City of Albany

Local Biodiversity Strategy – Technical Report

2026-2036

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RECOGNITION OF TRADITIONAL CUSTODIANS

We wish to acknowledge the traditional custodians of the land that supports our amazing biodiversity, the Menang people of the Noongar Nation. They were the first to protect and manage our rich landscape. We respect their continuing culture and the contribution they make to this region.

QUALITY ASSURANCE

Aurora Environmental has implemented a comprehensive range of quality control measures on all aspects of the company's operation.

An internal quality review process has been applied to each project task we undertake. Each document is carefully reviewed and signed off by senior members of the consultancy team before being issued to the client.

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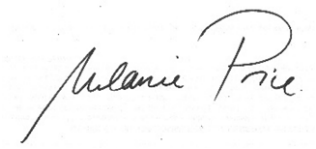
Author	Melanie Price Principal Environmental Scientist		13 March 2026
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EXECUTIVE SUMMARY

Biodiversity in the south-west of Western Australia is globally significant, featuring threatened and priority flora, fauna and ecological communities. We have a diverse array of plants, animals, and habitats endemic to the region. Particularly high vegetation diversity is observed throughout the City of Albany (the City), which encompasses woodlands, wetland habitats, granite outcrops, and the coastal fringe.

Protection of native vegetation is crucial for maintaining biodiversity, wildlife habitats, scenic values, and minimising the risk of soil erosion and rising water tables. The natural environment serves as a key attraction for many residents and visitors to the district.

Agricultural development and urban growth have significantly impacted biodiversity, resulting in the clearing of 65% of the native vegetation in the Albany municipality. Phytophthora dieback, weeds, pests, and climate change also threaten biodiversity. Continued reductions in the size, number, and functionality of vegetation remnants, waterways, and wetlands will increase pressure on ecosystems and the flora and fauna they support. Albany has significant areas of vegetation in small, scattered patches inland, and considerable native vegetation still exists on private property. As conservation reserves become less able to retain their values as isolated 'islands' in a cleared or urbanised landscape, a vegetation linkage or macro-corridor approach that connects conservation reserves with other remnant native vegetation on private land is an essential initiative for reducing biodiversity loss. The creation of a City of Albany Local Biodiversity Strategy (ALBS) provides a pathway for Albany Council and its stakeholder partners to address environmental threats, provide planning input on local biodiversity areas, and celebrate and enhance our natural and cultural heritage. The City has taken a significant step toward protecting biodiversity in its Local Planning Strategy (2019), which states:

> *Development will generally only be supported in cleared areas. Clearing of vegetation may be endorsed in liaison with relevant State Government Agencies only where its conservation value has been assessed as low.*

Key facts:

- City of Albany – Area – 430,807 hectares (ha) with pre-European vegetation illustrated in ***MAP 1***.
- Native vegetation remaining: 154,022 ha (35.8% of original extent) (**MAP *2***).
- Native vegetation protected for 'Conservation': 77,541 ha, 18% of the original vegetation extent or 50.3% of the remaining vegetation extent (**MAP *3***).
- Native vegetation zoned or reserved for environmental conservation under Local Planning Scheme 2 (**MAP *4***).
- City of Albany freehold land (**MAP *5***).
- Poorly represented vegetation types – Pre-European vegetation: less than 30% of original extent remaining (**MAP *6***).
- Albany Regional Vegetation Survey (**MAP *7***).
- Vegetation condition for Albany Regional Vegetation Survey area, 2010 (**MAP *8***).
- Local Natural Areas (LNA) Ranking based on spatial ecological criteria (**MAP *9***).

- Top 100-ranked LNA (**MAP *10***).
- High Priority LNA based on Albany Vegetation Units (**MAP *11***).

Actions developed by the City of Albany are included in a standalone Action Plan.

This technical report outlines the process and methodology used to formulate the City of Albany Local Biodiversity Strategy, which is presented in a standalone document (City of Albany and Aurora Environmental, 2026).

1 INTRODUCTION

1.1 ALBANY AND BIODIVERSITY

Albany, located in the south-western corner of Australia, is part of one of 36 globally recognised biodiversity hotspots (Critical Ecosystem Partnership Fund, 2025; Figure 1). To meet the criteria, an area must have at least 1,500 vascular plants as endemics[1] — a high percentage of plant life found nowhere else on the planet. A hotspot, in other words, is unique and irreplaceable. Unfortunately, biodiversity hotspots are often threatened by the clearing of native vegetation, the disruption of ecological processes and Climate Change.

FIGURE 1: SOUTH-WEST AUSTRALIA BIODIVERSITY HOTSPOT

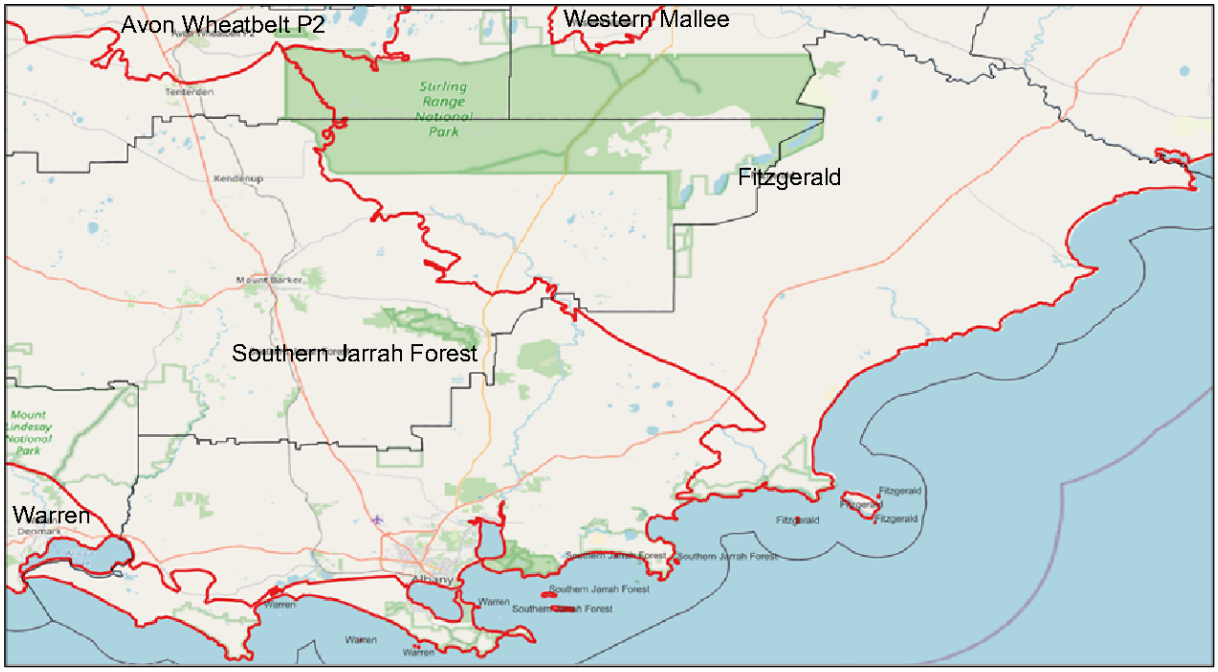
Source: Critical Ecosystem Partnership Fund https://www.cepf.net/our-work/biodiversity-hotspots/southwest-australia

For millions of years, south-west Australia was cut off from the rest of the continent by vast central deserts, leading to significant plant endemism. The forests, woodlands, shrublands, and heaths are home to a wide variety of unique and specialised animal species. Today, only 30% of south-west Australia's original vegetation remains intact, due in part to agricultural expansion, mining, and urban development.

[1] Critical Ecosystem Partnership Fund (2025) https://www.conservation.org/priorities/biodiversity-hotspots

The City is a key area in the south-west biodiversity hotspot because it marks the transition of three bioregions: the Warren, Southern Jarrah Forest, and Fitzgerald (Figure 2).

FIGURE 2: BIOREGIONS



Key information for the City of Albany includes:

- Total Area: 430,807 hectares (ha) (**MAP *1***).
- Native vegetation remaining[2]: 154,022 ha (35.8 % of original extent) (**MAP *2***).
- Native vegetation protected with a purpose of 'Conservation': 77,541 ha or 18% of the original vegetation extent, 50.3% of the remaining vegetation[3] (**MAP *3***).

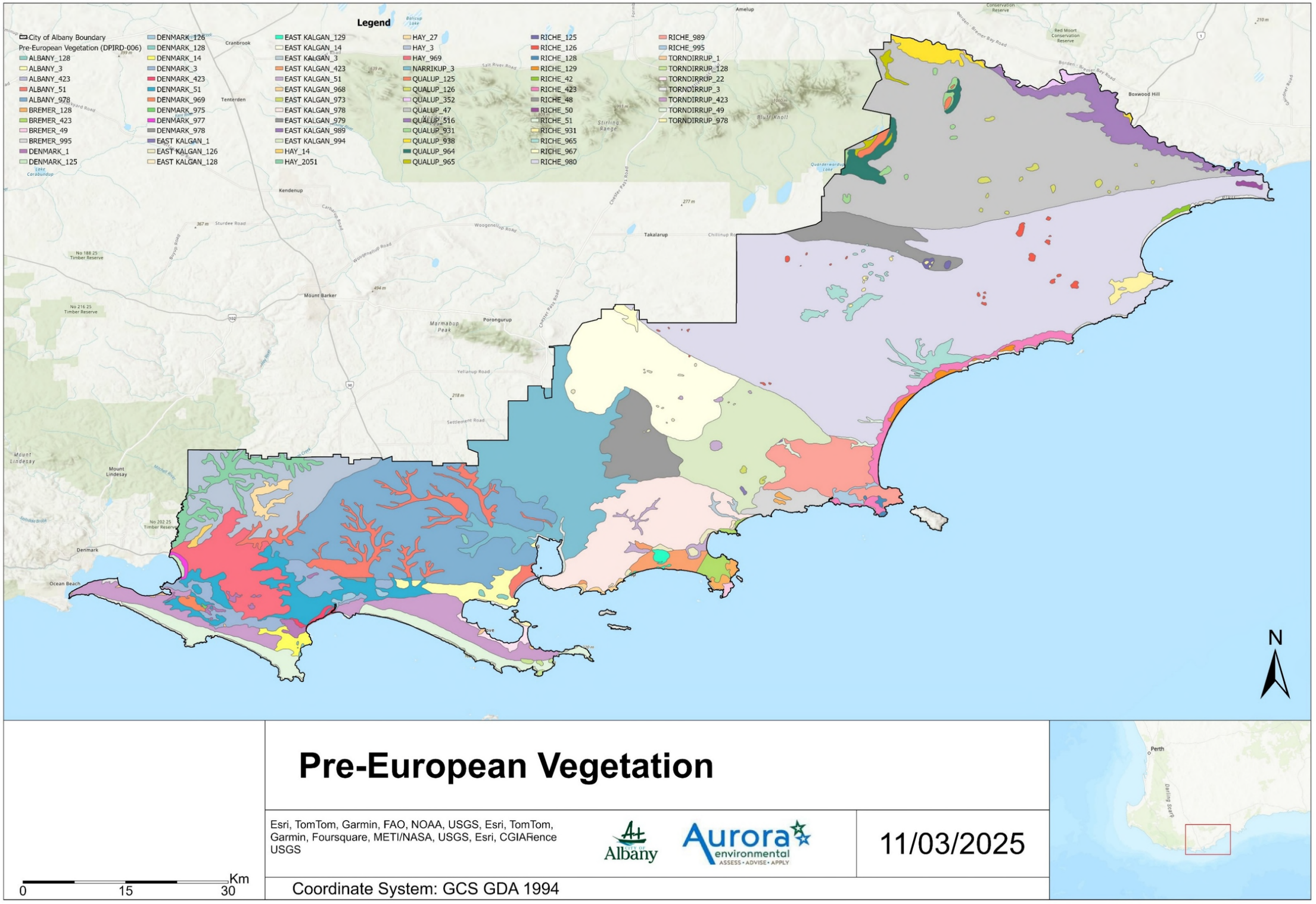
The National Parks and Nature Reserves within the City include:

- Bakers Junction Nature Reserve
- Bald Island Nature Reserve
- Gull Rock National Park
- Mill Brook Nature Reserve
- North and South Sister Nature Reserves
- Tinkelelup Nature Reserve
- Torndirrup National Park

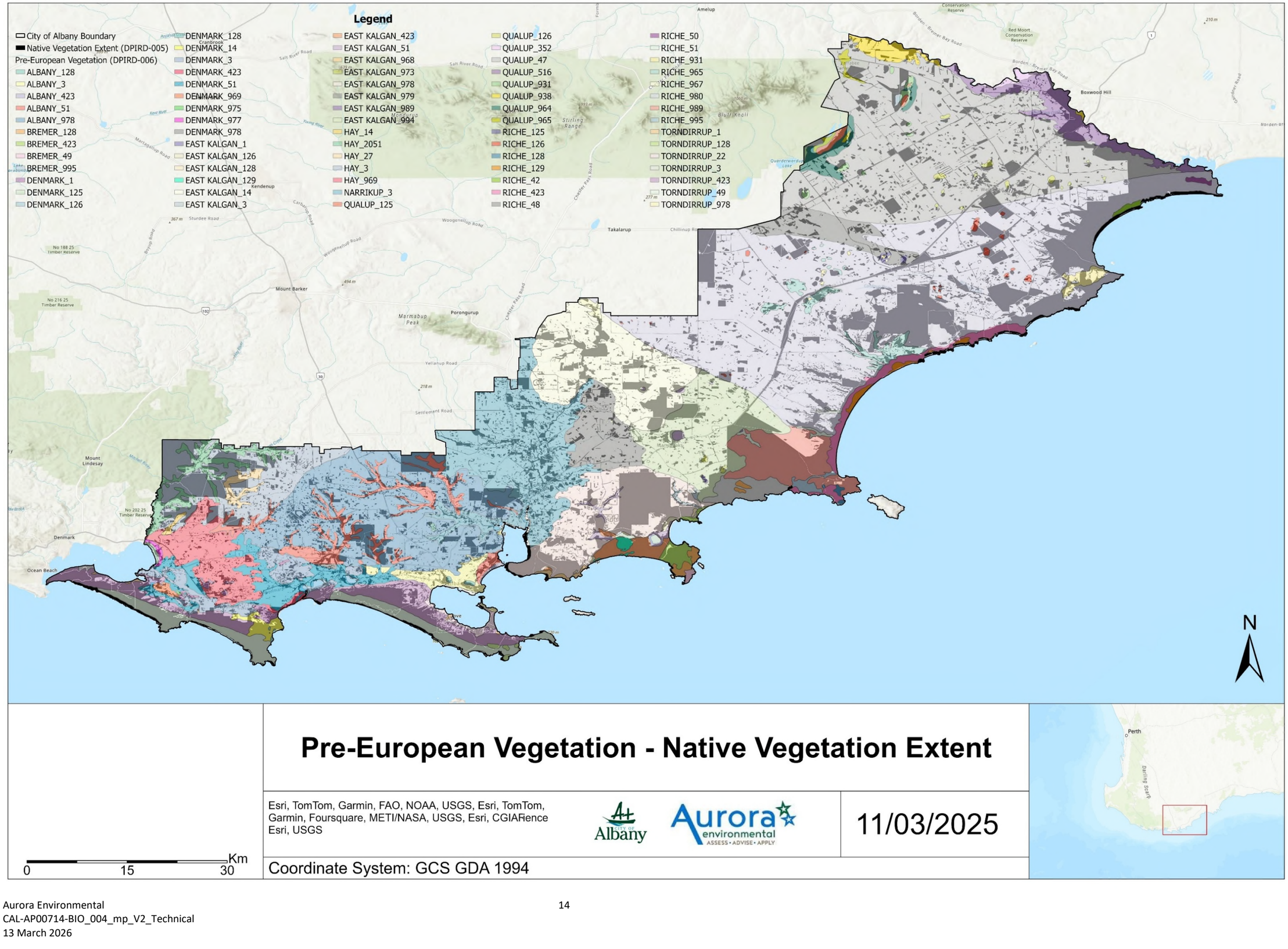
[2] Based on Pre-European Vegetation Dataset (Department of Primary Industries and Regional Development-006)

[3] Includes areas of the Conservation Estate and vested in the Conservation Commission of WA, Crown land with a purpose related to conservation and land zoned 'Conservation' under the City of Albany Local Planning Scheme No. 2.

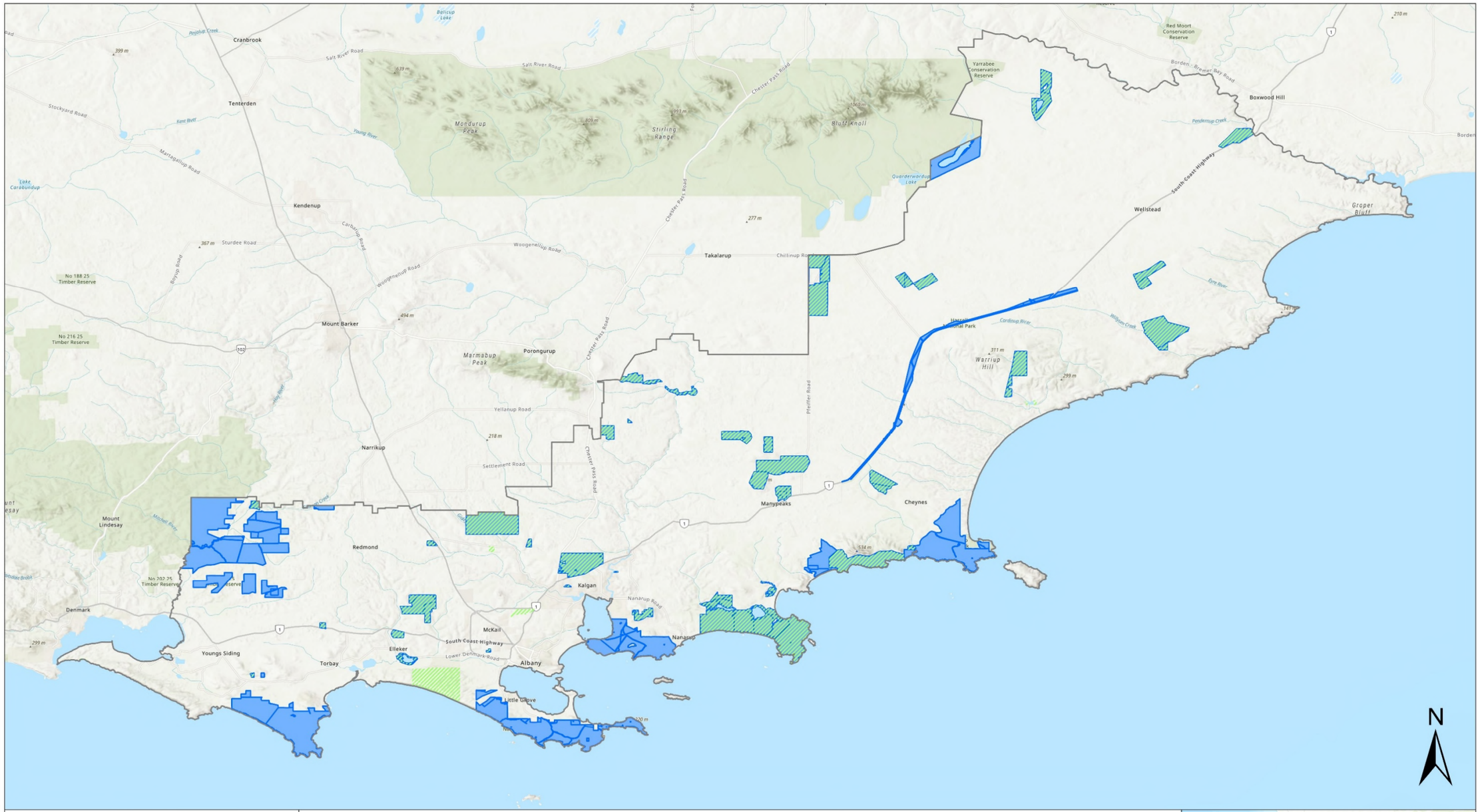
MAP 1: PRE-EUROPEAN VEGETATION



MAP 2: PRE-EUROPEAN VEGETATION – EXTENT REMAINING



MAP 3: VEGETATION WITH HIGH LEVEL OF PROTECTION



Legend

- City of Albany Boundary
- Reserves with Conservation Purpose
- DBCA Legislated Lands and Waters

0 15 30 Km

Vegetation with High Level of Protection

Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, CGIAR, Esri, USGS, Esri, TomTom, Garmin, METI/NASA, USGS

24/03/2025

Coordinate System: GCS GDA 1994

- Two Peoples Bay Nature Reserve
- Waychinicup National Park
- West Cape Howe National Park

1.2 WHY IS BIODIVERSITY IMPORTANT?

Biodiversity underpins all life on Earth. Without the complex interactions between plants, animals, and their environment, there would be no air to breathe, no food to eat, and no water to drink. Countless discoveries are yet to be made about the web that constitutes our lives, livelihoods, medicine, culture, and natural beauty.

Humans depend on nature for a wide range of ecosystem services, such as clean air and water, pollination, and food. Generally, the more biodiverse an ecosystem is, the greater its stability, productivity, and resilience, particularly in the face of threats such as climate change, pests, and diseases (Barraclough et al., 2023). Moreover, animal, plant, and microbial diversity are essential sources of medicinal compounds and nutritious food.

Scientific research (Australian Institute of Health and Welfare, 2022) supports the benefits of investing in environmental protection, including improved community health and wellbeing, protection of cultural identity, economic benefits, mitigation of climate impacts, reduced disease burden, and enhanced resilience. It will also enable future research opportunities.

The ability to deliver products through agriculture, forestry, tourism, or product development is often taken for granted. It relies on the continued provision of ecosystem services that sustain the natural landscapes where these products are produced (Commonwealth of Australia, 2020).

Assigning a dollar value to biodiversity can help make environmental concerns more relevant to decision-makers and encourage conservation efforts. While it provides an economic argument for protection by quantifying the value of ecosystem services, such as clean air and water, this method may overlook the intangible, cultural, and intrinsic values of nature, and it faces practical challenges in accurately calculating ecological and economic value.

Managing natural resources creates a range of jobs, providing significant opportunities for Aboriginal people in both knowledge-sharing and direct on-the-ground management roles. Noongar knowledge of traditional land management practices has the potential to help conserve biodiversity in the south-west of Western Australia. It is increasingly valued by programs such as the Department of Biodiversity, Conservation and Attractions (DBCA) Aboriginal Ranger Program.

Growing evidence (New Scientist, 2021) shows that accessible and diverse green spaces offer greater restorative benefits for human health and well-being than those that can be realised in simplified natural environments, such as landscaped parks with a limited number of plant species.

Having a clear plan for local biodiversity conservation will help the City meet community expectations and create opportunities to protect the diverse ecosystem services that support community well-being, economic prosperity, and sustainability.

The strategy also directs the City to ensure that actions complement its role in supporting the entire community's connection to country and sense of place.

The ALBS is a detailed outline of how the Albany Council can conserve and protect biodiversity within its area of influence.

1.3 BIODIVERSITY PLANNING FRAMEWORK

This is the biodiversity planning and protection framework for this Strategy (Figure 3):

- The Values of the community form the foundation upon which we conduct this work; they represent the fundamental motivation for our decisions.
- The Vision – the future you want to create.
- The Mission is the purpose underpinning the Strategy.
- A Strategy is a set of decisions aimed at achieving short- to mid-term goals.
- A Strategy is implemented by breaking it down into specific Actions.
- Actions must be specific, measurable, achievable, relevant and time-bound (SMART).

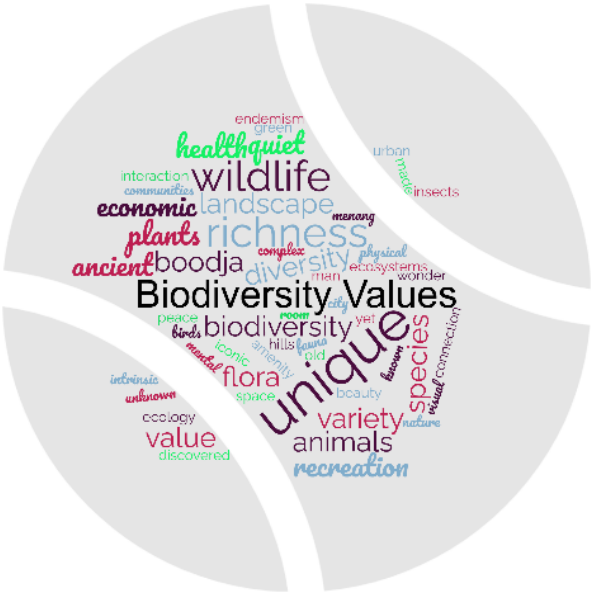
FIGURE 3: VALUES, VISION, MISSION, OBJECTIVES AND ACTIONS

Source: https://painless.software/vision-mission-values-strategy-actions

1.4 VALUES

The Albany community has told Council that it values biodiversity and the richness it provides to our lives, culture, mental well-being, and economy. Some key words relating to community values identified during a stakeholder workshop are provided in Figure 4.

FIGURE 4: VALUES OF BIODIVERSITY



Source: Albany Local Biodiversity Strategy - Stakeholder Workshop 1, 29 August 2024.

1.5 VISION

Biodiversity stakeholders have informed the Council that they share the following vision:

- "Kinjarling – Albany, Caring for Country –- where nature and the community can thrive and adapt."

1.6 MISSION

The Albany Council:

- Encourages and empowers landowners to retain, manage, and enhance local biodiversity on their land, contributing to the numerous benefits that native plants, animals, and vegetation provide to the community.
- Has a clear understanding of biodiversity in the municipality and adopts a framework to enable the protection and management of local biodiversity.
- Implements a target to retain, protect, and manage a representative network of local natural areas (LNA) with community input, ensuring these areas are healthy, connected, and resilient in the future.

1.7 PRINCIPLES OF BIODIVERSITY PROTECTION

Principles of biodiversity protection have been developed by the Western Australian Local Government Association (WALGA) and others to guide the preparation and implementation of local biodiversity strategies:

1. Each ecological community must retain at least 30% of its pre-European extent to prevent an exponential loss of species and failures in ecosystem processes.
2. Protect regionally and locally significant natural areas.
3. Biodiversity is best conserved in situ – protect what remains before revegetating.

4. Regeneration takes precedence over revegetation.
5. Prioritise the protection and management of natural areas with the highest biodiversity value.
6. Encourage community involvement in biodiversity conservation.
7. Biodiversity values must be given full consideration in a transparent decision-making process.
8. Site-specific field surveys are essential for understanding biodiversity value.
9. Conservation of natural areas is a legitimate land use.

The City also acknowledges that community input is a key principle of biodiversity protection. Landowners, volunteers, and organisations are supported in their efforts to conserve and celebrate biodiversity in 'Local Natural Areas' (LNA), including rural and urban habitats.

During the stakeholder engagement process, the community defined LNA in Workshop 1 as "areas with value to natural systems across all land tenures, including non-vegetated areas with value for ecosystem processes."

The City values stakeholder partnerships to:

- Achieve biodiversity protection across all land types;
- Enhance connectivity;
- Understand habitat requirements;
- Increase biodiversity in urban habitats;
- Support knowledge through citizen science;
- Reduce threats such as disease and pests; and
- Implement fire regimes that enhance biodiversity.

1.8 GOALS

The ALBS focuses on long-term goals to protect, retain, and manage biodiversity within the City and to strengthen community engagement around its importance. The goal-setting process has been informed by the remaining LNA within the City and by the extent of vegetation types compared to pre-European levels.

The State Government acknowledges that 30% representation of the original extent of each vegetation type is the threshold level below which species loss appears to accelerate exponentially at an ecosystem level, and 10% representation of the original extent of each vegetation type indicates 'endangered' status (EPA, 2000).

Goals for this Local Biodiversity Strategy are:

Goal 1: Retain and protect

Retain and protect natural areas, with consideration of biodiversity criteria and ecological representation, on City-managed land and through planning and development processes on private land.

Goal 2: Learn.

Improve understanding of biodiversity values, threats and opportunities by building knowledge, research and partnerships.

Goal 3: Manage and enhance

Improve ecological condition, increase connectivity and reduce threats across natural areas through coordinated management and restoration.

Goal 4: Engage

Increase community involvement, partnerships and stewardship in biodiversity protection and management.

To achieve these goals, governance, reporting and monitoring are essential to ensure accountability, continuous improvement, integration with planning and budgeting processes in accordance with a monitoring and evaluation framework.

1.9 OBJECTIVES

The biodiversity conservation objectives stem from the national targets for biodiversity conservation outlined in The National Objectives and Targets for Biodiversity Conservation 2001 – 2005, which aim to:

- Prevent the clearing of ecological communities that have less than 30% of their original extent remaining;
- Restore ecological communities with less than 10% of their original extent left; and
- Safeguard threatened species and ecological communities.

Retention and Protection

- Protect all LNA as far as reasonably practicable;
- Preserve and enhance poorly represented vegetation associations that remain within the City by assisting landowners and utilising planning systems;
- Boost formal protection of poorly represented vegetation types and areas containing threatened and priority flora, fauna, and communities;
- Reduce the occurrence of unlawful and incremental clearing to maintain biodiversity values; and
- Increase native vegetation coverage in urban areas by planting suitable native and region-specific species.

Management

- Significantly improve internal planning and assessment processes to include the proactive consideration of biodiversity values during assessment of development proposals;
- Inclusion of multi-criteria analysis results in the City planning and assessment process; and
- Increase knowledge of vegetation quality and condition across the City to ensure retention of good or better quality vegetation as far as reasonably practicable.

Engagement

- Engage with organisations, community groups, and the general public about local biodiversity values.

- Foster broad environmental awareness across all levels of the community to support environmental and educational initiatives.
- Promote citizen science projects that enhance our knowledge base and involve stakeholders.

1.10 KEY FEATURES OF A LOCAL BIODIVERSITY STRATEGY

Key features of the ALBS include:

- Focus on LNA, including biodiversity on public and private lands.
- Objectives and targets are based on spatial analysis, consistent endorsed criteria, and considered in the regional context.
- A natural resource mapping tool with areas ranked by biodiversity values.
- An action plan that integrates biodiversity considerations into all areas of Local Government functions.
- Preparation in consultation with relevant stakeholders and the community, proposed to be endorsed by Council.

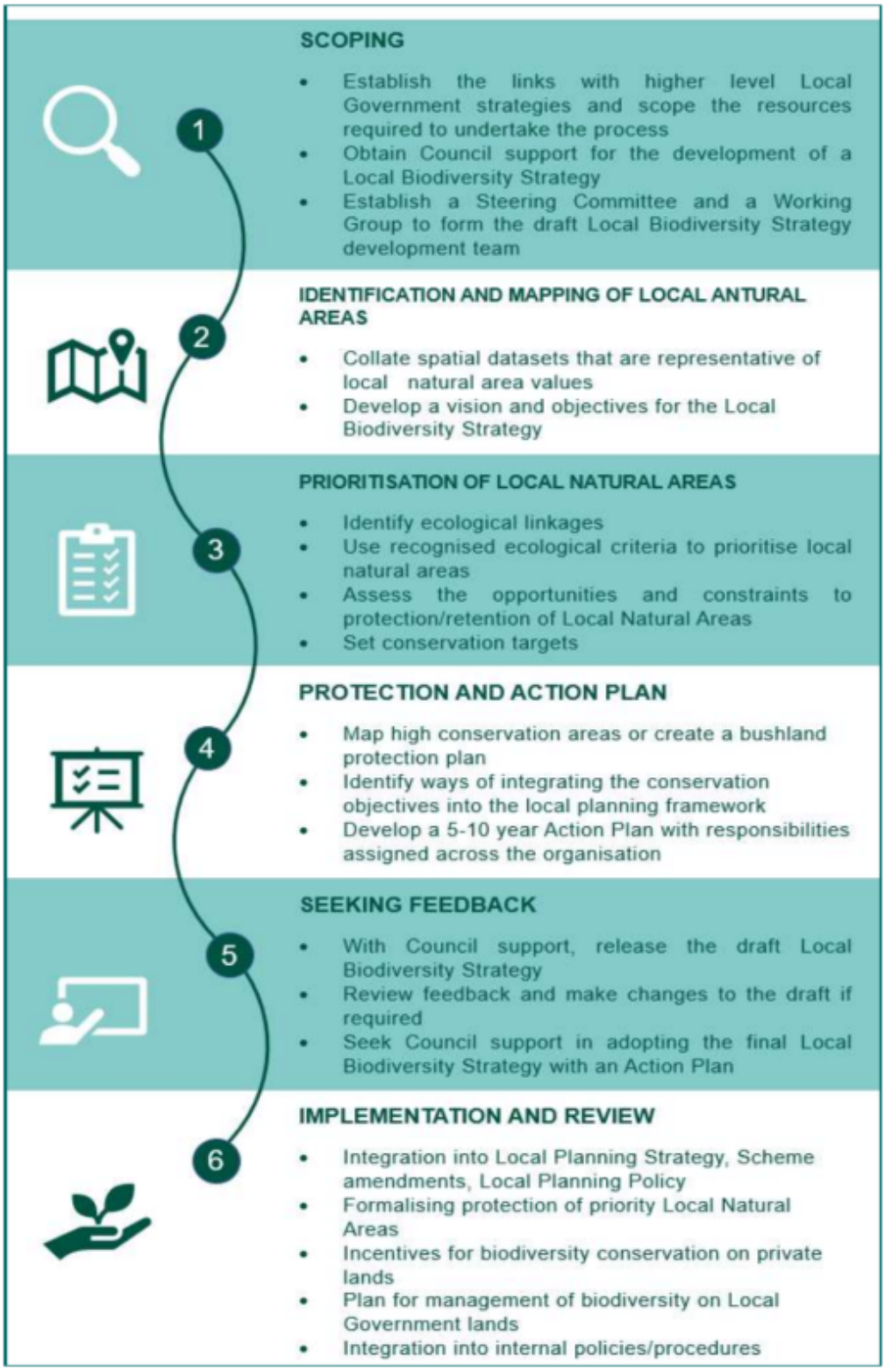
1.11 WHAT CAN A BIODIVERSITY STRATEGY DO?

A local biodiversity strategy:

- Identifies LNA, the biodiversity they support, and their conservation significance and priorities;
- Considers areas with value to natural systems across all land tenures (e.g., crown land, unallocated crown land, road reserves, and surrounding regional assets);
- Assesses local opportunities and constraints for protecting natural areas; and
- Identifies ways to achieve local biodiversity conservation objectives and targets.

The biodiversity strategy process is illustrated in Figure 5.

FIGURE 5: BIODIVERSITY STRATEGY PROCESS



Source: WALGA, 2023

1.12 WHAT CAN A BIODIVERSITY STRATEGY NOT DO?

A biodiversity strategy may not.[4]:

- **Resonate with all people:** The strategy may not connect with people in urban or rural environments.
- **Improve health and resilience:** The strategy may fall short of improving the health and resilience of marine and aquatic environments.
- **Balance interests:** The strategy may not meet the short-term interests of all community members.
- **Influence activities:** This strategy may not be effective in influencing biodiversity conservation activities.
- **Coordinate implementation:** The strategy implementation plan may be difficult to implement unless it is supported at every level of government and by the community.
- **Historic decisions:** The strategy may have a limited ability to change past decisions.
- **Commitment to implementation:** A strategy alone cannot drive change unless there is the will to deliver practical, on-the-ground outcomes.

A biodiversity strategy can't do everything, but it can help protect biodiversity by:

- **Outlining overarching goals and objectives:** Sometimes we need to articulate goals and objectives to get concepts heard by the community.
- **Highlighting the importance of maintaining ecosystems:** Protecting biodiversity is most effective when ecosystems are healthy and functioning.
- **Using science:** Science can help inform management and mitigate threats.
- **Involving many sectors:** Collaboration and engagement from all sectors, public and private, is essential.
- **Adapting management:** Adaptive management includes assessing risk, measuring outcomes, and reviewing approaches.

[4] Commonwealth of Australia (2016) Adapted from: Report on the Review of the first five years of Australia's Biodiversity Conservation Strategy 2010–2030. https://www.dcceew.gov.au/sites/default/files/documents/bio-cons-strategy-review-report.pdf

2 STAKEHOLDER ENGAGEMENT

The City recognises the importance of stakeholder involvement and wants to ensure that specialists and other key stakeholders play a role in developing the Strategy. Key stakeholders have included:

Albany Community Environment Centre	Friends of Yakamia Forest
Gondwana Link	Department of Biodiversity, Conservation and Attractions
Wilson Inlet Catchment Committee	Torbay Catchment Group
Oyster Harbour Catchment Group	Department of Water and Environmental Regulation
UWA	South Coast Natural Resource Management Inc.
Department of Planning, Lands and Heritage	City staff
Birdlife Australia and Albany Bird Group	
Interested community members	

To date, engagement has included a survey, two workshops, and the provision of a mapping tool to show biodiversity values across the municipality.

Appendix A includes an analysis of the survey. TABLE 1 summarises the survey outcomes. The Workshop outcomes are included in TABLE 2 and Appendix B.

TABLE 1: OUTCOMES OF BIODIVERSITY SURVEY

SURVEY EFFORT	• The high number of responses received (693) and the effort taken to complete the survey signify that Biodiversity and vegetation in urban areas are essential community issues. • Responses received from 42 localities within the City, with 84% stating that they lived in urban Albany.
BIODIVERSITY CONSERVATION	• 93% of respondents feel that biodiversity conservation in the City is Important to Very Important. • There was a strong desire amongst respondents for better protection of native bushland within the municipality.
BIODIVERSITY LOSS	• 96% of respondents are concerned about biodiversity loss within the City. • 56.7% of respondents believe biodiversity is declining or declining significantly in the City. • The highest perceived threats by respondents were: o Clearing for land subdivision; o Non-native animals (feral cats, foxes, rabbits); o Weeds; o Dieback; o Tree canopy loss; and

	○ Climate change impacts. • Uncontrolled pet cats were also a concern for multiple respondents in the open-ended response.
BIODIVERSITY VALUES	• The highest ranked values for biodiversity were: ○ To preserve the biodiversity of life and ecosystem processes; ○ Living close to nature; and ○ The role biodiversity plays in mitigating climate change. • Respondents recognise the value of native vegetation for preserving and enhancing corridors for wildlife and protecting plants, animals and other organisms. • Respondents value the location of native vegetation for enhancing biodiversity values.
ACTIONS BY THE CITY OF ALBANY	• Strong support for more action by the City to protect biodiversity. • In general, there was slightly higher support for direct actions, such as managing weeds and pests and somewhat less support for changes to policy and community education. The exception was for the Council to consider nature and biodiversity in all decision-making. A total of 85% of respondents rated this action significant, making it the highest-ranked action. • Concerns included: ○ The Council would take away the rights of property owners to manage vegetation on their private property; and ○ Biodiversity values would take precedence over bushfire management and safety.

TABLE 2: OUTCOMES OF WORKSHOPS

OUTCOMES	WHAT THE STAKEHOLDERS SAID:
Stakeholders from Workshop 1 said:	• The City has a vital role as an advocate and facilitator of collaboration. • The City can form clear partnerships with others, including: ○ Gondwana Link; ○ South Coast Natural Resource Management (NRM); ○ Green Skills; ○ Oyster Harbour Catchment Group; ○ Torbay Catchment Group; ○ Friends' groups; ○ Community members; and ○ Educational institutions

OUTCOMES	WHAT THE STAKEHOLDERS SAID:
	• Educational role, e.g. urban backyards contribute to biodiversity. • The City needs to make the community more aware of its efforts by reporting publicly. • How else can the City engage with interested people? • Many groups and individuals are interested in weed management – Review weed strategy? • Review of other City environmental plans with biodiversity protection as a key role.
During Workshop 2 (5 December 2024), participants identified the following opportunities for biodiversity preservation and protection:	**Opportunities** • City of Albany area: 430,807 ha • Native vegetation remaining (pre-European): 154,022 ha or 35.8% • Areas protected with a purpose of 'Conservation' (reserve status): 77,541 ha, 18% of the original, 50.3% of remaining vegetation • Work with State and Commonwealth controls on clearing and environmental impacts • Reviewing and consolidating City environmental strategies and plans for threat mitigation (e.g., weed strategy, reserve management) • Support of volunteers • Forming partnerships and collaborations • Protecting and managing high-value and vulnerable areas • Increasing resilience to threats at the landscape level and valuing environmental services • Education and awareness raising • Supporting initiatives and businesses that propose sustainable development • Carbon sequestration and biodiversity projects • Working with traditional custodians • Offsets • Dual management with traditional custodians and rangers (leases, resourcing) • Appropriate conservation purpose of reserves • Incentives to protect biodiversity (carrot) • Leverage the knowledge of the presence of threatened species for funding • Stronger legislation for protection (stick) and proper implementation of current rules • Partnerships with other organisations (University of WA, Centre of Excellence in Natural Resource Management, South Coast Natural Resource Management Inc., catchment groups)

OUTCOMES	WHAT THE STAKEHOLDERS SAID:
	• Resourcing priorities • Unconstructed road reserves as corridors

Constraints identified included:	• Land clearing, degradation and fragmentation
	• Resources (personnel, funding)
	• Competing objectives (growth of Albany population, fire risk regulations, approved development, minor clearing)
	• Threats (weeds, disease, pests)
	• Climate change (poorly known interactions and outcomes)
	• Gaps in knowledge, including:
	  o Impacts of climate change
	  o Overarching impacts
	  o How to build resilience
	• Threatened species on private land or unsurveyed areas
	• What are the keys to adaptation at the landscape scale
	• Use of non-native habitat (blue gum plantations, pines, weeds, drains)
	• Use of road reserves

Mechanisms for Protection include:	• Local Planning Strategy • Local Planning Scheme • Input into planning (Structure Plans, Development Applications) • Input into the clearing application decisions • Purpose of Crown Land • Management of Crown Land • Offsets (City Freehold Land) • Education - awareness raising • Engagement with stakeholders • Assistance for landowners (mulcher and tip pass for weeds)
Other discussion:	Asked by City of Albany Councillor to stakeholders present: What do partners need from the City, the Department of Water and Environmental Regulation (DWER), DBCA? • Funding, information, coordination, support • Nature Positive – How to move beyond concepts of 'no net loss' into positive territory • Aim to improve the trend line of loss and degradation

OUTCOMES	WHAT THE STAKEHOLDERS SAID:
	• Natural capital, ecological services – calculate these to show the importance of biodiversity to our everyday lives. Show how our investment in biodiversity pays off. • Can the City and partners create a tool for natural capital? • Rather than 'connectivity' – 'ecological permeability' – Nature link • Articulate relationships and social dynamics • Set targets for involvement and collaboration • Set revegetation targets. • Weed management needs a different approach to consider biodiversity enhancement • LNA – Natural (what can we protect, e.g. bushland, wetland, watercourse) vs Nature (what can we enhance, e.g. drain, road reserve).

3 BIODIVERSITY PROTECTION FRAMEWORK

3.1 INTERNATIONAL

Global Biodiversity Outlook

The Global Biodiversity Outlook (GBO) is the flagship publication of the Convention on Biological Diversity. It provides a periodic report summarising the latest data on biodiversity status and trends, drawing conclusions relevant to the further implementation of the Convention. The reports draw on various sources, including national reports, scientific literature, data from the Biodiversity Indicators Partnership, and supplementary studies.

The fifth GBO (GBO-5) presents an integrated overview of the world's achievements and shortcomings concerning previous global biodiversity targets (Aichi Biodiversity Targets (2010-2020)). It examines the causes of biodiversity and ecosystem change, explores the implications for people, and discusses policy options based on successful programs worldwide. The report also investigates the essential links between biodiversity and other global agendas, including the 2030 Agenda for Sustainable Development and the Paris Agreement on climate change.

The Convention on Biological Diversity sets a target of managing 17% of each of the world's eight ecoregions as protected areas by 2020. Australia has upgraded its commitment to the 30 by 30 target (30% of land and marine areas protected by 2030) (Australian Government, 2026[5]).

National Reports to the Convention on Biological Diversity

In 2014, in Australia's Fifth National Report to the Convention on Biological Diversity, the Australian Government set a goal that by 2020, at least 17% of terrestrial and inland water, and 10% of coastal and marine areas, particularly those of special importance for biodiversity and ecosystem services, would be conserved through effectively and equitably managed, ecologically representative, and well-connected systems of protected areas and other effective area-based conservation measures, integrated into broader landscapes and seascapes.

A country profile for Australia (Convention on Biological Diversity, 2024) indicates that conservation efforts within Australia have strengthened since the last national report to the CBD. Despite this, the Australian State of the Environment 2021 report found that biodiversity is still in severe decline (Australian Government, 2021).

In November 2021, the United Nations Development Program (UNDP), the UNEP World Conservation Monitoring Centre (UNEP-WCMC), and the Secretariat for the Convention on Biological Diversity (SCBD) published a report entitled 'Creating a Nature Positive Future: The Contribution of Protected Areas and Other Effective Area-Based Conservation Measures'. This report defines nature positive as "actions that increase resilience of the planet and biodiversity, as well as societies, to create a paradigm shift to reduce the loss of nature, secure nature's contributions critical for humanity, and enhance sustainable socio-economic development."

Australia is a party to the China–Australia Migratory Bird Agreement (CAMBA) and the Japan–Australia Migratory Bird Agreement (JAMBA).

[5] Australian Government (2026) Achieving 30 by 30. Link

3.2 AUSTRALIAN GOVERNMENT

National objectives and targets for biodiversity conservation were published in 2001 (Environment Australia 2001a[6]).

The priority actions are to:

- Protect and restore native vegetation and terrestrial ecosystems;
- Protect and restore freshwater ecosystems;
- Protect and restore marine and estuarine ecosystems;
- Control invasive species;
- Mitigate dryland salinity;
- Promote ecologically sustainable grazing;
- Minimise impacts of human-induced climate change on biodiversity;
- Maintain and record indigenous people's ethnobiological knowledge;
- Improve scientific knowledge and access to information; and
- Introduce institutional reform.

The national target is to implement clearing controls to prevent the loss of ecological communities to a level below 30% of pre-1750 levels. A level of 30% of the pre-clearing extent of an ecological community is considered the threshold below which species loss appears to accelerate exponentially at the ecosystem level. To achieve the national target, efforts focus on maintaining natural vegetation in situ (within and outside conservation reserves) and rehabilitating degraded areas with local native species to replace losses.

