



West Coast Fire Management Area

Fire Protection Plan

2018

Document Control

Document History

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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.
Asset Zone	The geographic location of assets of high value or importance and the physical boundary immediately around the asset.
Asset Protection Zone	An area of high strategic importance to protect values in the asset zone. Regular fuel reduction should be undertaken in the vicinity of specific assets. (Up to 1km wide around the asset).
Strategic Fuel Reduction Zone	An area of management that will increase the likelihood of controlling a bushfire within or the forward spread through the area. Located strategically in fuel types of high or greater flammability. Fuel to be managed by prescribed burning. Between 1km and 6km from a human settlement area.
Land Management zone	An area that is managed to meet the objectives of the relevant land manager, which can be planned fire for fuel reduction, biodiversity conservation or forest regeneration.
BRAM	Bushfire Risk Assessment Model – A computer based modelling tool that uses a series of inputs to assess the risk of bushfire to a specific area. The BRAM has a capacity to produce a series of outputs. It was developed and is managed by the Tasmanian Parks & Wildlife Service.
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.
Community Bushfire Mitigation Plan	A strategic plan that focuses on addressing bushfire hazards, and improving the survivability of communities and assets. The Bushfire Mitigation Plan identifies key areas for fuel management, and provides tactical guidance regarding prescribed burning, fuel treatment, fire management infrastructure, and asset protection work.
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.
Community Bushfire Protection Plan	A bushfire plan for community members that provides local, community-specific information to assist with bushfire preparation and survival. The focus of the Bushfire Protection Plan is on bushfire safety options, and the intent of the plan is to support the development of personal Bushfire Survival Plans.

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

Community Bushfire Response Plan	An Emergency Management Plan for emergency managers and responders. The Bushfire Response Plan aims to better protect communities and their assets during bushfire emergencies, through the identification of protection priorities and critical operational information. These plans make firefighting resources safer and more effective.
Consequence	The outcome or impact of a bushfire event.
Fire management Zoning	Classification system for the area to be managed. The zoning system indicates the primary fire management purposes for an area of land.
Human Settlement Area	Term given for the GIS (Geographic Information Systems) dataset used to define where people live and work. The dataset was developed for the purpose of risk modelling and was created using a combination of building locations, cadastral information and ABS data. Includes seasonally populated areas and industrial areas.
Likelihood	The chance of something occurring.
Risk	The effect of uncertainty on objectives. ² (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. ³
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.

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

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

Acronyms

BPP	Bushfire Planning & Policy
BRN	Bushfire Ready Neighbourhoods
CPP	Community Protection Planning
FIAT	Forest Industry Association Tasmania
FMAC	Fire Management Area Committee
FPP	Fire Protection Plan
FRU	Fuel Reduction Unit
STT	Sustainable Timber Tasmania
LGA	Local Government Area
PWS	Parks and Wildlife Service
REMC	Regional Emergency Management Council
SEMC	State Emergency Management Committee
SFMC	State Fire Management Council
TFGA	Tasmania Farmers and Graziers Association
TFS	Tasmania Fire Service

Maps contained in this document may include data provided by DPIPWE (Information and Land Services Division (ILS), and Parks and Wildlife Service Fire Management Section), and Tasmania Fire Service. These map products have been produced by the Tasmania Fire Service. While all efforts have been taken to ensure the accuracy of these products, there may be errors and/or omissions in the data presented. Users of these products are advised to independently verify data for accuracy and completeness prior to use.

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 2014. The submission date was changed to the 31st of December for 2016 and beyond.

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 management of bushfire related risk is not the sole responsibility of any one land manager but is a collective responsibility of the whole community. All members within a community have a responsibility to assist with the management of bushfire risk.

The **aim** of this FPP is to document the cross tenure process of identifying and treating bushfire-related risk within the West Coast Fire Management Area.

The **objective** of this FPP is to effectively manage bushfire related risk within the West Coast Fire Management Area in order to protect people, assets and other things valuable to the community.

In the first instance, the main objective of fire protection plans is to identify risk and provide actions for the protection of communities at risk from bushfire. Risk based planning places the highest priority on protection of human life followed by protection of infrastructure and environmental values.

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 Context

South eastern Australia, including Tasmania, is particularly prone to fire and is regarded as one of the most bushfire-affected regions in the world. It is neither possible nor desirable to eliminate bushfires in Tasmania. Whilst bushfires are part of the natural ecosystem processes of Tasmania and are essential for the maintenance of biodiversity, its affects can be catastrophic if uncontrolled. Tasmania has experienced periodic bushfire events that have caused devastating loss to life and property. In the aftermath of recent catastrophic bushfire events a heightened focus has been placed on bushfire risk identification and mitigation.

In recognition of the fact that bushfire is a landscape scale problem, the management of which is a shared responsibility across all levels of government and both the public and private arena, changes were made to the *Fire Service Act 1979* that align the administrative responsibility for the management of bushfire fuels across the State. The fire management area committee (FMAC) structure, membership and committee boundaries were reviewed and there are now 10 fire management areas for the State. This reflects a broader landscape approach and strategic focus that is required to effectively manage and mitigate the risk of bushfire.

In accordance with Section 18 of the *Fire Service Act 1979*, the following organisations are represented on Fire Management Area Committees:

- Local Government Authorities
- Sustainable Timber Tasmania
- Tasmania Fire Service
- Tasmanian Parks and Wildlife Service
- TasNetworks
- Hydro Tasmania
- Forico
- Tas Water
- State Emergency Service
- State Fire Management Council
- Natural Resource Management (NRM) organisations

The principal aim of the FMAC's is to bring together the various stakeholders that manage land use across the State, to work together to effectively manage vegetation fuels for the mitigation of bushfires. The principle responsibility of a FMAC is to prepare a tenure blind fire protection plan for its Fire Management Area.

1.4 Tenure-blind fire management approach

Recent bushfire events across south eastern Australia have shown the importance of strategic fuel management regardless of land tenure. The fact that bushfires move through the landscape with no regard to property boundaries or tenure means that cooperation is needed across property boundaries between land management agencies and private property owners and occupiers in order to adequately address the threat of bushfires in Tasmania.

Over time the focus of fire management activities has largely ended up with government agencies managing public land. It is evident from recent fire events that focusing mitigation efforts on public land alone will not be effective in addressing the risk of bushfires. Managing the risks associated with bushfires will necessitate improving community understanding and acceptance of the need to use prescribed burning (together with a range of other treatment options) appropriately on private as well as public lands.

1.5 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 Report
- North West Regional Emergency Management Plan
- Municipal Emergency Management Plans

Standards

- AS/NZS ISO 31000:2009 - Risk Management – Principles and Guidelines
- National Emergency Risk Assessment Guidelines (NERAG)

Legislation

- *Aboriginal Relics Act 1975*
- *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 and Tasmanian Forests Agreement Act 2013*
- *Threatened Species Protection Act 1995*
- *Environmental Management and Pollution Control Act 1994*
- *Local Government Act 1993*
- *Forest Practices Act 1985* and Forest Practices Code 2015
- Tasmanian Electricity Code

Chapter 2 Establishing the Context

2.1 Description of the West Coast Fire Protection Plan Area

2.1.1 Location and Boundaries

The West Coast Fire Management Area plan covers 1,914,350 ha. The Fire Management Area extends westwards from the township of Heybridge on Tasmania's north-west coast to Cape Grim on the West Coast and southwards as far as Davey Head. The fire management area encompasses Robbins Island, Hunter Island and Three Hummock Island in Bass Strait.

The south eastern and southern portion of the fire management area encompasses the Southwest Conservation Area as well as a large section of the Tasmanian Wilderness World Heritage Area.

Significant human settlement areas within the Fire Management Area include:

- Burnie
- Wynyard
- Smithton
- Queenstown
- Strahan

A map showing the boundaries of the West Coast Fire Management Area is contained in [Appendix 1](#).

There are four local government areas wholly or partially included in the West Coast fire planning area including:

- Circular Head Council
- Waratah-Wynyard Council
- Burnie City Council
- West Coast Council

Figure 1: Local government areas – West Coast FMA



2.1.2 Land Tenure

Within the West Coast Fire Management Area approximately 85% of land is public land and 15% is private/freehold land.

An overview of the land tenure within the West Coast FMA is contained in table 1.

Tenure	% of land
Private	15.4%
Forestry TAS (STT)	10.6%
Parks and Wildlife Service	69.6%
Crown	3.1%

Table 1 - Overview of tenure within the Fire management Area

A map showing land tenure within the West Coast Fire Management Area is contained in [Appendix 2](#).

The percentage of land that is private or freehold tenure within the West Coast FMA is considerably lower than most other FMA's across the state with the exception of the Southern FMA (which has a similarly low amount of private/freehold tenure land of 14%).

Land tenure is important when considering how to manage bushfire risk on a landscape scale. Government agencies responsible for management of the State's public land generally have arrangements in place for mitigating bushfire risk together with the resources and necessary skills for planning for and responding to bushfire emergencies. Many private property land owners do not have the resources, skills, knowledge or experience to safely and effectively manage fire risk on their land. Further compounding the complex issue of managing fire risk on private land is the fact that it is not co-ordinated or carried out in a strategic manner. The issue of managing fire risk on private land is possibly less of a problem in the West Coast FMA than for other FMA's but alternately leasehold or unallocated crown land (particularly land containing abandoned mining leases) presents an equally challenging problem for the area.

Management of fire risk on private property

Under the *Fire Service Act 1979* private landowners/occupiers in Tasmania, have a number of legal responsibilities in relation to fire management, including undertaking fire maintenance activities to ensure fuels on their property do not pose a risk to neighbouring properties.

Privately owned land represents a considerable challenge to the effective management of fire because there are currently some major barriers that limit the extent to which landholders undertake planned burns. These include:

- The risk of fire escapes. Privately owned land tends to be where the highest value risk (human lives) are concentrated;
- Potential liability of property owners from fire escapes;
- Poor access to good weather/local forecast information;
- Lack of fire management knowledge, skills and experience;
- Lack of labour to manage the burn;
- Lack of appropriate equipment to safely manage the burn;
- Absentee land owners - many properties now have owners but not occupiers, for example hobby farms and shack communities.

Other (Tasmania-wide) issues:

- De-stocking of rural areas - land where fuels were once managed by grazing or occasional burning, are left fallow and weeds or native vegetation fuels accumulate.
- Over time, fire preparedness and damage mitigation has given way to a suppression-oriented approach. Communities have become reliant on fire management agencies suppressing fire however suppression is unlikely in extreme bushfire events.
- There is an inconsistent approach amongst local Councils in relation to enforcing fire abatement notices and provisions on private property.
- There appears to be some concern and confusion in the community about a range of fire related legal issues including vegetation clearing laws, fire permit requirements, backyard burning restrictions and threatened species permit requirements.
- Population mobility and ageing. The number of people choosing to live in bush-fire prone areas is increasing. As the population moves in and out of rural areas the knowledge and awareness of people living in bush-fire prone areas diminishes.
- Land use planning issues – in some areas residential development continues to be permitted in locations with potentially extreme fire risk.

2.1.3 Climate and Bushfire Season

The climate of the West Coast Fire Management Area can be classified as temperate and is generally wet with a maritime influence. The climate in the fire management area is characterised by warm summers and cold winters in the northern coastal parts of the fire management area, together with mild summers and cold winters in the southern parts of the fire management area.

Weather Observations

There is ten Bureau of Meteorology (BOM) weather observation stations located within the West Coast Fire Management Area from which weather data are collected on a regular basis. They are located at:

- Cape Grim in the far north west of the Fire Management Area;
- Marrawah;
- Smithton;
- Wynyard;
- Burnie in the northeast of the Fire Management Area;
- Luncheon Hill;
- Mt Read;
- Strahan;
- Cape Sorrell in the central west of the Fire Management Area;
- Low Rocky Point in the south of the Fire Management Area



Summary Climate Statistics – West Coast FMA

Due to the extreme variation in weather data recorded from the ten BOM weather observation stations across the fire planning area, climate statistics from three weather stations (Marrawah in the north west, Mt Read in the centre of the fire planning area and Strahan (Aerodrome) in the south of the fire planning area) have been selected to provide a broad picture of weather observations for area.

Mean Annual rainfall	Ranging from 1000mm in the north of the fire management area to more than 3600mm in the southern part of the fire management area 1. Marrawah weather Stn - 1070mm 2. Mt Read weather Stn - 3613.6mm 3. Strahan Stn – 1475mm
Wettest months	1. Marrawah weather Stn – July (mean rainfall 138.5mm) 2. Mt Read weather Stn – May (mean rainfall 395.7 mm) 3. Strahan weather Stn – Aug (mean rainfall 180 mm)
Driest Months	1. Marrawah weather Stn –Feb (mean rainfall 44mm) 2. Mt Read weather Stn – Feb (mean rainfall 174.4 mm) 3. Strahan weather Stn – Feb (mean rainfall 64 mm)
Windiest Months	1. Marrawah weather Stn – December (westerly) 2. Mt Read weather Stn – September (fairly uniform year round) 3. Strahan weather Stn – September
Months of least wind	1. Marrawah weather Stn – June 2. Mt Read weather Stn – uniform year round 3. Strahan weather Stn – February/March
Cloudiest Month	1. Marrawah weather Stn – May 2. Mt Read weather Stn – Not avail 3. Strahan weather Stn – August/September

Temperature and rainfall

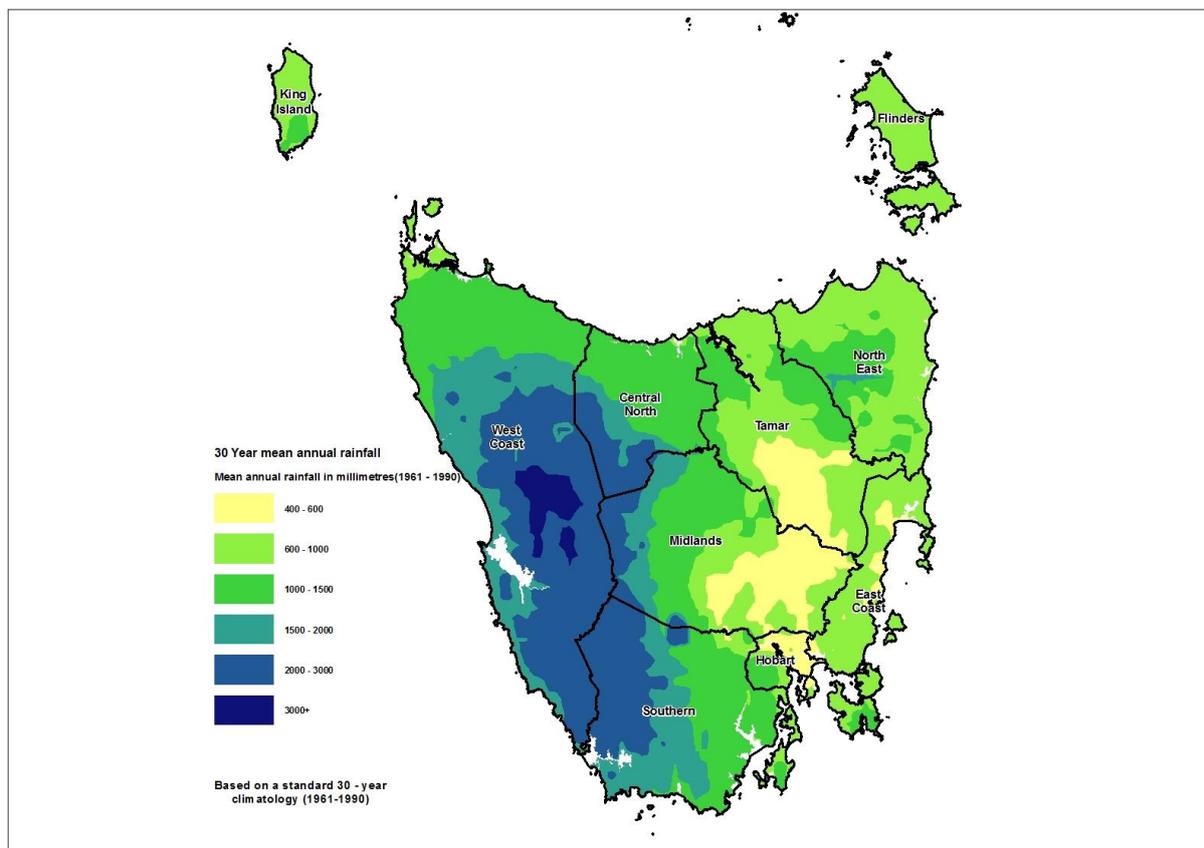
Average maximum daily temperatures within the FMA range from 14.3° at Mt Read in the centre of the Fire Management Area to 20° at Marrawah in the north in January/February and 21.2° in February at Strahan in the south.

Average minimum temperatures range from 7° at Marrawah in the north in July to 5.1 ° in July at Strahan in the south, down to 0.1° at Mt Read in July.

The fire management area is characterised by moderate to high rainfall with a winter dominant seasonal rainfall pattern and low summer rainfall. Winter is the wettest season due to the influence of passing cold frontal systems on the area. The west receives longer duration rainfall events than the north and east of Tasmania.

The FMA has an annual average of ten thunder days with the West Coast part of Tasmania receiving more frequent thunderstorm activity than the rest of the state.

Figure 2: Mean annual rainfall across Tasmania Fire Management Areas.



Wind

The prevailing winds for the West Coast FMA are westerly. Spring is the windiest season with winds from the northwest increasing in the afternoons.

Bushfire season

A fire season is defined as the period of time in which fires are most likely to occur. Fire seasons can vary geographically and temporally. The fire season in the West Coast region of Tasmania extends from October to April. The extended period occurs due to the flammable characteristics of the moorland button grass and scrub vegetation complexes within the Fire Management Area.

Statistics indicate that whilst the peak of the fire danger period in the west is in February, the month of January continues to support the highest incidence of fire starts. This correlates with the period of highest visitor use in the area together with a greater frequency of thunderstorms in the area in summer.

2.1.4 Vegetation

The range of vegetation communities found within the West Coast Fire Protection Planning area is extremely diverse. The diversity within and between the vegetation communities is related to variations in altitude, rock types, landforms and fire history across the planning area. The non-vascular flora of the region (i.e. mosses, liverworts, lichens and fungi) is very diverse because of the variability of vegetation coupled with a very wet climate.

A substantial proportion of West Coast fire management planning area is formally reserved with larger reserves within the planning area including part of Cradle Mountain Lake St Clair National Park, Franklin – Gordon Wild Rivers National Park, the Southwest Conservation Area (which all form part of the West Coast Tasmania World Heritage Area) and Savage River National Park in the north of the planning area. The planning area contains old growth forests as well as stands of Huon pine which are amongst the world's oldest living plants with individual trees known to reach an age of 3000 years.

The main vegetation associations in Tasmania have been mapped by the TasVeg mapping program coordinated by the Department of Primary Industries Parks Water and the Environment (DPIPWE). For the purposes of fire management, the complex vegetation associations used in TasVeg have been simplified into 21 types and fire-attributes (fire sensitivity and flammability ratings) have been developed for each type.

