



BUSHFIRE RISK MANAGEMENT PLAN

2021-2026

Office of Bushfire Risk Management Bushfire Risk Management (BRM Plan)

Local Government Council BRM Plan endorsement November 2021

Resolution: 75 – 21/22

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Document Endorsements

The Shire of Quairading endorses that the Bushfire Risk Management Plan (BRM Plan) has been reviewed and assessed by the Office of Bushfire Risk Management as consistent with the standard for bushfire risk management planning in Western Australia, the Guidelines for Preparing a Bushfire Risk Management Plan. The Shire of Quairading is the owner of this document and has responsibility, as far as is reasonable, to manage the implementation of the BRM Plan and facilitate the implementation of bushfire risk management treatments by risk owners. The approval of the BRM Plan by Shire of Quairading satisfies their endorsement obligations under State Hazard Plan - Fire.

Local Government	Representative	Signature	Date
Shire of Quairading			

Version	Date	Author	Section
01	25/11/2022	Brian Humfrey	

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1. Introduction

1.1. Background

Under the State Hazard Plan - Fire an integrated Bushfire Risk Management (BRM) Plan is to be developed for local government areas with significant bushfire risk. This BRM Plan has been prepared for the Shire of Quairading in accordance with the requirements of the Guidelines for Preparing a Bushfire Risk Management Plan (the Guidelines) from the Office of Bushfire Risk Management (OBRM) within the Department of Fire and Emergency Services (DFES). The risk management processes used to develop this BRM Plan are aligned to the key principles of AS/NZ ISO 31000:2009 Risk management –Principles and guidelines and those described in the National Emergency Risk Assessment Guidelines. This approach is consistent with State Emergency Management (SEM) Policy and SEM Prevention and Mitigation Procedure 1.

This BRM Plan is a strategic document that facilitates a coordinated approach towards the identification, assessment and treatment of assets exposed to bushfire risk. The Treatment Schedule sets out a broad program of coordinated multi-agency treatments to address risks identified in the BRM Plan. Government agencies and other land managers responsible for implementing treatments participate in developing the BRM Plan and Treatment Schedule to ensure treatment strategies are collaborative and efficient, regardless of land tenure.

1.2. Aim and Objectives

The aim of a BRM Plan is to effectively manage bushfire risk in order to protect people, assets and other items of local value in the Shire of Quairading. The objectives of this BRM Plan are to:

- guide and coordinate a tenure blind, multi-agency BRM program over a five-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 BRM activities;
- integrate BRM into the business processes of local government, land owners and other agencies;
- ensure there is integration between land owners, BRM programs and activities; and
- document processes used to monitor and review the implementation of treatment plans to ensure they are adaptable and that risk is managed at an acceptable level.

1.3. Legislation, Policy and Standards

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

1.3.1 Legislation and Policy

- Aboriginal Heritage Act 1972
- Biodiversity Conservation Act 2016
- Building Act 2011
- Bush Fires Act 1954
- Conservation and Land Management Act 1984
- Country Areas Water Supply Act 1947
- Emergency Management Act 2005
- Environmental Protection Act 1986
- Environmental Protection and Biodiversity Conservation Act 1999 (Cth)
- Fire Brigades Act 1942
- Fire and Emergency Service Act 1998
- Metropolitan Water Supply, Sewerage and Drainage Act 1909
- Bush Fires Regulations 1954
- Emergency Management Regulations 2006
- Planning and Development (Local Planning Scheme) Regulations 2015
- SEM Plan (State Emergency Management Committee (SEMC) 2019)
- SEM Policy (SEMC 2019)
- SEM Prevention and Mitigation Procedure 1 (SEMC 2019)
- State Hazard Plan Fire (SEMC 2019)
- State Planning Policy 3.4: Natural Hazards and Disasters (Western Australian Planning Commission (WAPC 2006)
- State Planning Policy 3.7: Planning in Bushfire Prone Areas (WAPC 2015, as amended)

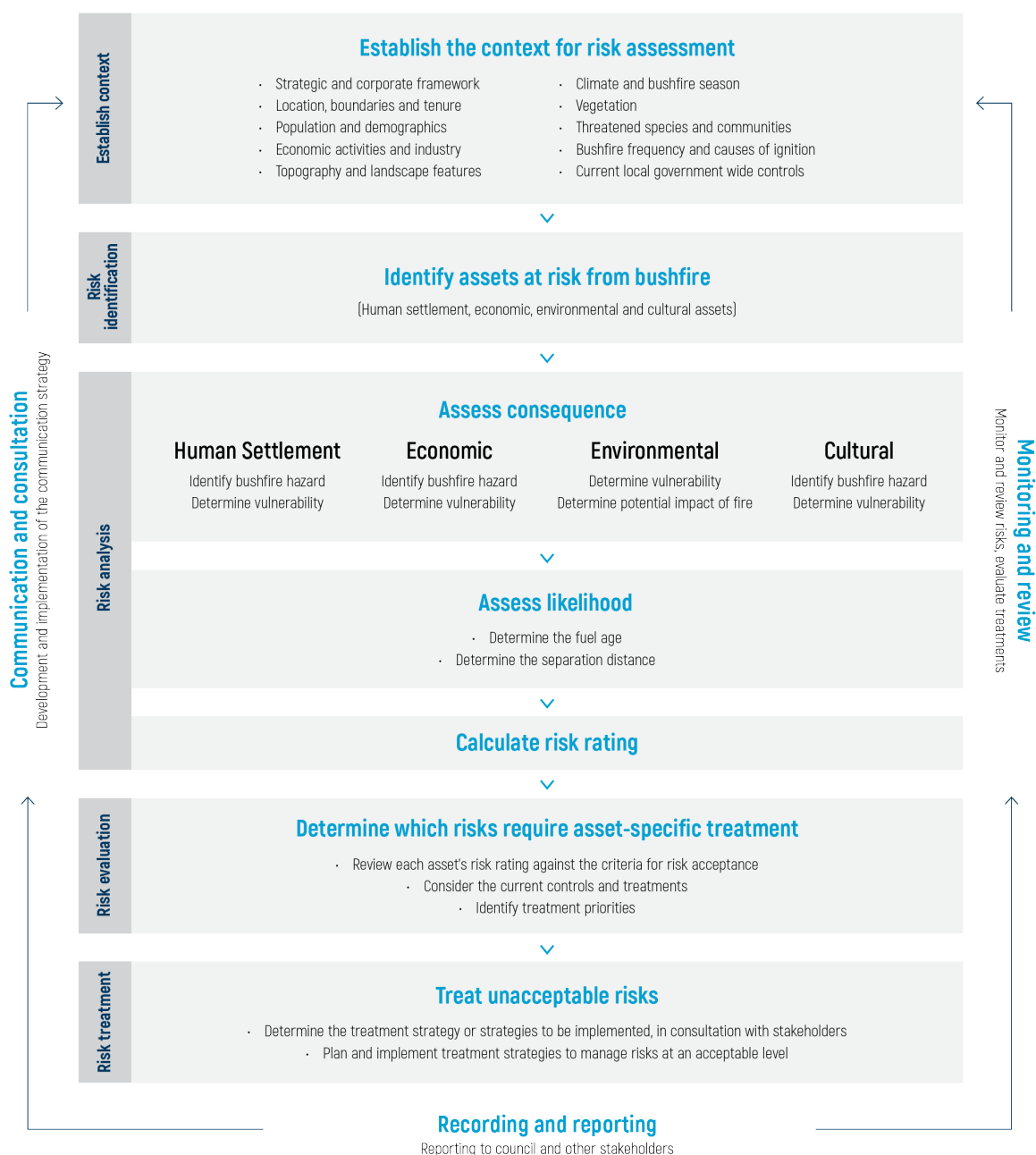
1.3.2 Other Related Documents

- A Capability Roadmap: Enhancing Emergency Management in Australia 2016 (Australasian Fire and Emergency Services Authorities Council 2016)
- A Guide to Constructing and Maintaining Fire-Breaks (DFES 2018)
- AS 3959:2009 Construction of Buildings in Bushfire-Prone Areas (Standards Australia 2009)
- AS/NZ ISO 31000:2009 Risk management – Principles and guidelines (Standards Australia 2009)
- Australian Disaster Resilience Handbook 10: National Emergency Risk Assessment Guidelines (Australian Institute for Disaster Resilience 2015)
- Guidelines for Preparing a Bushfire Risk Management Plan 2020 (DFES 2020)
- Bushfire Risk Management Planning Handbook (DFES 2018)
- Code of Practice for Timber Plantations in Western Australia (Forest Products Commission (FPC 2006)
- Guidelines for Planning in Bushfire Prone Areas (WAPC 2017)
- Guidelines for Plantation Fire Protection (DFES 2011)
- National Disaster Risk Reduction Framework (Department of Home Affairs 2018)
- National Strategy for Disaster Resilience (Attorney-General's Department 2011)
- Public Service Circular No. 88 Use of Herbicides in Water Catchment Areas (Department of Health 2007)
- Western Australian Emergency Risk Management Guide (SEMC 2015)
- The Shire of Quairading Strategic Community Plan (2021-2031)
- Shire of Quairading Corporate Business Plan (2021 – 2031)
- Shire of Quairading Local Emergency Management Arrangement
- Fire and Biodiversity Guidelines for the Avon Basin
- Bushfire Threat Analysis of the Great Western Woodlands (DEC 2010)

2. The Risk Management Process

The risk management processes used to identify and address risk in this BRM Plan are aligned with the international standard for risk management, *AS/NZ ISO 31000:2009 Risk Management – Principles and Guidelines*. This process is outlined in Figure 1.

Figure 1 – An overview of the risk management process¹



Adapted from: AS 31000:2009, with permission from SAI Global under licence number 1510-c081

¹ Adapted from: AS 31000:2009, with permission from SAI Global under licence number 1510-c081.

2.1. Roles and Responsibilities

The roles and responsibilities of the key stakeholders involved in the development of the BRM Plan are outlined in Table 1.

Table 1 – Roles and Responsibilities

Stakeholder Name	Roles and Responsibilities
Local Government	<ul style="list-style-type: none">• Custodian of the Bushfire Risk Management Plan (BRM Plan)• Coordinate the development and ongoing review of the integrated BRM Plan.• Negotiate a commitment from land owners to treat risks identified in the BRM Plan.• Undertake treatments on lands owned or managed by them.• Submit the draft BRM Plan to DFES' Office of Bushfire Risk Management (OBRM) for review and endorsement.• Submit the OBRM endorsed BRM Plan to council for their approval and adoption.
Department of Fire and Emergency Services	<ul style="list-style-type: none">• Participate in and contribute to the development and implementation of BRM Plans.• Support to local government through expert knowledge and advice in relation to the identification, prevention and treatment of bushfire risk.• Facilitate local government engagement with state and federal government agencies in the local planning process.• Undertake treatments on Unmanaged Reserves and Unallocated Crown Land within gazetted town site boundaries.• In accordance with Memorandums of Understanding and other agreements, implement treatment strategies for other land owners.• Review BRM Plans for consistency with the Guidelines prior to final approval by council.• Administer and coordinate the Mitigation Activity Fund Grants Program.
Department of Biodiversity, Conservation and Attractions	<ul style="list-style-type: none">• Participate in and contribute to the development and implementation of BRM Plans.• Provide advice for the identification of environmental assets that are vulnerable to fire and planning appropriate treatment strategies for their protection.• Undertake treatments on department managed land, and Unmanaged Reserves and Unallocated Crown Land outside gazetted town site boundaries and land in which they have an agreement for.
Forest Products Commission	<ul style="list-style-type: none">• Participate in and contribute to the development and implementation of BRM Plans.• Provide information about their assets and current risk treatment programs.• Undertake treatments on lands owned or managed by them.

Stakeholder Name	Roles and Responsibilities
Department of Planning, Lands and Heritage	<ul style="list-style-type: none"> • Provide advice for the identification of their assets and infrastructure, specifically Aboriginal and European heritage.
Other State and Federal Government Agencies and Public Utilities	<ul style="list-style-type: none"> • Provide information about their assets and current risk treatment programs. • Participate in and contribute to the development and implementation of BRM Plans. • Undertake treatments on lands they manage.
Corporations and Private Land Owners	<ul style="list-style-type: none"> • Provide information about their assets and current risk treatment programs.

2.2. Communication and Consultation

Communication and consultation throughout the risk management process is fundamental to the development, implementation and review of the BRM Plan. To ensure appropriate and effective communication occurred with relevant stakeholders at each stage of the BRM planning process, a Communication Strategy was prepared (Appendix A).

3. Establishing the Context

3.1. Description of the Local Government and Community Context

3.1.1 Strategic and Corporate Framework

The Shire of Quairading Strategic Community Plan (2021-2031) and the Corporate Business Plan (2017 – 2021) outlines the Shire’s commitment to community safety, risk management and effective management of the environment and natural resources. These frameworks will provide the Shire of Quairading the ability to deliver their BRM Plan more effectively and inclusively in the community and will help to prepare the Shire of Quairading in preventing and reducing Bushfires in the area.

These Plans are built around 5 objectives:

1. Social

Active, healthy, safe and inclusive community.²

In the context of the BRM Plan, the Shire recognizes the importance of a community spirit and values the efforts and dedication of the members of the local volunteer emergency services brigades and is committed to providing the necessary support for planning, risk mitigation, response and recovery to bushfires. Under the BRM Plan, assets of value within the Shire are identified and where appropriate, suitable risk treatments implemented for their protection.

2. Built Environment

Planning and infrastructure to meet the needs of the community.²

In the context of the BRM Plan, the Shire of Quairading is committed to maintaining its infrastructure which includes a network of roads and buildings. This provides for safe evacuation during an emergency situation and the use of Shire buildings as evacuation/welfare center. Working with stakeholders to ensure adequate protection of critical infrastructure will assist in restoring essential services quickly and efficiently following a bushfire, reducing the impact on the community and local economy.

3. Governance

Strong governance and community engagement.²

In the context of the BRM Plan, the Shire of Quairading will be able to identify the areas of the greatest risk. This will allow the Shire to prioritize funding and mitigation works on Shire owned and managed land to reduce the bushfire risk within the Shire. The BRM Plan will also assist the Shire in identifying unacceptable bushfire risks on private and other government lands, so that land owners can be engaged in treatment planning and encouraged to implement their own mitigation programs to reduce risk.