Legislation considered for biodiversity issues related to development includes:

- Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act): Proposals likely to impact Matters of National Environmental Significance (MNES) are assessed at the Commonwealth level. The Environment Protection and Biodiversity Conservation Regulations 2000 support the EPBC Act and outline procedures for its implementation. Relevant matters of national environmental significance for biodiversity include Ramsar-listed wetlands of international importance, nationally threatened flora and fauna species and communities identified under the EPBC Act, and migratory species listed under the EPBC Act.
- The Nature Repair Act 2023 came into effect on 15 December 2023, establishing a framework for a world-first legislated, national, voluntary biodiversity market. The Nature Repair Market aims to incentivise actions to restore and protect the environment.

The policy framework for biodiversity encompasses the following:

- Australia's Strategy for Nature 2019 – 2030: This strategy establishes a national framework for government, non-government, and community action aimed at bolstering Australia's response to

[6] Environment Australia (2001) National Objectives and Targets for Biodiversity Conservation. https://library.dbca.wa.gov.au/FullTextFiles/020395.pdf

biodiversity decline and nurturing nature across various environments. It accommodates the differing priorities and practices throughout the country and reflects the diversity of our landscapes.

- In Australia, the Nature Positive Plan is a Commonwealth government initiative focused on reforming environmental laws to protect the country's unique environment.
- The goals include enhancing natural systems worldwide beyond 2020 by 2030, with ongoing recovery after that.
- The focus is on improving the health, abundance, diversity, and resilience of species, ecosystems, and natural processes.
- Proposed actions by the Commonwealth Government involve conserving ocean environments, protecting habitats, managing resources, and transforming the economy.

3.3 WESTERN AUSTRALIA

The Environmental Protection Authority (EPA) is the primary agency in Western Australia responsible for assessing environmental impacts. The EPA's broad objective regarding biodiversity is to maintain the abundance, diversity, geographic distribution, and productivity at both the species and ecosystem levels by avoiding or managing adverse impacts and enhancing knowledge.

Western Australia's state government has established a Native Vegetation Policy that guides the development of policies, practices, and systems to achieve the following outcomes:

- Outcome 1: Enable all sectors to contribute to a net gain in landscape-scale conservation and restoration.
- Outcome 2: Provide business certainty through regulatory clarity, efficiency, and coordination.
- Outcome 3: Establish a strong, accessible evidence base for policymaking, decision-making, and transparency.

Other legislation that requires consideration of biodiversity is included in TABLE 3.

TABLE 3: WESTERN AUSTRALIAN LEGISLATION - BIODIVERSITY

LEGISLATION/ REGULATION/ POLICY/ GUIDELINE	OBJECTIVES	ADMINISTERED BY
Biodiversity Conservation Act 2016 (BC Act)	The BC Act governs the management of threatened flora, fauna, and ecological communities. The Biodiversity Conservation Regulations 2018 support the BC Act and provide greater protection for biodiversity, particularly threatened species and threatened ecological communities.	DBCA
Environmental Protection Act 1986 (EP Act)	The EP Act provides environmental protection at the State level and outlines guidance on development that requires referral to the EPA for assessment.	EPA and DWER
Environmental Protection (Clearing of Native	These regulations support the EP Act and address matters related to clearing native vegetation, including definitions of native vegetation, fees, data	DWER

LEGISLATION/ REGULATION/ POLICY/ GUIDELINE	OBJECTIVES	ADMINISTERED BY
Vegetation) Regulations 2004	requirements, and circumstances where clearing is exempt from permit requirements.	
Environmental Protection (Environmentally Sensitive Areas) Notice 2005	Environmentally sensitive areas (ESAs) are classes or areas of native vegetation where the exemptions for clearing vegetation under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* do not apply. In Albany, includes: 1. World Heritage properties; 2. Areas included on the Register of the National Estate; 3. Defined wetlands and within 50 metres (m) of the wetland; 4. Threatened flora and vegetation within 50 m; and 5. Threatened Ecological Communities.	DWER
Planning and Development Act 2005 (PD Act)	The PD Act is the primary legislation setting out controls for planning across Western Australia and considers biodiversity as a planning consideration. The PD Act Schedule 7 identifies the conservation of the natural environment, including the maintenance of ecological processes and genetic diversity, as a matter that can be addressed through local and regional planning schemes, state planning policy, and conditions of subdivision.	Western Australian Planning Commission (WAPC) and Department of Planning, Lands and Heritage (DPLH)
Planning and Development (Local Planning Schemes) Regulations 2015 (allows for designation of reserves for 'Environmental Conservation' with objectives.	To identify areas with biodiversity and conservation value, and to protect those areas from development and subdivision. To identify and protect areas of biodiversity conservation significance within National Parks and State and other conservation reserves.	WAPC and DPLH
Planning and Development (Local Planning Schemes) Regulations 2015 (allows for designation of zones for 'Environmental Conservation' with objectives.	To identify land set aside for environmental conservation purposes. To provide for the preservation, maintenance, restoration or sustainable use of the natural environment.	DPLH and Local Government
Conservation and Land Management Act 1984 (CALM Act)	The CALM Act includes provisions for establishing and managing national parks, nature reserves, conservation parks and marine parks in Western Australia.	DBCA

STATE PLANNING POLICIES

The Planning and Development Act gives effect to State Planning Policies, some of which are relevant to the protection and management of biodiversity in the City of Albany:

- State Planning Policy 2: 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
- Draft State Planning Policy 2.9: Planning for Water
- State Planning Policy 3: Urban Growth and Settlement
- State Planning Policy 3.4: Natural Hazards and Disasters
- State Planning Policy 3.7: Bushfire
- State Planning Policy 7: Design of the Built Environment

STATE OF THE ENVIRONMENT REPORTING

State of the Environment reporting has not been conducted since 2007. At that time, biodiversity was deemed 'of concern' and in decline, with insufficient knowledge about biodiversity across Western Australia. The issues affecting biodiversity were considered severe and worsening due to climate change, population growth and consumption, greenhouse gas emissions, introduced species, weeds, Phytophthora dieback, land salinisation, salinisation of inland waters, altered fire regimes, and the loss or degradation of native vegetation.

3.4 REGIONAL

The South Coast region of Western Australia features numerous regional environmental and biodiversity initiatives focused on natural resource management, conservation, and community capacity building. The region's recognition as a global biodiversity hotspot and its rich cultural and ecological significance drive these initiatives. Key organisations and initiatives include:

- South Coast Natural Resource Management Inc.: A community-based organisation focused on natural resource management, conservation, and building community capacity in the South Coast region, with projects related to threatened species, high-value landscapes, climate resilience, sustainable agricultural practices and natural capital initiatives.
- Gondwana Link: Concentrating on restoration to reconnect the western woodlands and forests in the south-west of Western Australia, with 16,000 hectares of land acquired, a total of 13,500 hectares of land restored to habitat, control of feral animals on private property, and engagement of stakeholders, including Indigenous custodians.
- Bush Heritage: Emphasising habitat restoration, feral animal control, fauna recovery, and reconnecting the landscape.
- Centre for Excellence in Natural Resource Management (CENRM): Including research in aquatic and fish ecology, social, cultural, and environmental studies, and terrestrial ecology.

- Green Skills: Building resilience in the community and environment.

4 CITY OF ALBANY

4.1 CULTURE

Albany is home to the Menang Noongar people. In 2016, the Western Australian parliament formally recognised that the Noongar people had been here 'since time immemorial'. Western scientific methods have provided evidence that the Noongar people have lived in and maintained a profound cultural connection to south-western Australia for at least 45,000 years, and probably much longer. This makes the Noongar people part of the longest continuing culture on earth – the First Nations people of Australia.

The Noongar people lived here as ice ages came and went, sea levels rose and fell, and species and ecosystems evolved. They inhabited areas that are now deep ocean and demonstrated remarkable resilience and innovation in developing ways of living with boodja (country, land) throughout those eras.

Boodja is central to Noongar lore, culture, and identity. The different Noongar groups in the Great Southern and wider southwest – Menang, Goreng, Wirlomin, Wudjari, Kaneang, and Wiilman – possess origin stories for the country they have long inhabited, along with wisdom on how to thrive here now.

Since European settlement, people from around the world have come to call Albany home and appreciate the beauty and diversity of its natural landscape. When asked, most people will say they value the rich landscape, the variety of life, and the sense of community most.

4.2 CITY OF ALBANY – ROLE IN LEGISLATION AND POLICY FRAMEWORK

The City must work within the Commonwealth and State framework of legislation and policies, and has the following roles (Figure 6):

Regulator:

- Land use provisions;
- Development approvals; and
- Enforcement of local laws.

Proponent:

- Planner and manager of infrastructure projects.

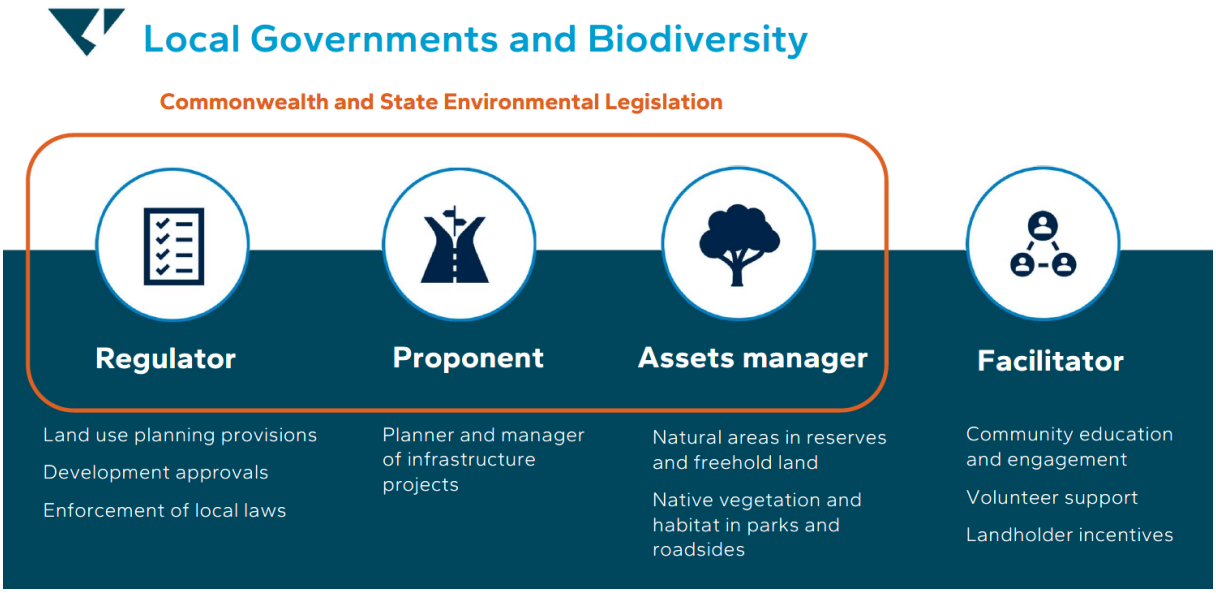
Assets Manager:

- Natural areas in reserves and freehold land; and
- Native vegetation and habitat in reserves, foreshores and roadsides.

Facilitator:

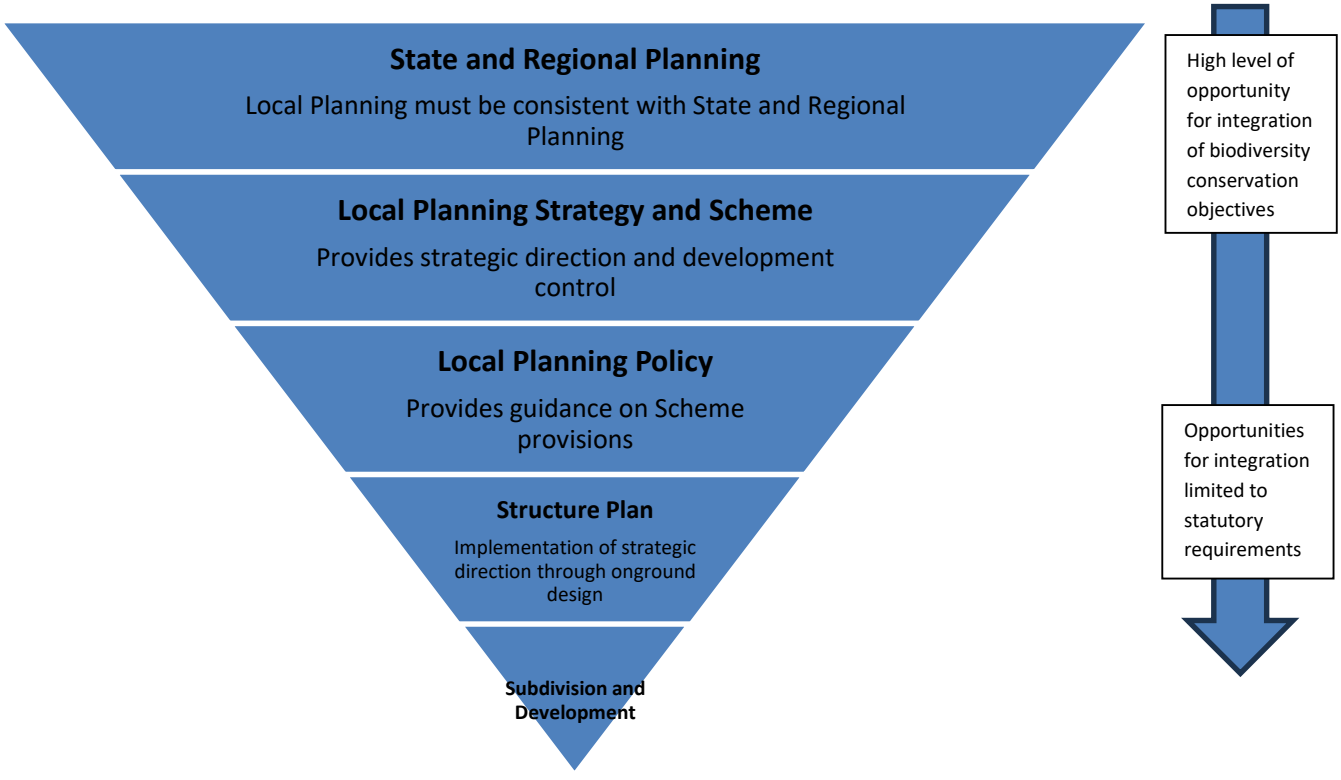
- Community education and engagement;
- Volunteer support; and
- Landholder incentives.

FIGURE 6: LOCAL GOVERNMENT ROLES



The City can consider biodiversity protection during the planning process, as illustrated in Figure 7. The earlier biodiversity issues are addressed, the greater the opportunities for their protection and enhancement.

FIGURE 7: BIODIVERSITY PROTECTION DECISION POINTS



Source: Adapted from WAPC, 2011

4.3 CITY OF ALBANY COMMUNITY STRATEGIC PLAN 2032

Community surveys have identified biodiversity, environmental protection, and management as key priorities, which are reflected in the City's Community Strategic Plan 2032 (2021).

The Council adopted a 10-year priority: 'Environmental health, sustainability, climate change and Reserve management.'

Vision:

'We are leaders in sustainability with a shared commitment to climate action and protecting our beautiful, natural environment.'

Outcomes:

2.1 Sustainable management of natural areas; balancing conservation with responsible access and enjoyment.

Objectives:

2.1.1 Conserve and enhance the region's natural reserves.

2.1.2 Provide sustainable protection, adaptation and enhancement of the coastline, rivers, floodplains, wetlands and estuaries.

Each year, the Council considers community needs and budget constraints and agrees on priority actions to complete. The City has an extensive list of actions and special projects in the Corporate Business Plan.[7]. A current commitment includes:

- Provide a review of reserves that are suitable for recreational uses and how trails and parks may safely accommodate mixed uses.

4.4 CITY OF ALBANY LOCAL PLANNING STRATEGY 2019 - VEGETATION AND BIODIVERSITY CONSERVATION

The City of Albany Local Planning Strategy (LP Strategy; 2019[8]) states that a key strategic direction is to:

> 'Integrate environmental and natural resource management with broader land use planning and decision-making'.

Actions

1. Investigate zones, reserves and special control areas proposed by *Planning and Development (Local Planning Schemes) Regulations 2015* to assist in protecting the City's biodiversity and conservation and amend the Local Planning Scheme accordingly.
2. Support the finalisation of the ALBS.

[7] Corporate Business Plan: https://www.albany.wa.gov.au/documents/2140/corporate-business-plan-2023-2027

[8] City of Albany Local Planning Strategy (2019) https://www.wa.gov.au/system/files/2021-11/LST-Albany.pdf

3. Identify and secure vegetation linkages (macro-corridors) through the use of statutory planning mechanisms, including Local Planning Scheme amendments, structure plans and subdivisions.

4. Maintain and enhance vegetation and trees in the built environment by:

    - Identifying trees within the City that should be protected and providing for their statutory protection under the Local Planning Scheme; and
    - Require the identification of trees to be protected under future Structure Plans, subdivision and development, particularly in planned open space areas and road reserves.

5. Develop land use planning incentives for the protection of remnant vegetation on private land, in collaboration with relevant State government agencies.

6. On completion of the ALBS, identify priority areas for conservation of vegetation, fauna conservation and identify critical areas requiring restoration.

7. On completion of the ALBS, incorporate recommendations and any further vegetation surveys into the local planning strategy, schemes and structure plans.

8. Development will generally only be supported in cleared areas. Clearing of native vegetation may be endorsed in liaison with relevant State Government agencies only where its conservation value has been assessed as low.

4.5 CITY OF ALBANY LOCAL PLANNING SCHEME NO. 2

The City of Albany Local Planning Scheme (LPS) No. 2 was gazetted on 27 February 2024 and includes provisions for the protection of biodiversity by:

- Setting development standards for all zones and reserves;
- Including a zone for 'Environmental Conservation';
- Introducing a reserve category of 'Environmental Conservation'; and
- Including provisions to protect natural features for designated areas (e.g. specific rural residential and special use areas).

LPS2 sets development standards for the protection of terrestrial fauna habitats, access, acid sulfate soils, building design, bushfire management, dams, dust control, vegetation clearing, fencing, landscaping, livestock grazing, revegetation, sewage disposal, waste management, and setbacks. Standards relating to terrestrial fauna habitat protection and land uses adjacent to conservation areas are summarised in TABLE 4.

TABLE 4: LPS 2, SCHEDULE 6 TABLE 13: GENERAL DEVELOPMENT STANDARDS

SUBJECT	CONDITIONS
Terrestrial Fauna Habitat Protection	1. To avoid or minimise any adverse impacts, directly or indirectly, on areas of high biodiversity or conservation value, including fauna habitat, development is to be located outside of these areas in suitable alternative locations, when considered at the structure planning, subdivision or development application stages. 2. Subject to (1), at the structure planning, subdivision or development application stages, where suitable alternative locations do not exist, the local government may

SUBJECT	CONDITIONS
	require a fauna assessment/survey or a fauna habitat assessment to be undertaken, including of existing linkages within proximity to but external to the development site, to determine locations where development could occur on site, that minimises adverse impacts, directly or indirectly, on areas of high biodiversity or conservation value. 3. Following the outcomes of (2), the local government may require a habitat management plan to be prepared, which includes but is not limited to consideration of the following: a. Restoration, retention, and maintenance requirements for the management of identified areas of high biodiversity or conservation value, while ensuring other considerations are addressed, such as bushfire management. b. Improvement of habitat connectivity through the retention or re-establishment of corridors that safeguard and enhance linkages within and external to the development site, with appropriate methods implemented to the specifications of the responsible state department/s. c. Identify mechanisms by which the requirements of the habitat management plan shall be implemented by the local government or responsible state department/s, including appropriate conditions of subdivision or development approval and/or the imposition of restrictive or conservation covenants. *Note: Terrestrial fauna includes vertebrates (birds, mammals including bats, reptiles, amphibians, and freshwater fish) and invertebrates (arachnids, crustaceans, insects, molluscs and worms).*
Uses Adjacent to Conservation Areas	1. In considering an application for development approval to develop premises adjoining a conservation area (i.e. 'Environmental Conservation' or 'Drainage / Waterway'), the local government shall consider the impacts of the proposal on the values of the conservation area. It may require one or more of the following measures: a. Specific site management through the preparation and implementation of an environmental management plan to address those identified impacts on the conservation area and recommend strategies, processes and practices to minimise any effects or conflicts; b. The imposition of a buffer/setback area between the uses to manage the impacts to the satisfaction of the local government in consultation with the relevant government authority; c. Restriction on the keeping of livestock; d. Improve habitat connectivity through the retention or re-establishment of corridors that safeguard and enhance linkages within and external to the development area, with appropriate methods implemented to the specifications of the responsible state department/s.

The 'Environmental Conservation' zone in LPS2 has the following objectives:

- To identify land set aside for environmental conservation purposes.
- To provide for the preservation, maintenance, restoration or sustainable use of the natural environment.
- To provide for residential uses adjoining significant environmentally sensitive areas such as coastal or conservation areas where there is a demonstrated commitment to protecting, enhancing and rehabilitating the site's flora, fauna and landscape qualities.

Areas currently zoned for 'Environmental Conservation' include:

- Eden Road, Nullaki;

- Rainbows End, Little Grove; and
- Lots 20 and 21 Torbay Road, Kronkup.

Areas zoned for 'Environmental Conservation' have requirements relating to setbacks from boundaries, building heights, building design and materials, fencing, access and building envelopes to reduce impacts on bushland and natural features. In addition, there is a clause relating to revegetation:

1. The local government may require revegetation on a site with local endemic species as a condition of development approval, for:
    a. Enhancing a natural setting;
    b. Protecting a local habitat;
    c. Assisting to provide vegetated corridors to maintain fauna and flora linkages; or
    d. Assisting in the maintenance of a waterway or wetland.

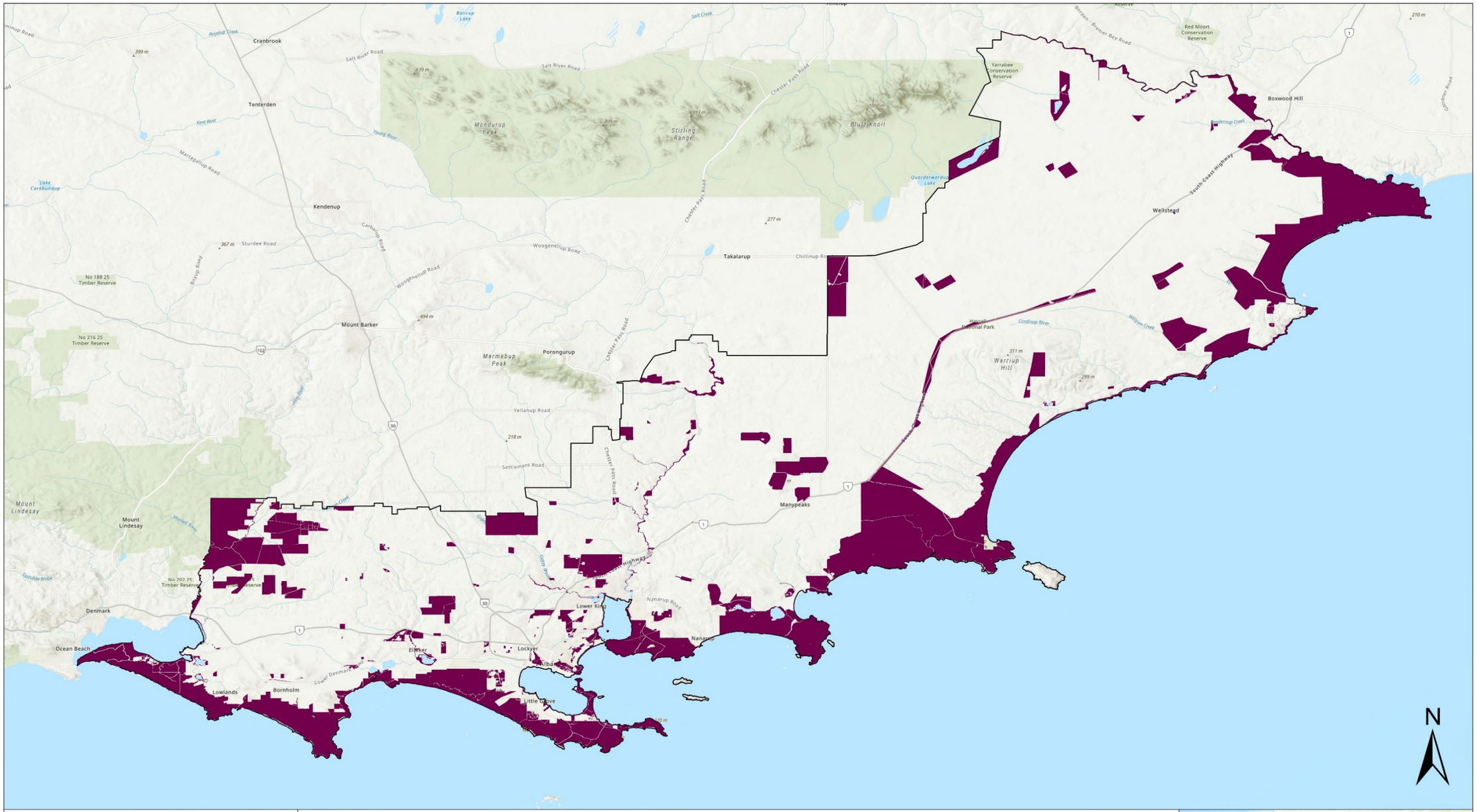
In addition to zones, LPS2 also designates local reserves. In a local planning scheme, 'reserved' refers to a parcel of land that has been set aside for a defined purpose, such as a park, school, or community centre, and is therefore restricted from being developed for other uses as outlined in the planning scheme; essentially, it's land safeguarded for a specific community benefit and not available for general development. LPS2 has introduced a new reserve type, 'Environmental Conservation', the objective of which is:

- To identify areas with biodiversity and conservation value, and to protect those areas from development and subdivision.
- To identify and protect areas of biodiversity conservation significance within National Parks and State and other conservation reserves.

Native vegetation in 'Environmental Conservation' reserves comprises 77,541[9] ha across freehold land and Crown Reserves (**MAP *4***) in the City. The 'local reservation' designation under LPS2 differs from Crown Reserves and can be applied to any land.

[9] Includes areas of the Conservation Estate and vested in the Conservation Commission of WA, Crown land with a purpose related to conservation and land zoned 'Conservation' under the City of Albany Local Planning Scheme No. 2.

MAP 4: NATIVE VEGETATION – 'ENVIRONMENTAL CONSERVATION' LPS 2



Legend

- City of Albany Boundary
- Environmental Conservation - LPS2 Zones and Reserves

Environmental Conservation - LPS2 Zones & Reserves

Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS, Esri, CGIAR, Esri, USGS

12/03/2025

Coordinate System: GCS GDA 1994

4.6 LAND USE

As outlined in Sections 4.4 and 4.5 on land use planning, the City is guided by its Local Planning Strategy and Local Planning Scheme, which designate land uses and define permitted activities in specific areas. TABLE 5 shows the area of existing native vegetation by zone and local reserve designation. Approximately half of the vegetation is designated as 'Environmental Conservation' local reserve (51.51%). Vegetation in Rural and Priority Agriculture-zoned areas comprises 64,465.9 ha, representing 41.85% of the remaining vegetation. Vegetation should be promoted as a legitimate agricultural land use to support the ecological services these areas provide.

TABLE 5: CITY OF ALBANY LOCAL PLANNING SCHEME 2 - ZONES AND RESERVES – EXISTING VEGETATION

ZONE OR RESERVE DESIGNATION	TOTAL AREA OF VEGETATION (ha)	% OF CITY OF ALBANY VEGETATION
Environmental Conservation	79,343.80	51.51
Rural	48,656.80	31.59
Priority Agriculture	15,809.10	10.26
Infrastructure Services	4,645.90	3.02
Local Road	3,312.90	2.15
Primary Distributor Road	817.7	0.53
Rural Residential	808	0.52
Recreational	749.1	0.49
District Distributor Road	615.6	0.40
Drainage / Waterway	365.9	0.24
Urban Development	301.9	0.20
Rural Small Holdings	282.5	0.18
Residential	139.4	0.09
Rural Townsite	103.6	0.07
Special Use	96.3	0.06
Railways	93.1	0.06
Civic And Community	60.2	0.04
Government Services	60.2	0.04
Special Purpose	48	0.03
Strategic Infrastructure	46.3	0.03
Light Industry	46	0.03
Public Purposes	24	0.02
Education	22.5	0.01
General Industry	18.9	0.01

ZONE OR RESERVE DESIGNATION	TOTAL AREA OF VEGETATION (ha)	% OF CITY OF ALBANY VEGETATION
Heritage	17.8	0.01
Tourism	17.4	0.01
Cultural Facilities	13.3	0.01
Cemetery	12.8	0.01
Public Open Space	12.5	Less than 0.01
Industrial Development	5.3	Less than 0.01
Foreshore Reserve	4.7	Less than 0.01
Emergency Services	2.3	Less than 0.01
Major Road	1.3	Less than 0.01
Service Commercial	0.7	Less than 0.01
Social Care Facilities	0.4	Less than 0.01
Mixed Use	0.2	Less than 0.01
Neighbourhood Centre	0.2	Less than 0.01
Medical Services	0.1	Less than 0.01
Rural Enterprise	0.1	Less than 0.01
Public Purpose	Less than 0.1	Less than 0.01

Source: City of Albany LPS2 Zones and Reserves clipped to Current Vegetation Extent

4.7 LOCAL LAWS

The City of Albany local laws are made under the authority of the *Local Government Act 1995* to regulate various activities and include:

- *Animals Local Law 2020* (keeping of poultry and other animals);
- *Dog Local Law 2017,* which requires dogs over three months old to be microchipped and registered annually. Dogs must be on a maximum 2m leash in town areas and on a leash in designated Rural Leashing Areas, or off-leash but under control in other rural areas. Owners must ensure their property can confine their dogs and prevent them from becoming a nuisance, and may be required to obtain a permit to keep more than the standard two dogs.

Rangers are authorised to enforce these laws, which can result in fines or other actions.

The City complies with WA legislation, *the Cat Act 2011, which requires cat sterilisation, registration, and microchipping,* and limits the number of cats per household. Under current state law and the City of Albany's local laws, it is not illegal for cats to stray onto private property. City Rangers may trap cats only to identify the cat's owner and verify compliance with the *Cat Act 2011*.

The WA Government has recently updated legislation regarding the containment of cats, and Local Government Authorities will have the ability to introduce local laws controlling roaming cats[10].

4.8 CITY OF ALBANY MANAGED LAND

There are approximately 443 Crown Reserve land parcels featuring native vegetation, managed by the City, covering 12,201.66 ha. These reserves serve various purposes, ranging from public open space and active sporting grounds to natural bushland used for passive recreation. Some of these reserves are isolated, while others are clustered together.

The most extensive grouping of City reserves covers 3,060 ha and includes Sandpatch, Muttonbird Beach, and Cosy Corner. The smaller reserves can be as small as 1 ha, with some serving only as drainage easements. The City also manages 1,132 ha of freehold land and 1,629 kilometres (km) of roads and associated verges.

The City officially oversees eight reserves for conservation purposes (TABLE 6), including Sandpatch Reserve, which also serves purposes related to the generation of power and water supply.

Many more reserves are managed for multiple uses. However, they generally serve purposes that are compatible with conservation. Some of the most significant of these include:

- Mount Clarence (Public Park);
- Mount Adelaide (Recreation and Parklands);
- Mount Melville (Public Park & Telecommunications);
- Lake Seppings (Parklands); and
- Mutton Bird (Common for Use of Settlers, Camping and Public Utility).

All reserves with vegetation that the City manages are designated as 'Environmental Conservation' under LPS2 (See section 4.5).

TABLE 6: CROWN RESERVES MANAGED BY THE CITY OF ALBANY – PURPOSE: CONSERVATION

RESERVE NO.	CLASS	NAME / LOCATION	CURRENT PURPOSE/S	AREA (ha)
22892	C	On Chester Pass Road and Menang Drive	Conservation of Flora	149.2
13773	C	Sandpatch	Conservation, Recreation, Water Supply and Wind and Wave Energy Power Generation	1,652.9
16367	C	Mullocullop Nature Reserve	Water Camping & Conservation of Flora & Fauna	57.1
21510	C	South Coast Highway and Rutherwood Road	Gravel And Protection of Remnant Vegetation	194.7
24547	A	Cosy Corner West	Recreation And Bushland Management	52.3

[10] https://share.google/aimode/JsrfQ5rhHzl3i5IPv

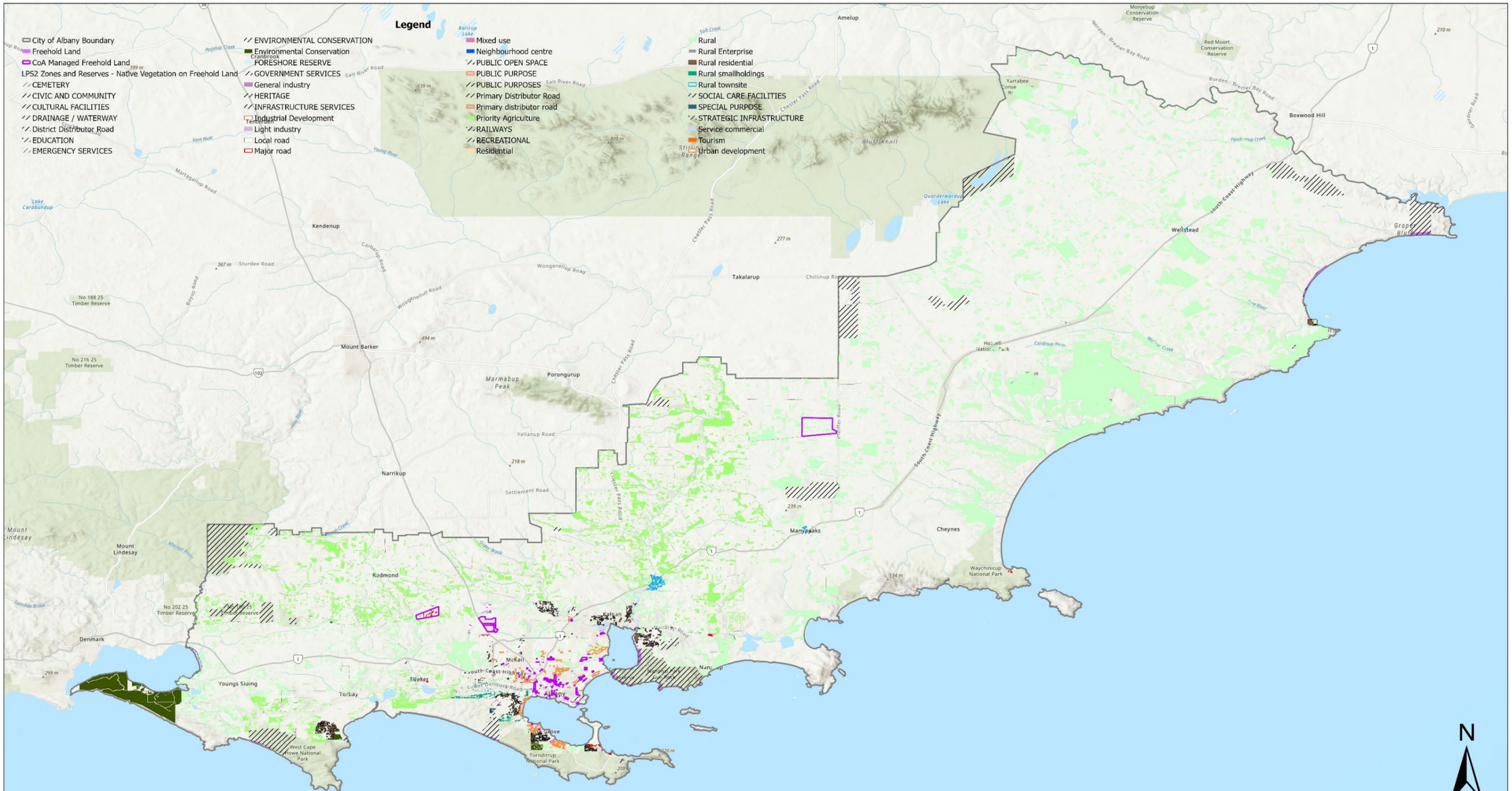
RESERVE NO.	CLASS	NAME / LOCATION	CURRENT PURPOSE/S	AREA (ha)
37086	C	Cosy Corner East	Recreation And Bushland Management	12.7
46320	A	Nullaki Peninsula	Foreshore Conservation and Recreation	8.8
		Total Area (ha)	**2,127.7**	

4.9 FREEHOLD LAND

Freehold land represents the most absolute form of property ownership, meaning the owner has indefinite rights to the land and any associated buildings. It essentially constitutes 'fee simple ownership', allowing the owner to sell, lease, mortgage, or utilise the land as they see fit, subject to local legislation and planning controls. There are 83,835 ha of native vegetation on 347,653 ha of freehold land in the City (**MAP *5***).

The City owns 1,338 ha of freehold land, of which 340 ha support native vegetation (**MAP *6***). This indicates that these areas are not Crown reserves and that the City holds them without a specific purpose (except for land-use controls by zone or local reserve designation). Freehold areas containing native vegetation may be used for a variety of purposes, including conservation or as offsets for development. Cleared areas may also be considered for community purposes.

MAP 5: CITY OF ALBANY FREEHOLD LAND



Freehold Land - LPS2 Zones & Reserves

Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, GeoAR, Esri, Australia, NASA, NGA, USGS, Esri, USGS, Esri, TomTom, Garmin, METI/NASA, USGS

19/05/2025

Coordinate System: GCS GDA 1994

5 BIODIVERSITY VALUES

5.1 STATUS OF BIODIVERSITY

In Western Australia, we are fortunate to have data relating to biodiversity, including pre-European vegetation mapping. Until 2018, statistics were calculated to indicate broad vegetation types, areas cleared, areas remaining, and areas protected in the conservation estate.

In Albany, vegetation mapping has been undertaken for areas most likely to be subject to development pressure as part of the Albany Regional Vegetation Survey (Sandiford and Barrett, 2010). This section of the Strategy outlines the context of biodiversity in the Albany municipality.

5.2 IBRA BIOREGIONS

The City of Albany marks the confluence of three Interim Biogeographic Regionalisation Areas (IBRA) (Figure 2), including:

- Esperance Sand Plain/ Fitzgerald in the east;
- Jarrah Forest/ Southern Jarrah Forest; and
- Warren (coastal areas west of Albany).

The eastern limit of the Warren and Southern Jarrah Forest marks the transition zone from the wetter, forested southwest of Western Australia to the drier interior and eastern coastal areas, where mallee, woodland, and shrubland associations predominate. Many plants reach their eastern limit in this area, while a few are at their western or southwestern limits (Thackway and Creswell 1995; Sandiford and Barrett 2010). This creates a region of complex biological interactions and species combinations.

5.3 CLIMATE

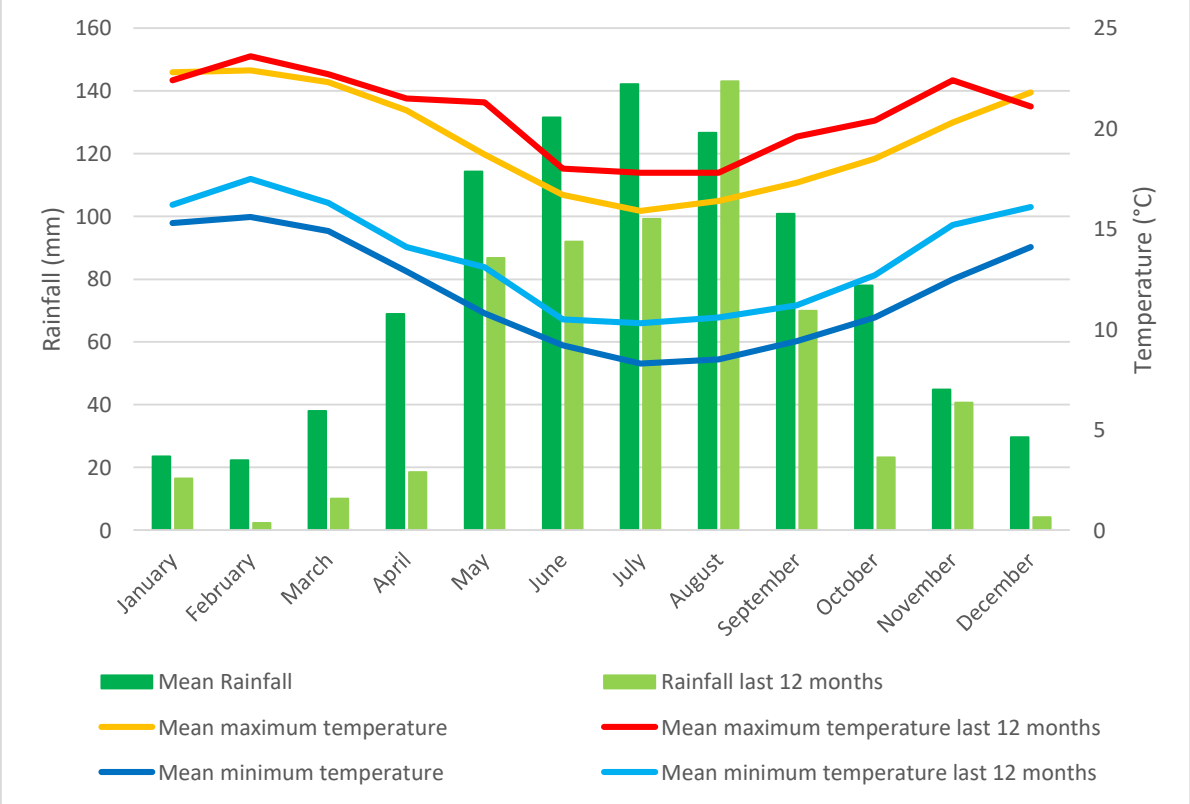
Albany has a Mediterranean climate characterised by warm summers and cool, wet winters. The mean annual rainfall for Albany is 924.7 mm (Bureau of Meteorology, 2024; Figure 8). Most rainfall occurs between May and September, with each month typically receiving over 100 mm. Temperatures are generally mild, with summer average minimum and maximum temperatures of 15 °C and 23 °C, respectively, and average minimum and maximum winter temperatures of 9 °C and 16 °C (Figure 8; Bureau of Meteorology, 2024).

Areas in the north-eastern part of the City experience warmer, drier conditions than the southern, coastal, and western portions. Albany averages 176.8 rainy days per year. The Southern Ocean significantly influences Albany's climate. It exerts a moderating influence on Albany through sea breezes during the warmer months and through the effects of a relatively mild, moist air mass year-round. Seasonal variations mainly result from the north-south movement of the subtropical ridge. An easterly broad-scale flow prevails in summer when the ridge is south of the State. However, the movement of high-pressure cells from west to east along this ridge creates a typical pattern of wind changes across South Coast locations (Bureau of Meteorology, 2014). Albany's south coast aspect means that the progression of winds—moving from east through north, west, south, and then back to east—over several days to a week during summer can create significant variations in weather, ranging from fine and mild to hot with thundery showers, to cool and cloudy with drizzle.

When the ridge moves north in the cooler months, the moisture-laden westerly winds south of the ridge deliver much of Albany's annual rainfall. Atmospheric disturbances embedded in the westerly

winds are common in winter, with the potential for several cold fronts passing through south-west Western Australia in a week.

FIGURE 8: CLIMATE



5.4 LANDSCAPE AND LANDFORM

Albany is located near the edge of the Yilgarn Craton, which contains huge slabs of ancient granite that formed as the Earth began to cool. It sits on the Albany Fraser Orogen, an ancient collision zone with folded and crushed rocks, some of which were once part of Antarctica and now contribute to Albany's coastline. The landscape has remained relatively stable for 250 million years—no significant volcanoes, glaciers, or crumpling of the Earth's crust, yet it features a complex geology. This stability and isolation have led to weathered soils that are low in nutrients. Ecosystems have evolved without interruptions from glaciation and other disturbances, resulting in ancient groups of plants and animals that utilise every niche and opportunity to survive, contributing to our remarkable biodiversity (Gondwana Link, 2025). Even a minor change in soil or slope can result in altered vegetation within a few metres.

5.5 FLORA

Flowering plants first appeared in south-western Australia about 130 million years ago and have evolved there longer than almost anywhere else on Earth (Gondwana Link, 2025). This has led to some of the most ancient lineages of flowering plants on the planet, as well as some of the richest diversity (Gondwana Link, 2025).

Banksia are among the most ancient flowering species found in WA. They exist as both fossils and living plants, looking remarkably similar to how they did 60 million years ago. Australia has been isolated from other continents for over 140 million years. As a result, many of our plants and animals are endemic—they are not found anywhere else on Earth. South-western Australia, in addition to its

significant geological and evolutionary history, is bordered by the ocean, deserts, and the Nullarbor Plain, and has been so for millennia. It has effectively been an island within an island, with nearly half the plants occurring nowhere else.

DBCA NatureMaps and the Threatened Flora database have provided data indicating that approximately 3,104 species of flora are likely to occur within the City municipal boundary (TABLE 7). Conservation-significant flora present in the City are listed in Appendix C. Definitions of conservation categories are included in Appendix D. A summary of the number of Threatened and Priority species is provided in TABLE 8.

TABLE 7: FLORA SPECIES – CITY OF ALBANY

STATUS	NUMBER OF SPECIES
Total plant species	3,104

Source: NatureMaps 2024. Note: includes introduced species

TABLE 8: CONSERVATION SIGNIFICANT FLORA SPECIES – CITY OF ALBANY

STATUS	*NUMBER OF SPECIES*	
Threatened Species	***Biodiversity Conservation Act***	***EPBC Act***
Cr – Critically endangered species (facing an extremely high risk of extinction in the wild in the immediate future)	*12 species*	*6 Vulnerable*
EN – Endangered species facing a very high risk of extinction in the wild in the near future	*12 species*	
VU - Vulnerable species facing a high risk of extinction in the wild in the medium-term future	*6 species*	
Priority Species		
Priority 1: Poorly-known species - known from few locations, none on conservation lands	*21 species*	
Priority 2: Poorly-known species - known from few locations, some on conservation lands	*47 species*	
Priority 3: Poorly-known species - known from several locations	*65 species*	
Priority 4: Rare, Near Threatened and other species in need of monitoring	*54 Species*	

5.6 PRE-EUROPEAN VEGETATION AND REPRESENTATION

Calculations of native vegetation extent using 2020 data (TABLE 9) indicate that of the 426,917 ha making up the City, approximately 156,551 ha, or 36.7%, of the original native vegetation extent remains.