The broad native vegetation types occurring within the planning area and their flammability ratings are shown in the below table and includes:

- Rainforest;
- Wet sclerophyll forest and woodland;
- Native non-forest vegetation (e.g. moorland, sedgeland, heath, rushland and peatland);
- Scrub communities (scrub, heathland and coastal complexes);
- Non eucalypt forest and woodland;
- Dry sclerophyll forest and woodland;
- Other natural environments;
- Highland and Treeless Vegetation;
- Native grassland;
- Saltmarsh and wetland;
- Swamp forest (greatest in extent and diversity in the far Northwest (Woolnorth Region)).

Non native vegetation types occurring within the planning area include:

- Agricultural, urban and exotic vegetation.

Broad Vegetation Group (TasVeg 3, 2013)	% in FMA	Veg Flammability
Rainforest and related scrub	24.6	Low
Wet eucalypt forest and woodland	20.1	Medium
Moorland, sedgeland, rushland and peatland	18.1	Low – very high
Scrub, heathland and coastal complexes	11.5	High – Very High
Agricultural, urban and exotic vegetation	11.5	Medium
Non eucalypt forest and woodland	4.6	High
Dry eucalypt forest and woodland	4.2	Medium - High
Other natural environments	3.1	N/A
Highland and Treeless Vegetation	0.7	High
Native grassland	.3	High
Saltmarsh and wetland	.1	Low
Total	100	

Whilst the West Coast FMA contains a significant percentage of low flammability vegetation types it also contains even larger amounts of highly flammable vegetation in the form of buttongrass moorland, sedgeland, rushland and peatland as well as scrub and heathland. Vegetation in the West Coast FMA in particular is well adapted to fire and in recent times the area has experienced a high frequency of fast moving bushfires which have burnt out large areas of the FMA.

A map and description of each of the broad vegetation community types contained in the TASVEG mapping dataset and found in the West Coast FMA is contained in Appendix 3.

2.1.5 Population and Demographics

The West Coast Fire Management Area has an estimated residential population of 44,548 people (ABS 2016). The population density of the West Coast fire management area is sparse, with less than 5 persons per square kilometre.

The main regional centres within the Fire Management Area include:

- Burnie (population 18,895 ABS 2016)
- Smithton (population 3,881 ABS 2016)
- Wynyard (population 6,001 ABS 2016)

The population trend on the West Coast, which contains many of Tasmania's mines, is in decline. The west and north-west coast experience temporary increases in population during the summertime with an influx of tourists to the area as well as holiday makers inhabiting shack communities (including Trial Harbour, Granville Harbour, Pieman Head, Macquarie Heads, Crayfish Creek, Rocky Cape, Temma, Couta Rocks, Sandy Cape, Marawah, Sundown Point and the Arthur River).

The West Coast municipality is a sparsely populated region with a total population of approximately 4,149 people the majority of who mostly reside in the towns of Queenstown, Strahan, Zeehan, Rosebery and Tullah. Principal occupations of the west coast region revolve around mining, tourism, forestry and fishing.

The municipality of Circular Head in the far north west of the fire management area has a population of approximately 8000 people and a population density of 1.7 people per km². Key industries in the area providing employment include dairying, forestry and timber production, beef production, commercial fishing, aquaculture, iron ore pelletizing and tourism.

A map showing the population distribution of the West Coast Fire Management Area is contained in [Appendix 4](#).

Manufacturing, retail trade and construction are the main industries and employers for the north/north west region, employing 30% of the total workforce, followed by agriculture, forestry and fishing and mining.

Other significant industries include dairy production and processing of agricultural products.

Significant built infrastructure assets in the region include;

- Burnie Port
- Wynyard Airport (Commercial/night lit runway)
- Power stations and transmission lines and hydroelectric dams
- Savage River Mine and pipeline to Mawbanna as well as Port Latta Pelletizing plant

2.1.6 Bushfire Frequency and Causes of Ignition

Fire frequency is defined as the number of times any one point in the landscape has been affected by fire over a period of time. Fire frequency records for the West Coast Fire Management Area have been obtained from records provided by the Tasmania Fire Service, Parks and Wildlife Service and Sustainable Timber Tasmania but the records are incomplete. Data for fires on private property is particularly lacking. Records that are available indicate that the number of fires and area burned per year has varied widely.

The 2016 Wildfire season was particularly unusual due to the large amount of lightning ignition and the protracted nature of the firefighting effort.

The vast majority (79%) of the fire management area has been untouched by fire since records started being kept. 15.5% of the Fire Management Area is noted as having been subject to fire at least once. Less than 6% of the fire management area has been subject to more than 2 or 3 fires at the same location.

Events

Major fire events in the region have been large in size with four large fire events over 36000ha in size since records began. The majority of fires (over 75%) occurring in the region have been under 100ha. It appears that there is a significant trend increase in the number of fires occurring in the <1ha size class in the last decade. The change may be attributed to improved detection methods, which enable a quicker response for suppression resources, along with more accurate reporting procedures on small size class fires.

The fire regime in the area can be described as having frequent small, low intensity surface fires with the exception being in the moorland buttongrass and heathland communities.

Major large scale fire events within the West Coast FMA

Fire name	Year	Area (ha)	Burnt
Pipeline Road - Mawbanna	2016	63,450	
Wuthering Heights	2016	22,315	
Mt Frankland Donaldson	2003	78,167	
Mulcahy Bay	1987	23,561	
Birch Inlet – Low Rocky Point	1986	36,723	
Savage River	1982	53,720	

Fire Ignition Cause

The true causes of fire, either through ignition by lightning or caused by human actions have not been well documented. TFS does not keep records relating to fire ignition causes and they have only been documented by Sustainable Timber Tasmania and the Tasmanian Parks and Wildlife Service since the 1980s. The leading causes of fires for the West Coast fire management area (other than planned burns which accounted for 21.3% of fires) include lightning strike ignition (35.6%) and a range of human causes (accidents, arson, campfire escape, escaped burns).

Analysis of existing records indicates that arson is a significant issue for the West Coast FMA, particularly for PWS managed land. The principle causes of ignition within the FMA are:

Ignition source	% of ignitions
Lightning	35.6%
Planned burns	21.3%
Unknown cause	15.3%
Escapes from planned burns	12.3 %
Arson	10.5%

Lightning caused fires appear to be increasing significantly in the West Coast FMA in the last decade, supporting Bureau of Meteorology observations on an increase in the number of lightning days.

Maps showing fire history, frequency and causes of ignition for the West Coast Fire Management Area are contained in [Appendix 5](#).

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 November 2013 was used to analyse the landscape level risk for this plan. For a full analysis of the model, see [Appendix 6](#).

To determine overall risk the NERAG (National Emergency Risk Assessment Guidelines August 2010) document (see Appendix 7) was used. The level of risk is determined by combining consequences and likelihood (see Appendix 7).

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.

Within the West Coast FMA there are a number of natural values at risk from fire including the internationally significant Tasmanian Wilderness World Heritage Area as well as areas of high value and specialty Timber (Huon pine, King William Pine, Leatherwood etc.). The West Coast FMA also contains the West Coast Tasmania Aboriginal Landscape National Heritage site whose heritage values may be at risk through loss of grass cover and subsequent erosion of hut depressions and midden sites following bushfires.

Other values that need to be understood when examining risk include the critical infrastructure present.

Critical infrastructure within the West Coast FMA includes:

- TasNetworks transmission and distribution lines and infrastructure and communications network
- Radio and telecommunications infrastructure
- Gas pipeline and iron ore slurry pipe to Port Latta
- Round Hill infrastructure (Chasm Creek)
- Veneer mill, dry powdered milk plant at Smithton and Port Latta Processing plant (major employers for the area)
- Bastyan, Reece, John Butters and Mackintosh power stations
- The (night time operational) airstrip and communications facilities at Strahan
- King Billy Pine wood stave pipeline (Lake Margaret to Queenstown). This pipeline has now been renewed using Oregon pine.
- Savage River Township and Savage River Mine, Save River Pipeline to Mawbanna

Other:

Waratah/Wynyard Council advised of explosives storage site at Que River, managed by Forze Explosive Services (Minutes of NW EMC 10 Feb 2016).

3.4 Overall Risk

A representation of risk (see [Appendix 7](#)) is developed when you combine the factors of likelihood and consequence. The BRAM 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 West Coast Fire Management Area

The bushfire risk model BRAM was utilised to examine risk across the fire management area. The results of this risk analysis are contained in a series of maps (BRAM - Bushfire Risk Assessment Model Maps) showing likelihood of ignition, consequences and overall risk within the West Coast FMA in [Appendix 8](#).

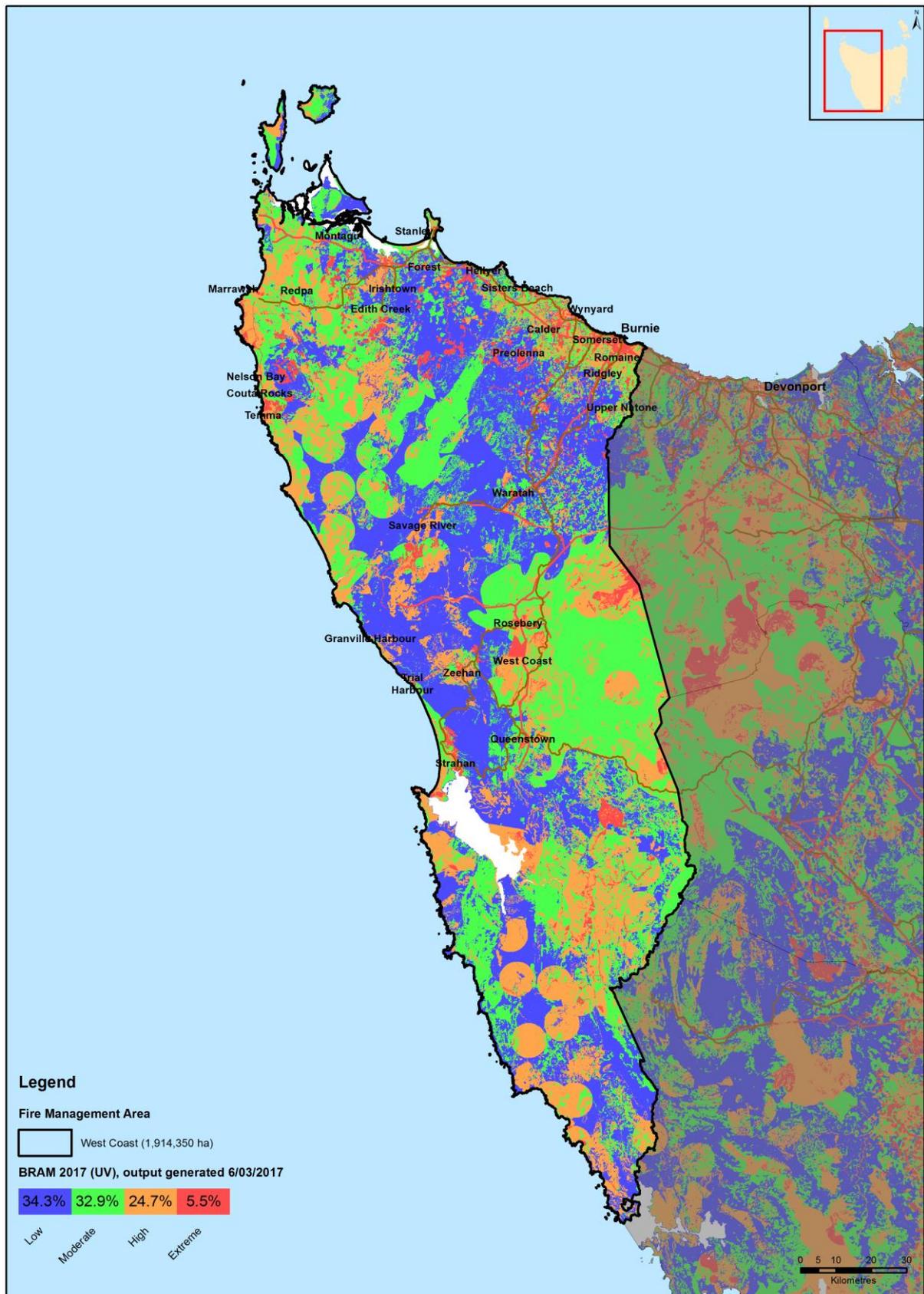
BRAM modelling results for the West Coast FMA (Figure 3) indicate that areas of highest bushfire risk identified for the West Coast FMA are scattered throughout the FMA. Some extreme risk areas were identified around the settlements of Strahan and Queenstown in the central West Coast part of the FMA as well as areas around Mt Read and scattered patches across the north and north eastern part of the FMA.

As at October 2017 a total of 5.5% of the fire management area was identified as being at extreme risk from fire under current fuel loads.

BRAM Bushfire Risk Assessment results for the West Coast Fire Management Area:

BRAM level of Risk	Area (ha)	% of FMA
Low		34.3%
Moderate		32.9%
High		24.7%
Extreme		5.5%

Figure 3 – BRAM Overall Risk analysis results – West Coast FMA



3.6 Phoenix Ignition Points Modelling

In addition to BRAM modelling, Phoenix Rapidfire, a bushfire simulator, developed by the University of Melbourne (Kevin Tolhurst and Derek Chong, 2008) was used to model the risk of fires impacting on communities present in the FMA. An understanding of the location of potential ignition points that may impact on communities is crucial. This modelling was done as part of the state wide strategic fuel management assessment. The process involved modelling potential ignition points, incorporating worst case scenario weather patterns and examining fire behaviour based on current fuel loads to identify the potential impact on human settlement areas.

The Phoenix modelling indicates that within the West Coast FMA ignition points of potential concern (and possibly requiring risk mitigation activities) are located:

- North west of Strahan
- North west of Queenstown
- North west of Zeehan
- In the more heavily populated areas of the north coast including to the east and south west of Burnie and west of Wynyard
- South west of Smithton

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.

A map showing the location of potential ignition points that may impact on communities in the West Coast FMA under current fuel loads is contained in Appendix 9.

3.7 Community Risk Assessment

Strategic assessment tools (including BRAM and Phoenix computer modelling) have been used to conduct a broad scale assessment across the West Coast Fire Management Area to identify communities vulnerable to bushfire. A more detailed assessment using more locally specific processes was then conducted by members of the FMAC.

Tools that were used by the FMAC to identify communities vulnerable to bushfire include:

- Consultation of Council and Emergency Services Risk Registers
- Local knowledge obtained from Tas Fire Service District Officers and Brigades
- BRAM Risk rating for West Coast FMA Human Settlement Areas
- Phoenix modelled impacts
- Consultation with Tasmania Fire Service Community Protection Planners and Community Development Officers
- Expert opinion of fire practitioners
- Identification and consideration of existing and past fire management actions and plans

Communities nominated in 2014 by the Tasmania Fire Service District Officer as being high risk within the fire management area included:

- Sisters Beach
- Arthur River
- Strahan
- Zeehan
- Port Latta
- Crayfish Creek
- Round Hill
- Trial Harbour
- Hellyer
- Corinna

Consideration was also given to other assets of particular significance to the West Coast FMA:

- Agriculturally valuable locations/crops
- Community assets (historic buildings, community halls etc.)
- Ecologically special areas
- Major infrastructure

- Large employment centres
- Plantations (private and public)

A workshop was held in 2014 for FMAC members to discuss and analyse the results of the preliminary risk assessment. Agreed 'at risk' communities were then prioritised by members of the West Coast Fire Management Area Committee.

The results of the strategic assessment of communities at risk in the West Coast Fire Management Area are outlined below in Table 3.

Suburb Name	BRAM Rating	FMAC Priority
Zeehan	High-Extreme	Extreme
Strahan	High-Extreme	High – V High
Sisters Beach	High-Extreme	Medium
Arthur River	High-Extreme	Medium
Port Latta	Mod -High	Med to High

Table 3 – Results of the Strategic Assessment

A map showing the location of communities identified as a result of the strategic assessment process is contained in Figure 4.

A number of communities have previously been identified as being at high risk from bushfire and already have specific bushfire response and protection plans in place, these are summarised in Appendix 10.

Vulnerable Groups

Consideration was also given to a number of community groups and locations within the FMA (camping areas in particular) that may contain people at risk from bushfire. The following groups and locations were considered due to their isolation and close proximity to heavily vegetated areas:

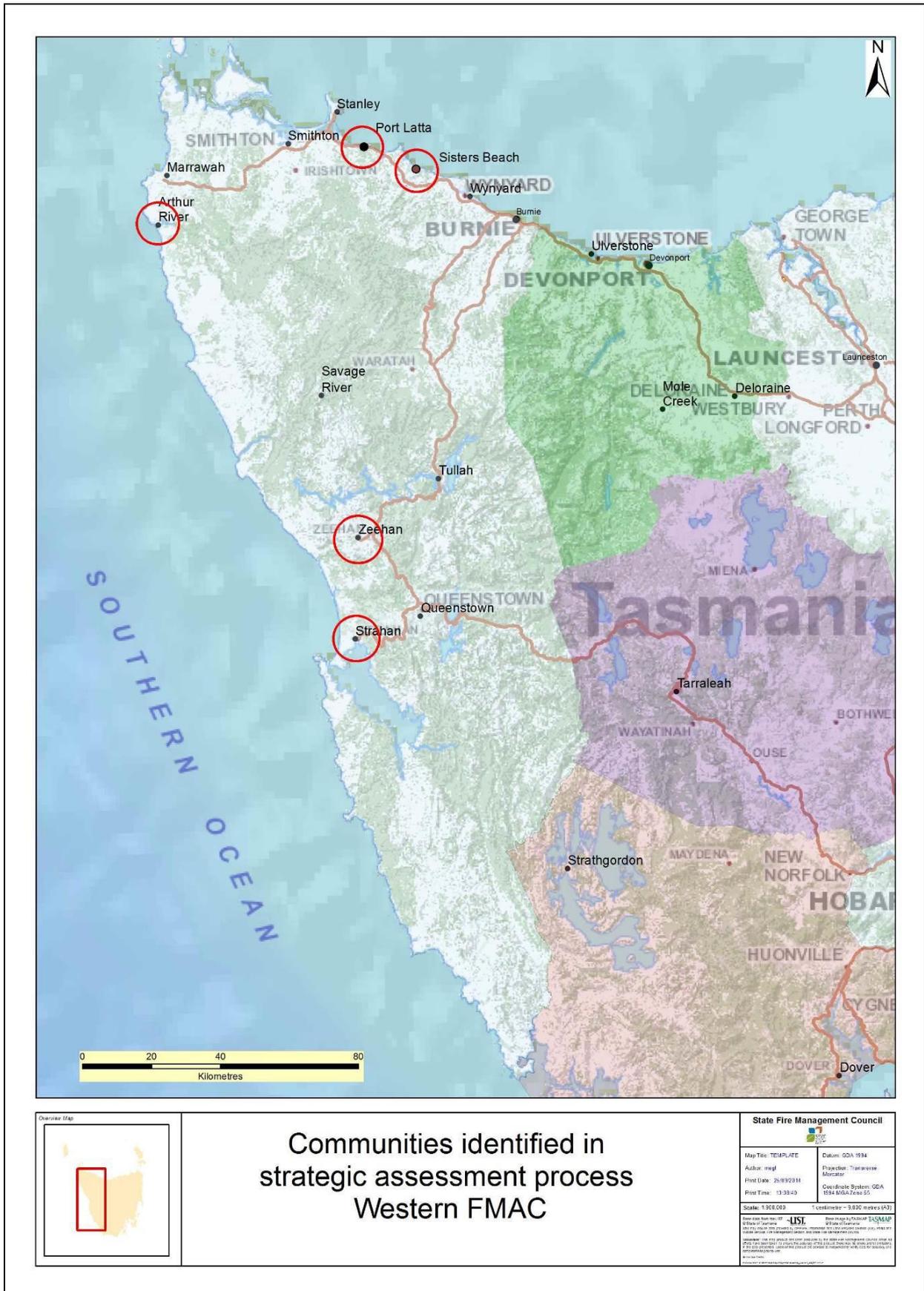
- The Dogs Home above Emu River Valley
- Emu River Valley residents
- Cam River Valley residents
- Recreational campers and tour companies
- Crayfish Creek Caravan Park
- Montagu Park Camping Area
- Macquarie Heads camping area
- Corinna wilderness lodge/settlement
- Rosebery

The level of preparedness of residents and campers in these areas to respond to a bushfire event is not known. These groups and locations are likely to already have been given consideration in Local Council Emergency Plans and associated risk assessments.

