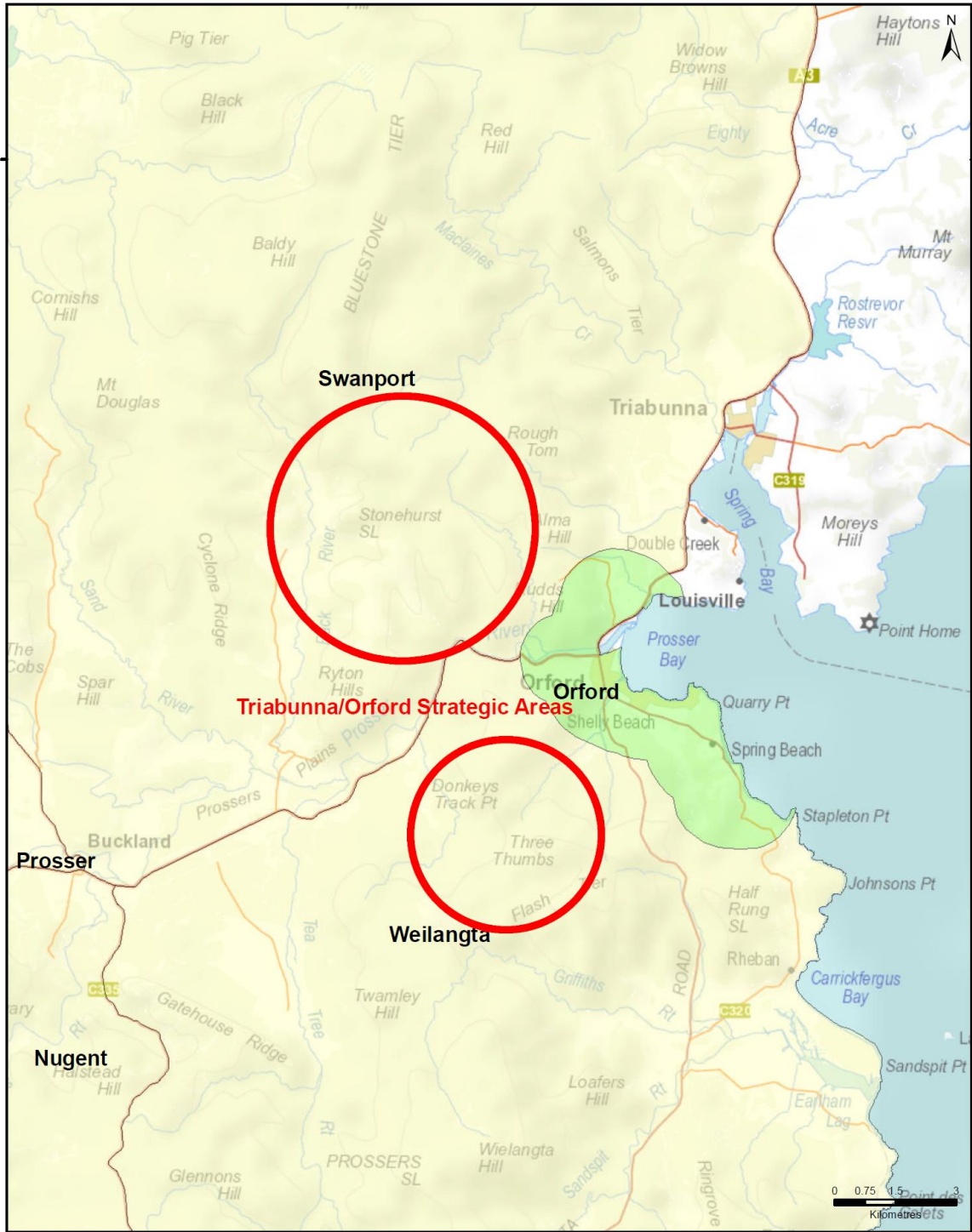
## ECFMAC Priority Communities

<p><b>Map Title:</b> TEMPLATES</p> <p><b>Author:</b> Benjamin</p> <p><b>Issue/Date:</b> 22/1/2018</p> <p><b>Map/Scale:</b> 1:50,000</p>	<p><b>Client:</b> OSA 1983</p> <p><b>Program:</b> Tasmania</p> <p><b>Project:</b> ECFMAC</p> <p><b>Contract Number:</b> OSA 1983-004-000-00</p>
<p><b>Scale:</b> 1:50,000</p> <p><b>Projection:</b> UTM</p> <p><b>Units:</b> Metres</p>	