TABLE 9: NATIVE VEGETATION STATISTICS

CATEGORY	AREA (ha)	% OF CITY
Pre-European Vegetation (original)	426,917	36.7
Native Vegetation Extent Remaining (DPIRD, 2020)	156,551	

The pre-European and current extent of each vegetation association within the City by IBRA region is outlined in TABLE 10. The following vegetation associations have less than 30% of their original extent remaining (**MAP *6***):

- Warren: 975 Low woodland; Jarrah;
- Southern Jarrah Forest: 969 Mosaic: Medium forest; jarrah-marri / Low forest; jarrah;
- Southern Jarrah Forest: 979 Mosaic: Medium forest; jarrah-marri / Low forest; jarrah & casuarina (likely Allocasuarina fraseriana);
- Fitzgerald: 14 Low Forest – jarrah;
- Fitzgerald: 47 Shrublands; tallerack mallee-heath; and
- Fitzgerald: 48 Shrublands; scrub-heath.

There are no pre-European vegetation types with less than 10% remaining.

TABLE 10: PRE-EUROPEAN VEGETATION TYPES BY IBRA REGION

Red shaded cells indicate pre-European vegetation types with less than 30% remaining.

IBRA	VEGETATION ASSOCIATION		-PRE-CLEARING (ha)	AREA REMAINING (ha)	VARIANCE %
Warren	1	Tall Forest – karri (*Eucalyptus diversicolor*)	958.0	591.7	61.8
	3	Medium Forest – jarrah marri	2308.2	852.6	36.9
	14	Low Forest – jarrah	1104.4	918.9	83.2
	22	Low woodland – *Agonis flexuosa*	719.8	542.2	75.3
	49	Shrublands – mixed heath	6885.0	6737.8	97.9
	51	Shrublands; dwarf scrub on granite (south coast)	1146.8	406.0	35.4
	125	Bare areas – salt lakes	9.7	8.1	83.6
	126	Bare areas – freshwater lakes	5.9	5.9	100.0
	128	Bare areas – rock outcrops	285.8	273.1	95.6
	423	Shrublands; Acacia scrub-heath (unknown spp.)	10598.9	8567.5	80.8

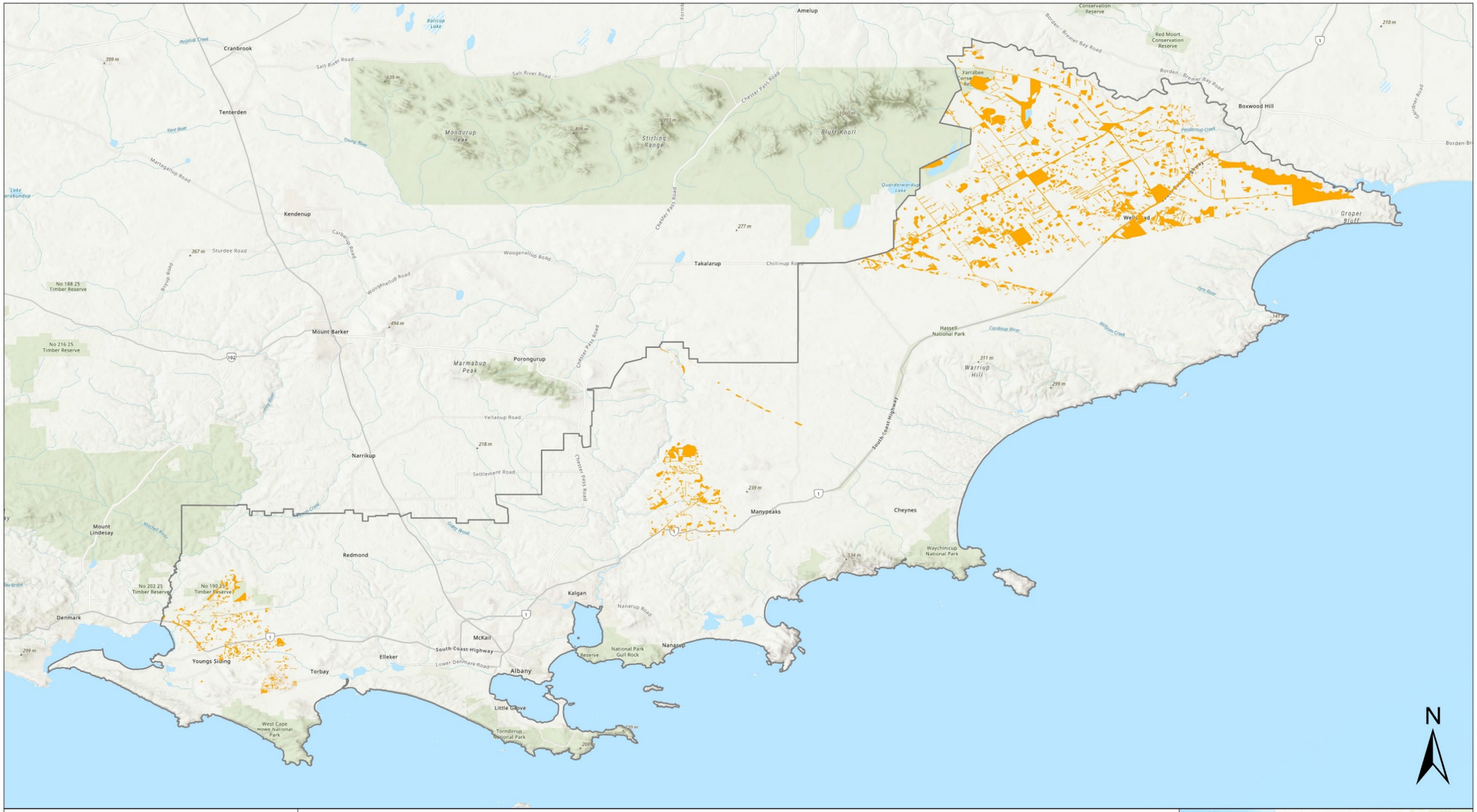
IBRA	VEGETATION ASSOCIATION		-PRE-CLEARING (ha)	AREA REMAINING (ha)	VARIANCE %
	969	Mosaic: Medium forest; jarrah-marri / Low forest; jarrah	1707.1	671.7	39.3
	975	Low woodland; jarrah	24.2	4.4	18.4
	977	Low forest; teatree & casuarina	1.0	0.3	33.5
	978	Low forest; jarrah, *Eucalyptus staeri & Allocasuarina fraseriana*	90.6	83.5	92.2
Southern Jarrah Forest	1	Tall Forest – karri (*Eucalyptus diversicolor*)	103.7	42.7	41.2
	3	Medium Forest – jarrah marri	48076.7	17265.4	35.9
	14	Low Forest – jarrah	21928.6	6614.4	30.2
	27	Low woodland; paperbark (*Melaleuca* sp.)	1149.4	484.4	42.1
	49	Shrublands; mixed heath	169.0	156.7	92.7
	51	Sedgeland; reed swamps, occasionally with heath	15948.7	5686.5	35.7
	125	Bare areas – salt lakes	121.0	85.4	70.6
	126	Bare areas – fresh water lakes	897.4	346.8	38.6
	128	Bare areas – rock outcrops	820.4	704.6	85.9
	129	Bare areas - rock outcrops	392.0	375.6	95.8
	423	Shrublands; *Acacia* scrub-heath (unknown spp.)	3462.4	3131.0	90.4
	967	Medium woodland; wandoo & yate	48.7	25.7	52.8
	968	Medium woodland; jarrah, marri & wandoo	328.0	279.0	85.0
	969	Mosaic: Medium forest; jarrah-marri / Low forest; jarrah	8276.3	1462.1	17.7
	973	Low forest; paperbark (*Melaleuca rhaphiophylla*)	119.8	83.6	69.8
	977	Low forest; teatree & casuarina	238.9	113.0	47.3

IBRA	VEGETATION ASSOCIATION		-PRE-CLEARING (ha)	AREA REMAINING (ha)	VARIANCE %
	978	Low forest; jarrah, *Eucalyptus staeri & Allocasuarina fraseriana*	51905.1	20355.7	39.2
	979	Mosaic: Medium forest; jarrah-marri / Low forest; jarrah & casuarina (probably *Allocasuarina fraseriana*)	7718.4	1480.2	19.2
	989	Shrublands; Albany blackbutt mallee-heath	70.9	57.0	80.4
	994	Low forest; jarrah & casuarina (probably *Allocasuarina fraseriana*)	16399.5	4987.3	30.4
	995	Shrublands; mallee scrub, bushy yate & Bald Island marlock	6.4	6.4	100.0
	2051	Sedgeland; sedges with low tree savanna woodland; paperbarks over & various sedges	2451.3	4413.7	60
Fitzgerald	14	Low Forest – jarrah	405.0	118.0	29.1
	42	Shrublands; mallee & acacia scrub on south coastal dunes	237.7	235.2	99.0
	47	Shrublands; tallerack mallee-heath	63449.2	14258.8	22.5
	48	Shrublands; scrub-heath	6262.3	1348.1	21.5
	50	Shrublands; dwarf scrub on granite (south coast)	217.8	217.8	100.0
	51	Sedgeland; reed swamps, occasionally with heath	456.6	408.1	89.4
	125	Bare areas – salt lakes	763.2	460.2	60.3
	126	Bare areas – fresh water lakes	1093.9	449.8	41.1
	128	Bare areas – rock outcrops	358.5	348.6	97.2
	129	Bare areas - rock outcrops	683.9	609.3	89.1
	352	Medium woodland; York gum	631.6	267.2	42.3
	423	Shrublands; Acacia scrub-heath (unknown spp.)	3487.1	3309.5	94.9

IBRA	VEGETATION ASSOCIATION		-PRE-CLEARING (ha)	AREA REMAINING (ha)	VARIANCE %
	516	Shrublands; mallee scrub, black marlock	6723.2	3700.5	55.0
	931	Medium woodland; yate	1952.9	1040.8	53.3
	938	Medium woodland; York gum & yate	2215.0	750.0	33.9
	964	Shrublands; mallee scrub, black marlock & *Eucalyptus decipiens*	2337.8	855.8	36.6
	965	Medium woodland; jarrah & marri	3912.9	1573.0	40.2
	967	Medium woodland; wandoo & yate	453.5	188.0	41.5
	978	Low forest; jarrah, *Eucalyptus staeri & Allocasuarina fraseriana*	19.1	19.1	100.0
	980	Shrublands; jarrah mallee-heath	109688.6	41339.4	37.7
	989	Shrublands; Albany blackbutt mallee-heath	8943.5	7635.0	85.4
	994	Low forest; jarrah & casuarina (probably *Allocasuarina fraseriana*)	547.0	287.2	52.5
	995	Shrublands; mallee scrub, bushy yate & Bald Island marlock	3106.0	3052.7	98.3

Source: Pre-European Veg Look Up Table (LUT) Summary (preeuropeanvegetationlutsummary-may2012) https://catalogue.data.wa.gov.au/dataset/pre-european-dpird-006/resource/d6ce041c-8f7a-4309-9f52-44c1b617a4c8 and BEARD_IBRA_LGA_postclearing_stats (This project, 2025).

MAP 6: PRE-EUROPEAN VEGETATION - LESS THAN 30% OF ORIGINAL EXTENT REMAINING



Legend

- City of Albany Boundary

Pre-European Vegetation (Current Extent)
Vegetation Remaining

- Less than 10% remaining
- 10-30% remaining

0 15 30 Km

Representation - Pre-European Vegetation

Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, CGIAR, Esri, USGS, Esri, TomTom, Garmin, METI/NASA, USGS

24/03/2025

Coordinate System: GCS GDA 1994

5.7 ALBANY REGIONAL VEGETATION SURVEY

The most comprehensive vegetation survey conducted within the City is the Albany Regional Vegetation Survey (ARVS1; Sandiford and Barrett, 2010). The study area spanned 124,415 ha and extended 30 km east and west, and 20 km north of the Albany urban area (**MAP *7***). It identified 67 native vegetation units, along with two units dominated by introduced species (Appendix E and **MAP *7***) The vegetation condition attributed at that time is depicted in **MAP *8***.

The study identified 67 native vegetation units: 32 upland, 22 wetland (including three tidal or estuarine units), and 13 dampland or transitional units between wetlands and uplands. Two vegetation units (28, 50) are classified as 'miscellaneous' mapping units, covering uninterpretable areas and vegetation that did not clearly fit into any other unit. Three vegetation units (22, 34, 51) were ecotonal and did not clearly belong to other units.

A summary of key findings from ARVS1 is presented in TABLE 11. Preliminary assessment of the conservation significance of Albany vegetation units was undertaken using criteria adopted from the EPA Guidance Statement 33[11].

Caution must be exercised when interpreting the ARVS1 reservation status data, as large conservation reserves (e.g., Stirling Ranges) are situated just outside the ARVS area. The prioritisation of significant vegetation units was not conducted as part of ARVS1, as additional vegetation extent surveys outside the ARVS are needed, and further analysis of condition status and the impact of threats is required.

The ARVS found little correlation between the broad-scale regional mapping of pre-European vegetation associations and the more detailed vegetation units in Albany, making it impossible to accurately determine the original extent of the vegetation units. As a result, pre-European vegetation association values are generally used to represent both the pre-clearing and current extent of ecological communities in the Albany region.

Vegetation condition attributed at that time is shown in **MAP *8***. Vegetation condition for ARVS areas used a scale by Thackway and Lesslie (2006[12]).

TABLE 11: SUMMARY OF FINDINGS FROM ALBANY REGIONAL VEGETATION SURVEY (ARVS1)

Representation/distribution

- 35% of native vegetation remains in the ARVS area. Of this, 19% is in formal conservation reserves (IUCN I-IV categories) and 39% in other Crown reserves.
- 32 vegetation units had less than 10% of their current extent protected within formal conservation reserves, including the most common unit (12).
- 15 vegetation units do not have any of their current extent occurring within conservation reserves, including six units (7, 27, 32, 40, 42, 61) restricted to other Crown reserves, and nine

[11] EPA (2008) Environmental Guidance 33 for Planning and Development. https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/GS33-270508.pdf

[12] Thackway, Richard & Lesslie, Rob. (2005) Vegetation Assets, States, and Transitions: accounting for vegetation condition in the Australian landscape. http://researchgate.net/publication/255588401_Vegetation_Assets_States_and_Transitions_accounting_for_vegetation_condition_in_the_Australian_landscape.

units (15, 18, 19, 30, 34, 44, 53, 55, 63) that have more than 70% occurring on non-reserved land (six of these occur in Angove water reserve and five occur in Betty's Beach reserve).

- Taking into account known occurrences in conservation reserves just outside the survey area, 18 vegetation units (20, 27, 30, 32, 33, 40, 41, 42, 53, 54, 55, 56, 60, 62, 63, 65, 66, 67) have less than 10% of their extent occurring in conservation reserves. They would therefore be considered poorly reserved at the local level.
- Five vegetation units (7, 9, 33, 42, 62) are known to occur outside the ARVS area or have very similar floristic composition to units outside the ARVS area.
- Over one-quarter of vegetation units appear to be primarily restricted to the ARVS area and its 10 km buffer, including the two most common vegetation units (12, 13).
- Only eight vegetation units (12, 13, 3, 31, 47, 5, 46, 10) are common within the ARVS area; however, at least one other unit (2) is considered to be common locally due to its widespread occurrence within conservation reserves just outside the survey area.
- All other vegetation units each occur with less than 1500 ha, comprising 3.4% of the total native vegetation remaining in the survey area.

Rarity

- 49 vegetation units each occur on less than 1% of the total native vegetation remaining in the survey area. The significance of these 49 vegetation units is highlighted by the fact that 20% of species recorded through the ARVS are restricted to, and 78% of species occur within these units.
- 12 vegetation units (60, 41, 29, 37, 62, 44, 26, 61, 43, 42, 7) are highly restricted in their extent, each occurring on less than 10 ha.
- The two smallest vegetation units (7 and 42) are particularly significant as the ARVS recorded nine native species as occurring only within these units.
- Vegetation unit 34 is entirely restricted to the ARVS area, and the Priority 1 Priority Ecological Community (PEC) unit 14 is largely restricted to the area.
- It is likely that at least one vegetation unit (14) has less than 30% of its original extent remaining, and another three units, which appear to be restricted to the survey area plus 10 km buffer (13, 39, 56), are also likely to have less than 30% of their original extent remaining.
- Seven other units that appear to be restricted to the survey area plus 10 km buffer (6, 15, 16, 17, 18, 19, 23) are likely to have more than 30% of their original extent remaining. In comparison, the original extent of another nine units thought to be restricted to the ARVS area (12, 30, 32, 35, 37, 44, 45, 51, 60) is unclear.
- Threatened flora species were recorded in eight vegetation units in the ARVS area (3, 4, 13, 14, 15, 24, 31, 37).
- Vegetation units 15 and 24 are particularly significant as they each contain most of the known populations of Threatened species, which are considered to be restricted to the ARVS area.

- Other Threatened species restricted to the ARVS area were recorded in vegetation units 3, 4, 13 and 14.
- Over half of the vegetation units contained priority flora species.

Diversity

- Particularly high vegetation diversity was found in wetland habitats, on granite outcrops and along the coastal fringe overlying granite hills, relative to the extent of these areas.
- High species diversity was recorded in upland (shrubland and woodland) vegetation units, with the highest mean species richness recorded in unit 31 (with a mean of 31 species per relevé).
- Strong vegetation patterning was observed in several areas, with vegetation units either following a gradational sequence or occurring as mosaics across the landscape.

Condition

- Approximately two-thirds of native vegetation in the ARVS area is in residual (very good to excellent) condition.
- 41% of native vegetation on non-reserved land is in residual condition, 34% is modified (good to very good), and 25% is transformed (good to degraded).
- It has been estimated that at least 46% of vegetation unit 12, 69% of vegetation unit 57 and 41% of vegetation unit 52 are either in modified or transformed condition.

Susceptibility to threats

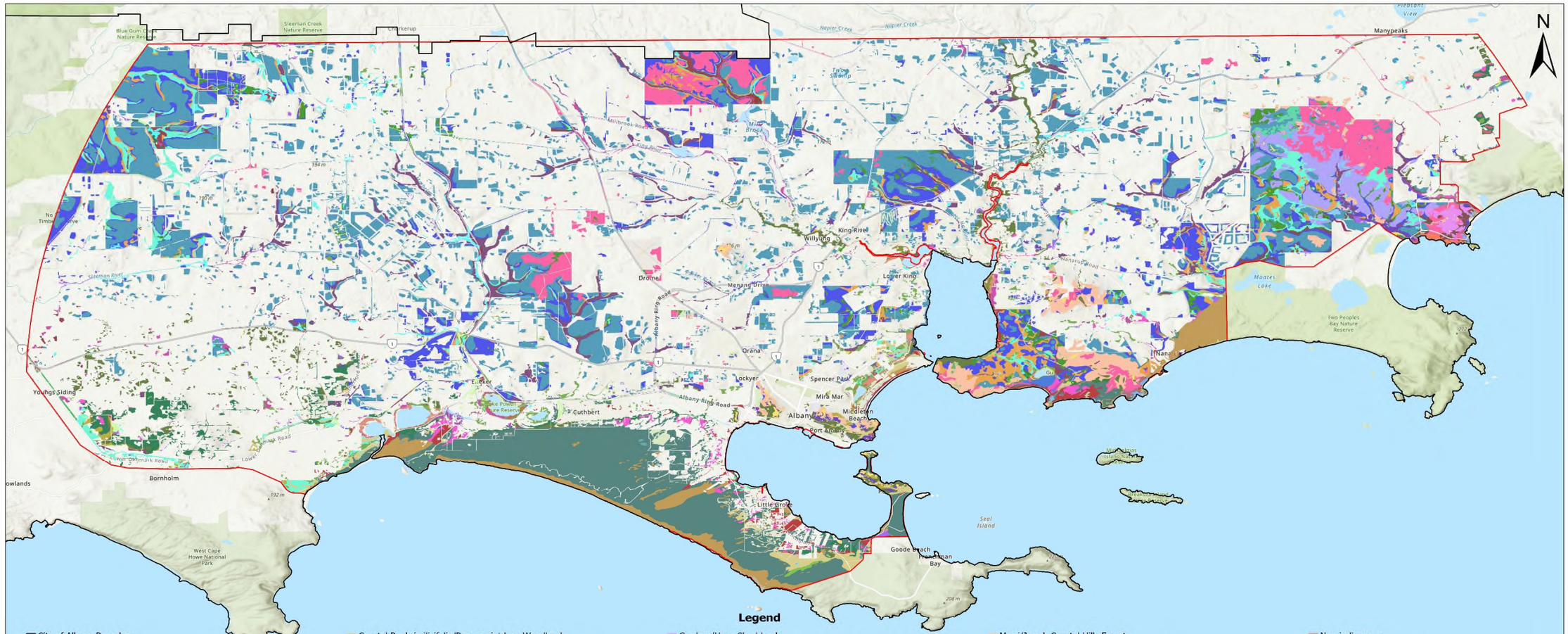
- Vegetation units susceptible to *Phytophthora* dieback include units 4, 12, 13, 14, 15, 16, 18, 21, 24b, 31, 37, 38, 45, 46, 47b and 51. Vegetation unit 14 is listed as a PEC due to its susceptibility to dieback.
- Aerial canker fungi were observed to cause limb death as well as plant mortality in vegetation units 16, 24b and 21.
- Vegetation units 44 and 48 appear to be threatened by hydrological change, with wetland species dying and upland species invading these units.
- Fire-sensitive vegetation units within the ARVS area have been identified as those dominated by serotinous obligate seeder species (14, 15, 16, 34, 46d, 51, 31), refugial habitat (granite outcrop) units, wetland/riparian units, and those restricted to peat soils (47).

Survey confidence

- Approximately two-thirds of native vegetation in the ARVS area was mapped with very high or high confidence, 31% moderate confidence and 2% low confidence.
- Most moderate to low confidence ratings occurred on private property and within Jarrah dominated units (12, 13, 30, 31) or wetland units.
- 19 vegetation units (6, 15, 16, 18, 19, 20, 21, 2, 27, 30, 32, 34, 40, 41, 53, 54, 58, 63) had not been previously described.

In 2013, the ARVS2 project analysed spatial datasets of ARVS1 and identified poorly represented AVUs. This information was used to identify poorly represented AVU areas described in Appendix F.

MAP 7: ARVS VEGETATION UNITS AND STUDY AREA



ARVS Vegetation Units

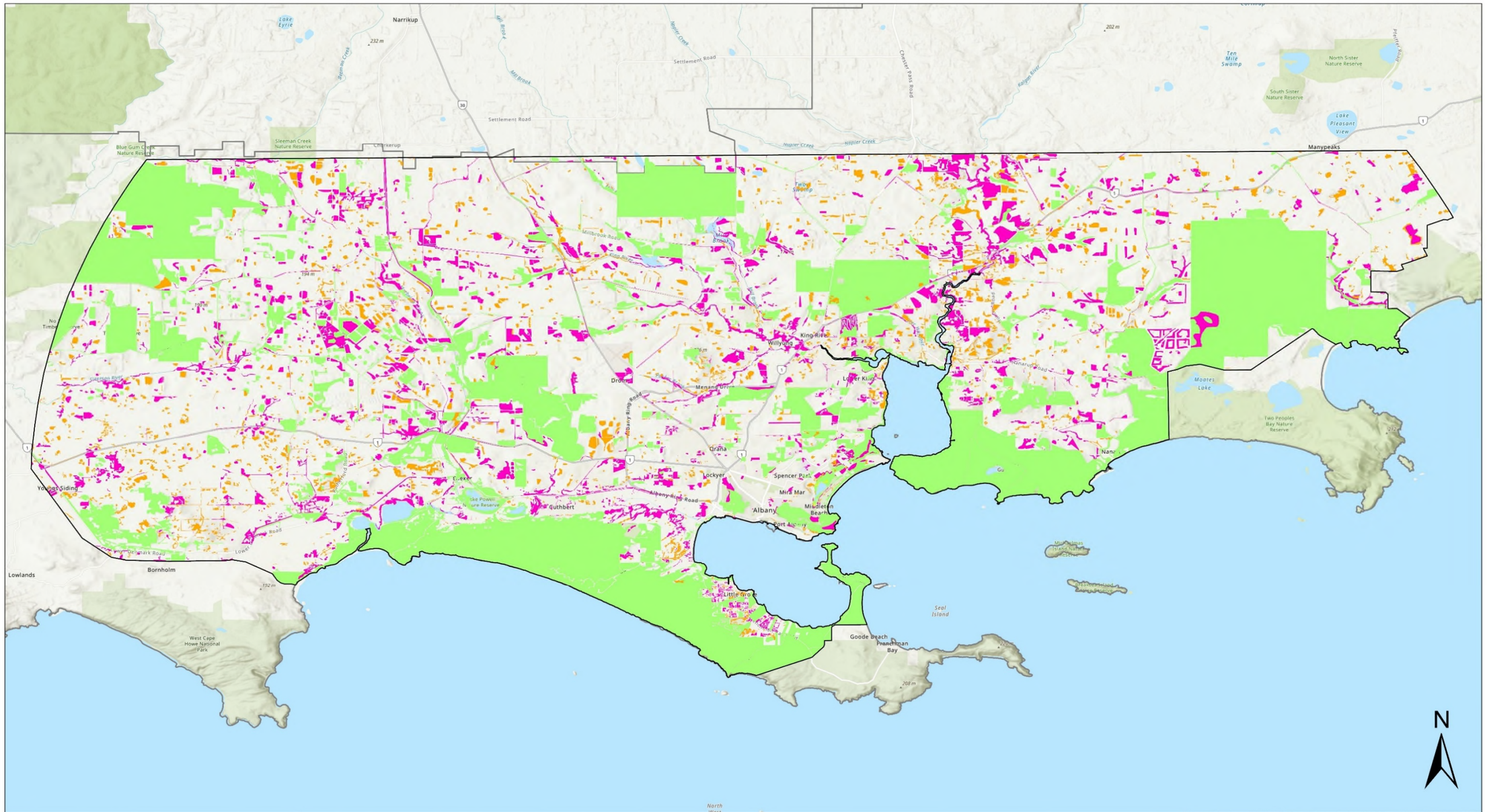
Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS, Esri, Geoscience Australia, NASA, NGA, USGS, Esri, USGS

12/03/2025

Coordinate System: GCS GDA 1994

0 6.5 13 Km

MAP 8: AVU CONDITION



Legend

- ARVS Survey Area
- City of Albany Boundary

ARVS Vegetation Condition

- Residual
- Modified
- Transformed
- Replaced Adventive

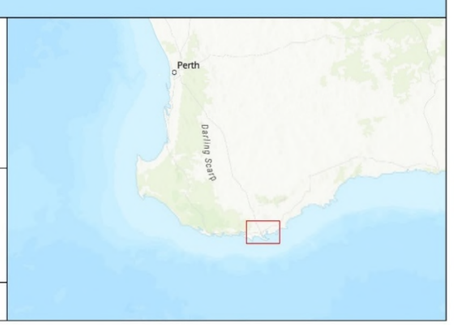
0 6.5 13 Km

Vegetation Condition

Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS, Esri, Geoscience Australia, NASA, NGA, USGS, Esri, USGS

12/03/2025

Coordinate System: GCS GDA 1994



5.8 ECOLOGICAL COMMUNITIES

The City of Albany supports several ecological communities of conservation significance recognised under both Commonwealth and Western Australian legislation. Three Threatened Ecological Communities (TECs) listed under the *Environment Protection and Biodiversity Conservation Act 1999* occur in the region (TABLE 12). In addition, numerous Priority Ecological Communities (PECs) recognised by the Department of Biodiversity, Conservation and Attractions are recorded from the Albany area (TABLE 13). Definitions of Threatened and Ecological Communities are included in Appendix D.

TABLE 12: THREATENED ECOLOGICAL COMMUNITIES

ECOLOGICAL COMMUNITY	STATUS (EPBC)	NOTES
Proteaceae dominated kwongkan shrublands of the southeast coastal floristic province of Western Australia	Endangered	Occurs across south-coast sandplains including Albany hinterland
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Occurs in estuarine systems, including Oyster Harbour and Princess Royal Harbour
Empodisma peatlands of south-western Australia	Endangered	Occurs in peat wetlands and slopes in high rainfall areas

TABLE 13: PRIORITY ECOLOGICAL COMMUNITIES

DBCA REF	*ECOLOGICAL COMMUNITY*	WA PRIORITY
6	*Green Range granite hill heath and woodland community*	P1
7	*Wet ironstone heath community (Albany District)*	P1
9	*Cheynes 1 Tree Mallee*	P1
10	*Cheynes 2 Open Tree Mallee*	P1
15	*Banksia coccinea shrubland / Eucalyptus staeri / sheoak woodland (community type 14a)*	P1
19	*Mosaic of Albany Blackbutt mallee-heath and Chittick scrub-heath*	P1
20	*Banksia littoralis woodland / Melaleuca incana shrubland*	P1
21	*Banksia occidentalis / Kunzea clavata shrubland*	P1
22	*Astartea scoparia swamp thicket*	P1

DBCA REF	*ECOLOGICAL COMMUNITY*	WA PRIORITY
23	*Coastal Melaleuca incana / Taxandria juniperina shrubland*	P1
24	*Tallerack mallee-heath on seasonally inundated soils*	P2
25	*Melaleuca striata / Banksia spp. coastal heath*	P1
26	*Melaleuca spathulata / Melaleuca viminea swamp heath*	P1
27	*Banksia coccinea shrubland / Melaleuca striata / Leucopogon flavescens heath*	P1
30	*Albany Blackbutt mallee-heath on deep sand*	P2
33	*Swamp Yate woodlands in seasonally inundated clay basins*	P3
39	*Taxandria spathulata heath*	P4

5.9 FAUNA

Data has been provided by the DBCA (NatureMap and Threatened Fauna Database), which indicates that approximately 1,464[13] species of fauna may occur within the City, comprising:

- Invertebrates – 677 recorded species;
- Fish – 274 recorded species;
- Frogs – 22 recorded species;
- Reptiles – 55 recorded species;
- Birds – 349 recorded species; and
- Mammals – 87 recorded species.

DBCA databases indicate that there are the following number of conservation significant species:

- Invertebrates: 10 species;
- Fish: 7 species;
- Reptiles: 3 species;
- Birds: 72 species; and
- Mammals: 26 species.

A list of conservation significant fauna species is included in Appendix G. Definitions of conservation categories are included in Appendix D.

[13] This is likely to be an underestimate of species numbers.

The ARVS project (Sandiford and Barrett, 2010) identified significant AVU for fauna habitat. (Appendix H).

5.10 FUNGI AND OTHER LIFE FORMS

Data has been provided by DBCA NatureMap, which indicates that approximately 531 species of fungi, lichen and slime mould may occur within the City (TABLE 13). This number is likely an underestimate, as these life forms are often poorly known.

TABLE 14: FUNGI, LICHEN AND SLIME MOULDS

STATUS	NUMBER OF SPECIES
Lichen	159
Fungus	368
Slime mould	4

Source: DBCA (2024) NatureMap. Note: includes introduced species

5.11 STATE MANAGED CONSERVATION RESERVES

The Conservation Commission manages National Parks and Nature Reserves under the *Conservation and Land Management Act 1984,* which the DBCA actively manages. These areas are the crown jewels of our region, considered 'Regionally Significant,' and can remain healthy only with support from surrounding bushland, wetlands, and waterways.

Areas managed as part of the conservation estate in the City are shown in TABLE 14.

TABLE 15: STATE CONSERVATION AREAS

MANAGED BY DBCA	AREA (ha)	CONSERVATION RESERVE TYPE	
Conservation Park	6.38	Gledhow Conservation Park	
National Parks	78,717.74	Gull Rock Hassell Mount Lindsay	Stirling Range Torndirrup Waychinicup West Cape Howe
Nature Reserves	18,997.11	Bakers Junction Basil Road Blue Gum Creek Bon Accord Road Cheyne Road Down Road Gledhow Granite Hill Kojaneerup South Lake Pleasant View	Mount Manypeaks Mount Mason Napier North Sister Pallinup Sleeman Creek South Sister South Stirling Takenup Road Tennesse North

MANAGED BY DBCA	AREA (ha)	CONSERVATION RESERVE TYPE	
		Lake Powell Mailalup Marbelup Mettler Lake Millbrook	Tinkelelup Two Peoples Bay West Mount Mason White Lake
Section 5(1)(h) Reserve	402.4	Voyagers Park Lighthouse, Torndirrup – Cave Point and two other parcels	
State Forest	4,055.31	Denmark Catchment State Forest	
Timber Reserve	1,234.5		
Covenants			
Conservation Covenants	1,859.13		

5.12 WETLANDS AND WATER COURSES

Wetlands and watercourses are vital for biodiversity, providing essential habitats, food sources, and breeding grounds for diverse species, including waterbirds, fish, frogs, and plants, some of which are threatened or migratory. These systems also act as natural filters, improving water quality by trapping pollutants and nutrients. They also support landscape connectivity, aiding species migration and adaptation to climate change, while also offering significant cultural, economic and aesthetic benefits.

A variety of wetlands exist within the City, including freshwater to brackish lakes, rivers, and seasonally inundated swamps. Major drainage lines include the Kalgan, King, and Goodga Rivers, Mill Brook, and Marbellup Brook. Three wetland suites are listed in the Australian Directory of Important Wetlands (DCCEEW, 2025): the Moates Lake System, which includes Lake Gardner, Moates Lake, Angove Lake, and their tributaries; the Lake Pleasant View System, which encompasses South Sister Lake and Lake Pleasant; and Oyster Harbour, accompanied by its tidal vegetation.

Thirty-five wetlands within the City of Albany have been recognised as 'conservation category wetlands' based on their representation, scarcity, presence of conservation flora and/or fauna, and social/cultural values (Department of Water, 2007).

Historically, many wetlands have been modified, cleared, filled, or drained. Other significant changes to wetlands include nutrient enrichment, sedimentation, weed invasion, and hydrological alterations. This includes increased salinity, heightened runoff, and rising water levels due to vegetation clearing, as well as lowered water levels linked to water extraction for supply purposes (Department of Water, 2007).

5.13 COASTAL AREAS

Threats to coastal biodiversity include climate change, which causes ocean warming and acidification, leading to habitat loss. Habitat destruction from urban development and agriculture, and pollution from sewage, stormwater runoff, and marine debris are also major concerns. Overfishing, which reduces fish populations and disrupts food webs, and unintentional

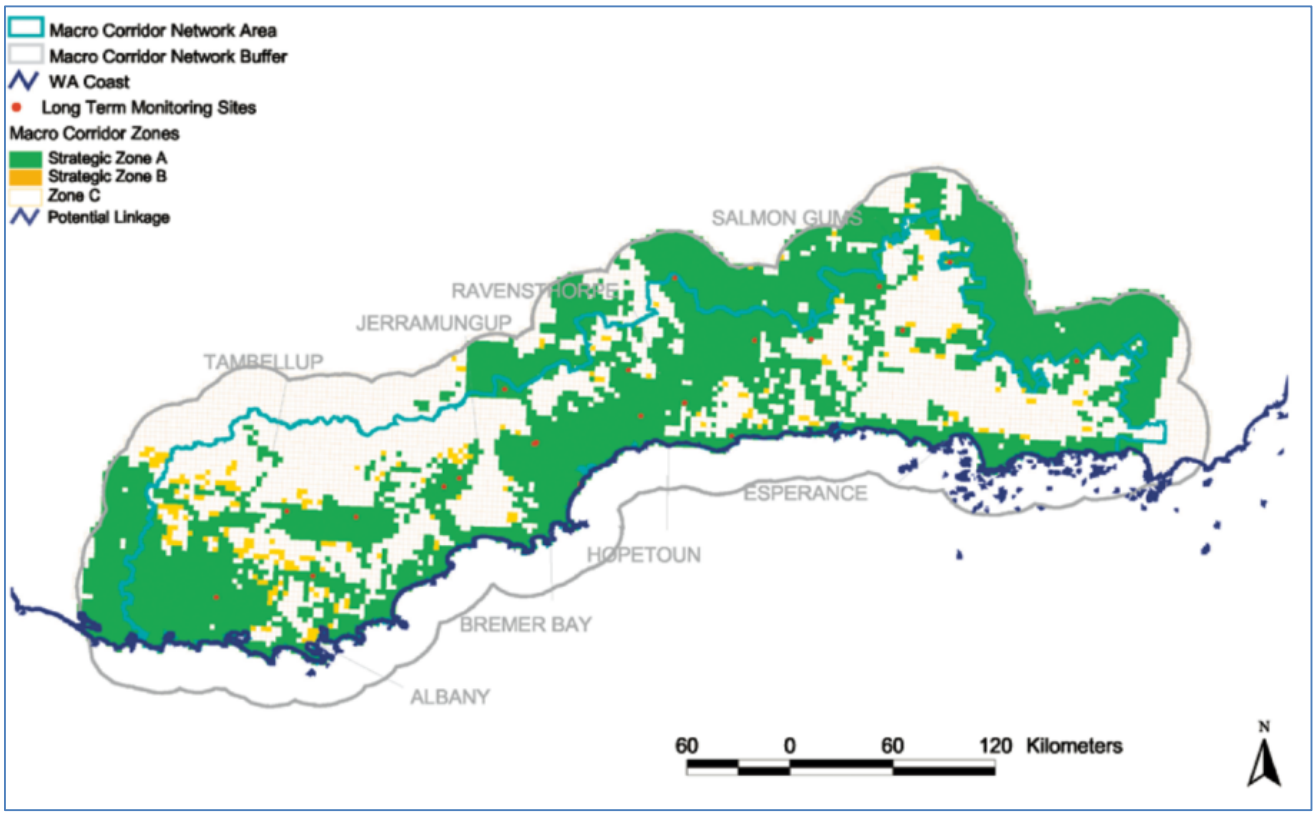
bycatch of other species further threaten aquatic ecosystems. Additionally, invasive species compete with native species, and increased human activity, including driving on beaches, tourism and recreation, can cause physical disturbance and pollution.

The City of Albany's coastline stretches over 180 km from the Nullaki Peninsula in the west to Pallinup Beach in the east. It primarily consists of sandy beaches and dunes, limestone formations, and granite headlands. Other significant features include inlets and estuaries that support rich biodiversity. Coastal vegetation plays an essential role in stabilising mobile dunes and providing natural protection from storms, rising sea levels associated with climate change, and erosion. The City's coastline has significant regional conservation value and provides extensive ecological linkages characterised by coastal dunes, limestone and granite cliffs, and coastal heathland vegetation.

5.14 CONNECTIVITY

In 2006, the Macro Corridor Project (Wilkens et al., 2006) identified potential linkages between Israelite Bay, east of Esperance, stretching westward to Albany, with inland connections along major river systems to protected areas such as the Stirling Ranges and other bushland (Figure 9). Protecting and enhancing these corridors is a key criterion for maintaining biodiversity.

FIGURE 9: MACRO CORRIDOR NETWORK



Source: Wilkens et al. 2006

5.15 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

The EPBC Act allows for assessment of potential impacts to 'Matters of National Significance' (MNES). The Department of Climate Change, Energy, the Environment and Water (DCCEEW) website features a 'Protected Matters Search Tool' which indicates that the City has:

- One National heritage place: Part of the Stirling Range National Park;
- A Commonwealth Marine Area;
- Three listed Threatened Ecological Communities;
- 115 listed Threatened species;
- 69 listed migratory species;
- 94 listed marine species; and
- 31 species of whales and other cetaceans.

A summary report of the MNES is included in Appendix I.

6 ACHIEVEMENTS

The City has been working over decades to protect natural areas. This section outlines strategies and actions undertaken.

6.1 LAND USE PLANNING

As outlined in Section 4.5, the City has reviewed its LPS and includes a reservation category of 'Environmental Conservation'. This means that even if a Crown Reserve lacks a purpose related to 'Conservation', any development application will take into account the environmental conservation values of the area.

6.1.1 Local Planning Strategy and Local Planning Scheme No. 2

The new Local Planning Scheme No. 2 now includes a reservation category for 'Environmental Conservation.' The land outlined in this category comprises 80,190 ha (**MAP *4***).

- The State government has provided a planning framework, and the City has advanced this in its LPS and LPS2.
- Each Reserve may accommodate other compatible uses.

6.1.2 Special Control Areas

The City has established Special Control Areas within its planning framework to benefit the community and biodiversity. Special Control Areas include coastal hazard risk management and adaptation plan (CHRMAP) areas for Middleton Beach and Emu Point. Foreshore management plans are required for these areas to identify biodiversity attributes and ensure ongoing protection. Special Control Areas are also designated for Yakamia Creek, Lake Seppings, Oyster Harbour, Lake Powell, Lake Manurup, and Willyung Creek to address hydrological processes and protect habitat.

6.2 THREAT ABATEMENT

Rather than prepare a management plan for each Reserve under its management, the City is guided by its *Environmental Land Management Guidelines*[14]. These guidelines cover how all work by the City and its contractors should be undertaken to address environmental issues related to:

- All new upgrades and maintenance work;
- Roads, roadsides and drainage;
- Developed reserves;
- Resource pits;
- Tracks and trails;
- Fuel and fire management;
- Waste disposal sites and transfer stations; and

[14] City of Albany (2022) Environmental Land Management Guidelines https://www.albany.wa.gov.au/documents/310/environmental-land-management-guidelines

- External customer activities.

In terms of threat abatement, the guidelines address:

- Vehicle and machinery management;
- Clearing of native vegetation;
- Importing soil or other materials;
- Weed management and herbicide use;
- Dieback management and hygiene;
- Acid sulfate soil management; and
- Erosion and drainage management.

6.3 BIODIVERSITY MANAGEMENT PARTNERSHIPS

The City has formed partnerships with community groups to assist in local biodiversity protection. This often comprises support, advice, insurance for volunteers and letters of support for grant applications. Initiatives include:

- Collingwood Heights protection of TEC in collaboration with South Coast NRM.
- Support for catchment groups like Oyster Harbour and Torbay through funding for events.
- Small environmental grants and funding for administration and other activities of these groups that assist in achieving the City's objectives.
- Western ringtail possum projects with South Coast NRM in city reserves.
- Decades of collaboration with South Coast NRM and the City to rehabilitate and increase the biodiversity values of Yakamia Creek.
- Torbay feral animal control within city reserves, including West Cape Howe, Mutton Bird, Cosy Corner, and Sand Patch.
- Wilson Inlet Catchment Group - feral animal control initiatives.
- Oyster Harbour cat control in city reserves, along with education and workshops.
- The City provides letters of support to groups.
- Torndirrup Sydney golden wattle control letter drops in partnership with Green Skills.
- Senecio weed control at Sand Patch.
- Hanrahan landfill - arum lily control efforts.
- Education for residents near city reserves regarding weed and feral animal control.
- Good neighbour policy for the City reserves for weed and fire management.

6.4 SUPPORT OF VOLUNTEERS

The City has collaborated with community volunteers for many years to support activities such as weed removal, replanting, and rubbish clean-up. Currently, four bushcare groups in Albany are made up of dedicated volunteers who unite to protect, preserve, and enhance their local bushland. These groups make a significant contribution to removing environmental weeds from ecologically and culturally sensitive areas. They include:

- Barmup bushcare busy bee group;
- Yakamia bushcare busy bee group;
- Frenchman Bay bushcare busy bee group; and
- Tjuitgellong/ Lake Seppings, Eyre Park and Mounts community group.

Each group meets monthly for about three hours to focus on weed control and eradication in their local reserve. They progressively move across their areas of interest, targeting weeds as the seasons dictate, while monitoring their local patches for changes and impacts.

Passionate volunteers founded these groups and now manage them entirely. The bushcare groups receive support from the City's Natural Reserves team, which works collaboratively to identify priority areas for weed control. They discuss native plants, weeds, and other topics to monitor in the bushland. This effort greatly benefits both the community and the city. Without the dedication of these community members, some of Albany's precious bushland could face increasing weed infestation. The commitment and contributions of these groups are invaluable for enhancing biodiversity, improving habitat, water quality, and soil health. In addition to these important environmental outcomes, the community benefits from improved aesthetics, opportunities to connect with residents, opportunities to share knowledge and stories, and the satisfaction of improved conditions for future generations.

Support from the City includes providing mulch, green waste collection, and donations from the Fossicker's Tip Shop.

Project outcomes include:

- 28 busy bee events in the 2023/2024 financial year;
- Over 12 ha of bushland weeded during the busy bee events;
- Over 270 combined group hours spent weeding and revegetation at the seven sites;
- Over 400 individual volunteer hours attending the bushcare events;
- Work included weed control, mulching and rubbish collection;
- Work has been undertaken at Burmup/ Bluff Rock, Yakamia Forest, Goode Beach, Frenchman Bay, Lake Seppings/ Tjuitgellong, Eyre Park, Mount Clarence/ Corndarup and Mount Adelaide/ Irrerup; and
- Priority weeds tackled include Kikuyu, Sydney Golden Wattle, Victorian tea tree, Rose Pelargonium, Taylorina, Senecio, Polygala, Gorse, Fleabane, Nasturtiums, Arum Lily, Pampas Grass and Lantana.

Site-specific outcomes include:

- Tjuitgellong/Lake Seppings: The planting of two new areas was carried out in 2022/23. One site measured 100 m in length, while the other measured 30 m at the edge of the wetland. Native plants, including numerous sword sedges, kangaroo paw, and saltwater paperbark, were transplanted from nearby firebreaks to locations adjacent to the walking trail. This area is heavily used by the community for walking and birdwatching, creating high engagement and awareness opportunities. Weed control was implemented, including the removal of 1,790 Sydney golden wattle plants from around the lake and adjacent areas.
- Eyre Park: Planting occurred within two 'wildlife stepping stones' in the park to facilitate movement for possums, bandicoots, and other animals and birds across the park. A new site was planted next to the lake on Middleton Road, primarily using transplanted native willows, sword sedge, saltwater paperbark, and other species donated by community members.
- Corndarup/Mount Clarence and Irrerup/Mount Adelaide: The removal of 1050 Sydney Golden Wattle took place before seeding, including 580 from near Albany Senior High School on Mount Clarence and 401 along Marine Drive.
- 'Turtle trackers' (City of Albany and Murdoch University initiative) assist in recording oblong turtle movements and involve volunteers and DBCA. Signage is provided near busy roads where turtles are likely to cross during the breeding season.
- The Wildflower Society conducts Spring flora surveys and educational wildflower walks.

