Local Biodiversity Strategy

2025-2035

March 2025

DRAFT



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SHIRE OF AUGUSTA MARGARET RIVER

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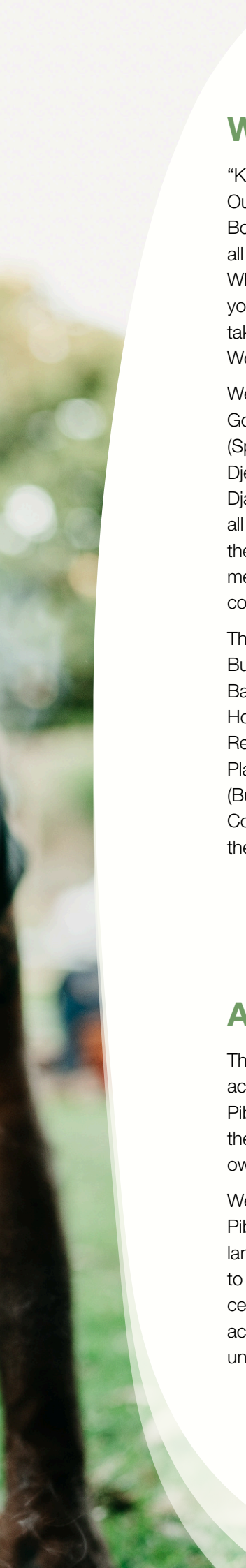
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Welcome to Country

“Kaya, Nala Maat Kaya Noonduk (Hello, Our Family Welcomes You) to Wadandi Boodja (Saltwater People’s Country) – we all come together on Boodja (Country). Whilst on Wadandi Boodja we ask that you respect the land by walking softly and take the time to listen to Boodja as she Wongi (Talks).

We respect the presence of the Demmala Goomala (Ancestors) whose Djanga (Spirits) reside on Boodja and whose Djenna (Feet) walk the land and whose Djanga Korda (Heart Spirit) flows through all creation. Wooditjup (Margaret River) is the heart of Wadandi Boodja (Country), a meeting place between land and sea, connecting us all with Wadandi Boodja.

The Wadandi Boodja reaches from Bunbury, along the coast of Geographe Bay, extending to Yallingup (Place of Holes) to Taalinup, Augusta (Place of Reeds) inland to Nannup (The Stopping Place), taking in the region of Undalup (Busselton). The Wadan Boodja (Sea Country) is of great spiritual significance to the coastal Wadandi people.

Boodja – Land, Country, Mother Earth, Motherland – is our most important resource. No matter what culture or religion – all of us rely on Nala Boodja, Our Country.

It is up to all of us to listen to the land, understand the connection to Country that we all have and realise how urgent it is to work together to make better decisions on how we can create that balance, ensuring sustainability for the generations to come, in order to protect and preserve the beauty of Boodja.

Whilst living, travelling, visiting and holidaying on Wadandi Boodja (Saltwater People’s Country) we ask that you respect the area and walk softly on the Country, taking the time to listen to Boodja (Country) as she Wongi (Talks) of the Season, and leave nothing but footprints”.

Wadandi Cultural Custodian
Wayne “Wonitji” Webb

Acknowledgement of Country

The Shire of Augusta Margaret River acknowledges we are on Wadandi and Pibelmen Boodja, whose ancestors and their descendants are the traditional owners of this country.

We acknowledge the Wadandi and Pibelmen have been custodians since the land was soft (creation times) and continue to perform age old ceremonies of celebration, initiation and renewal. We acknowledge their living culture and their unique role in the life of this region.

The Shire is committed to Aboriginal Australians sharing fairly and equitably in the region’s cultural, social, environmental and economic future.

Foreword



As a community we are extremely fortunate to live in a region that contains an extraordinary natural environment of forest, waterways and coastal areas. Our region contains productive agricultural land and iconic natural landscapes, and we have strong ‘sense of place’ and cultural connection to Boodja (the land). Biodiversity is the diversity of life on earth and is critical to our region as it drives the ecosystem services that support our quality of life.

We have strong community engagement in the management of our natural areas from landholders, stakeholders, schools, NRM groups, cultural custodians and the many volunteers including our Friends of Reserve Groups. We look forward to continuing to work collaboratively together and to strengthen partnerships to protect our natural heritage for the future.

Local government has an important role to play in managing native vegetation and biodiversity assets as decision makers and land managers. The Shire of Augusta Margaret River is strongly committed to continuous improvement in biodiversity conservation management through proactive and best practice approaches to environmental planning and sustainable land management.

The delivery of this Local Biodiversity Strategy and Action Plan provides a framework to guide biodiversity conservation management and initiatives in our region. It is my pleasure to present the Shire of Augusta Margaret River’s Local Biodiversity Strategy.

Julia Meldrum
President, Shire of Augusta Margaret River



Our Shire is undergoing rapid and increasing development, and as a key tourist destination, high visitation numbers, placing significant pressure on our natural environment. Our natural environment faces a number of threats including weed invasion, habitat loss and fragmentation, impacts from a drying climate, and feral animals.

Local governments play an essential role in the conservation and management of biodiversity from within its own tenure (reserves) and partnering with landholders and stakeholders on biodiversity protection in our region. An important element of this Strategy is to build partnerships in our region, working with the community, landholders and stakeholders, to protect and enhance local natural areas including local and regional ecological linkages.

The Shire's Local Biodiversity Strategy will guide the retention, protection and enhancement of our remnant vegetation and biodiversity assets into the future.

I would like to thank all the community members and stakeholders who provided valuable input into the preparation of this Local Biodiversity Strategy. Working together as a community, we all have a part to play in biodiversity conservation.



Andrea Selvey
Chief Executive Officer, Shire of Augusta Margaret River





Executive Summary

The south-west of Western Australia, situated within Wadandi and Pibelmen Boodja and is known as one of the world's 36 biodiversity 'hotspots', with some of the richest and most unique reservoirs of plant and animal life on earth. The Shire of Augusta Margaret River (the Shire) spans an incredible diversity of landscapes and is home to a range of iconic species. The Shire covers a land area of 213,207 hectares and 120 km of coastline. Our sense of place is closely tied to the natural environment and our community are passionate about sustainable practices and maintaining and protecting of local biodiversity.

The Shire lies within the South West botanical province, which supports an estimated 8,000 species of vascular plants, two thirds of the estimated species in Western Australia (SAMR 2024). The Shire is part of the Busselton to Augusta National Biodiversity Hotspot and the International South West Hotspot and is considered to be a climate refuge for species and ecological systems (SAMR 2024). Over 80% of the plant species in the South West are endemic to the province, and not found in other regions. The Shire supports a wide array of fauna, including iconic and endangered species like the Western Ringtail Possum, Black-Cockatoos and the Critically Endangered Hairy Marron – only found within the Margaret River upper reaches. The Shire encompasses diverse landforms and ecosystems, including the Blackwood Plateau and Plain, the Leeuwin Naturaliste Ridge, the Margaret River Plateau and the Scott Coastal Plain.

The Shire contains many significant biodiversity features. These include eight Commonwealth listed Threatened Ecological Communities, 142 taxa of conservation significant flora and 112 conservation significant fauna species. Approximately 62.5% of the pre-European vegetation extent remains in the Shire, and 46% of the Shire is protected in National Parks or other conservation tenure.

The biodiversity of the Shire faces various threats, including:

- invasive species
- pathogens and disease
- habitat loss and fragmentation
- changing land use and development
- impacts to water, hydrology and from erosion
- altered fire regimes
- coastal / foreshore management
- impacts from a drying climate
- social threats.

Population growth and tourism are putting significant strain on this unique biodiversity. The Shire is experiencing sustained population growth (2.36%), with the population expected to increase from 16,701 people in 2020 (SAMR 2022) to 28,629 people by 2040. Due to anticipated population growth and high visitor numbers, the conservation and protection of biodiversity within the Shire is of high importance.

The Shire's Local Biodiversity Strategy (LBS) identifies key priority Local Natural Areas (LNAs) and details strategic direction and actions, with the vision to *"Implement a nature positive approach for best-practice planning and operations for biodiversity protection, supporting community, landholders and partnership initiatives."*

The LBS has been developed to achieve the Shire's vision through implementing the following strategic directions:

- Retention and protection of local natural areas including public and private land
- Identify, protect and enhance strategic ecological linkages
- Mainstreaming biodiversity in Shire operations and decision making
- Working together with our stakeholders and the community
- Foster community understanding and stewardship for the environment
- Governance and resourcing of the Local Biodiversity Strategy

The intent is to have a regenerative approach to protect and build biodiversity values over time as well as mitigating/minimising key impacts and threats. The LBS and action plan details the mechanisms available to work together with the community, landholders and stakeholders to protect and enhance biodiversity values in the Shire.

The strategy aligns with a series of legislative requirements at a National, State and local levels, including the *Environment Protection and Biodiversity Conservation Act 1999, Biodiversity Conservation Act 2016* and various State and local planning policies.

The resulting action plan has been developed as a mechanism for implementation of this strategy, and recommends actions to protect and enhance biodiversity, including management of high priority LNAs, weed management, fire management, community engagement, incentives for landowners and strategies to mainstream biodiversity in all Shire operations.

This Local Biodiversity Strategy will be delivered by the Shire of Augusta Margaret River, with the support from the Western Australian Government's State Natural Resource Management (NRM) Program and the Western Australian Local Government Association (WALGA).



Photo credit: Greg Harewood

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1 Introduction



Photo credit: Kay Lehman



1.1 AIM OF THE LOCAL BIODIVERSITY STRATEGY

The Local Biodiversity Strategy (LBS) has been developed by Focused Vision Consulting (FVC) in consultation with the Shire of Augusta Margaret River (the Shire), through collaborative workshops with staff and in partnership with the community and stakeholders, to provide a framework to prioritise the retention of native vegetation, and for the protection and enhancement of the Shire's natural areas. The intention of the LBS is to guide decisionmaking for best-practice planning and operations for biodiversity protection, supporting community, landholders and partnership initiatives.

The LBS is a key action within the Shire's Corporate Business Plan 2024-2028 and incorporates both public and private land with the aim to prioritise:

- Retention of native vegetation
- Protection and enhancement of natural areas
- A plant local approach
- Opportunities for advocacy
- Engendering a culture of stewardship towards the natural environment
- Resourcing required to deliver the strategy.

Biodiversity conservation and management considerations and actions are closely linked with the impacts of Climate change. At the time of preparation of this LBS, the Shire is finalising a *Climate Action Plan Part 2: Towards Climate Adaptation and Resilience 2024-2030*. Many of the themes, issues and proposed actions are closely related to biodiversity conservation and are relevant to this LBS. One of the key objectives of the Climate Action Plan in relation to the Natural Environment is:

"Our region's biodiversity is not only protected, but flourishes with increased regenerative efforts and connection to Country. There is enough water for everyone, with water being wisely and distributed fairly".

This LBS incorporates relevant actions from the Climate Action Plan which have multiple benefits for both biodiversity and climate action.

The LBS will be implemented over a 10-year timeframe through a comprehensive list of actions presented in **Table 11**.

1.2 BIODIVERSITY CONTEXT

Biodiversity can be described as the variety of all living things such as plants, animals, fungi, micro-organisms, the genetic information they contain and the ecosystems they form (Australian Museum 2023). Each of these species and organisms work together in the ecosystem to maintain balance and support life (WWF 2022). Biodiversity exists at three main levels:

- *Genetic diversity* – the diversity of genetic characteristics within a species, either between individuals or populations of the same species.
- *Species diversity* – the number and relative abundance of species found in a population, ecosystem or on Earth.
- *Ecosystem diversity* – the variety of different habitats, communities and ecological processes.

The southwest of Western Australia is one of 36 global biodiversity hotspots, that hosts a high percentage of endemic species and has experienced loss of habitat (Conservation International 2021). To qualify as a biodiversity hotspot, at least 1,500 vascular flora species must be endemic, and 30% or less of its original native vegetation remains (Conservation International 2021). There are 812 genera from 232 flora plant families (Gioia 2010) which are endemic to southwest Western Australia, where many species have restricted distributions, and species and subspecies are still to be described (Hopper and Gioia 2004). A total of 2,155 taxa are documented to occur within the

Shire of Augusta Margaret River (WAH 1998-).

Approximately 62.5% of the original extent of native vegetation remains within the Shire of Augusta Margaret River, although some of the vegetation complexes are represented by less than 30% of their original extent.

1.2.1 Why Conserve and Protect Biodiversity?

Protecting local biodiversity in the Shire of Augusta Margaret River is crucial, due to its unique ecological and cultural significance. The region is part of the Southwest Australia biodiversity hotspot, one of only 36 such hotspots globally, known for its rich diversity of plant and animal species, many of which are endemic and are found nowhere else on Earth. The threat to their survival is heightened by factors such as habitat loss, climate change, and invasive species.

The Shire of Augusta Margaret River is a potential biodiversity refuge. As climate conditions worsen with rising temperatures and declining rainfall, the cooler, wetter microclimates of the Capes region, including the forests and river systems, may provide critical havens for some species, including the Critically Endangered, Western Ringtail Possum. This capacity to act as a climate refuge adds urgency to protecting local biodiversity now, ensuring ecosystems are resilient to the anticipated pressures.

Protecting biodiversity aligns with the cultural values of the traditional Wadandi and Pibelmen custodians, whose connection to Wadandi/Pibelmen Boodja (land, country) emphasises the importance of safeguarding both the natural environment and the cultural landscapes. The preservation of species, ecosystems and land features enhances cultural heritage, supporting the continuation of traditional practices and respect for the natural world.

Local biodiversity also plays a vital role in supporting recreational activities and tourism, which are key drivers of the region's economy. The Shire's natural attractions—from the towering Karri forests to the stunning beaches, surf breaks and the rugged cliffs and caves of the Leeuwin-Naturaliste Ridge—offer immense value to residents and visitors alike. Protecting these environments ensures the continued enjoyment of these outdoor activities, promoting well-being and supporting eco-tourism industries.

The protection of biodiversity in the Shire of Augusta Margaret River supports ecological health, cultural values, climate resilience, and local economic and recreational benefits. It is essential to preserve these natural assets for the long-term benefit of the community and the environment.

1.2.2 Importance of a Local Biodiversity Strategy

Naturally vegetated areas support significant biodiversity and provide important amenity and ecosystem services to residents (EPA 2021). This Local Biodiversity Strategy (LBS) has been developed to identify and prioritise key environmental assets for protection within the Shire. The Strategy aims to optimise community engagement, advocacy and partnership opportunities and create a culture of stewardship towards the natural environment. As part of the Strategy a Local Biodiversity Action Plan is incorporated to prioritise and guide decision making over the next 10 years in relation to biodiversity conservation and enhancement. The Shire will focus on protecting and enhancing the unique natural environment and biodiversity of the region through climate action and decision making (SAMR 2022).

1.2.3 Strategy Framework

The LBS has been developed in accordance with the Local Government Biodiversity Planning Guidelines (Del Marco *et al.* 2004) designed to identify and prioritise Local Natural Areas (LNAs) for conservation.

Where there are opportunities to protect and enhance biodiversity, the LBS will help identify them and achieve the vision of the LBS. The framework for this LBS is designed to update and complement current strategies, schemes and policies within the Shire relating to the protection of its natural environment and biodiversity. The LBS methodology utilised to develop this framework is broadly summarised in **Figure 1**.

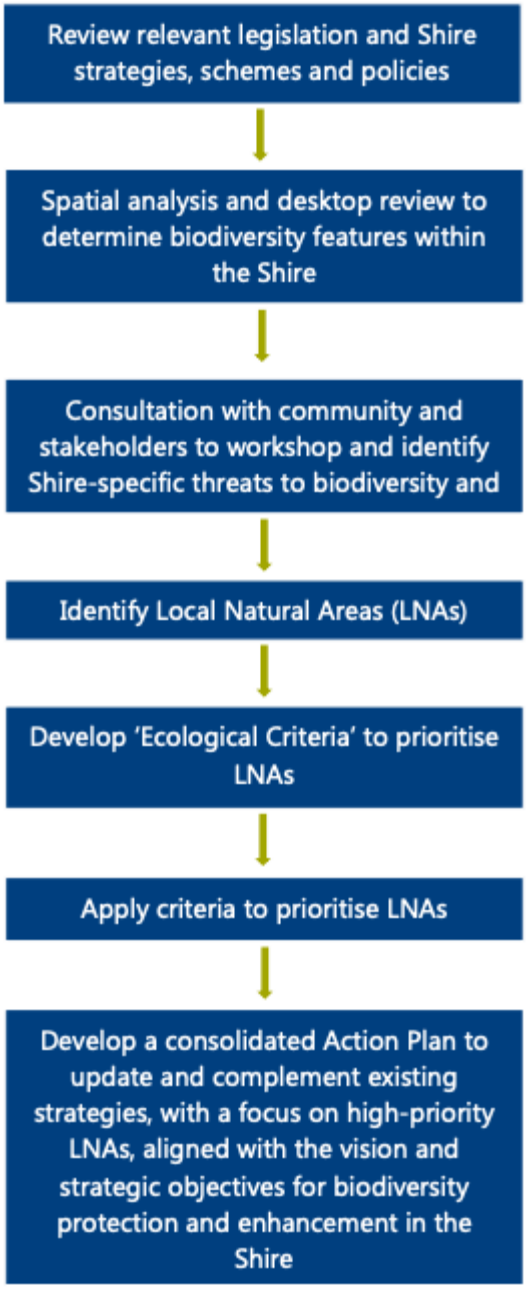


Figure 1 – Methodology for Development of the LBS

1.2.4 Local Natural Areas

LNAs are defined as natural areas that include Shire-vested lands, Unallocated/Crown Land, Noongar Boodja Land, road reserves and private property, and exclude the Department of Biodiversity, Conservation and Attractions (DBCA) Managed Estate (Del Marco *et al.* 2004). Therefore, the LNAs comprise all areas of remnant native vegetation excluding existing DBCA Managed Lands and Waters. The LNAs within the Shire are presented in **Figure 2**.

Achievement of the biodiversity vision will be via the implementation of strategic actions, which includes a focus on high-priority LNAs. The LNAs have been prioritised in reference to categories developed by Del Marco et al. (2004). The prioritisation process is discussed in more detail in **Section 8**.

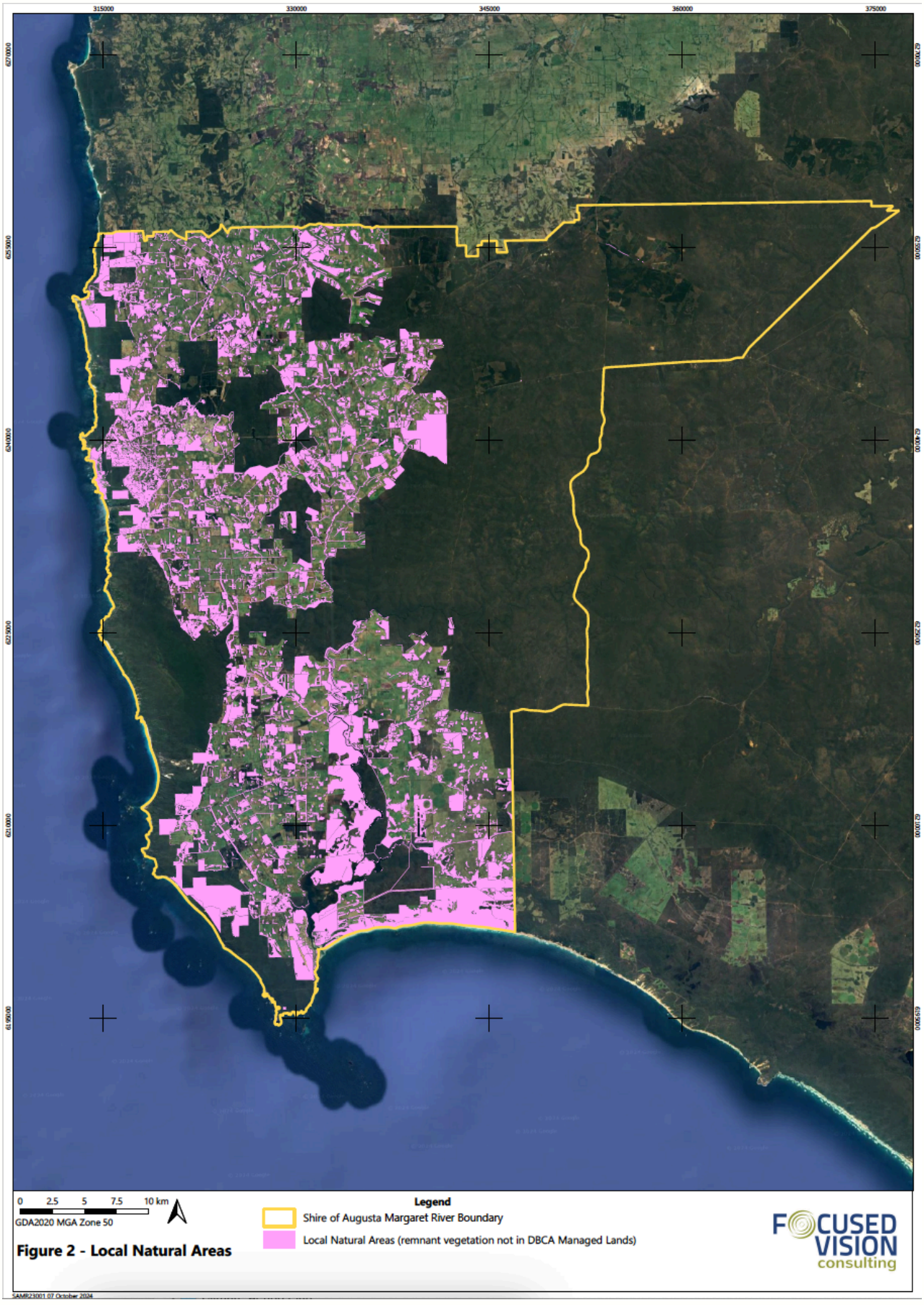
The Shire of Augusta Margaret River comprises a total area of 213,207 ha. Of this, 133,192 ha (62.5%) of original (pre-European) vegetation currently remains. A summary of the remaining extent of vegetation and areas of each of the administrative planning categories is presented in **Table 1**.

Table 1 – Summary of Remaining Vegetation in the Shire

Category	Area (ha)	% of Vegetated Land within the Shire	% of Total Shire Area
Existing Shire Managed Reserves	2,851	2.1	1.3
Local Natural Areas (not including Shire Reserves)	31,239	23.5	14.7
DBCA Managed Lands	99,073	74.4	46.5
2020 Native vegetation extent within the Shire	**133,192**	**100**	**62.5**
Non-vegetated areas	80,015	-	37.5
Total Local Government Area	**213,207**	**62.5**	**100**

Areas are based on Shire spatial data

Figure 2 – Local Natural Areas (LNAs)



1.3 THE SHIRE'S BIODIVERSITY VISION

The Shire of Augusta Margaret River's vision for biodiversity is:

Implement a nature positive approach for best-practice planning and operations for biodiversity protection, supporting community, landholders and partnership initiatives.

This strategy will foster community stewardship of local natural areas and embed the consideration of biodiversity as standard in all decisions and activities of the Shire.