² Shire of Quairading Corporate Business Plan (2021-2031)

The Shire's Local Emergency Management Committee and Bush Fire Advisory Committee are an integral part of the development, implementation and review of the BRM plan. The input and advice from these committees is critical in bushfire risk planning. The Committees allow for consultation and input from multiple agencies on local area issues and ensure that information discovered during bushfire risk planning is reflected in the arrangements for managing emergencies.

4. Economic

Growing economy and employment opportunities.³

Under the BRM Plan, assets that are vital to the local, regional or state economy are identified and where appropriate, suitable risk treatments implemented for their protection.

5. Natural Environment

Sustained natural environment.³

In the context of this BRM Plan, the Shire of Quairading is committed to addressing unacceptable bushfire risks and working with stakeholders to reduce this risk. The Shire will do so in a way that minimizes negative impacts upon the environment.

The Shire has outlined the roles and responsibilities in Table 2 for the implementation, monitoring and review of the BRM Plan, the Shire has access to the services of a Community Emergency Service Manager (CESM) along with the Shires of Kellerberrin, Cunderdin and Tammin. A significant role of the CESM is to ensure the Shire's volunteer Bush Fire Brigades (BFBs) and emergency services volunteers are supported, trained, equipped and capable of providing appropriate emergency services to their communities. It is also envisaged that the CESM position will take a key role throughout the BRM Plan once the plan is endorsed.

³ Shire of Quairading Corporate Business Plan (2017-2021)

Table 2 – Local Government Roles and Responsibilities

Function	Roles
Shire of Quairading leadership Team	<ul style="list-style-type: none"> • Oversight of the implementation, monitoring and review of the Bushfire Risk Management Plan • Sourcing and approving funding and expenditure • Monitoring the implementation of agreed treatments • Liaison with key stakeholders • Participation on local Emergency Management Committee (LEMC) • Management of the release of the BRM Plan and BRMS data
Community Emergency Service Manager (CESM)	<ul style="list-style-type: none"> • Performs work on Shire managed or owned land or as directed by the Shire • Develops practices for fire management on local government land • In consultation, plans and schedules works, including managing grant funding applications and reporting • Builds knowledge and understanding of fire management practice within the community • Participates on the Bushfire Advisory Committee (BFAC) • Supports and represents the Shire at bushfire related meetings and committees • Oversees the Shire's burning programs with support from local brigades • Contributes to treatment planning • Negotiates with stakeholders during treatment planning
Works Department	<ul style="list-style-type: none"> • Contributes to treatment planning • Undertakes planned works
Town Planning/ Building	<ul style="list-style-type: none"> • Ensure adherence to building codes and planning scheme • Review Bushfire Prone Area Mapping
Finance	<ul style="list-style-type: none"> • Financial management of grants and funding

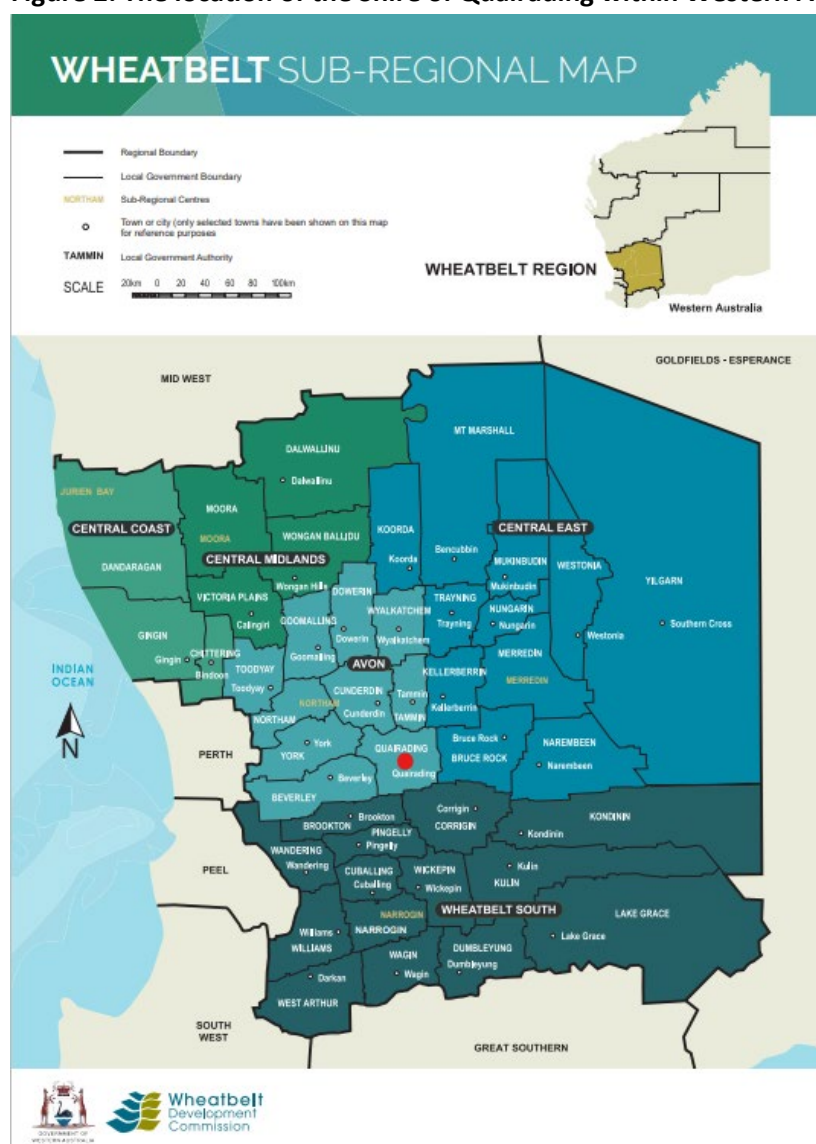
The community of Quairading has identified areas of concern within the Shire. These include:

- Changes in farming practices increasing the area of cropped land and the reduction of farmworkers therefore firefighters when required;
- Management of Unallocated Crown Land (UCL) and Unmanaged Reserves (UMR) both within and outside town boundaries; and
- Areas of vegetation adjoining or adjacent to the town site of Quairading and critical infrastructure throughout the Shire.
- An increase in absentee property owners (only in the Shire on weekends)

3.1.2 Location, Boundaries and Tenure

Quairading Shire is in the Wheatbelt region of Western Australia specifically in the Avon zone. The town site of Quairading is approximately 167 km east of Perth and is situated on the York – Quairading Road. The Shire also includes the localities of Quairading, Pantapin, Yoting, Badjaling, Dangan, South Caroling, Balkuling, Doodenanning, and Wamenusking. Quairading Shire covers an area of 2017 square kilometers, a population of 1019 with 610 (59.8%) living in the gazetted town site of Quairading, according to the 2016 Census. Quairading shares boundaries with the Shires of York, Bruce Rock, Beverley, Brookton, Corrigin, Cunderdin, Tammin and Kellerberrin. The Shire has been vastly cleared for farming, creating areas of gentle undulating land for sheep and cropping, leaving the remnant vegetation highly fragmented. Despite this there are sizable patches of remnant vegetation in the Shire, some of which are located on the boundary of the Quairading town site and along roadsides.

Figure 2: The location of the Shire of Quairading within Western Australia⁴



⁴ Source: https://www.wheatbelt.wa.gov.au/files/9915/3932/5375/2_pages_Wheatbelt_Map_Region_page_updated.pdf

Listed in Table 3 is an overview of the land tenure and managers of the Shire of Quairading. The area of privately owned land is 95.64%, with 86% of the Shire of Quairading (or about 172 464Ha) used for agricultural production, primarily broad acre farming⁵. The private land holdings are predominantly larger parcels of land owned by local families, some of the challenges coming from this are:

- A reduced population in local towns and communities to help in fire prevention and fighting of fires.
- The high percentage of privately owned land within the Shire means that they will need to be engaged as stakeholders with education and consultation being the key factor in regard to the BRM Plan and mitigation.
- If one landholder does not act in accordance with Council policies this can increase the risk to other landowners, particularly those on adjoining properties.

Table 3 – Overview of Land Tenure and Management within the Shire of Quairading

Land Manager/Agency	Percent of Local Government Area
Local Government	2.7
Private	95.64
Department of Biodiversity, Conservation and Attractions	1.3
Department of Planning, Lands and Heritage	0.36
Total	100

Source: GIS DFES

3.1.3 Population and Demographics

The population within the Shire of Quairading has remained reasonably steady for a regional area. Over a four year (2011 to 2016) period, the population has seen a slight decrease from 1043 in 2011 to 1019 in the 2016 Census data. The forecast growth for the Shire is uncertain and this reflects the historic instability of population within the region.

⁵ Department of Primary Industry and Regional Development

The age distribution within the Shire differs to that of Australia, where the age groups from 0-45 years are below the Australian average (40.5% Quairading to Australia 59.4%). There is a distinctly higher than average population distribution across the 45+ age groups, and this age group is over half of the Shire Quairading population (59.5% Quairading to 40.9% Australia)⁶. With a higher population in 45+ age groups there are less people in the community who would provide their support to bushfire volunteer groups, this can be due to age, health, complacency or isolation from not engaging within the community.

People in the age group 65+ form 25% of the Shire's population⁶ Elderly people are considered a vulnerable demographic in bushfire management, as they may have less capacity to prepare and defend property or protect themselves during a fire event and may have additional or special needs during an evacuation and/or relocation. Because of this, there is need for increased planning for this group to ensure that they are adequately considered in bushfire management planning, communications during fire events, community education delivery and consultation when planning mitigation works. There is a need to ensure that there is tailored advice provided to this group during pre-fire season preparation, as well as during bushfire events.

The population is a mix of cultures and ancestries with data from the 2016 Census showing 76.4% of the total Shire population being born in Australia, while the remaining 23.6% were born elsewhere. Quairading has historically had a large population turnover of workers due to agriculture being the main employment influence. This brings a number of seasonal workers to the Shire during the summer bushfire period, which includes harvest. A percentage of these seasonal workers are from overseas, so their English may be limited, which could make communicating during a bushfire difficult. Seasonal workers are not normally experienced in fire prevention or fire behavior, while also lacking knowledge of the local area and emergency procedures, as not all have been trained in bushfire firefighting. There is a need to ensure that customised advice is provided to this group by employers during pre-fire season preparation, as well as during bushfire events.

3.1.4 Economic Activities and Industry

Agriculture is the major industry stakeholder in the Shire of Quairading. The period of October through to January is when the crops have matured and cured, ready for harvest. Before harvest, dried crops are particularly flammable, which increases the fuel load. Added to this abundance of fine, dry fuel is the increased use of machinery in the paddocks during this period. Fires can start easily and create an environment for a fast-moving fire that can cover large areas in a short amount of time. This can result in considerable financial losses of crops and infrastructure (fences, machinery, wind breaks), and increase the risk of topsoil erosion by wind and rain causing possible additional financial loss in the future.

⁶ ABS Census 2016

One of the factors that has changed in agriculture over the years is the advancement in cropping practices and the increased size and effectiveness of machinery, leading to more hectares being cropped. This has seen a decrease in livestock production which affects two factors:

- decrease in population on farms during the fire season
- increased fuel load and fire risk.

Timber production within the Shire of Quairading is relatively new industry and is located in areas of agriculture holdings. There is currently 5 840 Ha of plantations mainly Sandalwood. The industry has guidelines in place for the prevention and control of fires within these properties and this includes having a Fire Management Plan, which needs to be kept in a canister at the entry point to the property, 15m firebreaks on the boundaries, maximum cell sizes of 30Ha and a minimum water supply within the property.

Table 4: Employment by industry for Quairading (2016Census)

Agriculture, Forestry and Fishing	154
Mining	0
Manufacturing	0
Construction	16
Wholesale Trade	4
Retail Trade	14
Accommodation and Food Services	8
Transport, Postal and Warehousing	20
Financial and Insurance Services	8
Administrative and Support Services	9
Public Administration and Safety	29
Education and Training	26
Health Care and Social Assistance	37
Other Services	9
Inadequately described/Not stated	16
Total	354

Source: ABS Census 2016

Transportation routes are key infrastructure for the transportation of grain and any disruption to these networks due to fire or damage for a period of time, causes a significant economic impact on local businesses and damage to key assets. Fire mitigation plans in these areas will protect the assets and help reduce bushfire risk.

3.2. Description of the Environment and Bushfire Context

3.2.1 Topography and Landscape Features

The Shire of Quairading falls into the Avon Catchment and is characterised by a gently, undulating relief. There are extensive salt flats within the Shire that form into the Yenyening lakes system. This system of salt lakes runs from the north east corner of the Shire to the south west corner creating a natural fire break as vegetation is mainly Succulent steppe and doesn't carry fire. The elevation in the Shire range from 220 – 370 m above sea level. Some of the significant features in the landscape are Mount Stirling and Toapin Weir

The topography of the Shire of Quairading is mainly gently undulating, these gently slopes don't greatly impact on fire behavior in most areas. There is one notable exception being Mount Stirling which is located on the north eastern boundary of the Shire. This features has vegetated areas within that have limited to no access for the purpose of fighting or prevention of fires. During high wind events there is likely to be localized impacts on wind direction due to eddying around the rock.

There is topographical changes throughout the Shire, as a result of infrastructure like the water pipelines and train tracks that can cause barriers and challenges in the fighting and prevention of fires. The water pipeline runs along road reserves throughout the Shire, situated above ground level. In some areas, the pipeline prevents entry from the road way. The train tracks are no longer in use throughout the Shire, they still can affect the movement of vehicles as they are raised and unable to be crossed, except at road crossings and are a safety concern during firefighting and mitigation works.

3.2.2 Climate and Bushfire Season

In Australia, the seasons are defined by grouping the calendar months in the following way:

- Spring - the three transition months September, October and November.
- Summer - the three hottest months December, January and February.
- Autumn - the transition months March, April and May.
- Winter - the three coldest months June, July and August.