Observations by City staff include the following:

- Groups come and go, but leave a legacy for others.
- Champions often suffer from burnout.
- While supporting volunteers takes time, it brings numerous benefits to the biodiversity of the City of Albany.

6.5 ENVIRONMENTAL STRATEGIES AND PUBLICATIONS

Since its establishment in 1998, the City of Albany has developed several separate plans, guidelines, and strategies focused on specific elements of the natural environment, the most recent of which includes:

- Environmental Impact Assessment Policy (City of Albany, 2013, Amended 2024);
- How to Identify Sydney Golden Wattle (City of Albany, 2023);
- Environmental Land Management Guidelines (Code of Conduct) (City of Albany, 2022);
- City of Albany Reserves Report (City of Albany, 2019a);
- Environmental Weed Management Plan (City of Albany, 2019b);
- Natural Reserves Strategy and Action Plan (City of Albany, 2017);
- 12 of Albany's most unwanted weeds (City of Albany, undated); and
- City Mounts Management Plan (City of Albany, 2006).

6.6 MANAGEMENT OF RESERVES

The City actively manages numerous reserves as outlined in the Natural Reserves Strategy and Action Plan (2017 – 2021). Management of these reserves is based on values, usage, and threatening processes. As of early 2025, the City has a dedicated Reserves team consisting of five Natural Area Maintenance Staff and a Natural Areas Supervisor who manages on-ground works, which include:

- Weed management;
- Pruning of native vegetation for safety (sight lines);
- Revegetation programs;
- Assisting Bushcare volunteers; and
- Maintaining access points, trails and nature-based campgrounds.

Two Reserve Officers manage reserves planning, process permits for access to reserves, evaluate environmental impact statements for work conducted in reserves, and ensure that activities on City-managed land minimise environmental impacts.

The City has hosted community planting days at Yakamia Creek, Cull Park Lake, and Wellington Street Park.

6.7 MANAGEMENT OF ROAD RESERVES

Road reserves in Albany hold significant biodiversity value, serving as crucial habitats for native plants and animals, including threatened species. They also function as corridors connecting larger areas of vegetation, supporting local communities and contributing to tourism. Furthermore, they provide windbreaks and shelter for the surrounding farmland. The City manages 1,629 km of roads and associated verges. The City has previously undertaken weed management in some road reserves, particularly for Sydney golden wattle.

7 THREATS TO BIODIVERSITY

Threats to Albany's biodiversity include:

- Clearing and fragmentation of habitat;
- Knowledge gaps;
- Climate change and variability;
- Altered hydrology;
- Inappropriate fire frequency and intensity;
- Inappropriate access;
- Weeds; and
- Disease and pests.

7.1 CLEARING AND FRAGMENTATION

The most significant human impact in south-west Australia has been the clearing of native vegetation. Clearing and development began in 1829 with the arrival of the first European settlers. However, due to the poor soils, development progressed slowly until the 1890s, when phosphate fertilisers were introduced. Today, most usable private land in the region is farmed, although it requires the application of phosphate, zinc, copper, cobalt, and molybdenum. While broadscale clearing is no longer common, the incremental loss of native vegetation continues to erode biodiversity values. Fragmented natural areas are more likely to be affected by edge effects from weed species, wind, water erosion, or overgrazing.

Today, most native vegetation loss is driven by degradation of the understory from agricultural activities and clearing for development. Fragmented landscapes limit the ability of native animals and plants to move across natural areas and restrict the dispersal of genetic material for plant species. The inability of populations to recolonise areas after a disturbance will likely result in the continued loss of species across a landscape long after the initial clearing. This affects biodiversity and reduces ecosystem resilience. Sustainable and strategic land-use planning is key to lowering biodiversity losses from development in the City. Like many local government areas, the City is facing increasing population pressures. Planning for new urban areas must preserve natural landscape features, biodiversity, and ecological linkages. The City will need to balance its biodiversity protection goals with economic and social growth.

Impacts, current responses and potential responses to clearing and fragmentation are included in TABLE 16.

TABLE 16: IMPACTS OF CLEARING AND FRAGMENTATION

Impacts	• Loss of habitat and plants, many of which cannot be preserved elsewhere. • Loss of ecosystem services provided by the plants and animals, such as pollination or control of nutrient run-off. • Loss of dispersal by native species. • Loss of water quality within the water catchment. • Land degradation (erosion, soil acidification). • Loss of economic opportunities dependent on high-quality natural areas. • Reduced resilience of protected areas to other threatening processes.
Current Responses	• Guidance from Local Planning Strategy. • Use of current provisions in Local Planning Scheme. • Assessment of rezoning, development applications, and input into structure plans.
Potential responses	• Use ranking data of LNA in assessment for development. • Promote linkage of LNA. • Communicate the expectation of a net positive outcome for LNA across the Albany landscape. Net positive means achieving a better environmental outcome than the current status quo.

7.2 CLIMATE CHANGE AND VARIABILITY

Climate change is a significant threat to biodiversity globally. Threats to south-west Western Australia include the following[15]:

- Higher temperatures;
- Mean temperatures have increased by about 1.1 °C since 1910, with the rate of warming higher since 1960;
- Mean, maximum and minimum temperatures are projected to continue to rise;
- Each season is projected to warm by about the same amount as the annual mean;
- Hotter and more frequent hot days – less frost;
- The temperature and frequency of very hot days are expected to increase, and heatwaves will get longer and more intense.;
- Less rainfall in winter and spring. Changes in other seasons unclear;

[15] Department of Water and Environmental Regulation (2021) Western Australian Climate Projections Summary. https://www.wa.gov.au/system/files/2022-01/Western_Australian_Climate_Projections_Summary.pdf

- The south-west of Western Australia has experienced a marked drying trend since 1970, particularly in autumn and early winter;
- The decline in this region has been larger than anywhere else in Australia;
- Decreases in annual, winter and spring rainfall are projected with high confidence;
- By 2030, under all emission scenarios, winter rainfall is projected to decrease by up to 15%;
- By 2090, rainfall is projected to decrease by:
    - up to 25 per cent under intermediate emissions (RCP4.5); and
    - up to 45 per cent under high emissions (RCP8.5).
- Increased intensity of heavy rainfall events;
- Drought duration to increase; and
- Increased evaporation rates, reduced soil moisture and runoff.

The impacts of climate change on biodiversity are likely to include:

- Reduced water availability in wetlands and other groundwater-dependent ecosystems, and deterioration of water quality, causing negative ecological impacts;
- Changes to wildlife migration patterns;
- Changes to critical seasonal timing of reproduction;
- Movement of species to areas of adequate rainfall, impacting local biodiversity;
- Damage to natural areas causing hazards for wildlife; and
- Erosion and inundation of sensitive dune ecosystems threaten coastal and estuarine biodiversity.

Impacts of climate change on local biodiversity and the City's current and potential responses are outlined in TABLE 17.

TABLE 17: IMPACTS OF CLIMATE CHANGE

Impacts	Climate change has the potential to affect biodiversity in the City by: adversely • Altering the quality, extent, and distribution of native vegetation and habitat. • Reducing or modifying the range of numerous species. • Changing hydrology (the natural wetting and drying cycles, along with the frequency and duration of inundation) of wetlands and watercourses. • Affecting the diversity and abundance of wildlife that rely on those habitats.
Current responses	The City is developing a Water Strategy, which will guide: • Holistically managing surface water resources to improve water quality and natural values.

	• Identification and use of fit-for-purpose water resources and using technology to attain water use efficiencies. The City has a Climate Change Declaration that includes actions to reduce organisational greenhouse gas emissions and to maintain and improve local biodiversity despite the impacts of climate change.

Potential responses	• Examine development proposals and support actions that increase climate resilience and enhance the linkage and biodiversity outcomes of LNA across the municipality.
	• Develop a Climate Change Action Plan consistent with the ALBS, which includes:
	  • Developing thresholds for unacceptable change in the condition of natural areas and appropriate corrective actions.
	  • Designing Public Open Spaces to provide increased resilience and biodiversity.
	  • Landscaping Public Open Spaces to incorporate species suited to projected conditions (high number of species for biodiversity resilience, drought-tolerance and resilience to heat).
	• Develop a Water Management Strategy to guide:
	  • Implementation of a program for converting areas of irrigated turf that are not essential to amenity or recreation to eco-zoning and biodiversity plantings with reduced water needs.
	  • Sustainable irrigation, enhanced urban greening, canopy cover and community wellbeing.
	• Other actions:
	  • Work with partners to undertake a climate risk assessment to identify the impact of climate change on keystone species and natural areas within the City, to increase resilience to climate change.

7.3 FIRE REGIMES

Fire has been part of the Western Australian landscape for thousands of years – long before humans arrived – and has shaped the evolution of plants and animals. South-western Australia is among the most fire-prone regions globally, thanks to its Mediterranean climate with hot, dry summers and the extensive areas of flammable native vegetation.

Bushland in the south-western region of Western Australia was subjected to mosaic burns by Noongar people (DBCA, 2022[16]) using fire to shape the forest structure. However, some areas appear to have

[16] DBCA (2022) Cultural and Contemporary Burning in Western Australia https://www.dbca.wa.gov.au/media/567/download#:~:text=For%20thousands%20of%20years%20Aboriginal%20people%20have,protect%20plants%20and%20animals%20vulnerable%20to%20fire.&text=Cultural%20burning%20in%20parts%20of%20the%20Kimberley,which%20has%20reduced%20the%20severity%20of%20bushfires.

been burnt only rarely. Areas with varying ages since fire provide more diverse habitats. Mosaic burning has the potential to mitigate the catastrophic impacts of wildfires in the current landscape.

Fire regimes in Australia have changed since European arrival and now often consist of large, hot, intense fires with shorter intervals between them. Although native plants are well adapted to fire, changes in burning regimes can significantly affect the composition and condition of natural vegetation. This is particularly evident where native vegetation now forms fragmented 'islands'.

Altered fire patterns can cause changes in the structure and composition of vegetation (Bushfire Cooperative Research Centre and the Australasian Fire and Service Authorities Council, 2010[17]). If fires occur too frequently, fire-sensitive species may struggle to grow and reproduce. Conversely, if fires happen too infrequently, species that depend on fire for reproduction may have difficulty setting seeds or germinating. These changes affect not only the vegetation itself but also the habitat resources available to animals. Intense fires can damage populations of sensitive species, while frequent fires can hinder population recovery and encourage the growth of invasive weed species.

Excessively intense fires will affect the populations of sensitive species, and fires that occur too frequently will limit population recovery (Department of the Environment and Energy, 2016[18]). The frequency of bushfires has increased over the past decade due to a drying climate, likely resulting in reduced populations of native species and causing local extinctions. The effects of bushfires on biodiversity within the City include:

- Reduction in recruitment of native species due to vegetation patches functioning as islands;
- Increased weed infestation;
- Decreased success of native plant re-sprouting following each fire;
- Significant reduction in above-ground materials, including leaf litter and logs, which provide essential habitats for native fauna; and
- High mortality rates among native fauna species.

Managing the risk of bushfires requires a careful balance between safeguarding lives and infrastructure and preserving biodiversity. Achieving this balance can be challenging, as strategies to reduce bushfire risk may occasionally conflict with efforts to uphold ecosystem values.

The Shedley fire management principles (Shedley, 2007[19]) aim to enhance biodiversity conservation:

1. **Fire as a Natural Factor:** Fire has long influenced the landscapes and biodiversity of the south-west and will continue to do so.
2. **Species and Fire:** Species and ecological communities vary in their response to fire. Life histories and fire dependencies should inform fire management of these organisms.

[17] Bushfire Cooperative Research Centre and the Australasian Fire and Service Authorities Council (2010). Fire intervals and biodiversity responses in the south-west of WA. https://www.afac.com.au/docs/default-source/fire-and-hazard-notes/064.pdf?sfvrsn=10&download=false

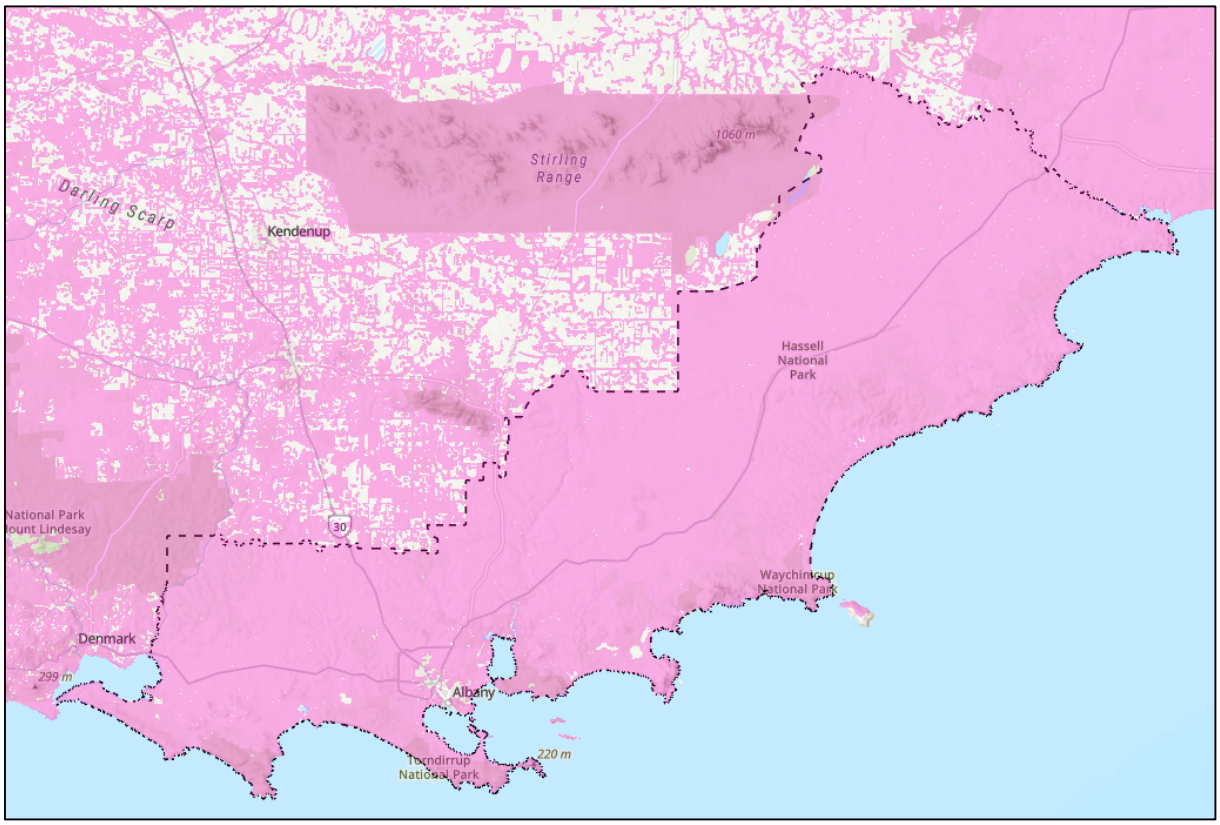
[18] Department of the Environment and Energy 2016. *Australia State of the Environment 2016;* Biodiversity, Commonwealth of Australia. https://soe.dcceew.gov.au/sites/default/files/2022-05/soe2016-biodiversity-launch-version2-24feb17.pdf

[19] Shedley, E 2007, Fire and Biodiversity Guidelines for the Avon Basin, Consultant report to the Avon Catchment Council and the Department of Environment and Conservation, August 2007.

3. **Ecosystem Response:** Ecosystems often shift to new states following fire due to factors such as topography, species life histories, and climatic events, making it difficult to attribute changes solely to fire.
4. **Dual Purpose of Fire Management:** Fire management should balance two primary goals: conserving biodiversity and reducing the occurrence of large, intense wildfires.
5. **Fire Intensity and Impact:** The intensity and size of a fire are directly linked to its biological impact and the difficulty of suppression, as well as the rate of ecosystem recovery.
6. **Fire Diversity Promotes Biodiversity:** Diverse fire regimes, including variations in frequency, seasonality, intensity, and scale, contribute to biodiversity at the landscape level.
7. **Avoid Extreme Fire Regimes:** Applying the same fire regime over large areas or using extreme intervals (either too frequent or too infrequent) should be avoided.
8. **Mosaic Patterns:** Fire-induced mosaics should facilitate the movement of young animals, enhance boundary habitat, and promote connectivity across landscapes.
9. **Integrating Knowledge:** Fire regimes should be based on a thorough understanding of species life histories, attributes of native plants and animals, and traditional Nyoongar fire practices.
10. **Fire History and Landscape Context:** A region's fire history, vegetation complexes, and landscape units should inform the mix of fire intervals.
11. **Wildfire Risk:** Wildfire can damage both conservation and societal values; therefore, fire management requires a systematic and structured approach to assess and mitigate risks.
12. **Adaptive Management:** Fire management practices should evolve with new scientific knowledge, community expectations, and insights gained from ongoing monitoring and research.

Much of Albany is prone to bushfire (DFES, 2025; Figure 11). Since the introduction of the Western Australian Bushfire Guidelines in 2015, the requirements have been updated regularly to reduce bushfire risk. In some cases, these updates have increased the requirements for local vegetation modification. The clearing requirements within asset protection zones are now incorporated into the State planning framework and building regulations. While they may be reviewed and adjusted over time, they are not expected to be withdrawn.

FIGURE 10: BUSHFIRE PRONE AREAS



Source: DFES (2025). https://www.albany.wa.gov.au/services/building-planning/development-in-a-bushfire-prone-area.aspx

The City can exercise a degree of autonomy in setting local standards through the annual Fire Load and Fire Break Notice (Section 33(1) Notice under the Bush Fire Act 1954) for established dwellings. The City continues to participate in and monitor State policy and regulation to ensure that reasonable and appropriate local standards are maintained. However, if perverse outcomes are proposed, such as the loss of biodiversity assets for bushfire protection, the City can object to developments likely to result in poor biodiversity outcomes.

The impacts of unsuitable fire regimes on local biodiversity, along with the City's current and potential responses, are outlined in TABLE 18.

TABLE 18: IMPACTS OF FIRE MANAGEMENT

Impacts	• Potential decline in native species and increased weed infestation. • Possible decrease in the success of re-sprouting of native plants following each fire. • Significant loss of above-ground material, including leaf litter and logs, which provide crucial habitats for native fauna. • High mortality rates among native fauna species. • Opportunities rely on maintaining high-quality natural areas.
Current responses	• State Planning Policy 3.7 Planning in Bushfire Prone Areas and the Guidelines for Planning in Bushfire Prone Areas are applied through the planning and

	development approval process to ensure appropriate separation between new development and vegetated areas. • Annual Fire Management Notice. Each year, the City issues a Fire Management Notice that outlines the minimum requirements for all landowners and occupiers to prepare for the bushfire season. The Fire Management Notice is issued under Section 33 of the Bush Fire Act 1954, and the requirements include maintaining emergency access and reducing fire hazards.
Potential responses	• Consult with technical experts in fire management, fire ecologists, and local Indigenous representatives to determine a mutually agreed approach for managing fire in areas of high ecological value. • Apply fire management principles in accordance with the South Coast Natural Resource Management (201820) Fire and Biodiversity Landholder Information Guide. • Map the fire history of City reserves.

7.4 DISEASES AND PATHOGENS

One of the most serious current threats to the natural vegetation of south-west Australia is the spread of a root disease known as *Phytophthora* dieback (DBCA, 2024[21]). This is caused by more than 60 water mould species, including the most common and destructive, *Phytophthora cinnamomi*.

The effects of the disease were first observed in the Jarrah forests in 1940, but the cause was not identified until 1965. By that time, thousands of hectares of forest had been infested. The root disease is now widespread in areas with annual rainfall exceeding 800 mm. In Albany, it is present in locations such as Torndirrup National Park, Mount Martin, Ledge Point, Millbrook Nature Reserve, Betty's Beach, and Mount Manypeaks, where it has caused mortality among susceptible plants, including Balga (Xanthorrhoea spp.) and members of the Proteaceae, especially *Banksia* species.

Important areas that are susceptible but not yet completely infested include parts of Gull Rock National Park, Millbrook Nature Reserve, Bakers Junction Nature Reserve, Down Road Nature Reserve, Cheyne Road Nature Reserve, and Water Corporation's Angove water supply area.

There is no cure for the disease, so minimising spread is crucial for reducing its impact. South Coast NRM and the Dieback Working Group maintain the WA dieback mapping database – Dieback Information Delivery Management System (DIDMS) to enhance disease management. This project has previously received funding from the Western Australian Government's State NRM Program.

Potential incursions of plant diseases such as Myrtle rust also threaten myrtaceous plant species already under threat from Phytophthora dieback. Myrtle rust is not yet present in Western Australia, but it could have an enormous impact on native plants.

[20] South Coast Natural Resource Management (2018) *Fire and Biodiversity Landholder Information Guide*. https://southcoastnrm.com.au/wp-content/uploads/2019/05/FIRE_BIODIVERSITY_WEB-VERSION.pdf
[21] DBCA (2024) *Phytophthora* dieback https://www.dbca.wa.gov.au/management/threat-management/plant-diseases/phytophthora-dieback

In Marri (Corymbia calophylla), Marri canker has been identified as a major driver of its decline. In other species, such as karri (Eucalyptus diversicolor), Armillaria Root Disease has been implicated in their death and decline in some areas.

The impacts of plant diseases on local biodiversity, along with the City's current and potential responses, are identified in TABLE 19.

TABLE 19: IMPACTS OF DISEASES AND PATHOGENS

Impacts	Plant pathogens can reduce biodiversity by altering plant community structures and destroying habitat (e.g., nectivorous birds are at high risk of significant decline due to dieback).
Current responses	• Dieback warning signage at designated City-managed reserves. • Providing information about dieback on the City's website. • Implementing dieback hygiene practices for works in City reserves..
Potential responses	• Implement dieback hygiene procedures for all City operations (e.g., roadworks, infrastructure development, and maintenance). • Ensure that relevant staff and contractors receive 'Green Card Training' for dieback and biosecurity awareness. • Update and distribute information to private landholders and contractors regarding best practice natural area management.

7.5 UNCONTROLLED ACCESS

Uncontrolled access to natural areas for recreational activities such as trail bike riding and four-wheel driving poses a problem for the City, as these activities can cause significant damage to the landscape if not adequately managed. People use vehicles in bushland and along the coast for transport and recreational purposes, which can harm landscapes by physically removing vegetation, compacting soil, causing erosion, introducing and spreading dieback, disturbing soil, and disrupting fauna. Uncontrolled pedestrian access within natural areas can cause vegetation trampling, soil disturbance, erosion, and reduced aesthetic value of the natural landscape.

The impacts of uncontrolled access on local biodiversity and the City's current and potential responses are outlined in TABLE 20.

TABLE 20: IMPACTS OF UNCONTROLLED ACCESS

Impacts	Loss of biodiversity can occur from uncontrolled vehicle and pedestrian access due to: • Physical removal of vegetation. • Introducing weed species and pathogens. • Disturbing soil surfaces, which leads to erosion or compaction. • Disturbance, injury, or death of fauna. • Rubbish dumping. • Reducing the aesthetic value of the natural landscape. • Loss of economic opportunities reliant on high-quality natural areas.

	• Illegal firewood gathering.
Current responses	• Supporting community volunteers involved in the management of bushland reserves. • Installing fencing, gates, and/or signage in priority reserves. • Cleaning up areas as needed or reported..
Potential responses	• Install and maintain access control, gates, and/or signage for reserves with high biodiversity value. • Engage the broader community to become stewards of local bushland by reporting activities that threaten biodiversity values.

7.6 WEEDS, PESTS AND FERAL ANIMALS

Invasive species threaten biodiversity and can diminish populations of native flora and fauna due to alterations in competition, predation, mortality, or habitat degradation.

It has been estimated that invasive species affect 82% of threatened taxa in Australia in 2018 (Australian Government, 2021[22]). Foxes, cats and rabbits are among the invasive species most destructive to flora and fauna within the City.

Emerging threats such as the polyphagous shot-hole borer and potential threats such as myrtle rust need to be considered by the City, in consultation with other organisations which are responsible for biosecurity (e.g. Department of Primary Resources and Regional Development).

Weed species often establish following disturbances such as clearing, rubbish dumping, trampling, and fire. They may lead to biodiversity loss by competing with native species and modifying or disrupting ecosystem processes[23].

The City has an Environmental Weed Management Plan (City of Albany, 2019[24]) and has worked with the community for many years to manage environmental weeds.

The twelve most unwanted weeds identified are[25]:

1. Pampas Grass (*Cortaderia selloana*);
2. Watsonia (*Watsonia* sp.);
3. Sydney Golden Wattle (*Acacia longifolia*);
4. Victorian Teatree (*Leptospermum laeviegatum*);
5. Taylorina (*Psoralea pinnata*);
6. Dolichos Pea (*Dipogon lignosus*);

[22] Australian Government (2021) State of the Environment 2021Link.
[23] DBCA (2024) Link
[24]City of Albany Environmental Weed Management Plan https://www.albany.wa.gov.au/documents/469/environmental-weed-management-plan
[25] Albany's 12 Most Unwanted Weeds https://www.albany.wa.gov.au/documents/13966/12-of-albanys-most-unwanted-weeds

7. Blackberry (*Rubus* spp.);
8. Arum Lily (*Zanthedeschia aethiopica*);
9. Gorse (*Ulex europaeus*);
10. Holly-leaved Senecio (*Senecio glastifolius*);
11. Yellow-flowered Stinkwort (*Dittrichia viscosa*); and
12. Bridal Creeper *(Asparagus* spp.)

The impacts of weeds, pests, and feral animals on local biodiversity, along with the City's current and proposed responses, are detailed in TABLE 21.

TABLE 21: IMPACTS OF WEEDS, PESTS AND FERAL ANIMALS

Impacts	• Weeds compete with native vegetation by inhibiting growth and can displace native species over time, thereby reducing biodiversity. • Riparian native vegetation along wetlands and waterways can become choked with weed species, which can be transported downstream as seeds. • Grassy and other flammable weeds elevate the risk of bushfires. • Fauna habitat can be significantly altered by weed species overtaking native vegetation. • Weeds negatively impact the economic viability of agriculture, tourism, and bushland restoration programs. • Predation by foxes and cats significantly contributes to the decline of small mammals, native birds, and lizards. • The loss of nesting hollows is due to more aggressive introduced birds and feral bees. • Pests and feral animals compete for the limited food sources available. • Feral animals cause degradation through trampling, soil disturbance, and erosion.
Current responses	• Implement weed control in accordance with the City's priorities and the City of Albany Environmental Weed Management Plan. • Support community volunteers undertaking weed control in priority reserves. • Manage landscaping practices through development approval processes. • Educate the community on suitable native and introduced species for planting. • Update the City's Weed Control Strategy. • Provide information on pest control through the City's website. • Develop and distribute educational materials on responsible cat ownership and property management to discourage feral animals.
Potential responses	• Targeted control of feral animals in priority reserves. • Gazettal of a new Cat Local Law and enforcement of 'Inside Cats Only' zones in areas designated for Environmental Conservation. • Update and distribute information to private landholders on best practices for natural area management. • Work with neighbouring local government areas and DBCA on coordinated feral animal control.

	• Update and distribute information to private landholders on best practices for natural area management.

7.7 ALTERED HYDROLOGY

Land uses such as agriculture and urbanisation have led to soil disturbance, groundwater drainage, road construction, impervious surfaces, traditional piped drainage networks, altered topography, and modified hydrological regimes. Water then flows through rural and urban areas into natural waterways, carrying waste, chemicals, nutrients, and sediment that degrade water quality in wetlands and waterways. Groundwater-dependent ecosystems can also be affected by fluctuations in groundwater levels, pollution, and nutrient levels.

Hydrology, the properties and movement of water on land, is influenced by land clearing, modifications to watercourses, and pressures such as landfills and overuse of fertilisers.

The impacts of altered hydrology on local biodiversity, along with the City's current and potential responses, are detailed in TABLE 22.

TABLE 22: IMPACTS OF ALTERED HYDROLOGY

Impacts	• Loss of habitat and biodiversity. • Changes in water quality within water catchments. • Land degradation (erosion, soil acidification). • Reduced resilience of protected areas to other threatening processes.
Current responses	• The City has developed a Water Management Strategy to guide activities that are the responsibility of the City concerning the management of water resources across the municipality in the medium term (next 10 years). It will also provide a platform to facilitate collaboration with external stakeholders to optimise the delivery of shared values, objectives, and outcomes. • Work with relevant State Government agencies to integrate water management into planning and development via Better Urban Water Management (WAPC, 2008 [26]) particularly for developments likely to impact hydrology. • Showcase projects such as the streamlining of Yakamia Creek.
Potential responses	• Restore native vegetation along priority waterways, drains and drainage basins.

[26] WAPC (2008) Better Urban Water Management. https://www.wa.gov.au/system/files/2021-07/GD_Better_Urban_Water_Management_0.pdf

8 OPPORTUNITIES

There are opportunities for the City and the community to protect, retain, and enhance biodiversity values. These include:

- Increase awareness and responsibility of City of Albany Staff through induction and ongoing training;
- Manage the City's biodiversity assets at a higher intensity than currently and in a more integrated way (e.g. multiple management methods simultaneously: weed control, pest control, revegetation) through partnerships with biodiversity-focused organisations and individuals.
- Managing more of the City's Crown Reserve assets in partnership with the community and aligned organisations;
- Using legislative tools available to local government, such as planning controls;
- Forming partnerships with organisations, tertiary educational institutions, community groups, and individuals to promote biodiversity outcomes and build on knowledge;
- Assisting landowners who wish to retain and/or enhance biodiversity values;
- Advocating for biodiversity outcomes and providing advice to regulators and decision-makers (e.g., to DWER for Part V vegetation clearing legislation under the EP Act);
- Seeking and providing funding for projects that contribute to improved biodiversity outcomes; and
- Promoting community involvement in biodiversity outcomes through education, raising awareness, and citizen science projects.

8.1 MANAGEMENT OF CITY OF ALBANY CROWN RESERVES

The City is responsible for managing some of the most significant biodiversity assets in the municipality. This includes areas such as Sandpatch, Cosy Corner, coastal and foreshore reserves, road reserves, and public open space. To ensure the maintenance and enhancement of biodiversity, the City will:

- Actively protect and manage high-value areas, particularly those facing threats such as uncontrolled access, weeds, dieback, and feral predators.
- Review and consolidate the City's environmental strategies and plans for threat mitigation (e.g., weed strategy, reserve management).
- Enhance resilience to threats at the landscape level.
- Consider the current purposes of reserves and incorporate biodiversity protection and environmental conservation aims, where relevant.
- Manage roadside vegetation (including unconstructed road reserves) as biodiversity corridors.
- Promote fire regimes that support biodiversity outcomes while also ensuring the protection of life and property.

TABLE 23 outlines opportunities for reserve management.

TABLE 23: OPPORTUNITIES - RESERVE MANAGEMENT

Impacts	• Protect biodiversity. • Increase resilience. • Reduce threatening processes. • Promote sustainable use and enjoyment.
Current Responses	• Management of access, signage, interpretation and threatening processes for priority Reserves. • Form partnerships with the community for management of Reserves with a focus on weed management and enhancing ecological functions (e.g. replanting of part of Yakamia Creek and drains).
Potential Responses	• Re-evaluate priority reserves based on biodiversity and other values to achieve on-ground outcomes to reduce threatening processes and increase ecological permeability. • Identify linkage opportunities (road reserves – made and unmade, and other linear features) to enhance ecological permeability. • Develop fire regimes based on biodiversity and cultural aspects while also considering protection of life and property.

8.2 SERVICES, EVENTS AND DEVELOPMENT BY THE CITY OF ALBANY

The City provides services and hosts events that benefit the community. It also undertakes community development, including road construction, civic projects, and other infrastructure. Even when organisations host events on behalf of the City or subcontractors carry out on-ground work, the City can set an example by carefully considering biodiversity impacts for each project, accounting for potential biodiversity effects, and ensuring that threatening processes are appropriately addressed.

TABLE 23 shows potential impacts of services, events, and civic works, along with potential responses.

TABLE 24: OPPORTUNITY - SERVICES, EVENTS, CIVIC WORKS

Opportunity	• By providing services, hosting events, and undertaking civic works, the City can convey appropriate messaging and consider biodiversity outcomes while reducing threatening processes.
Current Responses	• Undertaking environmental impact assessment of proposed works.
Potential Responses	• Consideration of biodiversity and the inclusion of environmental impact assessment clauses in tender documents, grant applications, and event requirements, as applicable.

8.3 LEGISLATIVE TOOLS FOR LOCAL GOVERNMENT

As discussed in Section 5, the City controls specific biodiversity outcomes through planning and development approvals under LPS2 and other legislation within its jurisdiction (e.g., rezoning and

structure plans). The City can make planning decisions based on the information in this Strategy, knowing that the community supports it.

The City will consistently apply legislation to protect biodiversity and implement existing policies and guidelines.

TABLE 25 indicates the current responses to use of legislative tools and potential responses.

TABLE 25: LEGISLATIVE TOOLS

Impacts	• The City is part of a legislative system with the ability to influence the protection and enhancement of biodiversity assets.
Current Responses	• The City makes decisions relating to areas of legislation under its control, including development applications, rezoning and preparation of Structure Plans. • The City also has input and can provide advice relating to other regulators for development, such as subdivision.
Potential Responses	• The City will provide consistent advice and consider development processes in line with legislation and this Strategy, where appropriate.

8.4 ADVOCACY AND PROVISION OF ADVICE

Local governments play a crucial role in advocating for biodiversity by directly managing public lands and indirectly influencing land management practices on private land. They achieve this through strategies such as the ALBS, supporting community initiatives, and advocating for improved biodiversity outcomes at the higher level.

The City provides advice to State government agencies regarding subdivision, development, and native vegetation clearing applications. The City can provide advice based on the information within this Strategy, which reflects the values of the Albany community.

The City also provides advice and input to State and Commonwealth organisations on development assessments. The main organisations include:

- Department of Planning, Lands and Heritage (*Planning and Development Act*).
- Environmental Protection Authority (Part IV of EP Act).
- Department of Water and Environmental Regulation (Part V of EP Act).
- Commonwealth Department of Climate Change, Environment, Energy, and Water (DCCEEW) (EPBC Act).

TABLE 26 shows potential impacts of advocacy gaps and potential responses.

TABLE 26: IMPACTS OF ADVOCACY

Impacts	• As a 'grassroots' level of government, the City can proactively advocate for biodiversity protection on behalf of its community. • Provision of advice relating to biodiversity protection and enhancement reflects the Albany community's desire for a more sustainable, resilient and biodiverse future.

Current Responses	• The City provides advice to DWER, DPLH and DCCEEW as required.
Potential Responses	• Based on the ALBS, the City can advocate and provide advice on biodiversity values in the municipality, which the community and Council have endorsed.

8.5 PARTNERSHIPS

One of the most productive actions the City can take is to foster partnerships with other organisations, education providers, community groups, and individuals. This approach enhances the capacity and leverage of existing programs. For instance, if there are workshops, fencing, and rehabilitation projects, the City will ask, 'How can the City provide value and support?'

The City can assess the needs of various organisations and establish partnerships with groups including (but not limited to):

- Wagyl Kaip and other traditional custodian groups;
- South Coast NRM;
- Gondwana Link;
- Bush Heritage Australia;
- The Nature Conservancy Australia;
- Greening Australia;
- Australian Conservation Foundation;
- Conservation Council of WA;
- Catchment and Landcare Groups such as Torbay and Oyster Harbour Catchment Groups;
- Indigenous custodians, including for shared land management;
- Recreational groups such as Friends of the Bibbulmun Track and Mundabiddi Trail, off road vehicle groups, mountain bike, cycling and walking groups;
- State government agencies such as Department of Water and Environmental Regulation, Department of Primary Industry and Regional Development, Department of Biodiversity, Conservation and Attractions;
- Western Australian Local Government Association;
- Utilities such as Western Power, Water Corporation and Main Roads WA; and
- Educational institutions and organisations (schools, technical and further education (TAFE), Universities, Centre for Excellence – Natural Resource Management).

TABLE 27 presents the potential impacts of partnerships and the potential responses.

TABLE 27: IMPACTS OF PARTNERSHIPS

Impacts	• By forming partnerships with the community and organisations, each contributing their unique strengths, biodiversity protection and enhancement will significantly increase through collaborative efforts to achieve tangible outcomes.
Current Responses	• Partnerships with bushcare groups: • Collaboration with organisations like South Coast NRM, Green Skills, and catchment groups.
Potential Responses	• Increase support for volunteers, Bushcare, and Friends groups. • Offer green waste rebates or tip passes to landowners removing weed species. • Provide vouchers for hiring a mulcher for weed management. • Identify potential partnerships with groups and organisations that have biodiversity goals.

8.6 FUNDING

The City will make resources available to seek funding to enhance biodiversity outcomes, such as:

- Dedicated resources within the City of Albany's Planning and Reserves Teams to effectively implement the ALBS on City-managed lands. Without adequate internal resourcing, delivery of on-ground actions will be significantly constrained
- Education and training of staff.
- Provision of staff to implement the ALBS.
- Support and coordination for research and citizen science projects.
- Offering grants for 'Biodiversity Assessment and Management Planning'.
- Developing a funding program for groups and landowners, e.g. Environmental Management Fund (EMF) Grants.
- Leveraging on the knowledge of the presence of threatened species for funding.
- Supporting landowners who actively manage valuable biodiversity assets by having rates waived or reduced.

TABLE 28 shows potential impacts of funding and potential responses.

TABLE 28: IMPACTS OF FUNDING

Impacts	• Seeking funding with partners can greatly enhance in-kind contributions and lead to adequate biodiversity protection and enhancement outcomes. • Providing seed funding to landowners and organisations for biodiversity projects is likely to yield outputs worth significantly more than the small amounts invested.
Current Responses	• Community organisation funding for various causes. • Support for groups through in-kind assistance.
Potential Responses	• Create an annual fund of $20,000 for up to five landowners who wish to assess the biodiversity values on their land and develop a management plan to reduce threatening processes or enhance biodiversity.

	• Investigate rate relief for landowners who demonstrate biodiversity stewardship (e.g. formally protect and enhance biodiversity values). • Fund citizen science events such as 'Bioblitz' in the City of Albany reserves.

8.7 COMMUNITY INVOLVEMENT, EDUCATION AND AWARENESS

The City is a grassroots organisation operating at the community level. It plays a key role in community education and raising awareness. To promote the importance of biodiversity, the City will:

- Support initiatives and businesses that promote sustainable development through awards, public recognition, and other forms of support.
- Raise awareness by supporting and funding biodiversity projects, especially citizen science, which will enhance knowledge and protection of biodiversity assets (e.g. Bioblitz).
- Collaborate with traditional custodians to manage and conserve biodiversity, including the dual management of Crown reserves alongside traditional custodians and rangers.
- Introduce incentives to safeguard biodiversity – e.g. rate reduction for biodiversity protection and management on private property.

TABLE 29 presents the potential impacts of community involvement and potential responses.

TABLE 29: IMPACTS OF COMMUNITY INVOLVEMENT

Impacts	• An engaged, informed, and involved community will support the City in its biodiversity efforts and provide assistance for projects. • Recognition and awareness will establish a high benchmark by rewarding biodiversity champions. • Involvement of traditional custodians will enhance biodiversity outcomes, preserve ancient knowledge, and provide a solid foundation for reconciliation.
Current Responses	• Involvement of volunteers in bushcare activities.
Potential Responses	• Introduce a process to recognise and reward businesses, organisations, and individuals who achieve biodiversity outcomes. • Support and conduct Bioblitz projects in the City of Albany reserves. • Involve traditional custodians in biodiversity projects and the management of reserves, including cultural practices (e.g. fire management). • Consider incentives, including rate reductions, for formal biodiversity protection and management on freehold land.

9 CONSTRAINTS

The City faces several hurdles in addressing biodiversity threats. These include:

- Limited resources for personnel and funding of biodiversity initiatives.
- Previous planning decisions, demand for cleared land and ongoing incremental land clearing, degradation and fragmentation.
- Competing objectives (e.g. growth of Albany population, fire risk regulations, approved development, minor clearing) and historical land use planning decisions.
- Gaps in knowledge include:
    - Impacts of climate change;
    - How to build resilience;
    - Threatened species on private land or unsurveyed areas;
    - Keys to adaptation and building resilience at the landscape scale; and
    - Values of non-native habitat (blue gum plantations, pines, weeds, drains).

9.1 LIMITED RESOURCES

The most constraining factor for protecting biodiversity is the lack of resources to address knowledge gaps, fund planning, and provide people and tools for on-the-ground work.

In biodiversity protection, much of the work is either voluntary, underpaid, or poorly recognised compared with more mainstream economic ventures. An adequate level of resourcing doesn't have to be expensive; it needs to be targeted and sustained based on the priorities in this Strategy.

TABLE 30 shows potential impacts of resourcing and potential responses.

TABLE 30: IMPACTS OF ADEQUATE RESOURCING

Impacts	• With proper resourcing, the Albany community will receive information regarding biodiversity outcomes for a relatively small amount of money.
Current Responses	• Resourcing for volunteers in biodiversity activities.
Potential Responses	• Resourcing for training of City of Albany Staff. • Raise awareness in the community of simple but effective ways to protect and enhance biodiversity. • Set aside funding in the annual budget for biodiversity projects and outcomes based on the priorities in the ALBS. • Seek funds for biodiversity-related projects in partnership with key stakeholders.

9.2 PREVIOUS PLANNING DECISIONS AND DEMAND FOR CLEARED LAND

Albany is experiencing significant population growth, with the latest Regional Movers Index report ranking Albany as one of the top cities in Australia for capital city to regional area migration[27].

According to the report[28]Albany had the third-highest share of net internal migration in Western Australia at 10.8%, but experienced the second-highest growth in net capital-regional migration nationally, as more people choose to call our idyllic coastal city home. This reflected a remarkable more than five-fold annual growth rate, or a 465% increase in net capital-regional migration to Albany over the 12 months preceding June 2024. Albany experienced a 15.8% rise in capital-regional migration for the June 2024 quarter alone.

Albany's positive increase in internal migration is driven by a combination of factors, including its mild climate, coastal lifestyle, steady job market, and growing remote-work opportunities.

Although planning decisions have already been made for areas that will become urbanised in the coming years, there are still opportunities to retain and enhance biodiversity through planning and development. For example, older structure plans will expire in 2025, allowing for review and consideration of biodiversity values.

TABLE 30 shows the potential impacts of planning decisions and potential responses.

TABLE 31: IMPACTS OF PLANNING DECISIONS

Impacts	• While some bushland areas have been earmarked for development, there are others to which the planning process can consider the protection and enhancement of biodiversity features.
Current Responses	• Assessment of development proposals by the City of Albany and input into the planning and environmental processes run by other regulators.
Potential Responses	• Use information generated in this Strategy to assist in decision-making related to planning and development applications within the City's processes and provide advice to other regulators, as appropriate.

9.3 KNOWLEDGE GAPS

Increasing community knowledge and awareness of local biodiversity is essential to improving sustainable behaviours and attitudes towards the natural environment. An informed community fosters a more receptive, sustainable, and engaged society.

This is crucial because many environmental issues require action by individuals and groups to be effectively addressed. The City also has gaps in its knowledge of the LNA it manages and of how best to manage biodiversity interactions.

[27] Albany's population swells with internal migration *Published on Monday, 16 September 2024 at 11:14:15 AM* https://www.albany.wa.gov.au/news/albanys-population-swells-with-internal-migration/1233
[28] Regional Movers Index June 2024 https://regionalaustralia.org.au/common/Uploaded%20files/Files/2024/Regional%20Movers%20Index/RMI%20June%2024%20Report.pdf

The City plays an essential role in promoting environmental awareness, engaging people in biodiversity conservation, and raising awareness across all age groups and segments of the community (including residents, businesses, and educational facilities).

Gaps in knowledge include:

1. Effective ways to enhance biodiversity.
2. Relationships between species.
3. Impacts of combinations of threats.
4. Out-of-date or incomplete data relating to biodiversity.

TABLE 32 presents the potential impacts of knowledge gaps and the potential responses.

TABLE 32: IMPACTS OF KNOWLEDGE GAPS

Impacts	• Gaps in knowledge can prevent practical actions and management.
Current Responses	• Advice from technical experts.
Potential Responses	• Strengthen partnerships to increase knowledge. • Implement the precautionary principle. • Do not delay positive actions in the absence of concrete knowledge. • Increase knowledge by hosting Bioblitz and other citizen science initiatives. • Highlight and celebrate community champions and biodiversity initiatives.

10 RANKING AREAS OF BIODIVERSITY

10.1 PRIORITY LOCAL NATURAL AREAS

The Albany Local Biodiversity Strategy (ALBS) is a local planning policy, developed following the Local Government Biodiversity Planning Guidelines (Del Marco *et. al.* 2004[29]) designed to identify and prioritise LNA for conservation. ALBS meets the requirements of a Local Bushland Protection Strategy, as referred to in State Planning Policy 2.8 (Government of Western Australia 2010[30]).

Community consultation indicates that all LNAs are considered essential and should be preserved or enhanced. However, it is helpful to identify which areas are most valuable to apply the highest levels of protection or to invest resources in management.

The ecological criteria categories used to rank biodiversity values by the State Government of Western Australia include:

- Areas of recognised international, national or regional values, which could include areas of scientific or evolutionary importance.
- Representation of ecological communities, including vegetation unique to the Local Government area.
- Diversity – priority species and communities.
- Rarity – threatened species and ecological communities.
- Maintenance of ecological processes or natural systems (connectivity), noting that stepping stones are also important.
- Protection of wetlands, streamlines, estuarine and coastal vegetation.