Through strategic guidance, integrated with careful land use planning and active community involvement, we endeavour to create a sustainable and resilient ecological landscape that nurtures biodiversity for current and future generations.

This vision has guided the preparation of this strategy and will continue to guide and set the context for the implementation of the actions herein.

1.4 CULTURAL HERITAGE

We acknowledge the Wadandi and Pibelmen have been custodians since the land was soft (creation times) and continue to perform age old ceremonies of celebration, initiation and renewal. We acknowledge their living culture and their unique role in the life of this region.

A priority outcome of the Shire's Strategic Community Plan 2040 is to 'Provide, regulate and facilitate to support Wadandi and Pibelmen Traditional Owners use and share cultural knowledge to care for Boodja and water in the Shire.'

The Shire's Jenna Yen Mundamung (Walking Together) Strategy 2023-2028 (SAMR 2023c) details how we can build stronger and mutually respectful relationships with our local Aboriginal community and cultural custodians. The recently developed Taalinup Healthy Country Plan was developed to guide decisions to look after Country and to implement practices guided by both traditional ecological knowledge and western scientific understandings, embedded with community and cultural leadership.

The Shire has a strong and ongoing partnership with cultural custodians through collaborative projects and ongoing consultation with the Undalup Association (including through the ranger program) and Karri Karrak Aboriginal Corporation. We will continue to strengthen these partnerships through sharing knowledge and working collaboratively on projects that protect biodiversity and culture on Wadandi/Pibelmen Boodja.

1.5 THE SHIRE'S BIODIVERSITY VISION

1.5.1 Stakeholder Consultation

This document has been developed through consultation and input from community members and key stakeholders over a series of workshops, engagement with Shire staff and through an online community survey ('Your Say') to gain valuable feedback. Further consultation has been undertaken by the Shire with agencies including the Department of Biodiversity, Conservation and Attractions and the Undalup Association.

The community and stakeholder workshops held were as follows:

- **Workshop 1** – Community Government Agencies and other Stakeholders (Augusta), 21 February 2024
- **Workshop 2** – Community (Margaret River), 21 February 2024
- **Workshop 3** – Government Agencies and other Stakeholders (Margaret River), 22 February 2024.

The list of attendees for each consultation workshop is presented in **Appendix A**.

Save our river, save our turtles, save our future

Contacts

Contact the Margaret River Visitor Center on (08) 9780 5911 or welcome@margaretriver.com for camp sites

If you notice anything contact AMR Shire on (08) 9780 5255 or amrshire@amrshire.wa.gov.au

SAVING OUR SNAKE-NECKED TURTLE





You can...

Go around plants
Keep dogs and canoes away
Take your litter home

This sign was prepared by year 6 students from Margaret River Primary School, in partnership with the Shire of Augusta Margaret River, Nature Conservation Margaret River Region and the Friends of Barnett Street Reserve as part of the Saving our Snake-Necked Turtle project.

2 Legislation, policies and plans



2.1 LEGISLATION

In Western Australia, the conservation of biodiversity and the safeguarding of the natural environment are governed by a tiered system of legislation, policies, planning frameworks and management plans. These encompass both statutory and non-statutory mechanisms that deal with issues such as preserving existing vegetation, protecting various species of flora and fauna and managing their habitats. This LBS has considered legislative requirements and government policies at the National, State, and local levels (**Table 2**).

Table 2 – Summary of Legislative, Policy, and Planning Frameworks

Government Jurisdiction	Statutory Mechanisms / Legislation	Key Strategic, Policy, and Planning Documents
Commonwealth	*Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)	Nature Positive Plan: better for the environment, better for business (DCCEEW 2022a) Australia's Strategy for Nature 2019-2030 (Commonwealth of Australia 2019)
State	*Environmental Protection Act 1986* (EP Act) *Conservation and Land Management Act 1984* (CALM Act) *Planning and Development Act 2005* (PD Act) *Biodiversity Conservation Act 2016* (BC Act) *Soil and Land Conservation Act 1945* (SLC Act) *Biosecurity and Agriculture Management Act 2007* (BAM Act)	State Planning Strategy 2050 (WAPC 2014) South West Regional Planning and Infrastructure Framework 2015 (WAPC 2015) Leeuwin Naturaliste Sub-Regional Strategy 2019 (DPLH 2019) Native Vegetation Policy for Western Australia (Government of Western Australia 2022) WA Environmental Offsets Policy and Guidelines (Government of Western Australia 2011 & 2014) Towards Establishing a Green Network (South West Group 2014) Development Control Policy 3.4 – Subdivision of Rural Land State Planning Policy 2.0 – Environment and Natural Resources Policy State Planning Policy 2.4 – Basic Raw Materials State Planning Policy 2.5 – Rural Planning State Planning Policy 2.6 – State Coastal Planning State Planning Policy 2.7 – Public Drinking Water Source State Planning Policy 2.9 – Water Resources State Planning Policy 3.0 – Urban Growth and Settlement State Planning Policy 3.7 – Planning in Bushfire Prone Areas State Planning Policy 4.1 – State Industrial Interface State Planning Policy 6.1 – Leeuwin-Naturaliste Ridge
Local	Local Government bylaws	Shire of Augusta Margaret River Strategic Community Plan 2040 (SAMR 2022) Shire of Augusta Margaret River Local Planning Strategy (WAPC 2022) Shire of Augusta Margaret River Local Planning Scheme No.1 (Government of Western Australia 2010) Shire of Augusta Margaret River Local Planning Scheme No. 2 [DRAFT for public consultation] (SAMR 2023a) Shire of Augusta Margaret River Overarching Sustainability Policy (SAMR 2023b) Local Planning Policy 16 – Subdivision for Conservation (SAMR 2016) Local Government Biodiversity Planning Guidelines for Perth Metropolitan Region (Del Marco *et al.* 2004)

2.2 NATIONAL OBJECTIVES AND TARGETS FOR BIODIVERSITY CONSERVATION

Australia's Environment Ministers have agreed to national targets as part of an updated Strategy for Nature, aligning with the Global Biodiversity Framework (GBF). These include:

- **Protect and conserve 30% of Australia's landmass and 30% of marine areas by 2030**: This target focuses on safeguarding terrestrial, inland water, marine, and coastal areas, particularly those critical for biodiversity and ecosystem services, while recognizing First Nations peoples' rights.
- **Priority degraded areas under restoration by 2030**: Priority ecosystems, including terrestrial, inland waters, and marine areas, will undergo restoration to recover biodiversity and ecosystem functionality.
- **Minimise the impacts of climate change on biodiversity**: This target aims to increase ecosystem resilience through mitigation, adaptation, and nature-based solutions, integrating climate change adaptation in decision-making.
- **No new extinctions**: This goal focuses on preventing new extinctions of native species and supporting the recovery of threatened species to maintain genetic diversity.
- **Increase Australia's circularity rate and reduce pollution and its impacts on biodiversity by 2030**: Australia aims to enhance the circularity of its economy and reduce pollution, including plastic, to mitigate impacts on biodiversity.
- **Eradicate of control invasive species in priority landscapes and further minimise their introduction by 2030**: The goal is to eradicate or control invasive species in priority areas and minimise the introduction of new invasive species to protect biodiversity and cultural heritage.

2.3 STATE, REGIONAL AND SUB-REGIONAL PLANNING STRATEGIES

The State Planning Strategy 2050 has an environmental principle to "Conserve the State's natural assets through sustainable development". Its environmental objective is to "Conserve biodiversity, achieve resilient ecosystems, protect significant landscapes and manage the State's natural resources in a sustainable manner".

This then cascades into the South West Regional Planning and Infrastructure Framework and its key theme of 'Sustainable Environment'. The framework dictates that development is to occur in a manner consistent with environmentally sustainable principles that include the setting of environmental targets to preserve habitats and biodiversity. The primary position of this theme is that there should be no further clearing of native vegetation.

The Leeuwin-Naturaliste sub-regional strategy is more specific than these higher order planning strategies in the key planning issues of the sub-region. It identifies the balancing of growth with the protection of areas with high biodiversity significance, heightened risk of bush fire, human activity and climate change as key planning issues.

2.4 SHIRE POLICIES AND PLANS

The Shire has a series of plans, policies, planning schemes and strategies that establish the vision and direction for development and environmental protection within the Shire. The Shire's Local Planning Strategy and Local Planning Scheme provide guidance for the Shire, developers and the community on how the environment and biodiversity within the Shire will be managed. The Local Planning Strategy and Local Planning Scheme are directed in turn by higher level legislation and State, regional and sub-regional planning strategies. Objectives to conserve and protect biodiversity and the natural environment are integral at every level of planning.

2.4.1 Shire of Augusta Margaret River Strategic Community Plan 2040

The Strategic Community Plan 2040 for the Shire of Augusta-Margaret River sets the Shire's vision, focus areas and strategies for the next 20 years. It incorporates the community's feedback and desires on where the community wants to be in 20 years and how this can be achieved. The plan has a strong focus on environment, including an outcome on ecology and biodiversity protection.

2.4.2 Overarching Sustainability Policy

The Shire has adopted an 'Overarching Sustainability Policy' (May 2023) to align with the Strategic Community Plan 2040. It outlines objectives and principles for environmental protection, equity and a transition to a circular and resilient local economy. Policy item 1 of the Shire's Overarching Sustainability Policy is particularly relevant to this LBS, which is:

'Protect, enhance and regenerate our environment, build climate resilience and rapidly reduce our carbon emissions.'

2.4.3 Shire of Augusta Margaret River Local Planning Strategy 2036

The Shire's Local Planning Strategy 2036 sets the vision for the size, look and feel of the Shire's neighbourhoods, towns and natural areas over a 10-15 year timeframe. The vision is to:

'Adapt to a changing climate, environment and social dynamic and celebrate a sense of plan for our local Indigenous culture and multicultural and creative community.'

The Local Planning Strategy 2036 is supported by five key results areas and is shaped by the Shire's core principles. Goal 1 of the key results areas is of importance to the LBS as it involves 'valuing, protecting and enhancing the natural environment'.

A key theme of the strategy is 'Environment and Resilience'. It recognises the importance of the natural environment in the Shire and the importance of maintaining and enhancing biodiversity in order to maintain stable ecosystems.

The strategy incorporates a number of policy responses on environmental matters including:

- Requirements for precinct plans to demonstrate compliance with the protection of remnant vegetation.
- Strategic planning and land use decisions are to be made in the context of the Shire's 'environment first' policy.
- Maintain and enhance tree cover within the urban environment. The Local Planning Strategy 2036 also summarises and explains how the State Planning Policies listed in Table 3 are applied within the Shire.

2.4.4 Shire of Augusta Margaret River Local Planning Schemes No.1 and No.2

At the time of preparation of this LBS, Local Planning Scheme (LPS) No.1 (gazetted in 2010) is still currently in force, and LPS No. 2 is subject to public consultation following endorsement by the Western Australian Planning Commission before being gazetted for implementation. Local Planning Schemes provide an important opportunity to consider the environmental implications of development. The existing LPS selects areas for new development based of their capacity to be developed without adversely impacting the environment. LPS No.2 will strengthen the existing processes through the inclusion of an Environmental Assets Map that identifies key environmental features that should be protected during planning.

LPS No.2 will achieve environmental protection and enhancement through a mitigation system that includes:

- **Enhance** – through rehabilitation
- **Protect** – reservations, covenants and tree protection orders
- **Avoid** – position development strategically
- **Minimise** – reduce consequences of development
- **Offset** – ensure net positive outcomes.

There are a number of aims of LPS No. 2 directly related to the environment and biodiversity protection, including heritage protection and maintaining the sense of place. LPS No.2 aims to:

- promote and facilitate climate change mitigation and adaptation and encourage development outcomes resilient to the impacts of climate change
- implement an environment first approach to land use and development and where there is uncertainty, to apply the precautionary principle
- ensure, that biodiversity values are protected and, where possible, enhanced and to arrest any further decline in biodiversity by ensuring that future land use and development does not diminish environmental values for present and future generations
- regulate development to ensure that it is sensitively located and constructed in a way that maintains the rural and natural landscape and visual qualities of the Scheme Area
- provide for the preservation and protection, conservation and enhancement of areas, places and objects of heritage significance
- promote and facilitate the development of the region as a centre for education, sustainable agriculture, environmentally responsible tourism and small innovative business.

Environmental assets are identified within LPS No.2 and mapped on the Shire's Environmental Assets Map within the Local Planning Strategy 2036. Objectives for Environmental Assets are described in **Table 3**.

2.4.5 Local Planning Policy 16 – Subdivision for Conservation

Local Planning Policy 16 – Subdivision for Conservation (LPP16) provides guidance for subdivision applications where the purpose of the subdivision is to protect and enhance significant conservation values. This policy supports sustainable development while protecting key environmental and biodiversity assets within the Shire.

The policy applies to rural land within the Priority Agriculture and General Agriculture Zones within the Local Planning Scheme. It aims to encourage the voluntary conservation and protection of natural areas on private land by offering limited subdivision incentives in exchange for landowners committing to conservation efforts through mechanisms like conservation covenants.

LPP16 recognises a general presumption against the subdivision of rural land for non-agricultural purposes and ensures that subdivision does not compromise agricultural potential. Balance lots, which may be used for agriculture, must be designed to maintain both agricultural viability and environmental integrity.

To qualify for subdivision, a property must contain remnant vegetation in good or better condition, or vegetation that supports threatened or priority species. This incentivises the protection of critical habitats and ensures that subdivision leads to a net environmental benefit.

Table 3 – LPS No. 2 Objectives and Requirement for Environmental Assets

Feature	Objective	Requirements
Environmental Corridors	Maintain and strengthen contiguous belts of vegetation throughout the Shire to serve a habitat function and accommodate the movement of wildlife	The removal of vegetation from identified environmental corridors is to be avoided wherever possible. Proposals in proximity to environmental corridors may be conditional upon enhancing or consolidating vegetation belts through additional planting
Remnant vegetation	Preserve and protect isolated stands of endemic vegetation	Clearing of native vegetation is to be avoided where possible and, unless exempt, requires approval of the local government
Watercourses & Wetlands	Maintain water quality, avoid eutrophication and enhance the habitat function of watercourses	Development to be setback 100 m from a watercourse or wetland identified in the 'Environmental Assets Map', where outside of the Residential Zone
Western Ringtail Possum Habitat Areas	Protect species at risk of extinction through tailored development controls and conditions to preserve and maintain habitat	The removal of peppermint trees (*Agonis flexuosa*) within the mapped habitat area is to be avoided wherever possible. A fauna survey may be required to inform applications for vegetation removal
Carnaby's and Baudin's Black-Cockatoo Breeding Areas	Protect species at risk of extinction through tailored development controls and conditions to preserve and maintain habitat	The removal of trees which exceed a trunk diameter of 0.5 m or which contain hollows within the mapped habitat areas is to be avoided wherever possible. A fauna survey may be required to inform applications for vegetation removal.
Burrowing Crayfish Habitat Area	Protect species at risk of extinction through tailored development controls and conditions to preserve and maintain habitat	Development that has the potential to negatively impact watercourses and wetlands within the mapped habitat area is not permitted. Where necessary proposals will be conditional upon fencing and rehabilitation of watercourses in accordance with clause 51. Fauna surveys will be required to inform applications that do not observe the development standards of clause 51.
White Bellied Frog Habitat Area	Protect species at risk of extinction through tailored development controls and conditions to preserve and maintain habitat	Development that has the potential to negatively impact watercourses and wetlands within the mapped habitat area is not permitted. Where necessary proposals will be conditional upon fencing and rehabilitation of watercourses in accordance with clause 51. Fauna surveys will be required to inform applications that do not observe the development standards of clause 51.

3 Land use



3.1 LAND TENURE

The Local Planning Strategy map depicts the general future zoning framework and long term planning intentions across the Shire. The Local Planning Strategy categorises 20 land use classification, as shown in **Figure 3**.

- Civic Use
- Conservation
- Foreshore Reserve
- Future Industry
- Future Tourism
- Future Urban
- Industry
- Local Centre
- National Parks and Nature Reserves
- Parks and Recreation
- Priority Agriculture
- Rails to Trails Reserve
- Residential
- Rural Residential
- Service Commercial
- State Forest and Public Purpose Reserve
- Tourism
- Town Centre
- Transportation
- Water Resources.



Revegetation site
Photo credit: Lower Blackwood LCDC

Figure 3 – Land-Use

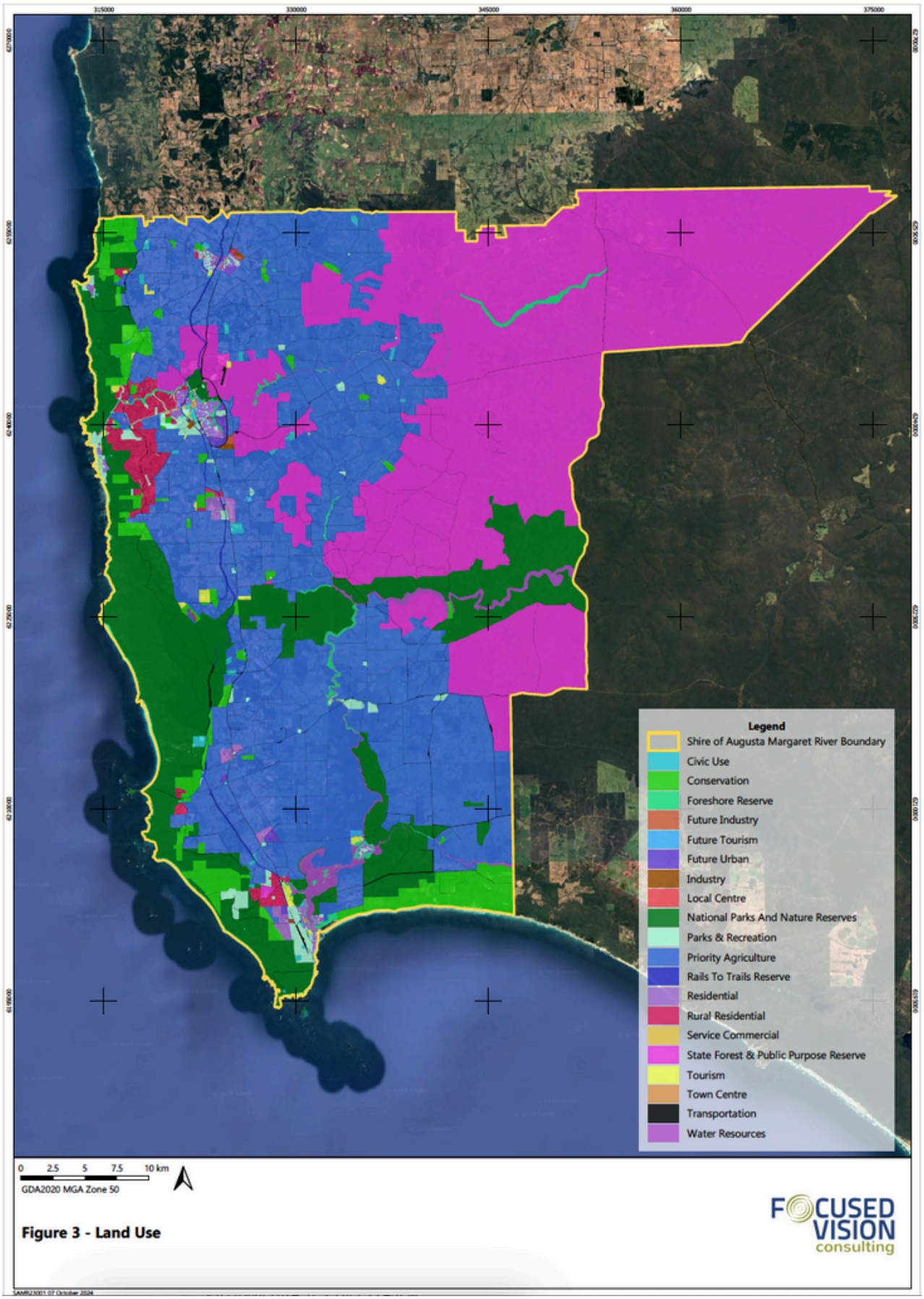


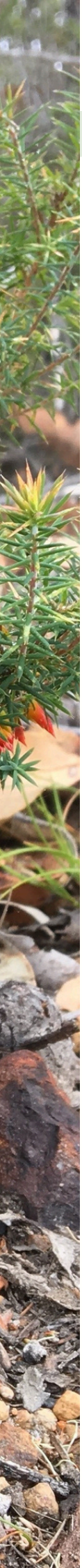


Photo credit: Greg Harewood

4 Local environmental features



Photo credit: David Winstanley



4.1 LANDFORMS AND GEOLOGY

4.1.1 Blackwood Plateau and Plain

The Blackwood Plateau vegetation complex is characterised by gently undulating area of moderately raised land formed on sedimentary rock (Cape to Cape Catchments Group 2003). On a finer scale, the plateau consists of yellow-brown gravelly duplex and pale grey mottled soils on the crests and slopes of the plateau, and deep bleached sands and shallow rocky soils on the top of the plateau (DOW 2008). The western portion of the Blackwood Plateau has rises and low hills characterised by sandy gravel, deep grey sandy duplex and loamy gravel (DBCA 2022). The valleys of the Blackwood Plateau consist of sandy gravel, loamy gravel and deep sands (DBCA 2022). The plains and coastal plains of the southern portion of the Blackwood Plateau vegetation complex are characterised by non-saline, wet soil, consisting of deep grey or pale sands and loamy gravel (DBCA 2022). The alluvial flats around the river are characterised by red brown and grey loamy well-draining soils (DOW 2008).

4.1.2 Leeuwin Naturaliste Ridge

The Leeuwin Naturaliste Ridge vegetation complex runs north-south along the coastline and it is approximately 0.2 to 6 km wide and it runs the whole length of the Augusta Margaret River Shire. Its most prominent feature is the discontinuous limestone ridge, overlain by Tamala limestone over Leeuwin block granite which is exposed in some areas (Schoknecht *et al.* 2004). The Leeuwin Naturaliste Ridge's exposed margins can be seen as abrupt pale limestone sea cliffs (DPIRD 2020). The ridge was originally a coastal dune deposit, and the sands have since solidified and dissolved to form dark, cool cave systems (DPIRD 2020). Sea caves of granite and limestone can be found in the north of the vegetation complex and in protected depressions and gullies on the sheltered side of the main ridge brown sandy loams are found (DPIRD 2020).

4.1.3 Margaret River Plateau

The Margaret River Plateau is a landform that stretches from Dunsborough to Augusta along the coast between Cape Leeuwin and Cape Naturaliste and is between 5 and 15 km wide (DOW 2008). The plateau is formed on granitic, lateritic and gneiss basement rock (DOW 2008). On the plateau, the geology forms undulating and rolling hills, generally having incised elevation (Cape to Cape Catchments Group 2003). The plateau itself is lateritic, consisting of sandy gravel, loamy gravel and gravel and sand duplexes (DBCA 2022), with granite in the valleys (DBCA 2022), ranging from yellow-brown and red-brown gravels and sands and grey sands (Cape to Cape Catchments Group 2003). Some patches in the valley slopes consisted of bleached sands, shallow gravel over ironstone or rocky soils. The river in the south-eastern portion of the Maragaret River plateau consists of alluvial flats with well-defined floodplains and valley flats (Cape to Cape Catchments Group 2003).

