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# **Bushfire Risk Management Plan**

**2024-2026**

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SHIRE OF WYNDHAM EAST KIMBERLEY

## Document Control

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## Document Endorsements

This Bushfire Risk Management Plan has been endorsed by the Office of Bushfire Risk Management as consistent with the standards detailed in the *Guidelines for Preparing a Bushfire Risk Management Plan 2023*.

The approval of the Bushfire Risk Management Plan by the Shire of Wyndham East Kimberley Council signifies support of the plan's implementation and commitment to working with risk owners to manage bushfire risk. Approval does not signify acceptance of responsibility for risk, treatments or outcomes on land that is not managed by the Shire of Wyndham East Kimberley.

Local Government	Representative	Signature	Date
Shire of Wyndham East Kimberley	CEO		

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# 1 Introduction

## 1.1 Background

This Bushfire Risk Management (BRM) Plan provides contextual information to inform a structured approach to identifying, assessing, prioritising, monitoring and treating bushfire risk. The BRM Plan has been prepared by the Shire of Wyndham East Kimberley, encompasses all land within the Shire of Wyndham East Kimberley and has been written on behalf of all stakeholders within that area. The BRM Plan is informed by consultation and communication with land and asset managers that has occurred throughout its development to ensure an informed and collaborative approach to managing bushfire risk.

The BRM plan has been prepared with due consideration of the requirements stated in the *Guidelines for Preparing a Bushfire Risk Management Plan* (the Guidelines) published by the Office of Bushfire Risk Management (OBRM) including the principles described in *ISO 31000:2018 Risk Management*.

## 1.2 Objectives of the Bushfire Risk Management Plan

The BRM planning program supports local governments to reduce the threat posed by bushfire. The Shire of Wyndham East Kimberley BRM Plan will contribute to achieving the objective of the BRM program by:

- Guiding and coordinating a cross-tenure, multi-stakeholder approach to BRM planning.
- Facilitating the effective use of the financial and physical resources available for BRM activities.
- Supporting integration between risk owners, strategic objectives and tactical outcomes.
- Documenting processes used to monitor and review the implementation of treatments to ensure risk is managed to an acceptable level.

### 1.3 Legislation, Policy and Standards

Legislation, policy and standards that were applied in the development of this BRM Plan can be found in the *Bushfire Risk Management Planning Handbook – Appendix 1 – Summary of Related Legislation, Policy and Guidelines*.

Other Shire of Wyndham East Kimberley policy, guidelines and standards relevant to this document include:

- Shire of Wyndham East Kimberley Corporate Business Plan 2021 - 2025
- Shire of Wyndham East Kimberley Firebreak and Fuel Reduction Notice
- Shire of Wyndham East Kimberley Firebreak and Hazard Reduction Brochure
- Shire of Wyndham East Kimberley Fire Permit Request
- Shire of Wyndham East Kimberley Local Emergency Management Arrangements
- Shire of Wyndham East Kimberley Local Recovery Plan
- Shire of Wyndham East Kimberley Prescribed Fire Plan
- Shire of Wyndham East Kimberley Strategic Community Plan 2023 - 2033

## 2 The Risk Management Process

The BRM planning process is a cycle of understanding the context and assessing and treating risks (Figure 1). Each of these steps is informed by communication and consultation and supported by monitoring and review. The three products produced during the BRM planning process are the BRM Plan, Asset Risk Register and Treatment Schedule (Figure 1).

Further details on the guiding principles and process for the development of this plan can be found in Section 2 of the Guidelines.