TYPES OF LOCAL NATURAL AREAS

Protected LNA are natural areas within the City that are considered to have a level of biodiversity protection and include:

- Natural areas occurring on Crown land vested with the State Government, managed for conservation and/or reserved as Environmental Conservation;
- Natural areas occurring on Crown land vested with the City and managed for the purpose of conservation; and
- Private land over which a conservation covenant is applied.

Partially protected LNA refer to all natural areas that exist outside of the areas defined above. Partially protected natural areas are considered partially protected because they are subject to clearing or land-use controls, even if the City does not directly regulate them.

Some land use planning and environmental assessment processes are conducted under:

[29] Del Marco *et. al.* (2004) Local Government Biodiversity Planning Guidelines. https://www.albany.wa.gov.au/Profiles/albany/Assets/ClientData/WALGA_LBP_Overview2023.pdf
[30] Government of Western Australia (2010). State Planning Policy 2.8 State Planning Policy 2.8. https://www.wa.gov.au/system/files/2021-06/SPP_2-8_bushland_policy_perth_metro.pdf

- Parts IV and V of the *Environmental Protection Act 1986* (EP Act);
- *Biodiversity Conservation Act 2016* (BC Act); and
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The City has opportunities to advocate for an increase in the protection level in this category through planning and environmental process decisions.

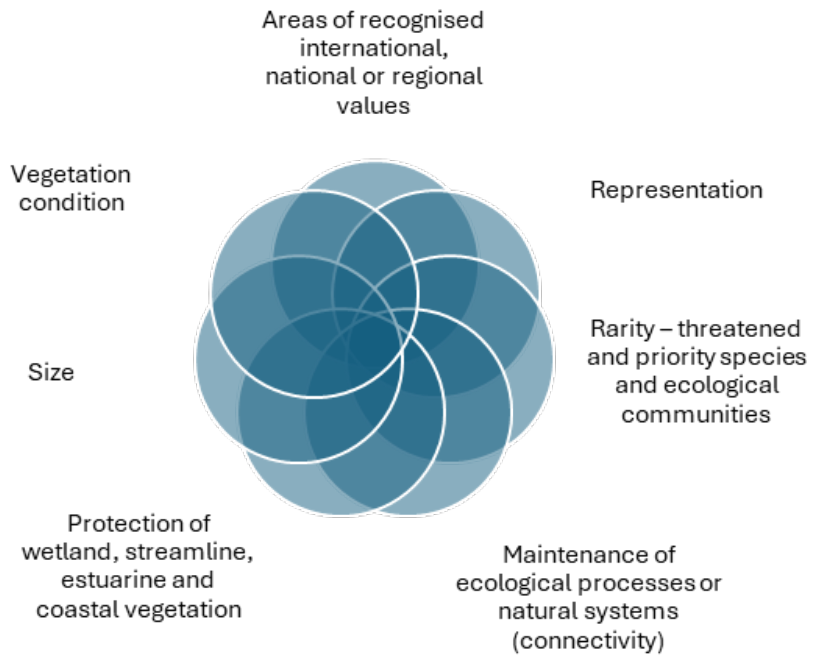
Poorly protected LNA areas are areas where planning decisions indicate they will be cleared for development, or where processes threaten them without abatement.

10.2 CONSERVATION SIGNIFICANCE CRITERIA

Background

The ALBS project is fortunate to have spatial data available to assist in identifying and ranking features, such as native vegetation, watercourses, wetlands, and locations of Threatened and Priority species and communities. These data align with the ecological criteria categories used by the State Government of Western Australia to rank biodiversity values. Figure 11 shows the types of biodiversity criteria.

FIGURE 11: BIODIVERSITY CRITERIA



During the stakeholder engagement process (Workshop 1[31]), LNA were defined as:

> ***"areas with value to natural systems across all land tenures, including non-vegetated areas with value for ecosystem processes."***

Attendees with technical knowledge of biodiversity parameters were asked how they would weigh the criteria for biodiversity ranking and planning. The results are shown in TABLE 32. Connectivity and

[31] Held with key stakeholders on 29 August 2024.

physical features (e.g., waterways) were the most significant, followed by rarity, vegetation condition, international or other significant status, vegetation type representation, presence of threats, and patch size.

At Workshop 2[32] Stakeholders were asked whether the weighted criteria would be a valuable tool for ranking biodiversity areas. Attendees asked whether the City could create an example tool for testing. A tool was developed and was received favourably by the stakeholders who tested it. The tool will be available on the City of Albany website.

TABLE 33: RANKING OF BIODIVERSITY SIGNIFICANCE CRITERIA – STAKEHOLDER WEIGHTING

RANKING	CRITERIA PRIORITIES	WEIGHTING	IMPORTANT BECAUSE
1	Connectivity - Maintenance of ecological processes	40	Movement through the landscape, permeability - not just connectivity, i.e. hydrological process, renewal regimes, stepping-stones, linear, flowering, life cycles, species dispersal methods, nature link
2	Presence of wetlands, streamlines and estuarine vegetation	20	Closely linked with connectivity
3	Rarity (threatened and priority species)	10 - 15	Threatened and priority flora, fauna and communities are rare or not well understood.
4	Vegetation condition (could not be used as data is not available for the entire municipality)	10	Good return on effort made. It is easier and less expensive to maintain vegetation in good condition than to improve a degraded habitat. Development approval state – The City can implement more localised assistance (e.g. protection of habitat trees). Weeds (e.g. wattles). Regenerate and restore
5	Areas of recognised international, national or regional value	35	Links to social criteria Migratory shorebirds
6	Representation	3 - 5	Need at least 30% of each vegetation type to have a comprehensive and representative array of biodiversity – Best if it can be protected and managed.
7	Threats	4	Incomplete data for the municipality.
8	Size of patch	1 - 5	Large size is good, but smaller areas can also be significant. Score: 20 ha – 5, 10 – 20 ha – 4, 4 – 10 ha – 3, 1 – 4 ha -2, less than 1 ha - 1

[32] Held with key stakeholders on 10 December 2024

10.3 METHODOLOGY

The LNAs within the City have been ranked using multi-criteria spatial analysis based on a set of weighted ecological criteria (TABLE 32). These ecological criteria were derived from the *Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region* (Del Marco et al., 2004[33]) and incorporate biodiversity considerations including connectivity, presence of wetlands and water courses, rarity, representation, areas of recognised international, national or state significance and size.

Through a series of workshops with key stakeholders, biodiversity criteria were discussed and assigned weightings based on their importance in biodiversity conservation and protection. Weightings are shown in TABLE 32.

Statistical analyses were performed by the City of Albany using ArcGIS Pro 3.3.0, where input source data (primarily spatial) was combined and processed in ArcGIS models to generate maps and tabulated results. The analysis created scores for all patches of native vegetation (LNA) mapped within the City.

Data output has been collated in a mapping tool (see Section 10.5), which was tested by DBCA, DPLH, South Coast Natural Resource Management Inc., and City of Albany staff to assess whether the predicted biodiversity values matched the rankings. There was agreement that, given the relatively limited data, the outputs adequately reflected biodiversity values in the various LNAs.

Analysis to identify and rank areas of biodiversity has relied on digital data provided by WALGA and the State government (including the DBCA). A list of the data is available in Appendix J.

The LNA mapping represents a snapshot in time and should be used alongside on-the-ground assessments of biodiversity values. Some areas with low ranking scores may receive this ranking due to limited survey effort rather than a lack of biodiversity values.

10.4 RESULTS

The results of the analysis include:

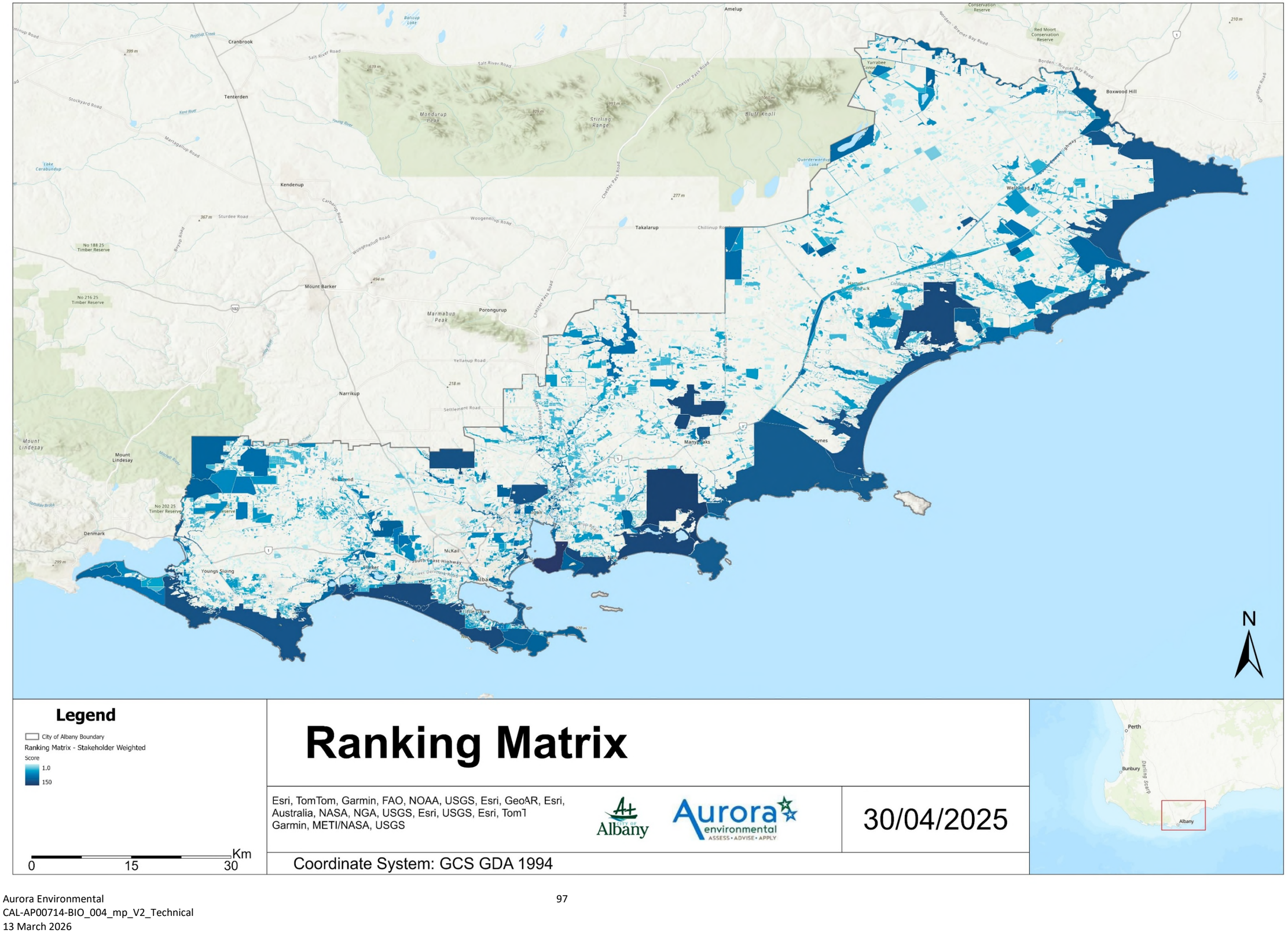
- The City of Albany area is 430,807 ha;
- Native vegetation remaining (Pre-European): 154,022 ha or 35.8% of the original extent; and
- Areas protected with the purpose of 'Conservation' (reserve status): 77,541 ha, 18% of the original extent, 50.3% of the remaining vegetation.

MAP *9* shows the output of the ranking matrix. The top 100 ranking biodiversity areas are shown in **MAP *10*** and described in TABLE 33.

The priority areas identified in ARVS2 (**MAP *10*** and Appendix K) are important for biodiversity protection, and many overlap with the top 100 ALBS areas. While LNA have been defined broadly to be 'areas with value to natural systems across all land tenures, including non-vegetated areas with value for ecosystem processes'—the mapping and ranking have been applied only to vegetated areas. This means a significant portion of the urban landscape is excluded from the ranking and may be overlooked in biodiversity actions. This aspect will require attention during implementation.

[33] Del Marco *et. al.* (2004) Local Government Biodiversity Planning Guidelines. https://www.albany.wa.gov.au/Profiles/albany/Assets/ClientData/WALGA_LBP_Overview2023.pdf

MAP 9: RANKING OF LOCAL NATURAL AREAS



Legend

City of Albany Boundary

Ranking Matrix - Stakeholder Weighted Score

1.0

150

0 15 30 Km

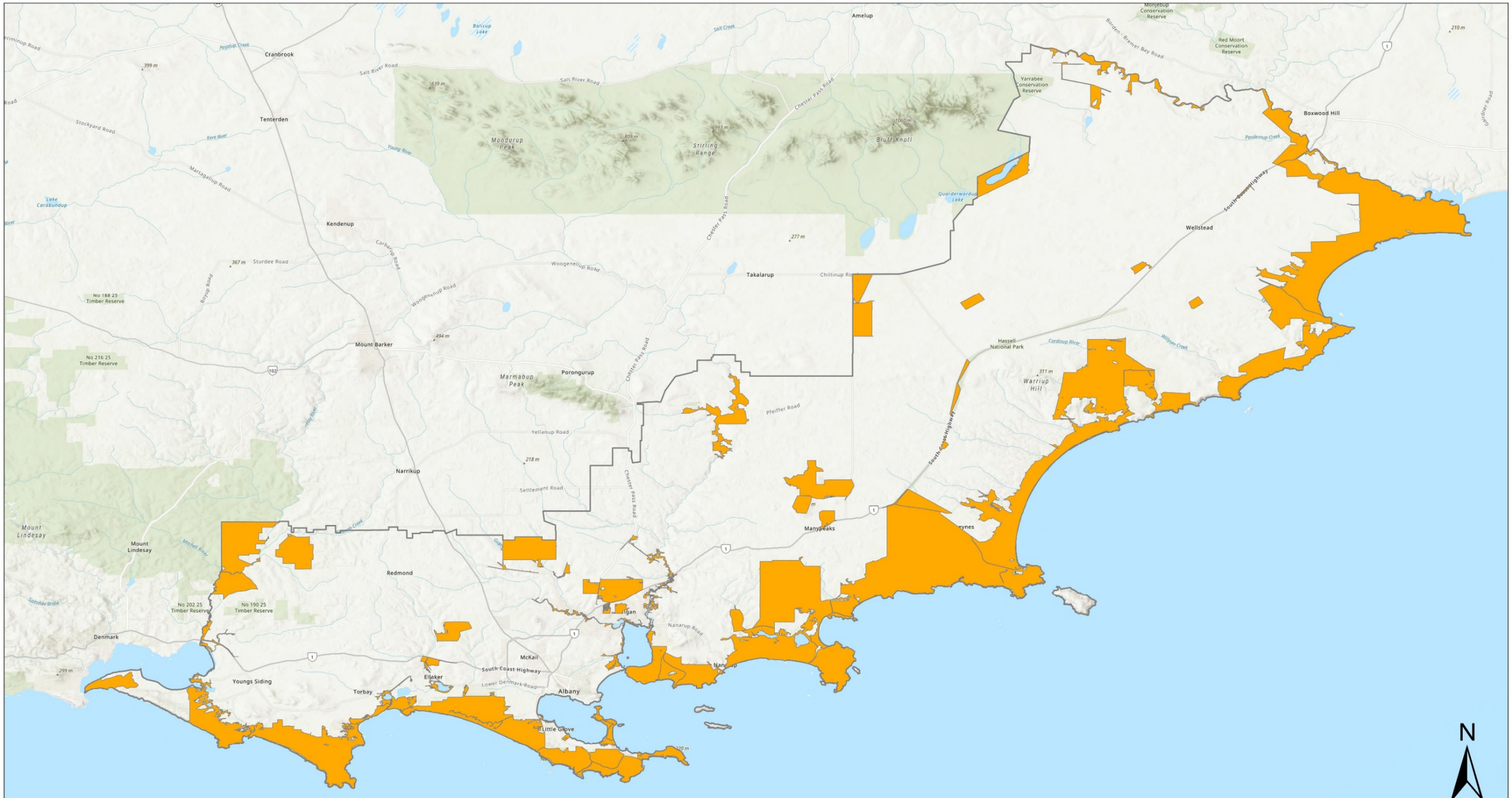
Ranking Matrix

Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, GeoAR, Esri, Australia, NASA, NGA, USGS, Esri, USGS, Esri, TomT Garmin, METI/NASA, USGS

30/04/2025

Coordinate System: GCS GDA 1994

MAP 10: TOP 100 RANKED LOCAL NATURAL AREAS



Legend

- City of Albany Boundary
- Top 100 Ranked Local Natural Areas

0 15 30 Km

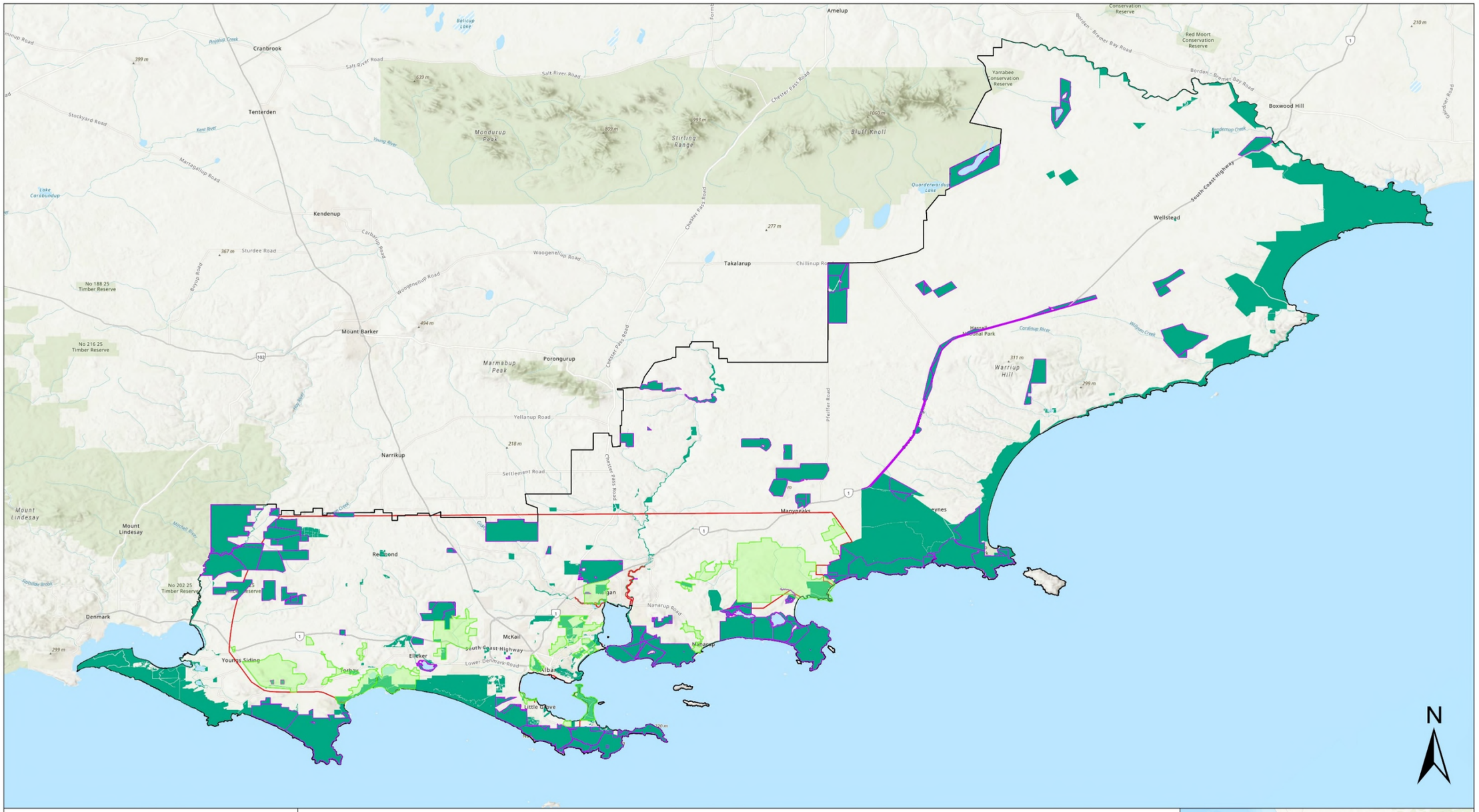
Top 100 Local Natural Areas

Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, Geoscience Australia, NASA, NGA, USGS, Esri, USGS, Esri, TomTom, Garmin, METI/NASA, USGS

30/04/2025

Coordinate System: GCS GDA 1994

MAP 11: ARVS2 PRIORITY AREAS



Legend

- ARVS Survey Area
- City of Albany Boundary
- DBCA Legislated Lands and Waters
- Environmental Conservation - LPS2
- ARVS2 Priority Local Natural Areas

0 15 30 Km

ARVS2 Priority Local Natural Areas

Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, GeoAR, Esri, Australia, NASA, NGA, USGS, Esri, USGS, Esri, TomTom, Garmin, METI/NASA, USGS

13/05/2025

Coordinate System: GCS GDA 1994

TABLE 34: TOP 100 RANKING BIODIVERSITY AREAS

RANK	SCORE	NAME	TENURE/OWNERSHIP	ZONE	PURPOSE
1, 9 and 44	100 - 154	Gull Rock National Park (including Mount Martin) and Voyagers Park (Reserves 16688, 27107, 21792) and City of Albany Reserve 44938	Conservation Commission/ DBCA	Environmental Conservation	National Park, Trigonometrical Station, Recreation, Gravel
2, 3, 10 and 26	121 - 136	Two Peoples Bay Nature Reserve (Reserve 27956), Angove Water Reserve (13802), City of Albany Reserve 2031 and bushland on adjacent freehold land	Conservation Commission/ DBCA, City of Albany and private landowners	Environmental Conservation	Water Supply Catchment Area, Conservation of Fauna, Parkland and Recreation
4	126	Tinkelup Nature Reserve Reserves 26234 and 9406 and bushland on adjacent freehold land, Green Range	Conservation Commission/ DBCA and private landowners	Environmental Conservation and Rural	Conservation of Flora and Fauna, Trigonometrical Station
5 and 7	126	South Sister Nature Reserve (27139), North Sister Nature Reserve (26385), Lake Pleasant View Nature Reserve (36550) and bushland on adjacent freehold land, Palmdale and Manypeaks	Conservation Commission/ DBCA	Environmental Conservation and Rural	Conservation of Flora and Fauna
6, 8, 21 and 40	101 - 126	Torndirrup National Park (Reserve 24258), Rifle Range (Reserve 23524), Sand Patch (Reserve 13773), Water Corporation Reserve (Reserve 22735), Prison (Reserve 26117), Trig (Reserve 11966), Sand Patch and Muttonbird Reserve 1656), Trig (Reserve 11967) and bushland on adjacent freehold land	Conservation Commission/ DBCA and private landowners	Environmental Conservation, Recreational, Rural Small Holdings, Priority Agriculture, Infrastructure Services, Rural, Strategic Infrastructure, Road	National Park and Recreation, Rifle Range, Water, Prison and Telecommunications, Trigonometrical Station
11	121	Sandpatch Reserves 20367, 42256, 20367, 4732, 13773, 1656 and bushland on adjacent freehold land	City of Albany and private landowners	Environmental Conservation, Drainage/waterway, Priority Agriculture	Common for use of Settlers, Recreation and Drainage, Parklands and Recreation, Conservation, Recreation and Water, Defence
12	120	Reserve 931 and Chinjannup Reserve (27052), Big Grove	City of Albany	Environmental Conservation, Public Purposes, Residential and Recreational	Government Requirements, Recreation
13	119	Mill Brook Nature Reserve (18739) and bushland on adjacent freehold land	Conservation Commission/ DBCA and private landowners	Environmental Conservation and Priority Agriculture	Conservation of Flora and Fauna
14 and 16	116 - 119	West Cape Howe National Park (Reserve 17464), Wilson Inlet and Nullaki foreshore (Reserve 30883), Water Corporation Drainage (Reserve 42784), Lake Saide and Lowlands (Reserve 17464), Browns Road (Reserve 49829), Drain (Reserve 42785) and bushland on adjacent freehold land, Lowlands, Nullaki and Youngs Siding	Conservation Commission/ DBCA, City of Albany, Water Corporation and private landowners	Environmental Conservation, Rural, Drainage/ Waterway, Priority Agriculture	Foreshore Management and Recreation, Drainage, Recreation and Landscape Protection
15 and 54	98 - 116	Bakers Junction Nature Reserve (30463) and bushland on adjacent freehold land	Conservation Commission/ DBCA and private landowners	Environmental Conservation, Priority Agriculture, Rural, and Infrastructure Services	Conservation of Flora and Fauna
17	116	Cheyne Road Nature Reserve (27157), Mullocullop Nature Reserve (16367), Waychinicup National Park (Reserve 27502), Hassell Beach (Reserve 30033), Waychinicup River Catchment Area (29883) and bushland on adjacent freehold land	Conservation Commission/ DBCA, City of Albany and private landowners	Environmental Conservation, Rural, Road and Recreation	Waychinicup River Catchment Area, Conservation of Flora and Fauna, Water, Camping and Conservation, National Park, Government Requirements, Mining
18	115	The Wesley Maley Reserve (38157) and Yakamia Creek (Reserves 15879and 6862) Lot 1457 Emu Point Drive and UCL Lot 1328 Collingwood Road, Emu Point and Collingwood Park	City of Albany, DPLH and private landowners	Environmental Conservation, Rural, Public Purposes, Road	Recreation and Parklands, Recreation
19	114	Reserves 11972, 22353, 31240, 33257, 1010, 14987, 14943, 22353, 31240 Wellstead, including Boat Harbour and Cape Riche and bushland on adjacent freehold land	City of Albany, DPLH, Private landowners	Environmental Conservation, Rural, Priority Agriculture, Rural Residential, Public Purposes, Primary Distributor Road	Recreation and Camping, Government Requirements, Parklands and Recreation, Trigonometrical Station
20	113	Pallinup River and Surrounds (Reserves 22353, 43087, 33257) Wellstead	City of Albany, Main Roads	Environmental Conservation, Rural, Primary Distributor Road	Landscape Protection, Parklands and Recreation, Recreation and Camping
22	111	Vegetation on Lot 6833 South Coast Highway, Mettler	Privately owned	Rural	N/A
23	111	Reserves 45850, 31240, 14943, Mettler and Wellstead and bushland on adjacent freehold land	City of Albany and private landowners	Rural, Infrastructure Services and Environmental Conservation	Parkland, Government Requirements, Parklands and Recreation, Trigonometrical Station
24	110	Lake Pleasant View Nature Reserve (15107) and bushland on adjacent freehold land	Conservation Commission/ DBCA and private landowners	Environmental Conservation, Heritage, Rural Townsite and Rural	Water and Conservation of Flora
25	110	Naaranyirrup/ Lake Vancouver (Reserve 48916) Reserves 11964, 28111 and 25295 Vancouver Peninsula, Goode Beach and Big Grove and bushland on adjacent freehold land	City of Albany and private landowners	Environmental Conservation, Special Use, Residential, Rural Residential, Recreational, Infrastructure Services	Recreation, Public Recreation, Trigonometrical Station
27, 82 and 84	90 - 109	Waychinicup National Park (Reserves 27502, 25865, 11971), Cheyne Road Nature Reserve (27157), Mount Many Peaks Nature Reserve (29883), Hassell National Park (Reserve 26650), City of Albany Reserves 2031 and 41252 and bushland on adjacent freehold land	Conservation Commission/ DBCA, City of Albany and private land owners	Environmental Conservation, Rural, Special Use and Roads	National Park, Recreation, Parkland and Recreation
28	108	Reserve 931 Little Grove and Big Grove and the surrounding freehold land	DPLH	Environmental Conservation, Residential and Public Purposes	Government Requirements
29	108	Mount Lindsay National Park (Reserve 23579) and surrounding freehold land, Youngs Siding and Redmond West	Conservation Commission/ DBCA and private land owners	Environmental Conservation, Drainage/ Waterway, Priority Agriculture and Rural	Camping and Recreation
30	106	Cheyne Road Nature Reserve (27157), Hassell National Park (26650), Waychinicup River Catchment Area (Reserve 29883), bushland on adjacent freehold land, Cheynes and Green Range	Conservation Commission/ DBCA and private land owners	Environmental Conservation, Rural and Roads	Waychinicup River Catchment Area, Conservation of Flora and Fauna, National Park
31	106	Crown and freehold land (Lots 3835 and 3836 Warriup Road, Lots 3, 24 and Wilwarri Road, Lots 6472 Venns Road) Green Range and Mettler	Private land owners	Environmental Conservation and Rural	N/A

RANK	SCORE	NAME	TENURE/OWNERSHIP	ZONE	PURPOSE
32	106	Torndirrup National Park (Reserves 11967 and 21337) and bushland on adjacent freehold land, Frenchman Bay	Conservation Commission/ DBCA and private land owners	Environmental Conservation, Recreational, Roads, Infrastructure Services, Rural	Trigonometrical Station, Recreation Pleasure Resort and Caravan Park
33	105	Mettler Lake Nature Reserve (26894)	Conservation Commission/ DBCA	Environmental Conservation	Conservation of Flora and Fauna
34	104	Reserves 33257 and 28687 Gnowellen	DPLH and Conservation Commission/ DBCA	Environmental Conservation and Rural	Parklands and Recreation, Conservation of Flora and Fauna
35	104	West Cape Howe National Park 231 and 275 Tennessee South Road, Lowlands	Conservation Commission/ DBCA	Environmental Conservation and Priority Agriculture	National Park
36	102	West Cape Howe National Park Reserve 26177 on Shepherds Lagoon Road and Malima roads, Bornholm and Kronkup	Conservation Commission/ DBCA	Environmental Conservation, Rural, Rural Residential and Priority Agriculture	National park
37	101	Freehold (Lot 500 Norwood Road) and Crown Land (567 Lower King Road), Norwood and Lower King roads, Foreshore to King River, Lower King	Private land owners	Environmental Conservation, Rural, Residential, Neighbourhood Centre	N/A
38	101	Hassell National Park (Reserve 26650), Green Range	Conservation Commission/ DBCA	Environmental Conservation, Road	National Park
39	101	Reserves 20948 and 16969 in the Drome and Railway Reserve in Redmond	Conservation Commission/ DBCA and Public Transport Authority	Environmental Conservation, Railways	Conservation of Flora and Fauna, Great Southern Railway
41	101	Cozy Corner (Reserve 37086), Kronkup and bushland on adjacent freehold land	City of Albany and private landowners	Environmental Conservation, Rural, Rural Residential	Recreation and Bushland Management
42	100	Reserves 37696, 16871, Mead and Nanarup Roads and surrounding vegetation on freehold land, Kalgan	City of Albany, Lower Kalgan Progress Association and private landowners	Environmental Conservation, Rural Residential, Recreational, Rural, Tourism	Public Recreation, Recreation
43	100	Reserve 23579 and 47891 Mount Lindsay National Park and bushland on adjacent freehold land, Youngs Siding and Redmond West	Conservation Commission/ DBCA and private landowners	Environmental Conservation, Priority Agriculture, Rural	Camping and Recreation, National Park
45	100	Reserve 18739 and bushland on adjacent freehold land	Conservation Commission/DBCA and private land owners	Environmental Conservation and Priority Agriculture	Conservation of Flora and Fauna
46	100	Reserve 23923 Chester Pass and Yungup roads and vegetation on adjacent freehold land, Green Valley, Millbrook and Napier	Conservation Commission/ DBCA and private land owners	Environmental Conservation and Priority Agriculture	Conservation of Flora and Fauna
48	100	Wesley Maley Reserve 38157, 44232, 30971, 45052 and vegetation on adjacent freehold land, Bayonet Head and Collingwood Heights	City of Albany and private landowners	Environmental Conservation, Residential, Rural, Infrastructure Services, Public Purposes, Urban Development, Rural, Public Open Space, Drainage/ Waterway	Recreation and Parklands, Foreshore Management, Public Recreation
49	100	Reserves 45837, 32177, 50652 and vegetation on adjacent freehold land, Kalgan Townsite	City of Albany and private landowners	Environmental Conservation, Roads, Rural, Rural Townsite,	Recreation and Foreshore Protection, Parklands, Public Recreation
50	100	Mount Lindsay National Park, Reserves 47891 and bushland on adjacent freehold land, Redmond West	Conservation Commission/ DBCA and private land owners	Environmental Conservation, Rural, Rural Townsite, Roads, Priority Agriculture	National Park, Camping and Recreation
51	100	Reserve 35381 Simpson Road and adjacent freehold land, Napier	City of Albany and private landowners	Environmental Conservation, Road, Priority Agriculture	Recreation
52 and 53	99	Reserve 33520, 33521, 26264, 5976 and bushland on adjacent freehold land, Gnowellen	Conservation Commission/ DBCA, City of Albany and private landowners	Environmental Conservation, Rural, Drainage/ waterway	Conservation of Flora and Fauna, Recreation and Parklands Water
55, 74 and 84	90 - 98	Reserves 34934 and 18779, Prideaux and Bon Accord Road, Kalgan. Reserve 28686 Riverview Golf Club, Reserve 30469 Bon Accord Nature Reserve, King River	City of Albany and lease to Riverview Golf Club	Environmental Conservation, Rural, Road, Recreational	Parklands, Recreation
56	98	Reserve 16871, Nanarup Road, Kalgan and bushland on adjacent freehold land	Lower Kalgan Progress Association	Environmental Conservation, Tourism, Recreational, Rural Residential	Recreation
57	98	Vegetation on 51064 South Coast Highway, Riparian vegetation on 51172 South Coast Highway, Lot 12 Belmore Road, South Coast Highway and Belmore Road, Youngs Siding	Private land owners	Rural, Drainage/ Waterway, Road	N/A
58	96	Reserves 24991 and 13802 Angove Water Reserve Two Peoples Bay Road and Dempster Road, Kalgan	Conservation Commission/ DBCA, Minister for Water Resources	Environmental Conservation, Priority Agriculture and Infrastructure Services	Water and National Park, Water Supply and Catchment Area
59	96	Reserve 16969 (Railway), Reserve 801 and bushland on adjacent freehold land, Elleker, Redmond and Marbelup	City of Albany, Public Transport Authority and private land owners	Environmental Conservation, Railways, Priority Agriculture, Road	Parklands and Recreation, Great Southern Railway
60	96	Reserve 33520, UCL (Pallinup River) and bushland on adjacent freehold land (no road access)	City of Albany, DPLH and private landowners	Environmental Conservation, Rural	Recreation and Parklands
61	96	Reserve 31240 and 45545 Green Range and Mettler	City of Albany and private landowners	Environmental Conservation, Rural	Public Recreation, Government Requirements
62	96	Reserve 14943, 1010, 31240, Cape Riche and bushland on adjacent freehold land	City of Albany, DPLH and private landowners	Environmental Conservation, Rural, Rural Residential, Public Purposes	Parklands and Recreation, Recreation and Camping, Government Requirements
63	96	Reserve 17464, 46320 and 30883 and bushland on adjacent freehold land, Nullaki	City of Albany	Environmental Conservation	Recreation and Landscape Protection, Foreshore Management and Recreation
64	96	Reserve 43568, 30791 and 54243 on the Kalgan River and bushland on adjacent freehold land, Kalgan	Conservation Commission/ DBCA, City of Albany and private landowners	Environmental Conservation, Rural	Public Recreation, Conservation of Flora and Fauna, Recreation and Foreshore Protection
65, 66 and 76	91 - 96	Reserves 2217 (Muttonbird Beach), 24548 and 24514 (Torbay Inlet), 25556 (adj Torbay Drain), 42256 (Lake Powell) and vegetation on adjacent freehold land, Kronkup, Elleker and Torbay	Water Corporation, City of Albany and private landowners	Environmental Conservation, Drainage/ Waterway, Priority Agriculture, Road	Camping and Public Utility, Drain, Recreation and Drainage, Camping and Recreation
67	95	Reserve 2031 (Betty's Beach), Manypeaks	City of Albany	Environmental Conservation and Rural	Parkland and Recreation
68	94	54 and 174 Yungemere Road and 1744 Kuch Road, Gnowellen	Private land owners	Environmental Conservation and Rural	N/A

RANK	SCORE	NAME	TENURE/OWNERSHIP	ZONE	PURPOSE
69	94	Reserve 25551 Shoal Bay and Bay View Drive and bushland on adjacent freehold land, Torndirrup and Little Grove	City of Albany and private landowners	Environmental Conservation and Residential	Recreation
70	94	Reserves 14792 Stirling Range National Park and bushland on adjacent freehold land, Kojaneerup South and Gnowellen	Conservation Commission/ DBCA and private landowners	Environmental Conservation and Rural	National park
71	94	Foreshore - Rushy Point Reserves 35754, 37867 and 32597 and bushland on adjacent freehold land, Little Grove	City of Albany and private landowners	Environmental Conservation and Residential	Recreation, Public Recreation
72	92	905 Homestead Road, Manypeaks	Private land owners	Rural	N/A
73	91	Reserves 24891 (Marbelup Nature Reserve) and 16969 (Railway) and bushland on adjacent freehold land, Marbellup, Elleker and Redmond	Conservation Commission/ DBCA, Great Southern Railway and private landowners	Environmental Conservation, Priority Agriculture, Road, Railways	Conservation of Flora and Fauna, Great Southern Railway
75	91	Reserves 49649, 37651, 48747, 37368, 6909, 47950, 43573, 6869, 48747 King River Foreshore and bushland on adjacent freehold land, Wilyung, King River, Millbrook	City of Albany and private landowners	Environmental Conservation, Drainage/ Waterway, Residential, Rural Residential, Recreational, Public Purposes, Tourism, Civic and Community, Road,	Foreshore Management, Public Recreation, Recreation, Pedestrian Accessway,
77	91	Reserve 26688 South Stirling Nature Reserve	Conservation Commission/DBCA	Environmental Conservation, Rural	Conservation of Flora and Fauna
78	91	Kalgan Foreshore Reserves 45837, 22720, 22720, 52012 and bushland on adjacent freehold land	City of Albany and private landowners	Environmental Conservation, Rural Townsite, Rural, Public Purposes	Recreation and Foreshore Protection, Recreation, Pedestrian Accessway
79	91	Reserve 32597 Marine Terrace, Little Grove	City of Albany	Environmental Conservation	Public Recreation
80	90	Foreshore of Kalgan and King Rivers, Reserves 50506, 28277, 9888 and bushland on adjacent freehold land, Lower King and Kalgan	City of Albany and private landowners	Environmental Conservation, Residential, Rural Residential, Road, Tourism, Education,	Foreshore Management, Protection of Aboriginal Culture, Recreation
81	90	Oyster Harbour Foreshore, Reserves 39238 and 49826 and bushland on adjacent freehold land, Kalgan	City of Albany and private landowners	Environmental Conservation, Rural Residential, Public Purposes, Rural	Public Recreation, Pedestrian Accessway
86	90	Reserve 27679 Mount Lindsay National Park and the bushland on adjacent freehold land	Conservation Commission/ DBCA, City of Albany and private landowners	Environmental Conservation, Special Purpose, Priority Agriculture	Camping and recreation, gravel
87	90	Kalgan River Foreshore and Townsite Reserves 15658 and 48746, and bushland on adjacent freehold land, Kalgan	City of Albany and private land owners	Environmental Conservation, Rural Townsite, Priority Agriculture, Road	Recreation and Public Recreation
88	89	King River Foreshore, Reserve 33415 and v bushland on adjacent freehold land, Lower King	City of Albany and private land owners	Environmental Conservation and Residential	Foreshore Management
89	89	King River Foreshore, Reserves 47951, 12680, 47951, 12680, 24561 and bushland on adjacent freehold land, King River and Lower King	City of Albany and private land owners	Environmental Conservation, Drainage/ Waterway, Recreational, Rural, Residential	Foreshore Management, Camping, Drainage
90	89	Reserve 45052 and 48199 and bushland on adjacent freehold land, Bayonet Head and Lower King	City of Albany and private land owners	Environmental Conservation, Residential, Urban Development, Rural, Public Open Space, Car Park	Public Recreation, Boat Ramp and Parking
91	89	Reserve 54725 (Wilson Inlet Foreshore) Bushland on adjacent freehold land: 51253, 51269 and 51331 South Coast Highway, Youngs Siding (Adjacent to Wilson Inlet)	DPLH and Private land owners	Environmental Conservation and Rural	N/A
92	88	567 Lower King Road, Lower King (freehold land forming foreshore to King River)	Private land owners	Environmental Conservation	N/A
93	88	Riggs Road and Kalgan River Foreshore - Reserves 23194, 40100 and bushland on adjacent freehold land, Napier and Palmdale	Conservation Commission/ DBCA, City of Albany and private landowners	Environmental Conservation, Priority Agriculture, Drainage/ Waterway,	Gravel, Parklands, Conservation of Flora and Fauna
94	88	56, 42 and 90 East Bank Road, Kalgan (freehold land)	Private land owners	Rural	N/A
95	88	Kalgan Townsite, Reserve 13909 and 14910 and bushland on adjacent freehold land, Kalgan	City of Albany, Kalgan Settlers Association and private land owners	Environmental Conservation, Rural Townsite, Rural	Recreation and Church Site
96	87	830 Chester Pass Road and 64 Bon Accord Road, King River (freehold land)	Private land owners	Environmental Conservation, Rural	N/A
97	87	King River Foreshore, Reserve 43573, Wilyung	City of Albany	Environmental Conservation, Tourism and Road	Public Recreation
99	87	Kalgan River Foreshore Reserve 45837, 30791 and 54243 Kalgan	Conservation Commission/ DBCA, City of Albany	Environmental Conservation, Rural Townsite, Rural	Recreation and Foreshore Protection, Conservation of Flora and Fauna
100	87	Oyster Harbour Foreshore, Reserve 39238, Kalgan	City of Albany	Environmental Conservation, Rural Residential, Rural	Public Recreation

10.5 MAPPING TOOL

A mapping tool has been created and will be hosted on the City of Albany website at: https://www.albany.wa.gov.au/ALBSmappingtool

Data included in the mapping tool:

- ARVS Survey Area;
- City of Albany Boundary;
- LPS2 Urvan Development Zone;
- Local Planning Strategy – Urban Growth Zone;
- Non-DBCA Crown Reserves with a Conservation Purpose;
- DBCA Legislated Lands and Waters;
- LPS2 Environmental Conservation Zones and Reserves;
- Ranking Matrix – Stakeholder Weighting;
- P1.1 Within Zone A and B of Macro Corridor;
- P2.1 Within 50 m of a South Coast Significant Wetland;
- P2.2 Within 50 m of a 'Directory of Important Wetlands' wetland;
- P2.3 Within 50 m of a waterway;
- P3.1 Contains Priority Fauna;
- P3.2Contains Priority Flora;
- P3.3 Contains Threatened Fauna;
- P3.4 Contains Threatened Flora;
- P3.5 Contains Priority Ecological Communities (PEC);
- P3.6 Contains Threatened Ecological Communities (TEC);
- P4.1 DBCA Legislated Land and Water;
- P5.1 Less than 30% Pre-European Vegetation remaining;
- P5.2 Less than 10% Pre-European Vegetation remaining;
- P6.1 Size of Patch;
- Pre-European Vegetation – Native Vegetation Extent;
- LPS2 Zones and Reserves (Native Vegetation Extent); and
- WANow Aerial photographs.

The mapping tool ranks LNA biodiversity values (scores and mapping), allowing the community and decision-makers to see the relative values and context of vegetation patches. While all native vegetation is significant, the ranking process identifies the highest-value areas.

The mapping tool comes with the following disclaimers:

- Priority LNA mapping represents a snapshot in time, and the data has some limitations (such as the accuracy of linework, some patches have not been surveyed, etc.). On-the-ground assessments will be needed in addition to digital data to establish an area's value.
- The analysis does consider the quality of the vegetation in the LNA. Vegetation quality should be an additional consideration during planning assessments.
- Priority should not *only* be afforded to areas of highest ecological value (i.e. those areas with a high score), but to all LNAs as far as reasonably practicable.

10.6 PRIORITISING ACTIONS FOR LOCAL NATURAL AREAS

The ranking tool can be used for prioritising the actions:

Reduce Threats in Highest Ranking Areas

- In the highest ranking crown reserves managed by the City with a Conservation purpose or 'Environmental Conservation' reserve status under LPS2 - Protect and manage to reduce threatening processes.
- In crown reserves managed by other organisations or in private ownership – advocate for protection and management.

Identify Areas with the Highest Priority to Retain and Manage

- In Crown reserves managed by the City - Protect and manage to reduce threatening processes.
- In crown reserves managed by other organisations or in private ownership – advocate for retention and management with input through the planning process.

Identify Key Areas with a Low Level of Protection to Protect and Enhance

- Many areas are not protected by zoning or reservation and may have land uses not consistent with protection or preservation. The ranking tool can be used to identify the most significant areas to protect values.
- Conversely, lower-ranking areas can be identified to improve values by managing threatening processes, improving connectivity, controlling land uses through planning and environmental processes, and potentially providing funding or partnership pathways to enhance or restore.
- Some LNA have not been mapped as they do not comprise native vegetation or other mapped features (e.g., drains, cleared areas). This means biodiversity action planning must consider areas with biodiversity value or that would benefit from enhancement activities, regardless of mapping results.

11 ACTION PLAN

Feedback received during consultation indicated that key stakeholders and the community would like to see:

- Actions that strengthen the planning framework.
- On-ground protection of LNAs.
- Increased appreciation in the broader community regarding the importance of biodiversity.

Key stakeholders support actions that address the following:

- Funding, information, coordination, and support for biodiversity initiatives.
- Nature Positive – How to move beyond concepts of ‘no net loss’ into positive territory.
- Aim to turn around the trend line of loss and degradation.
- Natural capital, ecological services – calculate these to show the importance of biodiversity to our everyday lives.
- Show how our investment in biodiversity is paid back.
- Can the City and partners create a tool for natural capital?
- Rather than ‘connectivity’ – promote concepts of ‘ecological permeability’ – Nature link.
- Articulate relationships and social dynamics.
- Set targets for involvement and collaboration.
- Set revegetation targets.
- Weed management needs a different approach to consider biodiversity enhancement.
- LNA - what can we protect (e.g. bushland, wetland, watercourse) vs what can we enhance (e.g. drain, road reserve)

Actions associated with this Strategy need to be linked to biodiversity protection, enhancement and awareness, including:

Control

- Control matters directly within the City’s area of concern – for example, assessment of planning and development proposals, rezoning and structure plans.
- Matters within the City’s direct control, such as the protection and management of City parks and reserves, and the discharge of statutory responsibilities for which the City has a decision-making role.