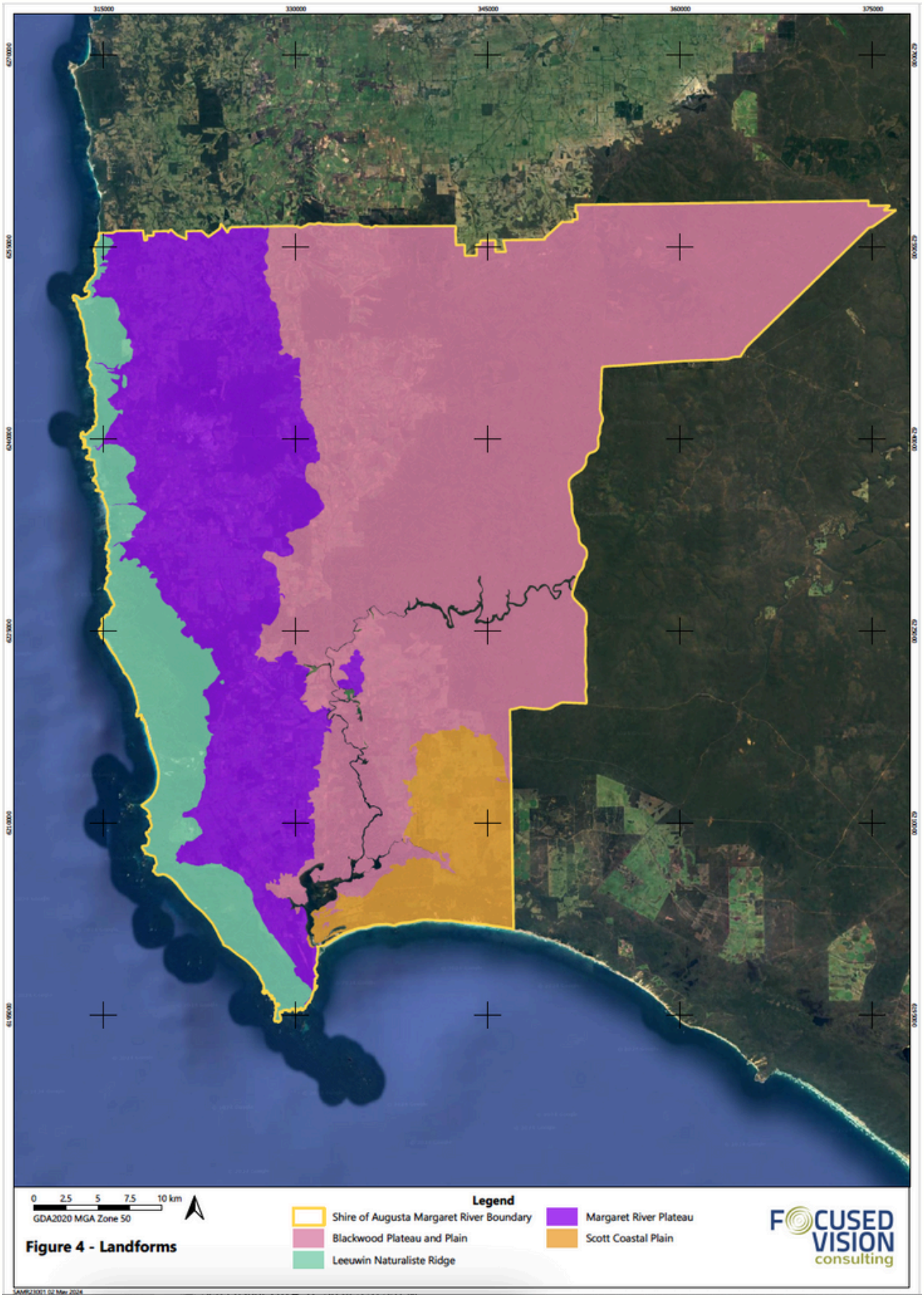
4.1.4 Scott Coastal Plain

The Scott Coastal Plain is in the southern portion of the Shire of Augusta Margaret River, sandwiched between the Darling Plateau and the Southern Ocean (DBCA 2022). The Scott Coastal Plain consists of coastal dunes and plains (DPIRD 2020), with the Scott River comprising ephemeral, seasonal and permanent wetlands and waterways (SAMR 2022). On a finer scale, the north of the Scott Coastal Plain consists of low, rounded hills and scattered ridges that gradually descend into gently inclined sandy plains (DPUD 1993). Inland there is the presence of granite hills, which appear as large domes, clusters of boulders or as isolated formations that dominate the surrounding landscape (DPUD 1993). The swampy lowlands and estuaries are separated from the coast by a belt of solidified and active dunes. The swampy lowlands result from the infilling of coastal lagoons and estuaries which were blocked by the gradual movement of dunes (DPUD 1993). The soils, particularly in the south-west, are subject to flooding, with the winter water table being on or near the surface (DPUD 1993). The coastline mainly consists of seeping white sandy beaches, sometimes interrupted by exposed, foaming nearshore reefs and rugged cliffs (DPUD 1993).



Photo credit: Lower Blackwood LCDC

Figure 4 – Landforms



4.2 VEGETATION

Specific to vegetation and further to the National objectives and targets for biodiversity conservation (**Section 2.2**), the State Government also acknowledges that 30% representation of the original extent of each vegetation association or complex is regarded as the threshold level below which species loss appears to accelerate rapidly (EPA 2008).

Vegetation associations and complexes with less than 10% remaining are considered 'Endangered'. Vegetation associations and complexes with less than 30% remaining of their pre-European extent are therefore significant when prioritising management, protection and restoration of LNA's within the Shire of Augusta Margaret River.

4.2.1 Vegetation Inventory and Retention Targets

Retention of native vegetation is part of national, State, regional and local legislation and policy for the protection of biodiversity. Both Commonwealth and State objectives target the retention of at least 30% of the pre-European extent of each vegetation association/complex to prevent an exponential loss of species, failure of ecosystem processes and the protection of biodiversity (Del Marco *et al*. 2004; EPA 2008; DCCEEW 2022a).

Native vegetation mapping is an important tool for describing the diversity of ecosystems within the Shire of Augusta Margaret River. It serves as a surrogate measure for identifying and assessing various ecosystems based on vegetation types and distributions. Biodiversity conservation priorities are established at the national, regional and local scales by examining the retention and protection levels of native vegetation.

At both regional, IBRA and national levels, efforts to conserve biodiversity are guided by the retention of native vegetation, ensuring that key ecological communities, especially those that have experienced significant habitat loss, are prioritised for protection and restoration. In practice, this means conserving native vegetation through land management strategies, habitat protection measures, and restoration projects to maintain the ecological integrity of the region.

All vegetation associations and complexes within the Shire have been allocated a retention priority based on the pre-European extent remaining within the State (**Appendix B, Appendix C**). This is then used to inform the prioritisation of LNAs. The retention categories and priorities are defined in **Table 4**.

Table 4 – Retention Categories for Prioritisation of Vegetation Ecosystems

Retention Category	Priority
Under Retention Target – Endangered (<10% of pre-European extent remaining)	Critical
Under Retention Target (<30% pre-European vegetation extent remaining)	High
Close to Retention Target (35% - 30% pre-European vegetation extent remaining OR <30% pre-European extent remaining within Shire but >30% remaining in the state)	Medium
Adequately Retained (50 – 35% pre-European vegetation extent remaining)	Low
Well-Retained (>50% pre-European vegetation extent remaining)	Very Low

4.2.2 Vegetation Associations

Vegetation within the Shire of Augusta Margaret River has been broadly characterised by Beard (1990). All of the Beard (1990) vegetation associations occurring within the Shire of Augusta Margaret River and their remaining extent across a range of contexts is presented in **Appendix B** and spatially in **Figure 5**. Vegetation associations within the Shire of Augusta Margaret River with less than 30% remaining are summarised in **Table 5**.

Two vegetation associations (1000 and 1008) are represented by less than 30% of the original vegetation extent within Western Australia and three vegetation associations (2, 973 and 1008) are represented by less than 30% of the original vegetation extent within the Shire (**Table 5, Figure 5**). Despite vegetation associations 2 and 1008, having less than 30% of their original extent remaining within the Shire, these associations are represented by more than 30% within the State (**Table 5**). No existing remnant vegetation representative of vegetation associations 2, 973, 1000 or 1008 occur within any Shire managed reserves.

A number of vegetation associations represented in the Shire of Augusta Margaret River are not currently adequately protected within DBCA Managed Lands. Vegetation associations 125, 973, 1000, 1008 and 1138, currently have less than 10% of their pre-European extent occurring within DBCA Managed Lands within Western Australia (**Appendix B**).

The remaining extents of each vegetation association has been included in the prioritisation assessment in order to determine high priority LNAs.

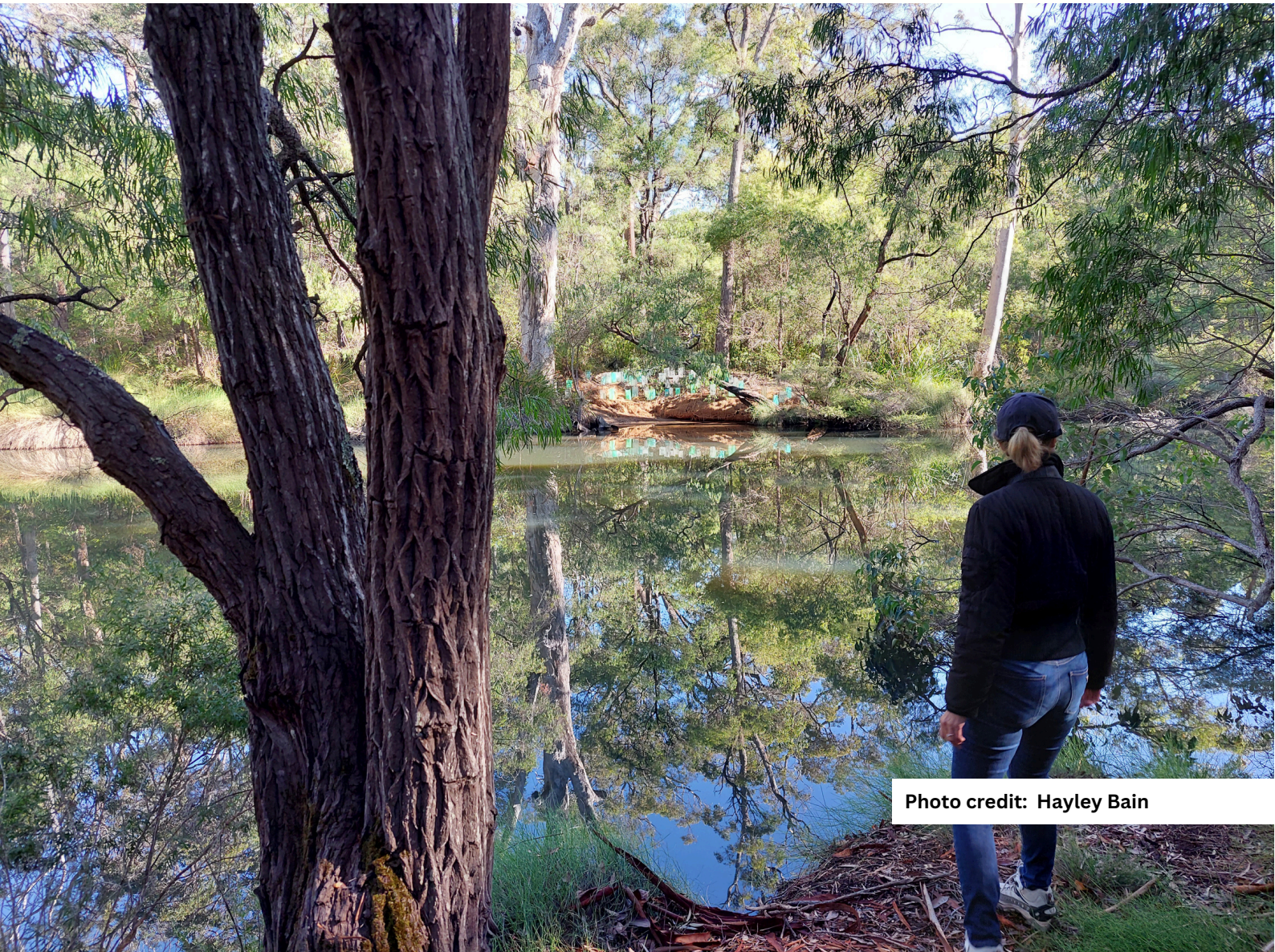


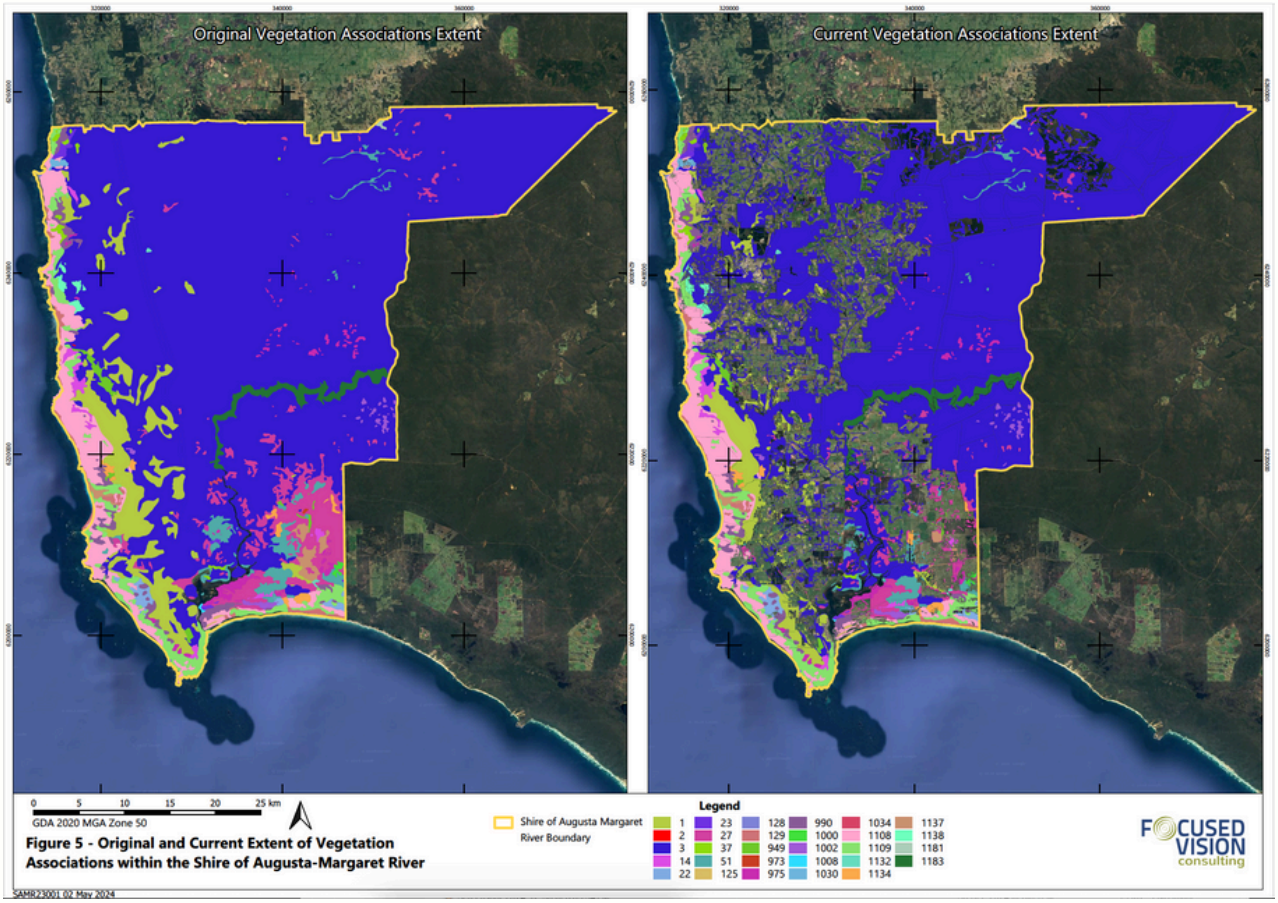
Photo credit: Hayley Bain

Table 5 – Under-Represented Vegetation Associations within the Shire of Augusta Margaret River (Beard 1990, GoWA 2019a)

Vegetation Association	Description	Western Australia			Shire of Augusta Margaret River			Priority
		Pre–European Extent (ha)	Current Extent (ha)	% Remaining*	Pre–European Extent (ha)	Current Extent (ha)	% Remaining*	
2	Tall woodland; Tuart (*Eucalyptus gomphocephala*)	3,148.85	1,856.43	58.96	7.25	1.71	23.57	**Medium**
973	Low forest; paperbark (*Melaleuca rhaphiophylla*)	5,003.27	1,895.60	37.89	25.06	7.07	28.22	**Medium**
1000	Mosaic: Medium forest; Jarrah-Marri / Low woodland; Banksia / Low forest; teatree (Melaleuca spp.)	99,835.86	27,768.84	27.81	121.13	51.39	42.43	**High**
1008	Medium open woodland; Marri	4,592.09	1,138.49	24.79	31.28	6.95	22.22	**High**

*On-ground assessments would be required to verify the actual extent of vegetation and its composition

Figure 5 – Original and Current Extent of Vegetation Associations



4.2.3 Vegetation Complexes

Vegetation complexes have also been defined by Heddle et al. (1980) and are based on vegetation in association with landforms and underlying geology. The vegetation complexes within the Shire of Augusta Margaret River are described in **Appendix C** and presented in **Figure 6**. Six vegetation complexes are represented by less than 30% of their original vegetation extent within the State or the Shire (**Table 6**).

No vegetation complex within the Shire falls below 10% of its pre-European extent remaining within Western Australia (**Appendix C**). Three vegetation complexes (Cw1, Cw2 and Swi) are considered to be underrepresented and have less than 30% remaining of their pre-European extent remaining within the State (**Table 6**). Six vegetation complexes (C2, Cw1, Cw2, Swi, W2 and Ww2) have less than 30% remaining of their pre-European extent remaining within the Shire of Augusta Margaret River (**Table 6**). Remnant vegetation representative of four of these underrepresented vegetation complexes (C2, Cw1, Cw2 and Swi) occurs within a number of Shire of Augusta Margaret River's managed reserves (**Appendix D**).

The remaining extents of each vegetation complex has been included in the prioritisation assessment in order to determine high priority LNAs.

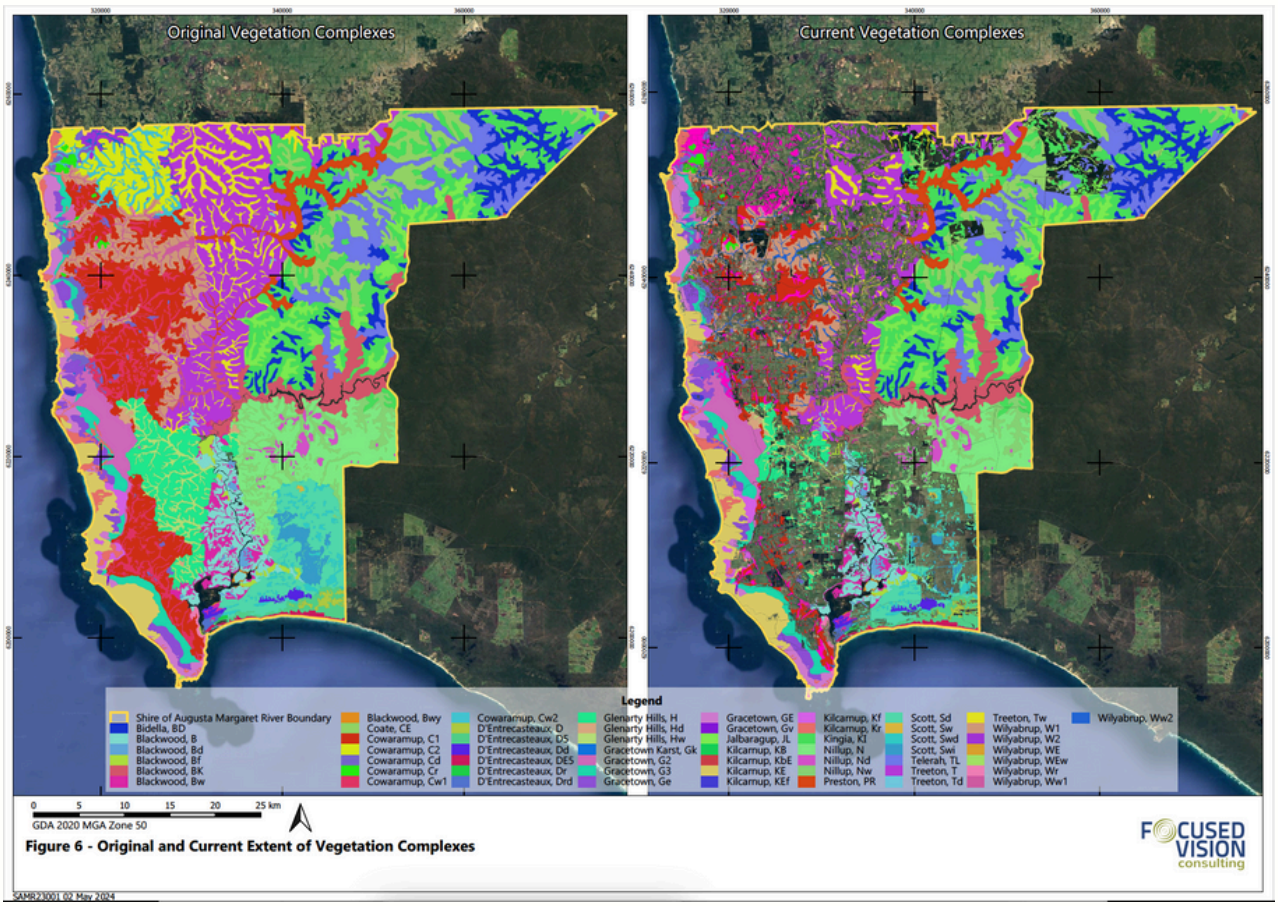


Photo credit: Kay Lehman

Table 6 – Under-Represented Vegetation Complexes within the Shire of Augusta Margaret River (Heddle et al. 1980, GoWA 2019b)

Vegetation Complex	Description	Western Australia			Shire of Augusta Margaret River			Priority
		Pre–European Extent (ha)	Current Extent (ha)	% Remaining*	Pre–European Extent (ha)	Current Extent (ha)	% Remaining*	
Cowaramup (C2)	Open forest of *Eucalyptus marginata* subsp. *marginata-Corymbia calophylla-Banksia grandis* on lateritic uplands in perhumid and humid zones.	13,692.45	4,442.60	32.45	5,201.93	1,454.65	27.96	**Medium**
Cowaramup (Cw1)	Mixture of open forest to woodland of *Eucalyptus diversicolor-Corymbia calophylla* and woodland of *Eucalyptus marginata* subsp. *marginata -Corymbia calophylla* on slopes and low woodland of *Melaleuca preissiana-Banksia littoralis* on depressions in the hyperhumid zone.	6,144.37	1,726.07	28.09	6,144.37	1,726.07	28.09	**High**
Cowaramup (Cw2)	Woodland of *Eucalyptus marginata* subsp. *marginata-Corymbia calophylla* on slopes and low woodland of *Melaleuca preissiana-Banksia littoralis* on depressions in perhumid and humid zones.	6,654.67	1,352.26	20.32	2,807.95	456.02	16.24	**High**
Scott (Swi)	Closed heath of Myrtaceae-Proteaceae spp. and tall shrubland of *Viminaria juncea* on flats and depressions in the perhumid zone.	1,645.73	271.85	16.52	1,645.73	271.85	16.52	**High**
Wilyabrup (W2)	Open forest of *Corymbia calophylla-Allocasuarina decussata-Agonis flexuosa* on deeply incised valleys in perhumid and humid zones.	4,108.02	1,316.77	32.05	836.14	114.75	13.72	**Medium**
Wilyabrup (Ww2)	Tall open forest of *Corymbia calophylla-Agonis flexuosa* on flats and valleys in perhumid and humid ones.	1,331.16	503.12	37.80	303.74	69.23	22.79	**Medium**

Figure 6 – Original and Current Extent of Vegetation Complexes



4.3 RESERVES

4.3.1 DBCA Managed Lands

Land managed by DBCA covered more than 26.9 million hectares of land in WA in 2022 (excluding DBCA managed waters). These lands include national parks, conservation parks and reserves, marine parks and reserves, regional parks, nature reserves, State forest, timber reserves and other land areas reserved under sections 5(1)(g) and 5(1)(h) of the CALM Act for conservation purposes. The DBCA managed conservation estate is vested in the Western Australian Conservation and Parks Commission.