Special Issues for the West Coast FMA:

- Abandoned and new mining leases represent a major fire risk for nearby communities if they are not managed (they have absentee owners/managers) and weeds/vegetation fuels are not controlled.

Figure 4 – Communities identified during strategic assessment process



3.8 Areas of strategic importance within the West Coast FMA

In addition to the above communities, areas of strategic importance were also identified, shown in Table 4. These areas were identified through a process that utilised and combined local knowledge, BRAM risk assessment and phoenix ignition potential modelling. FMA 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 mitigation actions.

Table 4: Strategic areas for potential mitigation actions in the West Coast FMA.

Potential treatment area	May provide protection for
Fern Glade Conservation Area & Emu River Valley Reserve (south Burnie)	Havenview residential area (Burnie), the Wivenhoe industrial estate and the Lion dairy production factory (old Surrey Road)
Gorse affected land around Zeehan	Zeehan township
Strategic Fire Trails around Queenstown	Queenstown
Broom affected land around Waratah township	Waratah township
Strategic trails around Rosebery	Rosebery township

Maps of potential areas of strategic value for mitigation activities within the West Coast FMA are contained in Figure 5.

Community Development and Education

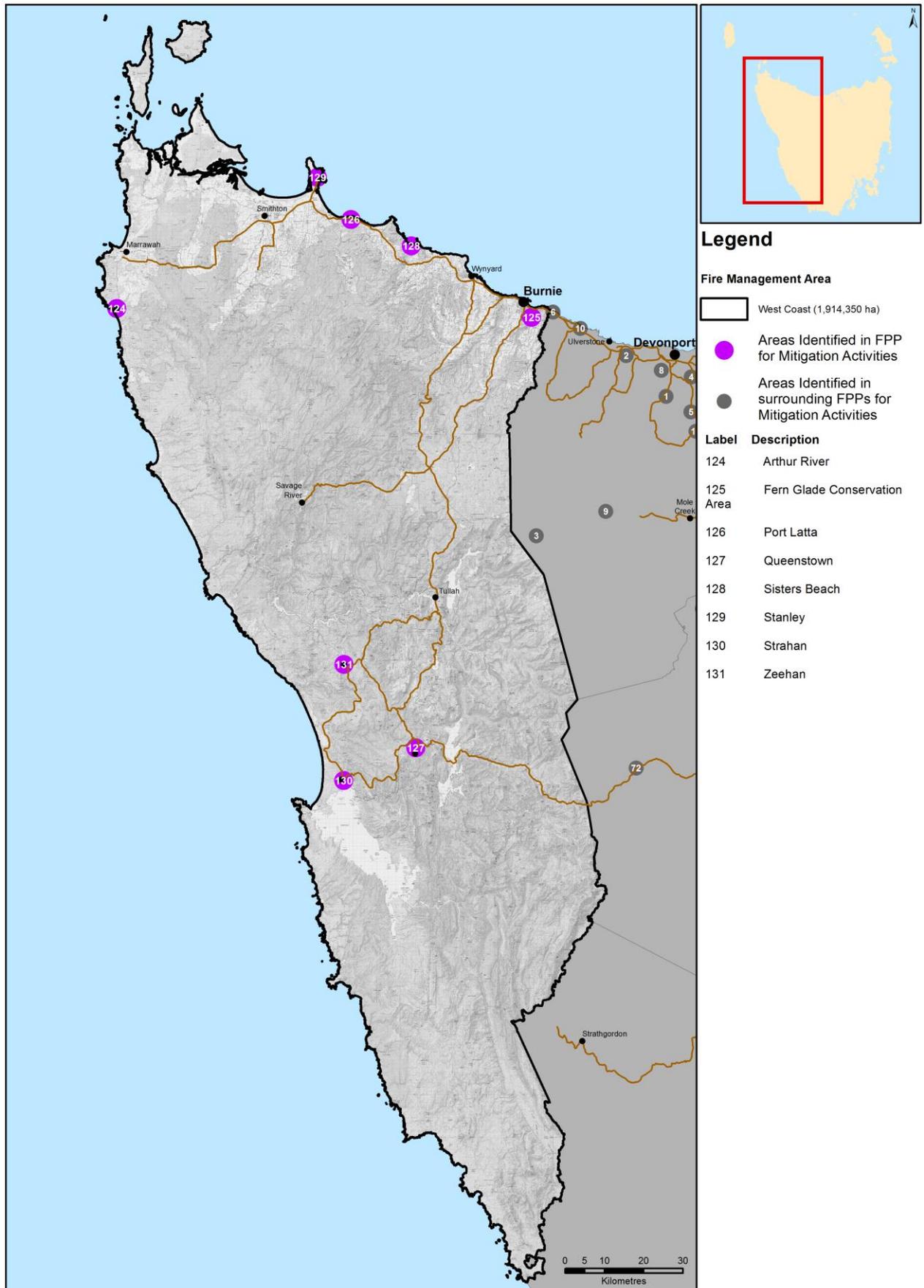
Bushfire-Ready Neighbourhoods Program - Tasmanian Fire Service

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.

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

Round 2 Communities- 2016 to 2018 in the West Coast FMA are Sisters Creek, West Coast (with a focus on Zeehan) and Cowrie Point to Rocky Cape.

Figure 5 – Areas of potential strategic value for mitigation activities – West Coast FMA



3.9 Strategic fuel management

Reducing fuel loads in strategic areas (usually through prescribed burning) is undertaken with the intention of modifying the fire behaviour of any future bushfire and creating an improved window of opportunity to control or contain bushfire events. The basic strategy is to develop a mosaic of fuel reduced areas within specific parts of the landscape over a time frame of several years. The application of a burning regime that establishes a mosaic of burns can be used to ensure bushfire impacts are minimised. It also ensures fire dependent flora species are maintained. Appropriate techniques may include but are not restricted to such processes as fuel reduction burning, slashing, mulching and fire break and trail construction.

Strategic fire trails

To be of strategic value, fire trails should be located in the following situations:

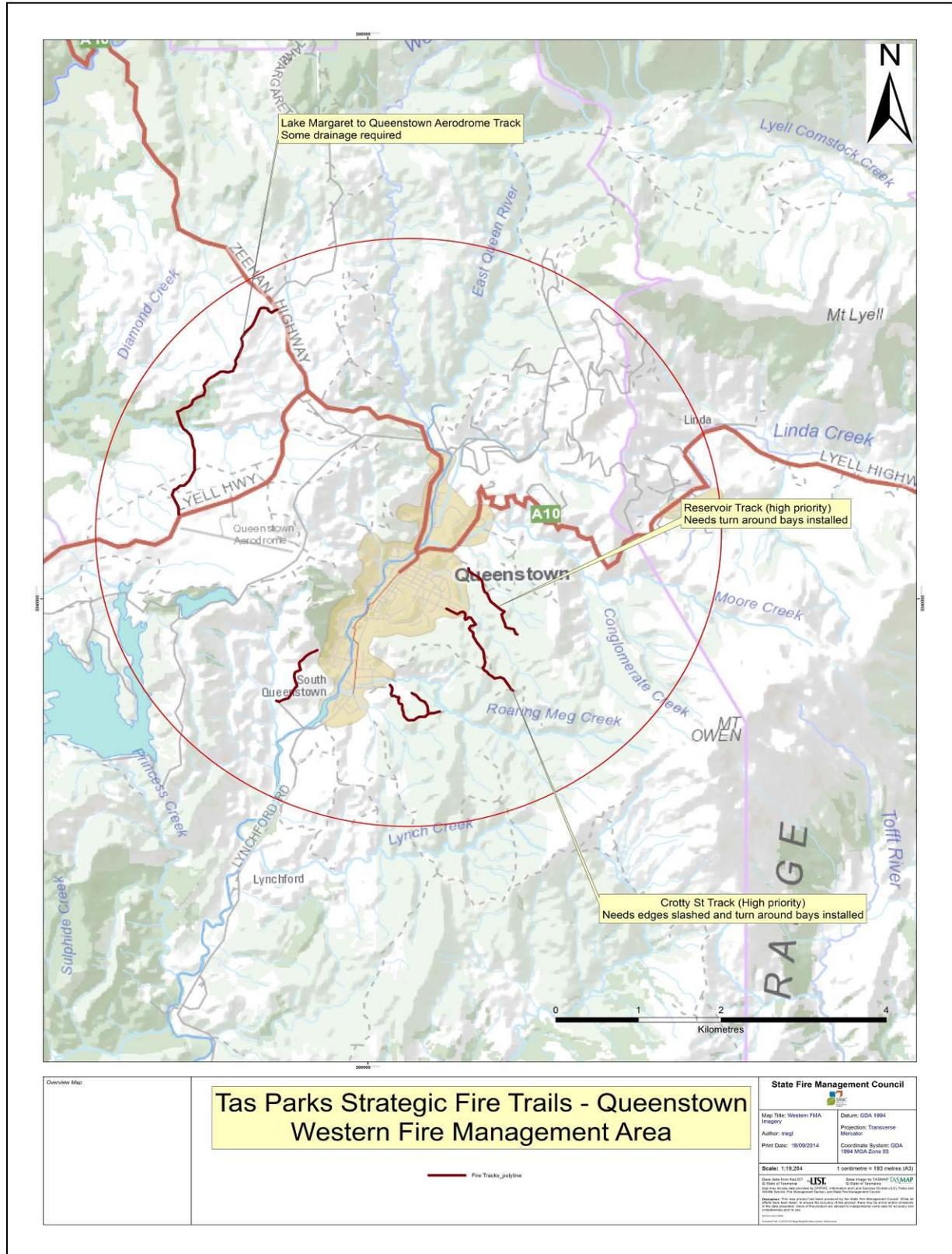
- Adjacent to the assets which they are required to protect;
- Lead to strategic water sources;
- Break up large tracts of contiguous flammable vegetation;
- To facilitate access and egress to assets;
- To provide boundaries for prescribed burning blocks.

A comprehensive investigation and identification of strategic roads, fire trails, fire breaks and fire infrastructure within the West Coast FMA has not yet been undertaken but has been identified as a priority for future Fire Protection Plans.

Strategic Fire Trails – Queenstown:

Preliminary investigation of a number of existing trails on Tasmanian Parks and Wildlife managed tenure surrounding Queenstown identified the location of trails with potential strategic value (Figure 6). Additional funding is required in order to bring the trails up to a standard appropriate for safe fire-fighting operations.

Figure 6 – Areas of potential strategic value for mitigation activities – West Coast FMA



Chapter 4 Bushfire Risk Treatment

4.1 Region Wide Controls

The following controls are currently in place across the West Coast Fire Management Area 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 Community Fire Safety Programs and SFMC state-wide programs tailored to suit local needs; e.g. Community Education – Bushfire Ready Neighbourhoods Program, Bushfire Planning and Policy – Community Protection Planning and private land burning programs (see Appendix 10 for further details).
- 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 firefighting 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 Treatment Options - Planned burning

Strategic fuel reduction burning is one treatment option with the potential to reduce risk to some communities throughout the FMA.

In Tasmania, only certain types of vegetation are suitable for planned burning, for example dry eucalypt forest, scrub, heathland and buttongrass. These are what can be called 'treatable' vegetation types. Other vegetation types are unsuitable for planned burning either because they are too wet to burn (such as sphagnum, swamp and wetland), are extremely fire sensitive (rainforest, alpine/sub alpine coniferous heathland) or have other characteristics such as land which is unvegetated or vegetation growing in urban areas which make them unsuitable for planned burning. These unsuitable vegetation types are considered 'non-treatable' for planned burning purposes.

Agricultural lands, whilst susceptible to the impact of bushfire, are also considered 'non-treatable' due to the land use priority for these vegetation types. This does not preclude these areas from burning however it means this area of land use type is not being included in the analysis of treatable and untreatable vegetation.

Within the West Coast Fire Planning Area a total of 465,187 ha (or 24% of the total area) has been categorised as Treatable. The remaining 72% of the fire planning area (1,370,616 ha) has been classified as untreatable.

Fuel Reduction Burning Treatability –West Coast Fire Management Area		
	West Coast Area (ha)	(%)
Treatable	465,187	24
Un-treatable	1320902	69
Water	48392	2
<i>Agricultural</i>	11486	6
Total FMAC Area (ha)	1914350	100.0

A map and summary table showing treatability of land within the West Coast FMA is contained in [Appendix 11](#).

4.4 Treatment options other than burning

In areas classified as untreatable by planned burning the risk of fire may still be mitigated through a range of other activities including:

- Mechanical fuel removal (slashing and mulching, mowing, trittering, poison spraying)
- Fire trail maintenance and construction of strategic fire breaks (grading/dozing)
- Intensive or 'crash' grazing of blocks by livestock including goats
- Weed control
- The creation of fuel modified zones (fuel reduced zones) around structures and assets
- Planning conditions and restrictions in areas adjoining heavily vegetated land
- Bushfire resistant building design and construction materials for new developments
- Individual property owners can undertake bushfire readiness preparation prior to each fire season (including the development of Bushfire Survival Plans)
- The Tasmania Fire Service can prepare community specific plans including Community Bushfire Response Plans (for use by emergency response agencies) and Community Bushfire Protection Plans (for use by community members).

4.5 Bushfire Risk Mitigation programs – other agencies

A number of land management agencies including Parks and Wildlife Service Tasmania, Sustainable Timber Tasmania and private enterprises such as Forico have annual planned burning programs, including joint tenure burns and operations.

The below map (Figure 8) illustrates the planned burn operations from July 2014 through to November 2017 on private, Forestry TAS (STT), PWS and Forico managed estates, which align with the Fuel Reduction Program within the West Coast Fuel Management Area.

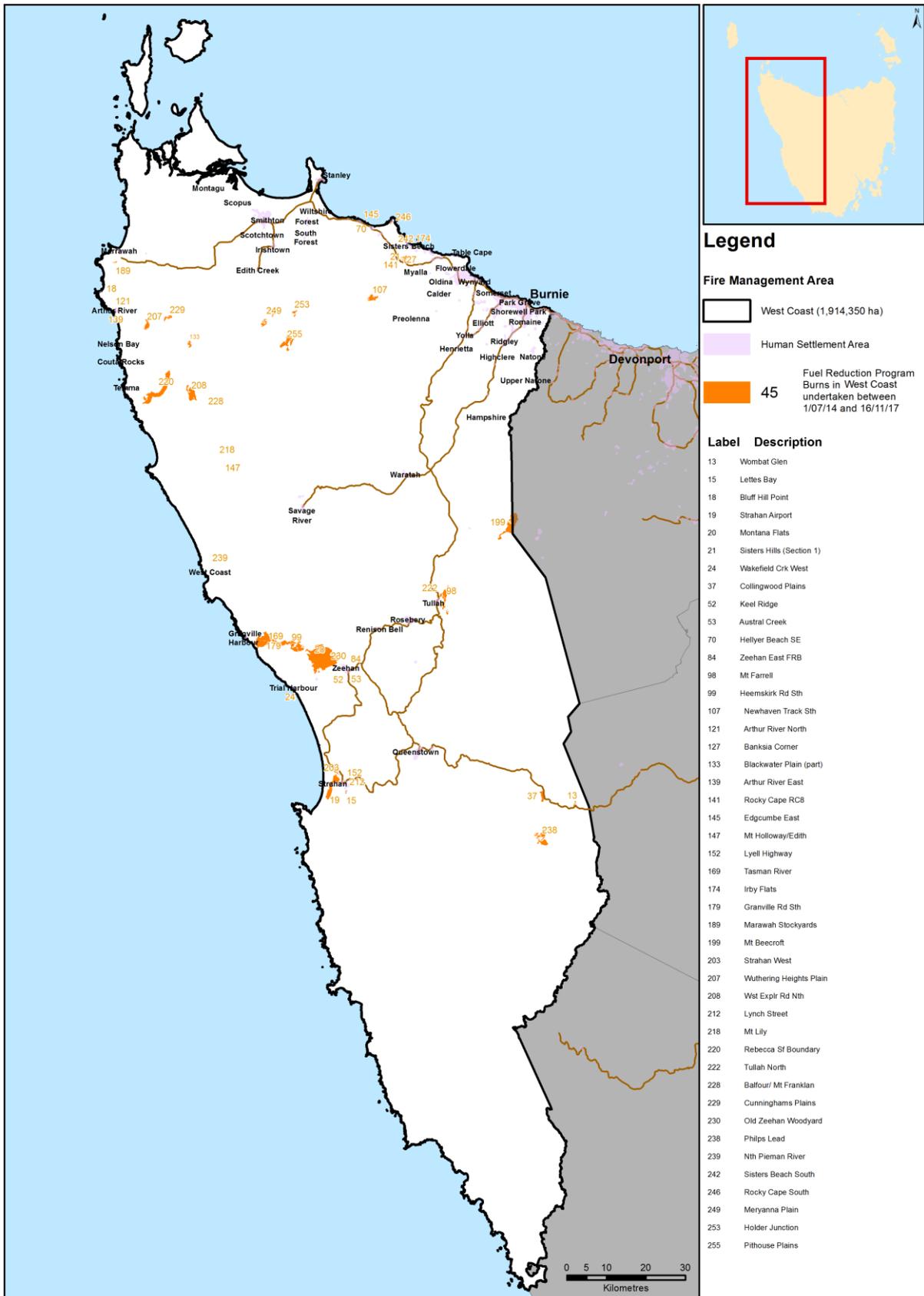
Other organisations including local councils, TasNetworks, Hydro Tasmania and TasWater have annual or cyclic programs which aim to mitigate risk from fire through activities including line trimming, mowing, slashing and fire trail and fire break maintenance.