The climate in Quairading is classed as Temperate with distinctly dry (and hot) summer as shown in Figure 3. The weather pattern for Quairading is to have winter temperatures averaging 17.3°C max and receive an average rainfall 173.6mm of this period, the summer months are dry and hot with an average rainfall of 12.9mm per month and average maximum temperatures of 33.1°C. This weather pattern allows for the good growth of vegetation (crops and pasture) during the early autumn to late spring period. The period from mid-spring to mid-autumn is normal dry and hot, causing the vegetation to dry out, which increases fuel load. The months of the fire season can produce weather that is extreme, with high temperature, high winds and low humidity, this combined with the dry vegetation can cause fast moving, uncontrollable fires.

Map of Climate Zones of Australia

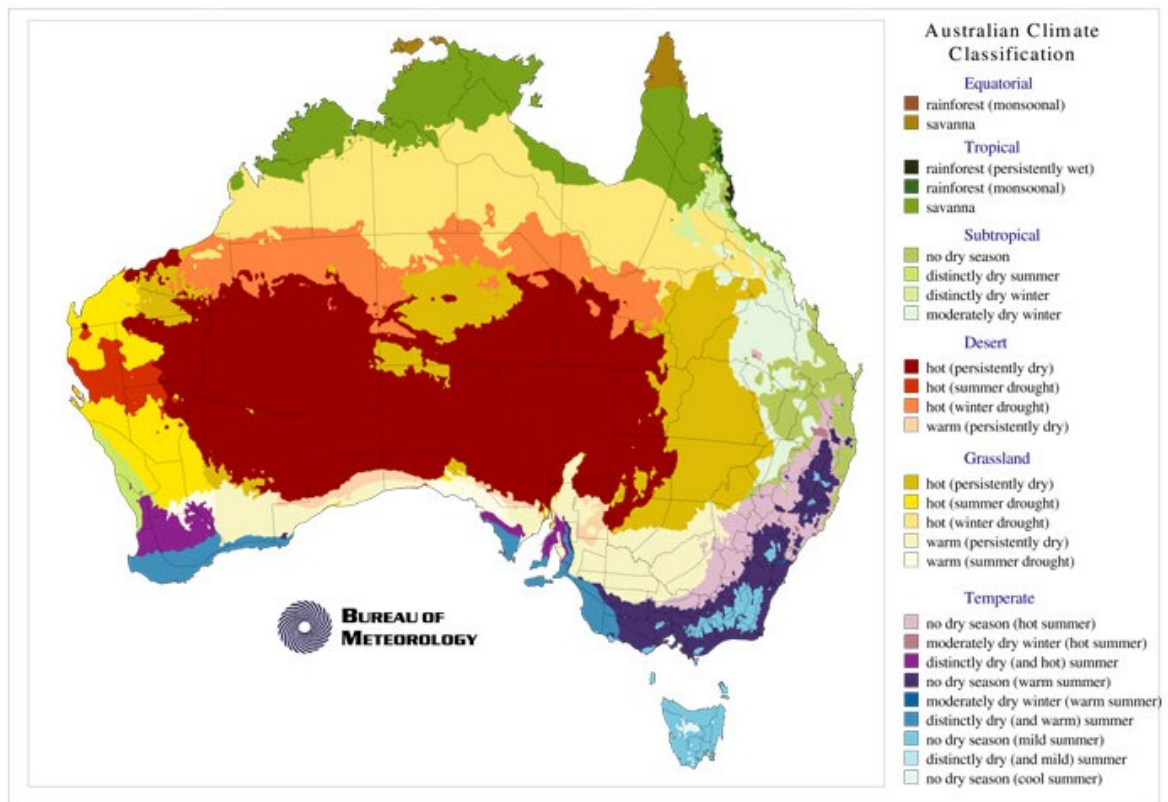


Figure 3 - Climate Zones of Australia Bureau of Meteorology

Figure 4 shows the average wind directions in Quairading over a 5-year period (from the 1st of January 2016 to the 8th of June 2021). This shows the wind predominantly comes from the West-North-West direction, whereas during the bushfire seasons the wind predominantly comes from the South East, as shown for the period of 1st October to 1st April on a yearly basis for the years 2017 to 2021 in Figures 4 to 8. The average wind speed at 3pm from 1950 to 2007 on a monthly basis is shown in Figure 9, this weather station is at Cunderdin as this is the closest weather station with historical data.

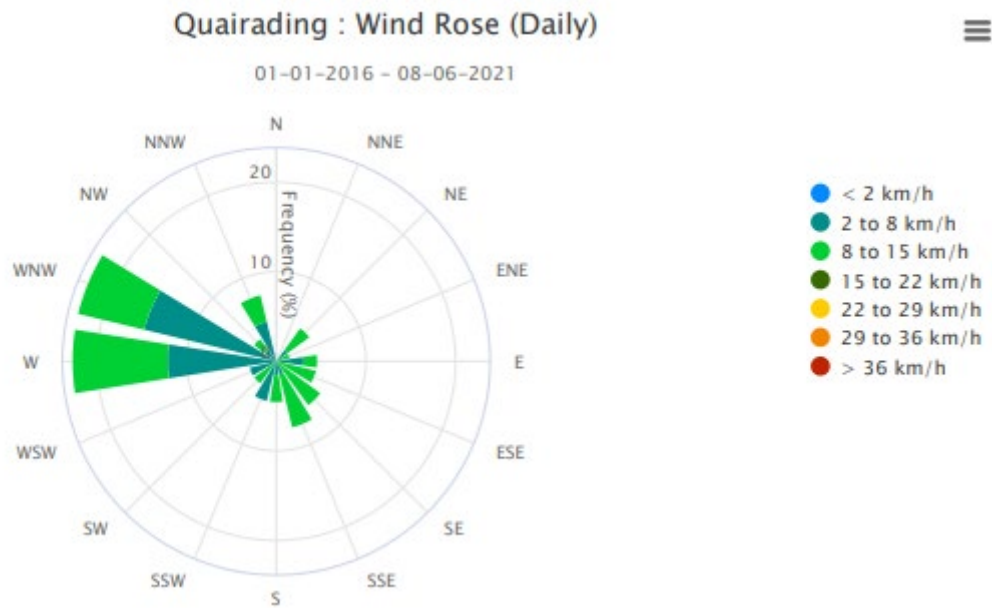


Figure 4 - Average wind direction 5 years⁷

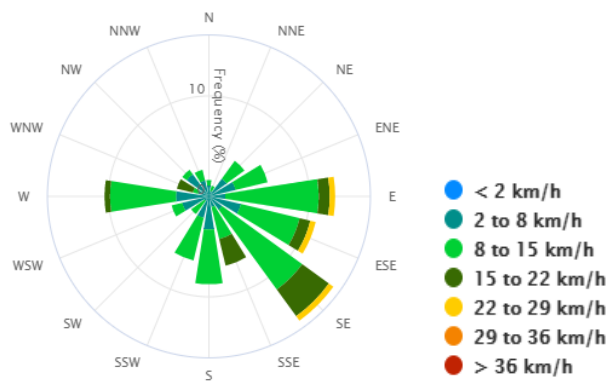


Figure 5 – Wind direction Fire Season 2017 to 2018⁷

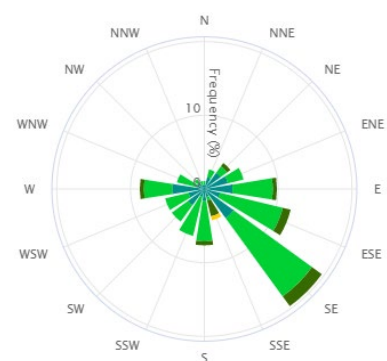


Figure 6 – Wind direction Fire Season 2018 to 2019⁷

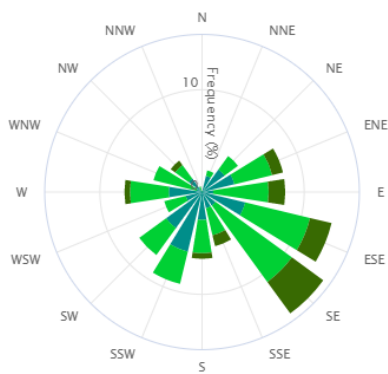


Figure 7 – Wind direction Fire Season 2019 to 2020⁷

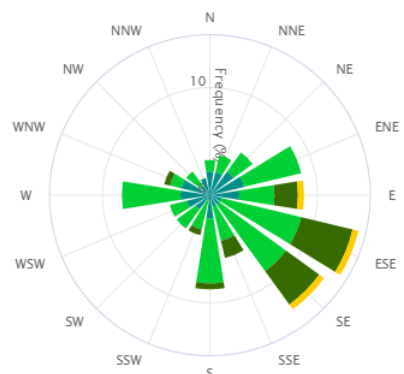
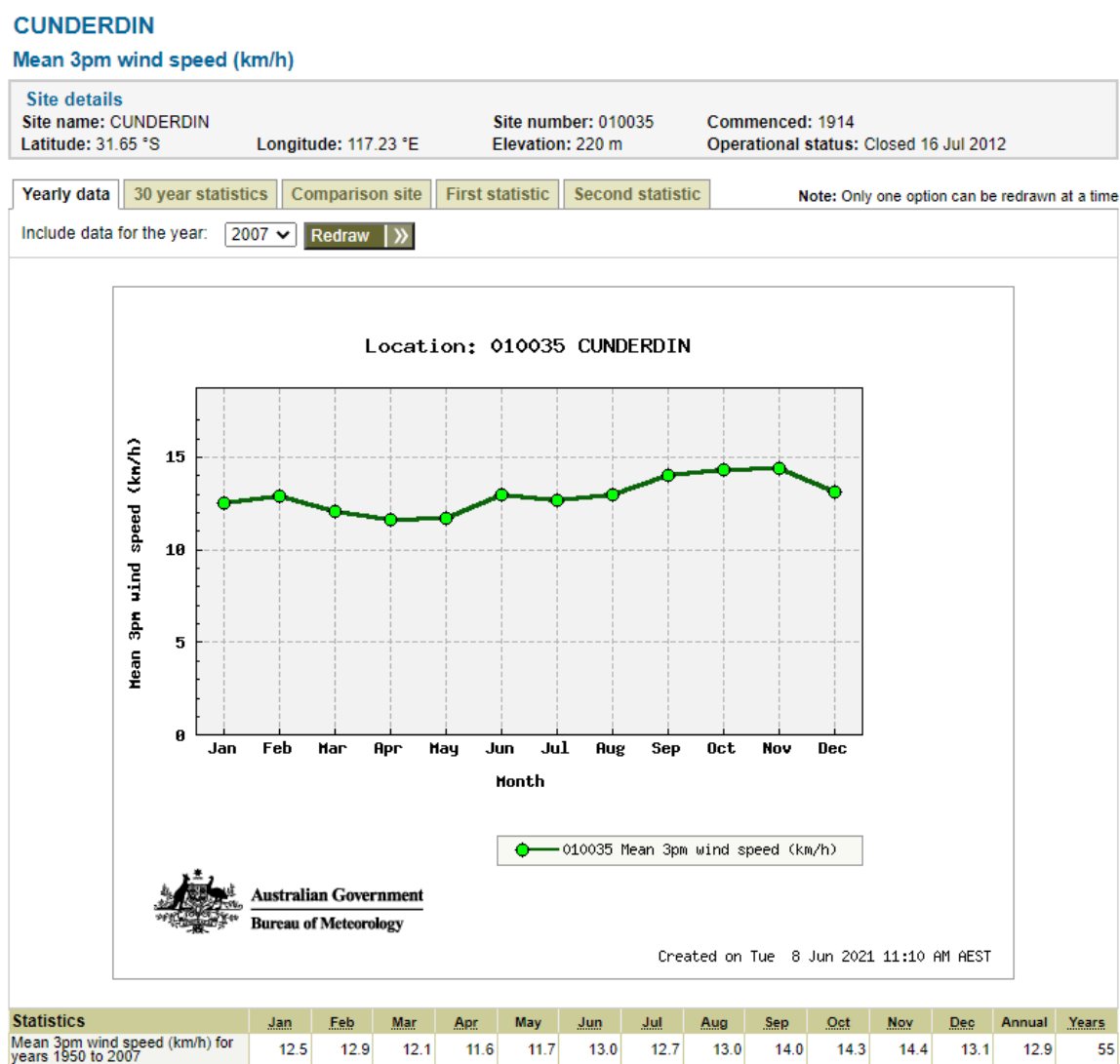


Figure 8 – Wind direction Fire Season 2020 to 2021⁷

⁷ Department of Primary Industries and Regional Development Weather Station

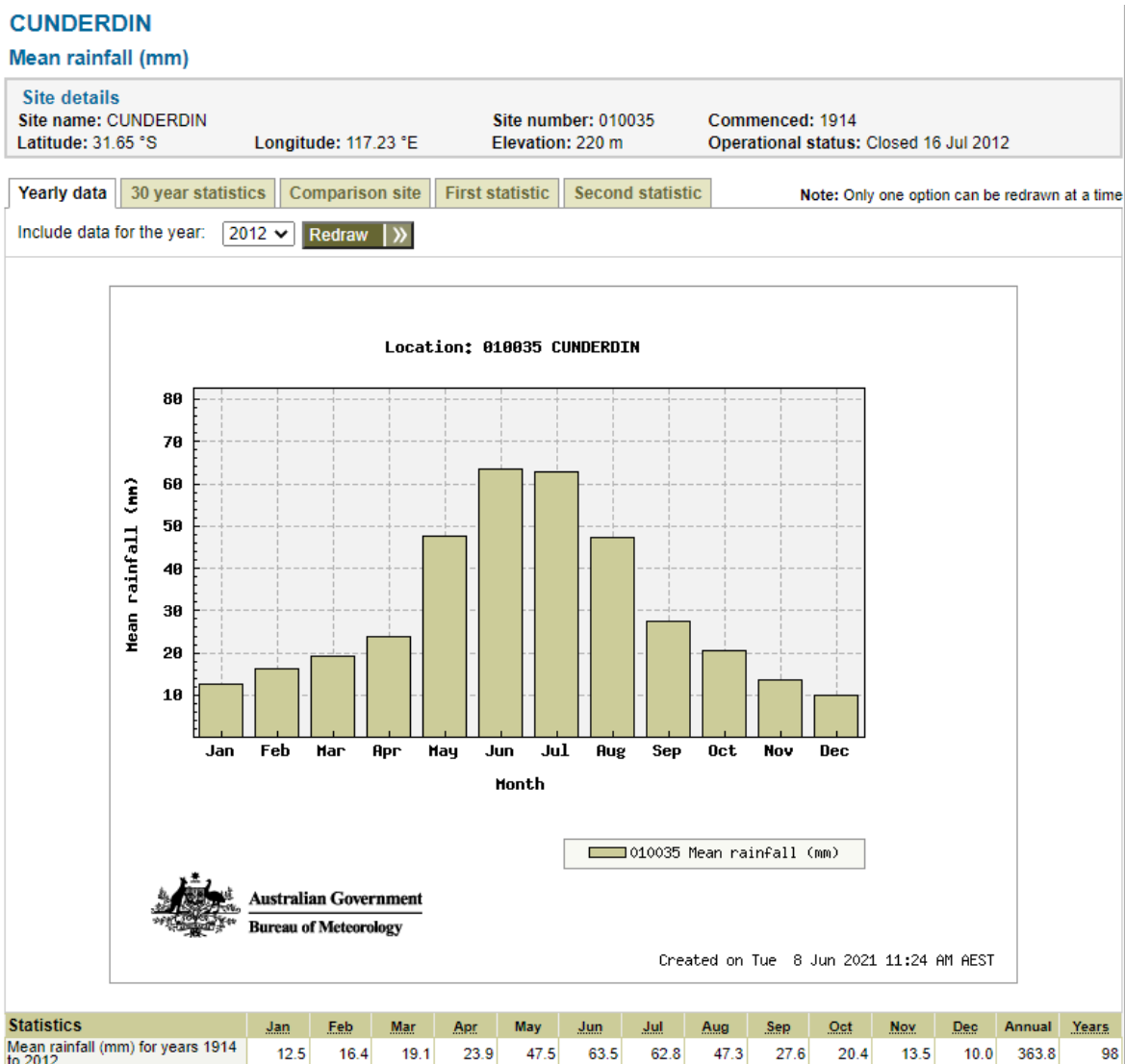
Figure 9: Average Wind Speed for Cunderdin



