



Shire of Gnowangerup

# BUSHFIRE RISK MANAGEMENT PLAN

2022-2027

*Office of Bushfire Risk Management Bushfire Risk Management (BRM  
Plan) reviewed XX Month 20XX*

*Local Government Council BRM Plan endorsement XX Month 20XX*

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## Document Control

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## Document Endorsements

The Gnowangerup Council 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 Gnowangerup 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 Gnowangerup Council satisfies their endorsement obligations under State Hazard Plan Fire.

Local Government	Representative	Signature	Date
Gnowangerup	CEO		

Version	Date	Author	Section

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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 Gnowangerup 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 things of local value in The Shire of Gnowangerup. 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)

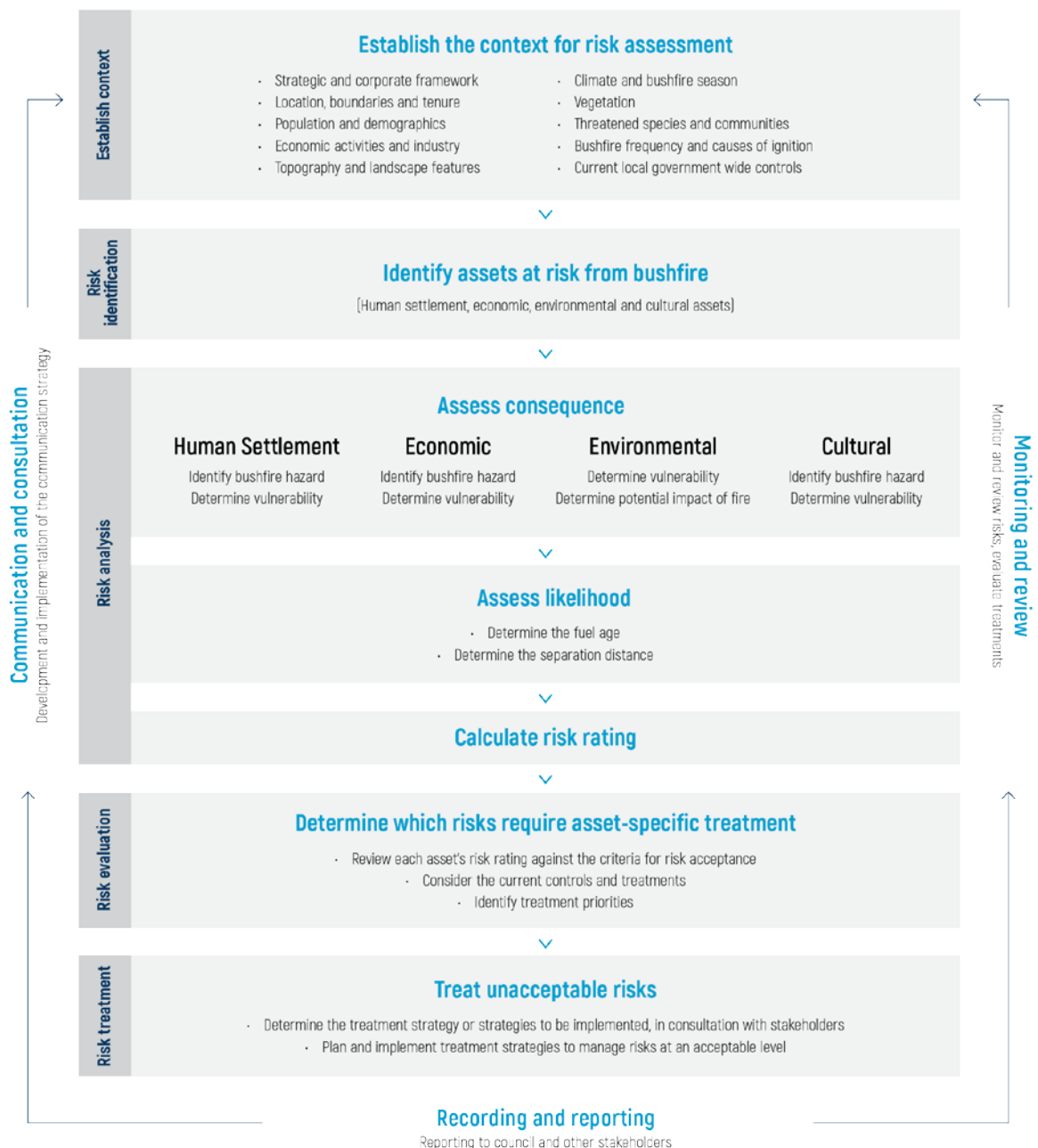
### **1.3.3 Shire of Gnowangerup References**

- Shire of Gnowangerup – Integrated Strategic Plan
- Shire of Gnowangerup - Corporate Business Plan 2017-2025
- Shire of Gnowangerup – Local Planning Strategy Review 2014
- Shire of Gnowangerup – Amelup Local Planning Strategy 2009
- Shire of Gnowangerup - Strategic Community Plan 2021-2031
- Shire of Gnowangerup – Roads Strategy 2017
- Shire of Gnowangerup – Bushfire Brigades Local Law
- Shire of Gnowangerup – Local Emergency Management Arrangements 2019-2024
- Western Australia Government Heritage Listed sites – Heritage Council

## 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 process<sup>1</sup>



<sup>1</sup> Adapted from: AS 3959:2009, 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
<b>Shire of Gnowangerup</b>	<ul style="list-style-type: none"> <li>● Custodian of the Bushfire Risk Management Plan (BRM Plan)</li> <li>● Coordinate the development and ongoing review of the integrated BRM Plan.</li> <li>● Negotiate a commitment from land owners to treat risks identified in the BRM Plan.</li> <li>● Undertake treatments on lands owned or managed by them.</li> <li>● Submit the draft BRM Plan to DFES’s Office of Bushfire Risk Management (OBRM) for review and endorsement.</li> <li>● Submission of the OBRM endorsed BRM Plan to council for their approval and adoption.</li> </ul>
<b>Department of Fire and Emergency Services</b>	<ul style="list-style-type: none"> <li>● Participate in and contribute to the development and implementation of BRM Plans.</li> <li>● Support to local government through expert knowledge and advice in relation to the identification, prevention and treatment of bushfire risk.</li> <li>● Facilitate local government engagement with state and federal government agencies in the local planning process.</li> <li>● Undertake treatments on Unmanaged Reserves and Unallocated Crown Land within gazetted town site boundaries.</li> <li>● In accordance with Memorandums of Understanding and other agreements, implement treatment strategies for other land owners.</li> <li>● Review BRM Plans for consistency with the Guidelines prior to final approval by council.</li> <li>● Administer and coordinate the Mitigation Activity Fund Grants Program.</li> </ul>
<b>Department of Biodiversity,</b>	<ul style="list-style-type: none"> <li>● Participate in and contribute to the development and implementation of BRM Plans.</li> </ul>



Stakeholder Name*	Roles and Responsibilities
<b>Conservation and Attractions</b>	<ul style="list-style-type: none"> <li>● Provide advice for the identification of environmental assets that are vulnerable to fire and planning appropriate treatment strategies for their protection.</li> <li>● 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.</li> </ul>
<b>Forest Products Commission</b>	<ul style="list-style-type: none"> <li>● Participate in and contribute to the development and implementation of BRM Plans.</li> <li>● Provide information about their assets and current risk treatment programs.</li> <li>● Undertake treatments on lands owned or managed by them.</li> </ul>
<b>Department of Planning, Lands and Heritage</b>	<ul style="list-style-type: none"> <li>● Provide advice for the identification of their assets and infrastructure, specifically Aboriginal and European heritage.</li> </ul>
<b>Other State and Federal Government Agencies and Public Utilities</b>	<ul style="list-style-type: none"> <li>● Provide information about their assets and current risk treatment programs.</li> <li>● Participate in and contribute to the development and implementation of BRM Plans.</li> <li>● Undertake treatments on lands they manage.</li> </ul>
<b>Corporations and Private Land Owners</b>	<ul style="list-style-type: none"> <li>● Provide information about their assets and current risk treatment programs.</li> </ul>
<b>Other</b> <b>Chief Bushfire Control Officer (CBFCO)</b> <b>Bushfire Advisory Committee (BFAC)</b> <b>District Operations Advisory Committee (DOAC)</b> <b>Local Emergency Management Committee (LEMC)</b> <b>Bushfire Brigades (BFB's) and other Emergency Services Volunteers</b> <b>Landcare Groups</b>	<ul style="list-style-type: none"> <li>● Participate in and contribute to the development and implementation of the BRM Plan and treatment schedule.</li> <li>● Provide advice for the identification of assets that are vulnerable to bushfire.</li> <li>● Provide advice on appropriate treatment strategies for asset protection.</li> </ul>

## **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

The Shire of Gnowangerup covers an area of 426,397Ha, is 354km from Perth and 140km from Albany in the centre of the Great Southern. The Shires population is 1215 with 753 (62%) living in the three gazetted town sites of Gnowangerup, Ongerup and Borden. The Shire's 324,132 hectares of farmland support a strong livestock industry and cropping enterprises in wheat, lupins, barley, canola, clover seed, peas, oats and faba beans.

Gnowangerup's southern boundary is in the Stirling Range National Park, a growing eco-tourism destination which draws an estimated 175,000 people each year, attracted by abundant wildflowers and the highest peaks in the southern half of Western Australia.

The traditional owners of the area are the Goreng Noongar peoples who lived on the plains in the area for thousands of years prior to the arrival of European settlers.

Gnowangerup is named as the place of the mallee fowl in the Aboriginal Noongar language, being derived from nearby Gnowangerup Creek and Spring, both names being first recorded in 1878. The name means "place where the mallee hen (Gnow) nests".

The town was first gazetted in 1908 under the spelling of Ngowangerupp. Local dissatisfaction with this spelling led to it being altered to Gnowangerup in 1913.

### 3.1. Description of the Local Government and Community Context

#### 3.1.1 Strategic and Corporate Framework

The Shire of Gnowangerup Integrated Strategic Plan incorporates the Corporate Business Plan (2021-2025) and the Strategic Community Plan (2021-2031) into one document outlines the Shire's commitment to community safety, risk management and effective management of the environment and natural resources.

The Integrated Strategic Plan is built around 5 objectives these are Our Community, Our Economy, Our Infrastructure, Our Natural Environment and Our Organisation. The following section looks at how the BRM Plan will support the objectives of the Strategic Plan:

#### 1 Our Community

##### *1.5 Support emergency services planning, risk mitigation, response and recovery*

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 Our Economy**

### *2.1. Support businesses and business growth across the Shire*

The Shire's economy is largely driven by agricultural business which are high susceptible to impacts from fires or flow on impact of loss due to fire, the BRMP will help to identify assets vital to the local, regional or state economy are identified and where appropriate, suitable risk treatments implemented for their protection.

## **3 Our Infrastructure**

### *3.2. We prepare and maintain our assets for current and future community use*

In the context of the BRM Plan, the Shire 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 centers. 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.

## **4 Our Natural Environment**

### *4.2. Conservation of our natural environment*

In the context of this BRM Plan, the Shire understand that there is complex relationship between fire and the environment. Fire may benefit some environments or cause damage to other as well as being impacted by treatments used to protect other assets. The Shire will work with other agency and community to identify environmental assets that need specific consideration and minimizes negative impacts upon the environment for all treatments.

## **5 Our Organisation**

### *5.3. Forward planning and implementation of relevant plans to achieve strategic priorities*

In the context of the BRM Plan, the Shire 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 landowners can be engaged in treatment planning and encouraged to implement their own mitigation programs to reduce risk.

Function	Roles
<b>Shire of Gnowangerup Executive Management Team</b>	<ul style="list-style-type: none"> <li>• Oversight of the implementation, monitoring and review of the Bushfire Risk Management Plan</li> <li>• Sourcing and approving funding and expenditure</li> <li>• Monitoring the implementation of agreed treatments</li> <li>• Liaison with key stakeholders</li> <li>• Participation on Local Emergency Management Committee (LEMC)</li> <li>• Management of the release of BRMS Plan and BRMS data</li> </ul>
<b>Community Emergency Service Manager (CESM)</b>	<ul style="list-style-type: none"> <li>▪ Performs work on Shire managed or owned land or as directed by the Shire</li> <li>▪ Develops practices for fire management on Shire land</li> <li>▪ In consultation, plans the Shire’s annual schedule of works</li> <li>▪ Builds knowledge and understanding of fire management practices within the community</li> <li>▪ Supports bushfire meetings and committees, including the Bushfire Advisory Committee (BFAC)</li> <li>▪ Oversee the Shire’s burning programs and coordinates support from local brigades</li> <li>▪ Negotiates with stakeholders</li> <li>▪ Applies for Mitigation Activity Funding (MAF)</li> <li>▪ Coordinates and manages MAF</li> </ul>
<b>Works Department</b>	<ul style="list-style-type: none"> <li>▪ Contributes to treatment planning</li> <li>▪ Undertake planned works where possible</li> </ul>
<b>Town Planning</b>	<ul style="list-style-type: none"> <li>▪ Ensure adherence to building codes and planning scheme, including application of SPP 3.7</li> <li>▪ Ensure scheme reflects actions to mitigate bushfire risk</li> <li>▪ Reviews the Shire’s Bushfire Prone Area mapping</li> </ul>
<b>Finance</b>	<ul style="list-style-type: none"> <li>▪ Providing advice, supporting administration of funding</li> </ul>

The Shire’s Local Emergency Management Committee (LEMC) and Bushfire Advisory Committee (BFAC) are identified as key stakeholders in the development, implementation and review of the BRM Plan. Their input and advice are critical to the bushfire risk management process and will provide an important forum for consultation, joint-agency partnerships and the resolution of local issues affecting bushfire risk management.

The BRM Plan will assist by improving the community’s awareness of bushfire risk and treatment activities planned in their area. Identification of treatment priorities will support the Shire’s forward planning and budgeting for treatment activities within the BRM Plan area.