Within the Shire of Augusta Margaret River, DBCA manages approximately 99,073 ha of land across a variety of tenures and management categories (**Figure 7**), including:

- Nature Reserves
- Conservation Park
- Marine Park
- National Park
- State Forest
- Timber Reserves.

A list of all lands managed by DBCA in the Shire is listed in **Appendix E**.

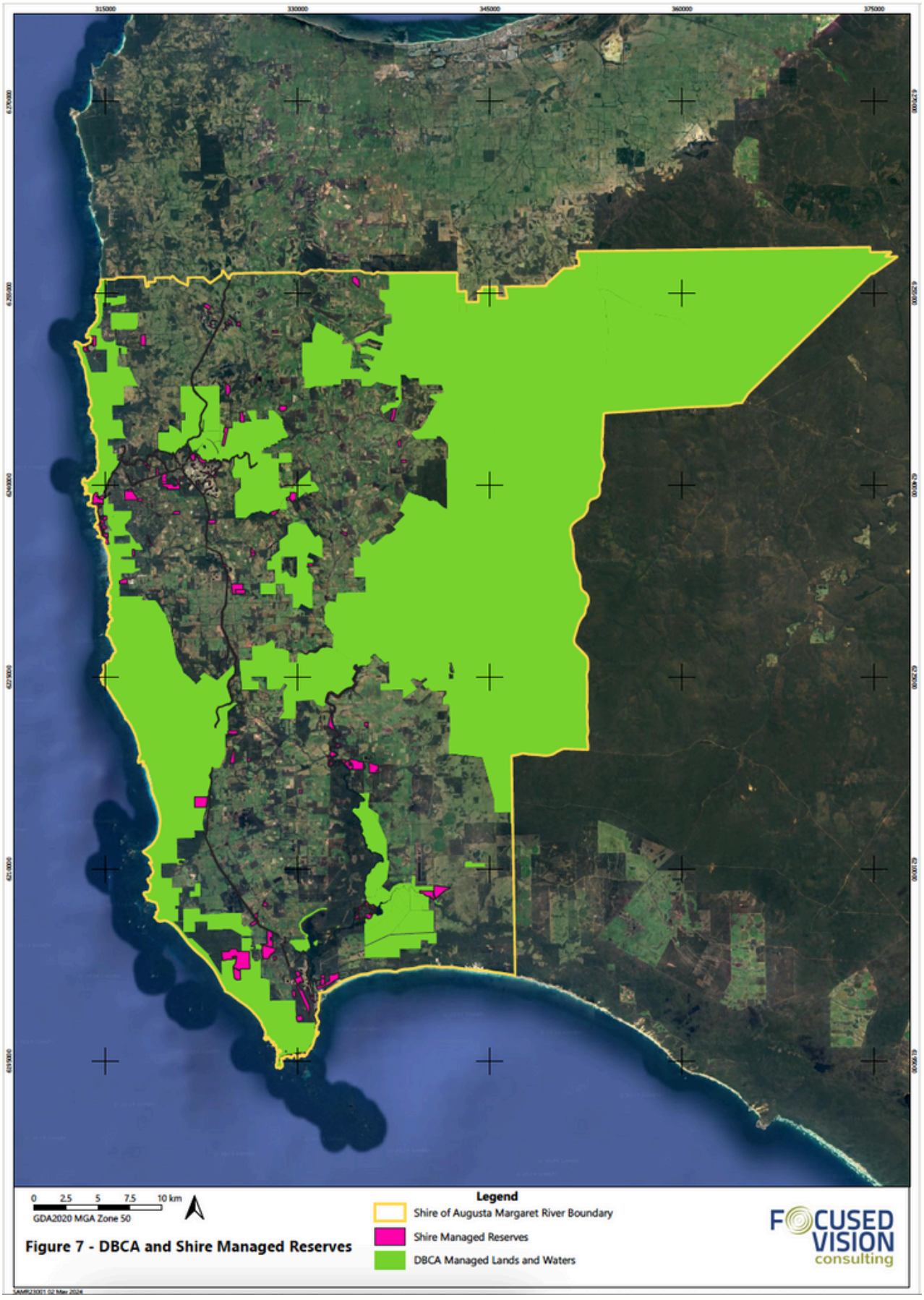
DBCA managed lands, such as Leeuwin Naturaliste Capes National Park and Blackwood/Forest Grove National Park, provide a number of the key ecological linkages within the Shire (**Section 4.8**).

4.3.2 Shire Reserves

Currently the Shire manages 2,850.58 ha within Shire reserves (**Appendix F**), which are set aside for public purposes such as; parks and recreation, road reserves, memorials, caravan parks, and access ways (**Appendix F**). The Shire is directly responsible for over 300 bushland, foreshore and coastal reserves of remnant (SAMR 2023d). Road Reserves, with the exception of Bussell Highway, Brockman Highway and Caves Road (except where they cross through townsites) are also under the management responsibility of the Shire.



Figure 7 – DBCA and Shire Managed Reserves



4.4 THREATENED AND PRIORITY FLORA

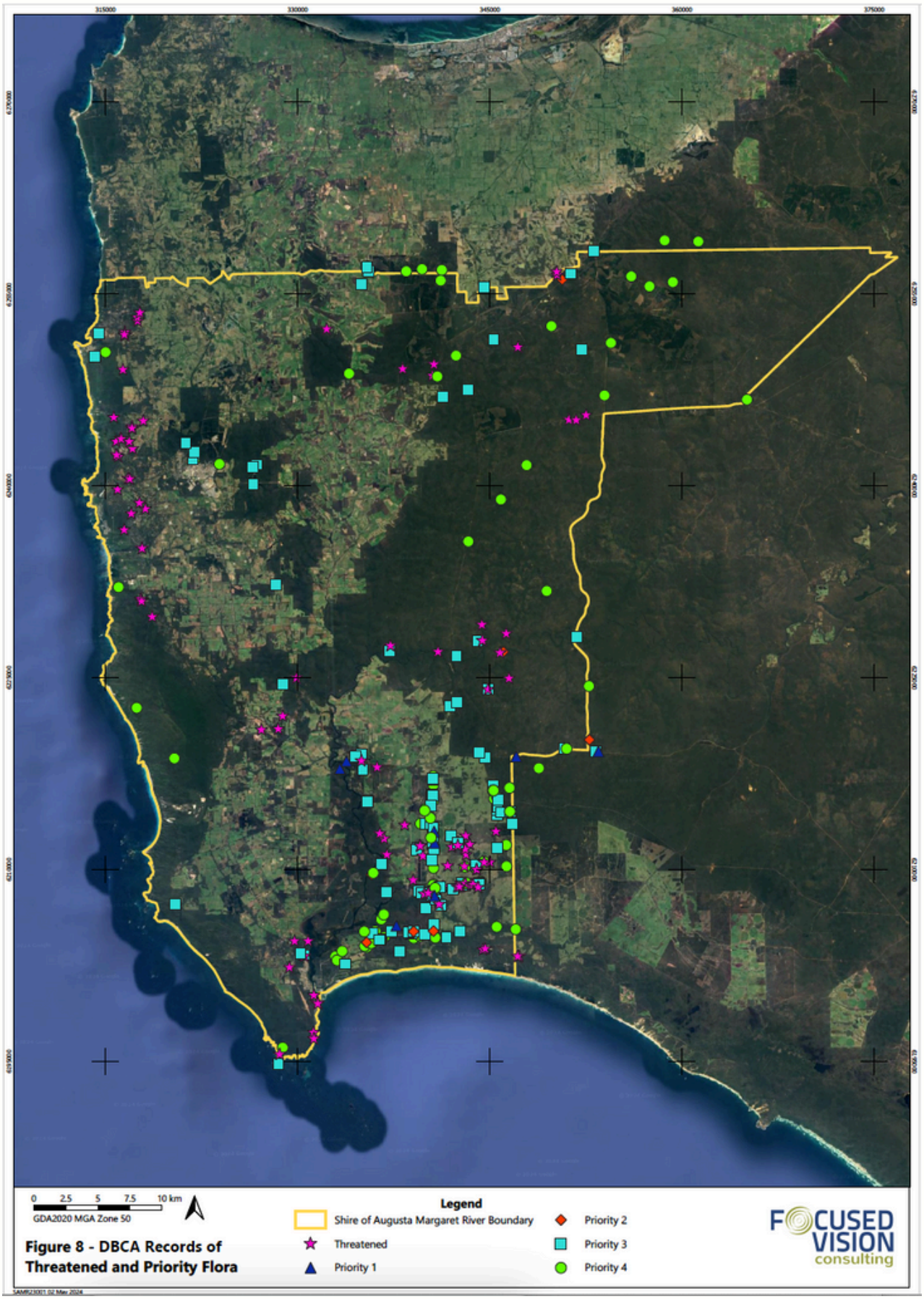
The State BC Act and the Commonwealth EPBC Act provide a statutory basis for the listing and protection of threatened species at a State and Commonwealth level. DBCA also maintains a list of Priority flora for species that are near-threatened or in need of monitoring (**Appendix H**). Any flora species that is listed as Threatened or Priority is considered to be a conservation significant flora species. Any natural area that supports Threatened or Priority flora has conservation value and is considered a potentially significant Local Natural Area.

There are at least 142 conservation significant flora species that are known to occur or have the potential to occur within the Shire (**Appendix I**, **Figure 8**). This includes 29 flora listed as Threatened under EPBC Act and 30 listed as Threatened under the BC Act, and 112 Priority species comprising of 17 Priority 1, 18 Priority 2, 48 Priority 3 and 29 Priority 4 flora (**Appendix I**).

The location and extent of significant flora reflects survey effort and submitted data. A large proportion of the Shire has not been surveyed in detail, and therefore, the actual extent of Threatened and Priority flora is not known.



Figure 8 – DBCA Records of Threatened and Priority Flora



4.5 THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

Ecological communities are naturally occurring assemblages of organisms that occur in a particular type of habitat, as defined in the BC Act. A Threatened Ecological Community (TEC) is an ecological community that is listed under either the BC Act or the EPBC Act as a Critically Endangered, Endangered or Vulnerable ecological community, which are subject to processes that threaten to destroy or significantly modify the ecological community across its range (DBCA 2023a). A Priority Ecological Community (PEC) is listed by DBCA and does not meet criteria to be listed as a TEC, but may be limited and/or under threat, with the potential to become eligible to be listed as a TEC. TEC/PEC listing categories are described in **Appendix H**. Any natural area that is TEC or PEC has conservation value as a potentially significant Local Natural Area.

There are eight EPBC listed TECs, six BC Act listed TECs and five PECs occurring or with the potential of occurring within the Shire (**Table 7**, **Figure 9**). The TECs and PECs (or their buffers) known or believed to occur in Shire managed reserves are listed in grey shaded rows in **Table 7**. The TEC/PECs within the Shire are described in more detail at **Appendix J**. Across the Shire there are at least 65 known TEC locations and 24 known PEC locations (**Table 8**).



Photo credit: Kay Lehman

Table 7 – EPBC and BC Act Threatened and Priority Ecological Communities within the Shire of Augusta Margaret River

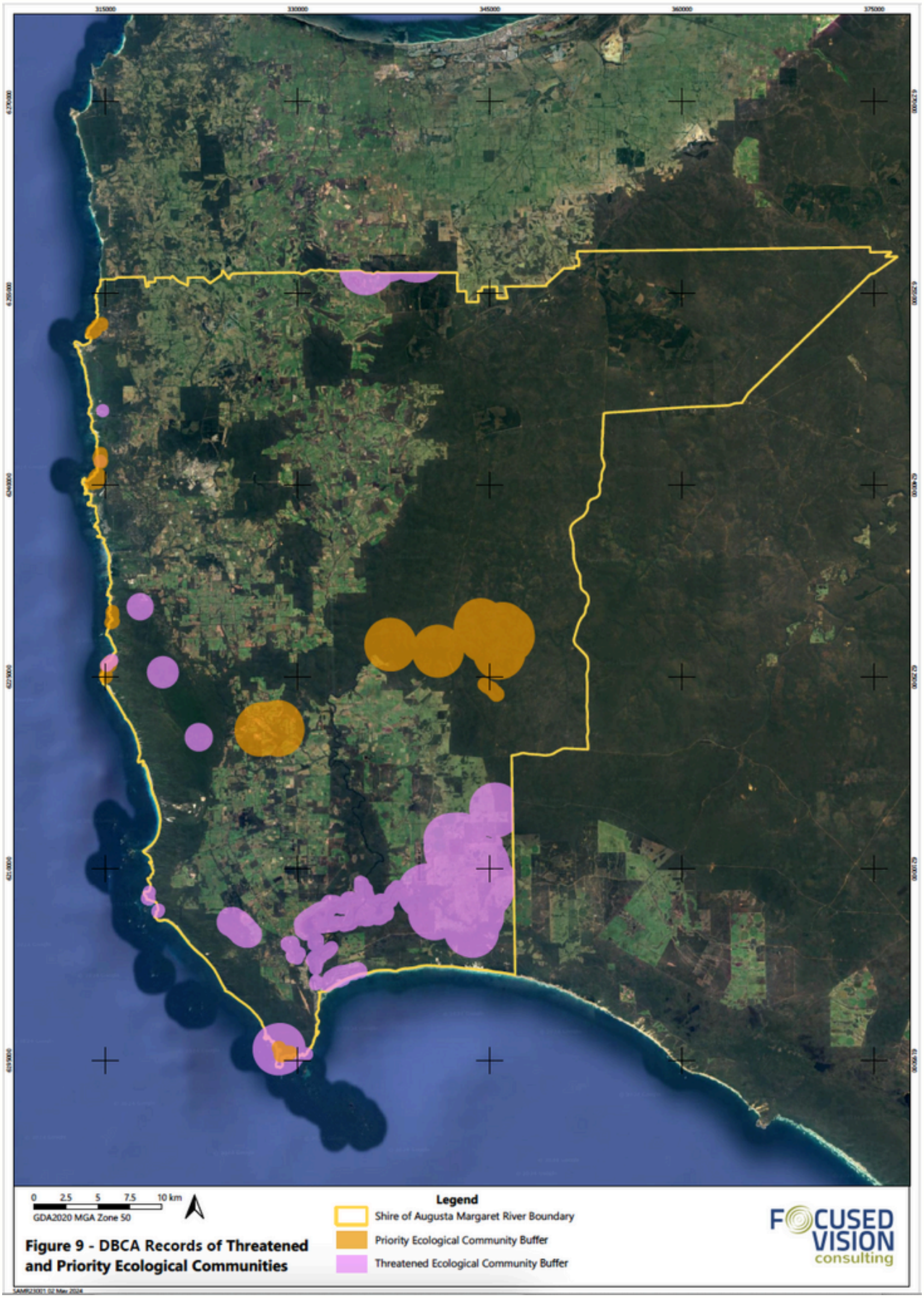
Abbreviated Identifier	Community Name	EPBC Category	State Category
LEEUWIN01	Aquatic Root Mat Community 1 in Caves of the Leeuwin Naturaliste Ridge (Easter and Jewel Caves)	Endangered	Critically Endangered
LEEUWIN02	Aquatic Root Mat Community 2 in Caves of the Leeuwin Naturaliste Ridge (Strongs Cave)	Endangered	Critically Endangered
LEEUWIN03	Aquatic Root Mat Community 3 in Caves of the Leeuwin Naturaliste Ridge (Kudjal Yolgah and Budjur Mar Caves)	Endangered	Critically Endangered
LEEUWIN04	Aquatic Root Mat Community 4 in Caves of the Leeuwin Naturaliste Ridge (Calgardup Cave)	Endangered	Critically Endangered
Empodisma peatlands SWA	Empodisma peatlands of southwestern Australia	Endangered	-
SCOTT IRONSTONE	Scott River Ironstone Association	Endangered	Critically Endangered
SCP10b	Shrublands on southern Swan Coastal Plain ironstones (floristic community type 10b as originally described in Gibson *et al.* 1994)	Endangered	Critically Endangered
Coastal Saltmarsh	Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Priority 3
'Reedia' swamps	*Reedia spathacea - Empodisma gracillimum – Sporadanthus rivularis* dominated floodplains and paluslopes of the Blackwood River catchment	NA	Priority 1
Sedgelands of the Cape Leeuwin Spring	Tall closed sedgeland on shallow soils derived from granite gneiss on the Leeuwin Naturaliste Ridge	NA	Priority 1
Granitic Outcrop Vegetation	Coastal granitic shrublands and herblands of the exposed western and southern sides of the Leeuwin Block major landform	NA	Priority 2
Melaleuca lanceolata forests, Leeuwin Naturaliste Ridge	*Melaleuca lanceolata* forests, Leeuwin Naturaliste Ridge	NA	Priority 2
Augusta microbial	Microbial tufa community (Black Point type)	NA	Priority 3

Rows shaded in grey represent communities that either occur or are likely to occur within Shire managed reserves

Table 8 – Occurrences of DBCA TECs and PECs within the Shire of Augusta Margaret River

Status	No. Occurrences
Threatened Ecological Communities	65
Priority Ecological Communities	24
Total	**89**

Figure 9 – DBCA Records of Threatened and Priority Ecological Communities



4.6 THREATENED AND PRIORITY FAUNA

Any natural area that supports Threatened and/or Priority fauna species has conservation value and is considered a potentially significant Local Natural Area. Threatened fauna are protected under the State BC Act, the Commonwealth EPBC Act or both, whilst Priority fauna species are afforded some protection by DBCA (**Appendix H**). Listed Migratory fauna species are also protected under the EPBC Act and BC Act.

The Shire is known to support at least 112 conservation significant fauna taxa (**Appendix K**), consisting of two amphibians, 59 birds, 11 fish, eight invertebrates, 27 mammals and five reptiles (**Figure 10**). There are 65 species listed as Threatened under the EPBC Act or BC Act, one Priority 2, four Priority 3 and seven Priority species and 51 Migratory species (note that Migratory species may also be listed as Threatened).

There are a number of iconic and Critically Endangered fauna species known to occur within the Shire including the Western Ringtail Possum, Carnaby's Black-Cockatoo, Forest Red-tailed Black-Cockatoo, Baudin' Cockatoo and the Hairy Marron.

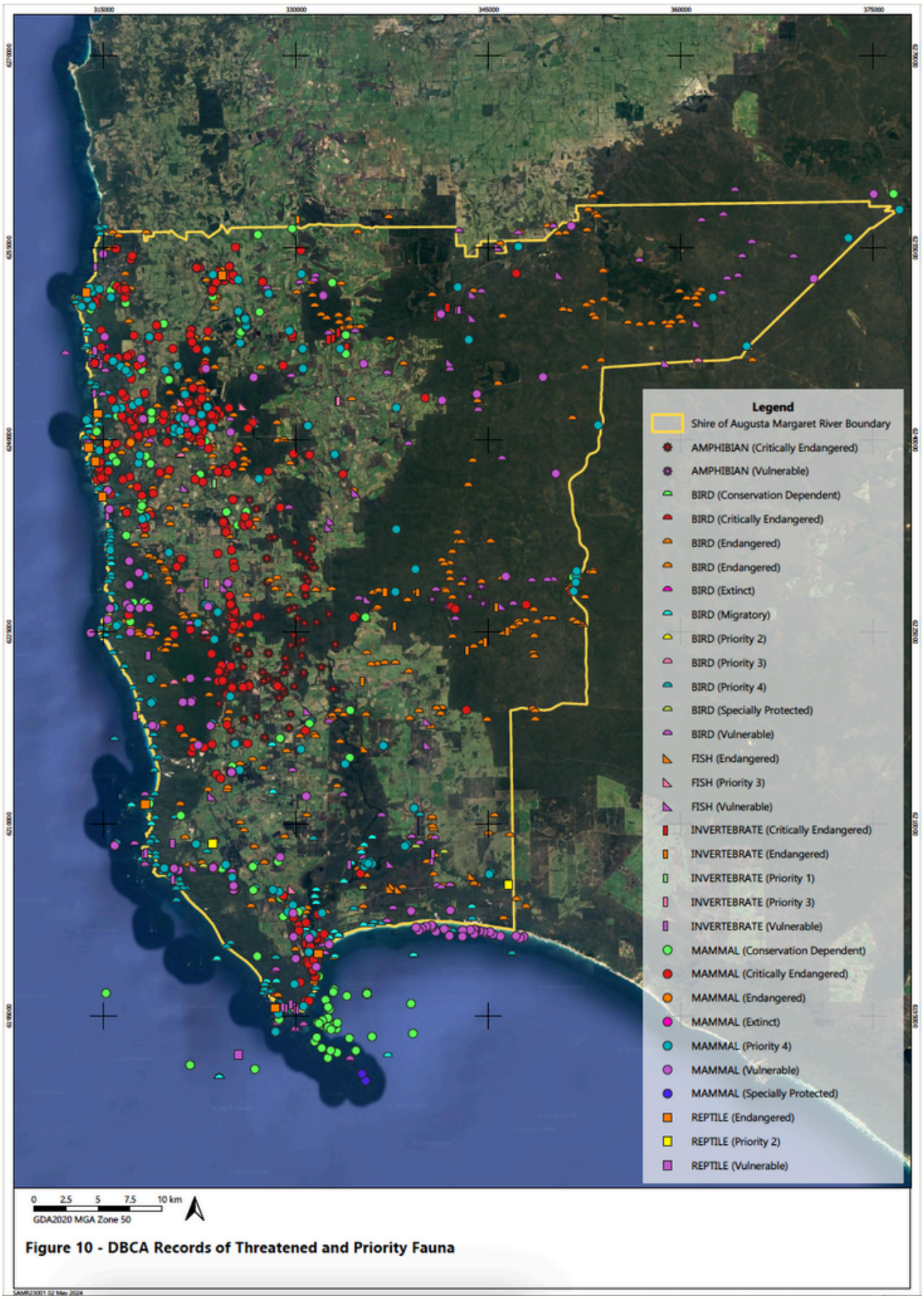
The Hairy Marron is listed as 'Critically Endangered' under the EPBC Act and BC Act and is facing a high risk of extinction due to habitat degradation and loss and hybridisation with 'Smooth' Marron. There are concerns that the species may already be extinct in the wild, with the exception of some managed populations in dams. Perth Zoo is currently undertaking a captive breeding program for the species, with the hope that they can reintroduce individuals to the wild.