Source: Bureau of Meteorology

The yearly average rainfall for the Shire of Quairading is 367.2mm. The months of May to August are the wettest months with an average total rainfall of 221.1mm for the 4 months. The months of March, April, September and October are the next wettest with an average total rainfall of 91mm for this period. The months from November to February are generally the driest months and have an average total rainfall of 52.4mm. Figure 10 shows the monthly average rainfall at Cunderdin as this is the closest weather station with historical data from 1914 to 2012.

Figure 10: Average Rainfall for Cunderdin



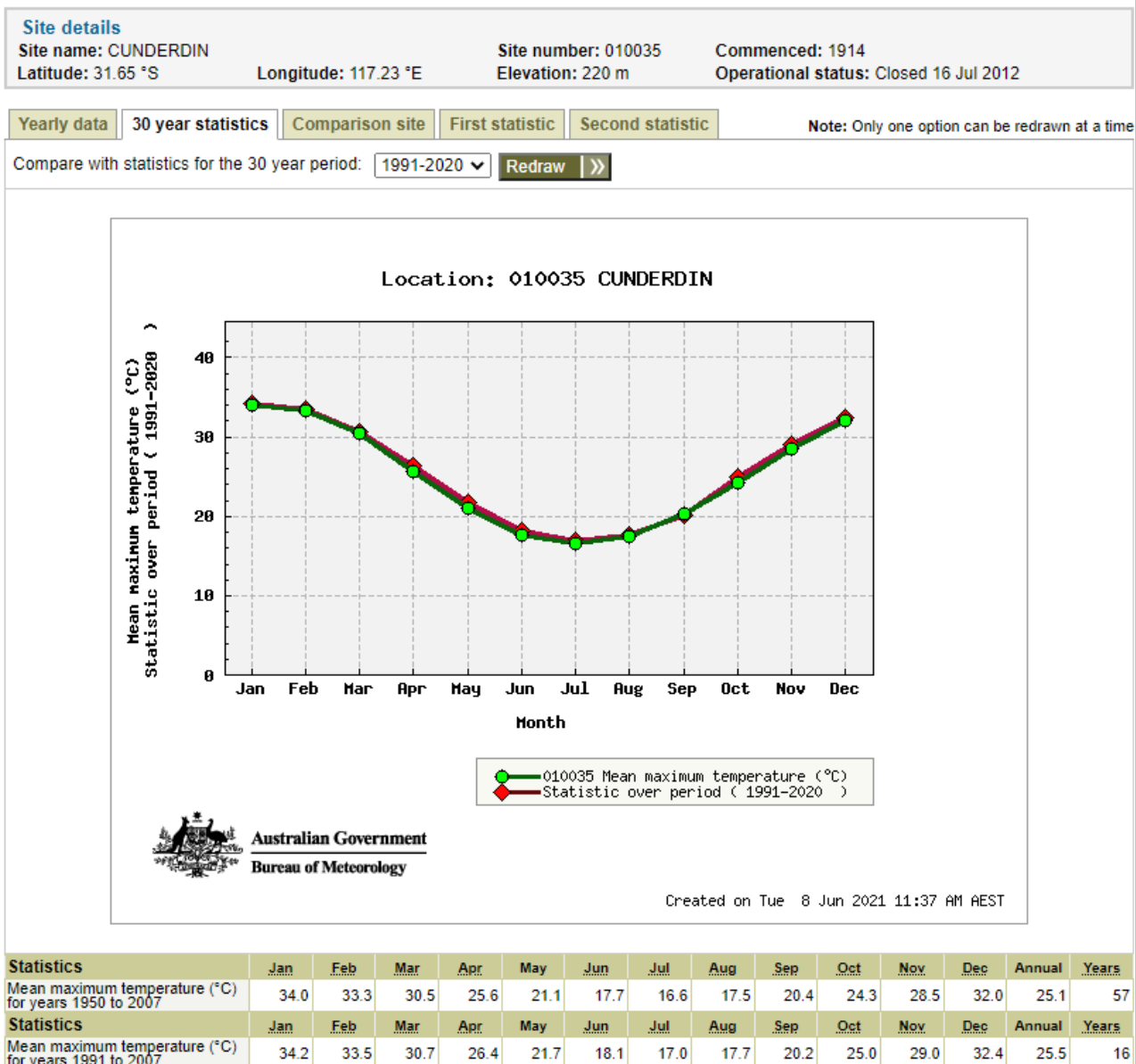
Source Bureau of Meteorology

On average the Shire of Quairading has had a yearly maximum temperature of 25.1°C and minimum temperature of 11.4°C. The months for June to August are the coldest with the average maximum temperature of 17.2°C and the average minimum temperature of 6.4°C. The months of April, May, September and October have an average maximum temperature 22.8°C and the average minimum temperature of 9.6°C. The hottest months are November to March with the average temperature of 31.9°C and the average minimum temperature of 15.6°C. Figure 11 shows the average maximum temperature from 1910 to 2012 and the average maximum temperature from 1991 to 2012, showing there is a slight increase in temperature for the last 30 years.

Figure 11: Average temperature for Cunderdin

CUNDERDIN

Mean maximum temperature (°C)



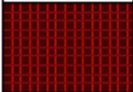





Source Bureau of Meteorology

Weather patterns in the Shire of Quairading show that the months between 1st of November to the 1st of April are the bushfire season within the Shire. During these month there is high temperature, low rainfall and an average wind speed at 3pm of 13km/hr. During these months it is not uncommon to have days of increased fire weather.

The Shire of Quairading is located within the Avon Fire Weather District. Given the prevalence of agricultural holdings within the Shire of Quairading, the Grass Fire Danger Index is the model applied to determine the Fire Danger Index (FDI) within the Shire. The FDI is a calculated using the degree of fuel curing, the air temperature, relative humidity, and wind speed for a given day. FDI is estimated using the McArthur Fire Danger Meter for grasslands or forest. The higher the FDI, the higher the fire danger.

From the FDI, predictions can be made regarding a fire's rate of spread, intensity and the potential for various suppression tactics to succeed. The FDI is the basis for determining the Fire Danger Rating (FDR), shown in Table 5, which is a scale developed to assist communities to better understand information about fire danger. During the period of 2015 to 2020 the FDR for the Avon Fire Weather District was recorded as having had 1 Catastrophic, 4 Extreme, 32 Severe and 97 Very High fire danger days.

Table 5: Fire Danger Ratings

FIRE DANGER RATING		FIRE DANGER INDEX	EXPECTED FIRE BEHAVIOUR
COLOUR CODING	LEVEL		
	Catastrophic	100+	Fires will be unpredictable, uncontrollable and fast moving, even homes built to the highest standard cannot be safely defended
	Extreme	75-99	Fires will be unpredictable and fast moving with only well prepared, constructed and actively defended houses likely to provide suitable shelter
	Severe	50-74	Fires are uncontrollable and fast moving, well prepared and actively defended homes may provide suitable shelter
	Very High	32-49	Fires will be difficult to control with well prepared and actively defended homes likely to provide shelter
	High	12-31	Fires can be controlled, well prepared and actively defended homes may provide shelter
	Low/Moderate	0-11	Fires can be easily controlled

3.2.3 Vegetation

The Shire of Quairading is located in the Avon Wheatbelt under the Interim Biogeographic Regionalisation of Australia (IBRA) regions. The Shire has been vastly cleared for use as agricultural land and the remnant vegetation is highly fragmented with only 8 % left within the Shire. Despite this, there are sizable patches of remnant vegetation that could be adversely affected by fire. Additionally, much of the remnant vegetation is along roadsides, which may provide a way for fire to spread across a large area.

There are 3 main types of native vegetation groups:

- Woodlands
- Scrubland
- Succulent steppe

The largest areas of natural vegetation found within the Shire is Medium woodlands which normally consist of Salmon Gum, York Gum and Wandoo. These trees are very fire sensitive and are easily killed by low scorch. Mitigation work in these areas will need to be sensitive to this and several methods may be needed.

The Department of Environment and Conservation Fire Management Services conducted a study in the Great Western Woodlands in 2010, the study provides the following information on bushfire behavior in similar natural vegetation as found in the areas of Quairading.

- Woodlands tend to have surface fuels accumulated only beneath individual trees, separated by areas of bare ground. Strong winds are required to allow fires to move between these discontinuous clumps of surface fuel and they will do so only slowly. There are usually few shrubs in the understorey and again, these will be separated by bare ground. Combustion of the canopy is rare as the over storey of woodlands tends to be composed of tall Eucalyptus species and there is usually little vertical continuity of fuels.
- Shrublands typically feature a surface fuel component of leaf litter overlain by a near-surface fuel component of low shrubs. Above these is often a nearly continuous vertical profile of taller shrubs and scattered mallee. The continuity of surface fuels allows fires to spread under moderate conditions, while the continuity of the vertical profile allows fire to reach higher fuels. Higher fuels are usually well aerated and contain volatile oils, factors that facilitate rapid and intense combustion. When severe weather conditions prevail, fires will burn with great intensity, consuming surface, near surface and elevated fuels as well as any higher strata that are present. The lack of a tall over storey to reduce wind speed also facilitates intense fire behaviour in shrublands.
- Succulent steppe is not flammable, being dominated by succulent leafed species.

The main vegetation within the Shire is used for agriculture (crops and pasture) and may appear to have a low bushfire risk for most of the year. During the harvest periods of the year (October to January), this vegetation becomes a significant bushfire hazard. With large areas of continuous crop the spread of fire with strong winds can make for a fast moving, large fire. This was the case in the 2015 Esperance fires in WA, of which the Cascade fire spread over an area of more than 100,000 ha in one afternoon.⁸ The areas used for agriculture are normally gently undulating and easily accessible for firefighting efforts, however the fast moving nature of grass fires can be challenging to suppress.

3.2.4 Threatened Species and Communities

Native flora and fauna species together with ecological communities are significant values that require consideration in respect to bushfire risk. It is important that mitigation activities do not have a detrimental impact to threatened species and ecological communities. Within the Shire some examples of this are;

⁸ Cruz MG, Hurley RJ, Bessell R, Sullivan AL (2019) *Fire behaviour in wheat crops*. CSIRO Land and Water, Client Report No. EP195825, Canberra, Australia.

Banksia cuneata (Quairading Banksia, Matchstick Banksia) – An endangered species of flora that occurs within the Shire of Quairading, located in areas of scrub-heath or low open woodlands. Studies have shown that fire can be beneficial but also detrimental to the survival of *Banksia cuneata* if inappropriate fire regimes are used. Stace and Coates (2001) conclude that fire events less than seven years apart lead to a decline in population size as very little seed accrues on plants over this short interval. Fire cycles in the order of fifteen to twenty five years are likely to be necessary to raise population numbers, provided fires are not followed by drought (Burgman and Lamont 1992).⁹

Jacksonia Quairading (Quairading Jacksonia, Quairading Stinkwood) – An endangered species of flora and is only found in a reserve to the east of Quairading. The main identified threats to Quairading Stinkwood are firebreak and track maintenance, recreational activities, frequent fire and invasive weeds. Plants occur along firebreaks, tracks and fencelines and are at risk of being destroyed when maintenance is undertaken. This species germinates from seed following fire; however, time taken to reach maturity is unknown and too frequent fire would deplete the soil stored seedbank and lead to localised extinction (DEC, 2008).¹⁰

Black Flanked Rock-Wallaby - An endangered species found in the Shire of Quairading. Their habitat is within the rocky outcrops that are normally protected from extensive and high intensity fires. However, they rely on the nearby natural vegetation as a food and water source. If a fire or inappropriate fire mitigation was to burn this natural vegetation the Black flanked wallaby would need to travel larger distances away from the security of the rocks to find a food source thus increasing the risk of exposure to predators. Another consideration is the fact that the habitat is a rocky outcrop reducing the movement and access for the purposes of mitigation and firefighting activities.

Any treatments need to consider the requirements of all the flora and fauna on site. Response strategies should be environmentally sensitive within the constraints of the incident and the Shire will take every opportunity to remind landowners/managers of their obligation to obtain appropriate clearances and approvals prior to commencing vegetation-based treatments.