The Shire has a scheduled annual works program and proactively addresses risks identified on Shire managed land, within their budgetary constraints. The Shire has identified a number

of priority areas that need to be considered in BRM planning, both in the context of this BRM Plan and beyond. These include:

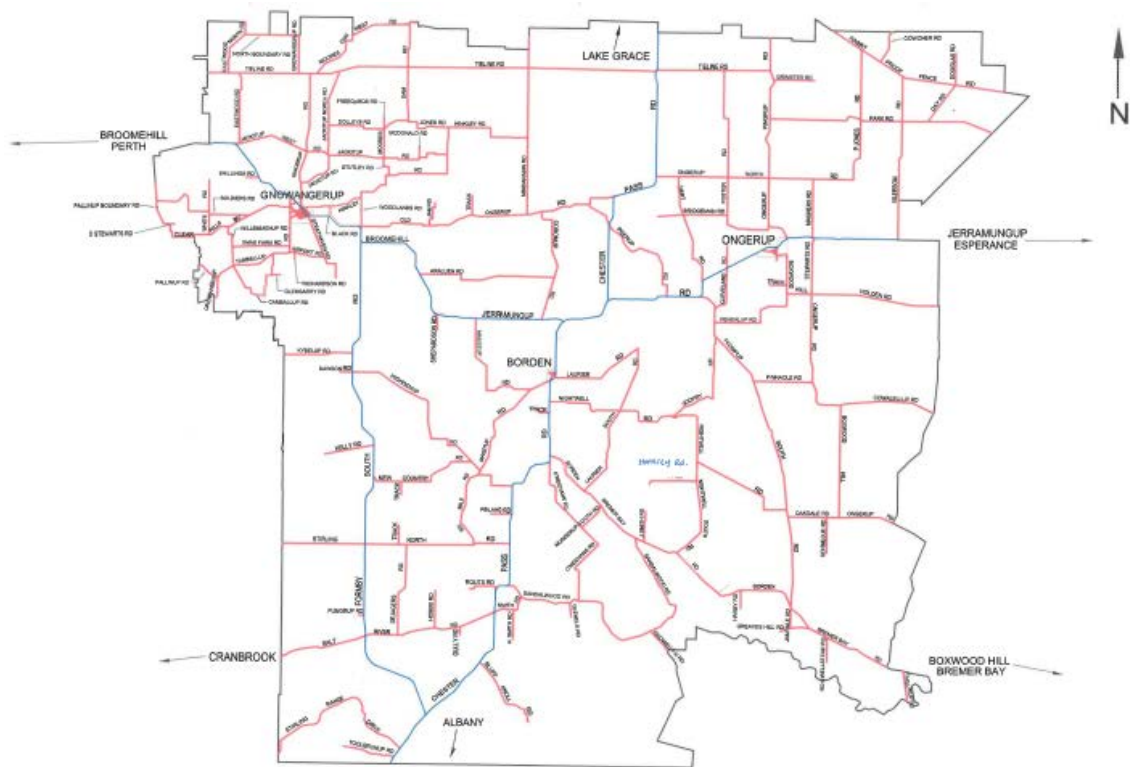
- Limitations of water access for bushfire response and mitigation activities.
- Bridges – these have been identified as a significant risk due to the replacement cost and the potential economic impact if transport routes are interrupted for extended periods. The bridges in the Shire are predominantly timber construction.
- Management of reserves around the town boundary
- Management of Unallocated Crown Land (UCL) and Unmanaged Reserves (UMR) both within and outside town boundaries in conjunction with DFES and DBCA.
- Vegetation in and around critical infrastructure, such as communications towers, power network infrastructure, water pipelines, water and waste water pumping stations and the railway.
- Uncontrolled plantations/oil mallees

These priority areas have been identified from matters raised through corporate governance processes such as Council, the Local Emergency Management Committee, the Bushfire Advisory Committee and via local knowledge.

### **3.1.2 Location, Boundaries and Tenure**

The Shire of Gnowangerup covers an area of 4268km<sup>2</sup> located in the Great southern region of Western Australia, from the Stirling Range and the City of Albany in the south through to the Shire of Kent in the north. The Shire's eastern and western edges are bounded by the Shire of Jerramungup and the Shires of Cranbrook and Broomehill/Tambellup. Gnowangerup is located 365 km south east of Perth via the Albany Highway and Tambellup West Road

The Shire of Gnowangerup consists of three towns Gnowangerup (gazetted in 1908), Ongerup (1912) and Borden (1916). The administration centre for the Shire is in Gnowangerup townsite



Source: <https://www.gnowangerup.wa.gov.au/documents/66/shire-of-gnowangerup-district-map>

Listed in Table 2 is an overview of the land tenure and managers of the Shire of Gnowangerup. The area of privately owned land is 85.7%, with 76% of the Shire of Gnowangerup (or about 324,132Ha) used for agricultural production<sup>1</sup>.

The private land holdings are predominantly larger parcel single farms 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 regards 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

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<sup>1</sup> Department of Primary Industry and Regional Development

**Table 2 – Overview of Land Tenure and Management within the Gnowangerup**

<b>Land Manager/Agency</b>	<b>Percent of Local Government Area</b>
<b>Local Government</b>	4.6%
<b>Private</b>	85.7%
<b>Department of Biodiversity, Conservation and Attractions</b>	9.3%
<b>Department of Planning, Lands and Heritage</b>	0.4%
<b>Total</b>	100%

Source: BMRS



### **3.1.3 Population and Demographics**

The population within the Shire of Gnowangerup has slowly decreased according to Census data from 1499 in 2001, 1363 in 2006, 1271 in 2011 and down to 1215 in 2016 this is a decrease of 284 people within the Shire over the period of 15 years. The forecast growth for the Shire is uncertain and this reflects the historic decrease of the population within the region.

The age distribution within the Shire differs to that of the Australian averages. The age groups from 0-14 years are above the Australian average, 20.2% Gnowangerup to Australia 18.7%. There is also a higher than average population distribution across the 60 to 80 age groups, 19.9% Gnowangerup to 17.3% Australia.

People in the age groups of 0 to 14 and 60 to 80 form 40.1% of the Shire's population. The young and elderly people are considered a vulnerable demographic in bushfire management. The elderly 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. The young are reliant on others during emergency situation and due to lack of knowledge and experience may put themselves in vulnerable situation. Because of this, there is need for increased planning for these groups 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 these groups during pre-fire season preparation, as well as during bushfire events.

Gnowangerup has historically had a 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 maybe 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, they also often lack means for independent travel (eg owning vehicles etc), combined which can make them vulnerable. 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 Gnowangerup. 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. Significant loss of crops has downstream impacts in the Shire with impacts on employment and services offered by other businesses.

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 had an effect on two factors:

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

Table 3: Employment by industry for Gnowangerup (2016 Census)

Agriculture, Forestry and Fishing	283
Mining	0
Manufacturing	22
Electricity, Gas, Water and Waste Services	0
Construction	37
Wholesale Trade	41
Retail Trade	35
Accommodation and Food Services	13
Transport, Postal and Warehousing	20
Information Media and Telecommunications	0
Financial and Insurance Services	3
Rental, Hiring and Real Estate Services	0
Professional, Scientific and Technical Services	7
Administrative and Support Services	14
Public Administration and Safety	21
Education and Training	49
Health Care and Social Assistance	40
Arts and Recreation Services	0
Other Services	14
Inadequately described/Not stated	36
<b>Total</b>	<b>643</b>

Source: ABS Census 2016

Tourism has seen a spike in the last few years with an increase in numbers visiting the Shire. It is estimated that during the period of 2019 to 2020 114,000 people visited the Stirling Ranges and in 2020 to 2021 143,000 visited. During the period following the December 2019 fires parts of the Stirling Ranges were closed for repairs for up to 4 months. This led to an economic loss within the Shire due to the lack of tourists and visitors to the area. The other area of concern with tourism is during a bushfire itself, there could be an increased number of people within the Shire needing support and they may have a limited knowledge of where or what to do.

The airstrip is regionally important and heavily relied upon during the fire season. During the Stirling Range fires and Katanning fires that occurred during the summer of 2020, fire trucks had to access water from the scheme and Gnowangerup town dam, which prolonged their turn around and response to the fires. These water improvements will help to address this issue in future.

## **3.2. Description of the Environment and Bushfire Context**

### **3.2.1 Topography and Landscape Features**

The Shire encompasses a variety of landscapes ranging from sandplains in the north through river basins (Pallinup, Gnowangerup, Wapenup, Peenebup and Salt), south to the northern slopes of the Stirling Range. As a result, the Shire has access to all regionally significant landscapes available within the Great Southern with the exception of those associated with the coast.

Granitic and gneissic rocks of the southern Yilgarn Craton underlie the farming area that comprises most of the Shire. These rocks are of Archean age (2500-3000Ma). Similar gneissic rocks in adjacent Shires locally contain northwest trending enclaves of metamorphosed mafic and ultramafic rocks and associated metasedimentary rocks known as “greenstones”. Such rocks have the potential to contain deposits of gold and nickel.

An east/west-trending series of dolerite dykes has intruded these Archean rocks at about the time of the Albany-Fraser Orogen (1100-1200Ma). This event caused intensive deformation and metamorphism of Archean- and Proterozoic-aged rocks located along the southern margin of the Yilgarn Craton.

Sandstones, quartzites, conglomerates, slates and schists outcrop in the Stirling Range, in the southern part of the Shire. These weakly metamorphosed sedimentary rocks were deposited on the southern margin of the Yilgarn Craton between 2500-1100Ma and thrust northwards onto the Craton during the development of the Albany-Fraser Orogen.

The granitic and gneissic rocks that underlie much of the Shire were subject to intense weathering over a period of at least 50 million years extending from the late Mesozoic to the early Cainozoic era (80-30Ma) resulting in the formation of iron-rich duricrust and kaolin-rich clay zones.

Erosion of this weathered material has occurred intermittently throughout the Cainozoic (since 65Ma) leading to the formation of laterite gravel; extensive sandplains; colluvial and alluvial deposits of sand, clay and gravel, and brown coal (lignite), gypsum and saline clays in lakes and drainages.

Kaolin has been reported from a location 2km south of Gnowangerup Township, at Kent Location 1083, 25km north-northeast of Ongerup and at Plantagenet Location 2634 near the Pallinup River on the southern Shire boundary. Lakes in the northeastern and southwestern Shire areas are prospective for gypsum.

The main areas of laterite gravel are located southwest of the Pallinup River in the eastern and southwestern parts of the Shire; north and east of Borden in the central Shire; 20-30km south of Ongerup in the southeastern Shire and 15-25km northwest of Ongerup in the northern Shire.

A major landscape feature on the south boundary of the Shire is the national heritage listed Stirling Range National Park. The total area of the national park is 115,920 hectares with approximately one third of the national park located within the Shire of Gnowangerup. The elevation range of the national park peaks at 1,095m AHD at Bluff Knoll, down to 240m AHD on the north side of the national park adjoining the agricultural land in the Shire.

Topography can significantly influence bushfire behavior in several ways, impeding access for suppression resources and limiting suitable options for mitigation, increases the rate of spread due to the steep slope and the spotting of fire from the ridges and the local weather maybe

unpredictable due to the effects on wind movement through and around these peaks. The impact of topography is mainly on the southern boundary of the Shire, due to the Stirling Range which can restrict and, in some cases, prevent access by fire appliances. In these areas where the rocky formations prevent ground based firefighting, direct attack of a fire is limited to aerial response or waiting until the fire reaches an area of suitable topography for ground crews to access. This may greatly increase the time taken for fire to be suppressed, which can allow fires to grow, resulting in larger, more destructive fires often with higher intensities and rates of spread. While these land formations can present challenges when installing firebreaks, the issue highlights the need for fuels to be broken up across the landscape using a range of suitable and sustainable strategies that provide low fuel buffers and firebreaks for use in fire suppression and mitigation.

### **3.0.1 Water and Hydrology**

Water is a major limiting factor in the Shire. The water supply traditionally has been almost solely reliant on the Great Southern water supply scheme.

This issue was highlighted in the 2019 Stirling range fire, this fire occurred after a period of prolonged drought hence saw the traditional supply from farm & town dams inadequate to meet the demands of fire crews. This led to the successful application to the state government to partner with the Shire of Gnowangerup to fund the construction of a new 32,500 KL dam.

The project involved the construction of a new dam with a connection to an existing tank also established, and with the construction of two new 250 kilolitre capacity tanks. The increased storage and improvements will optimise the capture of water from the airstrip and provide a reliable water supply for firefighters and bomber planes to access.

There was an existing 10,000 kilolitre dam that captured water off the runway and surrounding reserve, however, this was inaccessible and regularly overflowed. Connection between the two dams will now increase total capacity to 42,500 kilolitres.

The project aimed to optimise the capturing of water in the area by connecting five neighbouring dams along the airstrip and the local pistol club to the new dam to bring the total capacity up to 42,500kl.

This will act as a non-potable water source for farmers to improve water security in the region and will become a vital asset to firefighters during the bushfire months.

The connection of this water supply to other dams will also allow the Shire to transfer water from one dam to another to optimise non-potable water storage for the community to access.

The Pallinup River is very saline and there are no natural potable surface water resources that have been identified in the Shire. All the streams in the Shire are likely to be very brackish to saline with no prospect of development until restored through a process of partial catchment reforestation and rehabilitation of riparian zones.

Borden has two earth dams with roaded and bitumen catchments jointly supplying 15 mega litres annually. Gnowangerup has 2 dams with bitumen catchments, both supplying 38-mega litres annually. Water from these schemes is fully allocated.

The Ongerup water supply is based on a surface catchment (lakes and dams) and storage system. The current capacity of the system is limited and cannot accommodate any large increase in water demand.

Roof top water collection is the main source of water for homesteads away from the townships.

The waterways in the Shire can present challenges for access and crossing. Fires often spot across the watercourses, where firefighters cannot easily cross and may have to travel some distance to be able to get to the other side. This can often result in a significant delay in firefighting response allowing fires to be able to grow quickly.