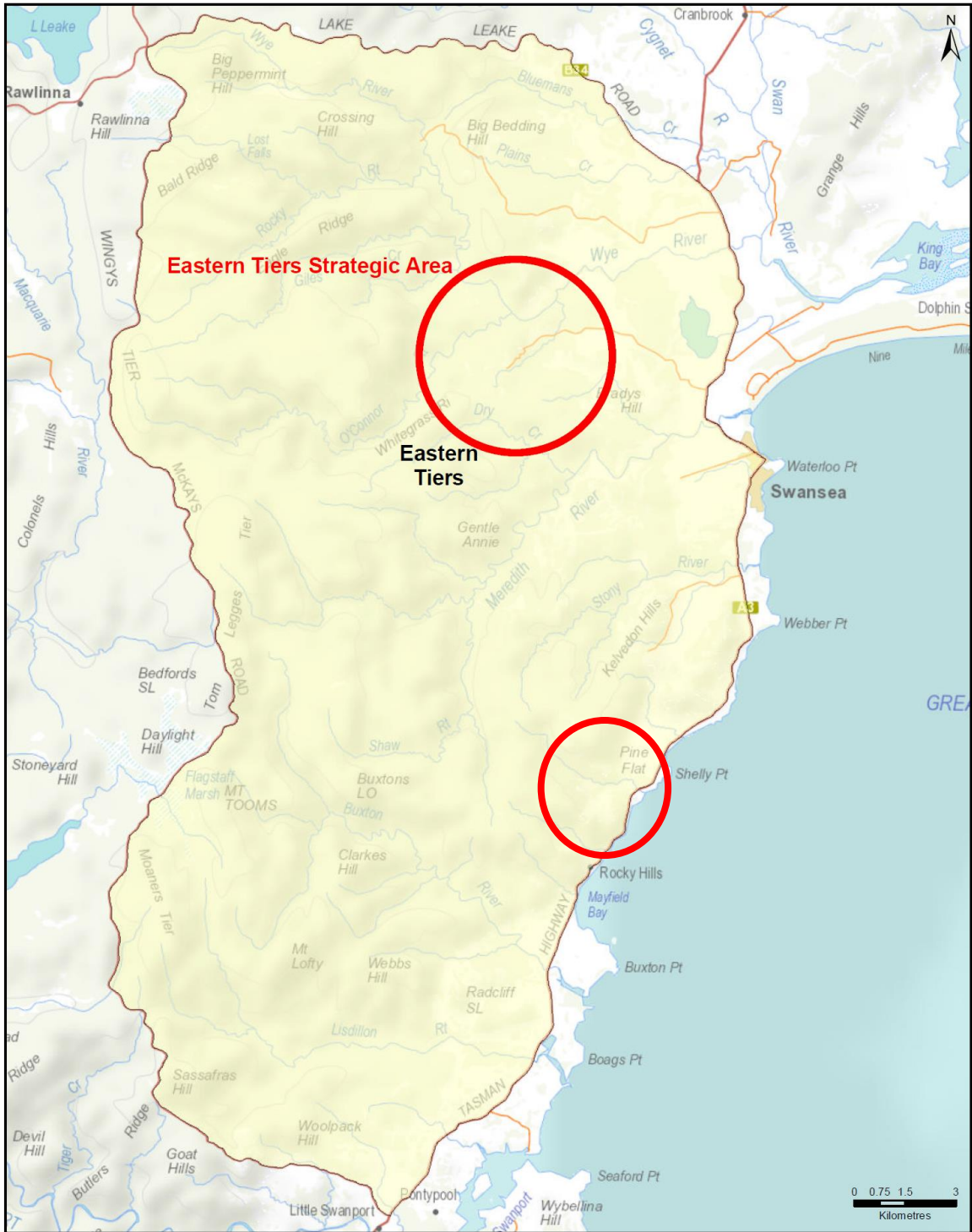
## ECFMAC Strategic Areas -Nugent/Orielton

Map Title: TEMPLATE	Date: GDA 1994
Author: BernardP	Projection: Transverse
Print Date: 26/11/2015	Mercator
Print Time: 13:27:03	Coordinate System: GDA 1994 MGA Zone 55
Scale: 1:150,000 1 centimetre = 1,500 metres (AU)	
<small>           This map has been prepared by USI for ECFMAC. It is not to be used for any other purpose without the written consent of USI. The information on this map is for general information only and should not be used for any specific purpose. The information on this map is not to be used for any specific purpose. The information on this map is not to be used for any specific purpose.         </small>	




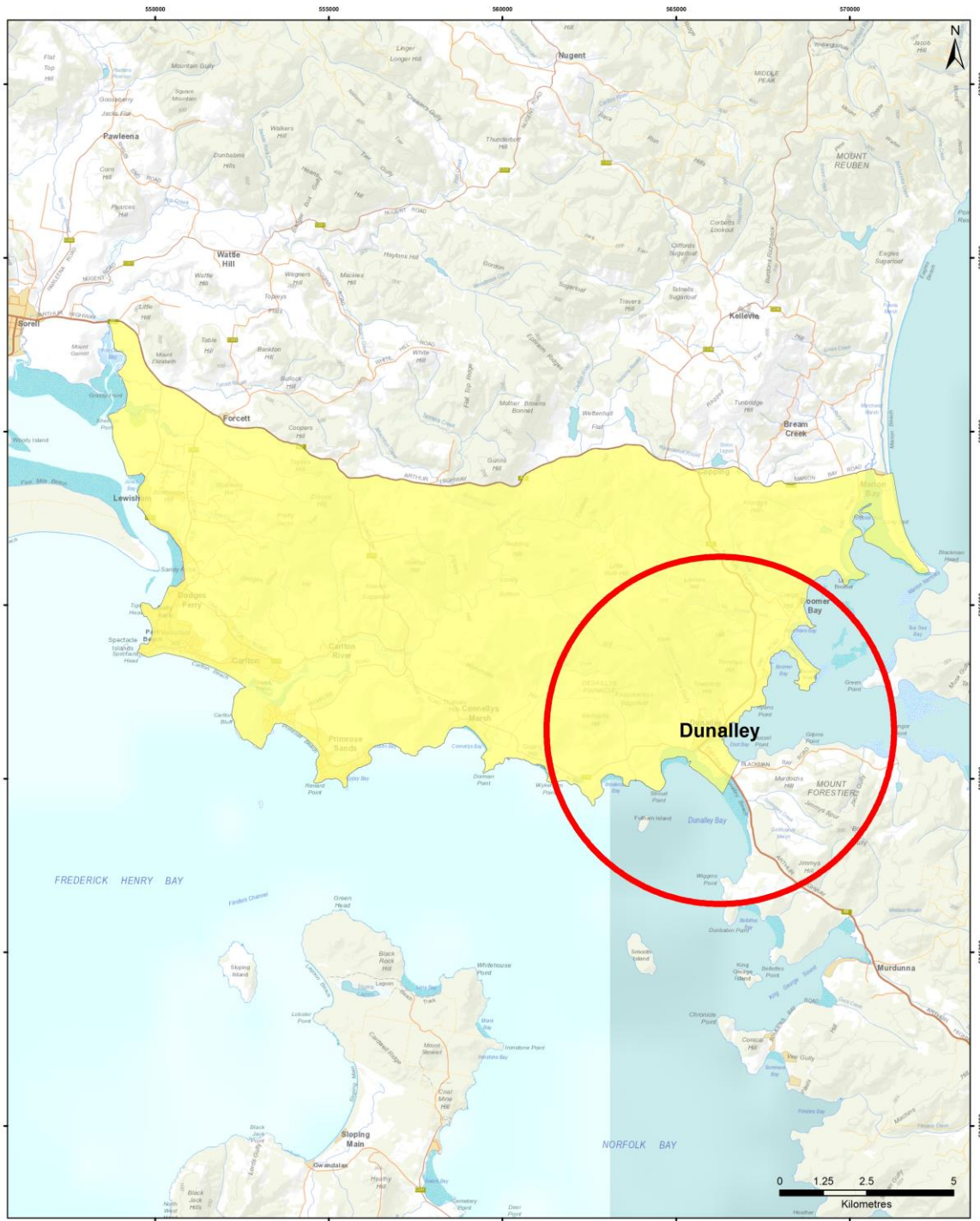
## ECFMAC Strategic Areas -Triabunna/Orford