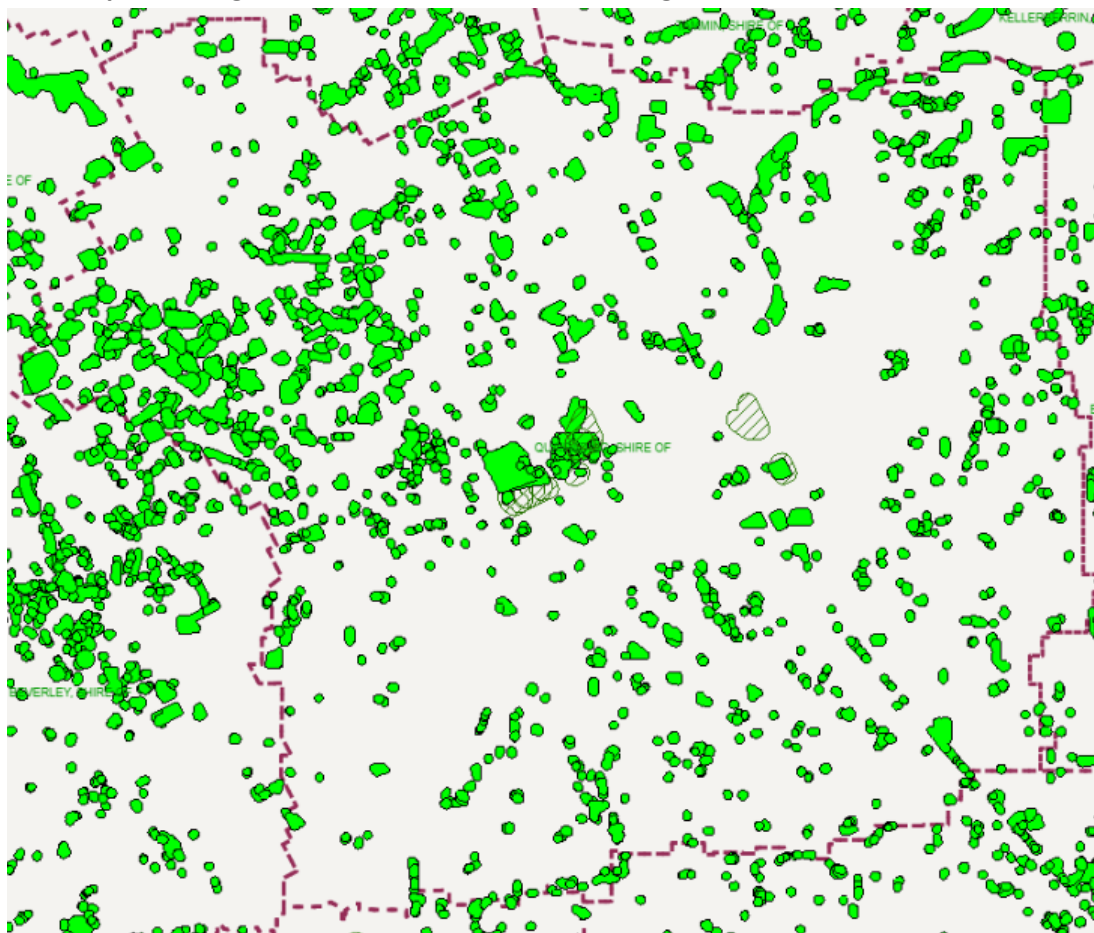
Another consideration in regards to flora during the prevention and response to bushfire is the spread of diseases like *Phytophthora dieback*. This disease is spread easily through the movement of infected soils on vehicles, machinery and footwear. This risk must be considered during all stages of mitigation planning and steps are to be taken to minimize the spread of this disease.

⁹ Department of Environment and Conservation (2009) Matchstick Banksia (*Banksia cuneata*) Recovery.. Commonwealth Department of the Environment, Water, Heritage and the Arts, Canberra

¹⁰ Approved Conservation Advice (s266B of the Environment Protection and Biodiversity Conservation Act 1999)

A list of the Declared Rare Flora and Fauna applicable to the Shire of Quairading is included at Appendix C. The following map (Figure 13) shows the general location of Threatened Ecological Communities within the Shire.

Figure 13 – Map reflecting the locations of Threatened Ecological Communities¹¹



3.2.5 Bushfire Frequency and Causes of Ignition

The main causes of fire starting in the Shire are due to dry lightning, agricultural processes and that of vehicle movement through the Shire by road.

Dry lightning storms can cause multiple ignition sites in an area in a small space of time, normally these storms have associated winds that can increase the size of these ignition points into large fires in a small amount of time.

The main risk of ignitions associated with agriculture is during the harvest period. Vehicles and machinery used during harvesting operations can easily ignite fires in cured crops through sparks or heat and added with the dryness of the crop, fires can spread fast. To reduce the risk of agricultural fires, it is required in the Quairading Shire to have an operational firefighting appliance in or adjoining the paddock where harvest operations are

¹¹ DFES Bushfire Risk Management System

happening. The Shire uses Harvest and Vehicle Movement Bans to restrict activities likely to cause ignitions, which are applied by a representative of the Shire when weather conditions hit trigger points (FDI 31 or above).

Transportation corridors also contribute to bushfire ignitions within the Shire due to the increased volume of activities occurring, and the concentration of people in an area that are likely to witness and report a fire. Some causes of ignition in these corridors have been due to cigarette butts being disposed of out of moving vehicles, Heat or sparks from vehicles moving off roads and into long grass, and mechanical faults.

Table 6: Recorded Causes of Ignition¹²



Government of Western Australia
Department of Fire & Emergency Services



All Bushfires
LGA of QUAIRADING (S)
from 01/07/2016 to 08/06/2021

A Bushfire is considered to be any vegetation fire (bush, grass, scrub, forest): of any size

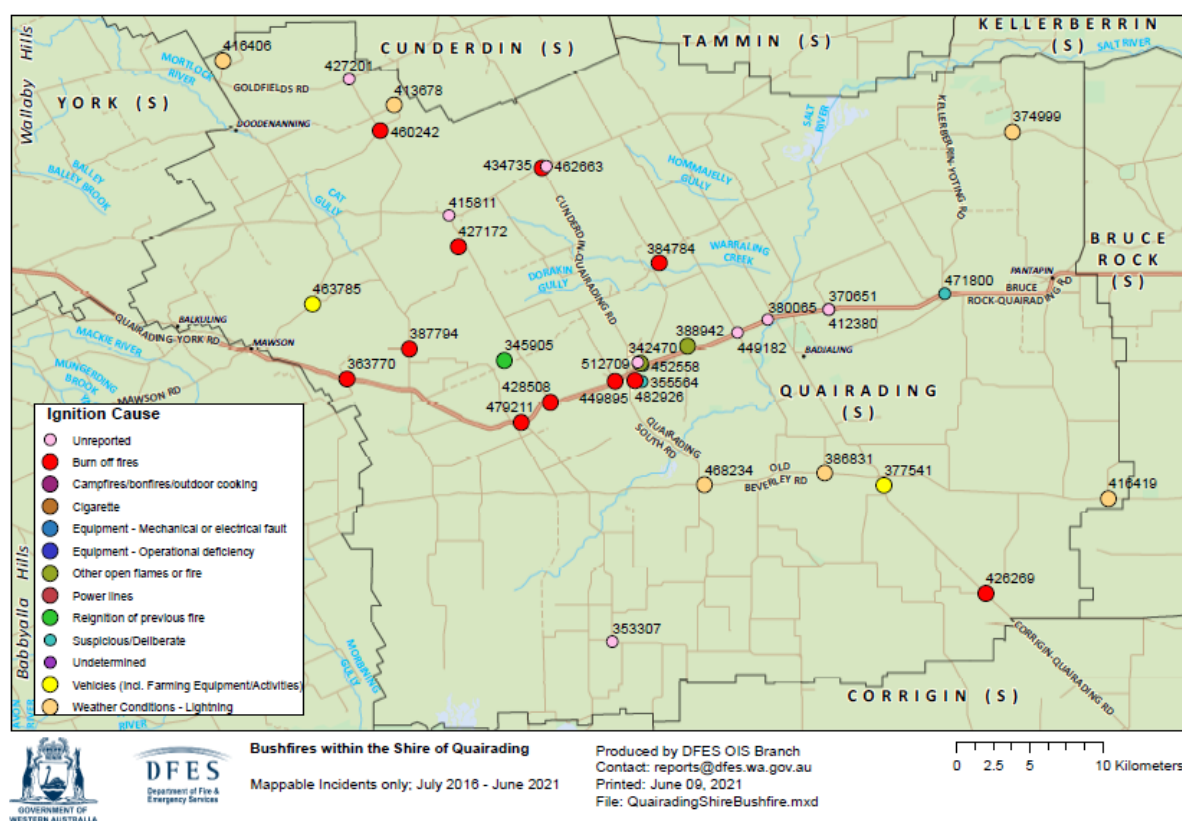
Bushfires Summary of Ignition Report

Total for the Shire of Quairading

	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	Total
Reported Cause Total Number of Bushfires:	5	8	10	10	1	34
Burn off fires	1	2	4	4	0	11
Human Error (Left on, knock over, unattended etc.)	0	1	0	0	0	1
Other open flames or fire	1	1	0	0	0	2
Reignition of previous fire	1	0	0	0	0	1
Suspicious/Deliberate	1	0	0	2	0	3
Unreported	1	1	3	2	1	8
Vehicles (incl. Farming Equipment/Activities)	0	1	0	1	0	2
Weather Conditions - Lightning	0	2	3	1	0	6

¹² Department of Fire and Emergency Service

Figure 14: Location of recorded fires 01/07/2016 – 8/06/2021¹³



3.2.6 Current Bushfire Risk Management Activities

Local Government Wide Controls are activities that reduce the overall bushfire risk within the Shire of Quairading. These types of activities are not linked to specific assets, and are applied across all or part of the local government as part of normal business or due to legislative requirements.

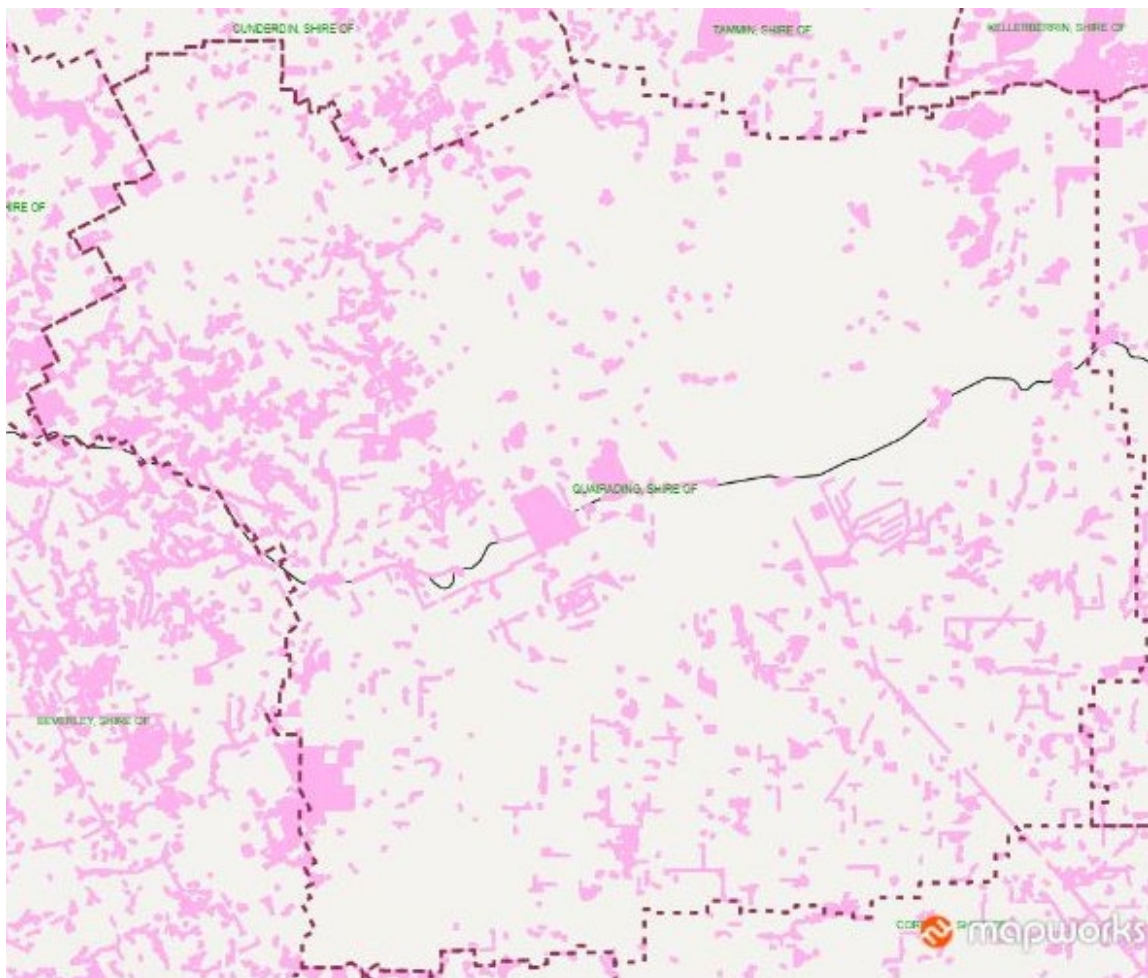
Further information about the Local Government Wide Controls and how they will support the treatment of bushfire risk can be found in section 6.1 Local Government Wide Controls.

Map of Bushfire Prone Areas

The intent of the WA Government's Bushfire Prone Planning Policy is to implement effective risk based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure. The *State Planning Policy 3.7 – Planning for Bushfire Prone Areas* ensures bushfire risk is given due consideration in all future planning and development decisions. This policy does not apply retrospectively, however the BRM Plan can help address this risk for existing development by establishing an effective treatment plan to manage unacceptable community risks within the broader landscape. The Shire of Quairading Bushfire Prone Area is shown in Figure 15.