A comprehensive map showing the location of the entire range of mitigation activities currently carried out or planned for the future within the FMA will assist in developing a co-ordinated approach to landscape scale fire risk mitigation in future Fire Protection Plans.

Other fire related management programs:

A number of current and historic fire management plans and fire related reports have already been prepared for use within the West Coast FMA. A list of these plans is contained in Appendix 12.

Figure 8 – FRB Program planned burning operations map 2015/16



4.6 Treatment Program for priority communities and strategic areas

Following identification and agreement upon priority communities and potential strategic areas for fire mitigation treatment within the West Coast FMA an annual Implementation Program was developed. The Implementation Program identifies proposed treatment strategies and actions to be undertaken within the West Coast FMA for:

- Priority communities
- Potential Strategic fuel management blocks
- Important community assets
- Strategic fire trails

It also identifies priority locations and actions that are currently unfunded but that could potentially reduce fire risk within the FMA should funding become available.

The implementation program contains proposed treatment strategies and actions to be undertaken within the 12 months following submission of the Fire Management Plan to the State Fire Management Council.

4.7 Annual Implementation Program

The 2017/18 Implementation Program for the West Coast FMA is contained in [Appendix 13](#). The implementation program will be coordinated by the Fire Management Area Committee (FMAC) which will also liaise with relevant land managers (including private property owners) to implement the risk mitigation strategies.

4.8 Implementation

When the treatments identified in this FPP are implemented there are a number of issues that need to be considered by the responsible agencies and land owners including:

- Environmental impact
- Prescribed burn plans and approvals
- Smoke management
- Community consultation
- Community partnerships

Special issues for the West Coast Fire Management Area:

- Smoke inundation from fuel reduction burning activities must be avoided near ventilation areas around mines.

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 Implementation Program.

5.1 Review

Fire Protection Plans, including appendices are to be submitted annually for each fire management area and 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.

The Community Risk Assessments contained in this FPP should be reviewed annually.

5.2 Monitoring

The Implementation Program at [Appendix 13](#) is a living document and progression towards completion of the treatments will be monitored and reviewed at least every six (6) months at Fire Management Area Committee meetings. The Implementation Program 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.

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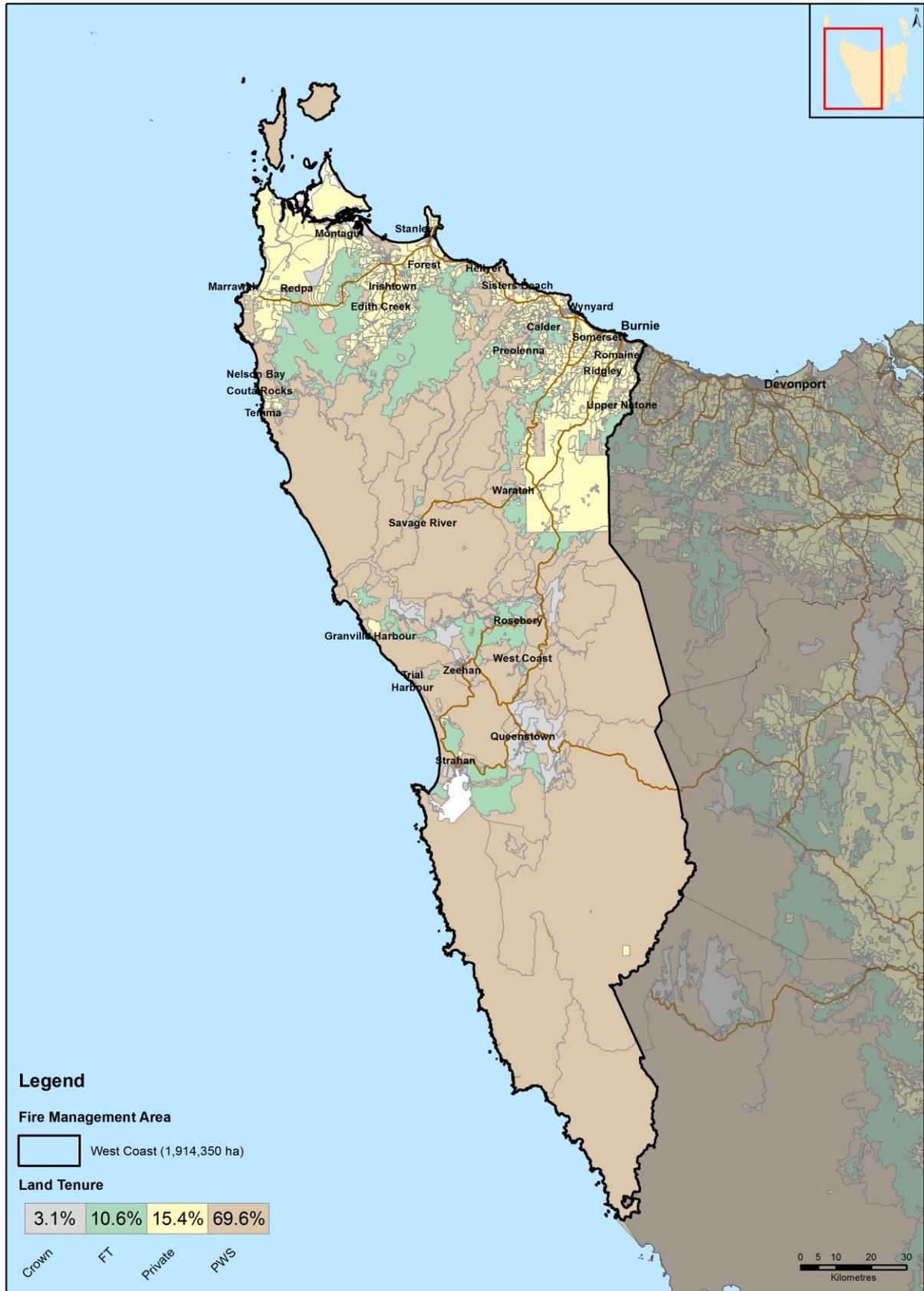
Appendices

Appendix 1	Map of West Coast Fire Management Area boundary
Appendix 2	Land tenure map and table
Appendix 3	Vegetation Map and TasVeg community descriptions
Appendix 4	West Coast Fire Management Area population distribution map
Appendix 5	Fire Frequency, History and Ignition Causes maps
Appendix 6	BRAM (Bushfire Risk Assessment Model) explanation
Appendix 7	NERAG risk assessment approach
Appendix 8	BRAM Risk Assessment Maps – Likelihood, Consequence, Risk
Appendix 9	Phoenix ignition points map
Appendix 10	Communities with plans in place
Appendix 11	Treatable/untreatable areas maps and tables
Appendix 12	List of fire management related documents for the West Coast Fire Management Area
Appendix 13	Annual Implementation Program – West Coast FMA

Appendix 1 – Map of West Coast Fire Management Area boundary



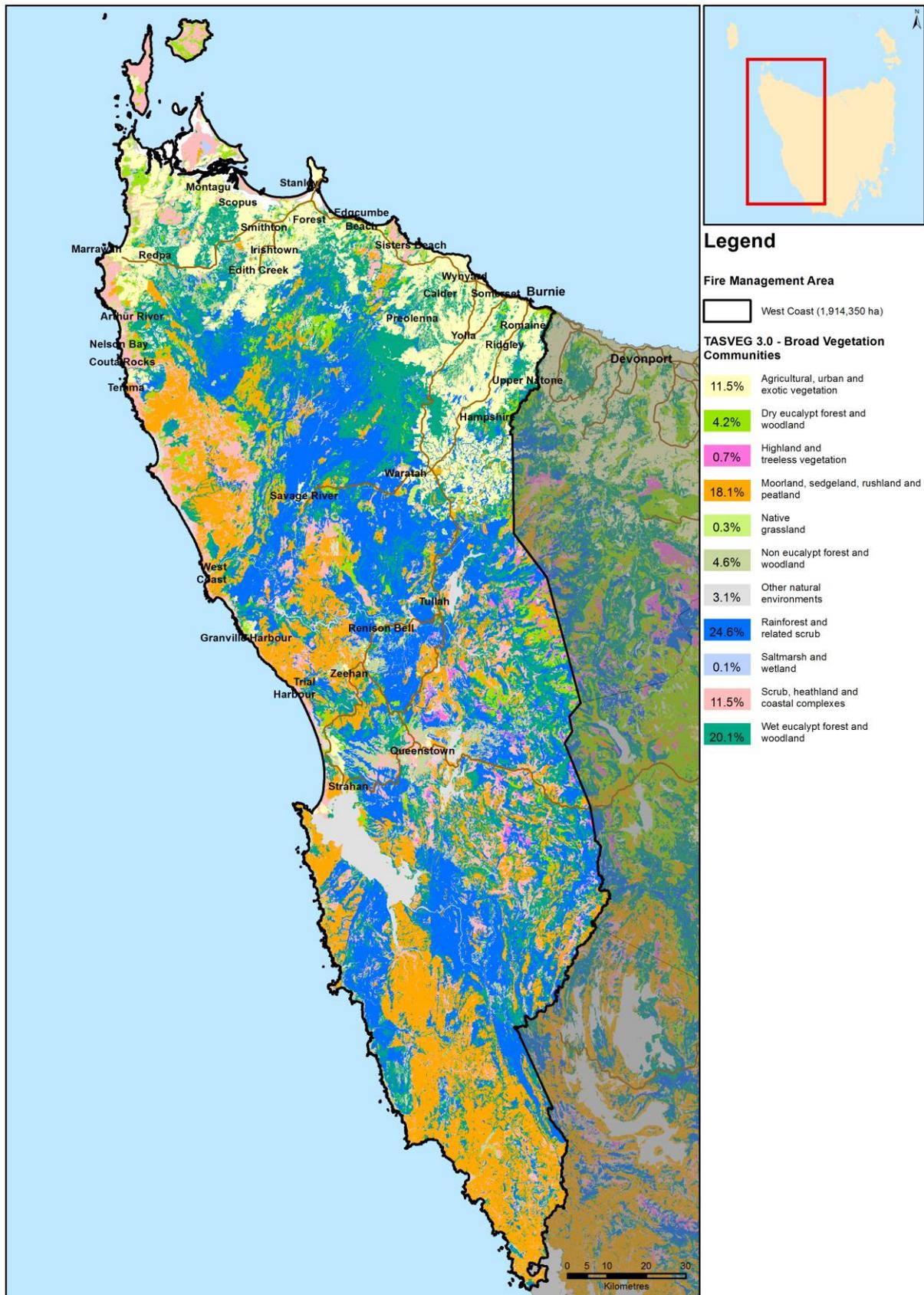
Appendix 2 – Land tenure map and table



Land Tenure – West Coast FMAC

Tenure Type	Hectares	Percentage
National Park	505,716	26.75
Conservation Area	313,147	16.57
Regional Reserve	293,739	15.54
Private Freehold	290,462	15.37
Permanent Timber Production Zone Land	202,457	10.71
Future Potential Production Forest (Crown)	141,419	7.48
Nature Recreation Area	42,428	2.24
Crown Land	27,917	1.48
Hydro-Electric Corporation	20,036	1.06
State Reserve	16,102	0.85
Historic Site	15,313	0.81
Casement	6,670	0.35
Conservation Covenant	3,969	0.21
Future Potential Production Forest (HEC)	3,349	0.18
Public Reserve	2,353	0.12
Game Reserve	1,836	0.10
Local Government	1,189	0.06
Tas Water	470	0.02
Authority Crown	378	0.02
HEC Conservation Area	329	0.02
Inland Water	285	0.02
Nature Reserve	283	0.01
Private Nature Reserve	200	0.01
Authority Freehold	159	0.01
Commonwealth	55	0.00
Local Government Act Reserve	40	0.00
Tas Irrigation	27	0.00
LGA Conservation Area	0	0.00

Appendix 3 – Vegetation Map and TasVeg community descriptions



A description of each of the broad vegetation community types contained in the TASVEG mapping dataset and found in the West Coast Fire Management Area:

Rainforest:

Tasmanian cool temperate rainforest is defined as vegetation with trees taller than 8 m, dominated by the following species: myrtle, deciduous beech, sassafras, leatherwood, horizontal, celery-top pine, King Billy pine, Huon pine, Cheshunt pine or pencil pine. Rainforest in West and Southwest Region is extensive and diverse, and includes the largest tracts of cool temperate rainforest in Australia. Rainforest communities, particularly in high altitude areas are susceptible to fire.

Huon pines are found growing among river-bank rainforest and also in a few subalpine lake shore forests, often in association with rainforest species such as myrtle (*Nothofagus cunninghamii*). They are susceptible to fire and are drought sensitive so are restricted to cool wet areas.

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. Wet sclerophyll forest in the region includes some of Tasmania's most commercially valuable eucalypt forests.

Moorland, sedgeland, grassland and peatland:

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

Most communities within this vegetation unit are treeless.

Tasmanian buttongrass moorlands cover more than a million hectares, chiefly in the cool wet West Coast region of Tasmania below the alpine zone. Buttongrass moorland is a unique vegetation type in a global context: it is the only extensive vegetation type dominated by hummock-forming tussock sedge (*Gymnoschoenus sphaerocephalus*). Buttongrass moorland is highly variable in structure, ranging from low closed sedgeland, through heathland and low open scrub to open woodland. Buttongrass moorland is at the interface of terrestrial and wetland systems, with much of it seasonally waterlogged

Sedgelands and rushlands typically grow on oligotrophic soils (soils poor in plant nutrients) and are adapted to extreme environmental conditions such as drought, waterlogging, fire and low nutrients. Areas with frequent fire are commonly occupied by sedgeland or grassland. Fire is a defining factor for the ecological vegetation

communities in this section: both its intensity and frequency largely dictates the form of the vegetation.

Fires can burn in this vegetation after as little as one or two rain-free days, even in winter. At some sites, the peat soils on which these communities occur can dry out and burn, leaving bare rock; after such an event, regeneration is very slow (Balmer 1991). *Sphagnum* peatlands can take many hundreds to thousands of years to develop, and after fire may take equally long to recover.

Scrub Heathland and coastal complexes:

Scrubs, heathlands and the diverse complexes that they may form are, with a few notable exceptions, dominated by extremely woody (drought resistant) species with hard leaves. Dominant genera within this vegetation unit include *Leptospermum*, *Melaleuca* and *Acacia*. 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.

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. The ground layer is often sparse in vegetation cover and species richness, although it may be diverse and/or dense in the more open-canopy communities.

Fire is a significant management issue for heathlands and scrubs that rely on it to maintain species diversity and a short-structure (i.e. especially those away from the coast and below the high altitude tree-line).

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.

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. Dominant species within these communities include species of the genera *Acacia*, *Allocasuarina*, *Banksia* and *Leptospermum*.

Some of these communities have been referred to as “dry rainforests”. The understorey in all these communities is generally sparse.

All the communities in the Non-eucalypt forest and woodland section may be maintained by episodic fire. Many of the communities typically regenerate episodically following fire and thus form even-aged stands.

Dry sclerophyll (eucalypt) forest and woodland:

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.

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.

Highland and Treeless vegetation:

Highland treeless vegetation communities occur within the alpine zone where growth of trees is impeded by climatic factors. The altitude above which trees cannot survive varies between 700m in the south west of Tasmania to over 1400m in the north-east highlands.

Alpine vegetation is generally treeless, although there may be some widely scattered trees, generally less than two metres high. Other highland treeless vegetation includes grasslands, herbfields and sedgy grasslands.

Fire is, at present, the most serious threat to Highland treeless vegetation in Tasmania. Very few of the plant communities in this section can recover after firing. Some take hundreds to thousands of years to recover, if they recover at all (Balmer 1991). Historically, large areas of the Tasmanian alpine zone have been burnt and are now vegetated with comparatively species-poor heaths.

Native grassland:

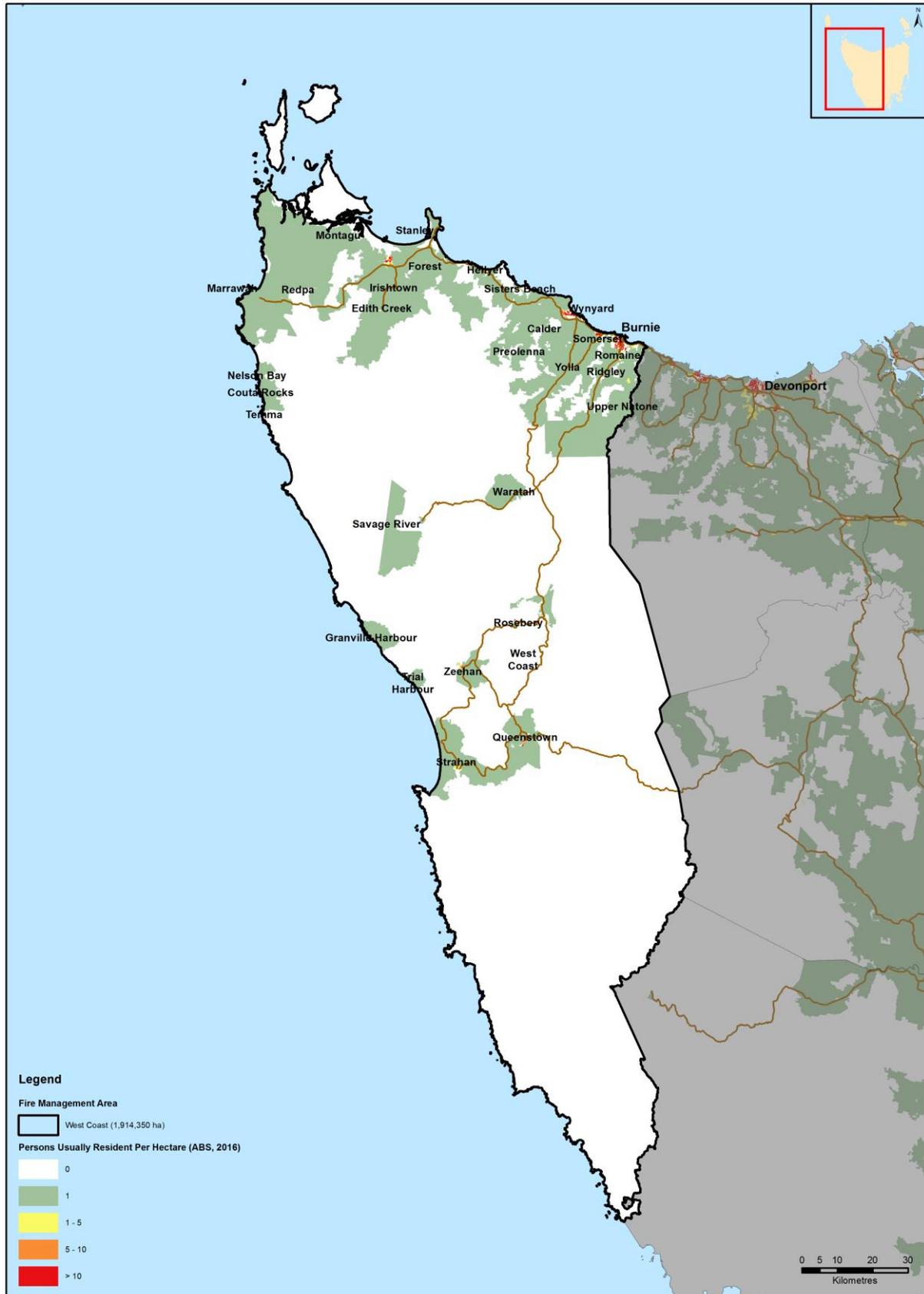
Native grasslands are defined as areas of native vegetation dominated by native grasses with few or no emergent woody species. Different types of native grassland can be found in a variety of habitats, including coastal fore-dunes, dry slopes and valley bottoms, rock plates and subalpine flats. The lowland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

Threatened species are a significant component of native grasslands. At the national level there are about 25 species associated with grasslands listed as threatened under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC).