### 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 Gnowangerup is classed as Temperate with distinctly dry (and warm) summer as shown in Figure 3 the weather pattern for Gnowangerup is to have winter temperatures averaging 15.7°C max and receive an average rainfall 142.4mm of this period, the summer months are dry and hot with an average rainfall of 18.6mm per month and average maximum temperatures of 28.2°C. 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

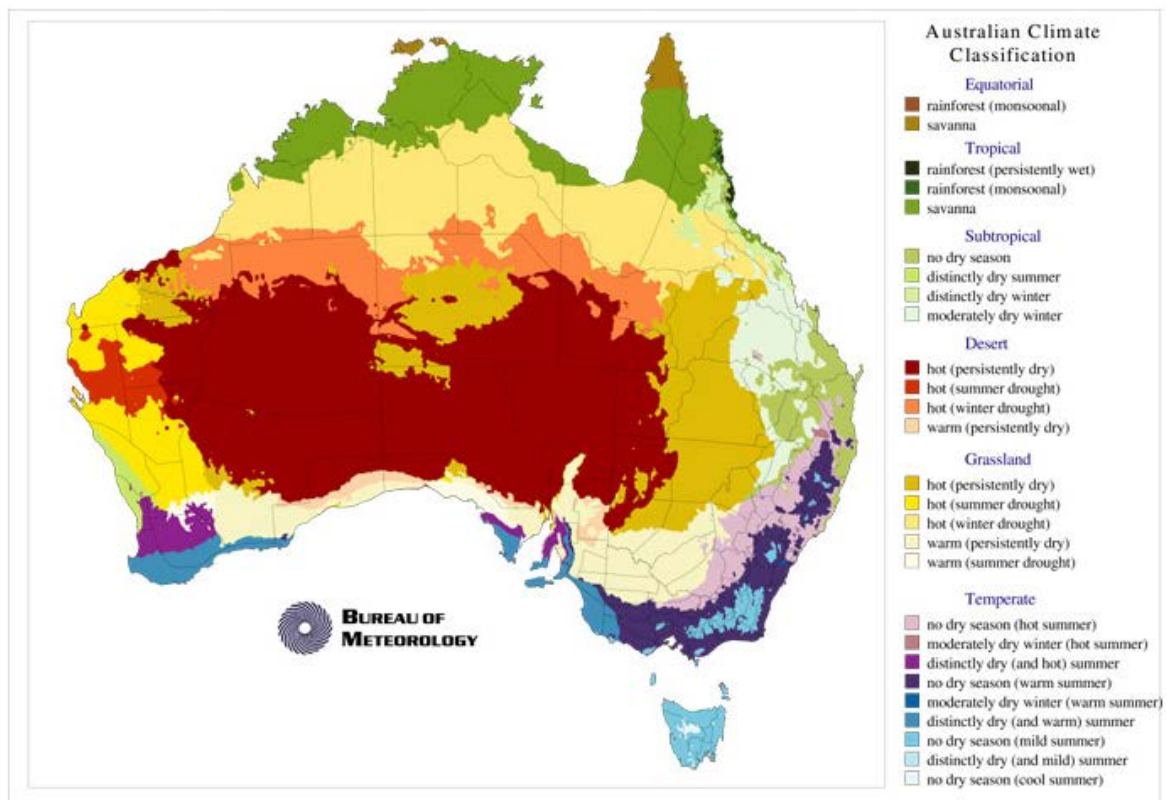


Figure 3 - Climate Zones of Australia Bureau of Meteorology

Figure 4 shows the average wind directions in Gnowangerup over a 5 year period (from the 1<sup>st</sup> of January 2016 to the 1<sup>st</sup> of December 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 1<sup>st</sup> November to 31<sup>st</sup> March on a yearly basis for the years 2017 to 2021 in Figures 5 to 8. The average wind speed at 3pm from 1960 to 2010 on a monthly basis at Ongerup data is shown in Figure 9.

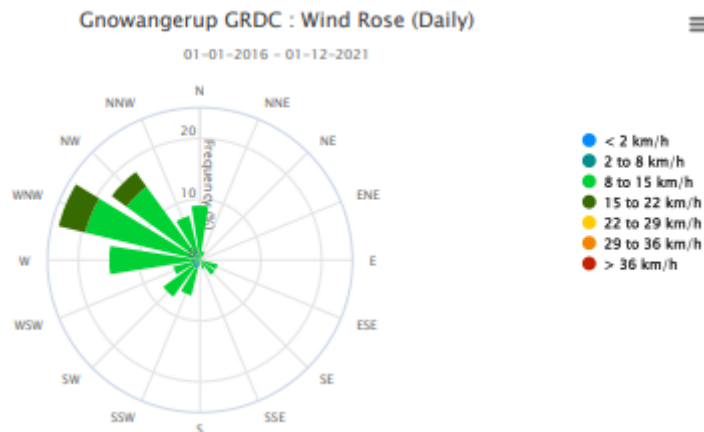


Figure 4 - Average wind direction 5 years<sup>2</sup>

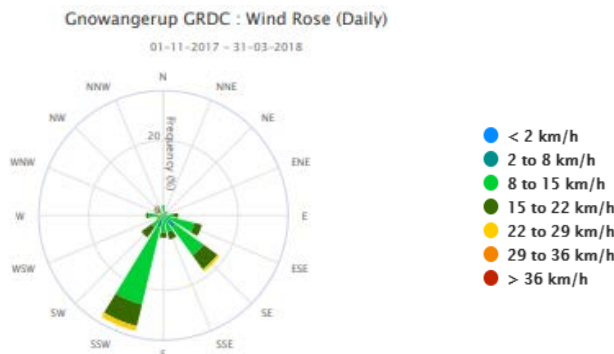


Figure 5 – Wind direction<sup>2</sup>

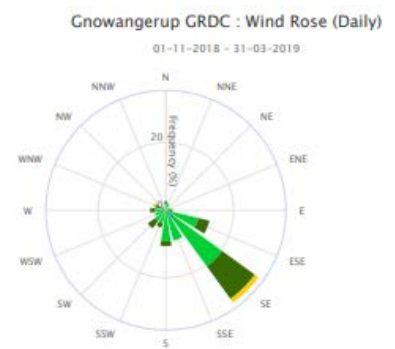


Figure 6 – Wind direction<sup>2</sup>

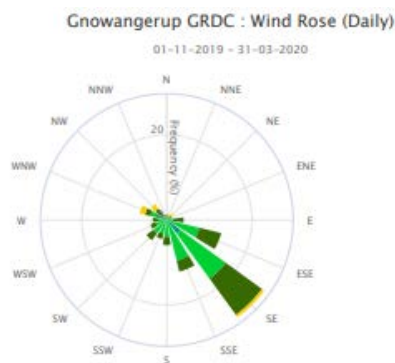


Figure 7 – Wind direction<sup>2</sup>

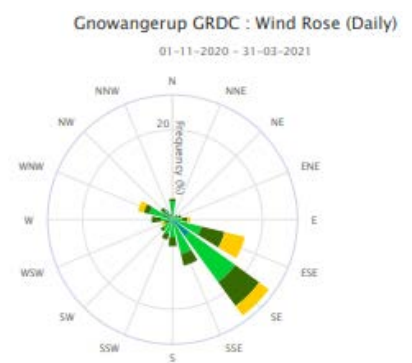


Figure 8 – Wind direction<sup>2</sup>

<sup>2</sup>Department of Primary Industries and Regional Development Weather Station

Figure 9 – Wind Speed Average 1957 to 2010<sup>3</sup>

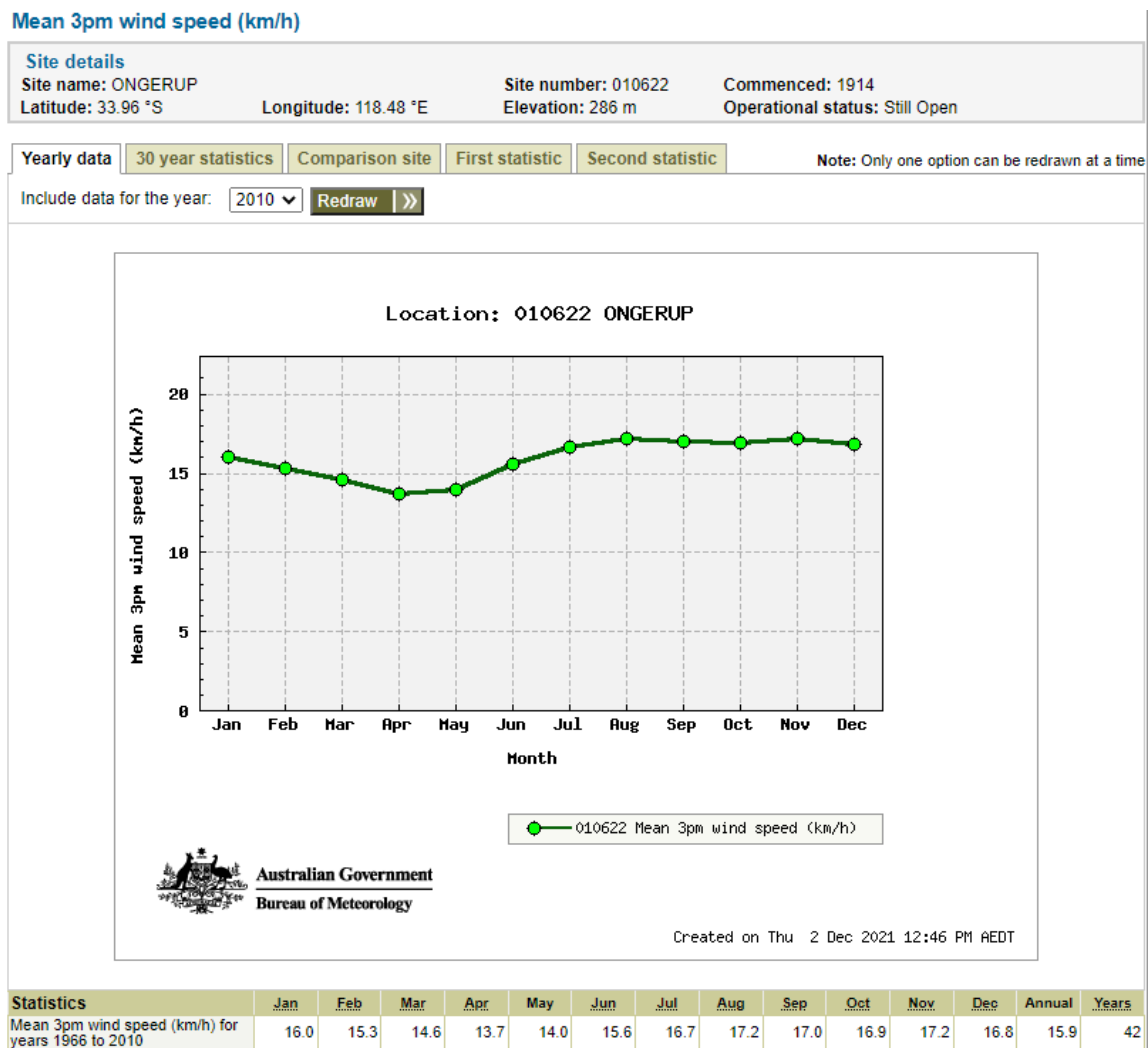


Figure 9 – Wind Speed Average 1966 to 2010<sup>3</sup>

The yearly average rainfall for the Shire varies from 360mm in the north east to almost 500mm in the south west. The months of May to August are the wettest months with an average total rainfall of 185mm for the 4 months. The months of March, April, September and October are the next wettest with an average total rainfall of 121mm for this period. The months from November to February are generally the driest months and have an average total rainfall of 81mm. Figure 10 shows the monthly average rainfall at Ongerup with historical data from 1914 to 2021.