Concern

- Relates to issues over which the City has limited influence or control, such as international agreements, broader societal trends, or the introduction of strategies by the State government

that seek to support growth while balancing social and economic outcomes. The City can monitor these changes and respond strategically.

- Appreciating concerns articulated by key stakeholders and the community.
- Actively managing areas of biodiversity for which the City has direct control.
- Where there is limited direct responsibility, advocate for greater concern about biodiversity outcomes.

Influence

- Taking a 'shared responsibility' approach to improving planning frameworks and implementation to protect and enhance biodiversity.
- Influence awareness in the community by sharing information about the importance of biodiversity.
- Matters outside the City's direct control, but over which it has a degree of influence. These include managing biodiversity on private land through education and support, community initiatives, and advocacy to influence state and federal policies. The City could influence the retention of biodiversity values by permitting higher density within urban areas and reducing demand for urban sprawl into areas of higher biodiversity
- The City has limited influence or control over some aspects of biodiversity, such as international agreements, broader societal trends, or the introduction of strategies by others. However, the City can identify these activities and their local-level application, demonstrating concern by monitoring changes and responding strategically.

Actions are outlined in a separate Action Plan document, available on the City of Albany web page.

12 MONITORING, REPORTING AND ADAPTIVE MANAGEMENT

12.1 LOCAL BIODIVERSITY ACTION PLAN

The ALBS will inform the development of a Biodiversity Action Plan to be implemented by the City. The Action Plan will be prepared by an internal working group to ensure the implementation of the strategy, including consideration of links with other environmental-related strategies. Some actions will need to be considered in collaboration with key stakeholders who have expertise in biodiversity and ecology, environmental management, planning, and operations.

The Action Plan will be reviewed every two years, include quantifiable, time-based, and prioritised actions, and outline the resources required to implement them. The list of priority actions will be published on the City's website, along with the proposed measures of success, as determined by the Monitoring and Evaluation Program outlined below.

12.2 MONITORING AND REPORTING

The City of Albany will establish a Monitoring and Evaluation Program to track the progress and relative success of the ALBS actions and assess whether the City is achieving its goals and strategic objectives. Actions need to be specific, measurable, actionable, realistic, and time-bound, ensuring that progress can be effectively measured, reported, and adapted as needed. Each year, the City will monitor and report against:

1. Progress toward the aspirational target to increase the conservation protection status of poorly protected biodiversity assets of native vegetation.
2. Progress toward the focus area goals of Retain and Protect, Learn, Manage and Enhance, and Engage.
3. Progress toward the ALBS vision and goals.
4. Achieving the actions and their determined, measurable targets under the Annual Local Biodiversity Action Plan for the given year.

Reporting will occur each year, with results included in the subsequent year's action plan. Reporting on the progress and success measures of the ALBS actions will be conducted through the City's Corporate Business Plan and included in the following year's action plan.

Additionally, key updates on the ALBS will be available on the City's Local Biodiversity landing page. The current native vegetation extent mapping has limited utility for tracking changes over time because data-collection parameters vary from year to year. When the State Government updates its data, the Mapping Tool will integrate the new information.

12.3 RESOURCING

To achieve the ALBS's targets, goals, and strategic objectives, the City will need to resource the action items adequately. This will include reviewing and enhancing existing natural area management and community programs, as well as developing new initiatives aligned with the Actions. Achieving these actions will require expanding the area of land managed for biodiversity and effectively implementing the ALBS, both of which will require significant funding and human resources.

Funding is a key determinant of the amount of land the City can realistically manage and conserve, particularly where on-the-ground management is necessary.

The community values the protection and management of LNAs, and the City is committed to prioritising resources to support biodiversity. This may involve exploring the community's perspective on an environmental levy to help fund the proposed expansion of the City's conservation estate.

The City will continue to monitor and apply for government or other environmental grants as opportunities arise to support its aims of protecting, growing, and enhancing local biodiversity.

Resources will be required to maintain the mapping tool and data in the City's GIS system.

TABLE 35 outlines the benefits of monitoring, reporting, and adaptive management.

TABLE 35: IMPACTS OF MONITORING, REPORTING AND ADAPTIVE MANAGEMENT

Impacts	• Appropriate governance, including monitoring, reporting and adaptive management, will ensure the successful implementation of the Albany Local Biodiversity Strategy.
Actions	• Establish an internal working group comprising City staff and a councillor. Key stakeholders may be involved as required. The role of the group will be to prepare Action Plans (including budget plans), updates, and annual Monitoring and Evaluation Reports for consideration by City executives and Councillors. • Outcomes from ALBS will be tied to key performance indicators of the City CEO. • The City to budget funding and human resources for the Annual Biodiversity Action Plan preparation and implementation.

12.4 REVIEW

The Action Plan will be reviewed every one to two years to enable adaptive management.

ALBS will be reviewed in 10 years to analyse changes in native vegetation extent and associated ecological values, and to determine whether the ALBS needs adjustment to address any new issues or actions that have proven ineffective. Other updates may also be needed when significant legislative changes affecting the Strategy occur.

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Albany Community Environment Centre

City of Albany Staff

14 GLOSSARY AND ACRONYMS

TERM	DEFINITION	REFERENCE
Aboriginal people	Aboriginal and Torres Strait Islander people. We acknowledge that many Aboriginal people prefer to be referred to by their language group, nation, tribe, or clan, given the many distinct groups across Western Australia.	Government of Western Australia (2022[1])
Biodiversity	Biodiversity means the variability among living organisms and the ecosystems of which those organisms are a part, and includes the following: (a) diversity within native species and between native species; (b) diversity of ecosystems; (c) diversity of other biodiversity components.	WALGA (2023) An introduction to Local Biodiversity Planning for Local Government in the South-west of Western Australia
Bushland	Land on which there is vegetation that is either a remainder of the natural vegetation of the land or, if altered, is still representative of the structure and floristics of the natural vegetation and provides necessary habitat for fauna.	
Clearing	Refers to the killing or destruction of, the removal of, the severing or ringbarking of trunks or stems, or the doing of any other substantial damage to some or all the native vegetation in an area. Clearing includes draining or flooding land, burning vegetation, grazing stock, or any other activity that kills or substantially damages native vegetation.	
Comprehensive, adequate and representative (CAR) reserve system	A reserve system characterised by the following: • Comprehensive: includes the full range of ecosystems recognised at an appropriate scale within and across each bioregion • Representative: areas that are selected for inclusion in reserves reasonably reflect the biotic diversity of the ecosystems from which they derive. • Adequate: maintains the ecological viability and integrity of populations, species and communities	Department of Conservation and Land Management (2004)
Condition	Refers to vegetation condition as assessed using published methodologies. Keighery's (1994) methodologies are widely used.	
Connectivity	Refers to the degree of connection between natural areas.	
Conservation Purpose	Conservation purpose (e.g., nature conservation) or private lands where the biodiversity values are secured for preservation under zoning or covenanting.	
Corridors	Contiguous natural areas or revegetated areas that directly connect larger natural areas, allowing the	

TERM	DEFINITION	REFERENCE
	movement of organisms between larger areas over time.	
Ecological Community	A naturally occurring group of plants, animals, and other organisms interacting in a unique habitat.	
Ecological Linkage	Non-contiguous natural areas that connect larger natural areas by forming stepping stones that allow the movement of organisms between larger areas over time.	
Ecosystem Services	The role of organisms in creating a healthy environment for human beings includes, for example, producing oxygen, forming soil, and maintaining water quality.	
Edge Effects	Threatening processes acting at the edges of natural areas. Examples of edge effects include weed invasion, grazing and trampling, increased sun and wind exposure, pollutants (fertiliser, pesticide, toxin, excess water) drift or runoff, air pollution from traffic or industry, noise, artificial lighting at night, rubbish accumulation or dumping and exposure to feral animals, pests, and diseases from surrounding land uses.	
Endemic	A species having a natural distribution confined to a particular geographical region.	
Environmental Weeds	Plants that establish themselves in natural ecosystems and proceed to modify natural processes, usually adversely, resulting in the decline of the communities they invade.	
Floristic Community Type	Floristic assemblages as defined by Gibson et al. (unpub. 1994). The presence or absence of individual taxa in standard areas (plots, sites, quadrats) is used to define floristic groupings based on shared species.	Gibson N., Keighery, B., Burbidge, A. and Lyons, M. (1994) A Floristic Survey of the Southern Swan Coastal Plain. Unpublished report for the Australian Heritage Commission, prepared by the Department of Conservation and Land Management and the Conservation Council of Western Australia Inc.
Freehold	Property tenure where an estate of inheritance in fee simple, fee tail, or for life is held. It refers to a landholding that is owned by a landholder having certain rights over that land, for example, private land or Council-owned land that can be sold.	
Habitat	The natural environment of an organism or community, including all biotic (living) or abiotic (non- living) elements; a suitable place for an organism or community to live.	
Habitat Fragmentation	The process of isolating (usually by land clearing) a once continuous habitat into smaller, isolated natural areas.	

TERM	DEFINITION	REFERENCE
Indigenous	That which is naturally existing within a given region as a result of natural processes, with no human intervention.	Government of Western Australia (2022[2])
Local Natural Areas	Local natural areas (LNAs) are defined as natural areas that exist outside lands managed by the Department of Biodiversity, Conservation and Attractions and that are regionally significant. Note: In Albany, 'regionally significant areas' have not been defined.	Del Marco et al, 2004. WALGA, 2023
Monitoring	The regular collection and analysis of information to assist timely decision-making, ensure accountability and provide the basis for evaluation and learning.	
Native Vegetation	Indigenous aquatic or terrestrial vegetation. It does not include vegetation that was intentionally sown, planted or propagated unless that vegetation was sown, planted, or propagated as required under the *Environmental Protection Act 1986* or another written law; or that vegetation is of a class declared by regulation to be included in this definition. Native vegetation does not include dead vegetation unless that dead vegetation is of a class declared by regulation to be included in this definition. Native vegetation includes non-vascular plants (e.g., mosses, fungi, algae) and marine plants (seagrasses, macroalgae [seaweed]). Native vegetation is more than trees and includes understorey and groundcover plants.	
Natural Area	A naturally vegetated area or non-vegetated area such as a water body (generally a river, lake or estuary), bare ground (typically sand or mud), or a rock outcrop.	EPA Guidance Statement 33 (2008)
Natural Area	Describes an area that contains native species or communities in a relatively natural state and hence contains biodiversity. Natural areas can be areas of native vegetation, vegetated or open water bodies (lakes, swamps), or waterways (rivers, streams, creeks – often referred to as channel wetlands, estuaries), drains, springs, rock outcrops, bare ground (generally sand or mud), caves, coastal dunes, or cliffs.	
Net Positive	A net positive environmental impact means that an organisation's or activity's overall effect on the environment is beneficial, going beyond minimising harm to create a positive contribution. It's about giving back more to nature and society than is taken away, resulting in a net gain for the environment. This can involve restoring ecosystems, reducing pollution beyond legal requirements, and contributing to the planet's overall health and well-being.	Australian Government, Department of Climate Change, Environment, Energy and Water. Nature Positive Plan: better for the environment, better for business December 2022 https://www.dcceew.gov.au /sites/default/files/documents/ nature-positive-plan.pdf
Priority Local Natural Area	LNAs that demonstrate one or more prioritisation criteria defined by the Perth Biodiversity Project (2012).	

TERM	DEFINITION	REFERENCE
Protection	Refer to natural areas that are secured for conservation, either as public lands, best suited for a	
Regionally significant natural area	a component of remnant native vegetation, rock outcrop or water body that collectively aims to form a comprehensive, adequate and representative system of conservation areas. To determine whether an area falls into this category, it must be part of the existing or proposed conservation system, or meet (in whole or in part) a range of agreed criteria (EPA 2003a).	EPA Guidance Statement 33 (2008)
Rehabilitation	The restoration of a natural area that has been temporarily and grossly disturbed, and no natural components are present.	
Reserves	Areas of Crown land reserved for various public purposes, for example, parks, recreation, drainage, or church sites.	
Restoration	The return of a community to its pre-disturbance or natural state, in terms of abiotic (non-living) conditions, community structure, and species composition, to reinstate a long-term, self-regenerating natural ecosystem.	
Retention	The process of ensuring a natural area is retained, but not necessarily afforded protection to ensure its continued existence and viability. For example, a natural area may be preserved by the Council refusing or conditionally approving a development application.	
Revegetation	The planting or direct seeding of native species in areas that have been cleared or highly modified. The mix of species may not be the same as originally occurring in that patch of vegetation. In and around natural areas, local native species of local provenance should be used. Revegetation should occur only in areas within or around natural areas where regeneration techniques are not feasible to support natural regeneration.	
Tenure	Commonly referred to as ownership. However, land differs from goods in that no one person can possess land in absolute ownership. Tenure is the system of holding land in the Crown's name.	
Threatening Processes	Any occurrence, activity or institutional process or structure that threatens, or may threaten, the survival, abundance or evolutionary development of a native species or ecological community.	
Traditional Owners	Aboriginal people who are native title claimants, native title holders or who have otherwise been recognised as having a right and responsibility to speak for country.	Government of Western Australia (2022[3])
Viability	(as in ecological viability): the likelihood of long-term survival of a particular ecosystem or species.	

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APPENDIX A

Community Survey Analysis

Local Biodiversity Community Survey

Prepared July 2024

A community survey was conducted by the City of Albany in 2024 to collect community feedback on local biodiversity and urban forest in the City of Albany. The information collected will be used to guide the development of the new Local Biodiversity Strategy and the revised Urban Forest Strategy.

A combined survey was implemented as the two strategies are closely related, but with different purposes and geographical ranges. A combined survey was used to avoid confusion between the topics and reduce survey effort. The results have been analysed separately.

Key Findings

Survey Effort	• The high number of responses received, and effort taken to complete the survey signify that Biodiversity and Urban Forest are important community issues. • Responses received from 42 localities within the City of Albany, with 84% stating that they lived in urban Albany.
Biodiversity Conservation	• 93% of respondents feel that biodiversity conservation in the City of Albany is Important to Very Important • There was a strong desire amongst respondents for better protections on native bushland with the municipality.
Biodiversity Loss	• 96% of respondents are concerned about biodiversity loss within the City of Albany • 56.7% of respondents believe that biodiversity is Declining or Declining Significantly in the City of Albany • The highest perceived threats by respondents were: o Clearing for land subdivision o Non-native animals (feral cats, foxes, rabbits) o Weeds o Dieback o Tree canopy loss o Climate change impacts • Uncontrolled pet cats was also a concern for multiple respondents in the open-ended response.
Biodiversity Values	• The highest ranked values for biodiversity were: o To preserve the biodiversity of life and ecosystem processes o Living close to nature o The role biodiversity plays in mitigating climate change • Respondents recognise the value of native vegetation for preserving and enhancing corridors or wildlife and protecting plants, animals and other organisms. • Respondents value the location of native vegetation for enhancing biodiversity values.
Actions by the City of Albany	• Strong support for more action by the City of Albany to protect biodiversity. • In general, there was slightly higher support for direct actions such as managing weeds and pests and slightly less support for changes to policy and community education. The exception was for the Council to consider

	nature and biodiversity in all decision making. 85% of respondents believed this was Very Important which was the highest ranked action. • Concerns included: o The council would take away rights of property owners to manage vegetation on their private property. o Biodiversity values would take precedence over bushfire management and safety.

Background

The following background information has been taken from the summary of the Urban Forest Community Survey.

The survey for Local Biodiversity and Urban Forest Survey included contextual information on the purpose of the two strategies, and maps to define areas of interest. A variety of question types were used to gather a comprehensive range of insights and maximize respondent engagement. These included: multiple-choice, open-ended questions, Likert scale to indicate their level of agreement or disagreement, rating scale and matrix questions.

The survey was promoted and accessed via:

- City of Albany website – Public Comment page
- Media Release 6/3/24
- Social media posts- City of Albany Facebook and Instagram pages,
- Facebook Boosting (19 March to 12 April 2024)
- Quarter Page Advertisement -The Extra (22 March and 5 March 2024).
- City of Albany E-newsletter
- Albany Advertiser Community Pages
- Radio Advertisement -Great Southern FM (25 March to 12 April 2024)
- Hard copies were available at the North Road Administration, with one response received
- via this method.

The survey was open from 6 March through to 14 April 2024:

- 693 responses were received.
- 88% completion rate.
- Average time taken to complete survey – 14 minutes.

Compared to other recent City of Albany surveys, the number of responses received is to be considered as high. Only one paper copy was received, indicating that the online survey was an accessible and convenient option for respondents to have their say. The average time taken to complete the survey and the completion rate demonstrate a high level of effort and signify that Biodiversity and Urban Forest are important community issues.

Results

Demographics

The following data on demographics has been taken from the summary of the Urban Forest Community Survey.

84% of survey respondents stated that they lived in urban Albany and 16% did not. A map of the Urban Area of Interest was provided for survey respondents to refer to.

Albany has numerous localities that contain areas of urban and semi-rural lots, so it is difficult to simply classify each locality as urban or rural.

Survey respondents came from 42 localities within the City of Albany, with representation from urban and rural zoned areas.

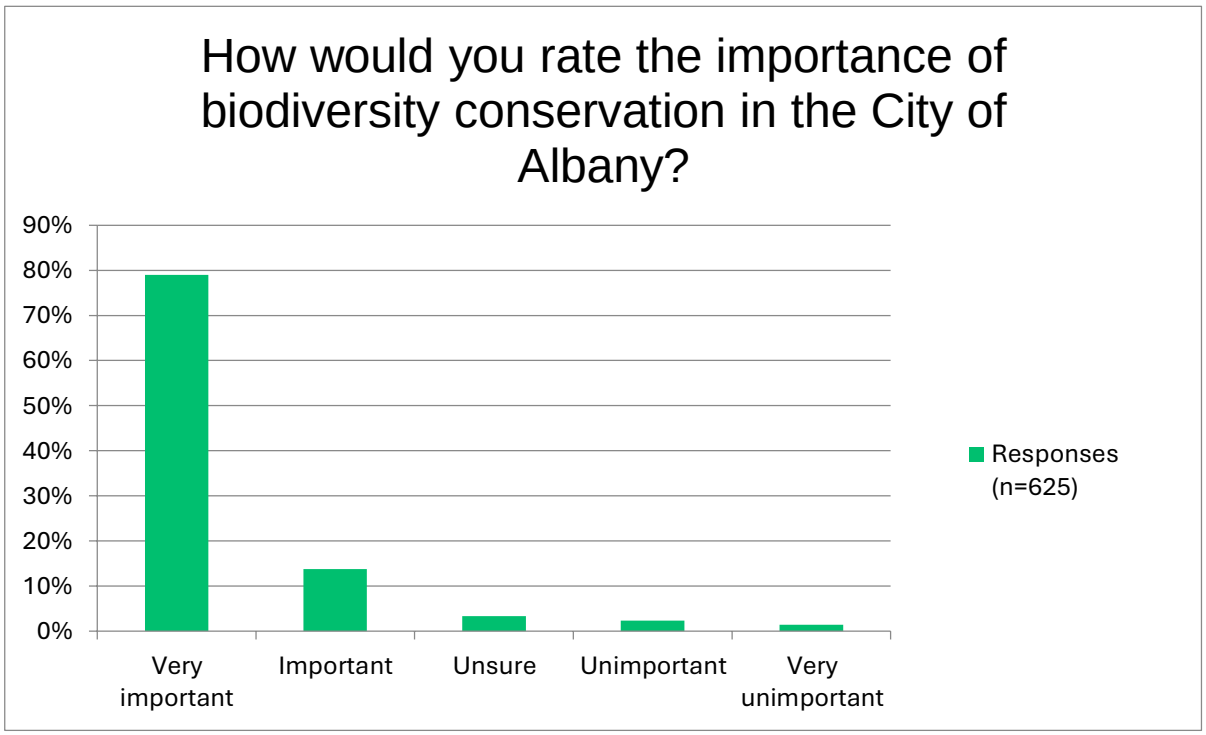
Less than 2% of survey respondents did not reside in the City of Albany.

The top 12 suburbs with the highest number of respondents are listed in the table below:

Suburb	# Respondents	% Respondents
Bayonet Head	58	8.6
Mira Mar	48	7.1
Spencer Park	43	6.3
Mt Melville	41	6
Yakamia	39	5.7
Lower King	36	5.3
Little Grove	33	4.8
Mt Clarence	32	4.7
Central/Port Albany	30	4.4
Milpara	29	4.2
McKail	27	3.9
Kalgan/Kalgan Heights	23	3.4

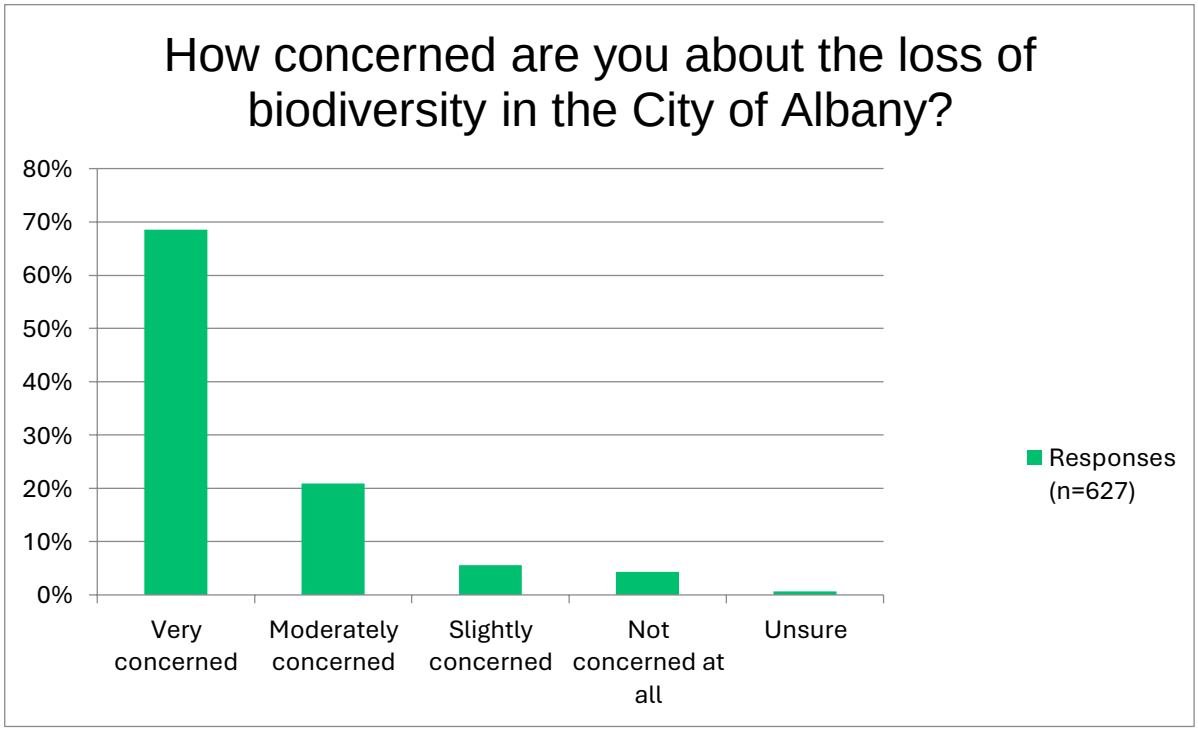
The following analysis relates to the Local Biodiversity Survey Questions (20 – 26).

20. How would you rate the importance of biodiversity conservation in the City of Albany?



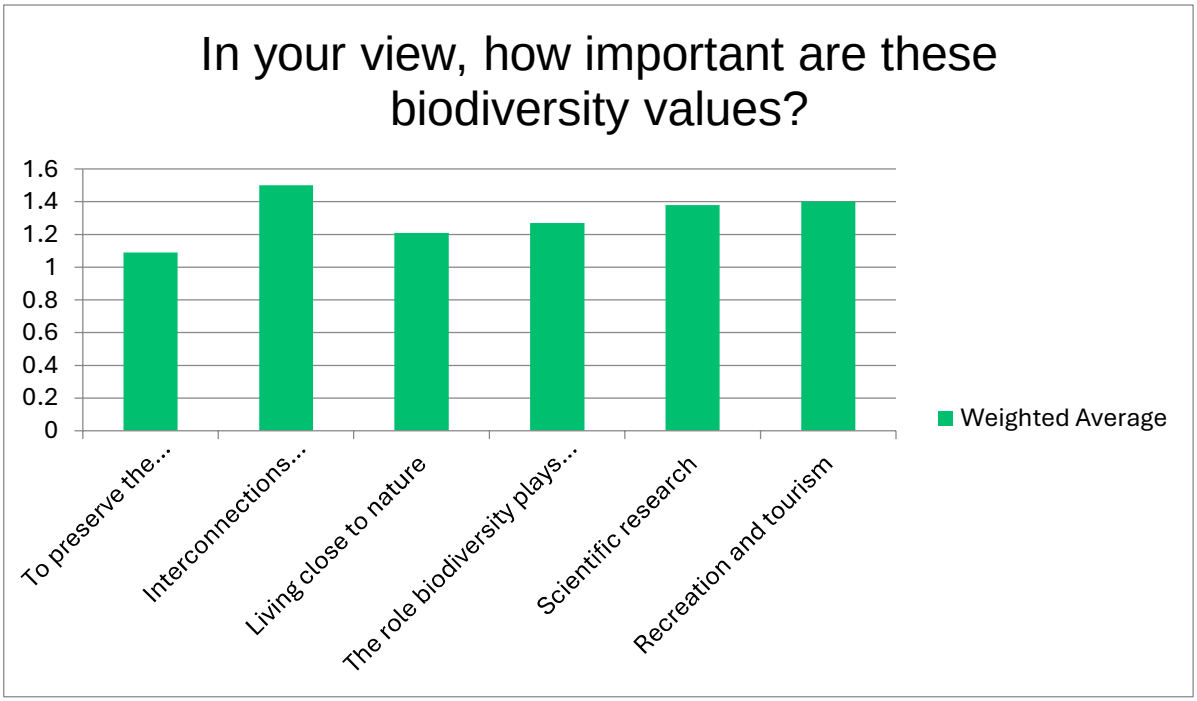
- Biodiversity conservation is a significant value for the City of Albany community
- 625 respondents described the importance of biodiversity conservation in the City of Albany as Very Important (79%), Important (14%), Unimportant (2%) or Very Unimportant (1%).

21. How concerned are you about the loss of biodiversity in the City of Albany?



- Concern over biodiversity loss in the City of Albany was high amongst respondents
- 627 respondents described their attitude toward the loss of biodiversity in the City of Albany as Very Concerned (69%), Moderately Concerned (21%), Slightly Concerned (6%) and Not Concerned at All (4%).
- Open ended responses generally reflected a strong sentiment for the importance of native fauna in the local area and the retention of native vegetation.
- There were 106 open-ended responses to this question. These have been categorised into the following subcategories:
    - Importance of native bushland:
        - Vital for carbon storage
        - Albany is a biodiversity hotspot
        - Albany is home to threatened fauna such as the Western Ringtail Possum and Black Cockatoos
    - Concerns to local biodiversity include:
        - Not enough vegetated areas to encourage fauna
        - Existing vegetation is not adequately protected by the City, and what remains is zoned for development
        - Prescribed burning is causing damage to bushland areas and should be changed to suit the Albany area
        - Roaming pet cats
        - Weeds such as Sydney Golden Wattle, Taylorina, Blackberry Pampas Grass
        - Foxes
        - Noticeable decline in variety of native fauna
        - Climate change
        - Reserves are becoming increasingly isolated which prevents fauna movement
        - Leaves from non-native deciduous trees are messy and clog drainage systems
        - Streetlights are too bright for nocturnal fauna
    - Suggestions include:
        - Maximise use of already cleared land
        - Native vegetation should not be cleared except in extreme circumstances
        - Focus on restoration and recovery strategies not just retention of bushland
        - Positive feedback on the wetland development behind ALAC. Suggest more of these.
    - Specific areas of concern:
        - Weeds at Lake Seppings
        - Protecting Yakamia Forest from clearing
        - Loss of biodiversity in King George Sound
    - Comments against biodiversity:
        - Cities are not the places to retain biodiversity
        - There are already enough trees to retain biodiversity

22. In your view, how important are these biodiversity values?

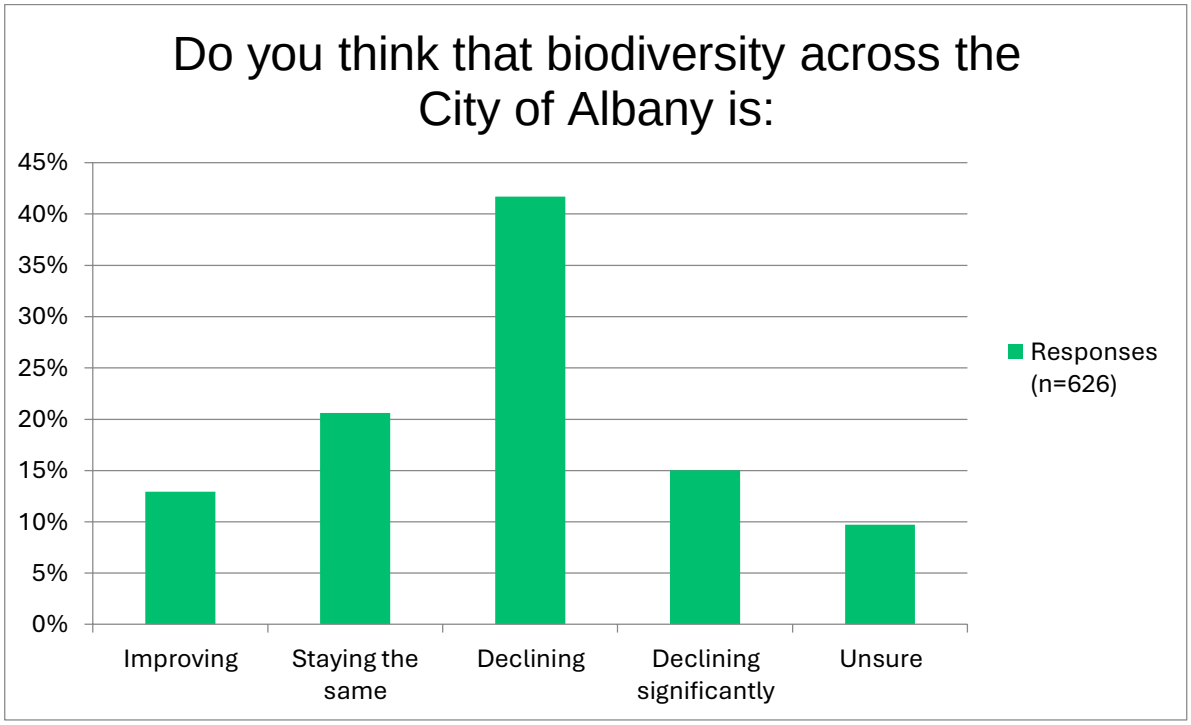


	Very Important	Somewhat Important	Not Important
To preserve the biodiversity of life and ecosystem processes	92%	7%	1%
Living close to nature	81%	17%	2%
The role biodiversity plays in mitigating climate change	79%	15%	6%
Scientific research	67%	28%	5%
Recreation and tourism	64%	31%	5%
Interconnections between biodiversity, indigenous knowledge, and cultural practices	61%	28%	11%

- Preserving life and ecosystem processes was the highest ranked value of biodiversity by survey respondents (99% said it is very or somewhat important).
- Living close to nature was also highly ranked (99% said it is very or somewhat important) indicating a strong connection between respondents and the natural environment around them. It may also show a preference for natural bushland areas rather than artificial green spaces/parks.
- 95% of respondents believe that biodiversity plays a role in mitigating climate change.
- Scientific research and recreation/tourism were also considered important values of biodiversity, although fewer respondents ranked these as Very Important.
- There were 43 open-ended responses to this question. Other values included:
    - Benefit of natural areas/biodiversity on physical and mental health
    - Spiritual/religious connections to land (not just Indigenous)
    - Several respondents wanted to clarify that tourism and recreational uses of natural areas needs to be carefully managed to protect biodiversity
    - Biodiversity is a strong tourist attraction and can help fund biodiversity projects
    - Education
    - Preserving natural areas will promote fauna biodiversity

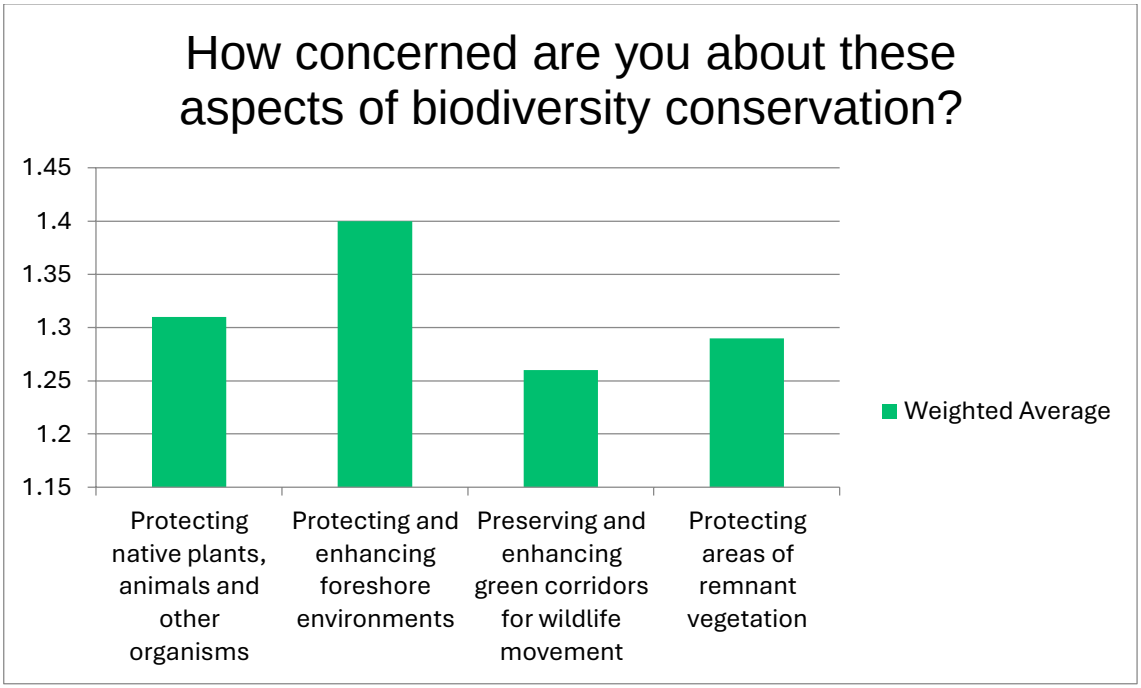
- Pollution control
- Increases oxygen
- Protection of water resources
- Albany is unique and beautiful, and we don't want it to become like suburban Perth
- While biodiversity is important, the City/planning also needs to protect properties and residents from fire, mould, shading neighbours' gardens.
- There are already enough trees

Q23: Do you think that biodiversity across the City of Albany is:



- Over half (56.7%) of respondents believe that biodiversity in the City of Albany is declining.
- 20.6% believe that biodiversity is staying the same and 12.9% believe biodiversity is improving
- There were 112 open-ended responses to this question. The primary concern was that there is too much land clearing for housing developments or subdivisions and that there need to be better protections on native bushland with the municipality.
- Other responses included:
    - Biodiversity loss due to clearing, bushfires, dieback, weeds, feral animals, climate change, mountain biking (and other recreational uses).
    - Some respondents had seen improvements – more street trees; planting at Centennial Park (replacing old trees), Lake Seppings and Middleton Road.
    - Concern that City would impose unnecessary rules on private property owners
    - More effort should be made to preserve granite outcrop habitats (e.g. Mount Wilyung (quarry) and Mount Melville (rubbish tip)
    - Concern over increasing habitat fragmentation
    - Suggestion to prioritise urban infill

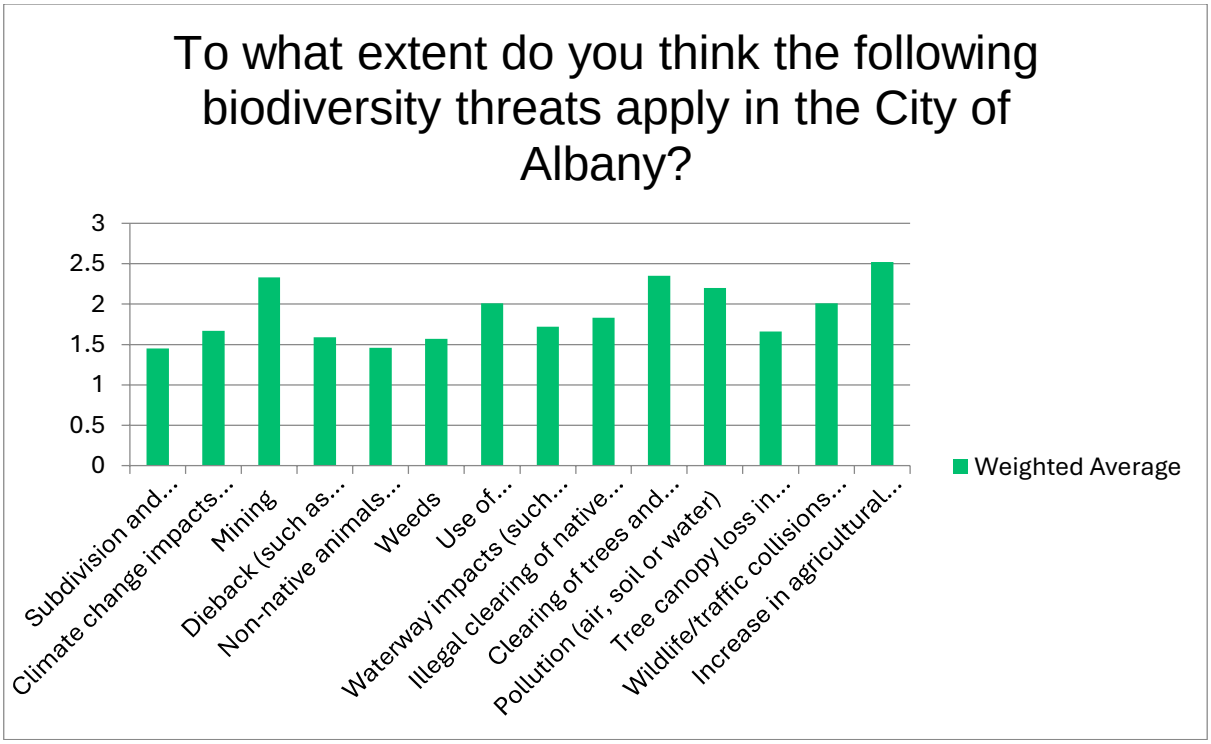
24. How concerned are you about these aspects of biodiversity conservation?



	Very Concerned	Moderately Concerned	Somewhat Concerned	Not Concerned
Protecting native plants, animals and other organisms	79%	14%	4%	3%
Protecting and enhancing foreshore environments	70%	22%	4%	3%
Preserving and enhancing green corridors for wildlife movement	82%	11%	5%	2%
Protecting areas of remnant vegetation	80%	13%	4%	3%

- The highest concern respondents had for biodiversity was preserving and enhancing corridors for wildlife.
- The second highest concern was for protecting plants, animals and other organisms.
- This indicates that respondents also value the location of native vegetation and recognise the importance of reducing habitat fragmentation. Although they highly value protecting remnant vegetation, there is some recognition (at least intellectually) of the strategic value of some locations over others.
- Only 3% of respondents were not concerned about protecting areas of native vegetation.
- Other concerns from the open-ended responses included:
    - Beaches and coastal environments (damage to seagrass, damage caused from surf reef and driving on beaches)
    - Existing reserves
    - Habitat in front and back yards
    - Damage from pet cats, dumping of greenwaste in native bushland, weeds and dieback
    - Fire risk should be a priority
    - Proactive in restoring bushland areas not just preserving

25: To what extent do you think the following biodiversity threats apply in the City of Albany?

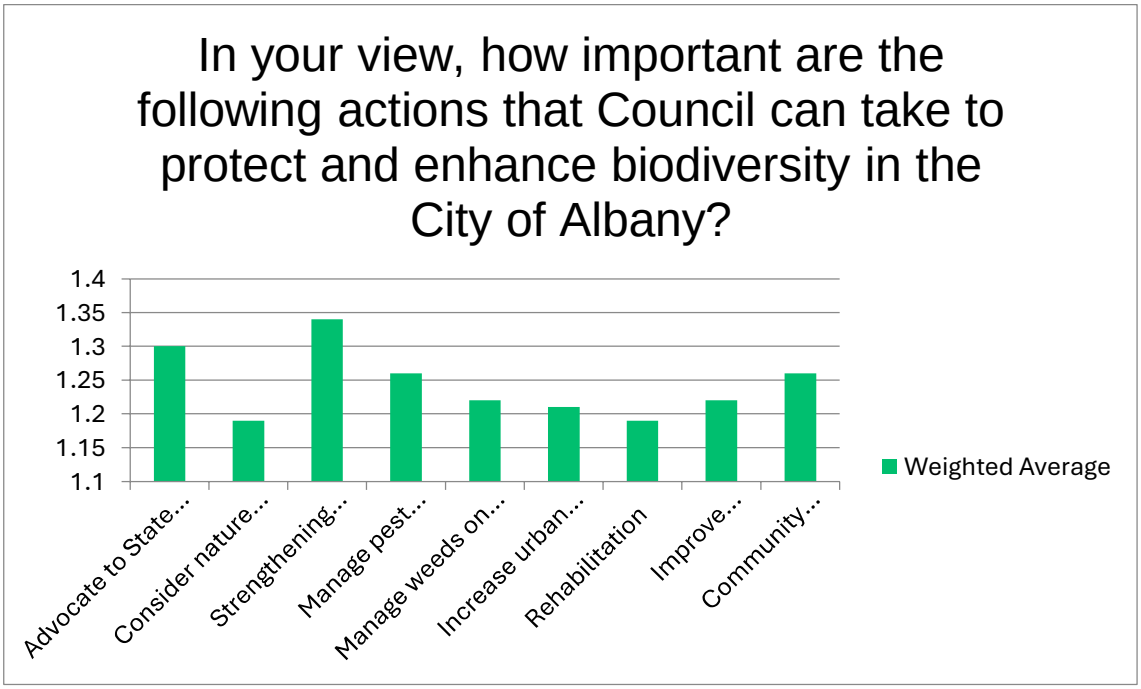


The following questions are listed in their order of importance from respondents from highest threat at the top to lowest.

	Large Threat	Medium Threat	Small Threat	No Threat	Unsure
Subdivision and development of land	**69%**	**21%**	**7%**	**2%**	**1%**
Non-native animals (such as foxes, feral cats and rabbits)	**65%**	**27%**	**6%**	**1%**	**1%**
Weeds	57%	34%	6%	1%	2%
Dieback (such as introduced diseases, fungus and insects that kill native plants)	57%	33%	7%	1%	2%
Tree canopy loss in urban areas	53%	33%	10%	3%	1%
Climate change impacts (such as drought, extreme rainfall events, warmer temperatures)	54%	31%	8%	6%	1%
Waterway impacts (such as litter, sediment, erosion, flow)	47%	40%	10%	1%	2%
Illegal clearing of native vegetation	49%	32%	12%	3%	5%
Use of herbicides/pesticides	38%	37%	16%	5%	4%
Wildlife/traffic collisions (road kill)	34%	39%	21%	5%	2%
Pollution (air, soil or water)	27%	39%	25%	4%	5%
Mining	32%	27%	25%	9%	7%
Clearing of trees and vegetation to help protect homes from bushfire	22%	39%	26%	9%	4%
Increase in agricultural land	21%	34%	24%	14%	7%

- The first six threats were considered the highest threats, with over 50% of respondents identifying them as a Large Threat to biodiversity.
- Subdivision and development of land and non-native animals are considered the highest threats with 69% and 65% of respondents identifying them as a Large Threat respectively.
- Increase in agricultural land was considered the lowest threat to biodiversity and 14% of respondents did not believe it to be a threat at all.
- Other threats mentioned in the open-ended section were:
    - Clearing for large roads/infrastructure
    - People lighting fires, dumping rubbish and ablutions in bush and coastal dunes
    - Pesticides
    - Prescribed burns
    - The way agricultural land is used
    - Pet cats
    - Clearing bush on rural blocks
    - Polyphagus shothole borer
    - Block sizes too small for tree planting
    - Legal clearing
    - Recreational vehicles and bike tracks
- There was some support for agricultural activities and that using agricultural land for housing developments was not sustainable.
- Some respondents stated that large-scale clearing for agriculture has not occurred in the region since the 1980's and therefore that question was unfair
- Comment that people should have the right to remove trees on their own property.

26. In your view, how important are the following actions that Council can take to protect and enhance biodiversity in the City of Albany?