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.

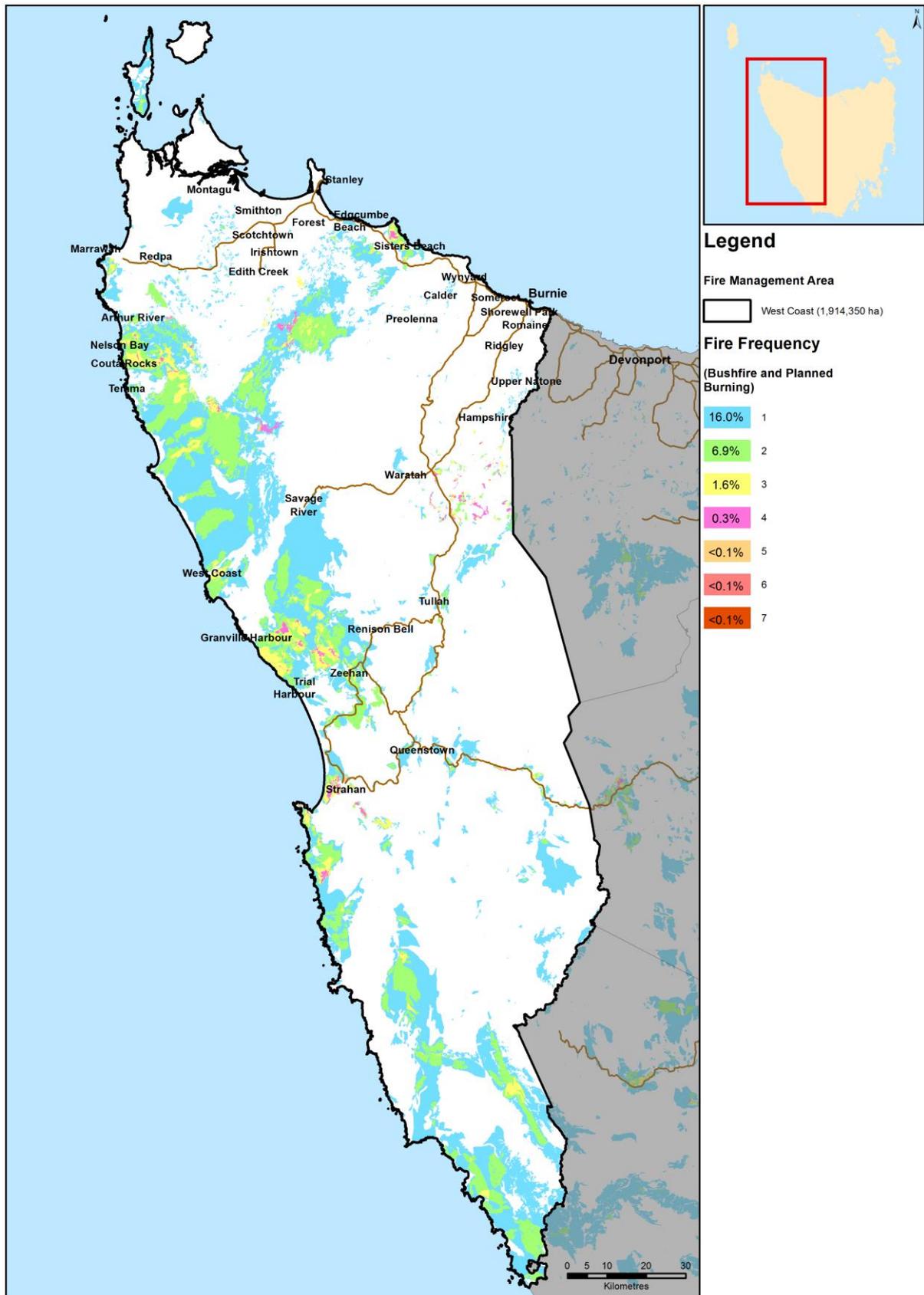
Fire is considered to be an important management tool for native grassland as it impedes the establishment of woody species and provides disturbance that maintains high species diversity.

Appendix 4 – West Coast Fire Management Area population distribution map

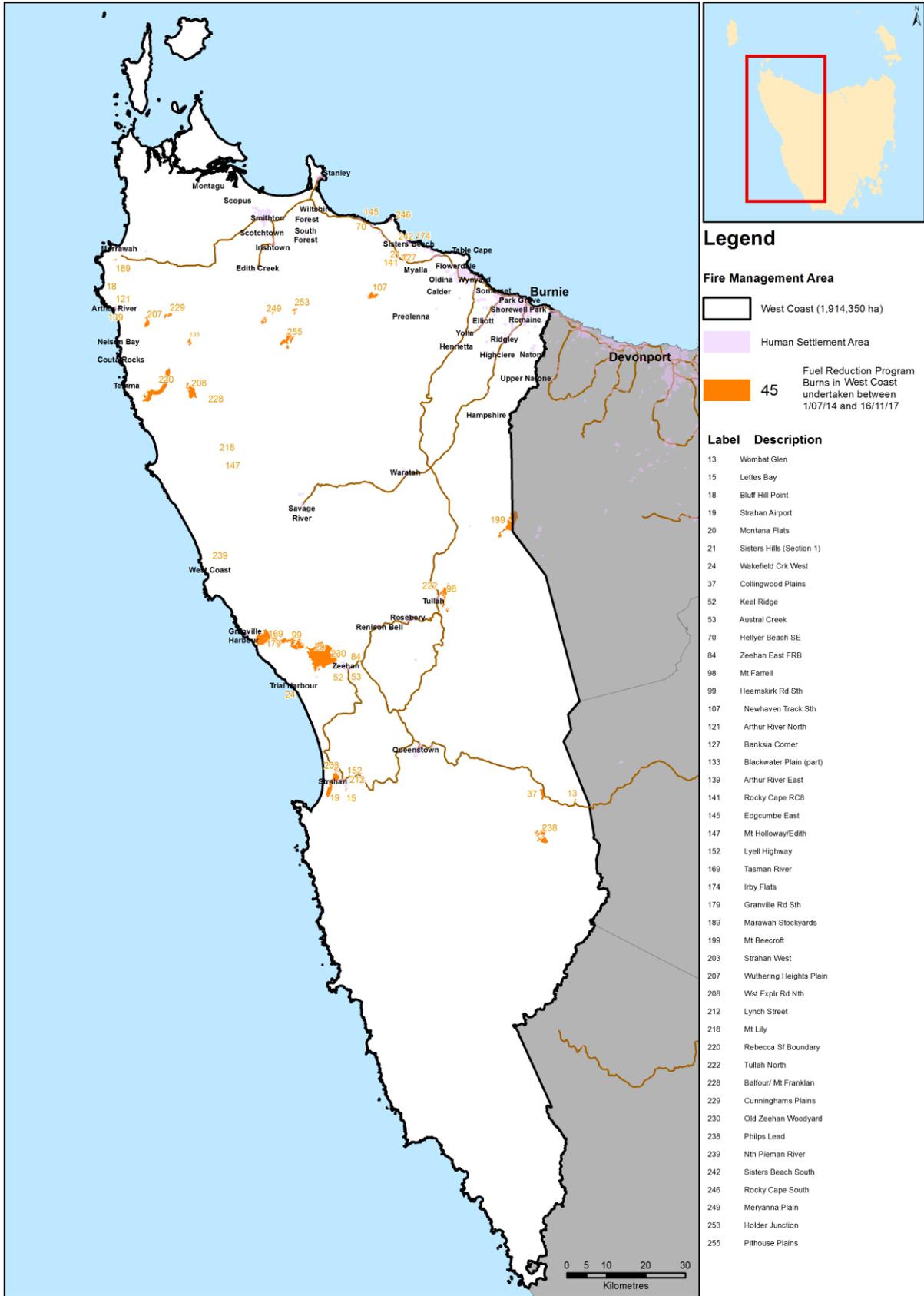


Appendix 5 – Fire Frequency, History and Ignition Causes maps

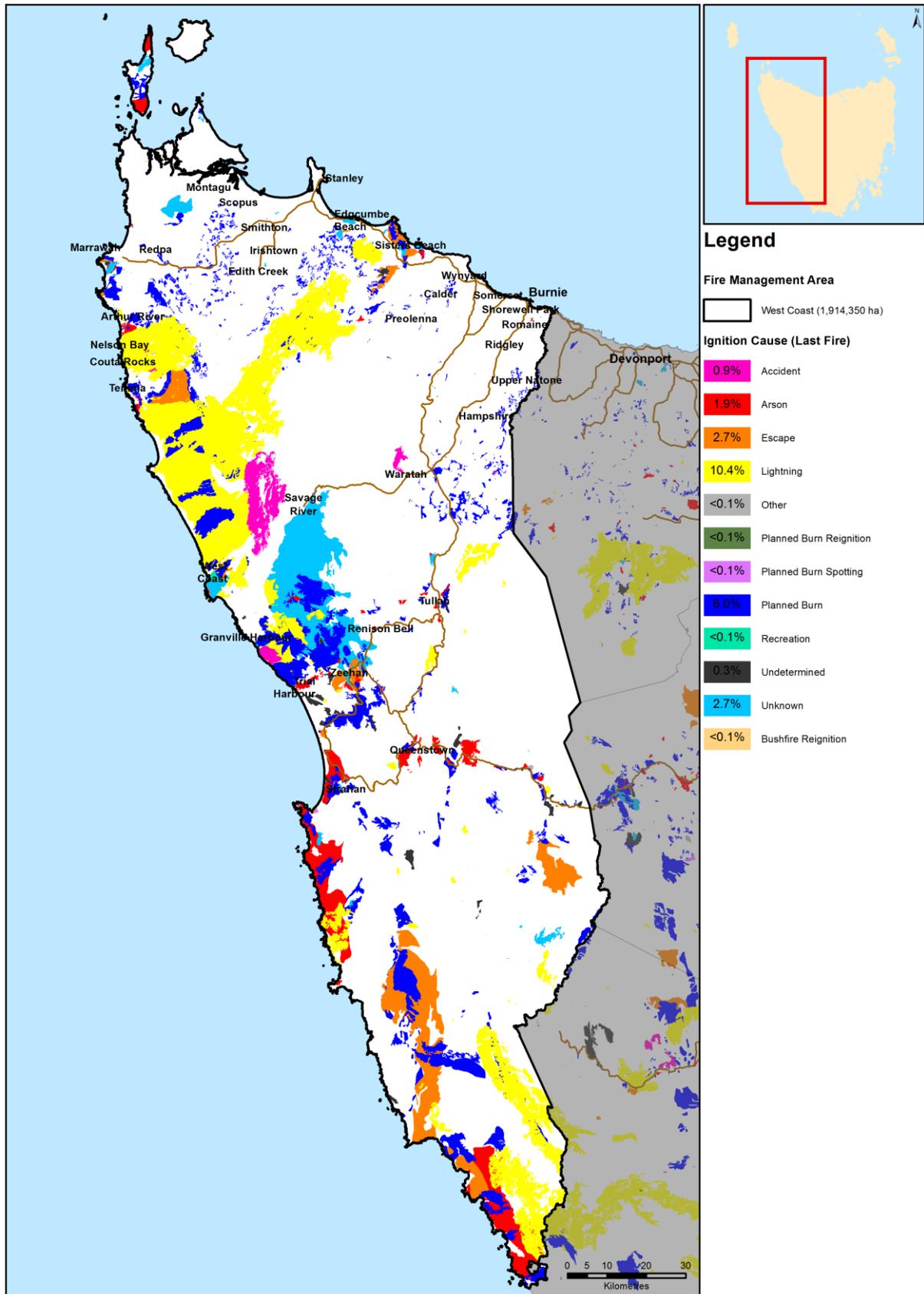
Fire Frequency Map



Fire History MAP – Fuel Reduction Program burns only



Fire Cause map



Appendix 6 – BRAM (Bushfire Risk Assessment Model) explanation

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 , 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

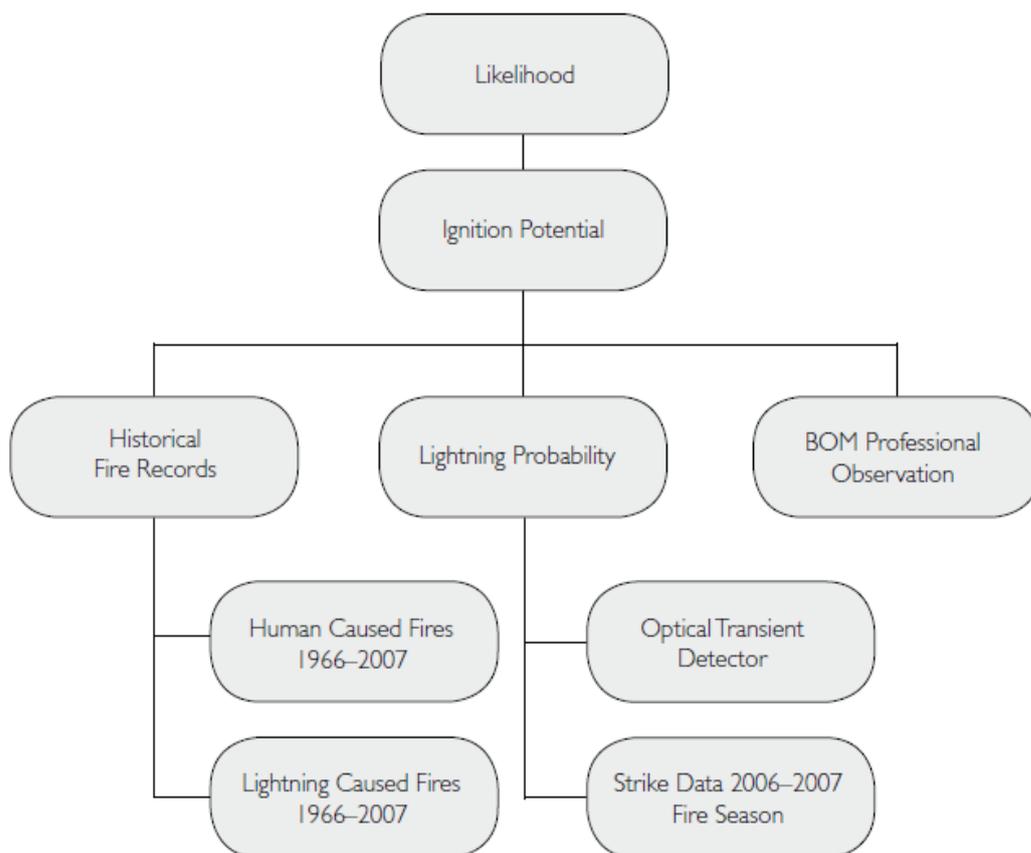
The process applies the same set of assessment rules to the data contained in the model, thus it can be applied across the state. The process is tenure blind

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 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

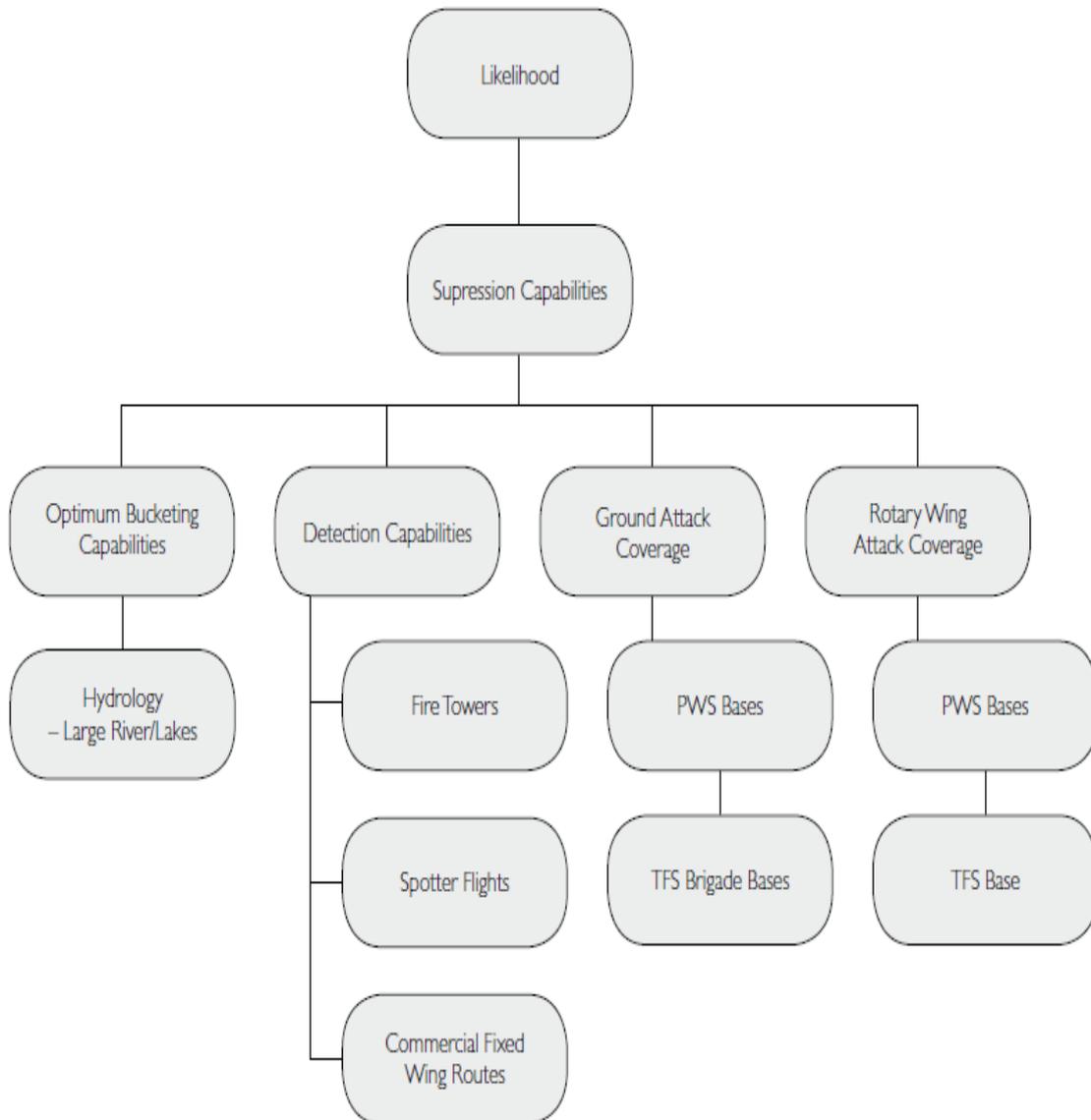
The model uses 4 major areas to calculate risk