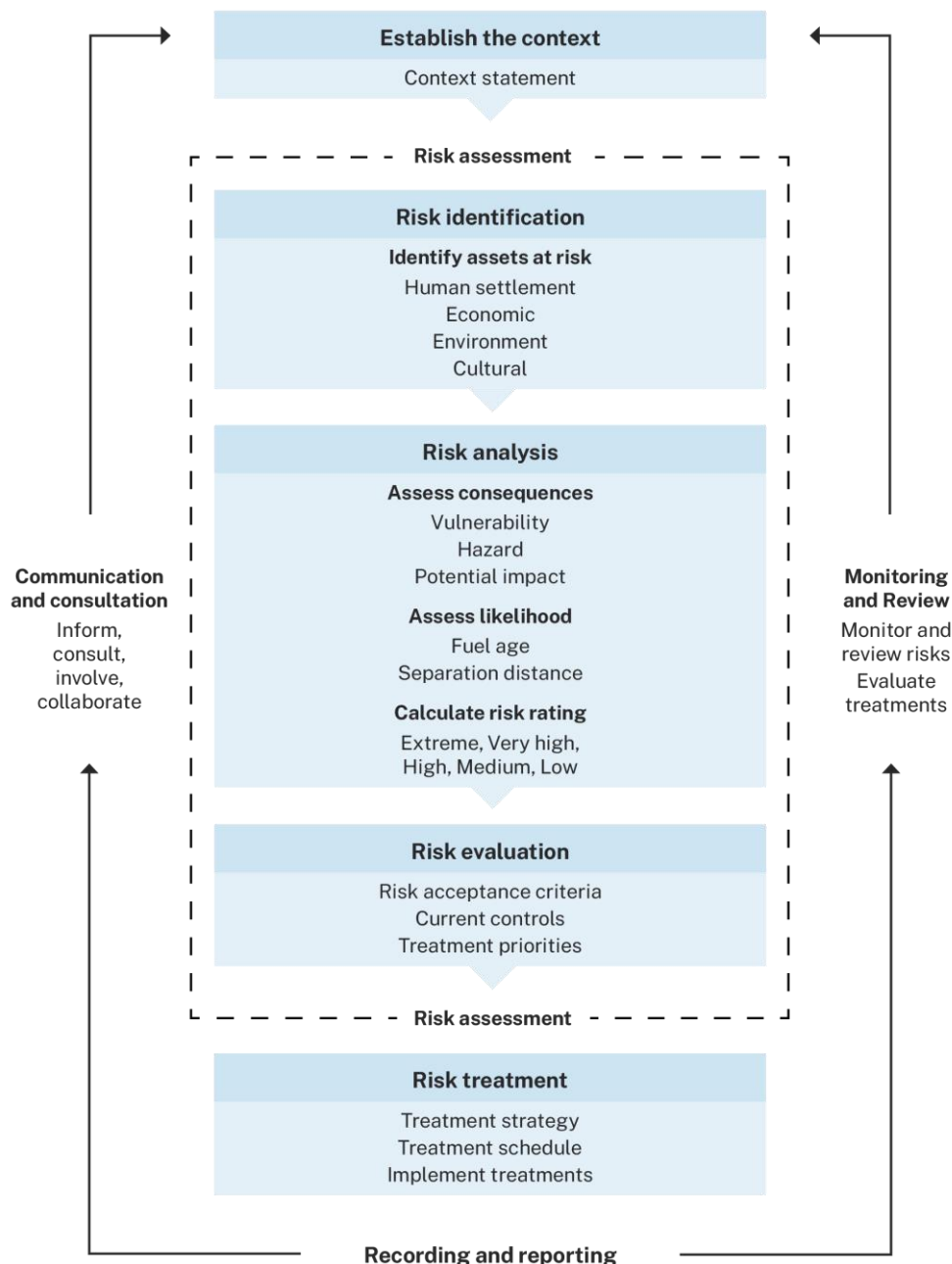


Figure 1 - The Bushfire Risk Management planning process

## 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 in the Bushfire Risk Management (BRM) planning process*

Stakeholder*	Roles and responsibilities
<b>Local Government</b>	<ul style="list-style-type: none"> <li>● Custodian of the BRM Plan.</li> <li>● Coordinate the development and ongoing review of the BRM Plan.</li> <li>● Undertake bushfire risk assessment of local government area.</li> <li>● Submit the draft BRM Plan to OBRM for review and endorsement.</li> <li>● Develop and implement a Treatment Schedule for local government managed land.</li> <li>● Encourage risk owners to treat identified risks.</li> </ul>
<b>Department of Fire and Emergency Services (DFES)</b>	<ul style="list-style-type: none"> <li>● Contribute to the development and implementation of the BRM Plan.</li> <li>● Facilitate involvement of state and federal government agencies in the BRM planning process.</li> <li>● Undertake treatments on Unmanaged Reserves and Unallocated Crown Land within gazetted town sites.</li> <li>● By agreement, implement treatment strategies for other land managers.</li> <li>● Endorse BRM Plans as consist with the Guidelines, BRM Program and dynamic risk environment.</li> <li>● Administer the Mitigation Activity Fund Grants Program.</li> </ul>
<b>Department of Biodiversity, Conservation and Attractions (DBCA)</b>	<ul style="list-style-type: none"> <li>● Contribute to the development of the BRM Plan.</li> <li>● Implement their treatment program on DBCA managed land.</li> <li>● Provide advice on environmental assets and appropriate treatment strategies for their protection.</li> </ul>
<b>Department of Planning, Lands and Heritage (DPLH)</b>	<ul style="list-style-type: none"> <li>● Identify managed assets.</li> <li>● Provide advice on management of Aboriginal Cultural Heritage</li> </ul>
<b>Other State and Commonwealth Government agencies and public utilities</b>	<ul style="list-style-type: none"> <li>● Identify managed assets.</li> <li>● Provide advice on current risk treatment programs.</li> <li>● Contribute to the development of BRM Plans.</li> <li>● Undertake treatments on lands they manage.</li> </ul>
<b>Corporations and private landowners</b>	<ul style="list-style-type: none"> <li>● Identify managed assets.</li> <li>● Provide advice on current risk treatment programs.</li> <li>● Undertake treatments on lands they manage.</li> </ul>

## **2.2 Communication and consultation**

Communication and consultation are fundamental to the development, implementation and review of the BRM Plan. A Communication Plan describing communication with relevant stakeholders at each stage of the BRM planning process is at Appendix A. A record of engagement with stakeholders is also maintained.



### 3 Establishing the Context

#### 3.1 Strategic and Corporate Framework

The BRM Plan has been developed to document and establish strategies to assist in effectively undertaking risk assessments and planning and implementing mitigation treatments within the Shire of Wyndham East Kimberley. The effectiveness of this plan for the Shire of Wyndham East Kimberley will depend upon the engagement of multiple stakeholders, helping to educate and advise stakeholders of potential mitigation and treatment plans to reduce possible risk. In addition, the BRM Plan will be referenced and integrated into the Shire’s strategic documents.

Outcomes of the BRM Plan will assist the Shire of Wyndham East Kimberley to budget for and allocate resources to complete mitigation works as identified in the Plan on an annual basis. Outcomes of the BRM Plan will also be disseminated to stakeholders such as the Local Emergency Management Committee (LEMC) and Bushfire Advisory Committee (BFAC) to increase awareness of the importance of preparedness and preparation for bushfire events.

The vision of the Shire of Wyndham East Kimberley is:

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*Connecting our cultures, striving for prosperity, celebrating the spirit of country and community.*

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The Shire of Wyndham East Kimberley’s Strategic Community Plan 2023-2033 and Corporate Business Plan 2022-2025 provide an overview of the ongoing needs, goals, strategies and directions of the Shire into the future. The BRM Plan will tie into these under ‘Strategies and Policies’ as shown in Figure 2.



Figure 2 - Shire of Wyndham East Kimberley Integrated Planning and Reporting Framework

The Shire's Strategic Community Plan 2023-2033 identifies three main focus areas for the Shire which are accompanied by 10 goals. The BRM Plan's link to these focus areas and relevant goals are shown below in Table 2.

*Table 2 - Shire of Wyndham East Kimberley Strategic Community Plan 2023-2033 focus areas and links to the BRM Plan*

Focus Areas	Goals	Outcomes, strategies, and links to BRM Plan
<b>Liveability</b>	<b>1. Safe communities</b> <i>A community where we all feel safe</i>	<ul style="list-style-type: none"> <li>Partner to address all aspects of community safety, ranging from crime prevention to animal control and emergency management.</li> <li>Undertake bushfire mitigation works to reduce the risk of bushfire to people and communities.</li> </ul>
<b>Connection</b>	<b>8. Connecting our cultures</b> <i>Celebrating and connecting our rich community, culture and heritage</i>	<ul style="list-style-type: none"> <li>Support an increase in community participation in community groups and volunteering.</li> <li>Promote increased awareness and enhance the ability of community to respond to, prepare for and prevent bushfires through the engagement of volunteers and communities.</li> <li>Strengthen relationships with Aboriginal people which foster mutual respect and support, and cultural awareness.</li> </ul>
<b>Sustainability</b>	<b>9. Conserving Country / Sustainable environment</b> <i>Protect and enhance our unique natural environment for generations to come</i>	<ul style="list-style-type: none"> <li>Work in partnership to implement cooperative programs to manage waste, land, fire, pathogens, introduced animals and weeds.</li> <li>Utilise various bushfire mitigation strategies to prevent the spread of large scale, high intensity bushfire across the landscape.</li> <li>Ensure appropriate bushfire mitigation strategies are used to promote the regeneration of native species and habitat and reduce the occurrence of introduce species.</li> </ul>

The BRM Plan will be implemented by the Shire of Wyndham East Kimberley and risk owners, through collaboration with the Shire and LEMC. The Shire's Senior Ranger & Emergency Services Coordinator will be responsible for the ongoing maintenance and implementation of the BRM Plan.



stakeholders within an area are identified to ensure that the required consultation occurs.

Over 90% of the Shire is utilised for agricultural activities with pastoralists managing a large portion of the Shire. Many of these pastoral stations such as Carlton Hill conduct mitigation activities across their properties to manage the bushfire risk. These activities can include aerial burning and on ground mitigation works including burning, and many also have a basic response capability.