	Very Important	Somewhat Important	Not Important
Advocate to State and Federal Governments to take biodiversity-supportive actions	76%	18%	6%
Consider nature and biodiversity in all Council decision making	85%	12%	4%
Strengthening planning policies and other regulations to protect trees/native vegetation and other biodiversity on private land	74%	18%	8%
Manage pest animals on Council land	77%	21%	2%
Manage weeds on Council land	80%	19%	2%
Increase urban tree canopy	81%	16%	2%
Rehabilitation	82%	16%	2%
Improve management practices	80%	18%	2%
Community education and awareness raising about protecting and enhancing biodiversity	77%	19%	3%

- There was strong support for more action from the City of Albany to protect biodiversity. All options were considered Very Important by >74% of respondents.
- In general, there was slightly higher support for direct actions such as managing weeds and pests and slightly less support for changes to policy and community education. The exception was for the Council to consider nature and biodiversity in all decision making. 85% of respondents believed this was Very Important which was the highest ranked action.
- Strengthening policies and regulations for private land owners had the lowest support.
- Other actions from the open-ended responses included:
    - Put aside significant natural reserves as part of bicentenary celebrations. Suggestions included Yakamia Forest and Bayonet Head
    - Lawnmowers accidentally ringbarking verge trees
    - High quality school-based education programs
    - Consequences to ensure people comply
    - Fire threat needs to be considered
    - Listen to local experts
    - Integrated weed management (not just glyphosate)
    - Restricting vehicle access to beaches
    - Deal with rabbits
    - Ban plant nurseries from selling declared weeds
    - Weeds on private properties
    - Dogs should always be on leads. Pet cats should be banned
    - Council rates should go towards biodiversity projects
    - Wildlife rehabilitation centre with paid staff
    - No native vegetation clearing on council-managed land
    - Don’t take away people’s rights to remove trees on their own property

APPENDIX B

Stakeholder Workshop Information

ALBANY LOCAL BIODIVERSITY STRATEGY

"Biodiversity – Our sense of place – Our key to future resilience"

Thursday 5 December 2024
- 5 pm to 7 pm

Stakeholder workshop No. 2

Presentation Outcomes

1

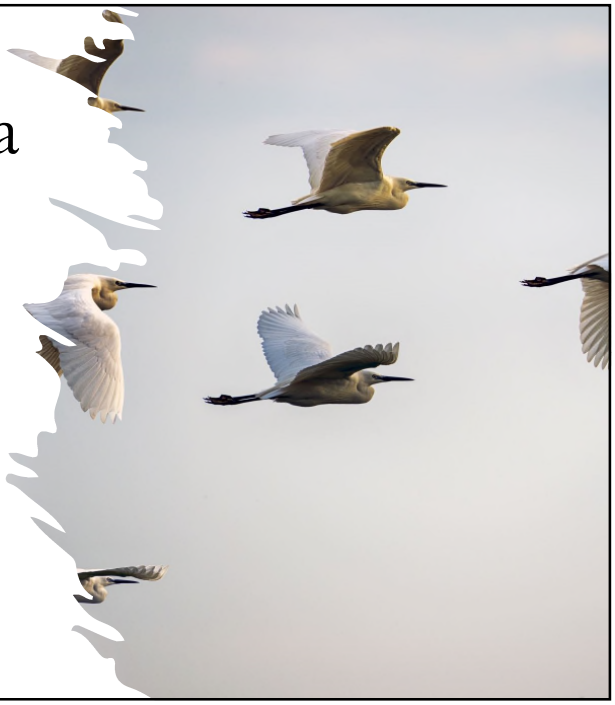
Welcome

- We are on Menang Noongar boodja
- Our biodiversity was shaped and managed by traditional custodians
- We acknowledge their continued connection to country and pay our respects to elders past, present and emerging

2

Workshop Agenda

- Outputs from Workshop 1 (10 minutes)
- Define: Vision (20 minutes)
- Priority criteria and maps (10 minutes)
- Prioritising and weighting of criteria for biodiversity areas (20 minutes)
- Identify: Opportunities and Constraints (20 minutes)
- Biodiversity Protection Options for local government (10 minutes)
- Knowledge Gaps (10 minutes)
- What's next…. And Questions (20 mins)

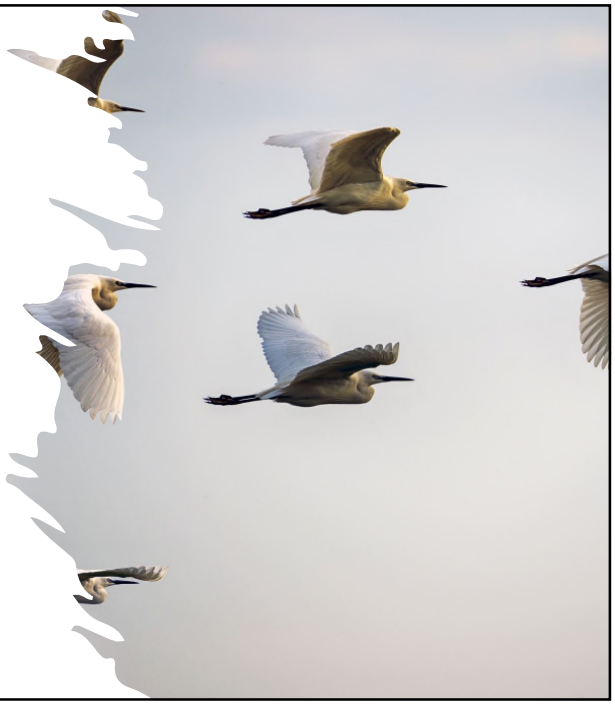


3

Attendees

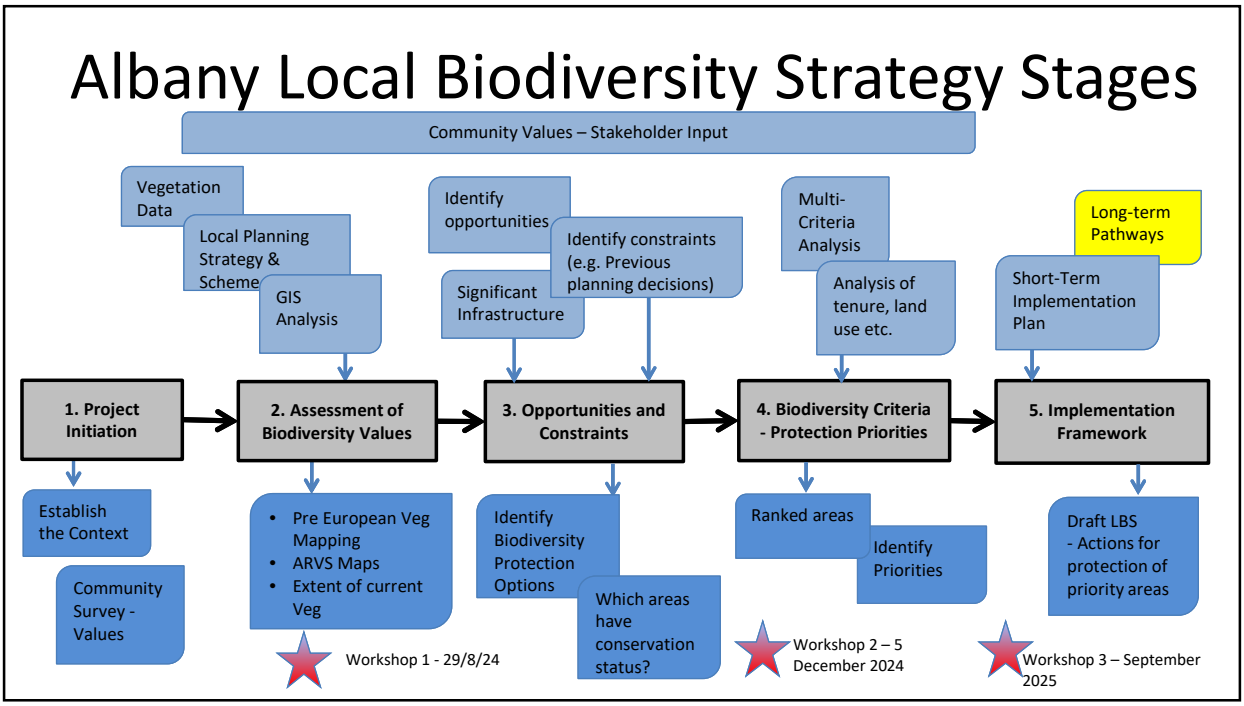
1. David Rastrick – Albany Community Environment Centre
2. Peter Stewart – Friends of Yakamia Forest
3. Annabel Paulley – Friends of Yakamia Forest Boodja
4. Sandra Mac – City of Albany Reserves Officer
5. Rebecca Palandri – DWER
6. Lyn MacLan – City of Albany Councillor
7. Jan van der Mescht City of Albany Planner
8. Shane Ossinger – Wilson Inlet Catchment Council
9. Keith Bradby – Gondwanna Link
10. Nicolie Sykora – DWER
11. Mark Blythman – DBCA
12. Sandra Gilfillan – Ecologist
13. Peter Barnes – Torbay Catchment Group

Facilitators: Melanie Price - Aurora and Adrian Nicoll – City of Albany



4

Albany Local Biodiversity Strategy Stages



5

Outputs from Workshop 1

- A local natural area: vegetation in all land tenures, including non vegetated areas of value for ecosystem processes. Considers areas adjacent to CoA.

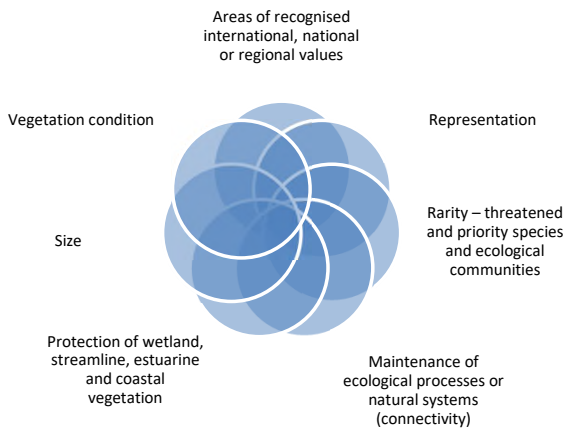
6

Stakeholders say:

- The CoA has an important role as an advocate and to facilitate collaboration.
- Clear partnerships with others such as:
  - Gondwana Link
  - South Coast NRM
  - Green Skills
  - Oyster Harbour Catchment Group
  - Torbay Catchment Group
  - Friend's groups
  - Community members
  - Educational institutions
- Educational role e.g. urban backyards
- CoA needs to make community more aware of efforts by reporting publicly
- How else can the CoA engage with interested people?
- Many groups and individuals are interested in weed management – e.g. review weed strategy?
- Review of other CoA environmental plans

7

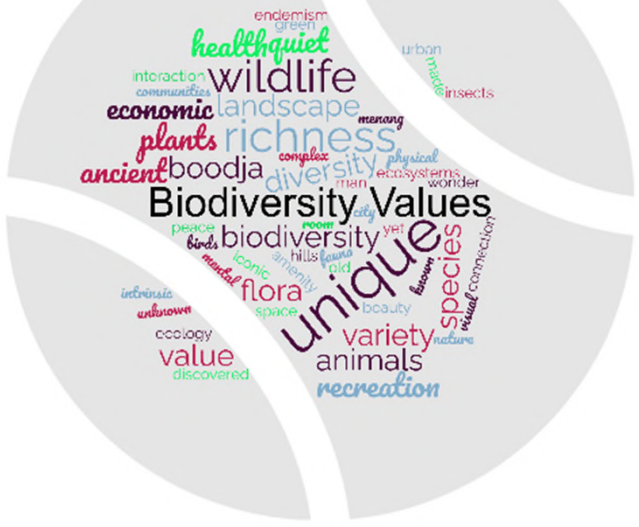
Ecological Criteria for Prioritising Areas of Local Natural Value (As ranked by you)



Criteria Ranking				
Ranking	Criteria Priorities	Votes	Percentage	Comments
1	Connectivity - Maintenance of ecological processes	30	38	Movement through the landscape Permeability - not just connectivity i.e. hydrological process, nenewal regime Stepping stones, linear, Flowering, life cycles Species dispersal methods Nature link
2	Protection of wetlands, streamlines, estuarine and coastal vegetation	16	21	Closely linked with connectivity
3	Rarity (threatened and priority species)	12	15	
4	Vegetation condition	7	9	Good return on effort made Easier and cheaper to keep vegetation in good condition than improve degraded habitat Development approval state - CoA can implement more localised assistance e.g fencing of remnant vegetation, protection of existing habitat trees) Weeds (e.g. wattles) Regenerate and restore
5	Areas of recognised international, national or regional value	5	6	Links to social criteria Migratory shorebirds
6	Representation	4	5	
7	Other: Regional holistic approach to reduce threats	3	4	
8	Other: Diversity, Migratory birds, Visitor bird hotspots, Nomad birds	1	1	
9	Size of patch	0	0	Large size is good but don't want to discount smaller areas
		78	100	

8

Output Workshop 1: What do you value?



9

Vision

- Short, aspirational and solutions focused
- What do we want to achieve?
- Based on our values…

Key concepts:

- Protection
- Management
- Self sustaining
- Resilient
- Connected
- Valued by the community

Other key words included:

- Leadership
- Biodiversity
- Community
- Protected
- Connected

- Australia's Strategy for Nature 2019–2030

Australia's nature, now and into the future, is healthy and resilient to threats, understood, and valued both in its own right and for its essential contribution to our health, wellbeing, prosperity and quality of life.

10

Vision: Some Examples

- City of Canning: Over the next 20 years, the diversity of indigenous species and ecosystems is conserved, resilient to threats, restored and valued by the local community.
- City of Kalmunda: The City and its community will protect, manage, and value the local biodiversity to ensure a lasting legacy for future generations.
- City of Swan: Protect, retain and manage a network of natural areas that support the diversity of local indigenous biodiversity (plants, animals, fungi and microorganisms) in our region for the future
- Shire of Mundaring: Biodiversity and natural areas are protected, connected and cared for through informed community stewardship and Shire leadership, empowering a strong culture of conservation.
- Eastern Metropolitan Regional Councils: Urban biodiversity values are protected managed and enhanced in the Swan River Precinct of Perth's Eastern Region to enable future generations to experience continued social benefits and ecological services.

11

Vision – Some ideas

- Albany - Where nature can thrive and adapt with minimal human management
- Albany – Where community support ensures that nature thrives and adapts
- Albany – Resilient and biodiverse network of natural systems
- Albany – Where the community supports our natural environment and the environment supports us

12

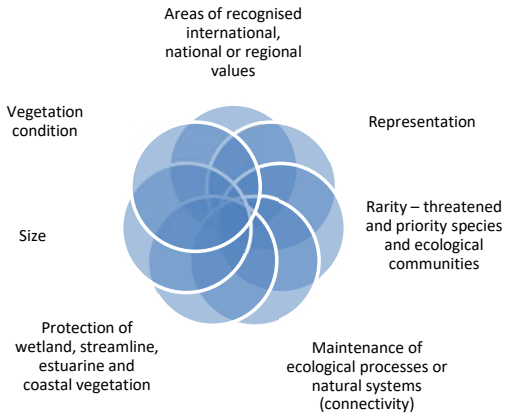
Vision: Ideas from Group

- There were different ideas from the group, some of whom wanted quite a comprehensive statement and others who wanted something very simple.
- Biodiversity and natural areas are protected, connected and cared for through informed community stewardship and City of Albany leadership, empowering a strong culture of conservation.
- Caring for Country – Kinjarling - where nature can thrive and adapt.
- The community of Kinjarling - Albany values biodiversity and resilient natural areas which are protected, connected and cared for (through informed community stewardship and City leadership, empowering a strong culture of conservation)
- Kinjarling is a majestic landscape of resilient, revitalised and interconnected bushland, forests and waterways with rural and urban areas that support our unique wildlife.
- Where the community supports our natural environment and the environment supports us.
- Albany – Kinjarling, a majestic landscape where nature and people thrive together.

Decided to collate ideas and send to group for input.

13

Ecological Criteria for Prioritising Areas of Local Natural Value (As ranked by you)



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9	Size of patch	0	0	Large size is good but don't want to discount smaller areas
		78	100	

14

Ecological Criteria for Prioritising Areas of Local Natural Value

- Discussion regarding the difficulty of conceptualising the prioritising of parcels of vegetation.
- It was decided that the Project Team would develop a ranking system and then present it at the next workshop.

15

Opportunities

- City of Albany area: 430,807 ha
- Vegetation remaining (Pre European): 154,022 ha or 35.8%
- Areas protected with purpose of 'Conservation' (reserve status): 77,541 ha 18% of original, 50.3% of remaining vegetation
- Work with State and Commonwealth controls on clearing and environmental impacts
- Reviewing and consolidating CoA environmental strategies and plans for threat mitigation (e.g. Weed strategy, reserve management)
- Support of volunteers
- Forming partnerships and collaborations
- Protecting and managing high value and vulnerable areas
- Increasing resilience to threats at the landscape level and valuing environmental services
- Education and awareness raising
- Supporting initiatives and businesses that propose sustainable development
- Carbon sequestration and biodiversity projects
- Working with traditional custodians
- Offsets

16

Opportunities from Group

- Dual management with traditional custodians and rangers (leases, resourcing)
- Appropriate conservation purpose of reserves
- Incentives to protect biodiversity (carrot)
- Leverage on the knowledge of the presence of threatened species for funding
- Stronger legislation for protection (stick) and properly implement current rules
- Partnerships with other organisations (UWA, CENRM, SCNRM, catchment groups)
- Resourcing priorities
- Unconstructed road reserves as corridors

17

Constraints

- Land clearing, degradation and fragmentation
- Resources (personnel, funding)
- Competing objectives (growth of Albany population, fire risk regulations, approved development, minor clearing)
- Threats (weeds, disease, pests)
- Climate change (poorly known interactions and outcomes)
- Gaps in knowledge

18

Knowledge Gaps…

Input from group:

- Impacts of climate change
  - Overarching impacts
  - How to build resilience
- Threatened species on private land or unsurveyed areas
- What are the keys to adaptation at the landscape scale
- Use of non native habitat (blue gum plantations, pines, weeds, drains)
- Use of road reserves

19

Mechanisms for Protection

- Local Planning Strategy
- Local Planning Scheme
- Input into planning (Structure Plans, Development Applications)
- Input into clearing application decisions
- Purpose of Crown Land
- Management of Crown Land
- Offsets (CoA Freehold Land)
- Education - awareness raising
- Engagement with stakeholders
- Assistance for landowners (mulcher and tip pass for weeds)

20

General Discussion

- Asked by City of Albany Councillor to stakeholders present: What do partners need from the City of Albany, DWER, DBCA?
  - Funding, information, coordination, support
  - Nature Positive – How to move beyond concepts of 'no net loss' into positive territory
- Aim to improve trend line of loss and degradation
- Natural capital, ecological services – calculate these to show importance of biodiversity to our everyday lives. Show how our investment in biodiversity is paid back.
- Can the City and partners create a tool for natural capital?
- Rather than 'connectivity' – 'ecological permeability' – Nature link
- Articulate relationships and social dynamics
- Set targets for involvement and collaboration
- Set revegetation targets.
- Weed management needs a different approach to consider biodiversity enhancement
- Local Natural Areas – Natural (what can we protect eg bushland, wetland watercourse) vs Nature (what can we enhance – eg drain, road reserve)

21

Next Steps

- Prioritise/ categorise areas of biodiversity - using agreed criteria & weighting
- Mapping tools – show biodiversity hotspots, linkages and score vegetation
- Additional engagement with the community (Workshop 3 and Draft Strategy)
- Set targets for protection, rehabilitation or other actions
- Identify framework for implementation
- Prepare draft LBS for advertising
- City of Albany Council to adopt LBS

22

Thank you
Any questions?

Contact:
Melanie Price 0447446343 or
melanie.price@auroraenvironmental.com.au
Adrian Nicoll:
Adrian.Nicoll@albany.wa.gov.au

23

Evaluation – feedback from group

Seven evaluation sheets were returned from 13 attendees.

1. Do you feel that this workshop was useful in helping the City of Albany plan for future management of biodiversity?

1	2	3 (3)	4 (4)	5
No value	Somewhat valuable	Good value	Very Good value	Excellent value

Comments:

- Would like to see local Menang Elders attend and SWALC reps too
- Need to have key stakeholders here to properly inform discussion e.g. SCNRM.
- Always good to discuss ideas.

2. Do you feel that the balance between provision of information and discussion of the biodiversity strategy was about right?

1	2 (1)	3 (5)	4 (1)	5
No value	Somewhat valuable	Good value	Very Good value	Excellent value

Comment:

- Need more stats and examples of other biodiversity strategies e.g. SCNRM
- Need to be clear about what is evidence and what is opinion.

3. Was the overall content pitched at an appropriate level?

1	2 (2)	3 (2)	4 (2)	5(1)
No value	Somewhat valuable	Good value	Very Good value	Excellent value

Comment:

- Getting there.

4. Was the facilitation effective?

1	2	3 (4)	4 (3)	5
No value	Somewhat valuable	Good value	Very Good value	Excellent value

Comment:

5. What elements or sessions do you remember as particularly effective or worked well?

Comments:

- Identifying opportunities was good.
- Knowledge sharing to reach a shared understanding.
- Discussion.
- Constraints.
- Input and discussion amongst participants – good listening and respect for each others opinions.

6. Suggestions for improvements?

Comment:

- Need input by professionals and university experts in biodiversity.
- Timing in evenings as opposed to business hours. Can we change to day time?
- Please provide food.
- Food.
- Invite participants to bring a slide to tell us one important thing relevant to their work/ biodiversity

7. How would you rate the overall value of the workshop?

1	2 (1)	3 (4)	4 (2)	5 (1)
No value	Somewhat valuable	Good value	Very Good value	Excellent value

Comment:

24

Data and Maps

Attendees were invited to view maps of data which is being used to inform the biodiversity strategy.
Discussion included:

- That there was a lot of data.
- Some data was only for ARVS area while some was for whole City of Albany.
- As with most data, there are some short comings with data sets.

25

City of Albany Freehold Land

26

APPENDIX C

List of Conservation Significant Flora – City of Albany

THREATENED AND PRIORITY FLORA – CITY OF ALBANY

STATUS	*NUMBER OF SPECIES*	
Threatened Species	***Biodiversity Conservation Act***	***EPBC Act***
Cr – Critically endangered species (facing an extremely high risk of extinction in the wild in the immediate future)	*12 species* *Banksia anatona* *Banksia brownii* *Banksia montana* *Banksia verticillata* *Calectasia cyanea* *Conospermum quadripetalum* *Daviesia ovata* *Daviesia pseudaphylla* *Drakaea confluens* *Grevillea maxwellii* *Isopogon uncinatus* *Scaevola macrophylla*	*6* *Vulnerable*
EN – Endangered species facing a very high risk of extinction in the wild in the near future	*12 species* *Caladenia bryceana subsp. bryceana* *Caladenia granitora* *Diuris drummondii* *Drakaea micrantha* *Isopogon buxifolius var. buxifolius* *Microtis globula* *Myoporum cordifolium* *Sphenotoma drummondii* *Styphelia exilis* *Verticordia fimbrilepis subsp. australis* *Verticordia helichrysantha*	
VU - Vulnerable species facing a high risk of extinction in the wild in the medium-term future	*6 species* *Andersonia pinaster* *Banksia goodii* *Caladenia harringtoniae* *Chordifex abortivus* *Conostylis misera* *Kennedia glabrata* *Tribonanthes purpurea*	
Priority Species		
Priority 1: Poorly-known species - known from few locations, none on conservation lands	*21 species* *Acacia microneura* *Prasophyllum paulinae* *Prostanthera verticillaris* *Thomasia multiflora*	

STATUS Threatened Species	*NUMBER OF SPECIES* *Biodiversity Conservation Act*	*EPBC Act*
	Thomasia purpurea x solanacea *Trymalium litorale* *Usnea pulvinata* *Austrostipa everettiana* *Caladenia evanescens* *Calytrix djinda* *Conospermum coerulescens subsp. coerulescens* *Drosera grievei* *Drosera paleacea* *Hibbertia sandifordiae* *Lasiopetalum hapalocalyx* *Lepidosperma sp. Mt Chester (S. Kern et al. LCH 16596)* *Netrostylis sp. Warren (M. McCallum Webster 23/2/1979)* *Schoenus sp. Grey Rhizome (K.L. Wilson 2922)* *Schoenus sp. Mt Barker (G.J. Keighery 9679)* *Stackhousia sp. Stirling Range (W.R. Barker 2399)* *Tetratheca affinis subsp. Cape Riche (T.D. Macfarlane TDM 1832)*	
Priority 2: Poorly-known species - known from few locations, some on conservation lands	*47 species* *Acacia arcuatilis* *Agrostocrinum scabrum subsp. littorale* *Andersonia carinata* *Asterolasia hyalina* *Caladenia startiorum* *Chamelaucium orarium* *Chamelaucium sp. Cape Riche (C.A. Gardner 2153)* *Chamelaucium xanthocladum* *Chordifex leucoblepharus* *Chordifex ornatus* *Comesperma lanceolatum* *Degelia flabellata* *Diuris heberlei* *Gyrostemon thesioides* *Lepidium desvauxii* *Leucopogon bracteolaris* *Pterostylis heberlei* *Schizaea rupestris* *Spyridium riparium* *Stylidium daphneae* *Stylidium falcatum* *Thelymitra porphyrosticta* *Amanita wadulawitu* *Astartea transversa* *Bossiaea sp. Mt Frankland (L. Graham 2174)* *Caladenia applanata subsp. erubescens* *Calandrinia sp. Torndirrup (S.D. Hopper et al. SDH 8712)*	

STATUS Threatened Species	*NUMBER OF SPECIES* *Biodiversity Conservation Act*	*EPBC Act*
	Calectasia grandiflora *Carpobrotus sp. Lateral Flowers (N. Gibson & M. Lyons 973)* *Conospermum spectabile* *Gastrolobium ferrugineum* *Gonocarpus keigheryi* *Grevillea merceri* *Hydrocotyle serendipita* *Lasiopetalum maxwellii* *Leucopogon acicularis* *Melaleuca ordinifolia* *Monotoca aristata* *Petrophile carduacea* *Scaevola xanthina* *Schoenus sp. Grassy (E. Gude & J. Harvey 250)* *Stenanthemum sublineare* *Stylidium articulatum* *Stylidium keigheryi* *Stylidium oreophilum* *Styphelia cymbiformis* *Tricostularia sp. Two Peoples Bay (G. Wardell-Johnson GWJ 114)*	
Priority 3: Poorly-known species - known from several locations	*65 species* *Andersonia setifolia* *Andersonia sp. Mitchell River (B.G. Hammersley 925)* *Calytrix pulchella* *Chorizema carinatum* *Gonocarpus trichostachyus* *Juncus meianthus* *Melaleuca pritzelii* *Microcorys glabra var. pubescens* *Poa billardierei* *Styphelia rotundifolia* *Synaphea incurva* *Synaphea preissii* *Verticordia huegelii var. tridens* *Acacia ataxiphylla subsp. ataxiphylla* *Acacia errabunda* *Acacia keigheryi* *Amanita drummondii* *Amanita fibrillopes* *Amanita preissii* *Anzybas abditus* *Austrostipa mundula* *Banksia biterax* *Boronia crassipes* *Bossiaea lalagoides*	

STATUS Threatened Species	*NUMBER OF SPECIES* *Biodiversity Conservation Act*	*EPBC Act*
	Calectasia obtusa *Calycopeplus marginatus* *Caustis sp. Boyanup (G.S. McCutcheon 1706)* *Centrolepis milleri* *Commersonia rotundifolia* *Desmocladus biformis* *Eucalyptus newbeyi* *Goodenia sp. South Coast (A.R. Annels ARA 1846)* *Hakea lasiocarpha* *Hakea oldfieldii* *Hibbertia argentea* *Hopkinsia adscendens* *Isopogon spathulatus subsp. obovatus* *Kunzea micrantha subsp. hirtiflora* *Lachnagrostis billardierei subsp. billardierei* *Lasiopetalum parvuliflorum* *Lasiopetalum sp. Denmark (B.G. Hammersley 2012)* *Latrobea recurva* *Leucopogon alternifolius* *Leucopogon elegans subsp. psorophyllus* *Melaleuca micromera* *Netrostylis sp. Blackwood River (A.R. Annels 3043)* *Opercularia acolytantha* *Pimelea rosea subsp. annelsii* *Pultenaea calycina subsp. calycina* *Pultenaea pinifolia* *Schoenus benthamii* *Sphaerolobium validum* *Spyridium oligocephalum* *Stylidium lepidum* *Stylidium pseudohirsutum* *Stylidium roseonanum* *Synaphea intricata* *Thelymitra jacksonii* *Thomasia pygmaea* *Thysanotus cymosus* *Thysanotus gageoides* *Tricostularia davisii* *Tricostularia sandifordiana* *Verticordia endlicheriana var. angustifolia*	
Priority 4: Rare, Near Threatened and other species in need of monitoring	*54 Species* *Adenanthos x cunninghamii* *Andersonia sp. Jamesii (J. Liddelow 84)* *Asplenium decurrens* *Banksia parva*	

STATUS	*NUMBER OF SPECIES*	
Threatened Species	***Biodiversity Conservation Act***	***EPBC Act***
	Bossiaea divaricata *Calothamnus robustus* *Corysanthes limpida* *Drosera fimbriata* *Eucalyptus calcicola subsp. unita* *Eucalyptus newbeyi* *Eucalyptus x kalganensis* *Gahnia sclerioides* *Gonocarpus pusillus* *Gonocarpus simplex* *Kunzea pauciflora* *Lysinema lasianthum* *Microtis pulchella* *Ornduffia submersa* *Pleurophascum occidentale* *Thomasia quercifolia* *Trithuria australis* *Verticordia harveyi* *Acacia declinata* *Adenanthos filifolius* *Andersonia grandiflora* *Banksia concinna* *Banksia plumosa subsp. denticulata* *Banksia seneciifolia* *Banksia serra* *Banksia sessilis var. cordata* *Boronia virgata* *Calothamnus microcarpus* *Eucalyptus buprestium x staeri* *Eucalyptus marginata x pachyloma* *Eucalyptus melanophitra* *Eucalyptus preissiana x staeri* *Eucalyptus x missilis* *Jacksonia calycina* *Lepidium pseudotasmanicum* *Marianthus granulatus* *Microtis quadrata* *Muiriantha hassellii* *Myosotis australis subsp. australis* *Pomaderris grandis* *Rumex drummondii* *Sphenotoma sp. Stirling Range (P.G. Wilson 4235)* *Spyridium spadiceum* *Stylidium gloeophyllum* *Tecticornia uniflora* *Thomasia solanacea*	

STATUS	*NUMBER OF SPECIES*	
Threatened Species	***Biodiversity Conservation Act***	***EPBC Act***
	Thysanotus isantherus *Thysanotus parviflorus* *Xanthosia eichleri*	

Source: DBCA (2024) NatureMaps. Conservation significant species under *Biodiversity Conservation Act 2016. Note: Priority status is not a listing under the BC Act*.

APPENDIX D

Definitions of Conservation Categories

CONSERVATION CATEGORY DEFINITIONS

For Western Australian Fauna and Flora

Threatened, Extinct and Specially Protected fauna or flora[1] are species[2] which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

Categories of Threatened, Extinct and Specially Protected fauna and flora are:

T Threatened species

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is the species of fauna that are listed as critically endangered, endangered or vulnerable threatened species.

Threatened flora is the species of flora that are listed as critically endangered, endangered or vulnerable threatened species.

The assessment of the conservation status of threatened species is in accordance with the BC Act listing criteria and the requirements of Ministerial Guideline Number 1 and Ministerial Guideline Number 2 that adopts the use of the International Union for Conservation of Nature (IUCN) Red List of Threatened Species Categories and Criteria[3], and is based on the national distribution of the species.

CR Critically endangered species

Threatened species considered to be "*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.

Examples of use:

- The western ringtail possum (*Pseudocheirus occidentalis*) is listed as a critically endangered threatened species under the *Biodiversity Conservation Act 2016.*
- Western ringtail possum is listed as critically endangered under the *Biodiversity Conservation Act 2016.*
- Listing reference in a table: column heading: BC Act, row text: CR.

EN Endangered species

Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines.

Examples of use:

- *Caladenia hopperiana* is listed as an endangered threatened species under the *Biodiversity Conservation Act 2016.*
- *Caladenia hopperiana* is listed as endangered under the *Biodiversity Conservation Act 2016.*
- Listing reference in a table: column heading: BC Act, row text: EN.

VU Vulnerable species

Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.

Examples of use:

- The forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) is listed as a vulnerable threatened species under the *Biodiversity Conservation Act 2016.*
- Forest red-tailed black cockatoo is listed as vulnerable under the *Biodiversity Conservation Act 2016.*
- Listing reference in a table: column heading: BC Act, row text: VU.

Extinct species

Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.

EX Extinct species

Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Examples of use:

- *Acacia kingiana* is listed as an extinct species under the *Biodiversity Conservation Act 2016.*
- *Acacia kingiana* is listed as extinct under the *Biodiversity Conservation Act 2016.*
- Listing reference in a table: column heading: BC Act, row text: EX.

EW Extinct in the wild species

Species that *"is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no fauna or flora species listed as extinct in the wild.

SP Specially protected species

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered, or vulnerable) or extinct species under the BC Act cannot also be listed as specially protected species.

MI Migratory species

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Migratory species include birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA)[4], China (CAMBA)[5] or The Republic of Korea (ROKAMBA)[6], and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention)[7], an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Examples of use:

- The wedge-tailed shearwater (*Ardenna pacifica*) is listed as a specially protected migratory species under the *Biodiversity Conservation Act 2016.*
- Wedge-tailed shearwater is listed as migratory under the *Biodiversity Conservation Act 2016.*
- Listing reference in a table: column heading: BC Act, row text: MI.

CD **Species of special conservation interest (conservation dependent)**

Species of special conservation need that are dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Currently only fauna are listed as species of special conservation interest.

Examples of use:

- The wambenger, south-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*) is listed as a specially protected species of special conservation interest under the *Biodiversity Conservation Act 2016.*
- Wambenger, south-western brush-tailed phascogale, is listed as conservation dependent under the *Biodiversity Conservation Act 2016.*
- Listing reference in a table: column heading: BC Act, row text: CD.

OS **Species otherwise in need of special protection (other specially protected)**

Species otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Currently only fauna are listed as species otherwise in need of special protection.

Examples of use:

- The dugong (*Dugong dugon*) is listed as a specially protected species otherwise in need of special protection under the *Biodiversity Conservation Act 2016.*
- Dugon is listed as other specially protected fauna under the *Biodiversity Conservation Act 2016.*
- Listing reference in a table: column heading: BC Act, row text: OS.

P **Priority species**

Priority is not a listing category under the BC Act. The Priority Flora and Fauna lists are maintained by the department and are published on the department's website.

All fauna and flora are protected in WA following the provisions in Part 10 of the BC Act. The protection applies even when a species is not listed as threatened or specially protected, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land).

Species that may possibly be threatened species that do not meet the criteria for listing under the BC Act because of insufficient survey or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of prioritisation for survey and evaluation of conservation status so that consideration can be given to potential listing as threatened.

Species that are adequately known, meet criteria for near threatened, or are rare but not threatened, or that have been recently removed from the threatened species list or conservation dependent or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of priority status is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

1 **Priority 1: Poorly-known species - known from few locations, none on conservation lands**

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, for example, agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation.

Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under immediate threat from known threatening processes. These species are in urgent need of further survey.

Examples of use:

- *Borya stenophylla* is listed as a Priority 1 species by the Department of Biodiversity, Conservation and Attractions.
- *Borya stenophylla* is listed as Priority 1 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P1.

2 Priority 2: Poorly-known species - known from few locations, some on conservation lands

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, for example, national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation.

Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under threat from known threatening processes. These species are in urgent need of further survey.

Examples of use:

- *Caladenia nivalis* is listed as a Priority 2 species by the Department of Biodiversity, Conservation and Attractions.
- *Caladenia nivalis* is listed as Priority 2 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P2.

3 Priority 3: Poorly-known species - known from several locations

Species that are known from several locations and the species does not appear to be under imminent threat or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat.

Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. These species need further survey.

Examples of use:

- *Acacia nitidula* is listed as a Priority 3 species by the Department of Biodiversity, Conservation and Attractions.
- *Acacia nitidula* is listed as Priority 3 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P3.

4 Priority 4: Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as a conservation dependent specially protected species.

(c) Species that have been removed from the list of threatened species or lists of conservation dependent or other specially protected species, during the past five years for reasons other than taxonomy.

(d) Other species in need of monitoring.

Examples of use:

- *Banksia aculeata* is listed as a Priority 4 species by the Department of Biodiversity, Conservation and Attractions.
- *Banksia aculeata* is listed as Priority 4 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P4.

[1] The definition of flora includes algae, fungi, and lichens.

[2] Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

[3] Western Australia has assigned species to threat categories using the *IUCN Red List of Threatened Species Categories and Criteria* since 1996 (referencing all criteria).

[4] JAMBA - first included in the WA migratory species list in 1980.

[5] CAMBA - first included in the WA migratory species list in 2010.

[6] ROKAMBA - first included in the WA migratory species list in 2010.

[7] Bonn Convention (Birds) - first included in the WA migratory species list in 2015.

APPENDIX E

Albany Regional Vegetation Assessment – Vegetation Units

ALBANY REGIONAL VEGETATION SURVEY – VEGETATION UNITS

Albany Vegetation Unit					Regional and local significance criteria									Threats		
Vegetation Unit	Vegetation unit name	No. of relevés	Restricted to ARVS area	Rarity (<1500ha)	(mean species / relevé)	TEC/PEC	Threatened Flora	Priority flora species	Wetland/Damplan d /Riparian/buffer	Wetland of National significance	Estuarine	Coastal dune	<10% in IUCN Reserves	Phytophthora dieback	Hydrological change	Fire sensitive
1	Yate Coastal Forest	7		●	11.7											
2	Peppermint Low Forest	10		●	10							●				
3	Coastal Heath	16			21.1		●					●				
4	Coastal *Banksia ilicifolia/* Peppermint Low Woodland	17		●	21.9		●	●						●		
5	Limestone Coastal Heath	18			14.6			●				●				5c
6	*Eucalyptus goniantha/E.angulosa* Limestone Mallee	4	o	●	18.8			●								
7	*Leucophyta brownii* Coastal Shrubland/Grassland	1		●	18								●			
8	Beach Herbland/Grassland	2		●	5.2			●				●				
9	Karri Forest	11		●	10.6			●					●			
10	Marri/Jarrah Forest/Peppermint Woodland	24			18.5			●	●				●			10b
11	Jarrah Woodland	8		●	20.3								●	●		
12	Jarrah/Marri/Sheoak Laterite Forest	40	o		25.7			●					●	●		12b
13	Jarrah/Sheoak/*E.staeri* Sandy Woodland	41	o		28		●	●						●		
14	*Banksia coccinea* Shrubland/ *Eucalyptus staeri*/Sheoak Open Woodland	41	o	●	27.6	●	●	●						●		●
15	*Banksia coccinea* Shrubland *Melaleuca striata/Leucopogon flavescens* Heath	6	o	●	27.5	●	●							●		●
16	*Melaleuca striata/Banksia* spp Coastal Heath	4	o	●	24.8	●								●		●
17	Marri/Jarrah Coastal Hills Open Forest	49	o	●	25.9			●						●		17a &b
18	Gardner/*Hakea* spp Shrubland	8	o	●	24.3			●					●	●		●
19	*Hakea elliptica* Shrubland/ *Eucalyptus doratoxylon* Mallee	3	o	●	10			●					●			●
20	*Eucalyptus goniantha* Mallee	4		●	9.5			●					●			
21	Coastal Shrubland Complex	15		●	21.4									●		●
22	*Hakea* spp Transitional Shrubland	4		●	27.8											●
23	*Gastrolobium bilobum/Hakea elliptica* Granite Shrubland/Yate Woodland	11	o	●	10.8								●			●
24	*Taxandria marginata* Granite Shrubland	9		●	12.3		●	●						●		●
25	*Acacia sulcata/Leucopogon assimilis* Granite Shrubland.	9		●	15.8			●								
26	*Darwinia diosmoides* Granite Shrubland	1		●	14											
27	*Melaleuca viminea* Granite Thicket	3		●	5			●					●			●
29	*Jarrah Woodland/Eucalyptus falcata* Mallee	1		●	28			●								
30	Eastern Jarrah/Sheoak Woodland	36	o	●	27.4			●					●	●		●
31	*Hakea* spp Shrubland/Woodland Complex	72			31.2		●	●						●		●
32	*Taxandria spathulata* Heath	6	o	●	20	●		●					●	●		●
33	*Eucalyptus patens* Low Woodland	3		●	13				●				●			
34	*Banksia occidentalis/Kunzea clavata* Shrubland	3	●	●	13.7	●			●				●			●
35	*Eucalyptus megacarpa* Riparian Forest	1		●	14				●	●			●			
36	*Callistachys* spp Thicket	1		●	6				●							
37	*Adenanthos cuneatus/Banksia quercifolia* Transitional Heathland	2	o	●	18		●		●					●		●
38	*Taxandria parviceps* Transitional Shrubland	10		●	23.7				●					●		●
39	*Pericalymma spongiocaule* Low Heath	32	o	●	25.3				●					●		●
40	Takalarup Damp Heath	8		●	27.3			●	●				●	●		●
41	*Xanthorrhoea* Lowland Sedgeland	1		●	19			●	●				●			
42	*Lepidosperma longitudinale* Sedgeland	1		●	5				●				●			
43	*Banksia littoralis* Open Woodland/ *Anarthria laevis* Sedgeland	1		●	9				●							
44	*Banksia littoralis* Woodland/ *Melaleuca incana* Shrubland	3	o	●	13	●			●					●	●	
45	Mixed *Banksia littoralis* Open Woodland	5		●	19.6				●					●		
46	*Evandra aristata* Sedgeland	48			18.6			●	●	●				●		●
47	*Homalospermum firmum/ Callistemon glaucus* Peat Thicket	19			12.5				●	●				47b		●
48	*Melaleuca microphylla* Shrubland/ Low Forest	9		●	8.2				●							●
49	*Melaleuca preissiana* Low Woodland	7		●	15.7			●	●				●			●
51	*Gahnia trifida*Sedgeland/Wet Shrubland	3	o	●	13			●	●					●		●
52	*Melaleuca cuticularis/M. preissiana* Open Woodland	10		●	17.9			●	●							●
53	*Kunzea recurva/Petrophile squamatua*Wet Shrubland	6		●	21.8			●	●				●			●
54	*Melaleuca spathulata/Melaleuca viminea* Swamp Heath	2		●	4.5	●			●				●			●
55	*Melaleuca densa* Swamp Heath	8		●	8.9				●				●			●
56	*Astartea scoparia* Swamp Thicket	9	o	●	6.9	●		●	●				●			●
57	*Melaleuca rhaphiophylla* Woodland/Low Forest Complex	10		●	6.5				●							●
58	*Melaleuca rhaphiophylla/Banksia littoralis* Woodland	2		●	10				●						●	●
59	*Taxandria juniperina* Closed Forest	5		●	6.8				●	●			●			●
60	Coastal *Melaleuca incana/ Taxandria juniperina* Shrubland	3	o	●	9.7	●			●		●		●			●
61	*Melaleuca croxfordiae* Low Woodland	1		●	13				●				●			●
62	*Eucalyptus occidentalis* Tall Woodland	1		●	4				●				●			
63	Mixed Sedgeland	0		●	n/a				●				●			●
64	*Baumea articulata* Sedgeland	1		●	2				●	●					●	●
65	Coastal *Melaleuca cuticularis* Low Forest	5		●	6				●	●	●		●			●
66	*Juncus kraussii* Sedgeland	4		●	3				●	●	●		●			
67	Coastal Saltmarsh	4		●	5.3				●	●	●		●			

APPENDIX F

Status and Recommendations – ARVS2

STATUS AND RECOMMENDATIONS FOR ALBANY REGIONAL VEGETATION SURVEY ALBANY VEGETATION UNITS

AVU	2010[1] EXTENT (HA)	% OF CURRENT EXTENT PROTECTED[2]	COMMENTS AND[3] RECOMMENDATIONS
1	417.65	21.60%	Further protection is dependent on conservation on private land (ARVS2_LNA1, ARVS2_LNA8 and ARVS2_LNA22). 10ha in R25550 - Water Corporation.
2	1230.18	46.21%	Manage threats.
3	3735.69	54.45%	Manage threats.
4	505.08	42.45%	R25295 CoA is designated Environmental Conservation under LPS2 (ARVS2_LNA12) proposed due to the presence of other priority AVUs will increase the protection status of AVU4.
5	1848.00	53.37%	Manage threats.
6	29.21	100.00%	Manage threats.
7	0.07	100.00%	Manage threats.
8	22.22	32.33%	It is a widespread unit along beaches in south west WA. Manage threats.
9	884.50	1.56%	Climate refugial community, the eastern occurrences are the eastern limits of this ecological community, priority for consideration - retention and protection on private lands to maintain/improve connectivity between the Waychinicup National Park and Lake Pleasant Nature Reserve (ARVS2_LNA21). Private land conservation (ARVS2_LNA1 and ARVS2_LNA5), consider changing DBCA Timber (in ARVS2_LNA1) reserve to a conservation reserve.
10	1594.34	4.20%	This AVU has >70% of its current extent in modified or transformed condition. Only 19% of its current extent is on reserved land, with small portion protected. 5.75ha is in the CoA R2031 for which change of vesting purpose is proposed. Further AVU10 occurs in several CoA reserves vested for recreation (ARVS2_LNA5), drainage, Fire station and DBCA Timber reserve. 36ha of AVU 10 will be retained in Parks & Recreation reserves in the Kalgan Rural Village. The full extent of AVU10 in the Conservation covenant L689873 and the adjoining the Waychinicup National Park should be investigated. Opportunities to protect on Private lands should be investigated within ARVS2_LNA6 and ARVS2_LNA1.
11	169.93	10.10%	R12599 is designated Environmental Conservation under LPS2. Discuss opportunities as outlined for ARVS2_LNA5, Reserve vesting for R18012, R12012 & R42854 - refer to ARVS2_LNA1.