- 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)

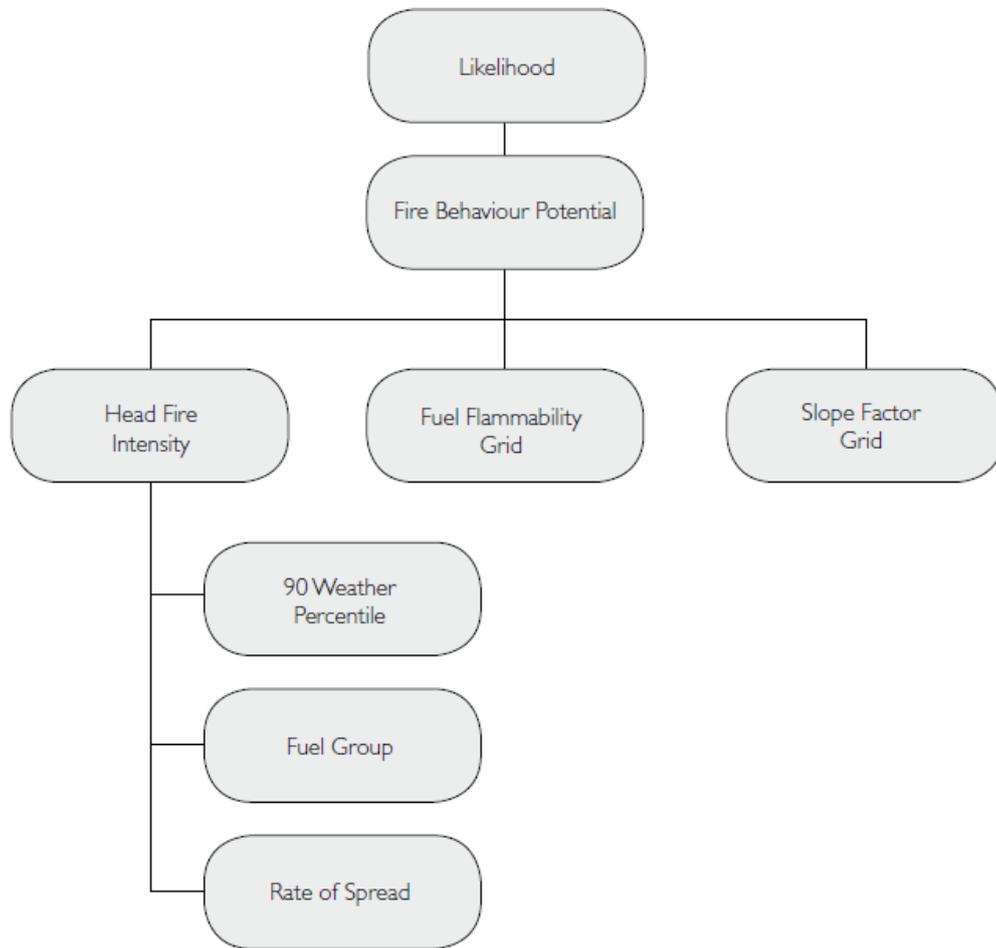
Ignition potential



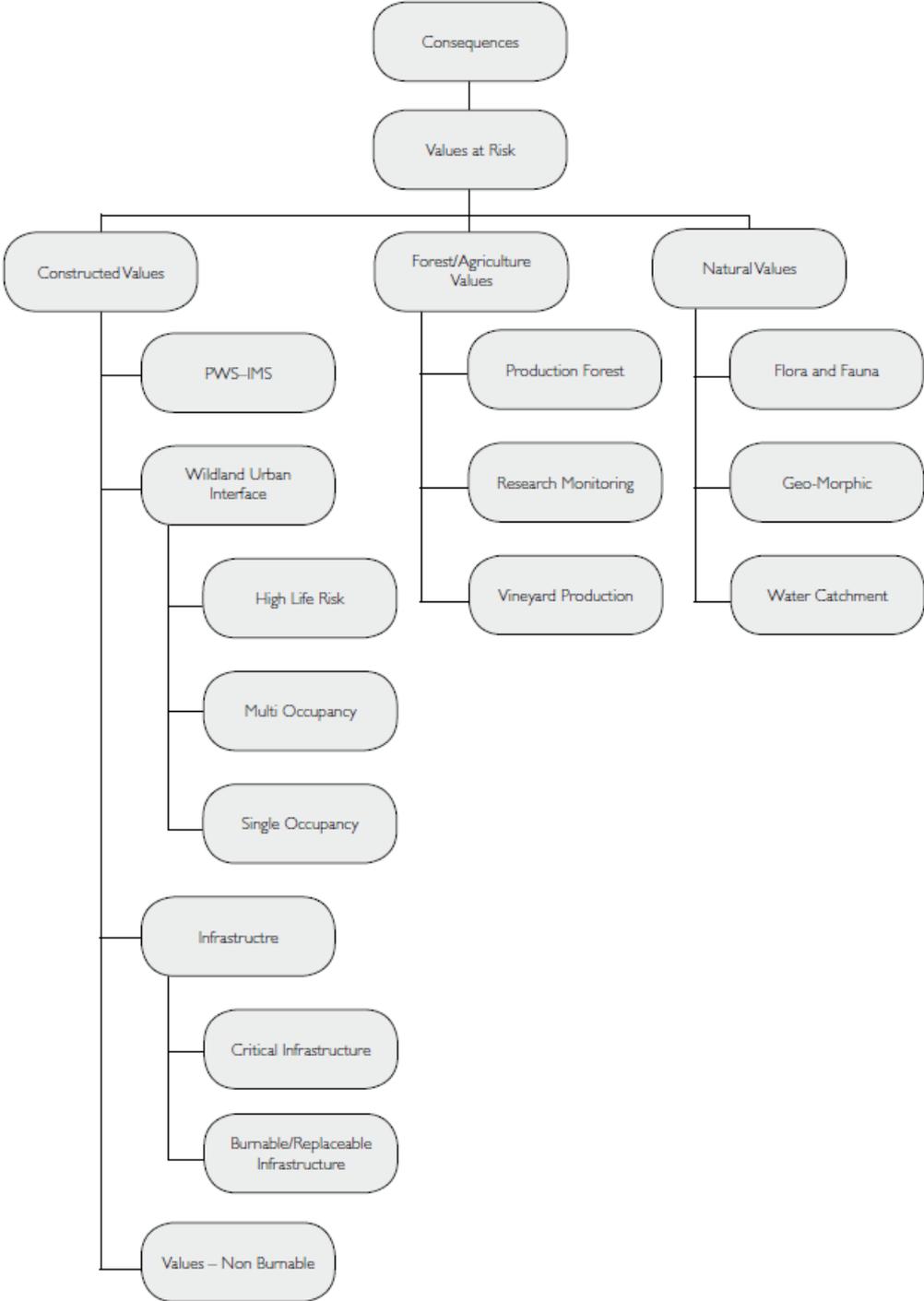
Suppression capabilities



Fire Behaviour Potential



Values at risk



Limitation 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 e.g. fire history on private lands,
- Untested assumptions – may over/underestimate risk

Appendix 7 – 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 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 provisions, inconsequential disruptions at business level	Governing body manages the event within normal parameters, public administration functions without disturbances, public confidence in governance, no media attention	Inconsequential short-term reduction of services, no damages to objects of cultural significance, no adverse emotional and psychological impacts	Inconsequential short-term failure of infrastructure and service delivery, no disruption to the 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

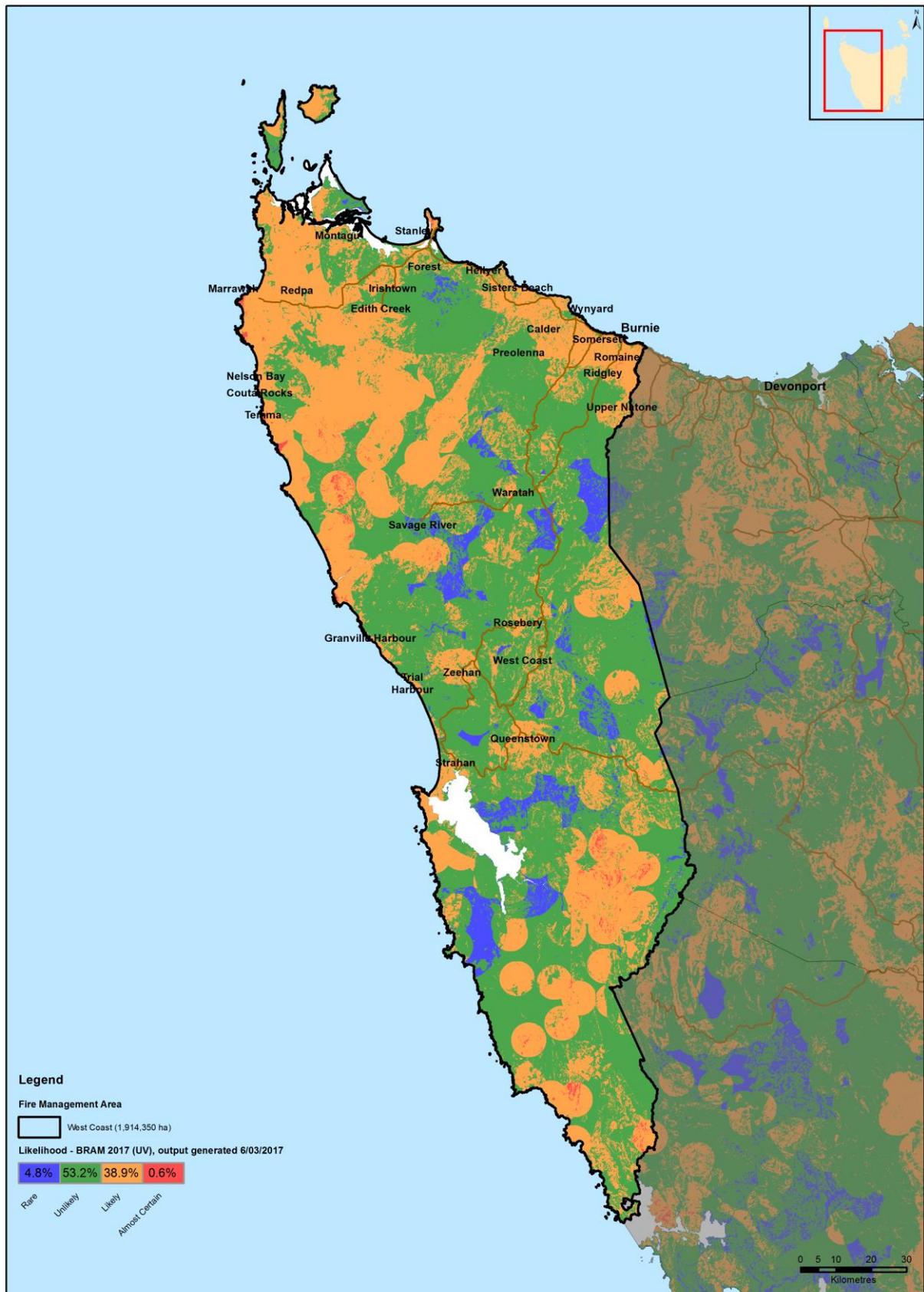
Qualitative risk matrix

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

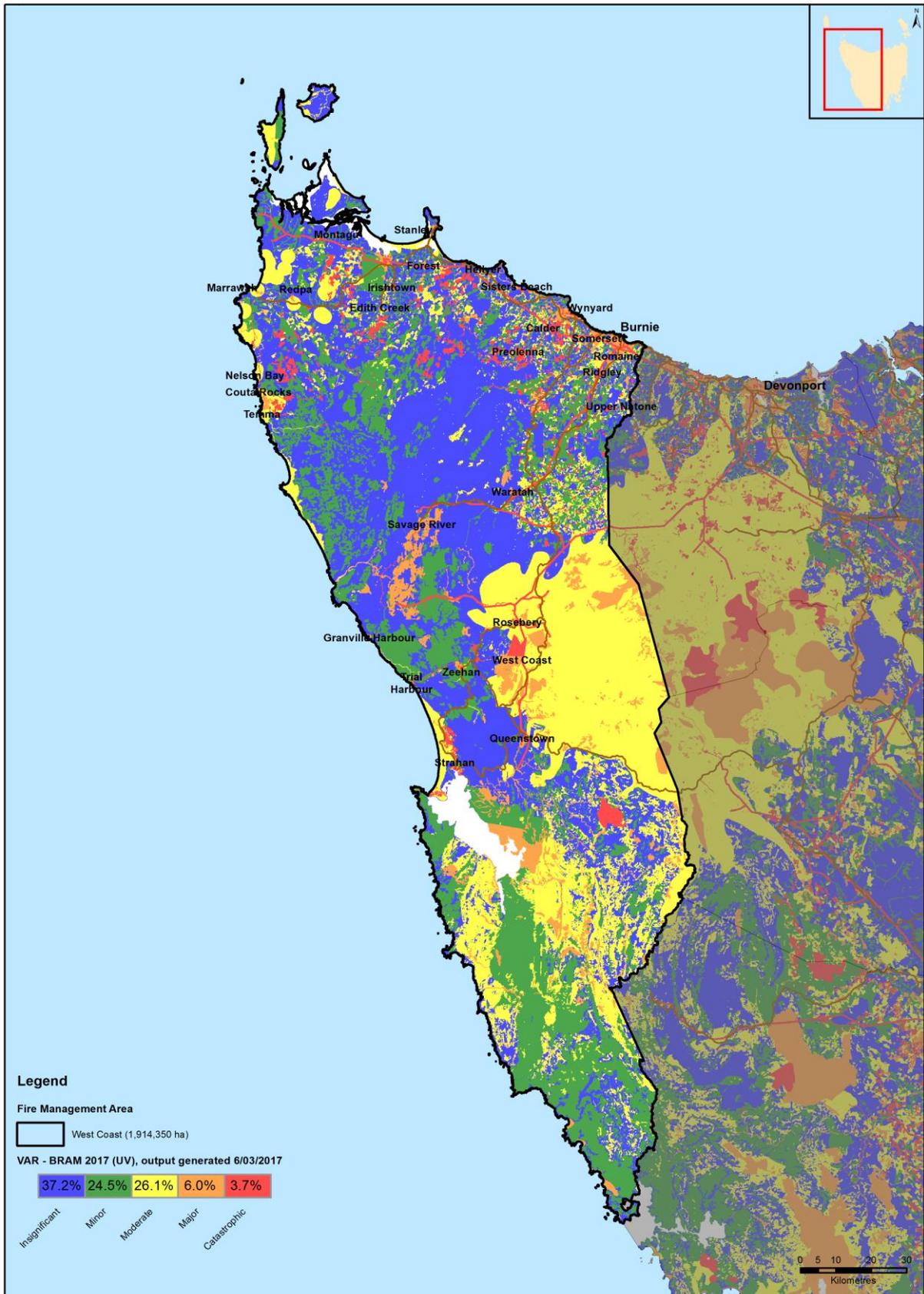
Likelihood level	Consequence level				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	Medium	High	Extreme	Extreme
like	Low	Medium	High	High	Extreme
Possible	Low	Low	Medium	High	High
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Medium	Medium
Very Rare	Low	Low	Low	Low	Medium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