*Table 3 - Overview of Land Tenure and Management within the Shire of Wyndham East Kimberley*

Land Manager/Agency	Number of Properties	Percentage of Total Area
Local Government	135	0.01%
Private	2356	0.02%
Department of Biodiversity, Conservation and Attractions	18	1.69%
Department of Planning, Lands and Heritage	293	0.54%
Mining	106	0.80%
Pastoral/Agriculture/Horticulture	198	96.94%
<b>Total</b>		<b>100.00%</b>

### 3.3 Community Demographics and Values

The Shire of Wyndham East Kimberley has a population of 7,477<sup>1</sup> with two main population areas, Kununurra and Wyndham. The town of Kununurra is the principal centre located 3,040kms northeast of Perth and is situated approximately 37kms from the WA/NT Border. This population statistic excludes large variances in tourist population between the Wet and Dry Seasons.

There are a number of Indigenous Communities throughout the Shire, many of which are isolated and have a number of elderly residents. Due to their isolation and numbers of elderly residents, these communities can be at a higher risk from bushfire and can require additional prevention measures and mitigation works to be conducted around their locations. During the wet season (generally October to May), residents of these communities may move away from their remote communities into larger towns so they don't become isolated from resources due to flooding.

Traditional Owners make up approximately a third of the Shire's population. They have a strong connection to the land and setting fire to the bush has for a long time been a traditional way to manage the land. In addition to land management, Traditional Owners also light fires for cultural reasons including during ceremonies and to inform other language groups that their land is being entered. Communication and collaboration is

<sup>1</sup> ABS Census 2021

required with the Traditional Owners to ensure that when fires are required to be lit, they are not done so in ways and areas that will threaten life or property.

The large, transient, tourist population which travels throughout the Shire each year can also be a more vulnerable population when it comes to the risk posed from bushfire. Many who travel throughout the Shire can have little understanding of the risk and may not know where to access relevant information from. Accessible, roadside signage can help to provide this information to tourists and the protection of key tourist locations and transport routes can also work to provide a physical protection against bushfire.

Due to a lack of heavily forested areas the general population in the Shire and the surrounding areas have a perception of there being a relatively low threat from bushfire. This can lead to a lack of fire readiness on privately owned properties and residences. As such, the implementation of the BRM Plan is an opportunity for the Shire to increase awareness of the importance of mitigation strategies to reduce risk of bushfire.

### **3.4 Cultural Heritage**

The Shire of Wyndham East Kimberley is a place rich in Aboriginal history, culture and significance. The Shire is home to around 40 small and often remote Aboriginal Communities as well as many sites of cultural significance. The majority of the Shire is covered under Native Title Agreements and multiple Indigenous Land Use Agreements are in place particularly the eastern side of the Shire<sup>2</sup>.

Due to the number and frequency of fires which have occurred within the main townsites, any culturally significant sites which are located within these areas have generally reached a point where fire is unlikely to cause any further damage.

Outside of the towns, however, there are many sites of significance which may or may not have been formally identified. A snapshot of sites which have been registered or lodged with the Aboriginal Cultural Heritage Inquiry System is shown below in Figure 4. Prior to conducting any mitigation works across the Shire, especially outside of the townsites and in areas in which works have not been conducted previously, it is important that checks are undertaken with the local Traditional Owners to ensure that planned works will not negatively impact any significant sites.

Much of the Shire of Wyndham East Kimberley is also covered under the West Kimberley National Heritage Site. This area has been identified for its biologically rich landscapes, Aboriginal culture, geological and fossil evidence, pearling and pastoral history. Fire management strategies in terms of both mitigation and response should aim to preserve the integrity of the landscape and these sites and ensure that works conducted where possible don't cause unnecessary damage to any of these values.

Many of the other heritage listed sites within the Shire are found in and around Wyndham or Kununurra and have been recognised for their role in the days of early European settlement and throughout the history of the Shire. These sites will continue to be protected from bushfire where possible for both their historic and current use and value as required through the mitigation programs across the Shire.

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<sup>2</sup> Maps showing the areas and details of the Native Title Agreements and Indigenous Land Use Agreements as well as Registered Native Title Body Corporates (RNTBC) and Prescribed Body Corporates (PBC) can be found on the National Native Title Tribunal website <https://nntt.maps.arcgis.com/home/index.html>





of tourist attractions and activities that offer growth and employment opportunities. The Local Government plays a pivotal role in economic development through local engagement and leadership with community and business stakeholders. Bushfires can impact the tourism industry through the closure of businesses and roads due to the threat of fire, so mitigation works around these sites and road ways is essential to minimise disruptions and ensure the safety of travellers.

Key transport routes also run throughout the Shire. The Great Northern Highway which is a major national transport route runs through the eastern part of the Shire and finishes in Wyndham. This sealed highway covers a distance of almost 3,200km and links Wyndham with Perth. The Victoria Highway branches off the Great Northern Highway and provides a link to the Northern Territory. These two highways are the only main access roads within the Shire and are vital to maintaining access to both the Shire and the state. Protecting these roads against bushfire so they are able to safely remain open for tourist and travellers, freight and industry is a key priority and mitigation works such as prescribed burns are conducted in order to prevent bushfire from threatening these routes where possible.

Carbon farming is becoming increasingly widespread across the Shire with most of the northern region registered under carbon farming projects. These projects often involve Traditional Owners conducting early dry season burning of the savanna in order to reduce the occurrence and spread of large late season bushfires which can emit large amounts of greenhouse gases. This not only generates a significant income for the landowners but early dry season burns can also reduce the bushfire risk across the region.

### **3.6 Topography and Landscape Features**

The Shire of Wyndham East Kimberley consists of flat open black soil or sand plains of the Ord Valley and Irrigation Area, surrounded by relatively rugged, low, inaccessible sandstone, limestone or basalt ridges, hills and plateau. While some of the lower lying areas around Kununurra and the Ord Valley are flat and relatively accessible with a good road network, once fires have moved away from major roads, and particularly once they are into the hills (e.g. Cockburn Ranges, Carr Boyd Ranges, Mirima National Park), wildfires are not able to be accessed by fire fighters. Suppression activities in this inaccessible country through the hills and ridges is therefore not possible in most cases.

Containment of bushfires across this vast area generally relies on existing road networks, fire breaks, or low fuel buffers from early season mitigation burns or pastoral grazing.

Within Kununurra, one of the major landscape features is Kelly's Knob which lies in the northern section of town. This rocky outcrop is home to critical infrastructure including communications towers and is prone to bushfires, with many deliberately lit. Due to the limited accessibility of the area, vegetation and firebreak management around the more traversable southern and eastern portions is prioritised each year to limit the potential damage caused by bushfire.

### **3.7 Climate and Weather**

The climate is defined by a distinct wet season and dry season. The Shire of Wyndham East Kimberley is located north of the Tropic of Capricorn, so the climate in the East Kimberley is a tropical monsoon climate. The dry season is characterized by clear blue

skies, easterly winds, and cooler temperatures. The weather is very stable and outdoor events can be planned years in advance. The wet season is hot and humid, sometimes violent, and above all unpredictable.