Map Title: TEMPLATE	Date: GDA 1994
Author: Bernarp	Projection: Transverse Mercator
Print Date: 06/11/2015	Coordinate System: GDA 1994 MGA Zone 55
Print Time: 13:59:49	
Scale: 1:125,000	1 centimetre = 1,250 metres (AU)
<small>           This map should be used in conjunction with the National Fire Protection Plan 2018. It is not intended to be used as a legal document. The Tasmanian Fire Service is not responsible for any errors or omissions in this map.         </small>	



## ECFMAC Strategic Areas -Eastern Tiers

	
Map Title: TEMPLATE	Date: GDA 1994
Author: Bernasp	Projection: Transverse Mercator
Print Date: 26/11/2015	Coordinate System: GDA 1994 MGA Zone 55
Sheet Time: 16/02/21	
Scale: 1:50,000	1 centimetre = 1,500 metres (A4)
	
<small>           This map product has been prepared by the Tasmanian Fire Service, which is a division of the Tasmanian Fire and Emergency Services Department. It is not intended to be used for any other purpose. The Tasmanian Fire and Emergency Services Department is not responsible for any loss or damage arising from the use of this map product.         </small>	



## ECFMAC Priority Areas - Dunalley

Map Title: TEMPLATE	Datum: GDA 1984
Author: Jim R	Projection: Transverse Mercator
Print Date: 1/12/2017	Coordinate System: GDA 1984 MGA Zone 55
Print Time: 11:08:07	
Scale: 1:100,000	1 centimetre = 1,000 metres (A3)
<small>           This information is provided by the Department of Natural Resources and Environment (DNRE) on behalf of the State of Tasmania. It is provided as a service to the public and is not intended to be used for any other purpose. The State of Tasmania does not accept any liability for any loss or damage arising from the use of this information.         </small>	



## 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;
- Resource management and conservation , DPIPW;
- 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

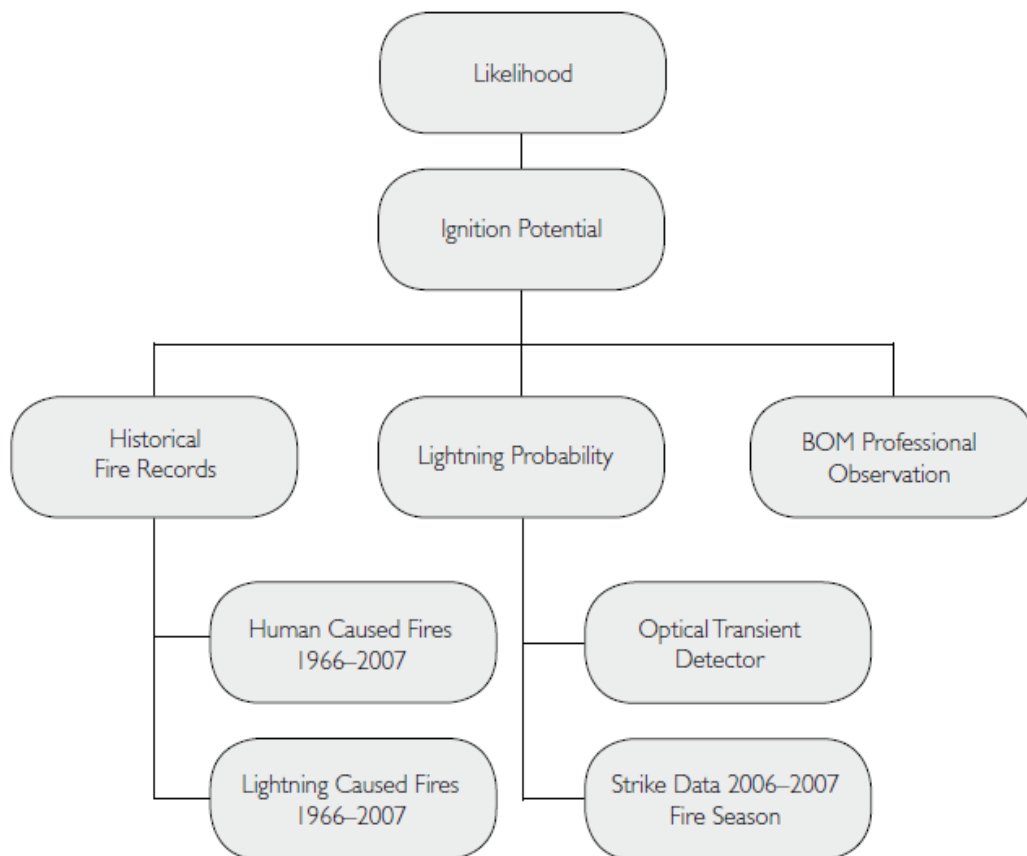
The process applies the same set of assessment rules to the data contained in the model, thus it can be applied across the state. The process is tenure blind.