<sup>3</sup> Bureau of Meteorology



## Mean rainfall (mm)

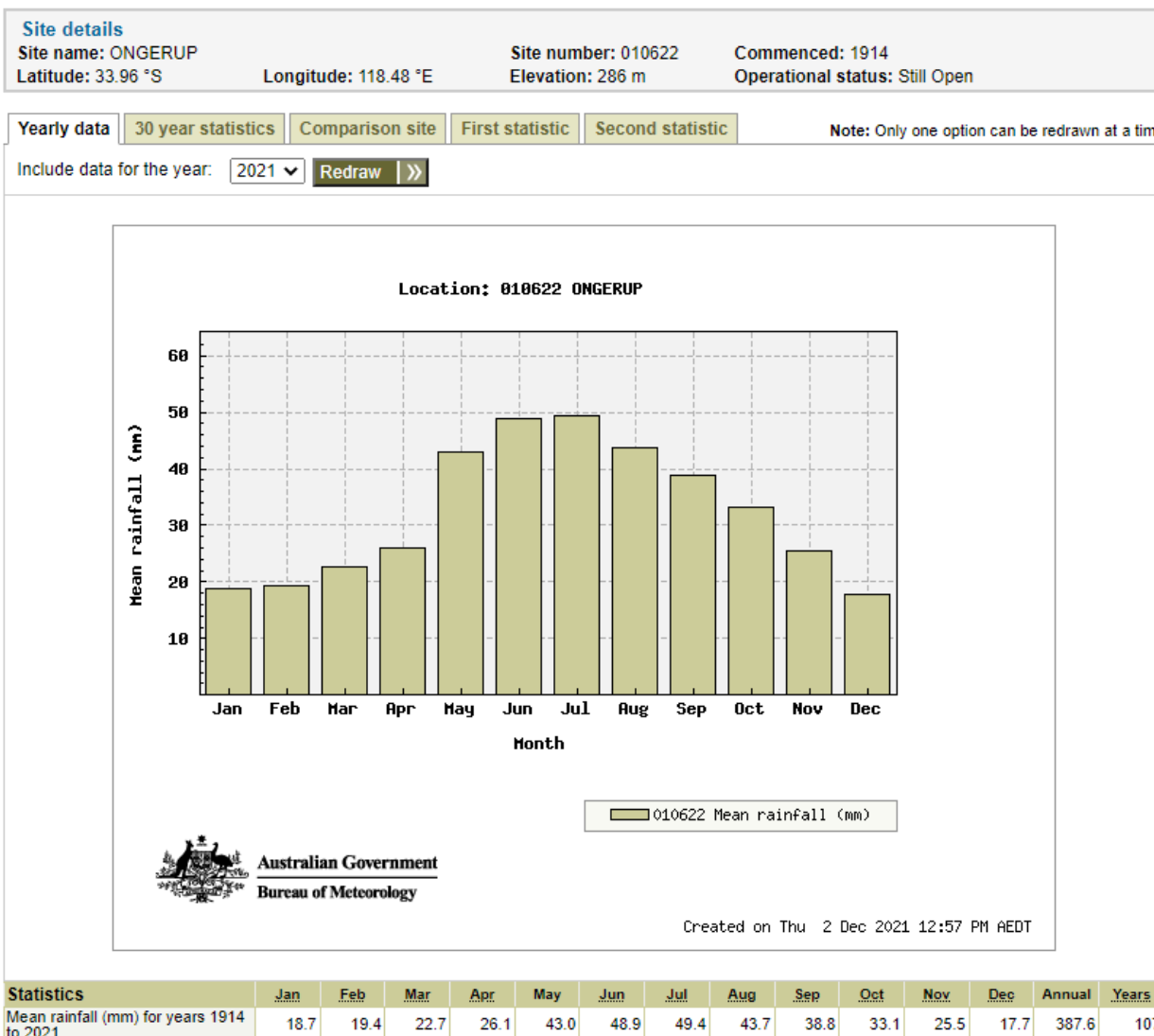


Figure 10 – Monthly Average Rainfall<sup>3</sup>

On average the Shire of Gnowangerup has had a yearly maximum temperature of 22°C and minimum temperature of 9.7°C. The months for June to August are the coldest with the average maximum temperature of 15.7°C and the average minimum temperature of 6.1°C. The months of April, May, September and October have an average maximum temperature 20.3°C and the average minimum temperature of 8.5°C. The hottest months are November to March with the average temperature of 27.2°C and the average minimum temperature of 12.7°C. Figure 11 shows the average maximum temperature from 1966 to 1990 and the average maximum temperature from 1991 to 2012, showing there is a slight increase in temperature for the last 30 years.

<sup>3</sup> Bureau of Meteorology

## Mean maximum temperature (°C)

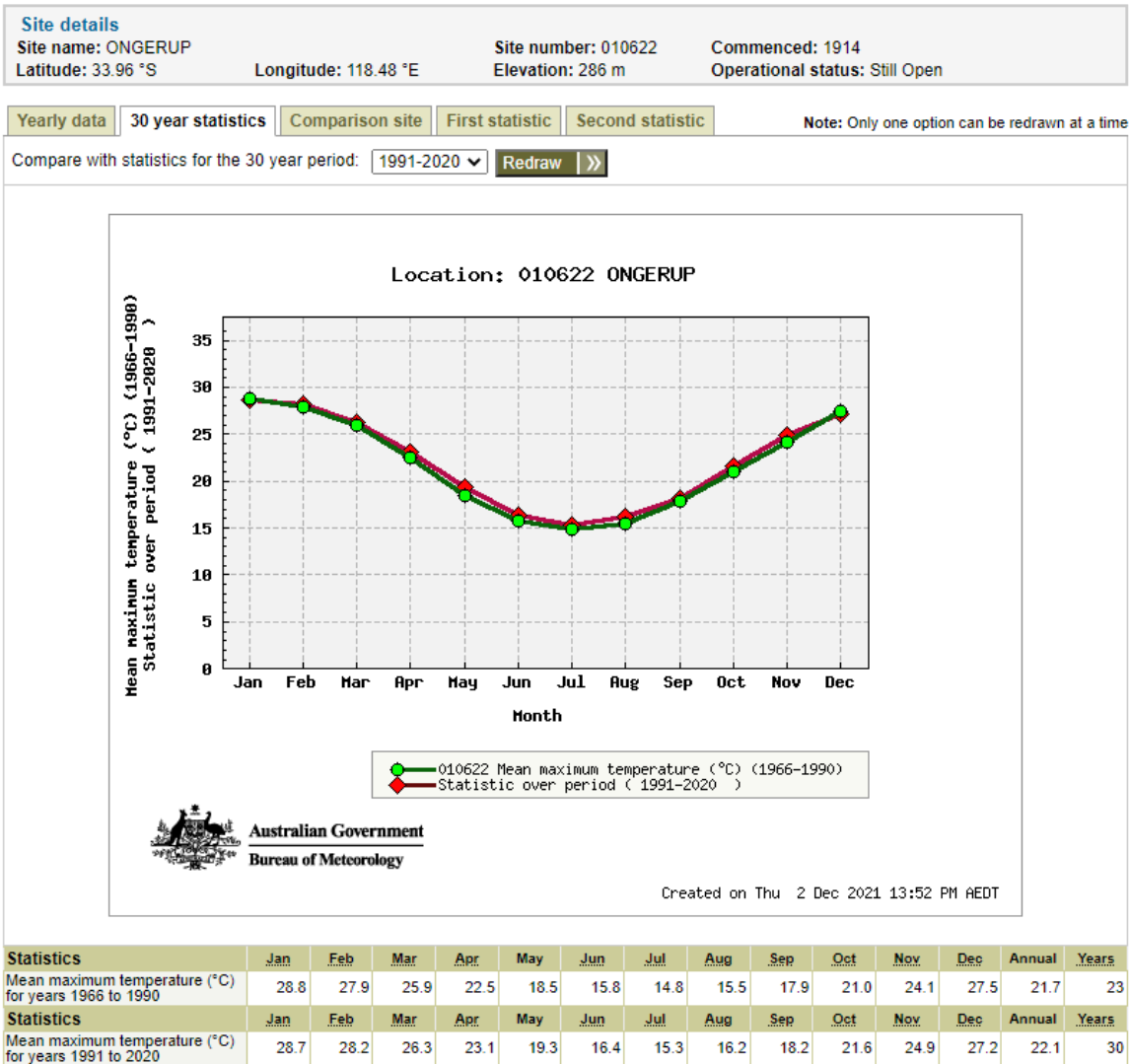


Figure 11 – Average Temperature<sup>3</sup>

Weather patterns in the Shire of Gnowangerup show that the months between 1<sup>st</sup> of November to the 31<sup>st</sup> of March are the bushfire season within the Shire. During these month there is high temperature, low rainfall and an average wind speed at 3pm of 16km/hr. During these months it is not uncommon to have days of increased fire weather.

The Shire of Gnowangerup is located within the Stirling Inland Fire Weather District. Given the prevalence of agricultural holdings within the Shire of Gnowangerup, 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 Figure 12, 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 Stirling Inland Fire Weather District was recorded as having had 1 Catastrophic, 3 Extreme, 15 Severe and 52 Very High fire danger days.

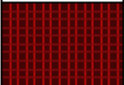





FIRE DANGER RATING		FIRE DANGER INDEX	EXPECTED FIRE BEHAVIOUR
COLOUR CODING	LEVEL		
	<b>Catastrophic</b>	100+	Fires will be unpredictable, uncontrollable and fast moving, even homes built to the highest standard cannot be safely defended
	<b>Extreme</b>	75-99	Fires will be unpredictable and fast moving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

Figure 12 – Fire Danger Ratings

### 3.2.3 Vegetation

The Shire of Gnowangerup is located within 2 Interim Biogeographic Regionalisation of Australia (IBRA) regions, these are the Esperance 1 and the Mallee 2. The Shire has been vastly cleared for use as agricultural land and the remnant vegetation is highly fragmented. Despite this, there are sizable patches of remnant vegetation including the Stirling Ranges National Park that fall in the Esperance 1 IBRA region that could be adversely affected by fire.

The Stirling Range National Park is a major ecological resource for the Shire and needs to be protected. The Stirling Range system has a diverse range of plant communities including Thickets, Mallee Heath, Low Woodlands (which are predominantly Jarrah Mallee Woodlands) and Woodlands with Jarrah, Mallee, Wandoo, Yate and Flooded Gum. These areas have a range of different fire behaviours and ecological fire responses and create a complex landscape for bushfire management.

Mallee heaths and thickets are very flammable and fire behaviour can be severe. The spread fires in this type of vegetation is largely dependent on the amount and spatial continuity of

the surface and near surface fuels.<sup>4</sup> Fires in Mallee heaths are strongly wind driven and while in mild conditions may not move fast in strong winds will be very hard to suppress.

Woodlands are heterogeneous in structure and composition, meaning that fire behaviour in them is variable. In general, however, mature woodlands have limited near surface and elevated fuels which means they are less likely to carry fires than mallee and shrubland types in more mild conditions. They also exhibit less intense fire behaviour but they are slower to recover following fire when they do occur. However, crown fire is not uncommon under very high or extreme fire danger conditions of low RH, high temperatures and strong winds.<sup>7</sup>

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. The areas used for agriculture are normally gently undulating and easily accessible for firefighting efforts, however in elevated fire weather conditions grass fires are still fast moving and challenging to suppress, damaging and dangerous.

### **3.2.4 Threatened Species and Communities**

The Montane thicket community occurs in the high peaks of the eastern Stirling Ranges. It is commonly found at altitudes of approximately 900 to 1090 m above sea level, but extends to lower altitudes in two occurrences. It comprises a heathland and dense shrub thicket with a number of endemic species. Several endemic and characteristic species within the community and the near absence of Eucalyptus species differentiate it from other vegetation in the range. Thirteen species of threatened flora are known in the community: *Andersonia axilliflora*, *Banksia brownii*, *Banksia montana*, *Darwinia collina*, *Darwinia nubigena*, *Darwinia squarrosa*, *Daviesia obovata*, *Deyeuxia drummondii*, *Lambertia fairallii*, *Latrobea colophona*, *Leucopogon gnaphalioides*, *Persoonia micranthera* and *Sphenotoma drummondii*. Twenty-one priority flora taxa also occur in the community. *Andersonia axilliflora* is a characteristic endemic species of the community. Five threatened fauna occur within the community: *Setonix brachyurus* (quokka), *Pseudococcus markharveyi* (*Banksia montana* mealybug), *Trioza barrettae* (*Banksia brownii* plant-louse), *Zephyrarchaea robinsi* (eastern massif assassin spider), *Atelomastix tumula* (Bluff Knoll atelomastix millipede) and a priority land snail *Bothriembryon glauerti* (priority 2). During the fire started on boxing day 2019 by lightening half of this TEC was affected by fire. Due to the altitude and species of flora it is understood that it could take up to 10 to 15 years before some of these plants will reach maturity and produce seeds, due to this fire management is the key to the survival of this

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<sup>4</sup> *Great Western Woodlands Fire Management Plan March 2012*

community. A full list of protected, threatened, and endangered species is provide in Appendix C.

**Malleefowl** – Pairs of Malleefowl occupy a permanent territory and require tall unburnt Mallee, low woodland or Acacia scrub situated on sandy soil with a fairly complete canopy and abundant litter for nest mound formation. Fox predation is a major threat to Malleefowl where there is insufficient vegetation cover and protection. This is exacerbated by inappropriate fire regimes, particularly large scale homogenous fires which can cause local extinctions. It may take 15 years before habitat is suitable to breed after extensive fires due to a shortage of litter material for nesting or greater exposure to predators.<sup>5</sup> Small burns and a mosaic of management is best for this species as it helps to avoid the wide scale habitat loss in a single fire event.

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.

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<sup>5</sup> *Fire and Biodiversity Guidelines for the Avon Basin*

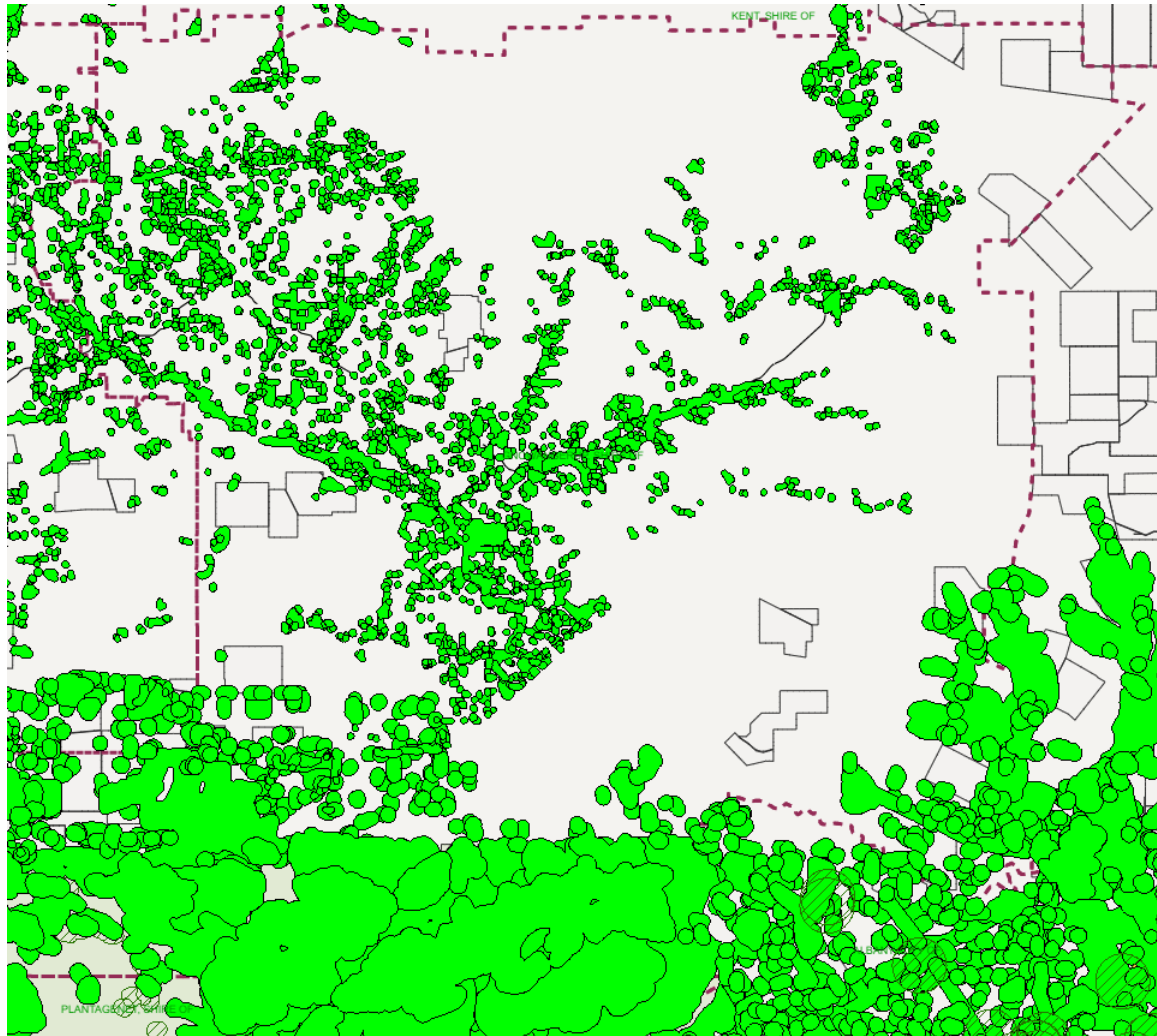


Figure 13 Map reflecting the locations of Threatened Ecological Communities (DFES Bushfire Risk Management System)

### 3.2.5 Bushfire Frequency and Causes of Ignition

There have been 92 bushfires reported to DFES in the last 10 years from 2011 to 2021. The main causes of fires starting in the Shire are due to dry lightning (21) and vehicles – including agricultural processes (18), the breakdown of fire ignition sources are show in figure 14.