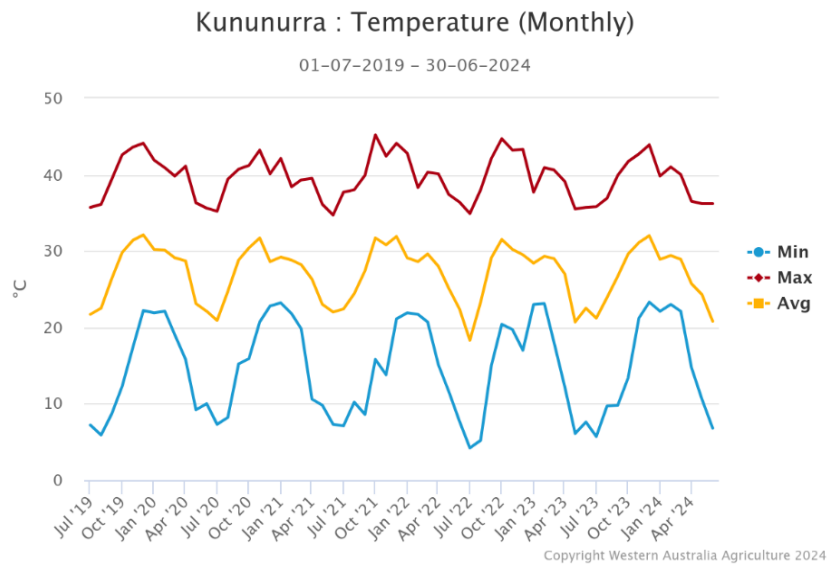


Figure 5 - Average monthly temperatures in Kununurra from 2019 to 2024

During the "build up", the beginning of the wet season, rain occurs in the form of violent thunderstorms. Huge cloud masses pile up in the afternoons with lightning and localized rainfall that is often preceded by strong winds. Weather patterns change as the wet season progresses. During the wet season tropical lows can develop into cyclones effecting the Shire. Flooding is a common event in the East Kimberley wet seasonal period causing road closures, cutting off main access roads and localised flooding. The bushfire season is generally considered to be from July to November with variances being influenced by the onset of the wet season. Prescribed burning is usually conducted during the early dry season from approximately April to May (season dependent) where the humidity and temperatures allow for cooler burns which can self-extinguish overnight.

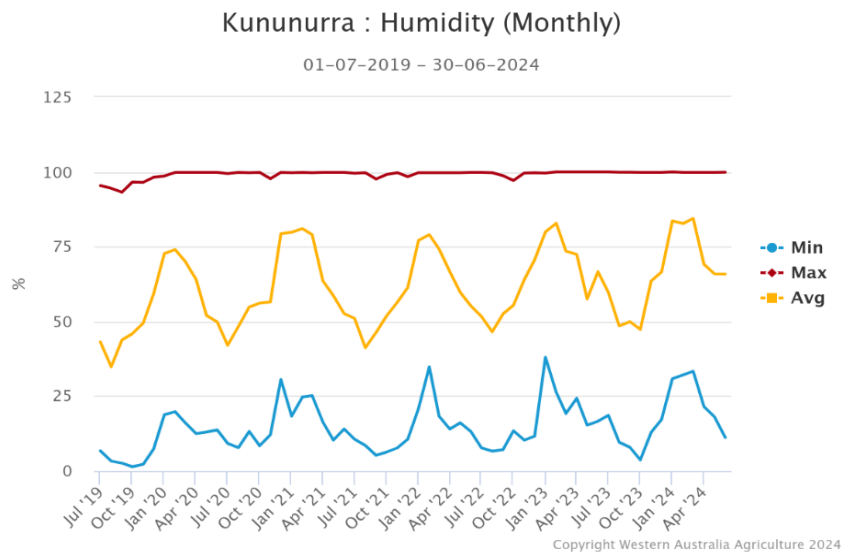
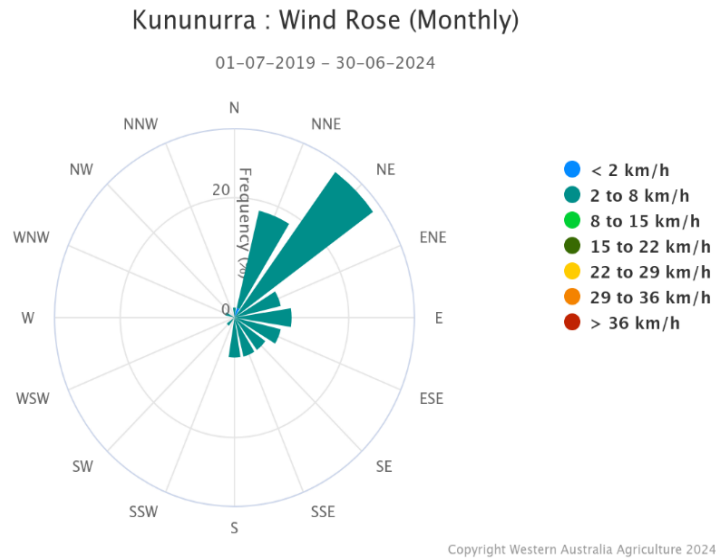


Figure 6 - Average monthly humidity in Kununurra from 2019 to 2024





*Figure 7 - Wind rose of wind speed and direction in Kununurra from 2019 to 2024*

### 3.8 Vegetation and Fuel

The Shire of Wyndham East Kimberley is made up of a complex of tropical savanna vegetation types. These range from low productivity savannas on sandstone hills and sandplains through to more fertile savanna vegetation on basalt or limestone geology with either heavy red earth clay soil, or on the floodplain of the Ord River deep cracking clay black soil. Black soil and basalt soils grow an annual flammable grass fuel load due to their fertility. In contrast to this, sandplains, and sandstone hills with spinifex or *Triodia* grasses, may take 2 or 3 years before grass fuels are sufficient to carry a major fire.

Savanna vegetation is generally dominated by grassy understory vegetation. Tree and shrub canopies form a more scattered and discontinuous canopy layer compared to the grass layer. For this reason, fires in the region are generally ground or surface fires only, with cured grasses and their litter making up the main fuels for fires. The intensity of savanna fires is generally much lower than most southern Australian bushlands. Savanna grass fuel loads are generally 2 to 5 tons/ha but may be up to 8 tons/ha under relatively extreme fuel accumulation. Grasses are generally no more than 1m in height but can be up to 3 m high if annual Sorghum is present.

Riparian vegetation can be found along the Ord and elsewhere including through the Kununurra townsite. This vegetation type is highly prone to weed invasion and should be burnt periodically. Riparian vegetation has a high biomass, so therefore highly flammable. Efforts to burn should be made early in dry season (April-May) to avoid high intensity fires over large areas.