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 likelihood 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

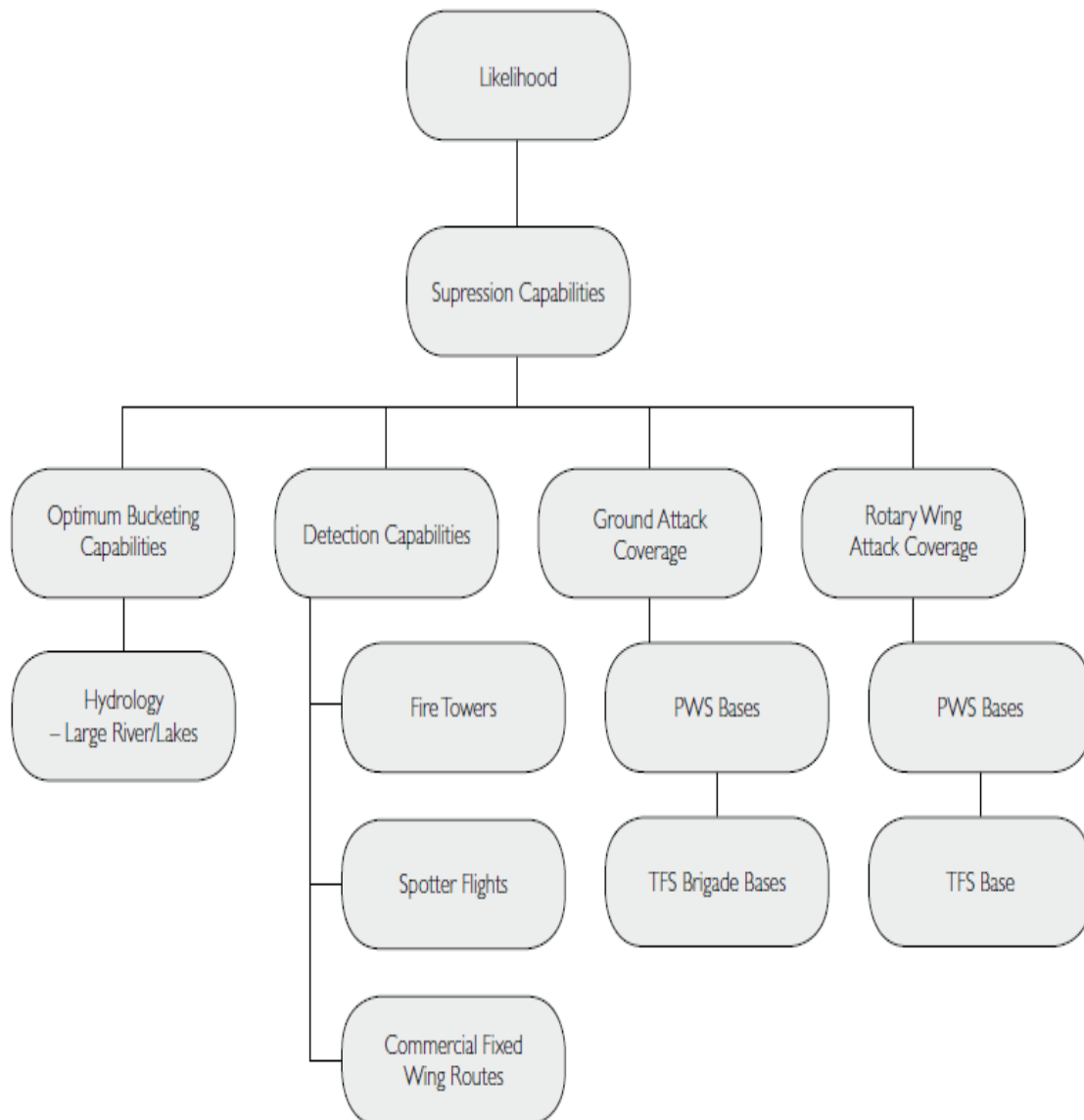
The model uses 4 major areas to calculate risk

- 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)