Bushfires Summary of Ignition Report

**All Bushfires**  
LGA of GNOWANGERUP (S)  
from 01/07/2011 to 30/06/2021

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

Total for GNOWANGERUP (S)	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	Total
<b>Reported Cause Total Number of Bushfires:</b>	1	12	15	5	10	8	9	7	13	12	92
Burn off fires	0	0	5	0	0	0	3	0	0	0	8
Cigarette	0	0	0	0	0	2	0	0	0	0	2
Equipment - Mechanical or electrical fault	0	1	0	0	0	1	0	0	0	0	2
Equipment - Operational deficiency	0	0	0	1	0	0	1	0	0	0	2
Heat from other hot objects or friction	0	1	0	0	0	0	0	0	0	0	1
Hot works (grinding, cutting, drilling etc..)	0	2	0	0	0	0	0	0	0	1	3
Other open flames or fire	0	0	1	0	0	0	0	0	0	0	1
Power lines	0	0	1	0	1	0	0	0	3	0	5
Reignition of previous fire	0	0	0	1	0	0	0	1	0	0	2
Suspicious/Deliberate	0	2	1	2	1	0	0	1	1	0	8
Undetermined	0	2	0	0	0	0	0	0	0	0	2
Unreported	1	1	2	1	1	2	2	1	3	2	16
Vehicles (incl. Farming Equipment/Activities)	0	1	5	0	2	3	2	3	1	1	18
Weather Conditions - Lightning	0	2	0	0	5	0	1	1	5	7	21
Yard maintenance, hand held equipment	0	0	0	0	0	0	0	0	0	1	1

Figure 14 Bushfire summary of ignition (DFES Reports)

Dry lightning storms can cause multiple ignition site in an area in a small space of time, normally these storm have associate winds that can quickly increase the size of these ignition points into large fires. This is what occurred with the fires in the Stirling Range National Park on the 26<sup>th</sup> of December 2019. During this fire nearly 38,000 Ha was burnt. There was a significant impact on threatened flora, most of which is endemic to the Stirling Range, with populations of at least 11 Critically Endangered species impacted by fire as of 29th December. The last unburnt patches of ‘Montane Heath and Thicket of the South West Botanical Province’ Critically Endangered Threatened Ecological Communities (TEC) are believed to have burnt, and there have also been significant fire impacts on the ‘Montane Mallee Thicket of the Stirling Range’ TEC. Populations of threatened fauna impacted include a number of Critically Endangered Short-range endemic invertebrates and the habitat for threatened vertebrates including the quokka, mallee fowl and Carnaby’s black-cockatoo.<sup>6</sup>

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 Gnowangerup Shire to have, One

<sup>6</sup> Impact Statement Mt Success Complex fire Stirling Range National Park December 2019

hand held, water filled fire extinguisher (minimum capacity 7.5 litres) is fitted in a readily available accessible position on the machine and a vehicle mounted operational unit, of a minimum 600 litre capacity powered by an engine driven pump, is situated in, or adjacent to, the entrance of the paddock being harvested.

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.

Transportation corridors and tourism 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.

### **3.2.6 Current Bushfire Risk Management Activities**

Local Government Wide Controls are activities that reduce the overall bushfire risk within the Shire of Gnowangerup. 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 and establishing an effective treatment plan to manage the broader landscape and any unacceptable community risks. The Shire of Gnowangerup Bushfire Prone Area is shown in Figure 15.



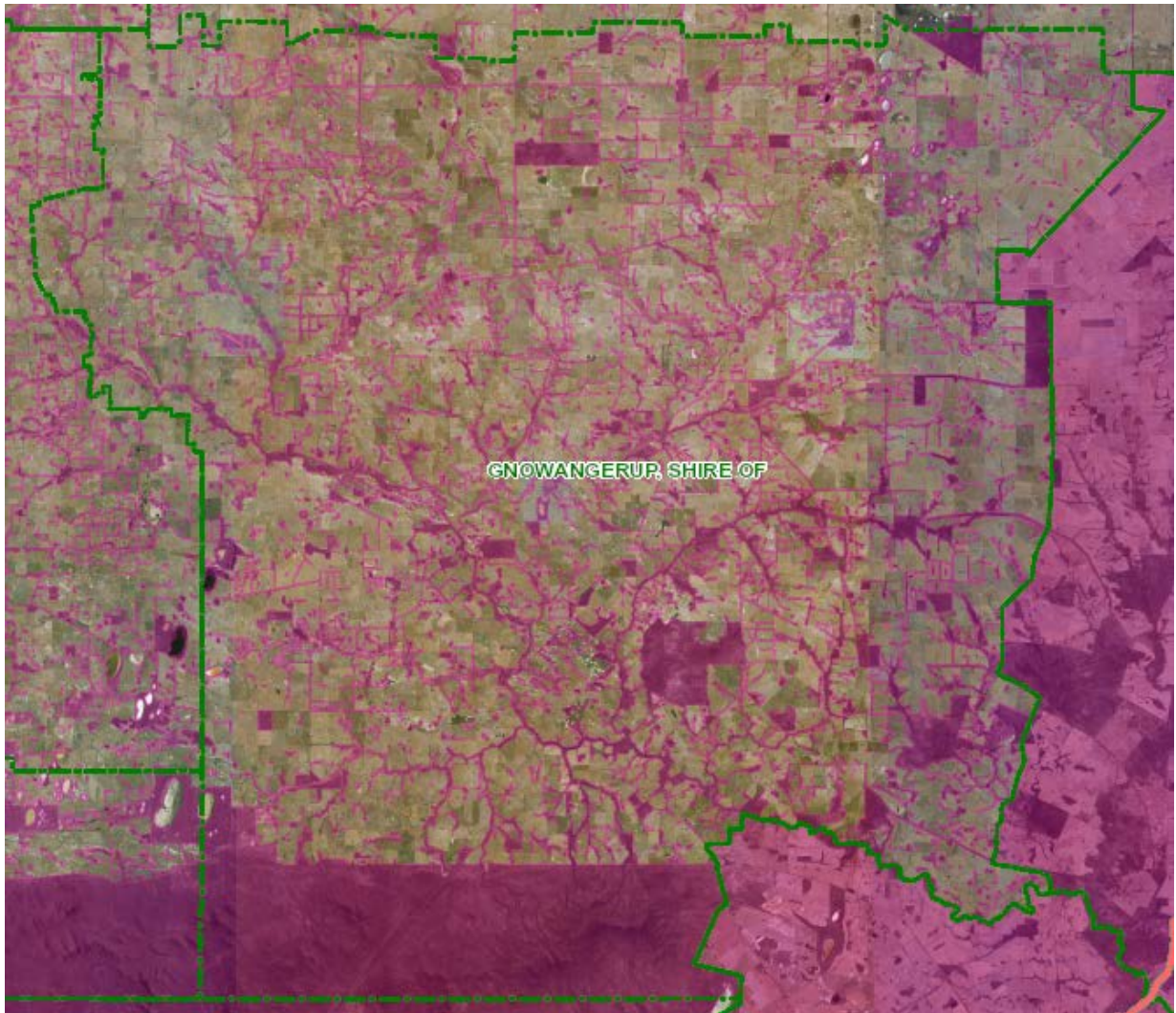


Figure 15 Bushfire prone map (DFES Bushfire Risk Management System)

## Volunteer Fire Brigades

There are 3 x Bush Fire Brigades (BFB) within the Shire. The Gnowangerup Shire has 263 registered volunteer BFB members with an average age of 55. The appliances are as below:

- **Gnowangerup BFB**- 1x 3.4 Urban appliance
- **Borden BFB** - 2.4 Broad acre appliance
- **Ongerup BFB** - 4.4 Broad acre appliance
- During previous fire seasons the Shire has had access to High Season Appliances they were a 2.4 Broad acre in Borden and a Light Tanker in Gnowangerup
- There is also a large amount of privately owned farm appliances within the Shire that greatly assist with response activities.
- DBCA are responsible for the land within the Stirling Ranges national park. They have 2 rangers with fire appliances in the area and firefighting appliances in Albany

## **Burning Restrictions**

Burning restrictions within the Shire of Gnowangerup are as follows:

- Restricted Burning Times – 15<sup>th</sup> October to the 31<sup>st</sup> October and 17<sup>st</sup> February to the 30<sup>th</sup> May (Permits are needed in this period)
- Prohibited Burning Times - 1<sup>st</sup> November to 16<sup>th</sup> 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 which sets out the requirements for fuel reduction and fire break requirements within the town site and on rural land. This notice sets out the requirement of plantation within the Shire to comply with the “FESA Guidelines for Plantation Fire Protection”.

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**

The Shire uses multiple avenues to provide awareness to the community prior to and during the bushfire seasons through the use of the Shire’s newsletter, website and other means of social media. They also ran the orange pouch project. This is a waterproof PVC document envelope that can be used to store important documents like passports, insurance policies, birth certificates. The pouch also contains general emergency contact numbers and space to add other numbers you consider necessary. When this was sent out the envelope contained DFES bushfire awareness information. The Shire also promoted and ran a rural fire awareness training day in the 3 towns prior to the fire season.

## **Other Current Local Government Wide Controls**

Local Government Wide Controls are activities that reduce the overall bushfire risk within the Gnowangerup. 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.

## 4. Asset Identification and Risk Assessment

### 4.1. Planning Areas

The Shire of Gnowangerup has a single planning area based on the Electoral Ward boundaries.

### 4.2. Asset Identification

Asset identification and risk assessment has been conducted at the local level using the methodology described in the Guidelines using BRMS. Identified assets are categorised into the following categories and subcategories provided in Table 3.

**Table 3 – Asset Categories and Subcategories**

Asset Category	Asset Subcategories
<b>Human Settlement</b>	<p><b>Residential areas</b> Residential areas, including dwellings in rural areas and the rural-urban interface.</p> <p><b>Places of temporary occupation</b> Commercial and industrial areas, mining sites or camps and other locations where people may work or gather.</p> <p><b>Special risk and critical facilities</b> 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"> <li>• Occupants may have limited knowledge about the impact of bushfires;</li> <li>• Occupants may have a reduced capacity to evaluate risk and respond adequately to bushfire event;</li> <li>• Occupants may be more vulnerable to stress and anxiety arising from a bushfire event or the effects of smoke;</li> <li>• There may be significant communication barriers with occupants;</li> <li>• Relocation and/or management of occupants may present unique challenges or difficulties, such as transportation, or providing alternative accommodation, healthcare or food supplies; or</li> <li>• Facilities that are critical to the community during a bushfire emergency.</li> </ul>
<b>Economic</b>	<p><b>Agricultural</b> Areas under production, such as pasture, livestock, crops, viticulture, horticulture and associated infrastructure.</p> <p><b>Commercial and industrial</b> Major industry, waste treatment plants, mines (economic interest), mills, processing and manufacturing facilities and cottage industry.</p> <p><b>Critical infrastructure</b> 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>

**Asset Category****Asset Subcategories****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).

**Commercial forests and plantations**

Plantations and production native forests.

**Drinking water catchments**

Land and infrastructure associated with drinking water catchments.

**Environmental****Protected**

Flora, fauna and ecological communities that are listed as a:

- 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.

**Priority**

Flora, fauna and ecological communities that are a:

- 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.

**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.

**Cultural****Aboriginal heritage**

Places of indigenous significance identified by the DPLH or the local community.

**European heritage**

Non-Indigenous heritage assets afforded legislative protection through identification by the National Trust, State Heritage List or Local Planning Scheme Heritage List.

**Local heritage**

Assets identified in a Municipal Heritage Inventory or by the local community as

Asset Category	Asset Subcategories
	being significant to local heritage.
	<b>Other</b>
	Other assets of cultural value to the local community, for example community halls, churches, clubs and recreation facilities.

### 4.3. 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 4.

**Table 4 – Asset Category Proportions**

Asset category	Proportion of identified assets
Human Settlement	79%
Economic	14%
Environmental	3%
Cultural	4%

#### 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 7. This table shows the proportion of assets at risk from bushfire in each risk category at the time the BRM Plan was endorsed.