¹³ Department of Fire and Emergency Service

Figure 15 – Bushfire Prone Map of the Shire of Quairading



Source: DFES BRMS

Volunteer Fire Brigades

There are 5x Bush Fire Brigades (BFB) and 1x Volunteer Fire and Rescue Service (VFRS) brigade within the Shire of Quairading. The Quairading Shire has 111 registered volunteer BFB members with an average age of 51. The appliances are as below:

- **Quairading Central BFB** - 1x 4.4 Broad acre appliance and 1 x 2.4 Broad acre appliance
- **Balkuling/Doodenanning BFB** - 4.4 Broad acre appliance
- **Quairading North BFB** - 4.4 Broad acre appliance
- **Wamenusking BFB** - 4.4 Broad acre appliance
- **South Caroling BFB** - 4.4 Broad acre appliance
- **Quairading VFRS (DFES)** – 3.4 Urban appliance and light tanker
- There is also a large number of privately owned farm appliances within the Shire that may assist with response activities.

Burning Restrictions

Burning restrictions within the Shire of Quairading are as follows:

- Restricted Burning Times – 16th October to the 31st October and 1st March to the 30th March (Permits are needed in this period)
- Prohibited Burning Times - 1st November to 28th February

When required, Harvest and Vehicle Movement Bans are issued by the Shire and Total Fire Bans are declared by DFES.

Bush Fires Act 1954 Section 33 Fire Management Notices

The Shire publishes an annual Firebreak Order and Fire Preparedness Notice which sets out the requirements for fuel reduction and fire break requirements with in the town site and on rural land.

The Section 33 Notices are used to achieve community wide asset protection by reducing the spread of fire and allowing access to properties for firefighting efforts.

Community engagement activities

While compliance in line with landowner responsibilities detailed in the Shire's annual Fire Break Notice, is generally good, when it comes to preparatory efforts (i.e. in line with general prevention and preparedness around individual properties) community engagement is more challenging, mainly due to time constraints and conflicting priorities. A level of complacency (it won't happen to me) is apparent within the community. The Shire promotes key messages regarding community awareness and resilience through local media leading up to fire season.

4. Asset Identification and Risk Assessment

4.1. Asset Identification

Asset identification and risk assessment has been conducted at the local level using the methodology described in the Guidelines and recorded in BRMS. Identified assets are categorized into the following categories and subcategories provided in Table 4.

Table 7 – Asset Categories and Subcategories

Asset Category	Asset Subcategories
Human Settlement	<p>Residential areas Residential areas, including dwellings in rural areas and the rural-urban interface.</p> <p>Places of temporary occupation Commercial and industrial areas, mining sites or camps and other locations where people may work or gather.</p> <p>Special risk and critical facilities Locations and facilities where occupants may be especially vulnerable to bushfire for one or more of the following reasons:</p> <ul style="list-style-type: none"> • Occupants may have limited knowledge about the impact of bushfires; • Occupants may have a reduced capacity to evaluate risk and respond adequately to bushfire event; • Occupants may be more vulnerable to stress and anxiety arising from a bushfire event or the effects of smoke; • There may be significant communication barriers with occupants; • Relocation and/or management of occupants may present unique challenges or difficulties, such as transportation, or providing alternative accommodation, healthcare or food supplies; or • Facilities that are critical to the community during a bushfire emergency.
Economic	<p>Agricultural Areas under production, such as pasture, livestock, crops, viticulture, horticulture and associated infrastructure.</p> <p>Commercial and industrial Major industry, waste treatment plants, mines (economic interest), mills, processing and manufacturing facilities and cottage industry.</p> <p>Critical infrastructure Power lines and substations, water pumping stations, tanks/bores and pipelines, gas pipelines, telecommunications infrastructure, railways, bridges, port facilities and waste water treatments plants.</p> <p>Tourist and recreational Tourist attractions, day-use areas and recreational sites that generate significant tourism and/or employment within the local area. These assets are different to tourist accommodation described as a Human Settlement Asset (see above).</p> <p>Commercial forests and plantations Plantations and production native forests.</p> <p>Drinking water catchments</p>

Asset Category	Asset Subcategories
	Land and infrastructure associated with drinking water catchments.
Environmental	<p>Protected Flora, fauna and ecological communities that are listed as a:</p> <ul style="list-style-type: none"> • Critically Endangered, Endangered or Vulnerable species under the Environmental Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act 1999) (including associated critical habitat); • Critically Endangered, Endangered or Vulnerable species under the Biodiversity Conservation Act 2016; • Critically Endangered, Endangered or Vulnerable ecological community under the EPBC Act 1999 (Cth); • Critically Endangered, Endangered or Vulnerable Threatened Ecological Community (TEC) endorsed by the Minister for Environment (WA); • Fauna protected under international conventions; and • Ramsar wetlands of international importance. <p>Priority Flora, fauna and ecological communities that are a:</p> <ul style="list-style-type: none"> • Priority species listed on the Priority Flora or Priority Fauna Lists held by DBCA (Priority 1-5). • Priority Ecological Community (PEC) (Priority 1-5); and • Wetlands of national or state importance. <p>Locally important Species, populations, ecological communities or habitats that the local community or independent scientific experts consider important for the area and for which there is some scientific evidence that protection would be beneficial. Wetlands of local importance. Sites being used for scientific research.</p>
Cultural	<p>Aboriginal heritage Places of indigenous significance identified by the DPLH or the local community.</p> <p>European heritage Non-Indigenous heritage assets afforded legislative protection through identification by the National Trust, State Heritage List or Local Planning Scheme Heritage List.</p> <p>Local heritage Assets identified in a Municipal Heritage Inventory or by the local community as being significant to local heritage.</p> <p>Other Other assets of cultural value to the local community, for example community halls, churches, clubs and recreation facilities.</p>

4.2. Assessment of Bushfire Risk

Risk assessments have been undertaken for each asset or group of assets identified using the methodology described in the Guidelines.

The *Asset Risk Register* will be maintained in BRMS, this information is not included in the plan because it contains information deemed personal and contains locations of cultural and environmental importance.

The percentage of assets within the local government in each asset category at the time of BRM Plan endorsement is shown in Table 5.

Table 8 – Asset Category Proportions

Asset category	Proportion of identified assets
Human Settlement	81%
Economic	14%
Environmental	0.8%
Cultural	4.2%

4.3.1 Consequence Assessment

Consequence is described as the outcome or impact of a bushfire event. The approach used to determine the consequence rating is different for each asset category: Human Settlement; Economic; Environmental; and Cultural.

The methodology used to determine the consequence rating for each asset category is based on the following:

- **Consequence Rating – Human Settlement, Economic and Cultural Assets**

The outcome or impact of a bushfire event on the asset, or a group of assets, measured by the hazard posed by the classified vegetation and the vulnerability of the asset.

- **Consequence Rating – Environmental Assets**

The outcome or impact of a bushfire event on the asset, or a group of assets, measured by the vulnerability of the asset and the potential impact of a bushfire or fire regime.

4.3.2 Likelihood Assessment

Likelihood is described as the potential of a bushfire igniting, spreading and impacting an asset. The approach used to determine the likelihood rating is the same for each asset category: Human Settlement; Economic; Environmental; and Cultural.

4.3.3 Assessment of Environmental Assets

Using available biological information and fire history data, environmental assets with a known minimum fire threshold were assessed to determine if they were at risk from bushfire, within the five-year life of the BRM Plan. Environmental assets that would not be adversely impacted by bushfire within the five-year period have not been included and assessed in the BRM Plan. The negative impact of a fire on these assets (within the period of this BRM Plan) was determined to be minimal, and may even be of benefit to the asset and surrounding habitat.

4.3.4 Local Government Asset Risk Summary

A risk profile for the local government is provided in Table 6. This table shows the proportion of assets at risk from bushfire in each risk category at the time the BRM Plan was endorsed.

Table 9– Local Government Asset Risk Summary

Asset Category	Risk Rating					
		Low	Medium	High	Very High	Extreme
	Human Settlement	5.8%	8.2%	21.5%	19.9%	25.7%
	Economic	2.9%	2.4%	2.9%	5%	0.8%
	Environmental	0%	0	0.3%	0.5%	0%
	Cultural	1.3%	0.5%	1.3%	0.5%	0.5%

5. Risk Evaluation

5.1. Evaluating Bushfire Risk

The risk rating for each asset has been assessed against the consequence and likelihood descriptions to ensure:

- The rating for each asset reflects the relative seriousness of the bushfire risk to the asset;
- Consequence and likelihood ratings assigned to each asset are appropriate; and
- Local issues have been considered.

5.2. Risk Acceptability

Risks below a certain level were not considered to require specific treatment during the life of this BRM Plan. They will be managed by routine local government wide controls and monitored for any significant change in risk.

In most circumstances risk acceptability and treatment will be determined by the land owner, in collaboration with local government and fire agencies. However, as a general rule, the following courses of action have been adopted for each risk rating.

Table10 – Criteria for Acceptance of Risk and Course of Action

Risk Rating	Criteria for Acceptance of Risk	Course of Action
Extreme	Only acceptable with excellent controls. Urgent treatment action is required.	<p>Routine controls are not enough to adequately manage the risk. Specific action is required in first 2 years of the BRM Plan.</p> <p>Treatments will be approached by:</p> <ul style="list-style-type: none"> • Priorities will be made for treatments that will have maximum benefit to multiple assets and critical infrastructure. • Treatments that benefit vulnerable communities will be given priority. • Identification of partnerships with other agencies for strategic mitigation. • Communication with asset owners in this class will be priorities and focus on increasing understanding of the risk facing these assets (see Communications plan).
Very High	Only acceptable with excellent controls. Treatment action is required.	<p>Routine controls are not enough to adequately manage the risk. Specific action is required in first 3 years of the BRM Plan.</p> <p>Treatments will be approached by:</p> <ul style="list-style-type: none"> • Priorities will be made for treatments that will have maximum benefit to multiple assets and critical infrastructure. • Treatments that benefit vulnerable communities will be given priority. • Identification of partnerships with other agencies for strategic mitigation. • Communication with asset owners will be as per the Communications Plan and focus on increasing understanding of the risk facing these assets.
High	Only acceptable with adequate controls. Treatment action required.	<p>Routine controls are not enough to adequately manage the risk. Specific action is required in the life of the BRM Plan.</p> <p>Treatments will be approached by:</p> <ul style="list-style-type: none"> • Priorities will be made for treatments that will have maximum benefit to multiple assets and critical infrastructure. • Treatments that benefit vulnerable communities will be given priority. • Identification of partnerships with other agencies for strategic mitigation. • Communication with asset owners will be as per the Communications Plan and focus on increasing understanding of the risk facing these assets.

Medium	Acceptable with adequate controls. Treatment action is not required but risk must be monitored regularly.	Specific actions are not required. Risk may be managed with routine controls and monitored periodically throughout the life of the BRM Plan.
Low	Acceptable with adequate controls. Treatment action is not required but risk must be monitored.	Specific actions are not required. Risk will be managed with routine controls and monitored as required.

5.3. Treatment Priorities

The treatment priority for each asset has been automatically assigned by BRMS and recorded in the Treatment Schedule, based on the asset's risk rating. Table 9 shows how consequence and likelihood combine to give the risk rating and subsequent treatment priority for an asset.

Table 11 – Treatment Priorities

Likelihood	Consequence				
		Minor	Moderate	Major	Catastrophic
	Almost Certain	3D (High)	2C (Very High)	1C (Extreme)	1A (Extreme)
	Likely	4C (Medium)	3A (High)	2A (Very High)	1B (Extreme)
	Possible	5A (Low)	4A (Medium)	3B (High)	2B (Very High)
	Unlikely	5C (Low)	5B (Low)	4B (Medium)	3C (High)

6. Risk Treatment

The purpose of risk treatment is to reduce the likelihood of a bushfire occurring and/or the potential impact of a bushfire on the community, economy and environment. This is achieved by implementing treatments that modify the characteristics of the hazard, the community or the environment. There are many strategies available to treat bushfire risk. The treatment strategy (or combination of treatment strategies) selected will depend on the level of risk and the type of asset being treated. Not all treatment strategies will be suitable in every circumstance.

6.1. Local Government Wide Controls

Local government wide controls are activities that are non-asset specific, rather they reduce the overall bushfire risk within the local government.

The Local Government Wide Controls Table has been developed and attached (Appendix B). The Table identifies the current controls in place (see section 3.2.6 for detailed information on these), including any work planned to improve current controls, or implement new controls to better manage bushfire risk across the Shire

6.2. Asset Specific Treatment Strategies

Asset specific treatments are implemented to protect an individual asset or group of assets, identified and assessed in the BRM Plan as being at risk from bushfire. There are five asset specific treatment strategies:

- **Fuel management**

Treatment reduces or modifies the bushfire fuel through manual, chemical and planned burning methods;

- **Ignition management**

Treatment aims to reduce potential human and infrastructure sources of ignition in the landscape;

- **Preparedness**

Treatments aim to improve access and water supply arrangements to assist firefighting operations;

- **Planning**

Treatments focus on developing plans to improve the ability of firefighters and the community to respond to bushfire; and

- **Community Engagement**

Treatments seek to build relationships, raise awareness and change the behavior of people exposed to bushfire risk.

6.3. Development of the Treatment Schedule

The Treatment Schedule is a list of bushfire risk treatments recorded within BRMS that will be implemented to manage unacceptable bushfire risks. The Shire of Quairading will be focusing on developing a program of works that covers activities to be undertaken within the first year after the approval of the BRM Plan. The Treatment Schedule will evolve and develop throughout the life of the BRM Plan.

The Treatment Schedule will be developed in broad consultation with land owners and other stakeholders, including DFES and DBCA. The Communication Strategy (Appendix A) provides further information on the stakeholders involved and the activities planned for their engagement.

Land owners are ultimately responsible for treatments implemented on their own land. This includes any costs associated with the treatment and obtaining the relevant approvals, permits or licences to undertake an activity. Where agreed, another agency may manage a treatment on behalf of a land owner. However, the onus is still on the land owner to ensure treatments detailed in the Treatment Schedule are completed.

7. Monitoring and Review

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

7.1. Review

A comprehensive review of this BRM Plan will be undertaken at least once every five years, from the date of council approval. Significant circumstances that may warrant an earlier review of the BRM Plan include:

- Changes to organizational responsibilities or legislation;
- Changes to the bushfire risk profile of the local government; or
- Following a major fire event.

7.2. Monitoring

BRMS will be used to monitor the risk ratings for each asset identified in the BRM Plan and record the treatments implemented. Risk ratings are reviewed on a regular basis as described in Table 10 – Criteria for Acceptance of Risk and Course of Action. New assets will be added to the Asset Risk Register when they are identified.