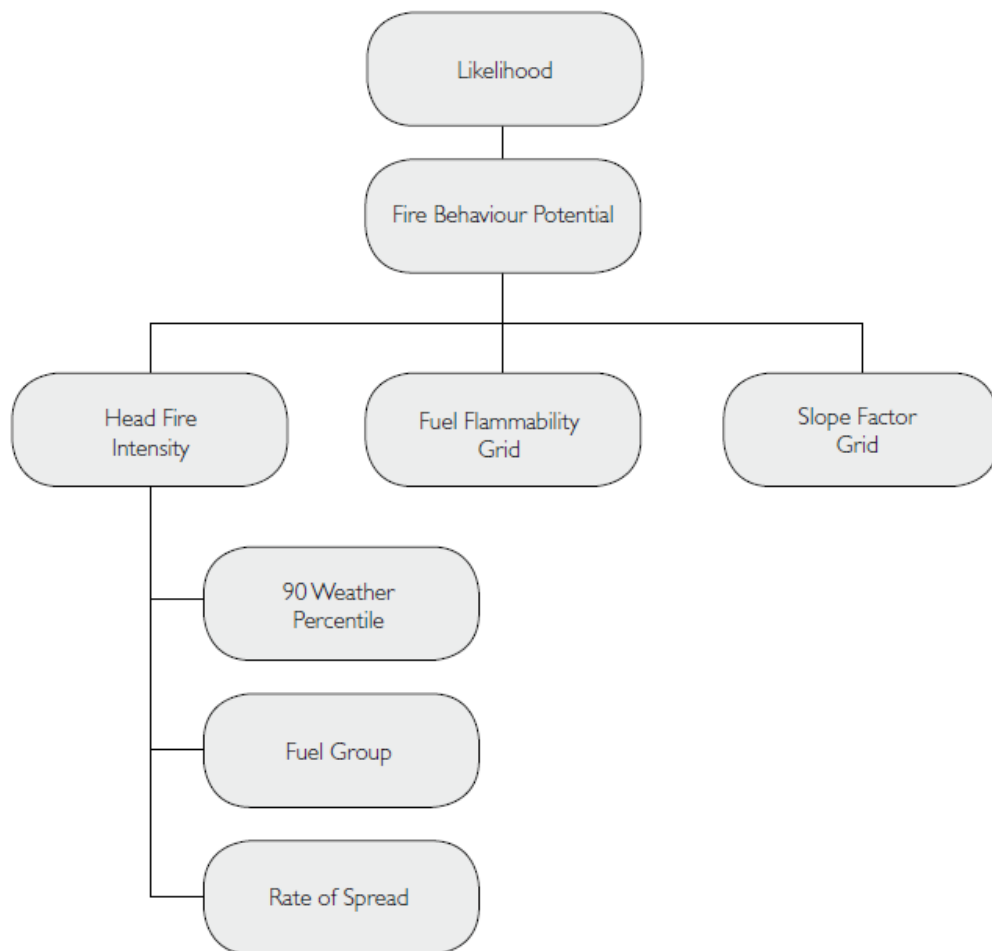
**Ignition potential**



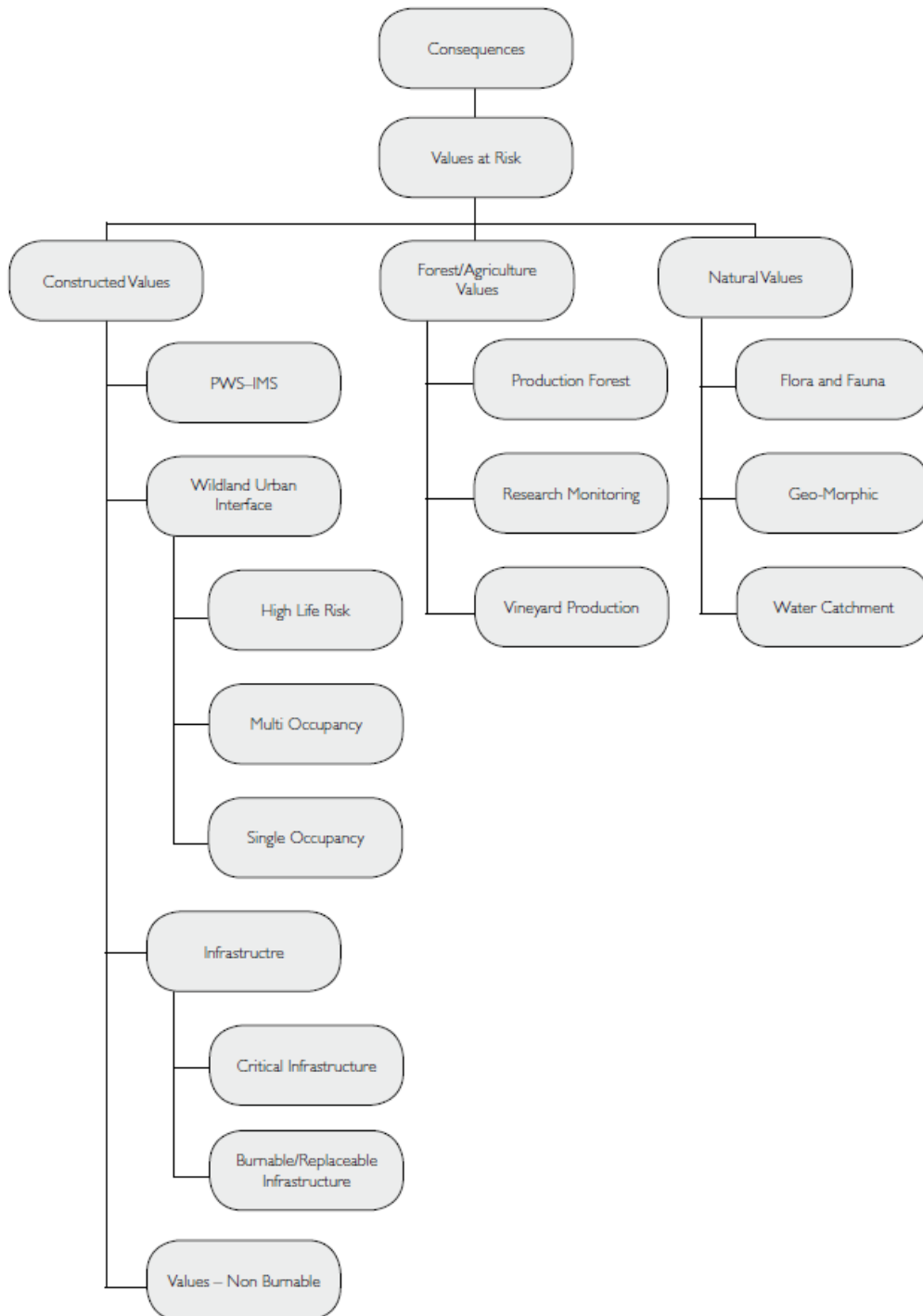
## Suppression capabilities



## 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 objects 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 One hundred Thousand), Health 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, health 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 miss 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