Fuel loading across the Shire is dependent on rainfall over the wet season and has a significant impact of fires the following year. This means some areas can burn each year if there was an ignition source late in the dry season.

### 3.9 Important Species and Communities

Within the Shire of Wyndham East Kimberley, several Threatened Ecological Communities (TECs), threatened flora and fauna species can be found. There are also

several nationally important wetlands and internationally significant wetlands under the Ramsar Convention (Ord River Flood Plan, and Lakes Argyle and Kununurra).

Managing water quality from land use and development is an important component of managing these important wetlands. Similarly ensuring a supported bushfire management plan is equally as important to the Shire and the community to protect these environmental assets.

There are four TEC found within the Shire under the *Biodiversity Conservation Act 2016*, each of which can be threatened by inappropriate fire regimes as shown in Table 4. Ensuring that appropriate fire regimes are implemented across areas containing these TECs is key in ensuring they do not sustain irreversible damage from bushfire or prescribed burning.

*Table 4 - Threatened Ecological Communities found within the Shire of Wyndham East Kimberley*

TEC	Status	Area	Threatening Process	Recovery Process
<b>Black Springs organic mound spring community</b>	Critically endangered	Single mapped occurrence on a small area of Crown reserve	Too frequent and intense fire	Implement appropriate fire regime
<b>Organic mound spring sedgeland community of the North Kimberley bioregion</b>	Critically endangered	Covers a range of 60km	Inappropriate fire regimes	Consistent monitoring and management of fires
<b>Assemblages of Roe River rainforest swamp</b>	Vulnerable	26ha occurrence in Prince Regent National Park	Altered fire regimes (late season severe fires and return cycle of fire)	Consistent monitoring and management of fires
<b>Assemblages of Theda Soak rainforest swamp</b>	Vulnerable	Single location by a tributary of the Morgan River in the east Kimberley	Late season fire	Consistent monitoring and management of fires

Across the Shire of Wyndham East Kimberley, there are many flora and fauna species which require special consideration when it comes to bushfire mitigation. Included in this list and of particular concern around Kununurra is *Typhonium* sp. Kununurra which is currently listed as Endangered under the *Biodiversity Conservation Act 2016* and is undergoing threatening listing assessment under the EPBC Act. Black soil vegetation types, of which this perennial plant is one, have the condition that they can't be burnt prior to 1<sup>st</sup> April each year so this must be taken into consideration when planning burn programs in these areas.

The occurrence of the threatened Purple-crowned Fairy-wren (western) and some of the few remaining populations of native small mammals (e.g. bandicoots and western chestnut mice) under high vegetation cover in the Ord Valley means that prescribed burns in riparian habitats where these species are found should not be high intensity or cover large areas (>100 ha).

Prior to conducting mitigation activities, especially in areas with protected or important species and communities, the Shire of Wyndham East Kimberley will continue to work alongside DBCA to ensure these species and communities will not be impacted and assess any issues on a case by case basis.

### 3.10 Historical Bushfire Occurrence

Bushfires are a normal occurrence throughout the Shire. From 2014/15 to 2023/24 there were 2085 fires recorded within the Shire, averaging over 200 each year (Table 5)<sup>3</sup>. It is highly likely that this number is not an absolute record of fires within the Shire over this period however, as many fires go unreported each year.

Arson is a significant concern and cause of fire in and around the populated areas of the Shire with over 1200 fires (nearly 60%) within the 10 year period being reported as suspicious or deliberate. Of these suspicious/deliberate fires, over 96% of them were recorded in or around the towns of Kununurra (69.2%) and Wyndham (27%) with the majority of these being less than 1ha in size. These high arson rates lead to additional complexities in terms of bushfire mitigation particularly around the townsites. Vegetation in many of these areas are experiencing more frequent rates of fire than ideal which has led to the preferred fuel management strategy changing to mechanical works. Due to the high arson rates however, it can be challenging to then implement these mechanical works as the vegetation is burnt time and time again before it can be formally managed.

Due to the flammable nature of vegetation across the Shire and the remoteness and inaccessibility of many areas, large fires which burn greater than 10,000ha are not uncommon with multiple of these occurring most years as well as many over 1,000ha. The cause of these larger fires is often unreported, and they can burn for extended periods of time under monitoring before action to combat them is required which generally occurs when assets may become under threat.

*Table 5 - Bushfire frequency and common causes of ignition within the Shire of Wyndham East Kimberley from 2014/15 to 2023/24*

	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
<b>Total no. Bushfires</b>	<b>164</b>	<b>125</b>	<b>141</b>	<b>235</b>	<b>210</b>	<b>153</b>	<b>170</b>	<b>257</b>	<b>319</b>	<b>311</b>
<b>Suspicious/ deliberate</b>	111	79	86	122	126	93	109	169	188	154
<b>Unreported</b>	35	25	35	83	61	33	28	47	62	101
<b>Lightning</b>	2	5	1	7	5	9	10	13	31	36
<b>Burn off</b>	2	4	6	12	6	3	5	5	6	3
<b>Undetermined</b>	1	1	0	0	0	6	13	5	17	3
<b>Campfires/ bonfires</b>	3	4	2	1	3	0	1	3	4	4

<sup>3</sup> DFES Reports

Reignition	3	1	3	2	2	2	2	3	2	3
Other	7	6	8	8	7	7	2	12	9	7

### 3.11 Current Bushfire Risk Management Controls

#### Map of Bushfire Prone Areas

The majority of the Shire of Wyndham East Kimberley has been designated as bushfire prone on the Map of Bushfire Prone Areas (Figure 8). Construction on properties which have been identified as being bushfire prone may require a bushfire attack level (BAL) assessment and may be subject to additional planning and construction requirements. These requirements have been put in place to assist in the protection of lives and properties through limiting the impact of bushfires on buildings.