Appendix 8 – BRAM Risk Assessment Maps – Likelihood, Consequence, Risk

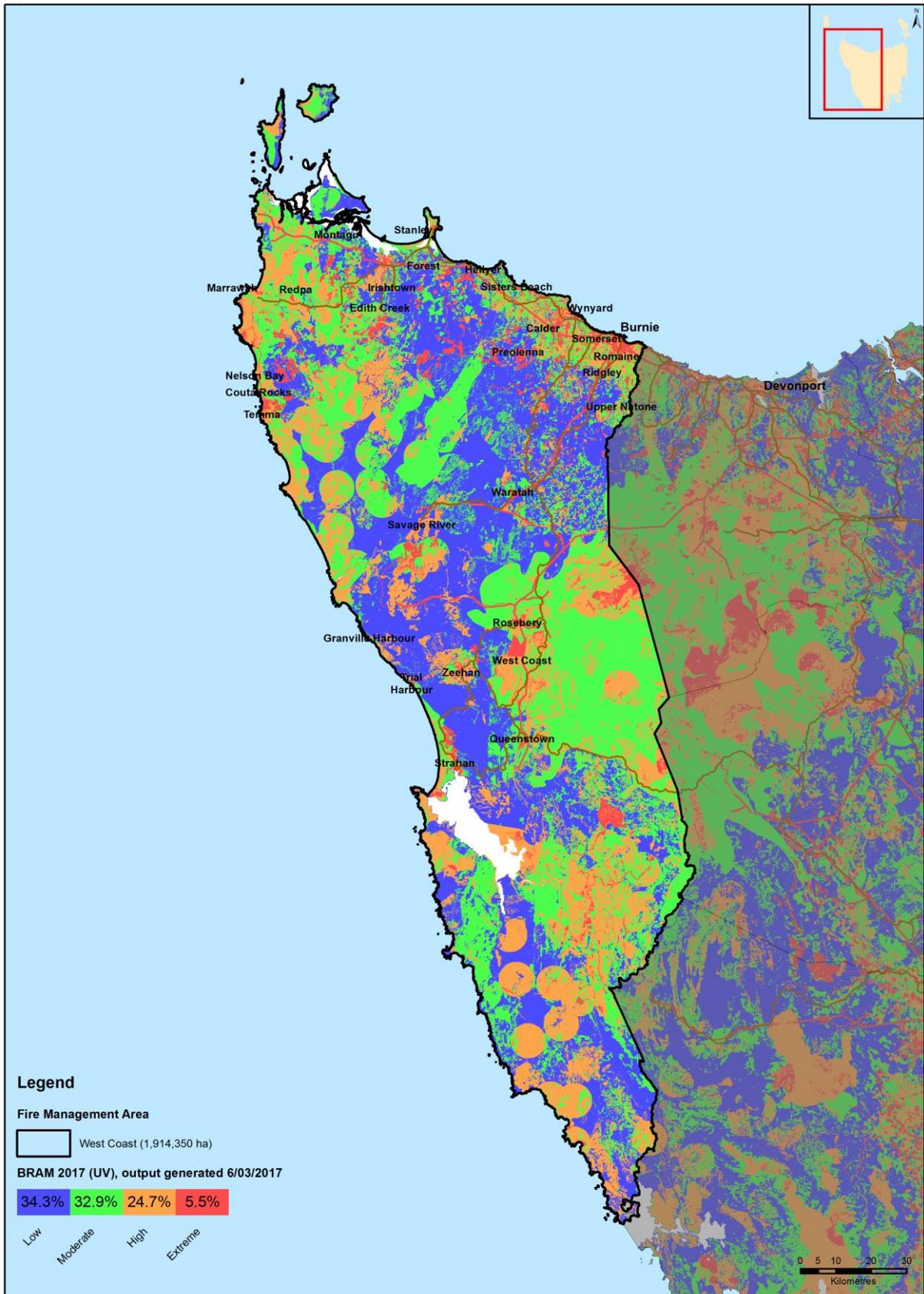
Likelihood of Fire Map



Fire Consequence Map



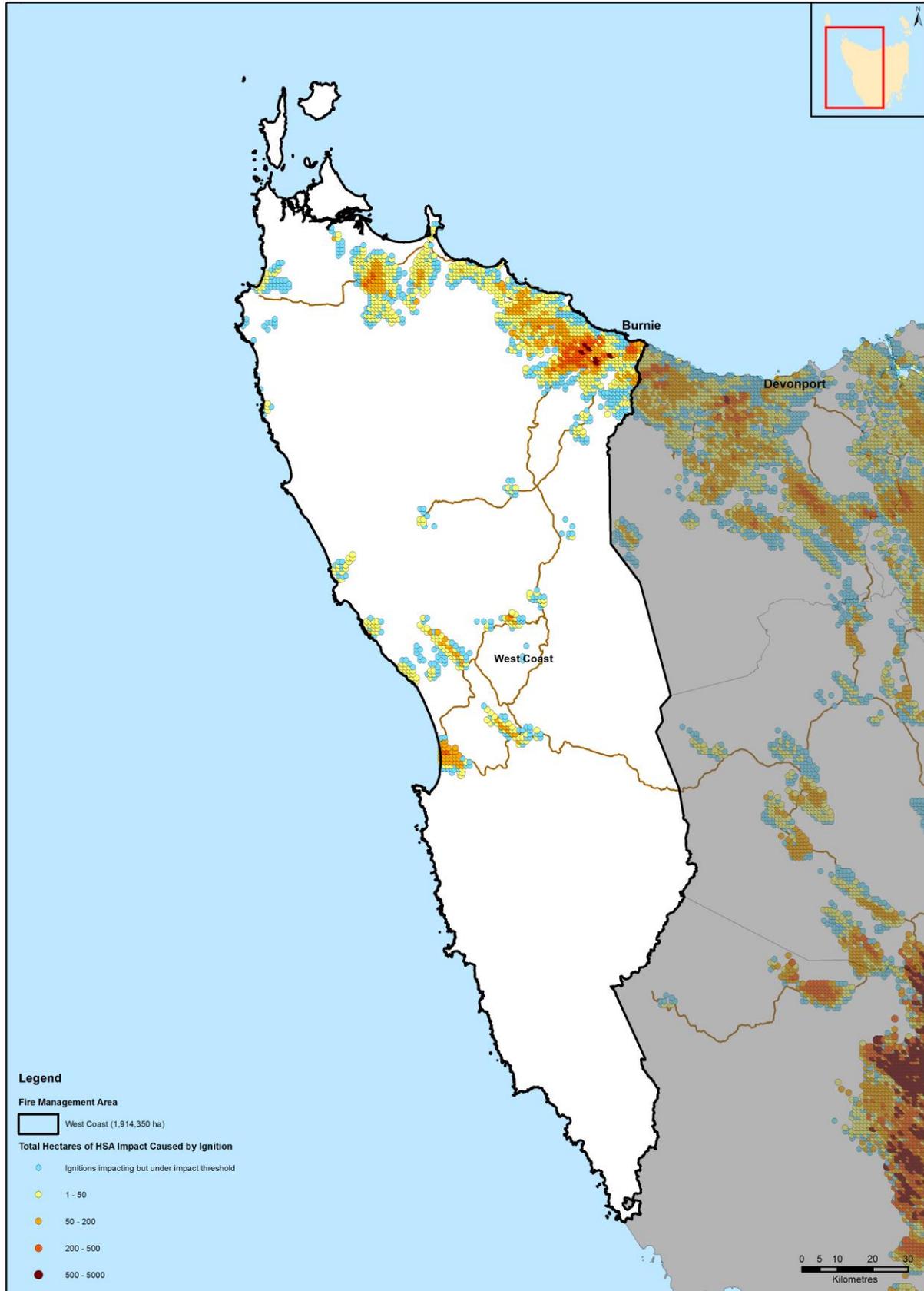
BRAM Fire Risk Map



Appendix 9 – Phoenix ignition points map

Note: Phoenix overstates fire activity in irrigated and cultivated land as the model treats it as natural grassland.

Location of ignition points of significance



Appendix 10 – TFS Community Fire Safety Division Programs and Plans

Tasmanian Fire Service (TFS) Community Protection Planning Officers are responsible for preparing a range of community specific fire plans for communities. There are three types of plans, each with a different purpose:

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.

A number of approved TFS Community Bushfire Protection Plans and Community Bushfire Response Plans are already in place for communities within the West Coast Fire Management Area as at 2016 including for:

- Rosebery Area
- Sisters Beach (including Boat Harbour)
- Strahan (including Macquarie Heads, Braddon Point, Lowana and Ocean Beach)
- Tullah
- Zeehan (including Dundas, Austral and Oceana)
- Cradle Valley
- Waratah.

Community Bushfire Protection Plans and Community Bushfire Response Plans are proposed to commence in the 2017/18 fire season for:

- Arthur River (Including Marrawah and Redpa)
- Queenstown.
- Strahan.

Community Bushfire Mitigation Plans

- Zeehan –A Community Bushfire Mitigation Plan has been completed (2016)

Bushfire-Ready Neighbourhoods Program - Tasmanian Fire Service

In addition to the preparation of community specific plans, a Community Development Coordinator and regionally based Community Development Officers (Hobart, Launceston and Burnie) have identified 16 communities state-wide which are being targeted by the *Bushfire-ready neighbourhoods 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.

Within the West Coast FMA, Bushfire Ready Neighbourhood programs have been conducted at:

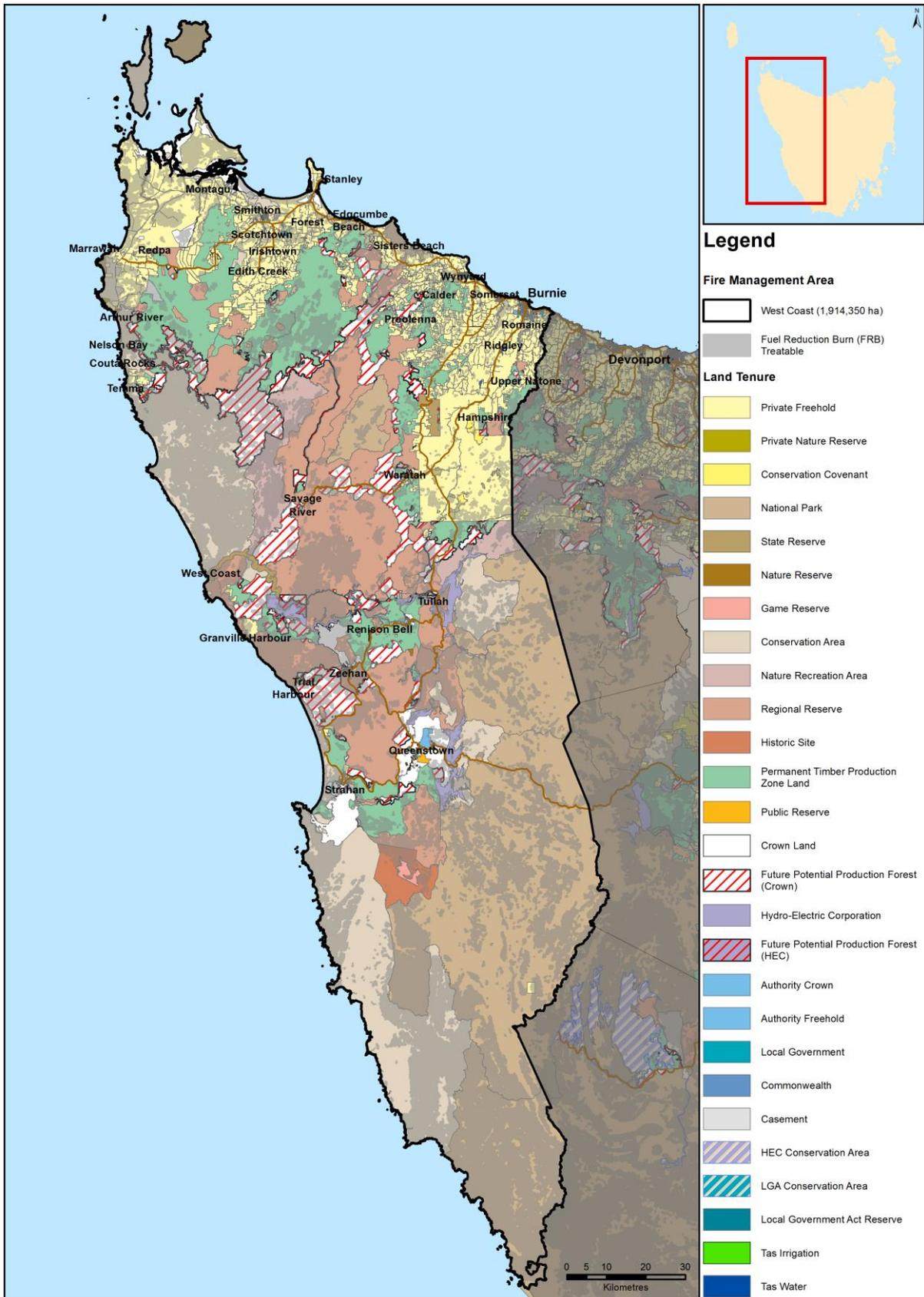
- Sisters Beach
- Strahan (with limited uptake by the community – 2016)

Further Bushfire Ready Neighbourhood Programs are planned in 2016 – 2018 for:

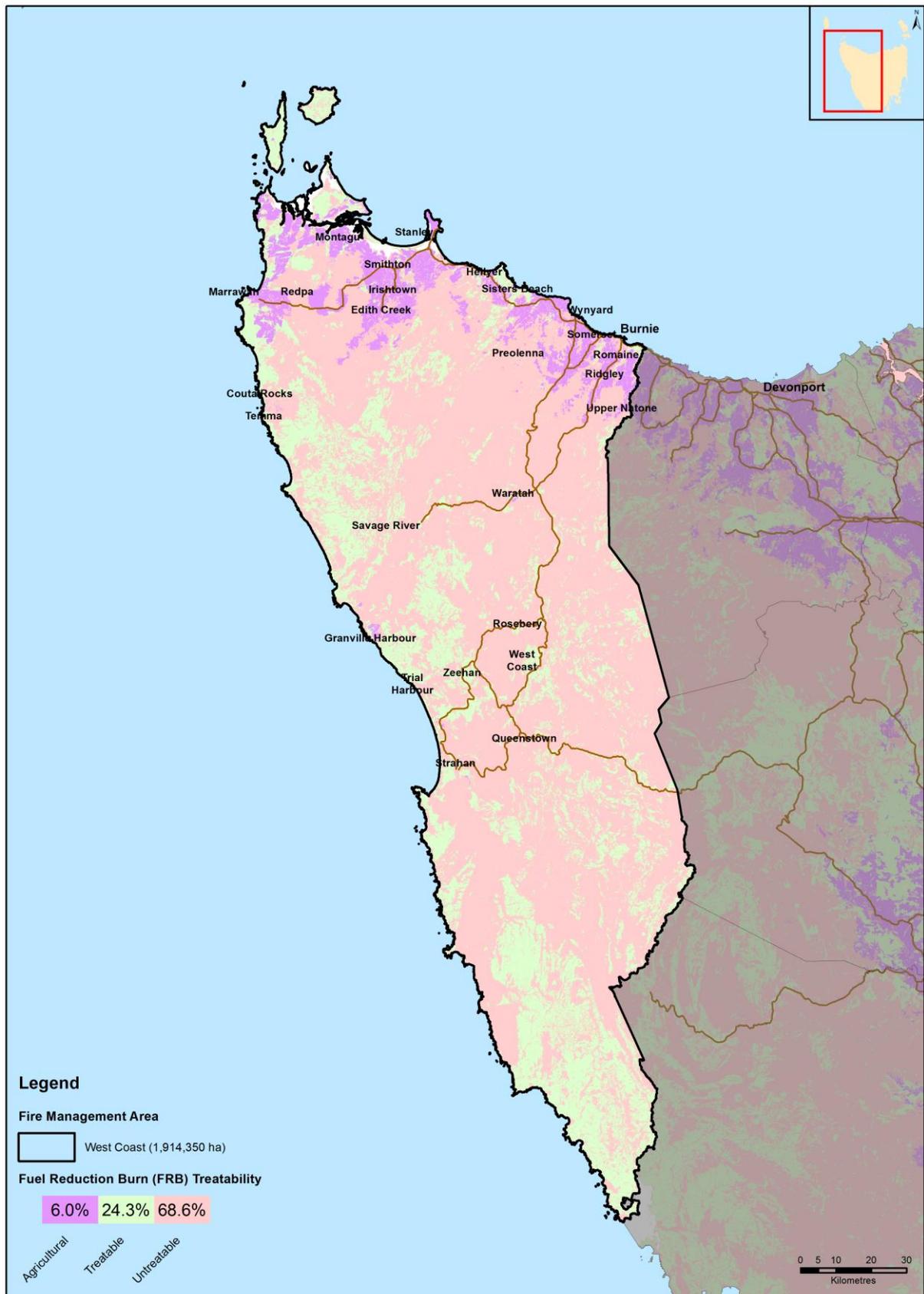
- Zeehan
- Cowrie Point to Rocky Cape Catchment (including Crayfish Creek, Edgcombe Beach, Hellyer Beach, Detention River, Rocky Cape and Yanns Road).

Appendix 11 - Treatable/untreatable areas maps and tables

Map of Treatable areas by Tenure



Burn Treatability – showing Agricultural Land (2017 Update)



Treatability by burning (2016 Update)



Appendix 12 – List of fire management related documents for the West Coast Fire Management Area

A number of fire related plans have already been prepared for use within the West Coast Fire Management Area including:

- Tasmanian Emergency Management Plan
- North West Regional Emergency Management Plan
- West Coast Emergency Management Plan (2017)
- Northwest Region Strategic Fire Management Plan (2012) Tasmanian Parks and Wildlife Service
- West Coast Weed and Fire Management strategy (2009) West Coast Council

Sustainable Timber Tasmania:

- Murchison District Tactical Fire Management Plan, September 2013. Sustainable Timber Tasmania.

Parks and Wildlife Service Tasmania:

- Arthur-Pieman Conservation Area Fire Management Plan (2003) Parks and Wildlife Service Tasmania, Department of Tourism, Parks, Heritage and the Arts.
- Rocky Cape National Park, Dip Range Regional Reserve, Detention Falls Conservation Area, Fire Management Draft Plan (2003) Parks and Wildlife Service.
- The Nut State Reserve, Fire Management Plan (2008). Parks and Wildlife Service.
- West Coast RFA Reserves & Unallocated Crown Land Draft Fire Management Strategy, November 2001, West Coast District, Parks and Wildlife Service, Department of Primary Industries, Water and Environment.
- Tasmanian Wilderness World Heritage Area Tactical Fire Management Plan (Version 4) 2004/2005
- Orange Bellied Parrot Recovery Plan: Prescriptions for Habitat Management Burns 1993
- Buttongrass Moorland Fire Behaviour Prediction and Management: A Field Guide for Operational Fire Management in Buttongrass Moorlands in Tasmania 1999 (published in Tasforests)
- Pencil Pine –Cradle Valley Visitor Services Zone Plan (2006) Parks and Wildlife Service Tasmania, Department of Primary Industries, Water and Environment.
- Lyell Highway Fire Management Plan 1996. Parks and Wildlife Service Tasmania, Department of Primary Industries, Water and Environment.

Hydro Tasmania:

- Bushfire Risk Assessment and Management Plan for Hydro Assets (August 2013). Prepared for Hydro Tasmania, by AVK Environmental Management, Sandford.

Forico:

- Surrey Hills Grassland Management Plan 2010
- Companion Hill and St Valentines Peak Reserve Management Plan 2009
- Henry Somerset Orchid Conservation Area Management Plan 2009

Tas Fire Service:

- Community Protection Plans are in place for Zeehan, Sisters Beach, Strahan, Tullah and Rosebery.

TasNetworks:

- Transmission Line Easements Asset Management Plan D03/5593 Issue 5.0, May 2014

State Emergency Service:

- North West Region Lifelines Project (1997)

Fire Management Plans:

The following communities and companies have developed fire management plans:

- Zeehan Township Crown Land Fire Management Plan (2000),
- Strahan Crown Land Crown Land Fire Management Plan (1997),
- Trial Harbour Crown Land Fire Management Plan (2000),
- Barrick (Henty) Limited Current Fire Management Plan
- Bluestone Mines Tasmania Pty Ltd Current Fire Management Plan under review
- Vedanta –CMT Current Fire Management Plan under review
- Zeehan Zinc Ltd. Current Fire Management Plan
- OZ Minerals (Zinifex, Pasminco) Rosebery Mine (1998)
- Sustainable Timber Tasmania (STT) A co-operative burning plan with PWS (2008)
- Parks and Wildlife Service. (PWS) A co-operative burning plan with STT (2008)
- Wynyard Council - has an education program for Sisters Beach

Maps:

- TasWater Dams and Catchments, Trunk Main easements and storage reservoirs.
- Tas Parks have maps of past and present planned burn locations and fire trail maintenance programs
- Councils have annual roadside slashing/mowing program maps.
- The Fuel Reduction Program GIS Unit has been provided with information on the location of mine shafts and air intakes of major mining operations in the Rosebery/ North West Coast area.