The location and extent of significant fauna as contained within the databases reflects survey effort and submitted data. A large proportion of the Shire has not been surveyed in detail, and therefore, the actual extent of Threatened and Priority fauna is not known.



Photo credit: Alison Stewart

Figure 10 – DBCA Records of Threatened and Priority Fauna



4.7 WETLANDS AND WATERWAYS

4.7.1 Wetlands

Wetland systems within the Shire are diverse and their form generally depends on location and geology. Wetland systems range from: organic acid wetland systems, including peaty swamps, 'Reedia' swamps and the Blackwood plateau wetlands; alkaline coastal wetlands on limestone and 'tufa' associated with the Leeuwin-Naturaliste Ridge, and a range of seasonal and permanent wetlands on the Scott Coastal Plain (WAPC 2022).

The Geomorphic Wetlands dataset displays the location, boundary, geomorphic classification (wetland type) and management category of wetlands across Western Australia. The Geomorphic Wetlands dataset identified 649 Geomorphic Wetlands within the Shire of Augusta Margaret River which are summarised in **Table 9** and spatially presented in **Figure 11**.

Table 9 – Geomorphic Wetlands within the Shire

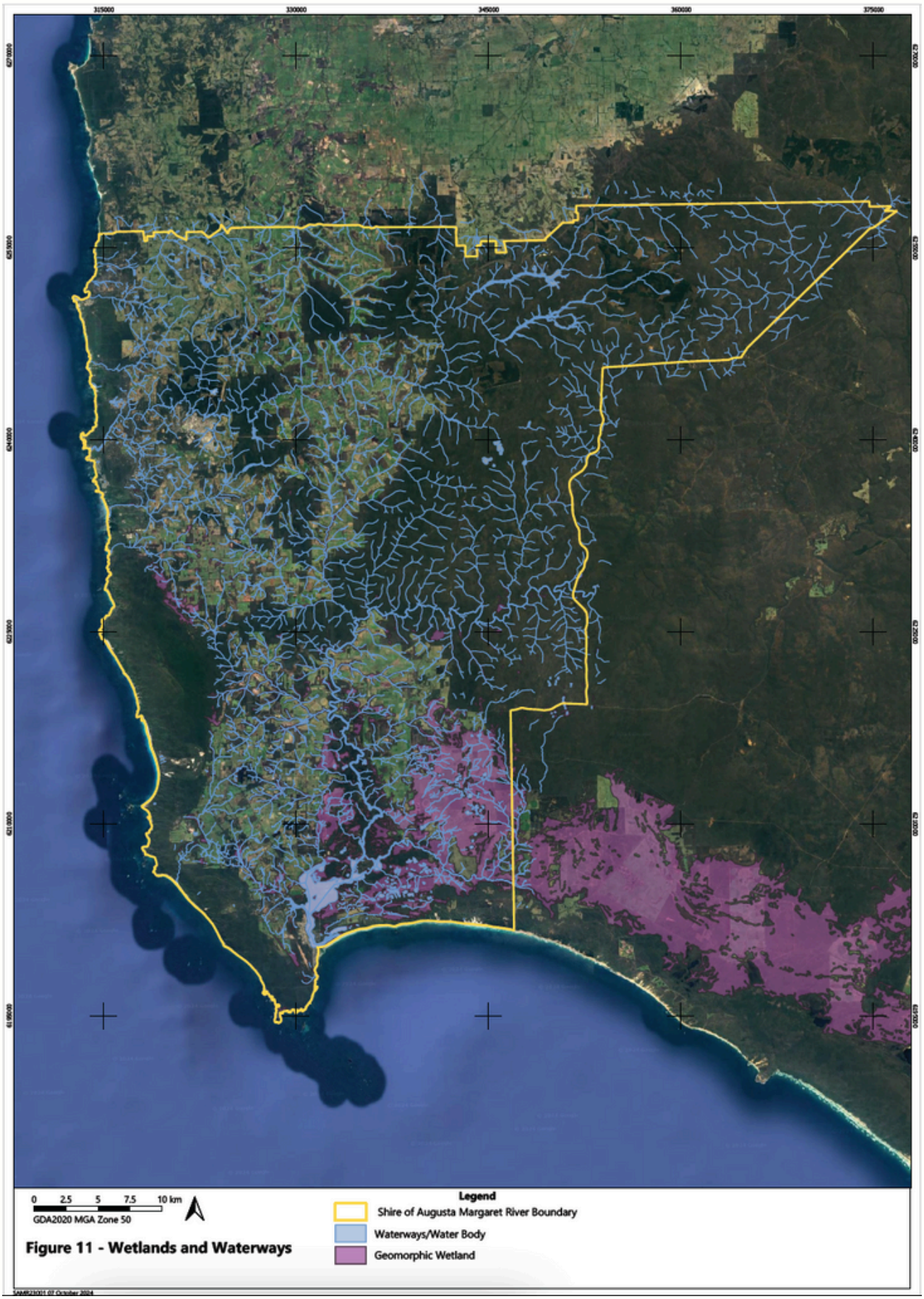
Class	Number
Dampland (seasonally waterlogged basin)	167
Estuary (shoreline and peripheral)	20
Estuary (waterbody)	1
Floodplain (seasonally inundated flat)	52
Other basin wetlands	2
Paluslope (seasonally waterlogged slope)	50
Palusplain (seasonally waterlogged flat)	75
Sumpland (seasonally inundated basin)	282
Total	**649**

4.7.2 Waterways

There are several major waterways within the Shire, the Margaret River system, the Lower Blackwood system, the Scott River and short coastal streams flowing off the Leeuwin-Naturaliste Ridge (Cape to Cape Catchment Group 2011). The Margaret River and several brooks discharge to the ocean on the west coast of the Shire, whilst the Scott River discharges into the Blackwood River which meets the ocean at Augusta (**Figure 11**).

These waterways are important ecological corridors and are home to species and communities not found anywhere else. The Margaret River Hairy Marron and Margaret River Burrowing Crayfish are endemic to the Margaret River and pools along these waterways provide refuge for many native species during the summer months (Cape to Cape Catchment Group 2011).

Figure 11 – Wetlands and Waterways



4.8 ECOLOGICAL LINKAGES

Del Marco et. al. (2004) defines an ecological linkage as a series of non-contiguous natural areas that connect larger natural areas by forming stepping stones through the altered landscape, that allows the movement over time of organisms between these larger areas and across the landscape.

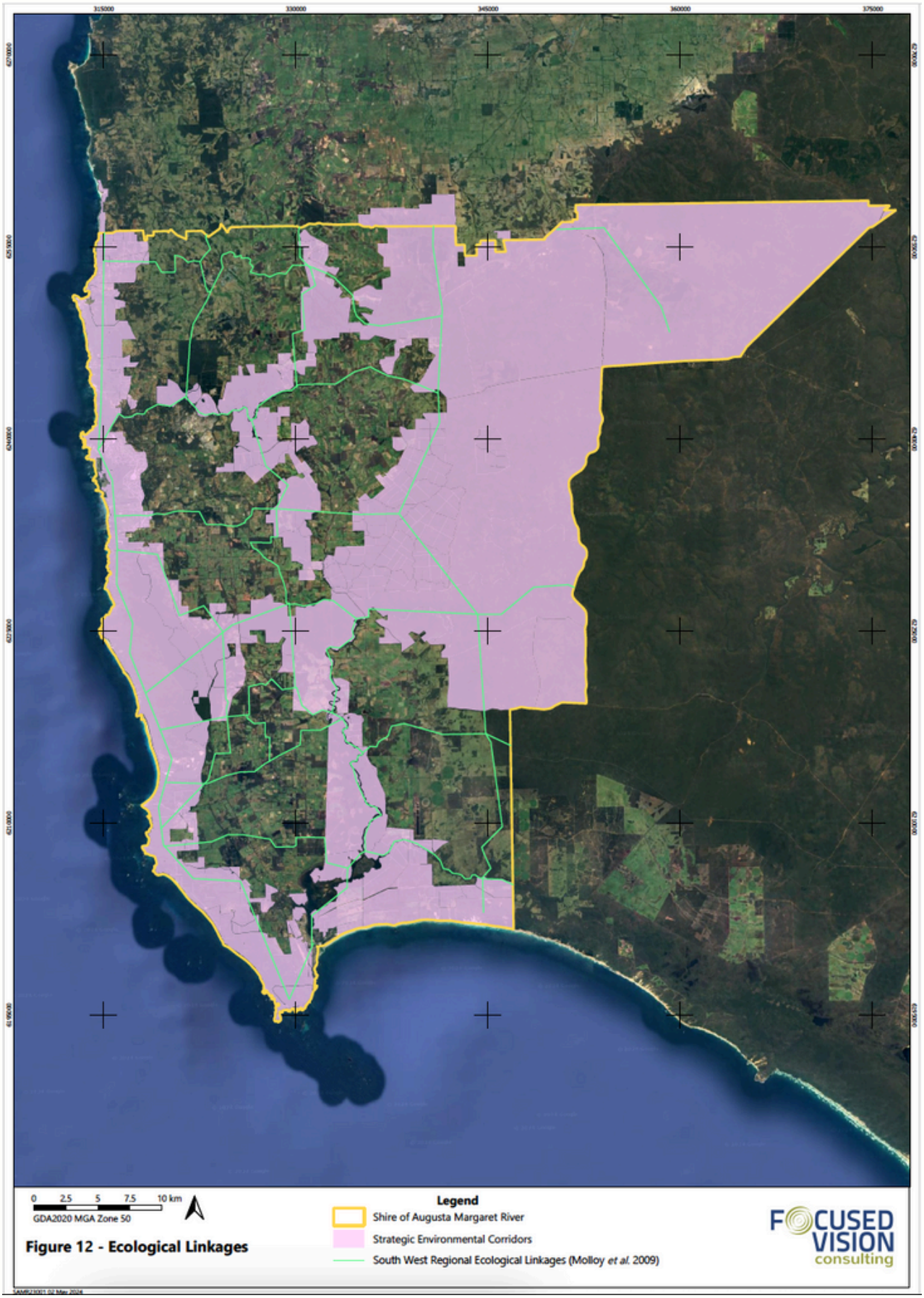
Ecological linkages are likely to become an increasingly important component of efforts to reduce the loss on biological diversity over time (Molloy *et al.* 2009). Habitat loss through land clearing is a leading threatening process of terrestrial biodiversity (Neldner 2018) and causes the loss, fragmentation and degradation of native vegetation (Jackson *et al.* 2017). The viability of any natural area depends on its size, proximity to other LNAs, and the quality of linkages or barriers in the landscape between them (Del Marco et al. 2004, Davis and Brooker 2008, Molloy *et al.* 2009).

Regional linkages identified within the Shire generally run north to south or, to a lesser extent, east to west. The South West Regional Ecological Linkages defined by Molloy *et al.* (2009) are presented in **Figure 12**. In addition, the Shire has defined four 'Strategic Environmental Corridors' within LPP16 (**Figure 12**). These are:

- **Margaret River Corridor** – Running in an east-west direction, linking the Leeuwin-Naturaliste National Park on the coast with Bramley National Park to the east, surrounding the Margaret River townsite; and Bramley National Park with the areas of State Forest to the east. The linkages run partially through freehold properties.
- **Witchcliffe Corridor** – Running in a north-west to south-east direction, linking the southern sections of Bramley National Park with a central block of State Forest and proposed National Park, and this area to State Forest to the south-east.
- **Forest Grove Corridor** – Running in an east-west direction, linking the Leeuwin-Naturaliste National Park with the proposed Forest Grove National Park, and this area with unnamed National Park, the proposed Blackwood National Park and State Forest to the east.
- **Blackwood Corridor** – Running north-south and situated along the western bank of the Blackwood River, linking the unnamed National Park in the north with reserves to the south along the Blackwood River. The linkages run through freehold properties (SAMR 2016).



Figure 12 – Ecological Linkages



5 Threats to biodiversity



Photo credit: Kay Lehman



Threats to biodiversity in the Shire have been identified through a literature review as well as through a series of workshops and the online 'Your Say' survey, to obtain input from members of the public and other stakeholders.

5.1 INVASIVE SPECIES

5.1.1 Weeds

Invasive plant species (weeds) pose a threat to local biodiversity as they displace native species and limit recruitment of endemic flora by outcompeting them for resources such as nutrients water, light, shelter and space, and often don't have natural predators to keep them under control. Many weeds are also a fire hazard, increasing fuel load and the likelihood of initiating a bushland fire. Some of the most invasive weeds in the Shire include, Arum Lily (*Zantedeschia aethiopica*), Blue Periwinkle (*Vinca major*), Sweet Pittosporum (*Pittosporum undulatum*), Sydney Golden Wattle (*Acacia longifolia*), Victorian Teatree (*Leptospermum laevigatum*), Wonga Vine (Pandorea sp.), Asparagus fern (*Asparagus scandens*) and Bleeding Heart Tree (*Homalanthus populifolius*).

Many of the invasive weeds originate from gardens, where they are adjacent to or near areas of native vegetation, or in some cases, where plantings encroach outside private properties into natural areas such as bushland reserves or foreshores. Riparian zones are more susceptible to weed invasion and spread, as seeds are transported along waterways, and other activities such as off-road vehicle activities and weed dumping in bushland are sources of weed invasion and spread.

5.1.2 Feral Animals

Feral/introduced animals displace and outcompete local fauna for resources, reducing native animal population numbers through limiting reproduction opportunities and predation. Feral animals often also have a significant negative impact on habitats, including vegetation and substrates through grazing, foraging, digging, trampling and construction of burrows.

As with other areas in the south-west, the most significant feral animals within the Shire are rabbits, foxes and feral cats and pigs. Some native fauna may be considered over-abundant and can be a nuisance and pose threats to biodiversity. In the Shire, this includes Kangaroos, Galahs and Corellas.

Some feral aquatic fauna have been identified as a threat to the aquatic biodiversity within the waterways of the Shire. Feral species of concern include, gambusia, yabbies, goldfish, carp, smooth marron (Margaret River only) and redfin perch (Cape to Cape Catchment Group 2011).

5.1.2.1 Pesticides to Control Feral Animals

Pesticides, in the form of domestic baits, particularly rodenticides, used to control pest species such as mice and rates, pose a threat to native fauna, particularly birds of prey such as owls, that can be fatal via 'secondary' poisoning if baited prey are consumed. Fatalities also occur in other native wildlife such as Quenda, Possums and Bush Rats that may directly consume the attractive baits. Evidence is mounting that rodent baits are also being eaten by reptiles, although they appear quite resistant to current rodenticide formulations (Lettoof *et al.* 2020).

The Shire is an endorsed Owl Friendly Council (Owl Friendly Margaret River Region) and supports the protection of wildlife by discouraging the use of rodenticides that can poison our local animals.

5.2 PATHOGENS, PESTS AND DISEASE

There are many pathogens, pests and disease that pose a threat to biodiversity within the Shire. Pathogens such as Dieback (*Phytophthora cinnamomi*) and Marri Canker (*Quambalaria coyrecup*) pose a threat to biodiversity by causing death to endemic flora and altering vegetation structure. Ongoing spread of Dieback occurs through soil or plant material movement from infested to non-infested areas (DBCA 2024). Marri Canker spores can be spread by rain splash, wind, insects and pruning (Paap *et al.* 2023).

Myrtle rust is a fungal disease caused by *Austropuccinia psidii*, which primarily affects plants in the Myrtaceae family—a crucial group in Australia's biodiversity. Myrtle rust was first detected on the New South Wales Central Coast in 2010 (Makinson *et al.* 2020) and has been detected on an isolated property in northern Western Australia in June 2022 (DPIRD 2022). Species such as eucalyptus, paperbarks (*Melaleuca*), and peppermint trees (*Agonis*) that dominate the Shire's landscapes are particularly susceptible. The disease causes deformations in leaves, flower loss, reduced reproductive success, and in severe cases, plant death.

Avian influenza is a viral disease of birds and is found across the globe. Avian influenza virus strains are described as low pathogenicity or high pathogenicity and poses a major threat to bird populations. Avian influenza can spread rapidly among bird populations, leading to high mortality rates, particularly among waterbirds, raptors, and migratory species. The loss of bird species due to avian influenza could have cascading effects on the local ecosystem and agriculture. The high pathogenicity avian influenza virus strain (HPAI) H5N1 has spread rapidly worldwide in recent years, causing significant impacts to poultry and wild bird populations. Australia remains the only continent free from the HPAI H5N1 strain (Australian Government 2024).

Although not confirmed as present in the Shire, the Polyphagous Shot-hole Borer (PSHB) and similar pathogens have the potential to pose significant threats to local biodiversity. The Department of Primary Industries and Regional Development (DPIRD) is responding to the confirmed detections of the PSHB exotic beetle in the Perth metropolitan area, with the aim of avoiding spread to regional areas.

5.3 HABITAT LOSS AND FRAGMENTATION

Agricultural practices and clearing for development, including infill of wetlands, have led to a loss of natural areas over time, resulting in habitat loss and habitat fragmentation, which in-turn can compromise or reduce ecological linkages. Habitat loss and fragmentation are a key threat to biodiversity (Murphy and van Leeuwen 2021).

Habitat loss involves the direct loss of biodiversity through land clearing and degradation. Once habitat loss progresses beyond a certain tipping point, major losses in biodiversity are often observed as the landscape is unable to provide sufficient resources to maintain biodiversity. Losses of particular species or populations then create an ecological vacuum that either allows feral species to colonise, or causes other species dependent on the first species, to also crash. As the tipping point is reached or exceeded, the species and population losses result in abiotic changes, changes to hydrology, light and soil structure, accelerating decline across all aspects of biodiversity as the system is irreversibly altered or completely collapses.

Habitat fragmentation poses an ongoing threat to native species and is a result of habitat loss. Fragmentation reduces once continuous native vegetation into isolated patches of vegetation resulting in a loss of connectivity between remnant patches, restriction of the flow of genes (for both animals and plants) in the landscape and the isolation of populations of native species. Movement across the landscape for local fauna is also made more difficult where ecological linkages are reduced or broken. Habitat fragmentation can lead to loss of biodiversity, as the fragments may not be large enough to support some species. Fragmentation also increases the impact of indirect or other threatening processes, like edge effects and weed invasion, resulting in degradation of structure and diversity in remnant patches of vegetation.

It is typically acknowledged that once a system is reduced to below 30% of its original extent, then there will generally be a rapid decline in the persistence of species within the ecosystem (Smith and Siversten 2001; Del Marco *et al.* 2004; EPA 2008). Often once a system approaches less than 30% remaining, it will often also be highly fragmented, with the remnant patches being small and isolated from one another.

5.4 CHANGING LAND USE AND DEVELOPMENT

The ongoing demand for new housing, industry and infrastructure exerts significant pressure on our remaining naturally vegetated areas (EPA 2021). The impact on biodiversity increases with the intensity of land uses, from no impact to more than 95% loss of mean species abundance (Taylor *et al*. 2014). Clearing of vegetation associated with subdivision and development of the landscape can result in reduced functional natural areas and ecological linkages. Land use changes have the potential to result in fragmentation and reduced ecological linkages, where linkages or contiguous areas of remnant vegetation become interrupted, to facilitate developments that may be required to support those land uses.

Changed land uses and developments can also have indirect impacts on adjacent natural areas, particularly wetlands, where impacts such as weed invasion, feral animals, or contaminated surface water run-off interact with the natural habitats and threaten biodiversity. Declines in water quality of local waterways often results due to changes in stormwater drainage and increased sedimentation. Rapid growth of the local population also puts increased demands on natural resources that biodiversity is dependent on, such as groundwater and surface water.

5.5 CLIMATE CHANGE AND ASSOCIATED EFFECTS

Climate change, with effects including increased temperatures, drought, bushfires, storms, flooding, rising sea levels and coastal erosion, represents a significant threat to biodiversity.

The recorded warmer and drier climate in the south-west of WA, particularly since the 1970's poses a threat to biodiversity by changing, or restricting, the range in which a particular species can occur. Western Australia has already seen several decades of declining rainfall. Climate change predictions indicate that over time, this trend will continue (Commonwealth of Australia 2022). A drying climate will result in further habitat loss and species extinctions over time, as described above.

Declining rainfall over the past few decades has reduced flow rates significantly in the three true river systems and 18 creek systems within the Shire. The recent summer of 2023-24 resulted in obvious signs of tree death and vegetation loss across the Shire, which is thought to be attributed to areas of shallow or poor soils, more vulnerable to dry conditions. Declining groundwater levels have also been identified as the primary threat to aquatic root mat communities in the caves of the Leeuwin Naturaliste Ridge (DCCEEW 2023a).

The biodiversity loss associated with the loss of habitats and species will also lead to fragmentation and overall changes to ecosystems.

Increases in severe weather events due to climate change can also result in an increase in droughts, storms and bushfires, leading to loss of habitat and potentially species extinctions over time. It is expected that climate change, combined with existing habitat loss and fragmentation, will likely increase the decline in native species currently being experienced.

The risk of bushfires is exacerbated by a drying climate and hot or frequent fires can have devastating effects on biodiversity at all scales. Where land capability and stability is reduced by loss of vegetation from fires of other impacts such as storms or floods, flow-on effects such as exacerbated effects of flooding and erosion can result, all of which threaten biodiversity.

Sea level rise will affect coastal biodiversity, by flooding and eroding beaches and changing habitats for marine fauna and other wildlife. It may affect significant ecological systems in coastal and low-lying areas such as the Subtropical and Temperate Coastal Saltmarshes (EPBC TEC, State P3 PEC), and the Augusta microbialites, by changing the habitat in such a way that the ecosystem can't persist.

Climate change will also impact on human water requirements. Several dry winters may impact the ability of existing water sources to supply sufficient water to the population and industry. This may result in over abstraction of existing water sources or causing the development of new water sources to be brought forward, causing additional impacts on biodiversity through construction and loss of environmental water flows (both ground and surface water).

5.6 WATER USE AND CHANGES IN HYDROLOGY

Human water-use for agriculture, industrial and residential purposes, clearing and development as well as climate change can alter natural hydrology, wetlands and watercourses, including water quality. Changes in water availability influence species assemblages and the nature and quality of habitats, including their suitability for dependent species. Combined with a drying climate, these impacts have accelerated in recent years.

Loss of vegetative cover and surface stability resulting from clearing contribute to erosion in natural areas, causing sedimentation which in-turn can affect water quality in wetlands and waterways, due to nutrients and contaminants in eroded sediments. Increased nutrient run-off and pollutants from developments (such as pesticides, fertilisers and livestock effluent) can cause eutrophication (algal blooms), increase in weeds, and death of aquatic life in wetlands. Eutrophication has been identified as a specific threat to the Scott River. Clearing in the upper catchment of the Blackwood River is posing the threat of salinisation to the river system. Climate change is also causing more extreme storm events that contribute to erosion and sedimentation effects.