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

### Impact Category Definitions

Impact Category Definitions	
People	<p>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</p> <p>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</p>
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	<p>Relates to the impacts of the emergency on the areas infrastructure/ lifelines/utilities and its ability to service the community</p> <p>Long term failure = repairs will take longer than 6 months</p> <p>Mid-to long term failure = repairs may be undertaken in 3 to 6 months</p> <p>Mid-term failure = repairs may be undertaken in 3 to 6 months</p> <p>Short to mid term failure = repairs may be undertaken in 1 week to 3 months</p> <p>Short-term failure = repairs may be undertaken in less than 1 week</p>

**Likelihood table**

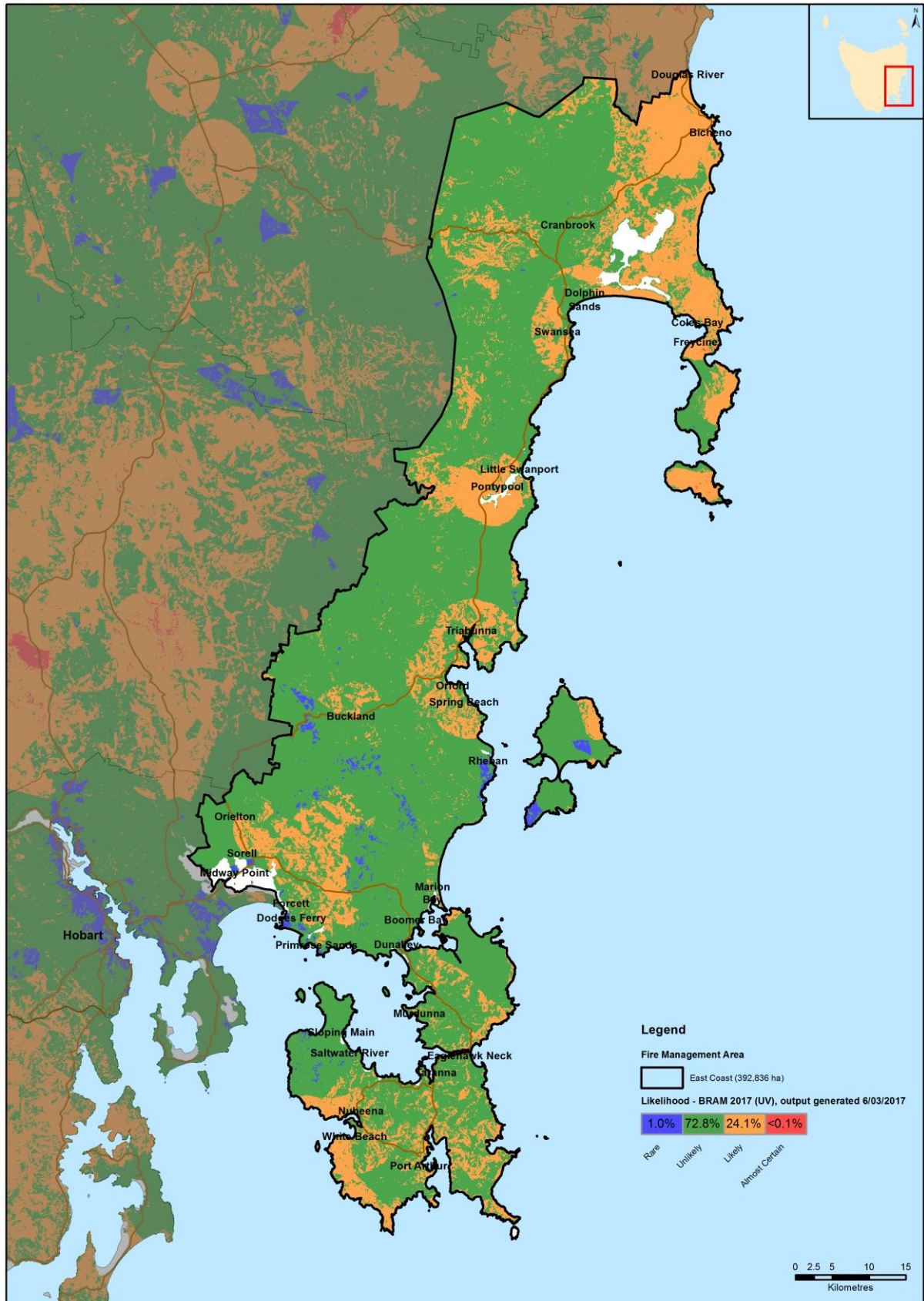
Likelihood level	Frequency	Average Recurrence Interval	Annual Exceedance probability
Almost certain	One of more per year	< 3 years	.03
Likely	Once per 10 years	3 – 30 years	0.031 – 0.3
Possible	Once per one hundred years	31- 300 years	0.0031 – 0.03
unlikely	One per thousand years	301 – 3,000 years	0.00031 – 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