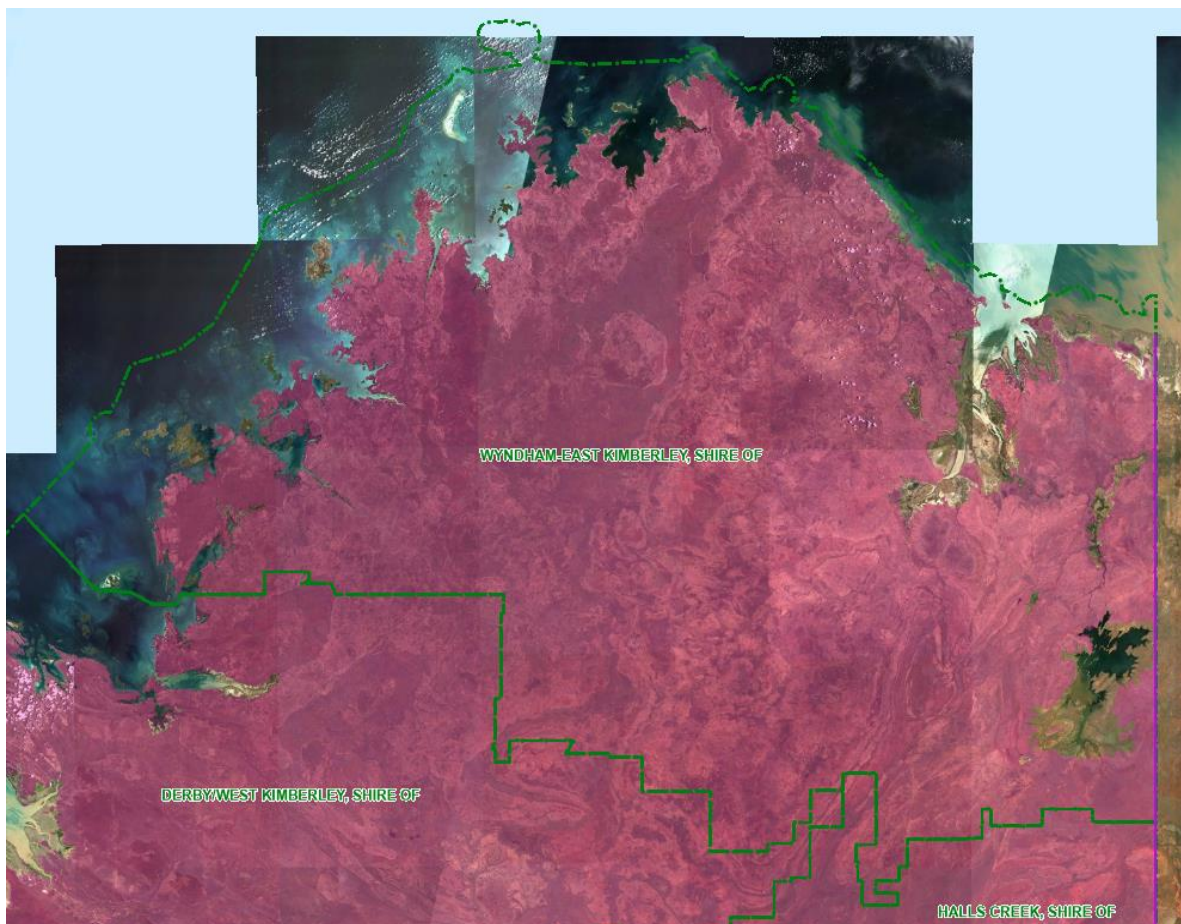


Figure 8 - Shire of Wyndham East Kimberley Map of Bushfire Prone Areas

#### Bushfire Response

The Shire has five registered Volunteer Bushfire Brigades (BFBs), one Volunteer Fire and Rescue Service (VFRS) and one Volunteer Fire and Emergency Services (VFES) unit. DFES through an MOU with the Shire are responsible for the management and administration of the bushfire brigades. The BFBs are strategically placed through the Shire where there is an identified higher risk to the community in and around the

townsite of Kununurra as well as at key tourist locations including Lake Argyle and El Questro. These BFBs include Crossing Falls, Packsaddle, Ivanhoe, Lake Argyle and East Gibb River Road. These brigades participate in bushfire mitigation in their respective areas as well as further afield the Shire as required. Most of these brigades have at least one Light Tanker and one heavy firefighting appliance which are crewed by volunteer members. Additional appliances during the high threat period may be deployed to areas as required and crews from outside the region may also be brought in to supplement local resources if needed.

Kununurra VFRS carry out mitigation for both DFES and the Shire within the gazetted fire district of Kununurra as well as supporting surrounding brigades. Wyndham VFES undertakes mitigation around the Wyndham townsite for DFES and the Shire.

DBCA also maintains a fire suppression capability in the region and can assist the Shire and DFES in the management of fire mitigation and suppression operations as required throughout the Shire.

Other response resources within the Shire include Indigenous ranger groups, plantation owners, farmers, and pastoralists.

### **Burning Restrictions**

The Shire restricts burning through the restricted burning period which is usually in place from the 1<sup>st</sup> of March to the 14<sup>th</sup> of January inclusive. During this time a permit must be obtained from the Shire in order to conduct burns. The permit process allows the Shire to have oversight of burning that is being undertaken in the Shire and assists them to capture mitigation burning being undertaken within the Shire.

### **Bush Fires Act 1954 section 33 Fire Management Notices**

The Shire issues a Fire Management Notice in line with section 33 of the *Bush Fires Act 1954* to all landowners and occupiers each year. The intention of the notice is to ensure landowners and occupiers are doing their bit to assist in preparing their properties for fires. This notice is broken down into different land uses. These include the Ord irrigation project area, pastoral land, townsite land, rural lands, rural living areas and rural accommodation providers. Each of these have a different requirement based on their risk level. The notice is reviewed annually, and a copy is available on the Shires website.

### **DFES Bushfire Mitigation Programs**

The DFES UCL/UMR bushfire mitigation program is primarily conducted on UCL/UMR parcels within gazetted townsites. It has a large focus on forestry mulching and spraying in order to maintain vegetated areas with lower fuel loads in and around townsites to reduce the potential for bushfires to impact on communities and assets.

### **DBCA Bushfire Mitigation Programs**

DBCA's bushfire mitigation program is conducted on all land which is managed by the department including UCL outside of gazetted townsites and UCL which is not covered by exclusive procession Native Title. Works are generally undertaken from early March to mid-June and primarily involves the implementation of a landscape scale prescribed burning program with a small amount of mechanical works around Kununurra and other key assets across the Shire. Approximately 20-30% of the reserve system is aimed to



be treated through these burning programs each year to maintain a mosaic of vegetation ages between 1-5 years old. Consultation is conducted with Traditional Owner groups in regards to mitigation works across the Shire, especially for areas which will affect specific groups.

### **Australian Wildlife Conservancy**

The Australian Wildlife Conservancy (AWC) has a number of wildlife sanctuaries in remote areas of Australia including the Kimberley. Their programs aim to conserve biodiversity across the landscape through careful management of country. Fire management is a critical component of these conservation programs and involves late wet season and early dry season burning to create a mosaic of vegetation ages across the landscape. The AWC also works alongside Traditional Owner groups through formal or informal partnerships to manage country.

### **Traditional Owner Bushfire Mitigation Programs**

Many Traditional Owner groups across the Shire undertake their own mitigation programs and hold fire planning meetings to discuss these works. These meetings can also provide the opportunity to other stakeholders, when invited, to discuss their own programs which are relevant to the groups. Joint management of the conservation estate between Traditional Owners and DBCA enables the Traditional Owners and DBCA to work alongside each other to manage these areas of country and included in this is also the implementation of mitigation works.