**Table 7 – Local Government Asset Risk Summary**

Asset Category	Risk Rating				
	Low	Medium	High	Very High	Extreme
Human Settlement	3%	9%	24%	22%	21%
Economic	4%	3%	3%	2%	2%
Environmental	0	0.2%	1.9%	0.5%	0
Cultural	1%	0.7%	1.2%	0.5%	1%

## 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.

**Table 8 – Criteria for Acceptance of Risk and Course of Action**

Risk Rating	Criteria for Acceptance of Risk	Course of Action
<b>Extreme</b>	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"> <li>• Priorities will be made for treatments that will have maximum benefit to multiple assets and critical infrastructure.</li> <li>• Treatments that benefit vulnerable communities will be given priority.</li> <li>• Identification of partnerships with other agencies for strategic mitigation.</li> </ul> <p>Communication with asset owners in this class will be priorities and focus on increasing understanding of the risk facing these assets (see Communications plan).</p>
<b>Very High</b>	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"> <li>• Priorities will be made for treatments that will have maximum benefit to multiple assets and critical infrastructure.</li> <li>• Treatments that benefit vulnerable communities will be given priority.</li> <li>• Identification of partnerships with other agencies for strategic mitigation.</li> </ul> <p>Communication with asset owners will be as per the Communications Plan and focus on increasing understanding of the risk facing these assets.</p>
<b>High</b>	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"> <li>• Priorities will be made for treatments that will have maximum benefit to multiple assets and critical infrastructure.</li> <li>• Treatments that benefit vulnerable communities will be given priority.</li> <li>• Identification of partnerships with other agencies for strategic mitigation.</li> <li>• Communication with asset owners will be as per the Communications Plan and focus on increasing understanding</li> </ul>



		of the risk facing these assets.
<b>Medium</b>	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.
<b>Low</b>	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 9 – Treatment Priorities**

		Consequence			
		Minor	Moderate	Major	Catastrophic
Likelihood	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.

A local government wide controls, multi-agency work plan has been developed (Appendix B). The plan details work to be undertaken as a part of normal business (see section 3.2.6 for detailed information on these), improvements to current controls and new controls to be implemented to better manage bushfire risk across the local government area.

### 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 behaviour 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. Shire of Gnowangerup 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 was developed in broad consultation with land owners and other stakeholders including DFES and DBCA.

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 this BRM Plan's *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 organisational 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 8 – 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 Gnowangerup may contribute relevant information to be included in the *Fuel Management Activity Report* produced annually by OBRM.

## 8. Glossary

<b>Asset</b>	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.
<b>Asset Category</b>	There are four categories that classify the type of asset – Human Settlement, Economic, Environmental and Cultural.
<b>Asset Owner</b>	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.
<b>Asset Register</b>	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).
<b>Asset Risk Register</b>	A report produced within the BRMS that details the consequence, likelihood, risk rating and treatment priority for each asset identified in the BRM Plan.
<b>Bushfire</b>	Unplanned vegetation fire. A generic term which includes grass fires, forest fires and scrub fires both with and without a suppression objective.
<b>Bushfire Hazard</b>	The hazard posed by the classified vegetation, based on the vegetation category, slope and separation distance.
<b>Bushfire Risk Management Plan</b>	A development related document that sets out short, medium and long term bushfire risk management strategies for the life of a development.
<b>Bushfire Risk</b>	The chance of a bushfire igniting, spreading and causing damage to the community or the assets they value.
<b>Bushfire Risk Management</b>	A systematic process to coordinate, direct and control activities relating to bushfire risk with the aim of limiting the adverse effects of bushfire on the community.
<b>Bushfire Risk</b>	The chance of a bushfire igniting, spreading and causing damage to the community or the assets they value.
<b>Consequence</b>	The outcome or impact of a bushfire event.

<b>Draft Bushfire Risk Management Plan</b>	The finalised draft BRM Plan is submitted to the Office of Bushfire Risk Management (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.
<b>Geographic Information System (GIS)</b>	A data base technology, linking any aspect of land-related information to its precise geographic location.
<b>Land Owner</b>	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.
<b>Likelihood</b>	The chance of something occurring. In this instance, it is the potential of a bushfire igniting, spreading and impacting on an asset.
<b>Locality</b>	The officially recognised boundaries of suburbs (in cities and larger towns) and localities (outside cities and larger towns).
<b>Map</b>	The mapping component of the BRMS. Assets, treatments and other associated information is spatially identified, displayed and recorded within the Map.
<b>Planning Area</b>	A geographic area determine by the local government which is used to provide a suitable scale for risk assessment and stakeholder engagement.
<b>Priority</b>	See Treatment Priority.
<b>Risk Acceptance</b>	The informed decision to accept a risk, based on the knowledge gained during the risk assessment process.
<b>Risk Analysis</b>	The application of consequence and likelihood to an event in order to determine the level of risk.
<b>Risk Assessment</b>	The systematic process of identifying, analysing and evaluating risk.
<b>Risk Evaluation</b>	The process of comparing the outcomes of risk analysis to the risk criteria in order to determine whether a risk is acceptable or tolerable.
<b>Risk Identification</b>	The process of recognising, identifying and describing risks.
<b>Risk Register</b>	A component within the BRMS used to record, review and monitor risk assessment and treatments associated with assets recorded in the BRM Plan.
<b>Risk treatment</b>	A process to select and implement appropriate measures undertaken to modify risk.
<b>Rural</b>	Any area where in residences and other developments are scattered and intermingled with forest, range, or farm land and native vegetation or cultivated crops.

<b>Rural Urban Interface</b>	The line or area where structures and other human development adjoin or overlap with undeveloped bushland.
<b>Slope</b>	The angle of the ground's surface measured from the horizontal.
<b>Tenure Blind</b>	An approach where multiple land parcels are consider as a whole, regardless of individual ownership or management arrangements.
<b>Treatment</b>	An activity undertaken to modify risk, for example a planned burn.
<b>Treatment Objective</b>	The specific aim to be achieved or action to be undertaken, in order to complete the treatment. Treatment objectives should be specific and measurable.
<b>Treatment Manager</b>	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.
<b>Treatment Planning Stage</b>	The status or stage of a treatment as it progresses from proposal to implementation.
<b>Treatment Priority</b>	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.
<b>Treatment Schedule</b>	A report produced within the BRMS that details the treatment priority of each asset identified in the BRM Plan and the treatments scheduled.
<b>Treatment Strategy</b>	The broad approach that will be used to modify risk, for example fuel management.
<b>Treatment Type</b>	The specific treatment activity that will be implemented to modify risk, for example a planned burn.
<b>Vulnerability</b>	The susceptibility of an asset to the impacts of bushfire.

## 9. Common Abbreviations [\(review this list at the end of document writing and add or remove as required.\)](#)

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

## 10. Appendices

<b>Appendix A</b>	Communication Strategy
<b>Appendix B</b>	Local Government Wide Controls Table
<b>Appendix C</b>	Threatened Species





Shire of Gnowangerup

Bushfire Risk Management Planning

# COMMUNICATION STRATEGY

The text included in this template is suggested for use and may be amended as required. Consideration should be given to the intended audience of the Communication Strategy. Please remove ALL drafting notes (identified in blue) before submitting.

## Document Control

<b>Document Name</b>	Bushfire Risk Management Plan Communications Strategy	
<b>Document Owner</b>	Shire of Gnowangerup	Chief Executive Officer
<b>Document Location</b>	Shire of Gnowangerup Administration Office	
<b>Current Version</b>	1.0	
<b>Issue Date</b>	DD/MM/YYYY	
<b>Next Review Date</b>	DD/MM/YYYY	

## Related Documents

Title	Version	Date
Shire of Gnowangerup Bushfire Risk Management Plan	1.2	

## Amendment List

Version	Date	Author	Section
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## 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 Gnowangerup

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

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 Gnowangerup 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 Gnowangerup 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 Gnowangerup, is responsible for endorsement of the BRM Plan Communications Strategy.
- CEO, Shire of Gnowangerup, responsible for external communication with the local government area.
- The Community Emergency Service Manager (CESM), 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 or outcomes	Level of engagement
<b>Shire of Gnowangerup</b>	Significant role in plan and treatment development, implementation and review. Responsible for treatments as a land owner/manager.	High	Inform, consult, involve, collaborate, empower
<b>Department of Fire and Emergency Services</b>	Significant role in plan and treatment development, implementation and review. Responsible for treatments in UCL/UMR (within town sites) as a land manager. Support role in treatment implementation (Mitigation Activity Fund administration).	High	Inform, consult, involve, collaborate, empower
<b>Department of Biodiversity, Conservation and Attractions</b>	Significant role in plan and treatment development, implementation and review. Responsible for treatments as a land owner/manager.	High	Inform, consult, involve, collaborate, empower
<b>Main Roads WA</b>	Role in plan and treatment development, implementation and review. Responsible for treatments as a land owner/manager. Critical infrastructure interest.	Medium	Inform, consult, involve, collaborate
<b>Telecommunication providers</b>	Role in plan and treatment development, implementation and review. Responsible for treatments as a land owner/manager. Critical infrastructure interest.	Medium	Inform, consult, involve, collaborate

Stakeholder	Role or Interest	Level of impact or outcomes	Level of engagement
<b>Department of Planning, Lands and Heritage, LandCorp &amp; Landgate</b>	Role in plan and treatment development, implementation and review	Medium	Inform, consult, involve, collaborate
<b>Water Corporation &amp; Department of Water</b>	Role in plan and treatment development, implementation and review. Responsible for treatments as a land owner/manager. Critical infrastructure interest.	Medium	Inform, consult, involve, collaborate
<b>Private Land Owners</b>	Role in plan and treatment development, implementation and review. May have responsibilities for treatments as land owners/managers	High	Inform, consult, involve, collaborate, empower
<b>Western Power</b>	Role in plan and treatment development, implementation and review. Responsible for treatments as a land owner/manager. Critical infrastructure interest.	Medium	Inform, consult, involve, collaborate
<b>Chief Bushfire Control Officer</b>	Significant role in plan and treatment development, implementation and review. Actively assist in risk identification and treatment works. Empower to actively engage with community and identify/treat risks	High	Inform, consult, involve, collaborate, empower
<b>Bushfire Brigades and other Emergency Services Volunteers</b>	Significant role in plan and treatment development, implementation and review. Assist in risk identification and treatment works.	High	Inform, consult, involve, collaborate



Stakeholder	Role or Interest	Level of impact or outcomes	Level of engagement
<b>Shire of Bushfire Advisory Committee</b>	Role in plan development, implementation and review. Actively assist in risk identification and treatment works. Empower to actively engage with community and identify/treat risks	High	Inform, consult, involve, collaborate
<b>Regional Operations Advisory Committee</b>	Role in plan development, implementation and review	Medium	Inform, consult, involve, collaborate
<b>Local Emergency Management Committee</b>	Role in plan development, implementation and review	Medium	Inform, involve and consult
<b>Traditional Owners, Gnowangerup Aboriginal corporation, Wagyl Kaip and southern Noongar Regional Corporation, South West Aboriginal Land and Sea Council &amp; Department of Aboriginal Affairs</b>	Role in plan and treatment development, implementation and review. May have responsibilities for treatments as land owners/managers	Medium	Inform, consult, involve, collaborate, empower
<b>Shire of Gnowangerup Communities</b>	Role in plan implementation and review	Medium	Inform, consult, involve, collaborate
<b>WA Country Health</b>	Role in plan and treatment development, implementation and review	Medium	Inform, involve and consult
<b>Department of Education</b>	Role in plan and treatment development, implementation and review	Medium	Inform, involve and consult

### 13. Communications Log – Development of the BRM Plan and Treatment Schedule

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

Timing of communication	Stakeholders	Purpose	Summary	Communication Method	Lesson Identified	Follow up
<b>Development of the BRM Plan</b>						
When did this communication occur?	Who was the stakeholder or target audience?	What was the purpose of the communication?	What topics were discussed?	What communication method did you use?	Were there any issues or lessons identified?	Was there any follow up required?
June 2020	Shire of Gnowangerup CEO & Council	1 – 3 & 5	Inform and consult Confirm accountability and responsibilities Input into plan and treatments Confirm project objectives Project updates	Face to face meetings Presentation	Resource constraints could limit their ability to participate Lack of understanding	Project updates

Timing of communication	Stakeholders	Purpose	Summary	Communication Method	Lesson Identified	Follow up
July 2021	Shire of Gnowangerup CEO, Executive Management Team	1 – 3 & 5	Reduction of fuel loads on shire managed lands Risks to community Action Plan Upgrade Strategic fire breaks	Face to face meeting	Resource constraints could limit their ability to participate Lack of Shire data to complete BRM Plan Need to maintain consultation with community stakeholders	Monthly Project updates
August 2021	CESM	1 – 3 & 5	Confirm project objectives Project updates	Face to face meeting	Resource constraints could limit their ability to participate Need to maintain consultation with community stakeholders	Project updates
29 <sup>th</sup> November 2021	Main roads	1 – 3 & 5	Confirm project objectives	Phone and Email		Project updates
3 <sup>rd</sup> , 6 <sup>th</sup> & 13 <sup>th</sup> December 2021	DBCA	1 – 3 & 5	Confirm project objectives	Phone and Email	Resource constraints could limit their ability to participate	Project Updates
January 2022	DFES Bushfire Risk Management Officer		Confirm project objectives Project updates	Phone and Email	Resource constraints could limit their ability to participate	Project Updates

1 <sup>st</sup> February 2022	Arc Infrastructure	1 – 3 & 5	Confirm project objectives	Phone and Email		Project updates
February 2022	DFES Bushfire Risk Management Branch		Inform and consult	Telephone and Email		

Timing of communication	Stakeholders	Purpose	Summary	Communication Method	Lesson Identified	Follow up
<b>Development of the Treatment Schedule</b>						
June 2020	Shire of Gnowangerup CEO & Council	1 – 3 & 5	Reduction of fuel loads on shire managed lands Risks to community Action Plan Upgrade Strategic fire breaks Planned works identified			
July 2021	Shire of Gnowangerup CEO, Executive Management Team	1 – 3 & 5	Reduction of fuel loads on shire managed lands Risks to community Action Plan Upgrade Strategic fire breaks Planned works identified			
August 2021	CESM	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			
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 – as per 12.3 of the BRM Plan	1 – 3 & 5	Confirm project and objectives Seek input into treatment plans and providing project updates	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