Appendix 13 – Annual Implementation Program – West Coast FMA 2016/17

Location	Issue	Owner	Prior/Existing Treatment	Action required	Timeframe for completion	Funding Source	FMAC Priority rating
COMMUNITIES							
Zeehan	<p>Very high fire risk from gorse surrounding the township. A large amount of gorse is on private property.</p> <p>Township of Zeehan last affected by wildfire in the 1980's.</p>	<p>Multiple tenures. Regional Reserve to NW of township, Crown land and Private freehold to NE. Crown lease, regional reserve to south.</p>	<p>TasWater Gorse treatment has created a network of firebreaks around the township. Fuel Modified Buffer Zones and strategic fire trails, have been completed in line with Community Bushfire Mitigation Plan for Zeehan</p> <p>FMAC supported implementation of the actions identified in the 2016 Community Bushfire Mitigation Plan for Zeehan.</p>	<p>Continue to modify and assess strategic plan for gorse removal around Zeehan.</p> <p>Maintenance of previously mulched gorse infestations is to be completed early 2018.</p> <p>Continuation of scheduled FRB's for TFS and PWS. See <i>'Proposed Fuel Reduction Burning 2018 Burn Season'</i> within this table.</p>	<p>Treatments to occur during peak growing seasons.</p> <p>Autumn 2018</p>	<p>FRU to provide confirmation of the funding arrangement to ensure effectiveness of the newly developed fire trails.</p> <p>West Coast Council To investigate available grants to assist in maintenance scheduling.</p>	Very High
Port Latta (Black River to Detention River area)	<p>This area has been exposed to fire in the past. Iron ore is piped as slurry from the Savage River Mine to the north coast at Port Latta for on-shipment. The administrative offices, pelletising plant and off-shore loading facilities of Savage River mine are located at this site. It is a major employment centre for the area and is also the location of the single transmission line into Circular Head. Fire in the coastal strip at this location has potential to have a huge economic impact on the area including closing the Savage River Mine, shutting down the power supply to Circular Head and the associated dairying industry.</p> <p>Vulnerable places within the Port Latta region include: Crayfish Creek; Edgcumbe Beach; Hellyer Beach; Brickmakers; Black</p>	<p>Crown land, Freehold, local government and private freehold.</p>	<p>Cowrie Point facilities (sewerage irrigated area) slashed as required by TasWater.</p>	<p>FRU to consider other vulnerable places and known assets within the Port Latta region (Tas Networks Power Station, Tas water infrastructure, Landfill site, Gas and Iron Ore pipeline infrastructure) during ongoing planning opportunities.</p> <p>Continuation of scheduled FRB's for TFS and PWS. See <i>'Proposed Fuel Reduction Burning 2018 Burn Season'</i> within this table.</p>	<p>End of 2018 burn season</p> <p>Ongoing</p>	<p>Planned burns/projects which achieve Fuel reduction program objectives may be funded by the Fuel Reduction Program.</p>	Med to High

Location	Issue	Owner	Prior/Existing Treatment	Action required	Timeframe for completion	Funding Source	FMAC Priority rating
	River and Peggs Beach Campgrounds						
Rosebery	Heavy gorse growth - bush interface with community. No separation between community and bush. Fire trails established by MMG (Mining Company) around perimeter in early 2000 as strategic plan have not been maintained. Mechanical treatment required.	MMG/Crown/STT/Parks	Treatments have not been identified.	FMAC to submit application to FRU to complete a risk assessment for fire trail feasibility. <i>See 'Proposed Fuel Reduction Burning 2018 Burn Season' within this table.</i>	Summer 2018	Planned burns/projects which achieve Fuel reduction program objectives may be funded by the Fuel Reduction Program.	High
Waratah	Heavy infestation of Broom around and through the township which is posing a bushfire hazard risk. One road in from Murchison and out of town to Corinna.	Crown Land, Private and DSG	Forico mulch (14/15) at Fingerpost, TasNetworks transmission line easement slashing - ongoing. Private landholder is removing weeds in vicinity of town boundaries and returning land to pasture. FMAC continuing to encourage the establishment of pasture on private and public land through weed removal by private landholders and local Council involvement.	FMAC to investigate funding arrangements. FMAC to submit application to FRU to complete a risk assessment for proposed works. <i>See 'Proposed Fuel Reduction Burning 2018 Burn Season' within this table.</i>	2018/2019	Planned burns/projects which achieve Fuel reduction program objectives may be funded by the Fuel Reduction Program.	High

Location	Issue	Owner	Prior/Existing Treatment	Action required	Timeframe for completion	Funding Source	FMAC Priority rating
Strahan	Strahan is at risk of fire from fuels surrounding the township. Heavily timbered country surrounds the township. High influx of tourists to the area coincides with peak fire risk. Arson is also a significant problem in the area.	Multiple tenures. Regional Reserve to NE, Permanent Timber Production Zone land to north and Conservation Area to NW.	TasWater facilities, reserves and easements are slashed annually. PWS completes regular planned burns on the interface. TFS Community Development Unit attempted to conduct a Bushfire Ready Neighbourhood (BRN) Program in 2016 but got minimal buy in from the community. A BRN program may be re-attempted in 2017/2018. TFS Community Development Officers increased information sessions held at information booths at strategic locations around the state.	1. TFS (NW Planner) to produce a Community Response Plan for Strahan in 2018/19. Annual Fuel Reduction Burn program in this area is proposed by PWS	Community Response Plan for Strahan in 2018/19. PWS Planned burn for Autumn 2018.	Planned burns/projects which achieve Fuel reduction program objectives may be funded by the Fuel Reduction Program. Community Response Planning funded by FRU	High
Arthur River	Isolated community at risk of fire from fast running button grass fires to the north/north west which could ignite heavier fuels around the township. Only one access road in/out. Remoteness of location means that emergency assistance/response time may be delayed.	Multiple tenures. Conservation and Casement Area to north and south of town. Public reserve, Private nature reserve to NW and private freehold.	TasWater facilities are slashed as required. A Fuel Reduction Burn on burn was completed by PWS in 2016.	A Communication Strategy is required for the Arthur River community regarding fuel reduction burning (what is planned for the area and why burning is or is not done in some areas).Partnership Parks, TFS & Council.PWS rotational burning in this area is ongoing. PWS to review the Arthur Pieman Conservation Area Fire Management Plan in 2017/2018. FMAC to provide suggestions and recommendations towards Community support/Engagement strategy. Continuation of scheduled FRB's for TFS and PWS. See 'Proposed Fuel Reduction Burning 2018 Burn Season' within this table.	PWS burn program ongoing. Community Protection Plan (TFS) in planning for 17/18 fire season. TFS Burn Program Autumn 2018	Planned burns/projects which achieve Fuel reduction program objectives may be funded by the Fuel Reduction Program. All other planned burns/project may be funded by allocated land manager.	Med

Location	Issue	Owner	Prior/Existing Treatment	Action required	Timeframe for completion	Funding Source	FMAC Priority rating
Sisters Beach	Township is largely surrounded by a cleared area between it and more heavily vegetated land but residents report that they feel unsafe/afraid of bushfires in the area.	Private freehold to the south and east of the township. National Park and conservation covenant land to the west and east.	TFS & PWS have previously run a community meeting there some years ago. Facilities are slashed by TasWater as required. TFS Community Development Unit completed Bushfire Ready Neighbourhood Program in 2016/2017. The FRU have partially completed a fuel reduction burn for Sisters Beach South in Autumn and Spring 2017.	A Hazard reduction burn in this area (Banksia Corner) is proposed by PWS as well as a burn at the Two Sisters block in 2017/18. TFS and PWS to continue planning and complete autumn and Spring 2018 scheduled fuel reduction burns for the Sisters Beach region. See 'Proposed Fuel Reduction Burning 2018 Burn Season' within this table.	TFS and PWS Autumn 2018.	FRU	Med
Balfour	Isolated population in amongst heavily vegetated land.	Mixed tenures. Permanent Timber Production Zone land to the north/NW, Regional reserve to the N/NE, Conservation area to the south east and south west. Private freehold around the township.	PWS burns for areas east and south of Balfour were completed (2016) with associated wildfires.	No treatment required. Community has made decision to live in isolated area. Must be self-reliant.	No action required again until 2020 as wildfires and fuel reduction burns in this area have reduced the bushfire risk.	Planned burns/projects which achieve Fuel reduction program objectives may be funded by the Fuel Reduction Program.	Low
PROPOSED FUEL REDUCTION BURNING 2018 Burn Season	<i>N.B the following proposed fuel reduction burns are subject to change and may or may not proceed depending on weather conditions or other limiting factors.</i>						
Zeehan Region	TFS – Zeehan East FRB Heavy infestation of Gorse on private property and public land has been identified as a bushfire risk to the community.	Private Property	Partially completed Zeehan East FRB	Finalise remaining unburnt portion of Zeehan East FRB.	Autumn 2018	FRU	High

Location	Issue	Owner	Prior/Existing Treatment	Action required	Timeframe for completion	Funding Source	FMAC Priority rating
	PWS – Austral Creek (57 Hectares) Keel Ridge (61 Hectares) Mt Zeehan (1556 Hectares) South Farrell Rivulet (1005 Hectares) Professor Plateau (769 Hectares) Gorse weed treatment program	Multiple Tenures PWS/STT PWS PWS	Completed Austral Creek FRB Last burnt 2006 Last Burnt 2005 Last Burnt 2008 Herbicide treatment of Gorse within burn areas.	Complete Keel Ridge FRB In Planning In Planning In Planning Follow up herbicide treatment of key gorse areas.	Autumn 2018 2018/19 season 2018/19 season 2018/19 season Ongoing	PWS PWS PWS PWS	High
Port Latta Region	TFS – FRB's planned for Port Latta and Hellyer.	Private Property	Preparation/tracking works for Port Latta.	Complete FRB's for Port Latta region in line with individual Operational Burn Plan.	Autumn 2018	FRU	High
	PWS – FRB at Brickmakers (Cowrie point), Black River to Detention River, Hellyer Village and Hellyer Beach.	Multiple Tenures	Prep Works	Complete the scheduled FRB's for the Coastal Strip in line with individual Operational Burn Plans.	Autumn 2018	PWS	
Roseberry Region	PWS – Developing burn units in moorland areas on Crown land south of Rosebery.	Crown, Private	Burn unit concept under development.	Planning of FRB's	Available for burning 2019/20	PWS	
Waratah Region	FORICO Ground and aerial FRB's planned for Surrey Hills Forico Estate, Guildford region, Beecroft Plains and Netherby Plan.	Forico and STT	Fingerpost – Mulched 14/15. Burns implemented 16/17. Guildford Township burnt spring 17. Completed spring 2017 program.	Burning to be complete as per Forico Grassland Management Plan Or if community risk identified through WFMAC process. Forico is exploring possibilities of mulching / completing "hot" burn to restore overgrown grassland.	2018/19 burn season, ongoing.	FORICO Yet to be determined. Projects which achieve Fuel reduction program objectives may be funded by the Fuel Reduction Program.	Mod - High
Queenstown Region	PWS – FRB planned for area north of Queenstown off Strahan Highway. FRB's planned for Gormanston area.	Multiple Tenures	Long time since burnt	Complete strategic fuel reduction burns at specified locations in line with individual Operational Burn Plans.	Autumn 2018	PWS	

Location	Issue	Owner	Prior/Existing Treatment	Action required	Timeframe for completion	Funding Source	FMAC Priority rating
Arthur River Region	TFS – FRB for area North of Arthur River	Private Property	Prep works	Complete scheduled FRB in line with individual Operational Burn Plans	Autumn 2018	FRU	
	PWS - FRB planned for south of Bluff Hill Point	PWS		In Planning	2018/19 season	PWS	
Sisters Beach Region	TFS – FRB's planned for Sisters Beach South, Rocky Cape, and Jacobs Boat Harbour.	Private Property	Sisters Beach South FRB is partially complete; Rocky Cape FRB prep works complete. Jacobs Boat Harbour concept plan in progress.	Finalise remaining unburnt portion of Sisters Beach South FRB. Complete planning phases for remaining burns.	Autumn 2018	FRU	High
	PWS – FRB is planned for this region	Multiple Tenures		Complete scheduled FRB	Autumn 2018	PWS	High
Burnie Region	TFS – FRB's are planned for: Cam River and Laird Road. Havenview	Private Property Public		FRU North West to continue landholder liaison to complete planning phases.	Autumn 2018	FRU	High
	PWS – FRB planned for Fern Glade	PWS		In Planning	2018/2019	PWS	
Fern Glade Conservation Area & Emu River Valley (Council) Reserve	44.77 ha bushland state conservation reserve, isolated properties adjoining downslope >15-20 degrees	Tasports, DPI/PWE/PWS, Burnie City Council	Fire history unknown but there have been numerous small arson fires in the past. BCC carried out weed reduction along Emu River with funding from NRM. BCC has completed the burning of flood debris/logs around Fern Glade in Spring 2016 to reduce bushfire risk.	Potential burn blocks identified - one burn planned Autumn 2018.	Planning commenced - Autumn 2017.	Planned burning funded by PWS NW Region State recurrent operations funds.	Med to High

Location	Issue	Owner	Prior/Existing Treatment	Action required	Timeframe for completion	Funding Source	FMAC Priority rating
Mt Beecroft Plains	Adjoins Belvoir Conservation Area /Forico grassland Vegetation Management Agreement (VMA). Tourist visitation of plains.	Parks/Forico - shared tenure	Last Burn 2014 - 15 PWS burn completed.	Investigated: Burn plan prepared (RFNASFR01) Forico plan to burn spring 2017, if weather conditions permit. Burn not completed spring 2017 due to high SDI, and adjoining open myrtle forest.	Autumn/Spring 2018	Forico Projects which achieve Fuel reduction program objectives may be funded by the Fuel Reduction Program.	Medium - Low
ASSETS							
Mine intake shafts at Queenstown, Rosebery, Henty gold mine, Savage river, Que River	Smoke from hazard reduction burns and wildfires can close mines down	Various private operators	TFS has included mine shafts in in COP dataset	ACTION COMPLETED			High
New mining leases and access routes	Identity of the new owners, property boundaries and the location of new access routes on the West Coast are largely unknown.	Multiple owners.	not applicable	Access routes to some mining leases may provide strategic advantage for hazard reduction burning and wildfire suppression. FMAC to use Tas Mineral Council & MRT as contact for issues, and try to obtain mapped location of access routes & identify mitigation measures.	Ongoing	N/A	Med
Pine Plantations (including at Macquarie Heads and Henty Dunes)	Fuel hazard from plantations being harvested and slash now left lying on site. Some community's water supply (including Strahan) depends on management of forests in the catchment area.	STT owns and manages the land, New Forest owns the trees.	There is active harvesting around Strahan at the moment. STT & Timberlands are currently considering what to do with left over slash.	STT to maintain access to plantations for fire operations and clear water points. FMAC to seek update on progress for the management of the slashed material/fuels.	2017/2018	New Forests/private enterprise.	Med
Historic Heritage - Township of Stanley	High historical value of Stanley is at risk from gorse fires in the Nut State Reserve & the coastal strip to the south of the township.	Nut State Reserve (PWS).	Ongoing treatment is carried out by Friends of Nut State Reserve. Slashing and poison spraying is preferable to burning gorse at this location.	FMAC to request that TFS prepare a Community Protection Plan for Stanley. Additional funding is required to treat gorse at the Nut State Reserve.	2017/2018	Community Protection Plan funded by FRU; Weed Treatment PWS	Low to Med

Location	Issue	Owner	Prior/Existing Treatment	Action required	Timeframe for completion	Funding Source	FMAC Priority rating
Round Hill infrastructure (Chasm Creek)	136 ha heavily wooded natural bush block - key Tas Fire and other critical communications infrastructure central within the site	Burnie City Council	Fire Hazard Management Plan for Round hill Infrastructure 2010. Clearing to reduce fuel load.	Implement Fire Plan - Burnie City Council to maintain designated Building Protection Zones and Fuel Modified Buffer Zones around this infrastructure.	Annual program	BCC	Low
Historic Mountain Huts (numerous locations)	Historic huts and ex-Hydro huts are at potentially at risk from planned and unplanned burns. There is a risk of remote walkers being trapped by fires. Not possible to mitigate risk and difficult to access huts easily/quickly.	Mostly on Reserved land (PWS) or FT.	PWS reviewed Emergency response procedures for the Overland Track. Other more isolated huts have no procedures. Walkers must be self-reliant. Bushfire Safety Brochure is progressing.	Bushfire Safety Brochure to be completed and made available for remote walkers and tourists. This is ongoing, however limited resources has allowed for a slow and steady approach.	New Overland Track Plan is under review. PWS is also working on developing emergency procedures for the popular but remote Frenchman's Cap track/area.	Not funded	Low
FIRE TRAILS							
Queenstown	Strategic fire trail on PWS tenure (Crown Land) could provide protection to township	DPIPWE/PWS	Cyclic maintenance. FMAC sub group (SES, TFS, and PWS) identified trails that PWS currently maintain and identified potential strategic trails. Application to FRU for funding to upgrade strategic trails was rejected (FRU funding only available for track work that is directly linked with conducting a planned burn).	PWS is planning a joint burn with STT for the Queenstown School block in 2018. A redefined trail network to be developed by FRU Planner through engagement with local government and other stakeholders 2018. (This needs to be robust enough to reduce relative risk to community and infrastructure). This will be completed during development of the community protection/Response plans for Queenstown in 2018/2019.	Unknown	DPIPWE to continue to source funding for trails.	High
West Coast Fire Management Area	TasWater pipeline access trail network has the potential to allow fire crews better access into otherwise inaccessible areas. The potential exists for TasWater Trails to provide links to other strategic trails.	TasWater	Cyclic maintenance.	FMAC to negotiate with and investigate the opportunity to link TasWater trails to existing (Tas Parks, STT) strategic network of trails within the FMA.	Sep-18	TasWater maintains own trails. Additional funding may be required to link/create strategic trail network.	High
UNFUNDED PROPOSALS							
Zeehan	High fire risk from gorse surrounding township. A bigger issue is the gorse on privately owned, unused blocks	Multiple tenures. Regional Reserve to NW of	Potential burn blocks surrounding Zeehan have previously been	PWS to seek funding assistance for gorse removal program around Zeehan. (Ongoing)	Maintenance of Previously treated	FRU and PWS to provide	Very High

Location	Issue	Owner	Prior/Existing Treatment	Action required	Timeframe for completion	Funding Source	FMAC Priority rating
	within the town itself.	township, Crown land and Private freehold to NE. Crown lease, regional reserve to south.	identified, Mitigation Plan for Zeehan Completed Sept 2016 (TFS). Completion of Fuel Modified Buffer Zones and upgrading of 3 strategic fire trails around Zeehan as identified in Zeehan Mitigation Plan (TFS 2016) - Funding assistance from FRU.	Funding opportunities – FMAC to provide a list of funding opportunities.	gorse infestation (TFS Planner/PWS to develop Maintenance schedule)	confirmation of the funding arrangement to ensure effectiveness of the newly developed fire trails.	
Ridgley Highway	High Broom/Gorse infestation adjacent to the Ridgley Highway from Daisy Nolan Hill through to the Forico Surrey Hills mill entrance.	Forico, DSG, Tas Rail, TasNetworks	Mulched in previous years. Dept. State Growth, Tas Rail and Forico manage issue and annual maintenance program in place.	Mulching and follow up spray to be done on an ongoing basis.	Annual maintenance	Funding sought for treating areas adjacent to Forico.	High
	Additional areas added to the program each season.	Forico	Nil	Mulching and follow up spray to be done on an ongoing basis.	Ongoing	Forico	Mod-High
OTHER							
All West Coast communities	Lack of understanding in the community about fuel reduction burning, why it is done by different agencies and why a planned approach is important.	All FMAC members	Bushfire Ready Neighbourhood Program has been focusing initiatives within this area.	Continue to enhance the community engagement functions TFS Planner to enable capability to discuss with community/Council FMAC agenda and FRU processes.	2018/2019	Not required	Med - High