An overview of a number of Fire Projects conducted primarily by Indigenous Ranger groups is shown below in Table 6. Many of these fire projects and Aboriginal Corporations run registered carbon projects as a part of their early dry season burning programs. The Fire Projects are often aligned with the Healthy Country Plan (HCP) for the country in which the projects occur and are often conducted in accordance with the Kimberley Land Council (KLC) Fire Guidelines and Operations Manual. These burning programs are planned annually and are often conducted in conjunction with other stakeholders such as DBCA, DFES and the AWC. They can involve both ground and aerial burning programs and are used to prevent the spread of large, destructive wildfires which often occur later in the dry season by creating a mosaic of vegetation ages across the landscape. Figure 9 shows a map of the areas covered by the Kimberley Ranger and Fire Management Areas.

*Table 6 – An overview of Indigenous Fire Projects and Programs within the Shire of Wyndham East Kimberley*

Program	Program Overview
<p><b>Balanggarra Fire Project</b></p> <p>Balanggarra Rangers</p>	<ul style="list-style-type: none"> <li>• Balanggarra Aboriginal Corporation RNTBC</li> <li>• In line with the Balanggarra Healthy Country Plan</li> <li>• Balanggarra Fire Protection Area covers over 1 million ha in the North East Kimberley</li> <li>• Run a registered carbon project</li> <li>• Burning conducted in accordance with KLC Fire Guidelines</li> </ul>

<b>Dambimangari Fire Project</b>	<ul style="list-style-type: none"> <li>• Dambimangari Burn Plan to support the implementation of the Dambimangari Healthy Country Plan</li> <li>• Partnership between the Dambimangari Aboriginal Corporation and AWC</li> </ul>
Dambimangari Rangers	<ul style="list-style-type: none"> <li>• Implement 'right-way fire'</li> <li>• Assists the Dambimangari Aboriginal Corporation in their carbon abatement project</li> </ul>
<b>Kija Fire Project</b>	<ul style="list-style-type: none"> <li>• Take direction from the Malarngowem Aboriginal Corporation RNTBC and the Yurriyangem Taam Aboriginal Corporation RNTBC as owners and managers of Kija country</li> <li>• Operations carried out in accordance with KLC Fire Guidelines and Fire Operations Manual</li> <li>• Covers over 800,000ha across the Yurriyangan Taam, Malarngowem and Miriuwung Gajerrong Native Title Determinations</li> </ul>
Kija Rangers KLC	
<b>Nyaliga Fire Project</b>	<ul style="list-style-type: none"> <li>• Nyaliga Rangers, Wilinggin Aboriginal Coporation, KLC and Indigenous Land and Sea Council crews</li> <li>• Covers the Karunjie and Durack River Fire Project</li> <li>• On Karunjie and Durack River pastoral leases covering 6,710 square km on exclusive possession native title</li> <li>• In accordance with KLC Fire Operations manual</li> </ul>
Nyaliga Aboriginal Corporation	
<b>Wilinggin Fire Project</b>	<ul style="list-style-type: none"> <li>• Wilinggin Aboriginal Corporation in partnership with AWC working with Wilinggin/Wunggurr Rangers and Traditional Owners</li> <li>• In accordance with Wilinggin's Healthy Country Plan</li> <li>• On Wilinggin's land primarily on the Indigenous Protected Area</li> <li>• Objectives based on the Wilinggin Healthy Country Plan</li> </ul>
Wilinggin Aboriginal Corporation	
<b>Wunambal Gaambera Right Way Fire Project</b>	<ul style="list-style-type: none"> <li>• Unguu Rangers and Traditional Owners undertake cool early dry season burns</li> <li>• In the North Kimberley around Kalumburu, the Anjo Peninsula and Ngauwudu (Mithcell Plateau)</li> </ul>
Uunguu Rangers	

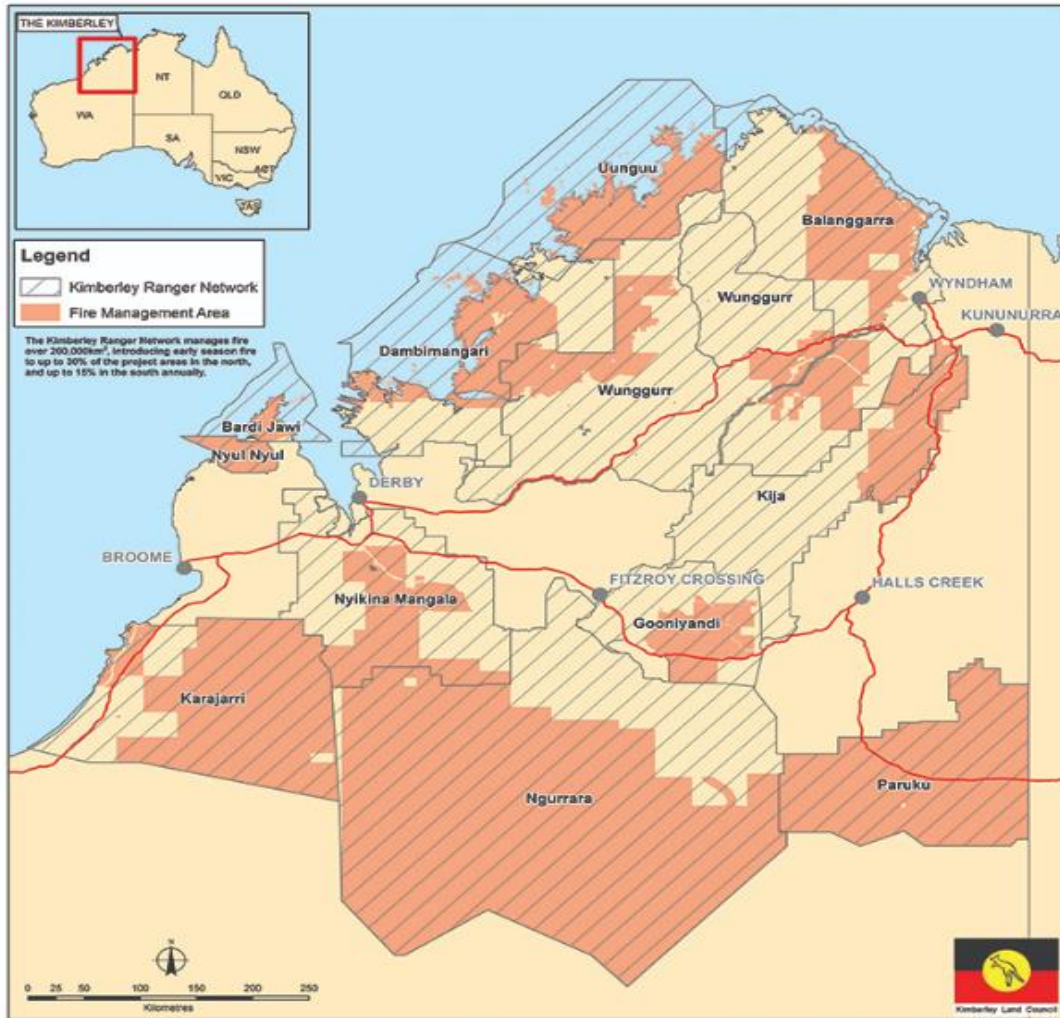


Figure 9 - Map of the Kimberley Ranger Network and Fire Management Areas. Source: Kimberley Land Council