			Identify Risk and share information			
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	
As required	Office of Bushfire Risk Management	1 – 3 & 5	Notify OBRM that the 1st year's treatment program is entered into BMRS	Email / Letter		

## 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 Gnowangerup CEO, Executive Management Team and Council	1 – 3 & 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)		
Life of Plan	Shire of Gnowangerup 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 organisation, Limited time, Not preparing Poor communication from stakeholders and LG on completion of works		
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

### Implementation of the BRM Plan

Biannually or As Required	LEMC, BFAC, ROAC, CBFCO, CAPTS	1 – 3 & 5	Email Face to face meetings	Report on progress to plan Report issues/constraints	CEO or Delegate	Availability of volunteers Time 'Buy in' Lack of understanding	Collate data and report on success to plan Compliance to plan	Feedback received Level of engagement
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							Keep informed	Issues identified and addressed
As Required	Dept of Biodiversity, Conservation and Attractions	1 – 3 & 5	Email Face to face meetings	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 release of confidential data Restrict release of information and document in plan	Level of engagement Environment-al assets in BRMS
As Required	Stakeholders – Landowners / Land Managers	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
<b>Timing of communication</b>	<b>Stakeholders</b>	<b>Communication Objective(s)</b>	<b>Communication Method</b>	<b>Key Message or Purpose</b>	<b>Responsibility</b>	<b>Identified Risks to Communication</b>	<b>Strategy to Manage Risks</b>	<b>Monitoring and Evaluation Method</b>

### Implementation of the BRM Plan

As Required	Stakeholders Others	1 – 3 & 5	Face to face Presentations Community Engagement Telephone Email	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	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

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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### Review of the BRM Plan

Annually	Shire of Gnowangerup CEO, Executive Management 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	BRPC & BRMO to record data and information appropriately	Feedback received Planned works completed Reporting & Statistics 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	BRPC & 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 Gnowangerup – 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 program	CEO or Delegate	LG capacity Time Conflicting priorities	Plan communications	Feedback on work completed Risk ratings reduced Improvements identified and implemented
Annually	BFAC, ROAC, 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	LG capacity Time Conflicting priorities Buy in	Keep informed Share the wins	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 Engagement Survey	Status of treatments Success of treatments Continuous improvement	CEO or Delegate	LG capacity Time Conflicting priorities Buy in Access to resources	Plan communication Target communication Planned and prepared	Feedback on work completed Risk ratings reduced Improvements 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	CEO or Delegate	LG capacity Time Conflicting priorities Buy in Access to resources	Plan communication Target communication	Feedback on work completed Risk ratings reduced

				Continuous improvement			Planned and prepared	Improvements identified and implemented
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Add rows as required

## Appendix B

### Bushfire Risk Management Planning – Local Government Wide Controls

	Control	Action or Activity Description	Lead Agency	Other Stakeholder(s)	Notes and Comments
1.	BRM Planning Risk Analysis	<ul style="list-style-type: none"> <li>Maintain and refine BRM Plan</li> </ul>	Shire of Gnowangerup	Landowners DFES	Treatment identification and planning for all high, very high and extreme risk assets within the Shire.
2.	Shire of Gnowangerup Annual Fire Break Notice and ( <i>Bush Fires Act 1954</i> )	<ul style="list-style-type: none"> <li>Review annual notice</li> <li>Publish annual notice</li> <li>Inspections in accordance with annual notice</li> </ul>	Shire of Gnowangerup	CBFCO, FCO, Captains and the public	Published Annually.  Inspect local properties.  'Fire Access Track' has the same meaning as 'Fire Break', in the <i>Bush Fires Act 1954</i> .
3.	Shire Prohibited and Restricted Burning times and issuing of permits. ( <i>Bush Fires Act 1954</i> )	<ul style="list-style-type: none"> <li>Restricted and Prohibited Burning Times set the requirement that 'a permit to set fire to the bush' must be obtained.</li> </ul>	Shire of Gnowangerup	CBFCO, FCOs	Published Annually.
4.	Harvest and Vehicle Movement Bans	<ul style="list-style-type: none"> <li>Bans imposed when the CBFCO and FCOs are of the opinion that the use of engines, vehicles, plant or machinery is likely to cause/contribute to the spread of a bushfire.</li> </ul>	Shire of Gnowangerup	CBFCO, FCOs and Fire Weather Advisory Group	A Harvest and Vehicle Movement Ban may be imposed for any length of time but is generally imposed for the 'heat of the day' periods and may be extended or revoked by the local

## Appendix B

### Bushfire Risk Management Planning – Local Government Wide Controls

Control	Action or Activity Description	Lead Agency	Other Stakeholder(s)	Notes and Comments	
				government should weather conditions change.	
5.	Local Emergency Management Arrangements	<ul style="list-style-type: none"> <li>Emergency Management Plan</li> </ul>	Shire of Gnowangerup	SJA, WAPOL, DFES, Dept of Communities Child Protection and Family Support, Dept of Education, CBFCO.	Annual review of emergency plans and arrangements.
6.	Local Planning Scheme No 2 State Planning Policy 3.7	<ul style="list-style-type: none"> <li>Requirement for new developments to complete a Fire Management Plan endorsed through the Dept of Fire and Emergency Services (if in a Bushfire Prone Area)</li> <li>Planning in Bushfire Prone Areas</li> </ul>	Shire of Gnowangerup  Department of Planning, Lands and Heritage	DFES  WA Planning Commission  Shire of Gnowangerup	<p>Where a Fire Management Plan has been endorsed by DFES and the Shire, the affected land owners will be responsible for the ongoing implementation of the “land owners’ responsibilities” as specified in that Fire Management Plan.</p> <p>Land developers are required to implement a Fire Management Plan to ensure risk is managed and other controls implemented and monitored</p>

## Appendix B

### Bushfire Risk Management Planning – Local Government Wide Controls

	Control	Action or Activity Description	Lead Agency	Other Stakeholder(s)	Notes and Comments
7.	Total Fire Bans	<ul style="list-style-type: none"> <li>Restriction of activities that may cause or contribute to the spread of a bushfire</li> </ul>	Department of Fire and Emergency Services	Shire of Gnowangerup	A Total Fire Ban (TFB) is declared because of extreme weather conditions or when current operational commitments have reduced statewide resources / capabilities. A TFB is declared by DFES following consultation with the LG.



# NatureMap Species Report

Created By Guest user on 01/12/2021

Current Names Only Yes

Core Datasets Only Yes

Method 'Predefined Area Intersect'

Area Type Shire Boundary Intersect GNOWANGERUP Group By Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	2212	19631
Other specially protected fauna	4	16
Presumed extinct	1	1
Priority 1	8	34
Priority 2	53	457
Priority 3	51	221
Priority 4	67	694
Protected under international agreement Rare or likely to become extinct	64	1551
	<b>2466</b>	<b>22619</b>

Name ID	Species Nam	Conservation Code	<sup>1</sup> Endemic To Query Area
<b>Rare or likely to become extinct</b>			
1.	12249 <i>Acacia awestoniana</i>	T	Y
2.	13610 <i>Acacia leptalea</i>	T	
3.	44615 <i>Acizzia mccarthyi</i> (McCarthy's plant-louse)	T	
4.	12021 <i>Adenanthos pungens</i> subsp. <i>pungens</i>	T	
5.	12654 <i>Allocasuarina tortiramula</i> (Twisted Sheoak)	T	
6.	6302 <i>Andersonia axilliflora</i> (Giant Andersonia)	T	Y
7.	40907 <i>Androcalva perlaria</i>	T	
8.	41382 <i>Atelomastix danksi</i> (Toolbrunup <i>Atelomastix millipede</i> )	T	Y
9.	41393 <i>Atelomastix tigrina</i> (Striped <i>Atelomastix millipede</i> )	T	Y
10.	41394 <i>Atelomastix tumula</i> (Bluff Knoll <i>Atelomastix millipede</i> )	T	Y
11.	32686 <i>Banksia anatona</i>	T	
12.	1806 <i>Banksia brownii</i> (Feather-leaved <i>Banksia</i> )	T	
13.	32210 <i>Banksia montana</i>	T	
14.	32141 <i>Banksia pseudoplumosa</i>	T	
15.	47813 <i>Bertmainius colonus</i> (Eastern Stirling Range pygmy trapdoor spider)	T	
16.	47893 <i>Bertmainius pandus</i> (Toolbrunup pygmy trapdoor spider)	T	
17.	24162 <i>Bettongia penicillata</i> subsp. <i>ogilbyi</i> (Woylie, Brush-tailed Bettong)	T	
18.	15336 <i>Caladenia bryceana</i> subsp. <i>bryceana</i>	T	
19.	24731 <i>Calyptorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black Cockatoo)	T	
20.	24733 <i>Calyptorhynchus baudinii</i> (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)	T	
2.	24734 <i>Calyptorhynchus nchius</i>	T	
22.	48400 <i>Calyptorhynchus</i> sp. (white-tailed black cockatoo)	T	
23.	5509 <i>Darwinia collina</i> (Yellow Mountain Bell)	T	
24.	34764 <i>Darwinia nubigena</i>	T	
25.	5521 <i>Darwinia oxylepis</i> (Gillam's Bell)	T	
26.	5530 <i>Darwinia squarrosa</i> (Pink Mountain Bell)	T	
27.	5535 <i>Darwinia wittwerorum</i>	T	
28.	24092 <i>Dasyurus geoffroi</i> (Chuditch, Western Quoll)	T	
29.	15067 <i>Daviesia glossosema</i>	T	
30.	3825 <i>Daviesia obovata</i>	T	
31.	12331 <i>Daviesia pseudaphylla</i>	T	
32.	297 <i>Deyeuxia drummondii</i> (Drummond Grass)	T	Y
33.	13634 <i>Drakaea confluens</i>	T	
34.	19351 <i>Gastrolobium humile</i>	T	
35.	20493 <i>Gastrolobium luteifolium</i>	T	
36.	20492 <i>Gastrolobium vestitum</i>	T	
37.	2020 <i>Grevillea infundibularis</i> (Fan-leaf <i>Grevillea</i> )	T	

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
38.	2038 <i>Grevillea maxwellii</i>		T	
39.	19686 <i>Hibbertia priceana</i>		T	
40.	47077 <i>Hibbertia</i> sp. Toolbrunup (J.R. Wheeler 2504)		T	Y
41.	2246 <i>Lambertia fairallii</i> (Fairall's Honeysuckle)		T	
42.	31882 <i>Latrobea colophona</i>		T	Y
43.	24557 <i>Leipoa ocellata</i> (Malleefowl)		T	
44.	3019 <i>Lepidium aschersonii</i> (Spiny Pepperpress)		T	
45.	6398 <i>Leucopogon gnaphalioides</i>		T	
46.	19423 <i>Leucopogon</i> sp. Ongerup (A.S. George 16682)		T	
47.	24168 <i>Macrotis lagotis</i> (Bilby, Dalgyte, Ninu)		T	
48.	12738 <i>Myoporum cordifolium</i>		T	
49.	24146 <i>Myrmecobius fasciatus</i> (Numbat, Walpurti)		T	
50.	14565 <i>Persoonia micranthera</i>		T	
51.	43360 <i>Pseudococcus markharveyi</i> (Banksia montana mealybug)		T	Y
52.	25579 <i>Psophodes nigrogularis</i> (Western Whipbird)		T	
53.	24388 <i>Psophodes nigrogularis</i> subsp. <i>nigrogularis</i> (Western Whipbird (western heath))		T	
54.	48598 <i>Rhytidid</i> sp. (WAM 2295-69) (Stirling Range Rhytidid snail)		T	
55.	4702 <i>Ricinocarpos trichophorus</i>		T	
56.	24145 <i>Setonix brachyurus</i> (Quokka)		T	
57.	6468 <i>Sphenotoma drummondii</i> (Mountain Paper-heath)		T	
58.	1713 <i>Thelymitra psammophila</i> (Sandplain Sun Orchid)		T	
59.	1484 <i>Tribonanthes purpurea</i> (Granite Pink)		T	
60.	44626 <i>Trioza barrettae</i> (Banksia brownii plant-louse)		T	
61.	12400 <i>Verticordia carinata</i>		T	
62.	17482 <i>Xyris exilis</i>		T	Y
63.	43364 <i>Zephyrarchaea melindae</i> (Toolbrunup Assassin Spider)		T	Y
64.	43365 <i>Zephyrarchaea robinsi</i> (Eastern Massif Assassin Spider)		T	Y
<b><sup>2</sup> Presumed extinct</b>				
65.	24161 <i>Bettongia lesueur</i> subsp. <i>graii</i> (Boodie (inland), Burrowing Bettong (inland))		X	
<b>Protected under international agreement</b>				
66.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
67.	24786 <i>Calidris melanotos</i> (Pectoral Sandpiper)		IA	
68.	24788 <i>Calidris ruficollis</i> (Red-necked Stint)		IA	
69.	24382 <i>Pluvialis fulva</i> (Pacific Golden Plover)		IA	
70.	24806 <i>Tringa glareola</i> (Wood Sandpiper)		IA	
71.	24808 <i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
<b>Other specially protected fauna</b>				
72.	24724 <i>Cacatua pastinator</i> subsp. <i>pastinator</i> (Muir's Corella, Muir's Corella (Western Corella SW WA))		S	
73.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
74.	24475 <i>Falco peregrinus</i> subsp. <i>macropus</i> (Australian Peregrine Falcon)		S	
75.	24098 <i>Phascogale calura</i> (Red-tailed Phascogale, Kenngoor)		S	
<b>Priority 1</b>				
76.	46895 <i>Allocasuarina anfractuosa</i> (Sinuous Sheoak)	P1		Y
77.	28317 <i>Baeckea</i> sp. Youndeggin Hill (A.S. George 15772)	P1		
78.	6342 <i>Coleanthera coelophylla</i>	P1		
79.	14721 <i>Conospermum coerulescens</i> subsp. <i>coerulescens</i>	P1		
80.	298 <i>Deyeuxia inaequalis</i>	P1		
81.	17784 <i>Kunzea newbeyi</i>	P1		
82.	19211 <i>Stylidium diplectroglossum</i>	P1		
83.	31778 <i>Tetratheca pilata</i>	P1		Y
<b>Priority 2</b>				
84.	14050 <i>Acacia arcuatilis</i>	P2		
85.	14125 <i>Acacia mutabilis</i> subsp. <i>incurva</i>	P2		
86.	1789 <i>Adenanthos linearis</i>	P2		
87.	6307 <i>Andersonia carinata</i>	P2		
88.	28321 <i>Baeckea</i> sp. Stirling Range (H. Steedman s.n. 03/1933)	P2		Y
89.	34053 <i>Bothriembryon brazieri</i> (Brazier's bothriembryontid land snail)	P2		
90.	34055 <i>Bothriembryon glauerti</i> (a bothriembryontid land snail (Stirling Ranges))	P2		Y
91.	18400 <i>Caladenia ultima</i>	P2		
92.	17830 <i>Chordifex leucoblepharus</i>	P2		
93.	14004 <i>Conospermum spectabile</i>	P2		
94.	43600 <i>Darwinia leiostyla</i> subsp. <i>Upland</i> (W. Greuter 23111)	P2		Y
95.	3820 <i>Daviesia mesophylla</i>	P2		
96.	38261 <i>Dielsiodoxa tamariscina</i>	P2		
97.	31573 <i>Drosera gibsonii</i>	P2		
98.	48690 <i>Drosera huegelii</i> var. <i>phillmanniana</i>	P2		
99.	34796 <i>Eucalyptus brandiana</i>			