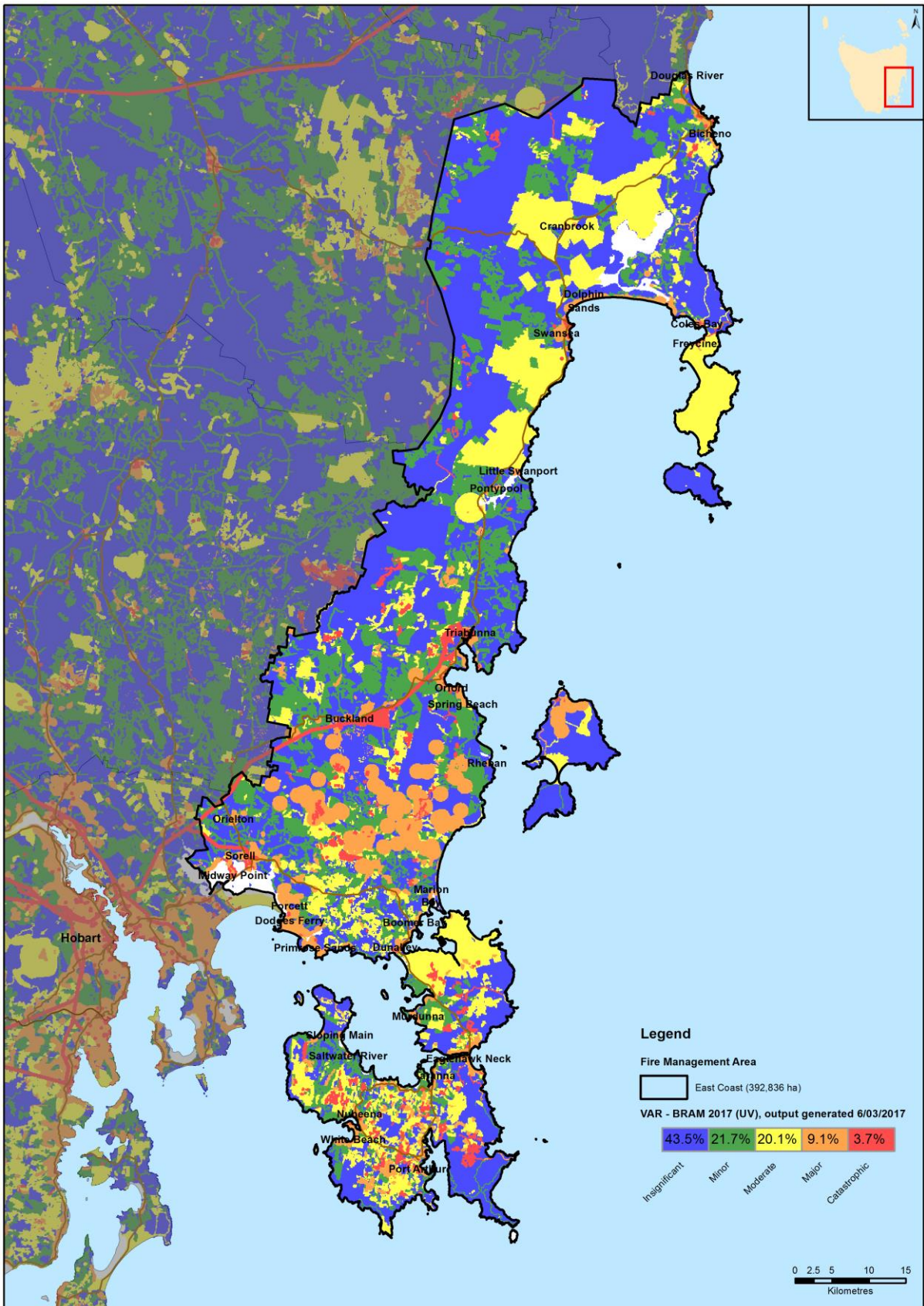
The qualitative risk matrix combines a level of consequence with a level of likelihood to determine a level of risk. The risk level, together with the confidence in the overall assessment process and other factors, will determine the need for detailed analysis and inform the treatment of risks

Likelihood level	Consequence level				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	Medium	High	Extreme	Extreme
Likely	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 ECFMA**



BRAM values at risk for the ECFMA

## Appendix 5 – Community specific plans already in place

Town/Area	Current Plans
Coles Bay	PWS local fire management Strategy TFS Response & Protection plans
Bicheno	TFS Bushfire Mitigation, Response & Protection plans
Swansea	Glamorgan Spring Bay strategic fire zone/plan TFS Response & Protection plan
Triabunna	Glamorgan Spring Bay fire zone/plan TFS Response & Protection plans (includes Orford)
Nugent/Orielton/Forcett	Sorell strategic fire zone/plan
Tasman/Forestier	Tasman strategic fire zone/plan TFS Response & Protection plans (Nubeena, Taranna, Port Arthur)
Dolphin Sands	TFS Response & Protection plans Council fire mitigation work
Cranbrook	TFS Response & Protection plans
Eaglehawk Neck	PWS fire management plan TFS Response & Protection plans
PWS managed land with the ECFMA	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
<b>COMMUNITIES</b>							
<b>Coles Bay 18</b>	Popular tourist town. Many shacks and holiday units as well as permanent residents. Gateway to Freycinet Peninsula.	Private Property and PWS managed land	TFS Community Bushfire Protection and Response Plans. PWS have a local fire management strategy in place and have completed some burning.	Investigate mitigation options in a tenure blind approach.	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		High
<b>Buckland 17</b>	Surrounding forested areas pose a risk to the town, but also are strategically important to East Coast fire management.	Combination of Private Property, PWS managed land, Dept of Defence (DoD) and Permanent Timber Production Zone.	DoD have a fire management plan covering the BMTA. FRU have prepared bushfire mitigation plan for area north west of Buckland.  Fire history data indicates numerous un-reported bushfires and fuel reduction burns have been completed in the forested areas to the north of Buckland since 2014	Implement current DoD fire management plan. Investigate mitigation options areas surrounding Triabunna and Orford.	Provide necessary support to DoD to allow current plan to be implemented. 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
<b>Orford/Shelly Beach 26</b>	Popular seaside town in close proximity to dry forest.	Private Property. PWS managed land.	TFS Community Bushfire Protection and Response Plans. TFS Community Bushfire Mitigation Plan complete for Orford and Shelly Beach with three FRB's implemented and further FRB's planned	Undertake burning in areas as per the TFS, Community Bushfire Mitigation Plan. Assess adjacent areas including the Thumbs reserve, Alma Tier and parts of the BMTA and identify priority areas for treatment based on risk.	FRU to provide advice on procedures to be used when planning and undertaking mitigation works on Private Property.		High
<b>Bicheno 16</b>	Popular seaside town in close proximity to dry forest.	Private Property and PWS managed land	TFS Community Bushfire Protection, Response and Mitigation plans. Multiple FRB's have been undertaken since 2014 with further FRBs currently being planned by the local TFS Brigade and PWS.	Continue investigating mitigation options and undertaking mitigation works.	FRU to provide support to ensure that planned mitigation activities occur.		High