Wastewater (particularly septic systems from housing developments) has the potential to impact the quality of groundwater and surface water, especially if faulty systems are leaching, or where a high density of septics in residential areas has a cumulative impact.

Groundwater abstraction (e.g. bores), dewatering (e.g. for quarrying or mining pits), or interference with surface water features (e.g. damming, altering channels or taking surface water under 'riparian rights') disrupts the natural hydrology. Such interferences are often for commercial purposes, including agricultural practices, or visual amenity on private properties. This interference can lead to altered flow volume, direction and velocity, groundwater mounding/impoundment and reduced water quality (Cape to Cape Catchments Group 2011, WAPC 2022). Depletion of groundwater and alterations to surface water features directly impact the biodiversity dependent on such systems, particularly for groundwater dependent and karst communities.

Water Corporation supplies water to the Shire of Augusta Margaret River. The towns of Margaret River, Cowaramup, Prevelly and Gnarabup are supplied through the Margaret River Water Supply Scheme which provides approximately 1 billion litres annually from Ten Mile Brook Dam which is supplemented by a Yarragadee bore (Water Corporation 2015). Average yields will ensure water demand is met until about 2030, but the scheme is susceptible to a series of dry winters that may impact the timing of new water sources in this growing region. Augusta is supplied by groundwater from the Lesueur Sandstone Aquifer (approximately 265 million litres per year) and peak tourist season shows significant increases in water demand (Water Corporation 2015).

Land uses such as agriculture and urban development can impact adjacent waterways via weed invasion, run-off and stock grazing near or in the waterways, leading to erosion of banks, sedimentation and effluent contamination. Waterways in the Shire have protection buffers but some have little or no physical or other protection from land uses that threaten biodiversity. The effects of effluent and grazing on the Scott River from adjacent agricultural practices have been identified as a threat to local biodiversity.

Dam proposals and associated impacts can have profound and often negative effects on riparian vegetation, protected fauna, ESAs, water availability, and the hydrology of the affected region. These changes can lead to biodiversity loss, reduced ecosystem services, changes in water availability and altered landscape dynamics, making the careful assessment and management of such projects critical to maintaining ecological balance.

5.7 ALTERED FIRE REGIMES

Historically, fire has been an important role in Australian ecosystems, which are adapted to Cultural fire practices that were typically small-scale, low intensity mosaic burns. Altered fire regimes refers to European fire practices of the past 200-odd years. Altered fire regimes can cause a decline in biodiversity (DCCEEW 2022b). Declines in biodiversity and ecosystem function occur when fire regimes directly reduce the survivability of species or ecological communities or indirectly by altering habitats, altering dependencies between species, or exacerbating the impacts of other threats (DCCEEW 2022c). Altered fire regimes may result in changes to ecosystems due to the loss of critical habitat, food sources, shelter and keystone species, which then reduce the capacity of the ecosystem to recover naturally.

Fire regimes within the Shire have been altered by many factors including controlled and uncontrolled burns, climate change, changes in vegetation structure changing the way the landscape burns, and other human activity that alters the rate of fire ignition and intensity of fires. Changes may include fires that are too frequent, fires in the wrong season, or catastrophic fires that devastate the landscape.

5.8 COASTAL / FORESHORE UNCONTROLLED ACCESS AND HUMAN IMPACTS

Coastal and foreshore ecosystems and habitats are the physical and biotic environments in which many coastal species reside (Clark *et al.* 2021). The nature of coastal ecosystems can make them fragile. Compounded by climate change, leading to rising sea levels and coastal erosion, along with the demand on such areas for tourism and recreation, there are numerous threats to biodiversity within these fragile areas.

Controlled access to coastal areas represents a challenge for the Shire, with gazetted parking seasonally inadequate, resulting in unauthorised parking that often damages native vegetation and erodes coastal dunes and cliffs. Similar impacts result from uncontrolled access when maintained walkways and tracks are bypassed.

The high demand for coastal and foreshore areas often also leads to illegal camping and other antisocial activities such as unauthorised off-road driving and watercraft use. Such activities can result in coastal (dunes and cliffs) and foreshore (riverbanks) erosion, vegetation trampling or damage, rubbish and effluent littering, unauthorised fires and disturbance of important habitats, such as the breeding habitat of shorebirds and beach-nesting birds including the Red-capped Plover.

5.9 SOCIAL

The Shire is a tourism hotspot and attracts large numbers of visitors throughout the year, particularly during holiday periods. In addition to this, increased population in the south-west, and particularly within the Shire also places greater pressure on the natural environment.

Social threats to biodiversity increase where population and visitor numbers increase, due to the activity of a greater number of people, and the need to develop and maintain infrastructure, accommodation and food sources to facilitate them. Furthermore, since many of the attractions in the Shire are features of the natural environment, these features and their environments can be placed under greater pressure.

Regulated, unregulated and illegal or irresponsible activities of the community and visitors that can impact natural areas include off-road driving, hiking/bush walking, mountain biking, camping and waste disposal. Such activities can lead to erosion, damage to vegetation, fires, contamination, loss of flora and/or vegetation, native fauna fatalities, and weed or feral animal introduction. Even when conducted in accordance with managed provisions, activities of a large population, particularly if concentrated during holiday seasons, or during organised events, can threaten biodiversity.

Uncontrolled access to natural areas, such as unauthorised off-road driving represents a significant threat to biodiversity.

Social pressures that threaten biodiversity, such as those described above can result from some or all of the following:

- lack of management control (e.g. no formalised access paths that limit bushwalkers to designated trails)
- demand that exceeds the capacity of the receiving environment, even with management controls in place and adhered to (e.g. pressures on popular attractions during holiday periods)
- anti-social behaviour (e.g. damaging actions that are deliberate, or due to a lack of understanding and/or education).

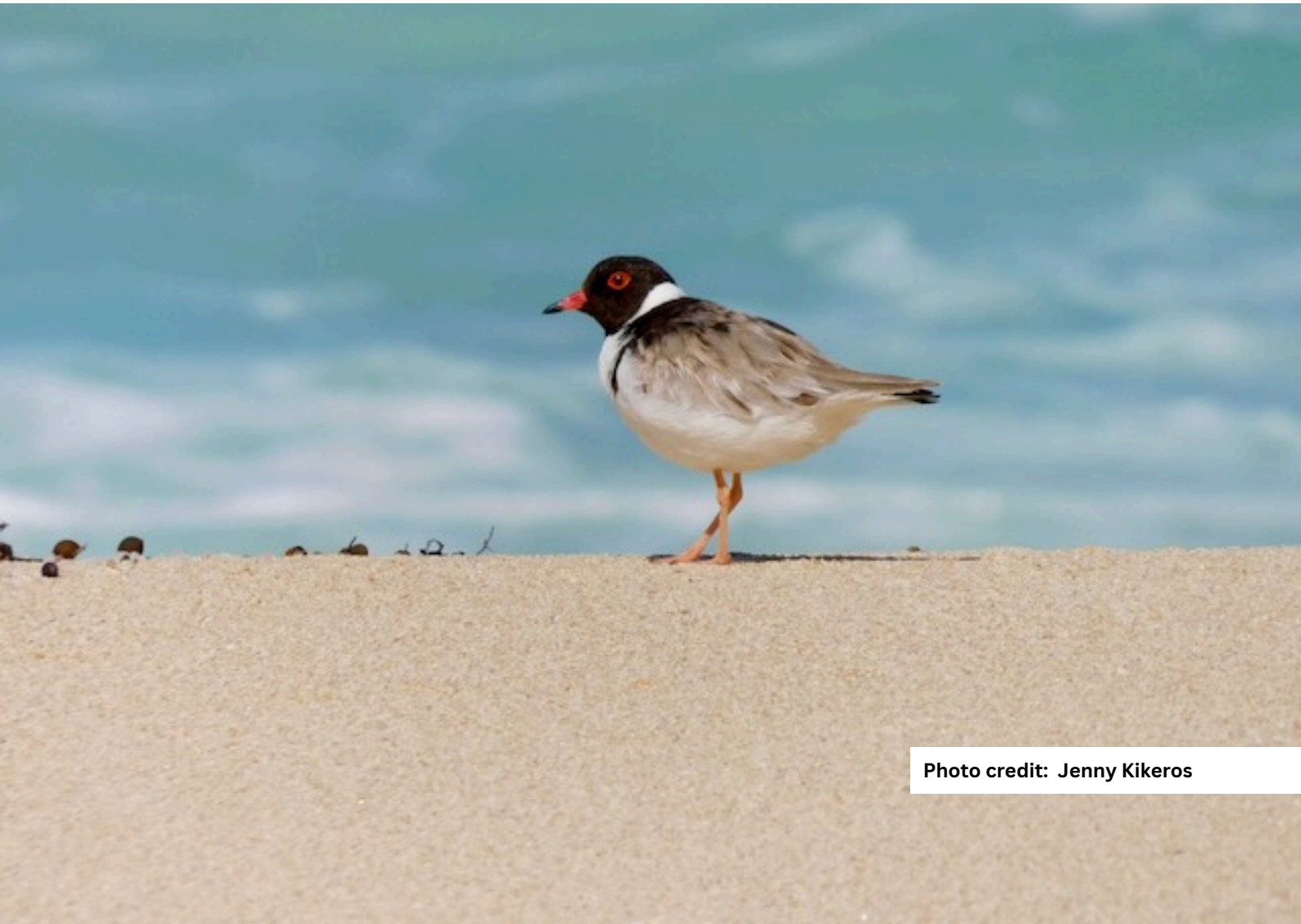


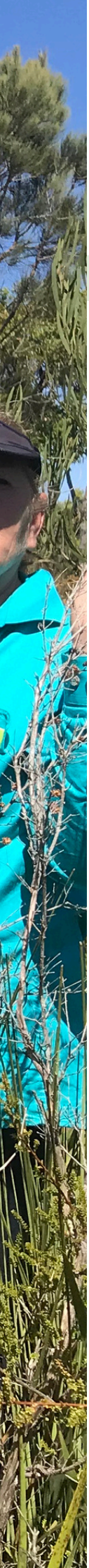
Photo credit: Jenny Kikeros


REHABILITATION AREA
SHIRE OF AUGUSTA MARGARET RIVER
Please Respect

6 Key opportunities and constraints



Native Seed Collecting Workshop
Photo credit: Lower Blackwood LCDC



The key opportunities and constraints for the protection and enhancement of LNAs within the Shire, and the threats relevant to biodiversity, have been determined following a series of stakeholder workshops. These workshops received input from Shire personnel, the community and other stakeholders. Actions that are derived from the key opportunities listed below, within the identified constraints, are addressed in the LBS Action Plan (**Section 8**).

6.1 OPPORTUNITIES

The key opportunities for the Shire to enhance biodiversity through the implementation of this LBS have been identified, but are not limited to, the following:

- **Prioritisation of LNAs** – In order to effectively utilise limited funding and resources for the areas of highest priority in the first instance, LNAs have been prioritised in this LBS.
- **Management of high priority LNAs** – A management plan that addresses general management of all high-priority LNAs and that specifies actions unique to some, dependent on the important biodiversity values present, will provide focused actions that once implemented, will achieve valuable biodiversity outcomes. The Shire has built a strong ongoing relationship with cultural custodians and rangers and will continue to partner on projects to protect Boodja.
- **Partnerships with landholders and NRM groups** on biodiversity, land-care projects on private property.
- **Integration of biodiversity protection and enhancement** into all Shire actions, plans and policies to ensure the best possible outcomes for biodiversity in the Shire.
- **Develop and provide 'Welcome Packs' for new residents and visitors and 'Information Packs' for existing residents** – Ensuring that residents and visitors understand the special and sensitive natural environment of the Shire and what they can do to help protect and enhance local biodiversity.
- **Manage access to LNAs** – Providing additional or enhanced infrastructure or/and controls at high traffic and/or environmentally sensitive LNAs to control (or restrict) access and prevent damage to the natural environment will optimise protection.
- **Community and stakeholder engagement**, acting on opportunities to work collaboratively with the community, cultural custodians and stakeholder organisations to achieve strategic and cross-tenure biodiversity outcomes.
- **Shire advocacy** – Engagement with State and Commonwealth government departments, NGOs, and private industry on environmental matters that the Shire doesn't have direct control over will optimise biodiversity protection and enhancement.
- **Management of foreshore reserves** – Work collaboratively with private landholders (stakeholders and NRM groups) adjoining Shire foreshore areas that builds on existing initiatives in River Actions Plans and the Wooditjup Bilya Protection Strategy.
- **Weed management** – Review and update of the Shire's Weed Management Strategy that includes mapping, education, advocacy, co-ordinating with volunteers and NRM groups, and Shire-led weed control, to slow or halt the invasion of weeds within the Shire.
- **Local native nursery** – the Margaret River Community Nursery has recently been established with a grant from the Shire. This provides an opportunity to grow local provenance plant stock for rehabilitation projects within LNAs and increases the potential of biodiversity enhancement.
- **Resourcing and staffing** - Assess resource and staffing requirements to adequately fund and deliver the actions of this LBS, including exploring grant opportunities.

6.2 CONSTRAINTS

The key constraints to implementing the actions of this LBS have been identified, but are not limited to, the following:

- **Resourcing** – To implement the identified actions within this LBS.
- **Data availability** – The extent to which we can understand, prioritise and protect biodiversity is largely dependent on the data that is available. Information that was used to inform the LBS is based on data currently available from State government databases, including threatened and priority species and ecological communities, vegetation complexes and associations, ecological corridors, and wetlands and waterways. Site specific biodiversity assessments and/or field investigations would be required to help provide a better understanding of the values and threats impacting priority LNAs.
- **Land tenure** – The Shire can only directly manage LNAs within Shire-managed reserves. The Shire has no powers over land managed by State Government agencies.
- **Tenure of foreshore areas and waterways** – Different agencies (Shire, DBCA, DWER and DPLH) and/or private landowners own and manage waters and the foreshores of waterways. This requires extensive consultation with all parties to provide a co-ordinated response.
- **Fire management** - Requirements can conflict with the protection of biodiversity values.
- **Biosecurity** – The lack of a biosecurity group in the region to coordinate weed and feral animal control.
- **Funding for National Park management** – A lack of funding for the management of key National Parks in the Shire, including the Leeuwin-Naturaliste National Park.
- **Tourism and population growth** - Increasing visitor numbers and a rapidly increasing local resident population results in impacts on natural areas, particularly along the coast.

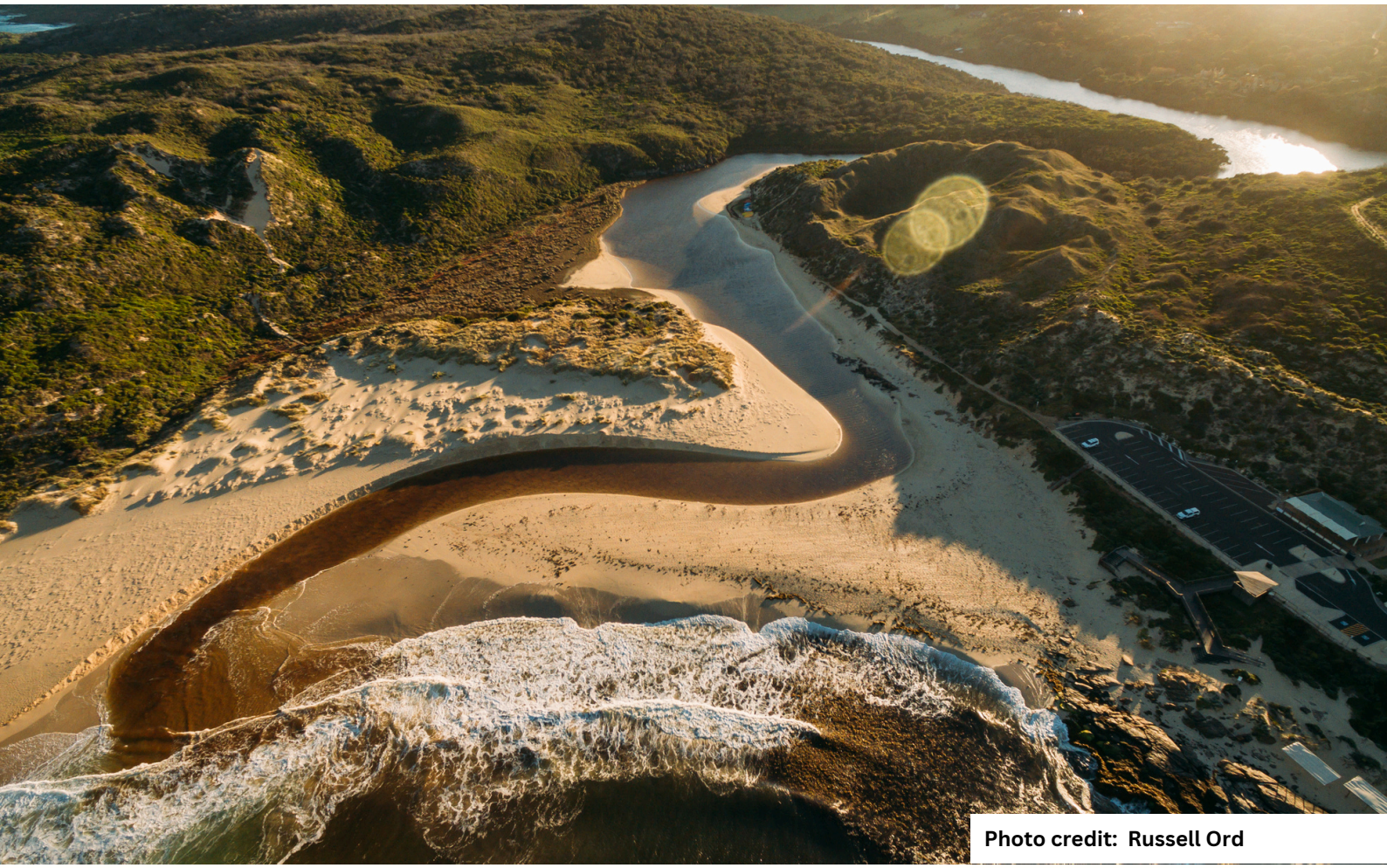


Photo credit: Russell Ord



Photo credit: Greg Harewood

7 Local natural area values and prioritisation

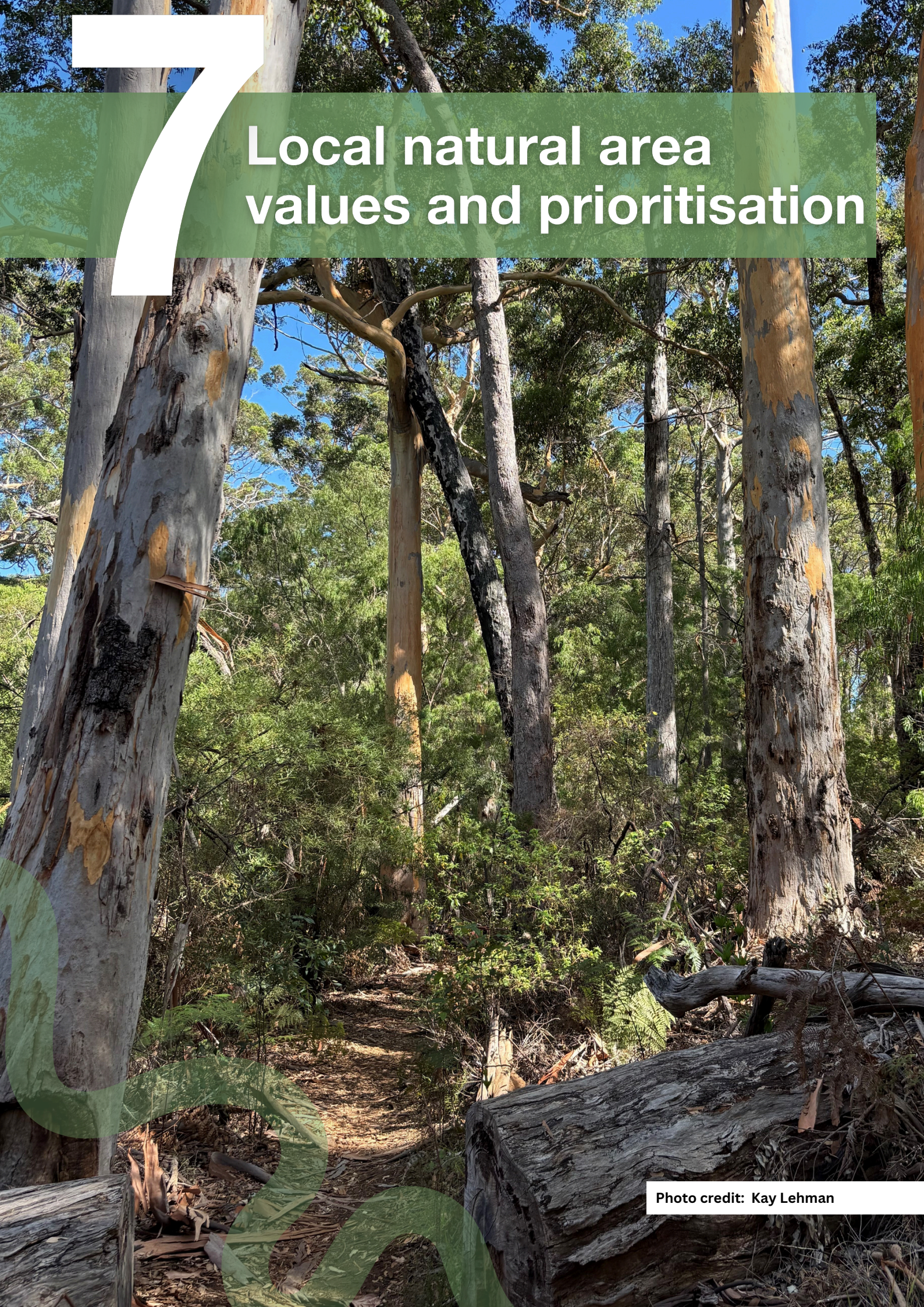


Photo credit: Kay Lehman



7.1 PRIORITISATION METHODOLOGY

An important step in local biodiversity planning is establishing criteria to assess the biodiversity conservation value of natural areas, helping identify areas of high priority for protection and conservation (Del Marco *et al.* 2004). This prioritisation process identifies LNAs based on multiple biodiversity values, addressing the needs of various environmental factors, species, and ecological values. High-priority LNAs may be selected for management to prevent degradation and enhance conservation opportunities.

The criteria used for prioritisation originate from the Perth Biodiversity Project (Del Marco *et al.* 2004) and were adapted for the Shire of Augusta Margaret River. LNAs under Shire management were evaluated based on two main categories:

1. Regional conservation significance: Assessed using criteria supported by legislation, including representation, rarity, diversity, and ecological functions like patch size and connectivity.
2. Locally significant vegetation and ecological linkages: As outlined in the Local Government Biodiversity Planning Guidelines.