	N		N	C o n
100.	33560	<i>Eucalyptus sinuosa</i>	P2	
101.	20491	<i>Gastrolobium crenulatum</i>	P2	
102.	20494	<i>Gastrolobium leakeanum</i>	P2	
103.	3918	<i>Gastrolobium pulchellum</i>	P2	
104.	48581	<i>Glossurocolletes bilobatus</i> (a short-tongued bee (southwest), short-tongued bee)	P2	
105.	48307	<i>Gompholobium</i> sp. Stirling Range (C.F. Wilkins et al. CW 2513)	P2	
106.	6164	<i>Gonocarpus rudis</i>	P2	
107.	28306	<i>Grevillea</i> sp. Stirling Range (D.J. McGillivray 3488 & A.S. George)	P2	Y
108.	5822	<i>Hypocalymma myrtifolium</i>	P2	Y
109.	5833	<i>Kunzea eriocalyx</i>	P2	
110.	5029	<i>Lasiopetalum dielsii</i>	P2	
111.	46533	<i>Latrobea pinnaculum</i>	P2	
112.	6353	<i>Leucopogon acicularis</i>	P2	
113.	6363	<i>Leucopogon bracteolaris</i>	P2	
114.	6384	<i>Leucopogon cymbiformis</i>	P2	
115.	30371	<i>Leucopogon psilopus</i>	P2	
116.	13274	<i>Melaleuca ordinifolia</i>	P2	
117.	13279	<i>Melaleuca viminea</i> subsp. <i>appressa</i>	P2	
118.	29533	<i>Microcorys</i> sp. Stirling Range (S. Barrett 1392)	P2	Y
119.	48688	<i>Opercularia nubicola</i> (Stirling Range Stinkweed)	P2	
120.	2287	<i>Petrophile carduacea</i>	P2	
121.	16981	<i>Schizaea rupestris</i>	P2	
122.	16276	<i>Schoenus</i> sp. Stirling (G.J. Keighery 3427)	P2	Y
123.	14327	<i>Spyridium montanum</i>	P2	
124.	14813	<i>Spyridium riparium</i>	P2	
125.	14347	<i>Spyridium villosum</i>	P2	
126.	31879	<i>Stylidium bellum</i>	P2	
127.	11486	<i>Stylidium diuroides</i> subsp. <i>nanum</i> (Dwarf Donkey Trigger Plant)	P2	
128.	12850	<i>Stylidium keigheryi</i>	P2	
129.	48459	<i>Stylidium monticola</i>	P2	Y
130.	44181	<i>Stylidium oreophilum</i>	P2	
131.	45933	<i>Thelymitra</i> sp. Ongerup (S. Osborne 142)	P2	
132.	5076	<i>Thomasia brachystachys</i>	P2	
133.	1325	<i>Thysanotus brevifolius</i>	P2	
134.	13160	<i>Velleia exigua</i>	P2	
135.	12398	<i>Verticordia brevifolia</i> subsp. <i>stirlingensis</i>	P2	
136.	18005	<i>Xanthoparmelia gerhardii</i>	P2	

**Priority 3**

137.	14681	<i>Acacia errabunda</i>	P3	
138.	44443	<i>Acacia keigheryi</i>	P3	
139.	14126	<i>Acacia mutabilis</i> subsp. <i>rhyngophylla</i>	P3	
140.	3456	<i>Acacia newbeyi</i>	P3	
141.	12675	<i>Acacia veronica</i>	P3	
142.	6319	<i>Andersonia setifolia</i>	P3	
143.	30251	<i>Bossiaea atrata</i>	P3	
144.	3720	<i>Bossiaea spinosa</i>	P3	
145.	17922	<i>Brachyloma mogin</i>	P3	
146.	19313	<i>Calectasia obtusa</i>	P3	
147.	5474	<i>Calytrix pulchella</i>	P3	
148.	13113	<i>Chorizema carinatum</i>	P3	
149.	40924	<i>Commersonia rotundifolia</i> (Round-leaved Rulingia)	P3	
150.	16593	<i>Desmocladius biformis</i>	P3	
151.	17515	<i>Eucalyptus arborella</i>	P3	
152.	20743	<i>Eutaxia nanophylla</i>	P3	
153.	5198	<i>Frankenia drummondii</i>	P3	
154.	34030	<i>Geotria australis</i> (Pouched Lamprey)	P3	
155.	2048	<i>Grevillea newbeyi</i>	P3	
156.	2133	<i>Hakea brachyptera</i> (Short-winged Hakea)	P3	
157.	2190	<i>Hakea oldfieldii</i>	P3	
158.	5111	<i>Hibbertia argentea</i> (Silver Leaved Guinea Flower)	P3	
159.	14539	<i>Isolepis australiensis</i>	P3	
160.	14631	<i>Juncus meianthus</i>	P3	
161.	5032	<i>Lasiopetalum fitzgiibbonii</i>	P3	
162.	11010	<i>Lasiopetalum monticola</i>	P3	
163.	5045	<i>Lasiopetalum parvuliflorum</i>	P3	
164.	20704	<i>Latrobea recurva</i>	P3	
165.	11510	<i>Laxmannia grandiflora</i> subsp. <i>stirlingensis</i>	P3	
166.	6393	<i>Leucopogon florulentus</i>	P3	
167.	41261	<i>Leucopogon newbeyi</i>	P3	

N	N	C o n
168.	5937 <i>Melaleuca micromera</i>	P3
169.	5950 <i>Melaleuca polycephala</i>	P3
170.	13276 <i>Melaleuca pritzelii</i>	P3
171.	14082 <i>Persoonia brevihachis</i>	P3
172.	6023 <i>Rinzia longifolia</i> (Creeping Rinzia)	P3
173.	46814 <i>Seringia adenogyna</i> (Skinny-leaved fire-bush)	P3
174.	19335 <i>Sphaerolobium validum</i>	P3
175.	14796 <i>Spyridium mucronatum</i> subsp. <i>recurvum</i>	P3
176.	4831 <i>Spyridium oligocephalum</i>	P3
177.	31632 <i>Stenanthemum pumilum</i> subsp. <i>pumilum</i>	P3
178.	7747 <i>Stylidium lepidum</i> (Redcaps)	P3
179.	12912 <i>Synaphea drummondii</i>	P3
180.	2327 <i>Synaphea preissii</i>	P3
181.	1332 <i>Thysanotus gageoides</i>	P3
182.	6267 <i>Trachymene croniniana</i>	P3
183.	19038 <i>Triglochin protuberans</i>	P3
184.	14708 <i>Verticordia brevifolia</i> subsp. <i>brevifolia</i>	P3
185.	12406 <i>Verticordia coronata</i>	P3
186.	12431 <i>Verticordia huegelii</i> var. <i>tridens</i>	P3
187.	6286 <i>Xanthosia collina</i>	P3

**Priority 4**

188.	12255 <i>Acacia declinata</i>	P4	
189.	3357 <i>Acacia grisea</i>	P4	
190.	14150 <i>Acacia trulliformis</i>	P4	
191.	29014 <i>Acrotriche dura</i>	P4	
192.	6207 <i>Actinotus rhomboideus</i>	P4	Y
193.	1782 <i>Adenanthos filifolius</i>	P4	
194.	31871 <i>Allocasuarina hystrixosa</i>	P4	
195.	6308 <i>Andersonia echinocephala</i>	P4	
196.	6310 <i>Andersonia grandiflora</i> (Red Andersonia)	P4	
197.	1798 <i>Banksia aculeata</i>	P4	
198.	32618 <i>Banksia concinna</i>	P4	
199.	32625 <i>Banksia densa</i> var. <i>parva</i>	P4	
200.	32537 <i>Banksia foliolata</i>	P4	
201.	32517 <i>Banksia hirta</i>	P4	
202.	12033 <i>Banksia laevigata</i> subsp. <i>laevigata</i> (Tennis Ball Banksia)	P4	
203.	32162 <i>Banksia plumosa</i> subsp. <i>denticulata</i>	P4	
204.	32158 <i>Banksia porrecta</i>	P4	
205.	32085 <i>Banksia seneciifolia</i>	P4	
206.	1849 <i>Banksia solandri</i> (Stirling Range Banksia)	P4	
207.	17627 <i>Boronia crenulata</i> subsp. <i>crenulata</i> var. <i>angustifolia</i>	P4	
208.	3709 <i>Bossiaea divaricata</i>	P4	
209.	5419 <i>Calothamnus microcarpus</i>	P4	
210.	13109 <i>Chorizema ulotropis</i>	P4	
211.	5512 <i>Darwinia hypericifolia</i>	P4	
212.	19923 <i>Darwinia leostyla</i>	P4	
213.	5515 <i>Darwinia macrostegia</i> (Mondurup Bell)	P4	
214.	12929 <i>Eremophila veneta</i>	P4	
215.	16884 <i>Eucalyptus buprestium</i> x <i>ligulata</i>	P4	
216.	14483 <i>Eucalyptus buprestium</i> x <i>marginata</i>	P4	
217.	16885 <i>Eucalyptus buprestium</i> x <i>staeri</i>	P4	
218.	5634 <i>Eucalyptus erectifolia</i> (Stirling Range Mallee)	P4	
219.	19742 <i>Eucalyptus ligulata</i> subsp. <i>stirlingica</i>	P4	
220.	16889 <i>Eucalyptus marginata</i> x <i>pachyloma</i>	P4	
221.	12874 <i>Eucalyptus melanophitra</i>	P4	
222.	19659 <i>Eucalyptus vesiculosa</i>	P4	
223.	18138 <i>Eucalyptus</i> x <i>kalganensis</i>	P4	
224.	17744 <i>Gahnia sclerioides</i>	P4	
225.	16745 <i>Gonocarpus benthamii</i> subsp. <i>Stirling</i> (C.J. Robinson 1080)	P4	
226.	12627 <i>Haegiela tatei</i>	P4	
227.	6864 <i>Hemigenia platyphylla</i>	P4	
228.	5823 <i>Hypocalymma phillipsii</i>	P4	
229.	48588 <i>Isodon fusciventer</i> (Quenda, southwestern brown bandicoot)	P4	
230.	2231 <i>Isopogon latifolius</i>	P4	
231.	4001 <i>Jacksonia calycina</i>	P4	
232.	17003 <i>Lasiopetalum membraniflorum</i>	P4	
233.	3042 <i>Lepidium pseudotasmanicum</i>	P4	
234.	6361 <i>Leucopogon blepharolepis</i>	P4	
235.	6408 <i>Leucopogon lasiophyllus</i>	P4	

			P4	
236.	6433	<i>Leucopogon pogonocalyx</i>	P4	
237.	13269	<i>Melaleuca fissurata</i>	P4	
238.	4490	<i>Muiriantha hassellii</i>	P4	
239.	48024	<i>Notamacropus eugenii</i> subsp. <i>derbianus</i> (Tamar Wallaby, Tamar)	P4	
240.	48022	<i>Notamacropus irma</i> (Western Brush Wallaby)	P4	
241.	1538	<i>Orthrosanthus muelleri</i>	P4	
242.	24328	<i>Oxyura australis</i> (Blue-billed Duck)	P4	
243.	2407	<i>Ptilostyles collina</i>	P4	
244.	24746	<i>Platycercus icterotis</i> subsp. <i>xanthogenys</i> (Western Rosella (inland))	P4	
245.	14997	<i>Platysace</i> sp. <i>Stirling</i> (J.M. Fox 88/262)	P4	
246.	19062	<i>Pleurophascum occidentale</i>	P4	
247.	24240	<i>Pseudomys occidentalis</i> (Western Mouse)	P4	
248.	24389	<i>Psophodes nigrogularis</i> subsp. <i>oberon</i> (Western Whipbird (western mallee), Western Whipbird (mallee))	P4	
249.	17713	<i>Sphenotoma</i> sp. <i>Stirling Range</i> (P.G. Wilson 4235)	P4	
250.	31875	<i>Stylidium rosulatum</i>	P4	Y
251.	31493	<i>Tecticornia uniflora</i> (Mat Samphire)	P4	
252.	48135	<i>Thinornis rubricollis</i> (Hooded Plover, Hooded Dotterel)	P4	
253.	1342	<i>Thysanotus parviflorus</i>	P4	
254.	6085	<i>Verticordia harveyi</i> (Autumn Featherflower)	P4	