<b>Eaglehawk Neck/Doo Town 20</b>	Popular coastal town with many shack and holiday homes. Permanent residents and several accommodation providers. High visitation during tourism season. Surrounded by heavy forested areas and coastal vegetation.	Private Property and PWS managed land	PWS have a current fire management plan for this area. A number of FRB's have been undertaken and more are planned.  TFS have prepared Community Bushfire Protection and Response plans for this area.	Continue investigating mitigation options and undertaking mitigation works.	FRU to provide advice on procedures to be used when planning and undertaking burns on private property. BPP Unit to provide technical advice on asset protection planning Appropriate support to be provide to allow PWS to continue implementing current fire management plans.		High
<b>Nubeena (including White Beach and Roaring Beach) 23</b>	Main town for the Tasman Peninsula. Location of important community facilities.	Private Property and PWS managed land	TFS have prepared Community Bushfire Protection and Response plans for this area.	Continue investigating mitigation options and undertaking mitigation works.	BPP Unit to prepare Community Bushfire Mitigation Plan. FRU to provide advice on procedures to be used when planning and undertaking burns on private property.		Med
<b>Port Arthur 27</b>	Popular tourist destination. Surrounding vegetation has limited opportunities for large scale fuel reduction burning.	Private property and PWS managed land.	TFS have prepared Community Bushfire Protection and Response plans for this area.  PWS have undertaken one FRB with more planned	Continue investigating mitigation options and undertaking mitigation works.	FRU to provide advice on procedures to be used when planning and undertaking burns on Private Property. BPP Unit to provide technical advice on asset protection planning Appropriate support to be provide to allow PWS to continue implementing current fire management plans.		Med
<b>Taranna 28</b>	Small town that is a popular point for tourists. Has had fires impact on areas adjacent to the town in the past.	Mainly Private Property with some PWS managed land and Permanent Timber Production Zone	TFS have prepared Community Bushfire Protection plan	Continue investigating mitigation options and undertaking mitigation works.	TFS to Prepare Community Bushfire Response Plan.		Med
<b>Dolphin Sands 19</b>	Small coastal community surrounded by dry forest types and coastal vegetation.	Mainly Private Property with some PWS managed land	TFS Community Bushfire Protection and Response plans are currently in place.  One FRB undertaken by TFS with further planned.  Bushfire Ready Neighbourhoods Program	Investigate mitigation options for this area. FRU to coordinate fuel reduction burning in association with the TFS District.	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		Med



<b>Dunalley</b>	Coastal community impacted by 2013 Inala Road fire. Fuel loads in forested area to the north west are beginning to recover	Mainly private with a large area managed by Sorell Council	Nil identified	Monitor fuel loads to the north west of township and investigate mitigation options.	TFS to prepare Community Bushfire Protection and Response Plans, liase with local brigade, monitor fuel loads and investigate future mitigation options	<b>Med</b>
-----------------	--	--	----------------	--	---	------------

Location	Issue	Tenure	Previous Treatment including current plans	Action required	Project implementation	Timeframe for completion	Overall FMAC Priority rating
<b>Strategic Areas</b>							
<b>Eastern Tiers west of Swansea 21</b>	Strategically important in overall fire management of the East Coast FMA	Private Property, PWS managed land and Permanent Timber Production Zone	Draft mitigation plan prepared by SFM.	Prepare operational burn plans for priority Fuel Management Units	FRU to provide further advice in relation to resourcing for large scale FRB planning and implementation.		High
<b>Swanport/Triabunna/Orford/Wielangta 29</b>	Strategically important to provide protection to communities of Triabunna and Orford	Private Property, BMTA, STT and PWS managed land	BMTA has current fire management plans in place.	Implement current BMTA plans and consider including private property where appropriate. Investigate further mitigation options.	FRU to provide appropriate support to allow existing plans to be implemented. FRU to provide advice on procedures to be used when planning and undertaking mitigation works on Private Property.		High
<b>Mayfield/Rocky Hills 22</b>	Strategically important in overall fire management of the East Coast FMA	Private Property, PWS managed land	Draft mitigation plan prepared by SFM.	Prepare operational burn plans for priority Fuel Management Units	FRU to provide further advice in relation to resourcing for large scale FRB planning and implementation.		High
<b>Nugent/Orielton/Forcett. 24/25</b>	Mainly dry forest and grass lands with many residences locate throughout the area. Many rural holdings are also located in these areas.	Private Property, PTPZ and PWS managed land.	One fuel reduction burn completed near Orielton. Multiple bushfires since 2013 have reduced fuel loads in strategic areas	Investigation and prioritisation of mitigation options across area based on risk Implementation of priority 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 burning on Private Property. BPP Unit to provide technical advice on asset protection planning		High
<b>Tasman/Forestier</b>	Strategically important to provide protection to communities on the Tasman Peninsular. Mixture of vegetation types, including Eucalypt plantations.	Private Property, PTPZ and PWS managed land.	No current plans exist for this area.  Current TFS Bushfire Ready Neighbourhoods Program covers the lower Tasman area	Investigation and prioritisation of mitigation options across area based on risk Implementation of priority 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		Med

<b>Dodges Ferry/Dunalley/Boomer Bay 138</b>	Area impacted by Inala Road Fire 2013. Forest fuel loads are recovering and modelling indicates potential for bushfire to again impact human settlement areas	Predominantly private property	No plans currently exist for this area	Monitor fuel loads and investigate mitigation options	TFS to prepare Community Bushfire Protection and Response Plans for human settlement areas, liase with local brigade, monitor fuel loads and investigate future mitigation options	<b>Med</b>
---	---	--------------------------------	--	---	--	------------

## 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