### Other Current Local Government Wide Controls

Local Government Wide Controls are activities that reduce the overall bushfire risk within the Shire of Wyndham East Kimberley. 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. Some notable controls currently in place in the Shire of Wyndham East Kimberley are:

- State-wide arson prevention programs developed with WA Police and the DFES
- Public education campaigns including DFES' state-wide programs such as the 5 Minute Fire Chat and Are You Ready Campaign
- DFES annual Aerial Prescribed Burning Program of Pastoral lands
- DFES Roadside Burning Program
- Shire of Wyndham East Kimberley Annual Mitigation program on Shire lands
- Up to date Fire and Emergency Management information on the Shire's website



- Dissemination of Fire and Emergency Management information on the Shire's social media

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

## 4 Asset Identification

Assets at risk from bushfire in the Shire of Wyndham East Kimberley are recorded in the Asset Risk Register in the BRMS. Assets are divided into four categories: human settlement, economic, climate, and cultural. Each asset has been assigned a bushfire risk rating between low and extreme based on the risk assessment methodology described in the Guidelines and Handbook.

### 4.1 Local Government Asset Risk Profile

A summary of the risks assessed in the Shire of Wyndham East Kimberley is shown 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. This table was correct at the time of publication but may become outdated as risks are treated, or additional risks are identified and assessed. A report may be generated from the BRMS to provide the most current risk profile.

*Table 7 - Local Government Asset Risk Summary*

Asset Category	Risk Rating				
	Low	Medium	High	Very High	Extreme
Human Settlement	0%	5.64%	14.51%	23.39%	37.10%
Economic	0.81%	4.03%	4.84%	3.22%	2.42%
Environmental	0.81%	0%	0%	0.81%	0%
Cultural	0%	0%	0%	2.4194%	0%

## 5 Risk Evaluation

### 5.1 Risk Acceptance Criteria

The acceptable level of risk for each asset category is shown in Table 8. A risk that is assessed as exceeding these limits will be considered for treatment.

*Table 8 - Risk acceptance criteria for bushfire risk in the Shire of Wyndham East Kimberley*

	Asset category			
	Human settlement	Economic	Environmental	Cultural
<b>Acceptable risk level</b>	Medium	Medium	Medium	Medium

Risks at or below the acceptable level do not require treatment during the life of this BRM Plan. They will be managed by routines Local Government Wide Controls and monitored to detect any increase in their risk rating.

### 5.2 Treatment Priorities

The treatment priority for each asset is automatically assigned by BRMS, 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. The treatment priority assigned in BRMS will help inform decision making for risk acceptability and development of the Treatment Strategy and schedule.

*Table 9 - Treatment priorities*

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

## 6 Risk Treatment

The purpose of risk treatment is to reduce the potential impact of bushfire on the community, economy and the environment. This is achieved by implementing treatments that modify the characteristics of the hazard, the community or the environment to make bushfires less likely or less harmful.

### 6.1 Treatment Strategy

The Treatment Strategy describes the overall approach to managing bushfire risk in the medium to long term in the Shire of Wyndham East Kimberley. The strategy is shaped by factors such as the distribution of risk in the landscape, the community's values and objectives, stakeholders' mitigation programs and constraints on treatment options. The Treatment Strategy helps guide the development of integrated annual treatment schedules.

Around Kununurra, early dry season prescribed burning will be conducted to reduce fuel loads to protect houses and critical infrastructure located in and around the townsite. The Kelly's Knob hill in the middle of town is the location of communications infrastructure which is critical to emergency services so protecting these assets is also vital.

The burning of a number of areas around the town too frequently in the last few years has led to a higher burden of weeds and invasive species so a strategy of parkland clearing or mulching followed by chemical applications will enable these areas to have fuel loads more permanently reduced. This will be focused initially on the eastern side of town as this is where the largest portion of risk comes from with easterly winds and fires being lit in communities which then get pushed into town. Combining these on ground works with community engagement and education with the communities in regards to lighting fires and mitigation burns will work together to help reduce some of the risk to town.

### 6.2 Treatment Schedule

The Treatment Schedule is a list of bushfire risk treatments recorded in the BRMS. It is developed with regard to the outcome of the risk assessment process and Treatment Strategy and in consultation with stakeholders.

A treatment schedule for the Shire of Wyndham East Kimberley covering the first year following BRM Plan approval has been entered to BRMS. This is a live document and will be regularly updated throughout the life of the BRM Plan.

Land managers are responsible for implementing agreed treatments 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 manager.

## 7 Monitoring and Review

Monitoring and review processes are in place to ensure that the BRM Plan remains current and considers the best available information.

### 7.1 Monitoring and Review

The Shire of Wyndham East Kimberley will monitor the BRM Plan and BRMS data to identify any need for change. The Plan and BRMS data will be reviewed at least every two years to ensure they continue to reflect the local context, assets at risk, level of risk and treatment priorities.

### 7.2 Reporting

The Shire of Wyndham East Kimberley CEO or their delegate will provide to OBRM the outcomes of biennial reviews of the BRM Plan. This is required to maintain OBRM endorsement of the Plan.

The Shire of Wyndham East Kimberley will contribute to information about their BRM Program to the annual OBRM *Fuel Management Activity Report*.

The Shire will provide a report on the implementation of the BRM Plan to council on a bi-annual basis. The Shire will update the BFAC quarterly on treatment schedules and treatment implementation.

## 8 Glossary

<b>Asset</b>	Something 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 risk register</b>	A component within the Bushfire Risk Management System (BRMS) used to record 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 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>Landowner</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>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 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 treatment</b>	A process to select and implement appropriate measures undertaken to modify risk.

<b>Systemic risk</b>	The impacts of bushfire on the interconnected systems and networks that support community function. It is a product of the disruption caused by fire to the community and its effects may be felt far from the direct impacts of the fire in both time and space.
<b>Treatment objective</b>	The aim to be achieved by the treatment. Treatment objectives should be specific and measurable.
<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 general approach that will be taken to managing bushfire risk, in consideration of the local government context and objectives.
<b>Treatment type</b>	The specific treatment activity that will be implemented to modify risk, for example a planned burn.

## 9 Common Abbreviations

<b>AFAC</b>	Australasian Fire and Emergency Services Authorities Council
<b>BFAC</b>	Bush Fire Advisory Committee
<b>BRM</b>	Bushfire Risk Management
<b>BMB</b>	Bushfire Mitigation Branch (DFES)
<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>KLC</b>	Kimberley Land Council
<b>LEMC</b>	Local Emergency Management Committee
<b>OBRM</b>	Office of Bushfire Risk Management (DFES)
<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



## **10 Appendices**

**Appendix A – Communication Plan**

**Appendix B – Local Government Wide Controls**