7.3. Reporting

The reporting requirements will be managed by a member of staff designated by the Chief Executive Officer.

On request, the Shire of Quairading may contribute relevant information to be included in the *Fuel Management Activity Report* produced annually by OBRM.

8. Glossary

Asset	A term used to describe anything of value that may be adversely impacted by bushfire. This may include residential houses, infrastructure, commercial, agriculture, industry, environmental, cultural and heritage sites.
Asset Category	There are four categories that classify the type of asset – Human Settlement, Economic, Environmental and Cultural.
Asset Owner	The owner, occupier or custodian of the asset itself. Note: this may differ from the owner of the land the asset is located on, for example a communication tower located on leased land or private property.
Asset Register	A component within the Bushfire Risk Management System (BRMS) used to record the details of assets identified in the Bushfire Risk Management Plan (BRM Plan).
Asset Risk Register	A report produced within the BRMS that details the consequence, likelihood, risk rating and treatment priority for each asset identified in the BRM Plan.
Bushfire	Unplanned vegetation fire. A generic term which includes grass fires, forest fires and scrub fires both with and without a suppression objective.
Bushfire Hazard	The hazard posed by the classified vegetation, based on the vegetation category, slope and separation distance.
Bushfire Risk Management Plan	A development related document that sets out short, medium and long term bushfire risk management strategies for the life of a development.
Bushfire Risk	The chance of a bushfire igniting, spreading and causing damage to the community or the assets they value.
Bushfire Risk Management	A systematic process to coordinate, direct and control activities relating to bushfire risk with the aim of limiting the adverse effects of bushfire on the community.
Bushfire Risk	The chance of a bushfire igniting, spreading and causing damage to the community or the assets they value.
Consequence	The outcome or impact of a bushfire event.

Draft Bushfire Risk Management Plan	The finalised draft BRM Plan is submitted to the Office of Bushfire Risk Manager (OBRM) for review. Once the OBRM review is complete, the BRM Plan is called the 'Final BRM Plan' and can be progressed to local government council for approval.
Geographic Information System (GIS)	A data base technology, linking any aspect of land-related information to its precise geographic location.
Land Owner	The owner of the land, as listed on the Certificate of Title; or leaser under a registered lease agreement; or other entity that has a vested responsibility to manage the land.
Likelihood	The chance of something occurring. In this instance, it is the potential of a bushfire igniting, spreading and impacting on an asset.
Locality	The officially recognised boundaries of suburbs (in cities and larger towns) and localities (outside cities and larger towns).
Map	The mapping component of the BRMS. Assets, treatments and other associated information is spatially identified, displayed and recorded within the Map.
Planning Area	A geographic area determined by the local government which is used to provide a suitable scale for risk assessment and stakeholder engagement.
Priority	See Treatment Priority.
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 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 Register	A component within the BRMS used to record, review and monitor risk assessments and treatments associated with assets recorded in the BRM Plan.
Risk treatment	A process to select and implement appropriate measures undertaken to modify risk.
Rural	Any area where residences and other developments are scattered and intermingled with forest, range, or farm land and native vegetation or cultivated crops.
Rural Urban Interface	The line or area where structures and other human development adjoin or overlap with undeveloped bushland.

Slope	The angle of the ground's surface measured from the horizontal.
Tenure Blind	An approach where multiple land parcels are consider as a whole, regardless of individual ownership or management arrangements.
Treatment	An activity undertaken to modify risk, for example a planned burn.
Treatment Objective	The specific aim to be achieved or action to be undertaken, in order to complete the treatment. Treatment objectives should be specific and measurable.
Treatment Manager	The organisation, or individual, responsible for all aspects of a treatment listed in the <i>Treatment Schedule</i> of the BRM Plan, including coordinating or undertaking work, monitoring, reviewing and reporting.
Treatment Planning Stage	The status or stage of a treatment as it progresses from proposal to implementation.
Treatment Priority	The order, importance or urgency for allocation of funding, resources and opportunity to treatments associated with a particular asset. The treatment priority is based on an asset's risk rating.
Treatment Schedule	A report produced within the BRMS that details the treatment priority of each asset identified in the BRM Plan and the treatments scheduled.
Treatment Strategy	The broad approach that will be used to modify risk, for example fuel management.
Treatment Type	The specific treatment activity that will be implemented to modify risk, for example a planned burn.
Vulnerability	The susceptibility of an asset to the impacts of bushfire.

9. Common Abbreviations

AFAC	Australasian Fire and Emergency Services Authorities Council
BFAC	Bush Fire Advisory Committee
BRM	Bushfire Risk Management
BRM Branch	Bushfire Risk Management Branch (DFES)
BRM Plan	Bushfire Risk Management Plan
BRMS	Bushfire Risk Management System
DBCA	Department of Biodiversity, Conservation and Attractions
DFES	Department of Fire and Emergency Services
DPLH	Department of Planning, Lands and Heritage
EPBC Act	Environmental Protection and Biodiversity Conservation Act
FPC	Forest Products Commission
GIS	Geographical Information System
LEMC	Local Emergency Management Committee
OBRM	Office of Bushfire Risk Management (DFES)
PEC	Priority Ecological Community
SEMC	State Emergency Management Committee
TEC	Threatened Ecological Community
UCL	Unallocated Crown Land
UMR	Unmanaged Reserve
WA	Western Australia
WAPC	Western Australian Planning Commission

10. Appendices

Appendix A	Communication Strategy
Appendix B	Local Government Wide Controls Table
Appendix C	Threatened Species



Shire of Quairading

Bushfire Risk Management Planning

COMMUNICATION STRATEGY

Document Control

Document Name	Bushfire Risk Management Plan Communications Strategy
Document Owner	Shire of Quairading, CEO
Document Location	Add as required
Current Version	1.1
Issue Date	DD/MM/YYYY
Next Review Date	DD/MM/YYYY

Related Documents

Title	Version	Date
Shire of Quairading Bushfire Risk Management Plan		

[Add rows as required](#)

Amendment List

Version	Date	Author	Section

[Add rows as required](#)

11. Introduction

A Bushfire Risk Management (BRM) Plan is a strategic document that outlines the approach to the identification, assessment and treatment of assets exposed to bushfire risk within the Shire of Quairading

This Communication Strategy accompanies the BRM Plan for the Shire of Quairading

It documents the:

- communication objectives;
- roles and responsibilities for communication;
- key stakeholders;
- stakeholders engaged in the development of the BRM Plan and Treatment Schedule; and
- Communication Plan for the implementation and review of the BRM Plan including: target audiences and key messages at each project stage; communication risks and strategies for their management; and communication monitoring and evaluation procedures.

12. Communications Overview

12.1. Communication Objectives

The communication objectives for the development, implementation and review of the BRM Plan for the Shire of Quairading are as follows:

1. Key stakeholders understand the purpose of the BRM Plan and their role in the BRM planning process.
2. Stakeholders who are essential to the BRM planning process, or can supply required information, are identified and engaged in a timely and effective manner.
3. Relevant stakeholders are involved in decisions regarding risk acceptability and treatment.

4. Key stakeholders engage in the review of the BRM Plan as per the schedule in place for the local government.
5. The community and other stakeholders engage with the BRM planning process and as a result are better informed about bushfire risk and understand their responsibilities to address bushfire risk on their own land.

12.2. Communication Roles and Responsibilities

Shire of Quairading is responsible for the development, implementation and review of the Communication Strategy. Key stakeholders support local government by participating in the development and implementation of the Communications Strategy as appropriate. An overview of communication roles and responsibilities follows:

- CEO, Shire of Quairading, is responsible for endorsement of the BRM Plan Communications Strategy.
- Shire of Quairading, responsible for external communication with the local government area.
- Bushfire Risk Management Planning Coordinator, Shire of Quairading, responsible for operational-level communication between the Shire and the Department of Fire and Emergency Services.

12.3. Key Stakeholders for Communication

The following table identifies key stakeholders in BRM planning process, its implementation and review. These are stakeholders that are identified as having a significant role or interest in the planning process or are likely to be significantly impacted by the outcomes.

Stakeholder	Role or Interest	Level of impact of outcomes	Level of engagement
Shire of Quairading	Plan owner. Major role in the development, management and review of the plan. Responsible for treatments on land they own/manage	High	Inform, consult, involve, collaborate and empower
Department of Fire and Emergency Services (DFES)	Major role with support in the development and review of the plan. Support for treatment implementation	High	Inform, consult, involve and collaborate
Department of Biodiversity Conservation and Attractions (DBCA)	Major role as land and asset owner/ managers with planning. Support with treatment implementation. Interested party	High	Inform, consult, involve, collaborate and empower
Private land holders	Major role as land and asset owner/ managers. Support with treatment implementation. Interested party	High	Inform, consult, involve, collaborate and empower
Australian Rail Commission (ARC)	Major role as land and asset owner/ managers. Support with treatment implementation. Interested party	Medium	Inform, consult, involve, collaborate and empower
Local fire volunteers	Support planning and implementation of treatments	High	Inform, consult, involve, collaborate and empower
Main Roads	Role as land and asset owner/ managers. Support with treatment implementation. Interested party	Medium	Inform, consult, involve, collaborate and empower

Water Corp	Role as land and asset owner/ managers. Support with treatment implementation. Interested party	Medium	Inform, consult, involve, collaborate and empower
Department of Planning, Lands and Heritage	Major role as land and asset owner/ managers. Support with treatment implementation. Interested party	Medium	Consult, involve and collaborate
Electrical Supplier	Role as asset owner/ managers. Support with treatment implementation. Interested party	Medium	Inform, consult, involve, collaborate and empower
Telecommunications Provider	Role as asset owner/ managers. Support with treatment implementation. Interested party	Medium	Inform, consult, involve, collaborate and empower
Shire of Quairading Community	Interested party	Medium	Inform, consult and involve
Interested party	Interested Party	Medium	Inform, consult and involve

13. Communications Log – Development of the BRM Plan

This Communications Log captures the communications with key internal and external stakeholders that occurred during the development of the BRM Plan. Record any significant conversations, community engagement events, emails, meetings, presentations, workshops and other communication initiatives.

Development of the BRM Plan

Timing of communication	Stakeholders	Purpose	Summary	Communication Method	Lesson Identified	Follow up
15/2/2021, 5/7/2021, 13/10/2021 and 25/11/2021	Shire of Quairading CEO, Senior Leadership Team	1 – 3 & 5	Inform and consult Input into plan Confirm project objectives Project updates	Email Face to face meetings Presentation	Resource constraints could limit their ability to participate	Project updates
March 2021	LEMC	1 – 3 & 5	Confirm project objectives Project updates	Face to face meetings Presentation	Stakeholders willingness to participate	Project updates
March and July 2021	DBCA	1 – 3 & 5	Inform and consult Confirm project objectives Project updates	Email Telephone	Resource constraints could limit their ability to participate	
February to October 2021	DFES BRMO	1 – 3 & 5	Compliance and governance Plan endorsement Sharing information	Email Face to face meetings Telephone	Time constraints	Project updates
December 2020 to October 2021	CESM		Inform and consult Confirm project objectives Input into plan and treatments Project updates Identify Risk and share information	Email Face to face meetings Telephone	Time constraints	Project updates

21/6/2021	Water Corp	1 – 3 & 5	Inform and consult	Telephone	Time constraints	
28/6/2021 and 13/7/2021	ARC Infrastructure	1 – 3 & 5	Inform and consult	Telephone and Email	Time constraints	
25/1/2021 and 10/2/2021	Main Roads	1 – 3 & 5	Inform and consult	Telephone and Email	Time constraints	
5/2/2021	Western Power	1 – 3 & 5	Inform and consult	Telephone and Email	Time constraints	

In addition to these activities informal conversation have been held with Landowners and community members as the opportunities arose

Development of the Treatment Schedule

Timing of communication	Stakeholders	Communication Objective(s)	Summary	Communication Method	Identified Risks to Communication	Strategy to Manage Risks
Life of the Plan	Shire of Quairading CEO, Senior Leadership Team and Council	1 – 3 & 5	Reduction of fuel loads on Shire managed lands Risks to community Strategic fire breaks Planned works identified	Email Face to face meeting Telephone Presentations	Government funding Time constraints LG budgeting constraints	Stay up to date with process improvements
Life of Plan	Shire of Quairading Building and Works	1 – 3 & 5	Reduction of fuel loads on LG managed land Upgrades to strategic firebreaks	Email Face to face meeting Telephone	Limited time, Not preparing Poor communication from stakeholders and LG on completion of works	Treatments applied Positive feedback received on treatment supplied Risk ratings reduce
Life of the Plan	Chief Bushfire Control Officer (CBFCO), Bushfire Brigades, Brigade Captains	1 – 3 & 5	Confirm project and objectives Seek input into treatment plans and providing project updates Identify Risk and share information Availability of volunteers Planned works identified	Email Face to face meeting Telephone Presentations Community Engagement activities	Clarify misunderstandings and intentions of plan Confirm benefits-Preparation	Stay up to date with process improvements Availability of Volunteers

					Ensure current information on the BRM Plan Project is available	
Biannually or as required	Bushfire Advisory Committee (BFAC)	1 – 3 & 5	Confirm project and objectives Seek input into treatment plans and providing project updates Identify Risk and share information	Email Face to face meeting Telephone Presentations	Clarify misunderstandings and intentions of plan Confirm benefits- Preparation Ensure current information on the BRM Plan Project is available	Stay up to date with process improvements
As required	Stakeholders – Landowners / Land Managers	1 – 3 & 5	Confirm project and objectives Seek input into treatment plans and providing project updates Identify Risk and share information	Email Face to face meeting Telephone Presentations Community Engagement activities	Level of interests and engagement in process Time constraints	Feedback Highly engaged Treatments being completed Commitment to agreed controls
As required	Infrastructure Managers (ARC, Main Roads, Water Corp, DPLH, Electrical Suppliers and Telecommunication owners)	1 – 3 & 5	Confirm project and objectives Seek input into treatment plans and providing project updates Identify Risk and share information	Email Face to face meeting Telephone Presentations	Level of interests and engagement in process Time constraints	Feedback Highly engaged Treatments being completed Commitment to agreed controls
Annually or as required	Dept of Fire and Emergency Services (DFES) – District/Regional Office	1 – 3 & 5	UCL/UMR Management Status and progress of plan Treatment status, gaps and issues to be addressed Continuous improvement Information sharing Identification of other planned works Identification of funding opportunities	Email Face to face meeting Telephone	Time constraints Response obligations	Compliance requirements
As required	Traditional owners	1 – 3 & 5	Confirm project and objectives Seek input into treatment plans and providing project updates Identify Risk and share information	Email Face to face meeting Telephone	Level of interests and engagement in process Time constraints	Feedback Highly engaged Treatments being completed Commitment to agreed controls

As required	Office of Bushfire Risk Management	1 – 3 & 5	Notify OBRM that the 1 st year's treatment program is entered into BRMS	Email / Letter		Compliance Requirements
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14. Communications Plan – Implementation and Review of the BRM Plan

This Communications Plan outlines the key communication initiatives that will be undertaken during the implementation and review of the BRM Plan.