Each LNA was assessed using 28 conservation criteria, resulting in a score out of 58 (**Appendix L**). These criteria include factors such as regional and local vegetation representation, rarity (e.g. TECs, Threatened and Priority flora and fauna), and vegetation associated with wetlands or coastal dunes. The criteria were weighted, with more critical ecological values, such as the presence of threatened flora, receiving higher scores. LNAs meeting more criteria are given higher prioritisation scores, which guide their conservation importance and actions. The score achieved by each LNA provides an indication of the number and importance of criteria being met, the potential for the area to be of conservation value and therefore its priority for action.

7.2 SUMMARY OF KEY VALUES FOR LNAS WITHIN THE SHIRE OF AUGUSTA MARGARET RIVER

The key significant values within the LNAs of the Shire were determined to be as follows:

- Presence of Commonwealth or State-listed TECs
- Presence of State-listed PECs:
- Presence of Vegetation Associations or Complexes with less than 30% remaining within Western Australia
- Presence of Vegetation Associations or Complexes with less than 30% remaining within the Shire
- Presence of Threatened Flora
- Presence of Threatened and specially protected Fauna
- Representing a stepping-stone in a regionally significant ecological linkage
- Remnant vegetation within or within 50 m of a buffer of a Geomorphic Wetland.

7.3 PRIORITISATION OF LNAS

The score achieved by each LNA provides an indication of the number and importance of criteria being met, the potential for the area to be of conservation value and therefore its priority for action. The prioritisation scores for each LNA are spatially presented in **Figure 13**.

The prioritisation of LNAs in the LBS is based on established and widely accepted methodology used for local biodiversity mapping (Del Marco *et al.* 2004). The methodology is based on a desktop assessment of biodiversity values and vegetation representation. It does not consider on-site factors such as threats and land use pressures, or biodiversity values not available in desktop data such as locally significant, unique or underrepresented vegetation communities. Therefore, it is recognised that the LNA prioritisation provides an indication of the importance of a natural area, but it does not provide a complete assessment, e.g. LNAs that have a lower prioritisation score may still be a high priority for action based on factors such as site-specific threats, such as weed invasion and visitation, nearby urban development etc. It is recognised that on-site biodiversity assessments are required to verify the prioritisation of LNAs for management action.

Prioritisation of LNAs determined that those achieving a score greater than 30 are of high conservation value and therefore, high priority for biodiversity protection actions. High priority LNAs are listed in **Table 10**. The address for those on private property lists only their locality. High priority LNAs in Shire managed reserves are shown in **Figure 14**.



Photo credit: David Winstanley

Table 10 – High Priority LNAs

Location (Shire Reserve No.)	Score	Area (ha)
Caves Road, Redgate (R50106)	40	155.98
Redgate Road, Redgate	40	0.32
Bussell Highway, Augusta (R27861, R45955, R48013, R48835)	39	82.05
Caves Road, Deepdene (R19020)	37	877.16
Rainbow Caves Road, Margaret River (R43580)	36	199.98
Private Property, Scott River	36	1446.79
Private Property, Yebble	34	196.15
Jindong-Treeton Road, Treeton (R26006)	35	27.90
Caves Road, Burnside (R12506)	33	86.62
Private Property, Burnside	33	51.16
Private Property, Burnside	33	26.64
Bussell Highway, Forest Grove (R47049)	33	89.12
Private Property, Scott River	32	129.12
Private Property, East Augusta	32	132.52
Caves Road, Karridale (R30656, R47049)	32	181.74
Private Property, Deepdene	32	43.08
Private Property, Hamelin Bay	32	24.52
Mentelle Road, Burnside (R43432)	31	35.45
Private Property, Margaret River	31	28.96
Private Property, Scott River	31	233.56
Salter Street, Gracetown (R27618, R36920, R37456, R38491, R46166)	31	144.58
Surfers Point, Prevelly	30	51.60
Bayview Drive, Gracetown (R27618)	30	14.00

Figure 13 – Local Natural Area Prioritisation

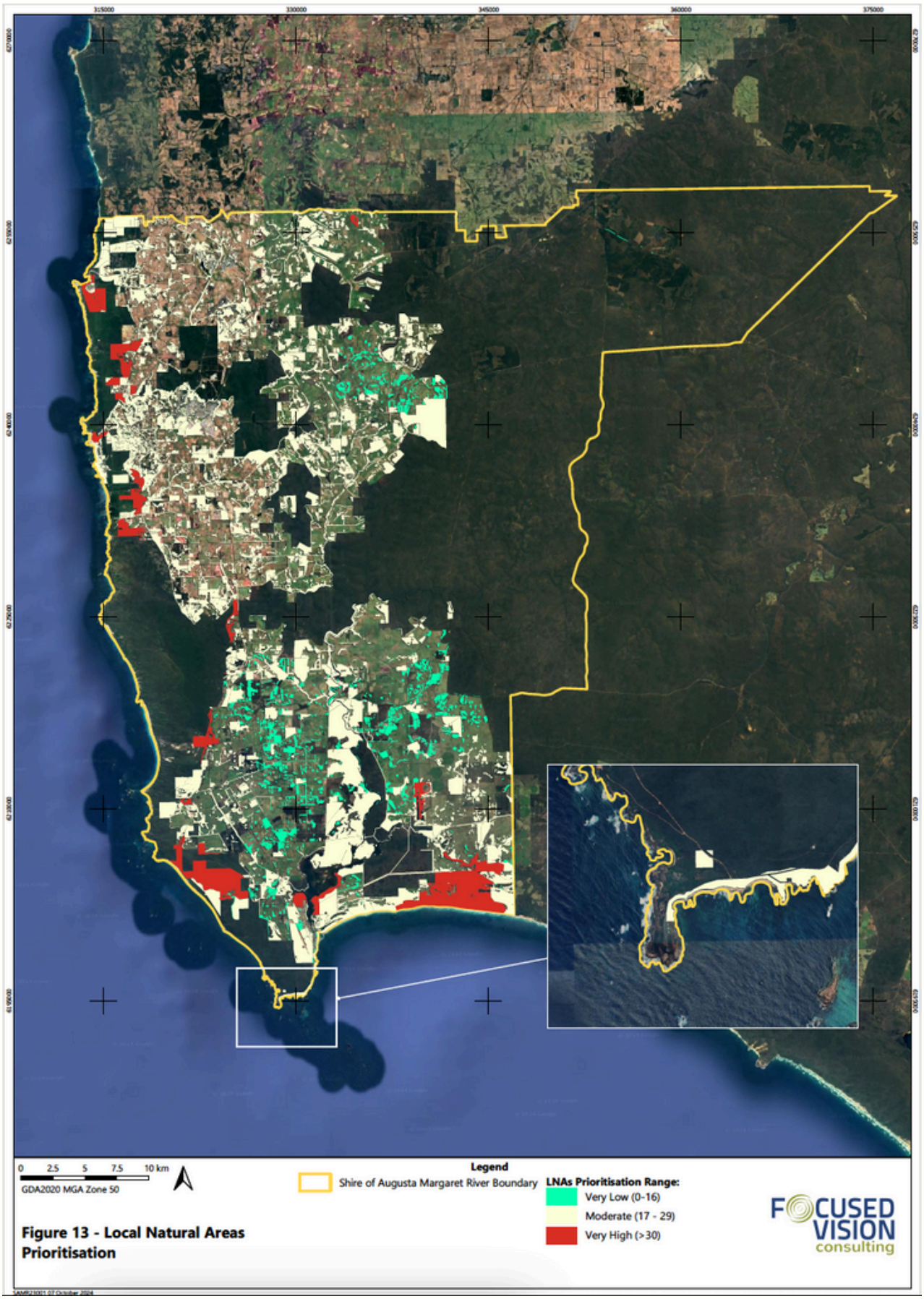
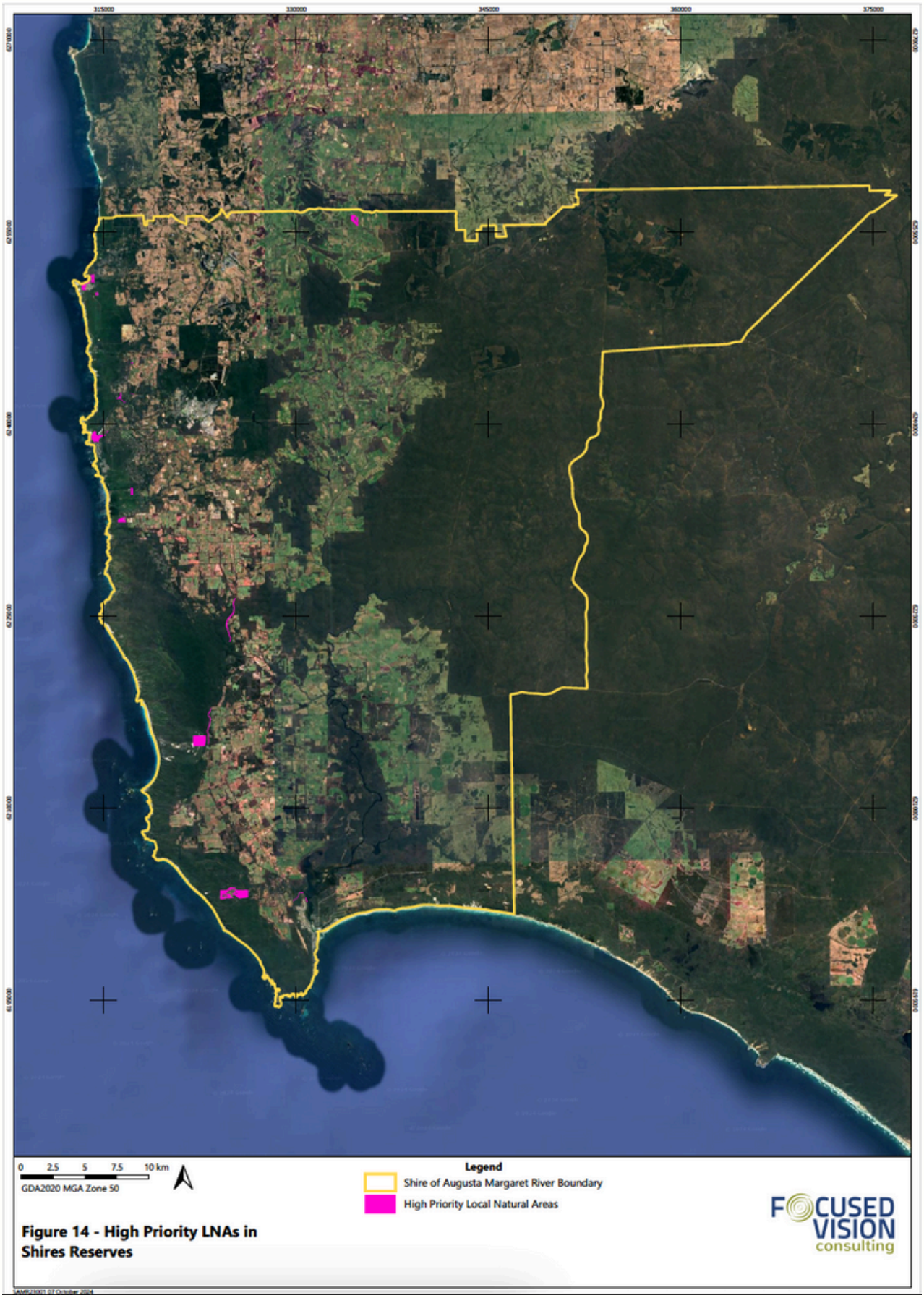


Figure 14 – High Priority LNAs within Shire Reserves



8 Action plan





8.1 STRATEGIC DIRECTIONS

To achieve the Shire's biodiversity vision, strategic directions (objectives) have been determined, which are:

- Protection of LNAs
- Enhancement and management of LNAs
- Protection and enhancement of strategic ecological linkages
- Working with partners
- Fostering community understanding, respect and stewardship for the environment
- Mainstream biodiversity in Shire operations and decision making.

8.2 ACTION PLAN

To achieve the Shire's vision for biodiversity and in alignment with the strategic directions, a 10-year Action Plan for biodiversity has been developed.

The Action Plan is based on the outcomes of the prioritisation of LNAs, community and stakeholder consultation, and the identification of suitable measures to combat threats to biodiversity in the Shire. The Action Plan directly addresses the key opportunities and constraints for biodiversity protection and enhancement as reported in this LBS. The Action Plan culminates the findings of the preparation of this LBS, maps the tasks for its implementation and provides a basis for the ongoing adaptation of LBS actions for the Shire in future iterations. The 10-year Action Plan is presented below in **Table 11**.

Table 11 – Local Biodiversity Action Plan 2025-2035

1. Protection of Local Natural Areas *Objective: Increase the retention and protection of all remaining local natural areas in the Shire*				
Action			**Timeframe**	**Directorate**
Shire Reserves				
1.1	Protecting LNAs on Shire Reserves	Review Shire-vested reserves containing priority LNAs and investigate the potential to change purpose or reserve classification to include biodiversity conservation to better reflect the values and intended management of the reserve.	2025-2027	Corporate and Customer Services Sustainable Development and Infrastructure
		Develop Shire-wide biodiversity offsets strategy that investigates opportunities for identifying strategic offset sites for future improvement of LNAs and ecological corridors.	2026-2028	
		Develop an Urban Forest Strategy to increase canopy cover shade for our community, cool our public spaces and reduce the urban heat island effect.	2025-2026	
		Update *Policy 16, Vegetation Management on Shire Reserves*, including repealing the clause that allows clearing for views in selected locations in Augusta. This will allow the Shire to have a consistent approach to managing vegetation and related compliance issues.	2026-2027	
Private Property				
1.2	Protecting LNAs through planning processes	Consider the various planning mechanisms available (e.g. conservation covenant, Shire ownership of riparian areas and key corridors) to ensure the protection of remnant native vegetation through subdivision and development processes.	Ongoing	Sustainable Development and Infrastructure
		Continue to assess native vegetation clearing at early stages of the planning process (e.g. Structure Plan stage) and ensure greater consideration and weight is given to the assessment of impacts and fragmentation of bushland during future subdivision and building phases of projects, with the aim of avoiding the removal of native vegetation where possible.		
		Continue to make available Variations to the Firebreak Notice, where compliance with the Notice is not practical due to environmental considerations or site-specific constraints such as water course or steep gradients.		
		Continue to have environmental input into the review of the Firebreak Notice. In addition, ensure Environment officer input to on-ground firebreak inspections to consider conservation of biodiversity values whilst planning for bushfire risk management on properties.		
1.3	Protecting LNAs through education and incentive programs	Engage and partner with landholders, local NRM groups and land managers on projects that encourage the protection of LNAs on private property as opportunities become available, e.g. grants programs for fencing remnant vegetation, conservation covenants, property-scale biodiversity management plans etc.	Ongoing	Sustainable Development and Infrastructure
		Develop a Shire biodiversity incentives plan, including review and update the current subdivision for conservation policy, considering rate rebates, and incentives for fencing remnant vegetation and waterways.	2027-2030	
		Develop Native Vegetation Guidance information for landholders and contractors, e.g. fenceline/firebreak clearing adjoining reserves, protection of habitat trees etc.	2025-2026	

2. Enhancement and Management of Local Natural Areas *Objective: Undertake management to improve the condition of and reduce threats to local natural areas.*				
Action			**Timeframe**	**Directorate**
Shire Reserves				
2.1	Reserve Planning and Management	For all priority LNAs identified on Shire-managed land, undertake a rapid assessment, based on desktop and field investigations, of vegetation condition, flora and fauna values, ecological linkages, and threats to these areas, e.g. weeds.	2025-2027	Sustainable Development and Infrastructure
		Develop new reserve management plans for priority LNAs that address key values, threats and management requirements, and review, update, and continue to implement existing Shire reserve management plans.	2025-2035	
		Establish a dedicated Bushland/Natural Areas Management Team, to work in collaboration with Parks and Gardens and Environment and Landare Services, with appropriate experience and skills to implement reserve and natural area management actions.	2025-2026	
2.2	Biodiversity data management	Make spatial data available on priority LNAs on the Shire's internal and external mapping systems.	2025-2026	Corporate and Customer Services Sustainable Development and Infrastructure
		Make reserve management plans publicly available, with links to spatial data on internal mapping systems.	2025-2027	
		Annually record and map management activities undertaken in priority LNAs, including weed control, feral animal control, erosion control, access management and revegetation.	2025-2035	
		Investigate methods available and opportunities for improving local vegetation condition spatial data and for monitoring changes over time, e.g. remote sensing.	2025-2035	
2.3	Visitor and Access Management	For Shire Reserves that are impacted by high levels of visitation, including coastal and river foreshore areas, identify strategic access requirements that allow for controlled and safe visitor access while minimising pressure on the environment, and undertake works where required, e.g. closure and rehabilitation of unnecessary tracks and sites, installation of fences, gates bollards and/or directional signage.	2025-2028	Sustainable Development and Infrastructure
		Where required, develop or update interpretive signage at key visitor sites to educate the community and visitors to the region about site-specific biodiversity values and to foster environmental stewardship and respect.	Ongoing	
		In collaboration with tourism partners, investigate potential projects that protect and improve the resiliency of biodiversity at key recreation and tourism sites.		
2.4	Weed Management	In collaboration with stakeholders, review, update where necessary, and continue to implement the Shire's Weed Management Strategy (2014) and the Capes Regional Environmental Weed Strategy (Hanran-Smith 2015).	2025-2027	Sustainable Development and Infrastructure
		Continue to implement an annual environmental weed control program in Shire reserves including strategic coordination through the Nature Conservation Margaret River Region's 'Arum Lily Blitz' and other weed programs.	Ongoing	
		Undertake ongoing monitoring and mapping of high priority environmental weeds across the Shire.		
		Continue to implement an integrated weed management approach to weed control, based on the Shire's Integrated Weed Management Plan.		

		Continue to support and provide advice to Friends of Reserve groups on manual removal of priority environmental weeds from reserves and complement with contractor weed control support where required.		
Action			**Timeframe**	**Directorate**
Shire Reserves				
2.5	Feral and domestic animals	Seek opportunities, including through grant funding, to undertake rabbit, feral cat, fox, and pig control in Shire reserves where regional, cross-tenure outcomes can be achieved through collaboration with adjoining landholders, land managers, and NRM groups.	Ongoing	Sustainable Development and Infrastructure
		Encourage responsible pet ownership through education campaigns, including the provision of outdoor cat enclosure (catio) subsidies.	Ongoing	
2.6	Pathogens, Pests and Disease	Keep up to date on the latest research on threats to biodiversity of plant pathogens, pests and diseases including but not limited to Phytophthora dieback, Marri canker, Myrtle rust, Avian flu and Polyphagous shot-hole borer, and implement best practice management where feasible.	Ongoing	Sustainable Development and Infrastructure
		Undertake mapping of Phytophthora dieback on Shire reserves containing priority LNAs or as identified in management plans, or through field investigations, and implement management actions to protect dieback free areas.	2026-2028	
2.7	Fire risk mitigation	Continue to consult and seek advice from stakeholders and Friends of Reserve Groups about controlled burns in the context of potential biodiversity impacts.	Ongoing	Sustainable Development and Infrastructure
		Engage with Cultural Custodians to improve our knowledge of cultural fire practices as a means of enhancing the health of country and culture, and understanding of how these principles can be applied in current management practices.		
		Continue internal collaboration between the Shire's Emergency Services and Environment and Landcare teams on the annual fire risk mitigation program, including mechanical works and proposed burns, considering risks to significant biodiversity values, opportunities for invasive weed control, and post-fire weed management.		
		Undertake post-fire monitoring to determine the outcomes of controlled burn, including changes in fuel, weeds, plant diversity and composition, and fauna observations.		
		Continue to stay abreast of up-to-date science and research on best practice biodiversity protection while meeting fire risk mitigation requirements in a drying climate.		
2.8	Revegetation and Rehabilitation	Work in collaboration with Cultural Custodians and Rangers, local NRM groups, and Friends of Reserves volunteers to implement strategic revegetation projects in priority LNAs using local provenance seed and seedlings.	Ongoing	Sustainable Development and Infrastructure
		Incorporate both foraging and nesting habitat plant species into revegetation projects for significant fauna, e.g. black cockatoo species and western ringtail possum.	Ongoing	
		Identify opportunities to progressively rehabilitate exhausted sections of gravel pits on Shire reserves, considering any rehabilitation conditions or criteria.	2027-2030	

Action			Timeframe	Directorate
Shire Reserves				
2.9	Significant Flora, Fauna and Ecological Communities	Work with DBCA to implement actions, relevant to local government, identified in threatened flora and fauna Recovery Plans.	Ongoing	Sustainable Development and Infrastructure
		Work with DBCA, Cultural Custodians, and other stakeholders to identify collaborative projects that increase the protection of threatened or priority flora, fauna, and ecological communities on Shire reserves and road reserves. This may include improving efforts to manage threats to these values such as weeds, dieback and disease, grazing, and access.		
		Continue to support and implement citizen science projects for threatened species, e.g. Beach-nesting birds project (Birdlife, DBCA, Cultural Rangers), and Save our Snake Necked Turtle (Murdoch, Nature Conservation).		
		Work with stakeholders to consider installing artificial hollows, nesting boxes and/or artificial water sources for significant fauna in key locations.		
		Actively promote the Owl Friendly Margaret River Region Campaign and continue to apply owl-friendly principles in Shire operations.		
2.10	Water Resources	In partnership with Cultural Custodians, prioritise actions that involve the restoration of river riparian zones, with a focus on weed control, erosion control, and revegetation in degraded areas.	Ongoing	Sustainable Development and Infrastructure
		Cease access to the Margaret River foreshore reserve for private water abstraction infrastructure for domestic use when current local law permits expire.	2029-2030	
		Resource the ongoing maintenance of bioretention assets and other elements of water sensitive urban design on Shire reserves, with particular attention during the construction phase.	Ongoing	
Private Property				
2.11	Managing LNAs through NRM partnerships	Partner with NRM groups, landholders and land managers to encourage and facilitate the management of priority LNAs on non-Shire vested land through the following: • Supporting collaborative, cross-tenure projects to manage key threats to biodiversity at the regional scale, e.g. Arum Lily Blitz, strategic feral animal control programs. • Supporting collaborative projects on properties with high conservation values, including land under conservation covenants, or zoned for Conservation. • Supporting industry and community-led programs for regenerative agriculture transition and sustainable wine growing initiatives.	Ongoing	Sustainable Development and Infrastructure
2.12	Managing LNAs through planning processes	Continue incorporating best practice water sensitive urban design in all new subdivision plans.	Ongoing	Sustainable Development and Infrastructure
		Develop Landscaping Guidelines for new subdivisions, including recommended local native species lists.	2025-2026	
		Require best practice management principles to be implemented when assessing dam applications to improve the protection and management of waterways, wetlands and riparian vegetation, e.g. Low flow bypasses	Ongoing	
		Continue to implement the Shire's Erosion and Sediment Local Law by: • Engaging with local builders to raise awareness about their responsibilities to manage sediment and runoff on building and development sites.	Ongoing	

		• Undertaking inspections and compliance actions for building and development sites prior to winter.		
3. Protection and Enhancement of Strategic Ecological Linkages *Objective: Improve the resilience of local natural areas by protecting, enhancing and increasing regional and local-scale ecological linkages and corridors.*				
Action			**Timeframe**	**Directorate**
3.1	Strategic ecological corridors	Investigate opportunities, including applying for grant funding, to collaborate with NRM groups, land managers and landowners on projects that enhance or consolidate key environmental corridors identified in the Environmental Asset Map of the Local Planning Strategy.	2025-2035	Sustainable Development and Infrastructure
		Continue to identify and undertake restoration work, including weed control and revegetation, in LNAs that enhance local-scale ecological corridors, including riparian zones, road reserves and recreation trail corridors.	Ongoing	
		Consult and work with other key organisations undertaking landscape scale revegetation works in the region including Gondwana Link.	Ongoing	
3.2	Roadside Vegetation	Develop a 'Guideline for the Management of Roadside Native Vegetation' for Shire road reserves, that considers road safety and maintenance requirements, environmental values including threatened flora and ecological communities, and ecological connectivity, and includes procedures for implementing best practice road maintenance while protecting roadside vegetation.	2025-2027	Sustainable Development and Infrastructure
3.3	Verge Guidelines	Review and update the Shire's Verge Management Guidelines, including the street tree program, with the aim of encouraging landholders to establish and maintain native verge gardens to improve local biodiversity values and ecological linkages.	2025-2027	Sustainable Development and Infrastructure
4. Working with Partners *Objective: Achieve regional-scale, cross-tenure protection of local natural areas by supporting and working collaboratively with the Shire's partners and the community.*				
4.1	Aboriginal Cultural Heritage	Continue to build strong and mutually respectful relationships with our Cultural Custodians, to seek advice, share knowledge and work collaboratively on projects that protect biodiversity and culture on Wadandi/Pibelmen Boodja in accordance with the Shire's *Jenna Yen Mandamung (Walking Together) Strategy, 2023-2028.*	Ongoing	Sustainable Development and Infrastructure Sustainable Economy and Communities
		Engage with Cultural Ranger Teams to undertake bush regeneration work in Aboriginal Heritage Sites on Shire Reserves.		
		Continue to consult with Karri Karrak Aboriginal Corporation, and the Department of Planning, Lands and Heritage to seek approval under the *Aboriginal Heritage Act 1972* for activities in Registered Aboriginal Heritage Sites		
		Investigate opportunities to engage with Cultural Custodians through cross tenure environmental management and co-management opportunities with culturally sensitive species.		
4.2	Friends of Reserves	Continue to support, coordinate and build the capacity of Friends of Reserve groups for key Shire reserves.	Ongoing	Sustainable Development and Infrastructure Corporate and Customer Services
		Establish a Friends of Reserves Volunteer Manual that identifies Workplace Health and Safety requirements, procedures and controls for environmental activities undertaken by Volunteers.	2025-2026	

Action			Timeframe	Directorate
4.3	NRM, cultural and community organisations	Continue to support, build capacity of, and partner with local NRM, cultural and environmental organisations in local initiatives that protect biodiversity, by providing environmental grants programs, including the Environmental Management Fund, Community Partnerships Grants, and Environmental Stewardship Grants.	Ongoing	Sustainable Development and Infrastructure Sustainable Economy and Communities
4.4	Tourism	Continue to demonstrate the Shire's commitment to best practice environmental management and sustainability by maintaining and building upon the Shire's ECO Destination Certification.	Ongoing	Sustainable Development and Infrastructure Sustainable Economy and Communities
		Increase the visibility of ECO Destination certification via media and communication channels.		
		Work with our tourism partners to consider, develop and seek resources for initiatives that encourage visitor contributions and involvement in local biodiversity projects.		
4.4	Strategic partnerships	Continue to work with our partners including Cultural Custodians, stakeholders and the community on the implementation of regional and strategic plans that support the protection of biodiversity, including the Wooditjup Bilya Protection Strategy, Taalinup Boya Healthy Country Plan, South West Tourism Destination Management Plan, River Action Plans, key Shire planning documents, Leeuwin Naturaliste National Park Management Plan, and Gondwana Link.	Ongoing	All Directorates
		Work with our partners including Cultural Custodians, DBCA, NRM groups, and research institutions, to monitor and improve our understanding of the effects of a drying climate on local species, habitats and ecological communities, and develop initiatives for improving long-term resiliency of LNAs.		
		Support the establishment and future expansion of the Margaret River Community Landcare Nursery and continue to support the ongoing operation and growth of the Augusta Community Landcare Nursery.		

Action			Timeframe	Directorate
4.5	Opportunities for advocacy	With our partners and Councillors, where applicable, advocate for improved biodiversity protection in the following areas: • Inclusion of Arum Lily as a nationally significant weed under the National Environmental Weed Priority (NEWP) initiative • The need for a local biosecurity plan and funding to help address increasing impacts from weeds, feral animals, pests and disease. • Improved resourcing by the State Government for the protection and management of Leeuwin Naturaliste National Park. • Ceasing the commercial supply of products that can cause harm to local biodiversity. This could include Second Generation Rodenticides, and invasive weed species in local plant nurseries, e.g. Arum lily, Polygala, Genista, and Sydney golden wattle. • Changes to State Government's Planning for Bushfire Protection Framework with the aim of improving biodiversity outcomes. • A stronger approach by the State Government towards water allocation planning, regulation and compliance, in light of a drying climate. • Changes to the State Government's Development Control 3.4 – Subdivision of Rural Land specifically to increase the minimum vegetation thresholds required to be achieved in order to subdivide for conservation lot purposes. • Research to better forecast and understand changing species distributions and biodiversity mapping in our region.	Ongoing	Sustainable Development and Infrastructure
5. Foster Community Understanding, Respect and Stewardship for the Environment *Objective: Provide education and engagement opportunities for the community to foster a sense of environmental awareness, stewardship and respect.*				
5.1	Biodiversity information packs	Develop a series of Biodiversity Information Packs, targeting new and established residents, landowners, and visitors to the region, that provide information on local biodiversity values in the Shire and guidance on protecting these values, including available resources and opportunities for involvement.	2026-2027	All Directorates
5.2	Awareness raising and education	Recognise the achievements and contributions of Friends of Reserves, NRM, and community groups through regular and improved media and communications, and volunteer events and awards programs.	Ongoing	Sustainable Development and Infrastructure Corporate and Customer Services
		Update and improve environmental information provided on the Shire's website including links to relevant documents and resources.	2025-2026	
		Work with our partners to develop and provide educational resources and engagement opportunities, targeting a range of sectors in the community on local, and relevant biodiversity topics.	Ongoing	
		Develop and promote flora and fauna emblems for the Shire.	2026-2027	
		Prepare fact sheets and guidance information on legislative responsibilities around native vegetation clearing and protection of native fauna.	2025-2026	
		Install demonstration gardens in key locations to educate and encourage households to transition to using more drought tolerant and water sensitive native species in their gardens and verges.	2026-2027	

Action			Timeframe	Directorate
5.3	Youth	Continue to support and partner with NRM groups and local schools to implement biodiversity initiatives and foster environmental stewardship in schools, including Nature Conservation Margaret River Region's 'Our Patch', 'Adopt a Spot', and 'Waatu Kaatijin', and new initiatives.	Ongoing	Sustainable Development and Infrastructure
		Seek opportunities to engage and collaborate with local youth and Cultural Ranger teams on initiatives that involve the protection of biodiversity, including bushland restoration programs in key reserves.		
5.4	Water resource protection	Work with Water Corporation on local waterwise initiatives to educate and promote ways for residents to be more water efficient in their homes and gardens.	Ongoing	Sustainable Development and Infrastructure
		Educate and encourage households to use more drought tolerant and water sensitive native species in their gardens and verges, including the establishment of demonstration Shire gardens and verges.		
6. Mainstream Biodiversity in Shire Operations and Decision Making *Objective: Incorporate biodiversity protection principles in all levels of Shire decision-making and operations.*				
6.1	Funding and Resourcing	Assess resource and staffing requirements to adequately fund and resource the implementation of this LBS, and where required link actions to the Long Term Financial Plan and Workforce Plan.	2025-2035	All Directorates
		Work with our partners to seek opportunities to apply for grant funding, and support community organisations with grant applications for local biodiversity projects.	Ongoing	
6.2	Governance	Undertake an annual review and assessment of progress against the actions and timeframes listed in the Action Plan.	Annually	Sustainable Development and Infrastructure
		Undertake biannual reviews of the LBS and consider additional actions for inclusion in the Action Plan.	Biannually	
		After five years, determine whether the LBS is still fit for purpose for the next five years or whether it should be revised and a new LBS developed.	2030	
		Investigate aligning biodiversity management with national and global targets and initiatives (Australia has adopted the Kunming- Montreal Global Biodiversity Framework and Australia's Strategy for Nature) including how the Council can translate these initiatives into local actions.	Ongoing	
		Investigate Natural Capital Accounting to value biodiversity in decision making.	Ongoing	
6.3	A plant local first approach	Implement a Shire-wide Plant Local First Approach, which considers the following: • Prioritising the use of local native plants in Shire landscaping. • Establishing local native verge demonstration gardens in suitably located public areas. • Continuing the collection of local provenance native seed for use in revegetation projects. • Developing education resources and incentives for landholders to use local native species in their gardens such as sample seedling giveaways, and running workshops on creating a native garden and encouraging native wildlife to your garden etc.	2025-2035	Sustainable Development and Infrastructure

Action			Timeframe	Directorate
6.4	Shire processes and training	Implement annual biodiversity training for all Shire staff and include specific components relevant to role and level of responsibility, e.g. native vegetation and threatened species legislation requirements.	2023-2035	All Directorates
		Incorporating 'biodiversity risk assessments', including a biodiversity checklist, into the Scope of Works for Shire capital construction projects, and where feasible into Work Orders for operational maintenance activities.	2026-2027	
		Develop and implement best practice weed, pest and disease hygiene management procedures for staff and contractors involved in Shire maintenance and construction activities, with the aim of minimising the risk of introducing and/or spreading weeds, pests and disease in natural areas.		
		Develop an environmental induction procedure for contractors engaged by the Shire, that is incorporated into Shire procurement processes.		
		Host all staff planting days at various Shire reserves and promote the outcomes of initiatives across the organisation.	Annually	
6.5	Regulation and Enforcement	Improve the Shire's capacity in compliance on environmental matters by assessing resource and staffing requirements.	2025-2027	All Directorates
		Continue to investigate environmental compliance matters, including illegal clearing, and implement legal prosecutions as required.	Ongoing	
		Investigate and engage with landholders to remove private property encroachments from LNAs in Shire reserves, including fences, gates, sheds, pipelines and other private infrastructure.	2025-2028	

8.3 ACTION PLAN CONTINUOUS REVIEW AND IMPROVEMENT

A program of continuous improvement and review will be implemented to ensure that the LBS action plan is being implemented, and that it remains current and fit for purpose. This will include:

- Annual monitoring and reporting on the progress of actions within the action plan.
- Biannual (every two years) review of the LBS to recommend updates and improvements for the action plan.
- Updating the LBS where the biannual review recommends changes and/or where annual reporting indicates that the progress of actions is not satisfactory.
- Inclusion of additional actions where they are deemed to meet the intent and direction of the LBS.

In 2030, a review of the LBS will be undertaken to determine whether the LBS is still fit for purpose for the next five years, or whether it should be fully revised, and a new LBS developed.



Photo credit: Greg Harewood

9 References



Photo credit: Greg Harewood

Australian Government (2024). Supporting Australia's Avian Influenza Preparedness and Response. October 2024. https://www.agriculture.gov.au/sites/default/files/documents/hpai-factsheet.pdf

Australian Museum (2023) *What is biodiversity?* https://australian.museum/learn/science/biodiversity/what-isbiodiversity/ Accessed 2 May 2024

Beard J.S. (1990) *Plant Life of Western Australia*. Kangaroo Press Kenthurst NSW.

Cape to Cape Catchments Group (2003) *Margaret River Action Plan*, Waters and Rivers Commission

Cape to Cape Catchments Group (2011) *Augusta Margaret River Landscape – a conservation action plan*. Margaret River, Western Australia

Clark GF, Fischer M, Hunter C (2021) Coasts: Coastal ecosystems and habitats. In: *Australia State of the environment 2021*, Australian Government Department of Agriculture, Water and the Environment, Canberra, https://soe.dcceew.gov.au/coasts/environment/coastal-ecosystems-and-habitats, DOI: 10.26194/AANZ-RF46

Commonwealth of Australia (2019) *Australia's Strategy for Nature 2019-2030*. https://www.australiasnaturehub.gov.au/sites/default/files/2020-11/australias-strategy-for-nature.pdf Accessed 1 May 2024

Commonwealth of Australia (2022). *State of the Climate 2022*. Report by the CSIRO and Bureau of Meteorology. https://www.csiro.au/en/research/environmental-impacts/climate-change/State-of-the-Climate. Accessed 2 May 2024.

Conservation International (2021) *Biodiversity Hotspots*. Targeted investment in nature's most important places. https://www.conservation.org/priorities/biodiversity-hotspots Accessed 1 May 2024

Davis, R.A. and Brooker, L. (2008) Ecological Linkages and Urban Fauna at Risk on the Swan Coastal Plain, Perth, Western Australia. Final Report. Unpublished report prepared for the Swan Catchment Council.

Del Marco A. Taylor R. Clarke K. Savage J. Cullity J. and Miles C (2004) *Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region*. Western Australian Local Government Association and Perth Biodiversity Project.

Department of Biodiversity Conservation and Attractions (DBCA) (2022) *Vegetation Complexes - South West Forest Region Western Australia (DBCA-047)*. Publicly available dataset https://www.data.wa.gov.au/.

Department of Biodiversity, Conservation and Attractions (DBCA) (2023a) Conservation Category Definitions for Western Australian Ecological Communities. Department of Biodiversity, Conservation and Attractions, https://www.dbca.wa.gov.au/media/1727/download.

Department of Biodiversity Conservation and Attractions (DBCA) (2023b) *Threatened Ecological Community List*. Publicly available list. https://www.dbca.wa.gov.au/wildlife-and-ecosystems/threatened-ecologicalcommunities/list-threatened-ecological-communities

Department of Biodiversity Conservation and Attractions (DBCA) (2023c) *Priority Ecological Communities for Western Australia version 35*. Species and Communities Program, Department of Biodiversity, Conservation and Attractions. 19 June 2023.

Department of Biodiversity Conservation and Attractions (DBCA) (2024) *Phytophthora dieback*. https://www.dbca.wa.gov.au/management/threat-management/plant-diseases/phytophthora-dieback . Accessed 2 May 2024

Department of Climate Change, Energy the Environment and Water (DCCEEW) (2022a). *Nature Positive Plan: better for the environment better for business*. Department of Climate Change Energy the Environment and Water Canberra December 2022.

Department of Climate Change, Energy the Environment and Water (DCCEEW) (2022b) *Biodiversity Conservation*. https://www.dcceew.gov.au/environment/biodiversity/conservation Accessed 1 May 2024

Department of Climate Change, Energy, the Environment and Water (2022c) Fire regimes that cause declines in biodiversity. https://www.dcceew.gov.au/environment/biodiversity/threatened/key-threatening-processes/fireregimes-that-cause-declines-in-biodiversity Accessed 25 January 2024

Department of Climate Change, Energy the Environment and Water (DCCEEW) (2023a). *Protected Matters Search Tool*. https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool Accessed 27 September 2023

Department of Climate Change, Energy, the Environment and Water (2023b) *Approved Conservation Advice for the Aquatic Root Mat Community 4 in Caves of the Leeuwin Naturaliste Ridge*. Canberra

Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2023c) *Approved Conservation Advice for the Empodisma peatlands of southwestern Australia*. Canberra

Department of Planning, Lands and Heritage (DPLH) (2019) Leeuwin-Naturaliste Sub-regional Strategy. May 2019 (as amended)

Department of Planning and Urban Development (DPUD) (1993), *Visual resource assessment of the Darling Range sub-region*. Department of Planning and Urban Development 1993, Perth

Department of Primary Industries and Regional Development (DPIRD) (2020) Current Extent of *Native vegetation – Western Australia (DPIRD-005)* Publicly Available Shapefile. https://catalogue.data.wa.gov.au/dataset/native-vegetation-extent

Department of Primary Industries and Regional Development (DPIRD) (2022). Myrtle Rust: Biosecurity Alert. Myrtle rust: Biosecurity alert | Agriculture and Food

Department of Sustainability, Environment, Water, Population and Communities (DSEWPAC) (2013) *Conservation Advice for Subtropical and Temperate Coastal Saltmarsh*. Canberra; Department of Sustainability, Environment, Water, Population and Communities. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/pubs/118-conservation-advice.pdf. In effect under the EPBC Act from 10-Aug-2013.

Department of Water (DoW) (2008) *Margaret River Hydrology Summary*. Government of Western Australia. Perth.

Environmental Protection Authority (EPA) (2008) *Guidance Statement No. 33: Environmental Guidance for Planning and Development*.

Environmental Protection Authority (EPA) (2021) *Guidance Planning and Development: Protection of Naturally vegetated Areas in Urban and Peri-Urban Areas, In accordance with section 16 (K) of the Environmental Protection Act 1986*. December 2021.

Gioia, P. (2010) *South Coast NRM Region – flora summary*. Department of Environment and Conservation. Western Australia Perth.

Government of Western Australia (2011) *WA Environmental Offsets Policy*. September 2011.

Government of Western Australia (2010) Shire of Augusta Margaret River. *Local Planning Scheme No. 1.* Government Gazette No. 180. 24 September 2010

Government of Western Australia (2014) *WA Environmental Offsets Guidelines*. August 2014.

Government of Western Australia (2019a). *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth.

Government of Western Australia. (2019b). *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, https://catalogue.data.wa.gov.au/dataset/dbca

Government of Western Australia (2022) *Native vegetation policy for Western Australia*. Department of Water and Environmental Regulation.

Hanran-Smith G (2015) *Capes Regional Environmental Weed Strategy*. Report prepared for the Cape to Cape Catchments Group.

Heddle, E. M., Loneragan, O. W., and Havel, J. J (1980) *Atlas of Natural Resources*. Western Australia Department of Conservation and Environment.

Hopper SD & Gioia P (2004). *The southwest Australian floristic region: Evolution and conservation of a global hot spot of biodiversity*. Annual Review of Ecology, Evolution and Systematics 35: 623-650.

Jackson WJ, Argent RM, Bax NJ, Clark GF, Coleman S, Cresswell ID, Emmerson KM, Evans K, Hibberd MF, Johnston EL, Keywood MD, Klekociuk A, Mackay R, Metcalfe D, Murphy H, Rankin A, Smith DC & Wienecke B (2017). *Australia state of the environment 2016*: overview, independent report to the Australian Government Minister for the Environment and Energy, Australian Government Department of the Environment and Energy, Canberra.

Jasinska E. J. J. (1997) *Faunae of aquatic root mats in caves of southwestern Australia: origins and ecology*. Unpublished PhD Thesis submitted to the Zoology Department, University of Western Australia.

Lettoof DC, Lohr MT, Busetti F, Bateman PW & Davis RA (2020). *Toxic time bombs: Frequent Detection of anticoagulant rodenticides in urban reptiles at multiple tropic levels*. Science of the Total Environment 724:138218

Makinson R, Pegg G, and Carnegie A (2020) *Myrtle Rust in Australia – a National Action Plan*, Australian Plant Biosecurity Science Foundation, Canberra, Australia

Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009) *South West Regional Ecological Linkages Technical Report*, Western Australian Local Government Association and Department of Environment and Conservation, Perth.

Murphy H & van Leeuwen S (2021). *Australia state of the environment 2021*: biodiversity, independent report to the Australian Government Minister for the Environment, Commonwealth of Australia, Canberra, DOI: 10.26194/ren9-3639.

Neldner J. (2018) *The Impact of Land Use Change on Biodiversity in Australia. In: Land Use in Australia: Past, Present and Future*. The Australian National University, Canberra, Australia.

Paap T., McComb J., Shearer B., Burgess T. and Hardy G. (2012) *Identifying Marri Canker disease. Research Findings 2012. Bulletin No 3.* Centre of Excellence for Climate Change, Woodlands & Forest Health.

Perth Biodiversity Project (PBP) (2013) *Central Perth Regional parklands concept. Vegetation connectivity analysis*. Capital City Planning Framework. Supporting document. February 2013.

Shire of Augusta Margaret River (SAMR) (2016) *Local Planning Policy 16 – Subdivision for Conservation*. ASMR Shire Local Planning Policy. December 2016

Shire of Augusta Margaret River (SAMR) (2022) *Strategic Community Action Plan. 2040*. Unpublished document prepared by the Shire of Augusta Margaret River.

Shire of Augusta Margaret River (SAMR) (2023a) *Draft Local Planning Scheme No. 2*. https://yoursay.amrshire.wa.gov.au/88187/widgets/414620/documents/266754 Unpublished document prepared by the Shire of Augusta Margaret River

Shire of Augusta Margaret River (SAMR) (2023b) *Overarching Sustainability Policy*. Adopted 10 May 2023

Shire of Augusta Margaret River (SAMR) (2023c) *Jenna Yen Mundamung (Walking Together) Strategy 2023-2028*. Working with Wadandi Traditional Land Owners | Shire of Augusta Margaret River (amrshire.wa.gov.au)

Shire of Augusta Margaret River (SAMR) (2023d) *Biodiversity and Protecting our native Areas*. https://www.amrshire.wa.gov.au/environment-and-sustainability/native-plants-and-animals/protecting-ournatural-areas Accessed 14 November 2023

Shire of Augusta Margaret River (SAMR) (2024) *Biodiversity*. https://www.amrshire.wa.gov.au/environment-andsustainability/native-plants-and-animals/protecting-our-natural-areas Accessed 1 May 2024

Schoknecht, NR, Tille, PJ and Purdie, BR (2004), *'Soil-landscape mapping in south-Western Australia: an overview of methodology and outputs'*, Resource management technical report 280, Department of Agriculture and Food, Western Australia, Perth.

Smith P. and Sivertsen, D. (2001) *Draft background paper Part B: Setting goals and targets*. Centre for Natural Resources, Department of Land and Water Conservation, Parramatta (unpublished draft).

South West Group (2014) *Towards Establishing a Green Network. Vegetation connectivity modelling – Testing the effectiveness of a proposed green network for the South West Group member Local Governments*.

Taylor M. E., Eber S. C. and Toni P. (2014) *Changing land use to save Australian wildlife*. Sydney, NSW: World Wildlife Fund Australia.

Water Corporation (2015). *Water Forever: South West Final Report*

Western Australian Herbarium (WA Herb) (1998-) *Florabase-the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions. https://florabase.dbca.wa.gov.au/ Accessed 27 September 2023

Western Australian Planning Commission (WAPC) (2014) *State Planning Strategy 2050*. Western Australian Planning Commission

Western Australian Planning Commission (WAPC) (2015) *South West Regional Planning and Infrastructure Framework*. Part A: Regional Strategic Planning. December 2015

Western Australian Planning Commission (WAPC) (2022) L*ocal Planning Strategy. Shire of Augusta Margaret River*. Endorsed by the Western Australia Planning Commission 18 January 2022.

World Wildlife Fund (WWF) (2022) *What is Biodiversity and why is it important?* https://wwf.org.au/blogs/whatis-biodiversity-and-why-is-it-important/ Accessed 1 May 2024

Appendices



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