Timing of communication	Stakeholders	Communication Objective(s)	Communication Method	Key Message or Purpose	Responsibility	Identified Risks to Communication	Strategy to Manage Risks	Monitoring and Evaluation Method
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Implementation of the BRM Plan

Life of Plan	Shire of Quairading CEO, Senior Leadership Team and Council	All (1 – 5)	Email Face to face meetings	Inform and consult Confirm accountabilities and responsibilities. Progress update Issues identification and action planning	CEO or Delegate	Time constraints Availability Lack of understanding Budget (for LG mitigation)	Planning and time management Clear purpose Targeted communication Regular updates	Feedback, Questions raised Level of support received
Life of Plan	Shire of Quairading Building and Works	1 – 3 & 5	Email Face to face meetings	Reduction of fuel loads on LG managed land Upgrades to strategic firebreaks	CEO or Delegate	Poor organization, Limited time, Not preparing Poor communication from stakeholders and LG on completion of works	Clarify misunderstandings and intentions of plan Plan communications Regular updates	Treatments applied Positive feedback received on treatment supplied Risk ratings reduced
Biannually or as required	LEMC, BFAC, CBFCO, CAPTS	All (1 – 5)	Email Face to face meetings	Report on progress to plan Report issues/constraints	CEO or Delegate	Availability of volunteers Limited time Lack of understanding	Collate data and report on success to plan Compliance to plan Keep informed	Feedback received Level of engagement Issues identified and addressed
As Required	Dept of Biodiversity, Conservation and Attractions	1 – 3 & 5	Email Face to face meetings Telephone	Confirmation of environmental assets Development of treatment options	CEO or Delegate	Resource constraints could limit their ability to participate Willingness to release 'confidential' data re environmental assets	Clarify misunderstandings and intentions of plan Provide undertakings re the	Level of engagement Environmental assets in BRMS

							release of confidential data Restrict release of information and document in plan	
As Required	Stakeholders – Landowners / Land Managers and Traditional owners	1 – 3 & 5	Face to face Presentations Community Engagement	Inform and consult Confirm accountability and responsibility Status and progress of plan Treatment status Gaps and issues to be addressed	CEO or Delegate	Availability Time Loss of commitment Access to treatment resources Funding	Planned sharing of information Negotiations conducted Communicate funding opportunities when available	Feedback Commitment to implement agreed controls Highly engaged Treatments being completed
Annually or as required	DFES Regional Office	1-3	Face to face meetings Email Telephone	UCL/UMR Management Status and progress of plan Treatment status, gaps and issues to be addressed, Continuous improvement, Information sharing, Identification of other planned works, Identification of funding opportunities	CEO or Delegate	Time Conflicting priorities	Schedule communication opportunities	Planned works identified Improvements identified and implemented Issues addressed
Annually – ideally prior to fire season	Community	5	Newsletter Website Facebook	Continuous improvement	CEO or Delegate	Time Conflicting priorities	Plan communication	Feedback received

Review of the BRM Plan

Annually	Shire of Quairading CEO, Senior Leadership Team and Council	4, 5	Face to face meetings Email Telephone	Governance and compliance Review, monitoring and reporting to Council Status update Continuous improvement	CEO or Delegate	Poor reporting and recording of information	CESM & BRMO to record data and information appropriately	Feedback received Planned works completed Reporting & Statistics
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								Risk ratings reduced
5 Yearly (Shire, DFES and OBRM)	OBRM & LG Council	4, 5	Face to face meetings Email Telephone Written Report	Governance and compliance Review, monitoring and reporting Future planning	CEO or Delegate	Poor reporting and recording of information Review not completed by OBRM	CESM & BRMO to record data and information appropriately Endorsed by OBRM	Feedback received Planned works completed Reporting & Statistics Risk ratings reduced
Quarterly or as required	Shire of Quairading Building and Works	4, 5	Face to face meetings Email Telephone	Report on actions and status of BRM Plan Continuous improvement	CEO or Delegate	Time LG capacity Conflicting priorities	Plan communications Discuss with Shire Leadership Team	Feedback on work completed Risk ratings reduced Improvements identified and implemented
Biannually or as required	DFES Regional Office	4, 5	Face to face meetings	Report on actions and status of BRM Plan Continuous improvement UCL/UMR funding	CEO or Delegate	Time LG capacity Conflicting priorities	Plan communications	Feedback on work completed Risk ratings reduced Improvements identified and implemented
Annually	BFAC, LEMC, CBFCO, Captains	4, 5	Face to face meetings Email Telephone Presentations	Report on actions and status of BRM Plan Continuous improvement	CEO or Delegate	Time LG capacity Conflicting priorities	Keep informed	Feedback on work completed Risk ratings reduced Improvements identified and implemented
Every 2 years or as required	Stakeholders – Land Owners / Land Managers	4, 5	Face to face meetings Telephone Presentation Community	Status of treatments Success of treatments Continuous improvement	CEO or Delegate	LG capacity Time Conflicting priorities Access to resources	Plan communication Target communication Planned and prepared	Feedback on work completed Risk ratings reduced Improvements

			Engagement Survey					identified and implemented
Every 2 years or as required	Stakeholders – Other	4, 5	Face to face meetings Telephone Presentation Community Engagement Survey	Status of treatments Success of treatments Continuous improvement	CEO or Delegate	LG capacity Time Conflicting priorities Access to resources	Plan communication Target communication Planned and prepared	Feedback on work completed Risk ratings reduced Improvements identified and implemented

Appendix B

Bushfire Risk Management Planning – Local Government Wide Controls

Control	Action or activity description	Lead agency	Other stakeholder(s)	Notes and comments	
1	Shire of Quairading Firebreak Order and Fire Preparedness notice	Review annual Notice Publish annual notice Inspections in accordance with the annual notice	Shire of Quairading	DFES Landholder	Published annually
2	Shire of Quairading Prohibited and Restricted Burning Periods	Restricted and Prohibited burning time are set and permits are needed to burn during this time	Shire of Quairading	CBFCO and FCO’s	Published annually
3	Harvest and Vehicle Movement Ban	Bans are issued when the CBFCO and FCO identifies the use of engines, vehicles, plant or machinery as high bushfire risk activities, during particular times of the day.	Shire of Quairading	CBFCO and FCO’s	A Harvest and Vehicle Movement Ban are imposed for any period of time determined by the Issuer of the ban
4	Total Fire Ban	Restriction of activities that may cause or contribute to the spread of a bushfire	Department of Fire and Emergency Services	Shire of Quairading	A Total Fire Ban (TFB) is declared because of extreme weather conditions or when operational commitments are impacting on the state resource capacity. A TFB is declared by DFES following consultation with the LG.
5	Local Emergency Management Arrangements	Emergency Management Plan	Shire of Quairading	SJA, WAPOL, DFES, Dept of Communities, Dept of Education, CBFCO,	Annual review of emergency plans and arrangements.
6	Corporate Business Plan 2017-2021	As per documented actions	Shire of Quairading		As per section 3.1.1 of the Bushfire Risk Management Plan.

	Strategic Community Plan 2017 - 2027				
7	DBCA Fuel Reduction Program and Burn Plan	Fuel Reduction Programs on DBCA managed lands	Department Biodiversity Parks and Attractions	Shire of Quairading	
8	DFES UCL/UMR Program - Planning and Maintenance	Mitigation program on Unallocated Crown Land (UCL) and Unmanaged Reserves (UMR) within town boundaries	Department of Fire and Emergency Services	Shire of Quairading	Ongoing maintenance on UCL/UMR
9	Australian Rail Commission (ARC) Mitigation Program	Mitigation works in rail corridors	Australian Rail Commission	Shire of Quairading	Ongoing maintenance
10	Main Roads Vegetation Management Program	Mitigation Planning and works in road corridors and adjacent to MRWA infrastructure	Main Roads	Shire of Quairading	Ongoing maintenance
11	Western Power Vegetation Management Program	Mitigation Planning and works for power infrastructure and sites	Western Power	Shire of Quairading	Ongoing maintenance

Appendix C

Details

Matters of National Environmental Significance

Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Eucalypt Woodlands of the Western Australian Wheatbelt	Critically Endangered	Community likely to occur within area

Threatened Species [Resource Information]

Name	Status	Type of Presence
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BIRDS

Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
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Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Breeding likely to occur within area
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Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
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Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
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Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area
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Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
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MAMMALS

Bettongia penicillata ogilbyi Woylie [66844]	Endangered	Species or species habitat likely to occur within area
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Dasyurus geoffroyi Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area
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Petrogale lateralis lateralis Black-flanked Rock-wallaby, Moororong, Black-footed Rock Wallaby [66647]	Endangered	Species or species habitat known to occur within area
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Phascogale calura Red-tailed Phascogale, Red-tailed Wambenger, Kenngoor [316]	Vulnerable	Species or species habitat known to occur within area
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OTHER

Idiosoma nigrum Shield-backed Trapdoor Spider, Black Rugose Trapdoor Spider [66798]	Vulnerable	Species or species habitat known to occur within area
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PLANTS

Name	Status	Type of Presence
Acacia ataxiphylla subsp. magna Large-fruited Tammin Wattle [64823]	Endangered	Species or species habitat known to occur within area
Acacia cochlocarpa subsp. velutinos Velvety Spiral Pod Wattle [65112]	Critically Endangered	Species or species habitat may occur within area
Acacia lobulata Chiddarcooping Wattle [55567]	Endangered	Species or species habitat may occur within area
Acacia subflexuosa subsp. capillata Hairy-stemmed Zig-Zag Wattle [64828]	Endangered	Species or species habitat known to occur within area
Acacia volubilis Tangled Wattle, Tangle Wattle [6476]	Endangered	Species or species habitat known to occur within area
Allocasuarina fibrosa Woolly Sheoak [17455]	Vulnerable	Species or species habitat known to occur within area
Banksia cuneata Matchstick Banksia, Quairading Banksia [9827]	Endangered	Species or species habitat known to occur within area
Banksia oligantha Wagin Banksia [20697]	Endangered	Species or species habitat may occur within area
Boronia capitata subsp. capitata a shrub [29156]	Endangered	Species or species habitat likely to occur within area
Calectasia pignattiana Stilted Tinsel Lily [82018]	Vulnerable	Species or species habitat known to occur within area
Conospermum galeatum [68179]	Critically Endangered	Species or species habitat known to occur within area
Dasymalla axillaris Native Foxglove [38829]	Critically Endangered	Species or species habitat may occur within area
Daviesia euphorbioides Wongan Cactus [3477]	Endangered	Species or species habitat may occur within area
Eremophila glabra subsp. chlorella [84927]	Endangered	Species or species habitat known to occur within area
Eremophila viscida Varnish Bush [2394]	Endangered	Species or species habitat may occur within area
Gastrolobium diabolophyllum Bodallin Poison [78384]	Critically Endangered	Species or species habitat may occur within area
Gastrolobium hamulosum Hook-point Poison [9212]	Endangered	Species or species habitat may occur within area
Grevillea dryandroides subsp. hirsuta Hairy Phalanx Grevillea [64577]	Endangered	Species or species habitat likely to occur within area
Grevillea scapigera Corrigin Grevillea [12195]	Endangered	Species or species

Name	Status	Type of Presence
Guichenotia seorsiflora [82693]	Critically Endangered	habitat known to occur within area Species or species habitat may occur within area
Hakea aculeata Column Hakea [11191]	Vulnerable	Species or species habitat known to occur within area
Jacksonia quairading Quairading Jacksonia, Quairading Stinkwood [67417]	Endangered	Species or species habitat known to occur within area
Melaleuca sciostyla Wongan Melaleuca [24324]	Endangered	Species or species habitat known to occur within area
Roycea pycnophylloides Saltmat [21161]	Endangered	Species or species habitat known to occur within area
Stylidium coroniforme subsp. amblyphyllum [85017]	Endangered	Species or species habitat known to occur within area
Symonanthus bancroftii Bancrofts Symonanthus [12837]	Endangered	Species or species habitat known to occur within area
Thomasia glabripetala Sandplain Thomasia [56547]	Vulnerable	Species or species habitat likely to occur within area
Verticordia fimbrialepis subsp. fimbrialepis Shy Featherflower [24631]	Endangered	Species or species habitat likely to occur within area
Verticordia staminosa subsp. staminosa Wongan Featherflower [55825]	Endangered	Species or species habitat may occur within area

Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands [\[Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land -

Listed Marine Species [\[Resource Information \]](#)

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species

Name	Threatened	Type of Presence
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	habitat may occur within area Species or species habitat may occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Badjaling	WA
Badjaling North	WA
Badjaling West	WA
Bugin	WA
Dangin	WA
Dulbelling	WA
Gundaring	WA
Mooraning	WA
Mount Stirling	WA
NTWA Bushland covenant (0001A)	WA
NTWA Bushland covenant (0001B)	WA
NTWA Bushland covenant (0024)	WA
NTWA Bushland covenant (0025)	WA
NTWA Bushland covenant (0026)	WA
NTWA Bushland covenant (0051)	WA
NTWA Bushland covenant (0105)	WA
Pantapin	WA
Pikaring West	WA
Quairading Spring	WA
Unnamed WA11153	WA
Unnamed WA12333	WA
Unnamed WA13217	WA
Unnamed WA18155	WA
Unnamed WA18798	WA
Unnamed WA28319	WA
Unnamed WA30299	WA
Unnamed WA30427	WA
Unnamed WA46074	WA
Wamenusking	WA
Yenyening Lakes	WA