[1] Figures for ARVS1 (Sandiford and Barrett, 2010).
[2] Not including areas designated 'Environmental Conservation' local reserves in LPS2
[3] ARVS2_LNA - areas where specific opportunities are identified to achieve improved level of protections for AVU. See Appendix L)

AVU	2010[1] EXTENT (HA)	% OF CURRENT EXTENT PROTECTED[2]	COMMENTS AND[3] RECOMMENDATIONS
12	13092.83	10.94%	Potentially restricted to the study area - high priority: 750ha in R13802 Water Catchment and 9ha in R2031; 114ha is designated Environmental Conservation under LPS2 in Kalgan Rural Village, R24000 (Timber, Firewood, CoA), R24661 (camping & Recreation CoA) is designated Environmental Conservation under LPS2. Opportunities for private land conservation within ARVS2_LNA9 should be investigated.
13	5120.93	27.29%	Potentially restricted to the study area & believed to be retained at <30% - high priority: 12ha in R2031 CoA, 263ha in R13802 Water catchment, R35381 (Recreation, CoA), R18779 (Gov requirement & use, CoA), R329 (Recreation, CoA) (if we assume that the current extent is approximately 25% of the original extent, 3482ha should be protected to achieve the 17% protection target. After considering the protected areas, additional 2084ha should be secured. The proposed changes to reserve vesting will not achieve this assumed target. In addition, as of the total mapped extent, only 70% or 3614ha is mapped as being in good condition (residual).
14	1324.95	45.96%	Manage threats, highly vulnerable, PEC, most occurrences observed to be affected by dieback. Further opportunities to protect this AVU should be sought. Opportunities exist: 57ha in R33308 (CoA, recreation & Botanical garden, 191ha in R13802 (Water catchment, Water Corporation). This AVU is considered restricted to the study area, with <30% of original extent remaining. If we assume that the current extent is approximately 25% of the original extent, 900ha should be protected to achieve the 17% protection target. After considering the protected areas, an additional 292ha should be secured. The proposed changes to reserve vesting will not achieve this assumed target. In addition as of the total mapped extent, only 76% or 1022ha is mapped as being in good condition (residual).
15	161.89	13.07%	55ha or 34% of the current extent is in R13802 (Water catchment, Water Corporation), 68ha or 42% of the current extent is in R2031 (vested in the City of Albany) and adjoining the R13802. Both of these reserves are Class C.
16	30.33	100.00%	Manage threats.
17	1237.57	35.38%	155ha in R13802 & 9ha in R2031, utilise opportunities to protect as considered potentially restricted to the study area.
18	138.46	0.00%	All in R2031 - CoA, is designated Environmental Conservation under LPS2.
19	24.68	0.00%	All in R2031 - CoA, is designated Environmental Conservation under LPS2.
20	34.32	0.00%	8ha in R 2031, CoA, and rest in ARVS2_LNA21.
21	32.84	66.42%	Manage threats.
22	33.05	58.95%	Manage threats
23	163.24	0.83%	11ha in R2031, CoA, R25295 - Recreation, CoA - is designated Environmental Conservation under LPS2, R33308 - CoA, Recreation & Botanical garden, ARVS2_LNA6
24	110.42	18.58%	ARVS2_LNA12, ARVS2_LNA11, R27068 (Recreation, CoA), 3ha in R2031 (CoA).

AVU	2010[1] EXTENT (HA)	% OF CURRENT EXTENT PROTECTED[2]	COMMENTS AND[3] RECOMMENDATIONS
25	16.72	10.14%	R33308 (DBCA, 6.67ha -vested Recreation & Botanical Garden), R13802 (Water Corporation, 3.5ha), R27068 (CoA, Parks & Recreation), R2681 (CoA, Park &Telecommunication) & R26204 (Animal Welfare) - is designated Environmental Conservation under LPS2 so protection levels have increased to over 90% of the current extent.
26	2.55	40.86%	R25295 (CoA, recreation) is designated Environmental Conservation under LPS2
27	11.33	0.00%	R2031 is designated Environmental Conservation under LPS2 and protects all the extent of AVU27,
28	39.04	14.67%	R13802 (Water Corporation) includes 7ha, R33308 (DBCA) includes 8.8ha, R25295 (CoA, recreation), ARVS2_LNA8 (Parks & Recreation reserve).
29	5.93	100.00%	Manage threats.
30	1041.66	0.01%	It appears that all is within R13802, Water catchment.
31	2352.41	45.67%	Already well protected, another 971ha or 41% of current extent in R13802 and 90ha in the adjoining CoA reserve R2031. Includes 1 P1 flora and 3 P3 flora species.
32	303.70	0.00%	All in R13802, Water catchment vested in Water Corporation.
33	101.44	1.83%	ARVS2_LNA3, R26888 (CoA, recreation (4.6ha); R2000 (CoA, Recreation (3.3ha), private land conservation initiatives within ARVS2_LNA1.
34	11.67	0.41%	R24514, CoA, camping & recreation - 6.12ha (IHCVA2), R20367, CoA, common. Areas are designated Environmental Conservation under LPS2.
35	42.99	6.73%	Very limited opportunities exist for increased protection of AVU35 within already reserved lands. Largest occurrence of AVU35 is within ARVS2_LNA8, with small portion within a Drainage & Recreation reserve and the rest on private land zoned Rural. ARVS2_LNA12
36	35.88	7.51%	This AVU occurs naturally in small patches, but is vulnerable to weed invasion. As it is spread across the study area, changes to vesting purposes of larger reserves/ designation of Environmental Conservation under LPS2 will result in greater protection levels in AVU36 as this AVU is often present. For example: R13802, R2031, action within ARVS2_LNA1.
37	5.62	100.00%	Manage threats.
38	108.75	40.04%	The AVU 38 is represented in 5 separate conservation reserves and further occurrences will be protected by designation of Environmental Conservation under LPS2 (e.g. R2031).
39	875.82	22.93%	This potentially restricted AVU is below the 30% protection threshold. It is represented in more than 5 conservation reserves, and 230 ha has been protected by designation of 'Environmental Conservation' under LPS2 (CoA R2031). R13802 Water catchment, would benefit from having an additional purpose of 'Environmental Consevation' which would increase the protection levels to nearly half of the current extent. If the current extent is approximately 25% of the original extent, 595ha should be protected to achieve the 17% protection target. After considering the protected areas, an additional 395ha should be secured. The proposed changes to reserve vesting will not achieve this assumed target. In addition, as of the total mapped extent, only 76% or 696ha is mapped as being in good condition (residual).

AVU	2010[1] EXTENT (HA)	% OF CURRENT EXTENT PROTECTED[2]	COMMENTS AND[3] RECOMMENDATIONS
40	165.37	0.00%	All in R13802, Water catchment vested in Water corporation.
41	8.20	0.00%	>70% of the current extent modified, with most of the low laying areas where it was recorded cleared in the study area. The only example on reserved land is within CoA reserves with purpose of Camping and Recreation. However, this area is designated Environmental Conservation under LPS2. Extending the purpose of the existing reserve to conservation and including adequate management action to conserve this AVU is recommended. All other occurrences are on private lands. Support for management
42	0.15	0.00%	Within a Fire Station/Recreation Reserve R32825 (CoA) and is designated Environmental Conservation under LPS2 which affords protection of the single occurrence of this vegetation type in the study area.
43	0.79	69.30%	The only other opportunity to improve protection levels of AVU 43 in the study area exist within a CoA reserve R15949, which is vested for gravel and sand but is designated Environmental Conservation under LPS2 . Other Priority AVUs in this reserve include PEC (AVU14), and potentially restricted AVU 12,13 &39.
44	3.86	23.45%	All occurrences are on reserved land, but only small portion is reserved for conservation, R931 vested for Government requirements, Dep. Of Regional Development, R 25550 vested for Water with Water Corporations and R35754 CoA recreation (0.42ha).
45	25.82	12.29%	R20367 CoA, vested for common use of settlers, R25295 CoA Recreation reserve (ARVS2_LNA12) R27068 CoA recreation reserve. ARVS report suggests that examples on private lands were highly degraded (Big Grove area).
46	1743.93	12.75%	Appears to be common outside the study area and its eastern extent is just east of the ARVS area. It is represented in more than 5 different conservation reserves. With the changing purpose of R13802 (Water Corporation) an additional 417ha of AVU46 will be protected.
47	2070.27	13.16%	Considered widespread. 58ha of AVU47 is mapped within R 13802 (Water catchment) considered for change of purpose. It is also represented in several CoA reserves where change of purpose or addition of conservation purpose should be investigated. As this AVU is one of few that provides habitat for Rakali (water rat), conservation on private land should be supported.
48	24.48	12.79%	Eastern limit of this AVU in the study area, further opportunities to protect in R2031 (CoA), R9888 CoA Recreation (3.4ha) within ARVS2_LNA1 but on private property fragmented, reduced to small isolated patches.
49	669.95	7.88%	Considered to be common in the Warren IBRA. Represented in more than 5 conservation reserves, additional 49ha could be added to protection by changing the vesting purpose of R13802 (Water Corporation).
50	258.56	8.74%	Seek retention to maintain ecological processes along creeklines.
51	20.61	100.00%	Manage threats.
52	257.90	37.91%	Distribution outside study are unknown, sensitive to increased salinity. Therefore, additional areas should be protected with opportunities in R25556 (Water Corporation)

AVU	2010[1] EXTENT (HA)	% OF CURRENT EXTENT PROTECTED[2]	COMMENTS AND[3] RECOMMENDATIONS
53	19.01	1.79%	ARVS2_LNA1, where part of a mosaic. R23464 CoA recreation & fire station - is designated Environmental Conservation under LPS2.
54	9.50	0.00%	Likely to reach eastern limit in the study area, in mosaic with AVU52, 53, 57. 5.5ha is in Major Road Reserve and on Rural zoned land (ARVS2_LNA2), ARVS2_LNAARVS2_LNA3 (Rural zoned land and Public Purpose Reserve (drainage).
55	22.12	5.71%	Nearly all in R13802, Water catchment vested in Water Corporation.
56	15.37	2.97%	Potentially restricted to the study area, R24548 Camping & recreation (ARVS2_LNA7), in ARVS2_LNA4 largest concentration but in fragmented patches on rural land or within a mosaic in a road reserve - limited opportunity to protect, the best opportunity in CoA Reserve R 15879 (Recreation) and adjoining Public Purposes land (not reserved yet) as part of large mosaic and adjoins a conservation reserve (ARVS2_LNA13). Assuming that the current extent is approximately 25% of the original extent, the original area would be less than 100ha. In addition, as of the total mapped extent, only 54% or 8.4ha is mapped as being in good condition (residual).
57	493.59	12.20%	>70% is considered modified or transformed, susceptible to weed invasion. This AVU is spread across the study area, with small patches in several reserves. Good opportunity to improve its protection status exists in R24514 (vested with the CoA) for recreation and camping). This area is designated Environmental Conservation under LPS2. Also R 42256 (Water Corporation, vested for recreation and drainage). AVU57 extends into the adjoining private lands zoned Rural, support for retention and management of this AVU should be provided.
58	24.56	100.00%	Manage threats.
59	777.76	10.20%	R13802, ARVS2_LNA4, ARVS2_LNA13.
60	8.35	0.00%	All occurrences are in one location adjoining Little Grove Structure Plan area, only 1.25ha in Parks & Recreation reserve, 1 ha spread over R22735 Water Corporation and R24747 CoA Fire Station. The rest has been approved for residential development in the Little Grove Structure Plan.
61	2.51	0.00%	All in R13802, Water catchment vested in Water Corporation.
62	3.89	0.00%	Occurs at its southern range, non reserved, private land conservation within ARVS2_LNA21 - part of a mosaic, the second occurrence is within a road reserve.
63	12.01	0.00%	All in R13802, Water catchment vested in Water Corporation.
64	56.10	37.12%	Represented in 3 conservation reserves, Typha infestations recorded as a problem, further opportunities to protect exist in ARVS2_LNA21.
65	206.78	9.46%	
66	70.34	19.92%	
67	78.25	12.35%	Mostly reserved for Environmental Conservation around Oyster Harbour, AVU 65 also within ARVS2_LNA7.
Total (HA)	43947.93	23.42%	

APPENDIX G

List of Conservation Significant Fauna

FAUNA SPECIES - CONSERVATION SIGNIFICANCE

INVERTEBRATES	COMMON NAME	BC ACT	EPBC ACT
Helicarion castanea	a helicarionid land snail	EX	
Trioza barrettae	Banksia brownii plant-louse	EN	EN
Westralunio carteri	Carter's freshwater mussel	VU	VU
Atelomastix culleni	Cullen's atelomastix millipede	VU	
Windbalea viride	green west wind katydid (Albany-Cape Riche)	P1	
Zephyrarchaea mainae	Main's assassin spider	VU	
Bertmainius tumidus	thick-legged pygmy trapdoor spider	EN	
Zephyrarchaea melindae	Toolbrunup assassin spider	VU	
Cynotelopus notabilis	Western Australian pill millipede	EN	
Hylaeus globuliferus	woolybush bee	P3	
FISH	COMMON NAME	BC ACT	EPBC ACT
Nannatherina balstoni	Balston's pygmy perch	VU	VU
Galaxiella nigrostriata	black-stripe minnow, black-striped dwarf galaxias	EN	EN
Carcharodon carcharias	great white shark	VU	VU & MI
Nannoperca pygmaea	little pygmy perch	EN	EN
Galaxiella munda	mud minnow, western dwarf galaxias	VU	
Geotria australis	pouched lamprey	P3	
Galaxias truttaceus (Western Australian population)	western trout minnow, western spotted galaxias	EN	EN
REPTILES	COMMON NAME	BC ACT	EPBC ACT
Dermochelys coriacea	leatherback turtle	VU	EN & MI
Caretta caretta	loggerhead turtle	EN	EN & MI
Elapognathus minor	short-nosed snake	P2	
BIRDS	COMMON NAME	BC ACT	EPBC ACT
Stercorarius parasiticus	Arctic jaeger, Arctic skua	MI	MI
Sterna paradisaea	Arctic tern	MI	MI
Thalassarche chlororhynchos	Atlantic yellow-nosed albatross	VU	MI
Botaurus poiciloptilus	Australasian bittern	EN	EN
Ixobrychus dubius	Australian little bittern	P4	
Ninox connivens connivens (southwest subpopulation)	barking owl (southwest subpopulation)	P3	
Limosa lapponica	bar-tailed godwit	MI	MI
Zanda baudinii	Baudin's cockatoo	EN	EN
Thalassarche melanophris	black-browed albatross	EN	VU & MI
Limosa limosa	black-tailed godwit	MI	MI
Oxyura australis	blue-billed duck	P4	
Onychoprion anaethetus	bridled tern	MI	MI
Calidris falcinellus	broad-billed sandpiper	MI	MI
Stercorarius antarcticus lonnbergi	brown skua, subantarctic skua	P4	
Zanda latirostris	Carnaby's cockatoo	EN	EN
Hydroprogne caspia	Caspian tern	MI	MI
Tringa nebularia	common greenshank	MI	MI
Actitis hypoleucos	common sandpiper	MI	MI
Thalasseus bergii	crested tern	MI	MI
Calidris ferruginea	curlew sandpiper	CR	CR & MI
Charadrius bicinctus	double-banded plover	MI	MI

Numenius madagascariensis	eastern curlew	CR	CR & MI
Ardenna carneipes	flesh-footed shearwater	VU	MI
Calyptorhynchus banksii naso	forest red-tailed black cockatoo	VU	VU
Apus pacificus	fork-tailed swift	MI	MI
Plegadis falcinellus	glossy ibis	MI	MI
Calidris tenuirostris	great knot	CR	CR & MI
Charadrius leschenaultii	greater sand plover, large sand plover	VU	VU & MI
Pluvialis squatarola	grey plover	MI	MI
Tringa brevipes	grey-tailed tattler	MI & P4	MI
Gelochelidon nilotica	gull-billed tern	MI	MI
Thinornis cucullatus	hooded plover, hooded dotterel	P4	
Puffinus huttoni	Hutton's shearwater	EN	
Thalassarche carteri	Indian yellow-nosed albatross	EN	VU & MI
Charadrius mongolus	lesser sand plover	EN	EN & MI
Calidris subminuta	long-toed stint	MI	MI
Leipoa ocellata	malleefowl	VU	VU
Tringa stagnatilis	marsh sandpiper	MI	MI
Tyto novaehollandiae novaehollandiae	masked owl (southwest)	P3	0
Atrichornis clamosus	noisy scrub-bird, tjimiluk	EN	EN
Glareola maldivarum	oriental pratincole	MI	MI
Pandion haliaetus	osprey	MI	MI
Pluvialis fulva	Pacific golden plover	MI	MI
Calidris melanotos	pectoral sandpiper	MI	MI
Falco peregrinus	peregrine falcon	OS	
Cereopsis novaehollandiae grisea	Recherche Cape Barren goose	VU	VU
Calidris canutus	red knot	EN	EN & MI
Calidris ruficollis	red-necked stint	MI	MI
Phaethon rubricauda	red-tailed tropicbird	MI & P4	MI
Sterna dougallii	roseate tern	MI	MI
Arenaria interpres	ruddy turnstone	MI	MI
Calidris pugnax	ruff	MI	MI
Calidris alba	sanderling	MI	MI
Calidris acuminata	sharp-tailed sandpiper	MI	MI
Ardenna tenuirostris	short-tailed shearwater	MI	MI
Thalassarche cauta cauta	shy albatross	VU	EN & MI
Phoebetria fusca	sooty albatross	EN	VU & MI
Ardenna grisea	sooty shearwater	MI	MI
Stercorarius maccormicki	south polar skua	MI	MI
Macronectes giganteus	southern giant petrel	MI	EN & MI
Xenus cinereus	Terek sandpiper	MI	MI
Diomedea exulans	wandering albatross	VU	VU & MI
Dasyornis longirostris	western bristlebird	EN	EN
Pezoporus flaviventris	western ground parrot	CR	CR
Platycercus icterotis xanthogenys	western rosella (inland)	P4	
Psophodes nigrogularis	western whipbird	EN or P4	
Psophodes nigrogularis nigrogularis	western whipbird (western heath)	EN	EN
Psophodes nigrogularis oberon	western whipbird (western mallee)	P4	

Numenius phaeopus	whimbrel	MI	MI
Zanda sp. 'white-tailed black cockatoo'	white-tailed black cockatoo	EN	EN
Oceanites oceanicus	Wilson's storm-petrel	MI	MI
Tringa glareola	wood sandpiper	MI	MI
MAMMALS	**COMMON NAME**	**BC ACT**	**EPBC ACT**
Neophoca cinerea	Australian sea lion	EN	EN
Macrotis lagotis	bilby, dalgyte, ninu	VU	VU
Balaenoptera musculus	blue whale	EN	EN & MI
Dasyurus geoffroii	chuditch, western quoll	VU	VU
Parantechinus apicalis	dibbler	EN	EN
Balaenoptera physalus	fin whale	EN	VU & MI
Potorous gilbertii	Gilbert's potoroo	CR	CR
Megaptera novaeangliae	humpback whale	CD & MI	MI
Orcinus orca	killer whale	MI	MI
Arctocephalus forsteri	New Zealand fur seal, long-nosed fur seal	OS	0
Arctocephalus forsteri	New Zealand fur-seal, long-nosed fur-seal	OS	0
Myrmecobius fasciatus	numbat, walpurti	EN	EN
Balaenoptera musculus brevicauda	pygmy blue whale	EN	EN & MI
Caperea marginata	pygmy right whale	MI	MI
Isoodon fusciventer	quenda, southwestern brown bandicoot	P4	
Setonix brachyurus	quokka	VU	VU
Phascogale calura	red-tailed phascogale, kenngoor	CD	VU
Eubalaena australis	southern right whale	VU	EN & MI
Phascogale tapoatafa wambenger	south-western brush-tailed phascogale, wambenger	CD	
Physeter macrocephalus	sperm whale	VU	MI
Notamacropus eugenii derbianus	tammar wallaby	P4	
Hydromys chrysogaster	water-rat, rakali	P4	
Notamacropus irma	western brush wallaby	P4	
Falsistrellus mackenziei	western false pipistrelle, western falsistrelle	P4	
Pseudocheirus occidentalis	western ringtail possum, ngwayir	CR	CR
Bettongia penicillata ogilbyi	woylie, brush-tailed bettong	CR	EN

Source: DBCA (2024) NatureMaps.

APPENDIX H

ARVS Fauna Habitat Matrix

ARVS PROJECT: FAUNA HABITAT MATRIX

Albany Vegetation Unit	Western Ringtail Possum #	Carnaby's Black Cockatoo #	Forest Red-tailed Black Cockatoo #	Baudin's Black Cockatoo #	Quenda #	Main's Assassin Spider #	Honey Possum	Western Yellow Robin	Firetail	Quokka #	Brush Wallaby	Grey-bellied Dunnart	Brush-tailed Phascogale	Water rat	Australasian Bittern #	Shorebirds (collective) #	Barking Owl & Masked Owl	Western Whipbird	Western Crested Shrike-tit *	Southern Emu Wren	Pill Millipede *	Chelodina oblonga	Total potential habitats
1	y	R	y		Y				Y								Y						6
2	y	F/R			y	y			Y					Y									6
3	y	F/R		F	y	y	y					Y								Y			8
4	y	F/R		F	y	y	y					Y								Y			8
5	y	F/R		F	y	y	y					Y								Y			8
6		F	F			y																	3
7					y																		1
8																							0
9	y	R/F/B	F/R	F/R	y	y		y	Y				Y				Y		Y		Y		12
10	y	F/R	F/R	F/R	y		y	y		Y				Y									9
11	y	F/R	F/R	F/R	y			y															6
12	y	F/R	F/R	F/R	y			y					y				Y		Y				9
13	y	F/R	F/R	F/R	y		y	y															7
14	y	F			y		y													Y			5
15	y	F			y		y													Y			5
16		F			y		y											Y		Y			5
17	y	F/R	F/R	F/R	y		y			Y	Y						Y	Y					10
18	y	F	F		y		y																5
19		F			y																		2
20					y																		1
21	y	F			y	y	y																5
22	y	F			y																		3
23	y	F/R	F		y				Y	Y													6
24		F			y																		2

Albany Vegetation Unit	Western Ringtail Possum #	Carnaby's Black Cockatoo #	Forest Red-tailed Black Cockatoo #	Baudin's Black Cockatoo #	Quenda #	Main's Assassin Spider #	Honey Possum	Western Yellow Robin	Firetail	Quokka #	Brush Wallaby	Grey-bellied Dunnart	Brush-tailed Phascogale	Water rat	Australasian Bittern #	Shorebirds (collective) #	Barking Owl & Masked Owl	Western Whipbird	Western Crested Shrike-tit *	Southern Emu Wren	Pill Millipede *	Chelodina oblonga	Total potential habitats
25																							0
26																							0
27																							0
28																							0
29		F/R			y																		2
30	y	F/R	F	F/R	y							Y					Y						7
31	y	F			y		y					Y						y		Y			7
32		F			y																		2
33	y	F/R		F	y			y	Y														6
34	y				y		y																3
35	y	F/R	F/R	R	y			y	Y								Y		Y				9
36	y				y				Y														3
37		F			y		y																3
38		F			y				Y														3
39					y																		1
40							Y																1
41																							0
42																							0
43		F			y		Y																3
44		F			y		Y																3
45					y		Y																2
46	y	F					y																3
47	y	F							Y					Y									4
48	y				y																		2
49	y	F			y																		3
50					y				Y														2
51																							0

Albany Vegetation Unit	Western Ringtail Possum #	Carnaby's Black Cockatoo #	Forest Red-tailed Black Cockatoo #	Baudin's Black Cockatoo #	Quenda #	Main's Assassin Spider #	Honey Possum	Western Yellow Robin	Firetail	Quokka #	Brush Wallaby	Grey-bellied Dunnart	Brush-tailed Phascogale	Water rat	Australasian Bittern #	Shorebirds (collective) #	Barking Owl & Masked Owl	Western Whipbird	Western Crested Shrike-tit *	Southern Emu Wren	Pill Millipede *	Chelodina oblonga	Total potential habitats
52					y																		1
53					y		y																2
54																							0
55																							0
56																							0
57	y				y				Y					Y								Y	5
58	y				y				Y														3
59	y	R			y				Y					Y								Y	6
60	y				y																		2
61					y																		1
62	y	R		R	y				Y								Y						6
63															y								1
64															Y							Y	2
65	y				y				Y					Y								Y	5
66																Y							1
67																Y							1
68															y							Y	2
Total Potential	41017	41252	24017	29464	39685	8270	20114	7922	6604	2994	1237	9499	13976	6370	108	148	4933	3619	14019	9955	884	1572	

= EBPC listed species

* = WA threatened and priority species

All others are locally significant species in the ARVS area

Y = potential habitat for selected species

For cockatoo species: R = roosting habitat; F = feeding habitat; B = breeding habitat

APPENDIX I

Protected Matters Search Tool – EPBC Act

Australian Government

Department of Climate Change, Energy, the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 05-May-2025

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	115
Listed Migratory Species:	69

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	27
Commonwealth Heritage Places:	None
Listed Marine Species:	94
Whales and Other Cetaceans:	31
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	62
Regional Forest Agreements:	1
Nationally Important Wetlands:	3
EPBC Act Referrals:	39
Key Ecological Features (Marine):	None
Biologically Important Areas:	12
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places [Resource Information]

Name	State	Legal Status
Natural		
Stirling Range National Park	WA	Listed place

Commonwealth Marine Area [Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name
Commonwealth Marine Areas (EPBC Act)

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text
Empodisma peatlands of southwestern Australia	Endangered	Community likely to occur within area
Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia	Endangered	Community likely to occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Aphelocephala leucopsis		
Southern Whiteface [529]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Atrichornis clamosus Noisy Scrub-bird, Tjimiluk [654]	Endangered	Species or species habitat known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]	Vulnerable	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Dasyornis longirostris Western Bristlebird [515]	Endangered	Species or species habitat known to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat may occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area
Psophodes nigrogularis nigrogularis Western Heath Whipbird [64449]	Endangered	Species or species habitat known to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Thalassarche cauta		
Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida		
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris		
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi		
White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Xenus cinereus		
Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area
Zanda baudinii listed as Calyptorhynchus baudinii		
Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding known to occur within area
Zanda latirostris listed as Calyptorhynchus latirostris		
Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Breeding known to occur within area
FISH		
Galaxias truttaceus (Western Australian population)		
Western Trout Minnow [89857]	Endangered	Species or species habitat known to occur within area
Galaxiella munda		
Western Dwarf Galaxias, Western Mud Minnow [79240]	Vulnerable	Species or species habitat known to occur within area
Galaxiella nigrostriata		
Blackstriped Dwarf Galaxias, Black-stripe Minnow [88677]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Nannatherina balstoni Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat known to occur within area
Nannoperca pygmaea Little Pygmy Perch [88315]	Endangered	Species or species habitat known to occur within area
INSECT		
Trioza barrettae Banksia brownii plant louse [87805]	Endangered	Species or species habitat known to occur within area
MAMMAL		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Myrmecobius fasciatus Numbat [294]	Endangered	Species or species habitat may occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Breeding known to occur within area
Parantechinus apicalis Dibbler [313]	Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
[Potorous gilbertii](#) Gilbert's Potoroo, Ngilkat [66642]	Critically Endangered	Species or species habitat known to occur within area
[Pseudocheirus occidentalis](#) Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat known to occur within area
[Setonix brachyurus](#) Quokka [229]	Vulnerable	Species or species habitat known to occur within area
OTHER		
[Westralunio carteri](#) Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area
PLANT		
[Adenanthos pungens subsp. pungens](#) Spiky Adenanthos [19429]	Vulnerable	Species or species habitat may occur within area
[Andersonia pinaster](#) Two Peoples Bay Andersonia [67444]	Vulnerable	Species or species habitat known to occur within area
[Androcalva perlaria](#) Pearl-like Androcalva [86388]	Endangered	Species or species habitat known to occur within area
[Apium prostratum subsp. Porongurup Range (G.J.Keighery 8631)](#) Fine-leaved Apium, Porongurup Celery [82019]	Vulnerable	Species or species habitat likely to occur within area
[Banksia anatona](#) Cactus Dryandra [82758]	Critically Endangered	Species or species habitat known to occur within area
[Banksia brownii](#) Brown's Banksia, Feather-leaved Banksia [8277]	Critically Endangered	Species or species habitat known to occur within area
[Banksia goodii](#) Good's Banksia [16727]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Banksia pseudoplumosa False Plumed-Banksia [82760]	Endangered	Species or species habitat likely to occur within area
Banksia rufa subsp. pumila [85008]	Endangered	Species or species habitat may occur within area
Banksia verticillata Granite Banksia, Albany Banksia, River Banksia [8333]	Vulnerable	Species or species habitat known to occur within area
Caladenia bryceana subsp. bryceana Dwarf Spider-orchid [64503]	Endangered	Species or species habitat known to occur within area
Caladenia christineae Christine's Spider Orchid [56716]	Vulnerable	Species or species habitat likely to occur within area
Caladenia granitora [65292]	Endangered	Species or species habitat known to occur within area
Caladenia harringtoniae Harrington's Spider-orchid, Pink Spider-orchid [56786]	Vulnerable	Species or species habitat known to occur within area
Calectasia cyanea Blue Tinsel Lily [7669]	Critically Endangered	Species or species habitat known to occur within area
Chordifex abortivus Manypeaks Rush [64868]	Endangered	Species or species habitat known to occur within area
Conostylis misera Grass Conostylis [21320]	Endangered	Species or species habitat known to occur within area
Darwinia oxylepis Gillam's Bell [13188]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Daviesia glossosema Maroon-flowered Daviesia [65037]	Critically Endangered	Species or species habitat likely to occur within area
Daviesia obovata Paddle-leaf Daviesia [17311]	Endangered	Species or species habitat likely to occur within area
Daviesia ovata Broad-leaf Daviesia [21193]	Critically Endangered	Species or species habitat known to occur within area
Daviesia pseudaphylla Stirling Range Daviesia [56747]	Critically Endangered	Species or species habitat may occur within area
Diuris drummondii Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat known to occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat may occur within area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat known to occur within area
Gastrolobium humile [78418]	Endangered	Species or species habitat known to occur within area
Gastrolobium luteifolium Yellow-leafed Gastrolobium [78405]	Critically Endangered	Species or species habitat may occur within area
Grevillea maxwellii Maxwell's Grevillea [21745]	Endangered	Species or species habitat known to occur within area
Hibbertia wheelerae Wheeler's Buttercup [90414]	Critically Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Isopogon uncinatus Albany Cone Bush, Hook-leaf Isopogon [20871]	Endangered	Species or species habitat known to occur within area
Kennedia glabrata Northcliffe Kennedia [16452]	Vulnerable	Species or species habitat known to occur within area
Lambertia fairallii Fairall's Honeysuckle [4881]	Critically Endangered	Species or species habitat may occur within area
Lambertia orbifolia Roundleaf Honeysuckle [15725]	Endangered	Translocated population known to occur within area
Leucopogon gnaphalioides Stirling Range Beard Heath [21609]	Critically Endangered	Species or species habitat may occur within area
Microtis globula South-Coast Mignonette Orchid [6780]	Vulnerable	Species or species habitat likely to occur within area
Myoporum cordifolium Jerramungup Myoporum [24223]	Vulnerable	Species or species habitat known to occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Ricinocarpos trichophorus Barrens Wedding Bush [19931]	Endangered	Species or species habitat may occur within area
Roycea pycnophylloides Saltmat [21161]	Endangered	Species or species habitat may occur within area
Scaevola macrophylla Large-flowered Scaevola [11806]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Sphenotoma drummondii Mountain Paper-heath [21160]	Endangered	Species or species habitat known to occur within area
Thelymitra psammophila Sandplain Sun-orchid [4908]	Vulnerable	Species or species habitat may occur within area
Tribonanthes purpurea Granite Pink [16244]	Vulnerable	Species or species habitat known to occur within area
Verticordia apecta Hay River Featherflower, Scruffy Verticordia [65545]	Critically Endangered	Species or species habitat likely to occur within area
Verticordia carinata Stirling Range Featherflower [24342]	Vulnerable	Species or species habitat likely to occur within area
Verticordia fimbrilepis subsp. australis Southern Shy Featherflower [24630]	Vulnerable	Species or species habitat known to occur within area
Verticordia helichrysantha Coast Featherflower [8204]	Vulnerable	Species or species habitat likely to occur within area
REPTILE		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
SHARK		
Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Galeorhinus galeus School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area
Hydroprogne caspia Caspian Tern [808]		Breeding known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Onychoprion anaethetus Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Migratory Marine Species		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area

Scientific Name	Threatened Category	Presence Text
Eubalaena australis as Balaena glacialis australis		
Southern Right Whale [40]	Endangered	Breeding known to occur within area
Lagenorhynchus obscurus		
Dusky Dolphin [43]		Species or species habitat may occur within area
Lamna nasus		
Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area
Megaptera novaeangliae		
Humpback Whale [38]		Species or species habitat known to occur within area
Mobula alfredi as Manta alfredi		
Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area
Mobula birostris as Manta birostris		
Giant Manta Ray [90034]		Species or species habitat known to occur within area
Orcinus orca		
Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus		
Sperm Whale [59]		Species or species habitat may occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Migratory Terrestrial Species		
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area

Scientific Name	Threatened Category	Presence Text
Gallinago stenura Pin-tailed Snipe [841]		Roosting known to occur within area
Glareola maldivarum Oriental Pratincole [840]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

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

Commonwealth Land Name	State
Defence	
Defence - ALBANY TRAINING DEPOT [50136]	WA
Defence - ALBANY TRAINING DEPOT [50137]	WA
Defence - ALBANY TRAINING DEPOT ; AIRTC ALBANY [50115]	WA
Defence - ALBANY TRAINING DEPOT ; AIRTC ALBANY [50116]	WA
Unknown	
Commonwealth Land - [51621]	WA
Commonwealth Land - [52155]	WA
Commonwealth Land - [52156]	WA
Commonwealth Land - [52167]	WA
Commonwealth Land - [52162]	WA
Commonwealth Land - [52168]	WA
Commonwealth Land - [52160]	WA
Commonwealth Land - [52147]	WA
Commonwealth Land - [51033]	WA
Commonwealth Land - [51038]	WA
Commonwealth Land - [52149]	WA

Commonwealth Land Name	State
Commonwealth Land - [51398]	WA
Commonwealth Land - [51030]	WA
Commonwealth Land - [51032]	WA
Commonwealth Land - [51035]	WA
Commonwealth Land - [51036]	WA
Commonwealth Land - [50308]	WA
Commonwealth Land - [51034]	WA
Commonwealth Land - [51399]	WA
Commonwealth Land - [51017]	WA
Commonwealth Land - [52226]	WA
Commonwealth Land - [50309]	WA
Commonwealth Land - [52170]	WA

Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area overfly marine area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area overfly marine area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]	Vulnerable	Species or species habitat known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Chalcites osculans as Chrysococcyx osculans		
Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Charadrius bicinctus		
Double-banded Plover [895]		Roosting known to occur within area overfly marine area
Charadrius leschenaultii		
Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus		
Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius ruficapillus		
Red-capped Plover [881]		Roosting known to occur within area overfly marine area
Chroicocephalus novaehollandiae as Larus novaehollandiae		
Silver Gull [82326]		Breeding known to occur within area
Diomedea antipodensis		
Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena		
Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora		
Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans		
Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi		
Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Eudyptula minor Little Penguin [1085]		Breeding known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area
Gallinago stenura Pin-tailed Snipe [841]		Roosting known to occur within area overfly marine area
Glareola maldivarum Oriental Pratincole [840]		Roosting known to occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Breeding known to occur within area
Larus pacificus Pacific Gull [811]		Breeding known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area overfly marine area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Pelagodroma marina White-faced Storm-Petrel [1016]		Breeding known to occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area overfly marine area
Pterodroma macroptera Great-winged Petrel [1035]		Breeding known to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
Puffinus assimilis Little Shearwater [59363]		Breeding known to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area
Stercorarius antarcticus as Catharacta skua Brown Skua [85039]		Species or species habitat may occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Thalasseus bergii as Sterna bergii Greater Crested Tern [83000]		Breeding known to occur within area
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area overfly marine area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area overfly marine area
Fish		
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area
Leptoichthys fistularius Brushtail Pipefish [66248]		Species or species habitat may occur within area
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area
Vanacampus poecilolaemus Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area
Mammal		
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Breeding known to occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Breeding known to occur within area
Reptile		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area

Whales and Other Cetaceans [Resource Information]

Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Berardius arnuxii Arnoux's Beaked Whale [70]		Species or species habitat may occur within area
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Globicephala melas Long-finned Pilot Whale [59282]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area
Lissodelphis peronii Southern Right Whale Dolphin [44]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area
Mesoplodon bowdoini Andrew's Beaked Whale [73]		Species or species habitat may occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Mesoplodon grayi Gray's Beaked Whale, Scamperdown Whale [75]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Mesoplodon hectori Hector's Beaked Whale [76]		Species or species habitat may occur within area
Mesoplodon layardii Strap-toothed Beaked Whale, Strap-toothed Whale, Layard's Beaked Whale [25556]		Species or species habitat may occur within area
Mesoplodon mirus True's Beaked Whale [54]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves		[Resource Information]
Protected Area Name	Reserve Type	State
Arpenteur	Nature Reserve	WA
Bakers Junction	Nature Reserve	WA
Bald Island	Nature Reserve	WA
Basil Road	Nature Reserve	WA
Blue Gum Creek	Nature Reserve	WA
Bon Accord Road	Nature Reserve	WA
Breaksea Island	Nature Reserve	WA
Cheyne Island	Nature Reserve	WA
Cheyne Road	Nature Reserve	WA
Down Road	Nature Reserve	WA
Eclipse Island	Nature Reserve	WA
Gledhow	Nature Reserve	WA
Granite Hill	Nature Reserve	WA
Green Island	Nature Reserve	WA
Gull Rock	National Park	WA
Hassell	National Park	WA
Kojaneerup South	Nature Reserve	WA
Lake Pleasant View	Nature Reserve	WA
Lake Powell	Nature Reserve	WA
Mailalup	Nature Reserve	WA
Marbelup	Nature Reserve	WA
Mettler Lake	Nature Reserve	WA
Michaelmas Island	Nature Reserve	WA
Mill Brook	Nature Reserve	WA
Mistaken Island	Nature Reserve	WA

Protected Area Name	Reserve Type	State
Mount Lindesay	National Park	WA
Mount Manypeaks	Nature Reserve	WA
Mount Mason	Nature Reserve	WA
Napier	Nature Reserve	WA
North Sister	Nature Reserve	WA
NTWA Bushland covenant (0005)	Conservation Covenant	WA
NTWA Bushland covenant (0010)	Conservation Covenant	WA
NTWA Bushland covenant (0137)	Conservation Covenant	WA
Pallinup	Nature Reserve	WA
Phillips Brook	Nature Reserve	WA
Seal Island (WA32199)	Nature Reserve	WA
Shelter Island	Nature Reserve	WA
Sleeman Creek	Nature Reserve	WA
South Sister	Nature Reserve	WA
South Stirling	Nature Reserve	WA
Stirling Range	National Park	WA
Takenup Road	Nature Reserve	WA
Tennessee North	Nature Reserve	WA
Tinkelelup	Nature Reserve	WA
Torndirrup	National Park	WA
Two Peoples Bay	Nature Reserve	WA
Unnamed WA01998	Nature Reserve	WA
Unnamed WA23088	Conservation Park	WA
Unnamed WA23850	Nature Reserve	WA
Unnamed WA23923	Nature Reserve	WA
Unnamed WA25705	Nature Reserve	WA
Unnamed WA30791	Nature Reserve	WA

Protected Area Name	Reserve Type	State
Unnamed WA32478	5(1)(h) Reserve	WA
Unnamed WA33308	5(1)(h) Reserve	WA
Unnamed WA44685	5(1)(h) Reserve	WA
Unnamed WA44690	5(1)(h) Reserve	WA
Unnamed WA50574	5(1)(h) Reserve	WA
Voyagers Park	5(1)(h) Reserve	WA
Waychinicup	National Park	WA
West Cape Howe	National Park	WA
West Mount Mason	Nature Reserve	WA
White Lake	Nature Reserve	WA

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State
South West WA RFA	Western Australia

Nationally Important Wetlands [Resource Information]

Wetland Name	State
Lake Pleasant View System	WA
Moates Lake System	WA
Oyster Harbour	WA

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status
Albany Heritage Park Link Trail, WA	2019/8480		Post-Approval
Bayonet Head Residential Development, Albany, WA	2015/7624		Completed
Eradication of the European House Borer, Perth metropolitan area, WA	2009/5027		Completed
Sydney Street Subdivision	2023/09530		Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Werillup Pipeline	2025/10121		Referral Decision
Controlled action			
Albany Heritage Park Trail Network Concept Plan	2017/7943	Controlled Action	Completed
Albany Port Authority dredging project	2006/2540	Controlled Action	Post-Approval
Albany Ring Road Stages 2 and 3B, WA	2020/8769	Controlled Action	Post-Approval
Clearing vegetation, Lot 102 Mindijup Road for an extractive industry, NE Albany, WA	2014/7262	Controlled Action	Completed
Emu Point Residential Area Project	2010/5479	Controlled Action	Completed
Plantagenet Location 1181, Cape Riche	2001/158	Controlled Action	Completed
Silica Sand Mine, Mindijup, WA	2012/6472	Controlled Action	Post-Approval
Southdown Magnetite Mine	2006/2544	Controlled Action	Completed
Southdown Magnetite Project	2011/6053	Controlled Action	Post-Approval
Not controlled action			
4wd coastal track stabilisation & rehabilitation, Bettys Beach Reserve, WA	2013/7087	Not Controlled Action	Completed
9 lot 40.4407 ha rural residential subdivision development 1181 Sandalwood Rd, Wellstead	2007/3451	Not Controlled Action	Completed
Albany Motorsport Park, 20kms Northwest Albany, WA	2021/8944	Not Controlled Action	Completed
Albany Port Maintenance Dredging, Albany, WA	2014/7246	Not Controlled Action	Completed
Anzac Centre Develpment, Albany, WA	2012/6571	Not Controlled Action	Completed
Anzac Interpretive Centre Development, Albany, WA	2013/6903	Not Controlled Action	Completed
Development of Grasmere Wind Farm	2008/4368	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Engineered Strand Lumber Plant	2007/3421	Not Controlled Action	Completed
Firebreak Creation, Kalgan, WA	2020/8681	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed
Mindijup Silica Sand Mining Project WA	2011/6098	Not Controlled Action	Completed
Mount Barker to Albany Water Supply Pipeline	2013/6720	Not Controlled Action	Completed
Prescribed burn of Cells 5, 6 & 8 of Crown Land Reserve 35381, Napier, WA	2013/6798	Not Controlled Action	Completed
Protected Harbour Development	2006/3091	Not Controlled Action	Completed
Scuttling of the HMAS Perth	2001/171	Not Controlled Action	Completed
Seismic Survey, Bremer Basin, Mentelle Basin and Zeewyck Sub-basin	2004/1700	Not Controlled Action	Completed
South Coast Highway Cheynes East Intersection upgrade and realignment, WA	2016/7777	Not Controlled Action	Completed
South Coast Highway Upgrade (33.5-35 SLK), Manypeaks, WA	2012/6535	Not Controlled Action	Completed
South Coast Highway Widening 8.2-14.16 SLK	2017/8009	Not Controlled Action	Completed
Sth Coast Hwy Road Widening, Albany, WA	2018/8279	Not Controlled Action	Completed
Sth Coast Hwy upgrade (SLK 39.9 - 44.5) Cheynes Section West, WA	2013/6933	Not Controlled Action	Completed
Not controlled action (particular manner)			
Bremer Basin 2D Marine Seismic Survey, WA	2009/5013	Not Controlled Action (Particular Manner)	Post-Approval
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Referral decision			
Albany Port Maintenance Dredging	2010/5527	Referral Decision	Completed

Biologically Important Areas		[Resource Information]
Scientific Name	Behaviour	Presence
Seabirds		
Ardenna carneipes		
Flesh-footed Shearwater [82404]	Foraging (in high numbers)	Known to occur
Eudyptula minor		
Little Penguin [1085]	Foraging (provisioning young)	Known to occur
Hydroprogne caspia		
Caspian Tern [808]	Foraging (provisioning young)	Known to occur
Larus pacificus		
Pacific Gull [811]	Foraging (in high numbers)	Known to occur
Onychoprion anaethetus		
Bridled Tern [82845]	Foraging (in high numbers)	Known to occur
Puffinus assimilis tunneyi		
Little Shearwater [59363]	Foraging (in high numbers)	Known to occur
Sternula nereis		
Fairy Tern [82949]	Foraging (in high numbers)	Known to occur
Thalassarche chlororhynchos bassi		
Indian Yellow-nosed Albatross [85249]	Foraging (in high numbers)	Known to occur
Seals		
Neophoca cinerea		
Australian Sea Lion [22]	Foraging (male)	Likely to occur

Scientific Name	Behaviour	Presence
Neophoca cinerea		
Australian Sea Lion [22]	Foraging (male and female)	Likely to occur
Sharks		
Carcharodon carcharias		
White Shark [64470]	Foraging	Known to occur
Whales		
Megaptera novaeangliae		
Humpback Whale [38]	Migration (north)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

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-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
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-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
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-Other groups and individuals

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Please feel free to provide feedback via the Contact us page.

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APPENDIX J

Data Sets Provided for Biodiversity Analysis

DATA SETS AVAILABLE FOR ANALYSIS IN ALBANY LOCAL BIODIVERSITY STRATEGY

Output Name	Description	GIS Analysis
ARVS_LPS2_Enviro_Cons_exDBCA_extent	ARVS vegetation units in all other (than DBCA conservation estate) Crown reserves with conservation zoning	Any areas that were zoned 'Environmental Conservation' or 'ENVIRONMENTAL CONSERVATION' in LPS2 were exported to their own layer. The ARVS vegetation units were clipped to the 2020 Native Vegetation Extent (DPIRD-005). TheARVS vegetation units were then clipped to the Environmental Conservation zoned areas. Those areas that were DBCA-managed land were then clipped out. The resulting layer is called 'ARVS_LPS2_Enviro_Cons_exDBCA_extent'
ARVS_Veg_Units_Purpose_Current_Extent	ARVS vegetation units with reserve purpose and LPS2 zone	ARVS vegetation units joined to the LGATE-227 Reserves layer and the LPS2 Zones and Reserves layer. Clipped to the Native Vegetation Extent (DPIRD-005)
ARVS_Vegetation_units_DBCA_current_extent	ARVS vegetation in DBCA conservation estate	ARVS vegetation clipped to Native Vegetation Extent (DPIRD-005). Then clipped to DBCA Legislated Lands and Waters (DBCA-011). Resulting layer is called 'ARVS_Vegetation_units_DBCA_current_extent'
AVU_0_percent_protected_current_extent	AVUs with 0% in protected areas	AVUs with 0% in protected areas: 18, 19, 20, 27, 30, 32, 40, 41, 42, 54, 60, 61, 62, 63, 67. Those with these veg units in MapCodeA were exported then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_0_percent_protected_current_extent'
AVU_climate_refugial_coms_current_extent	ARVS units that contain climate refugial communities	AVUs containing climate refugial communities: 9. Those with these veg units in MapCodeA were exported to a layer called 'AVU_climate_refugial_coms'. This layer was then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_climate_refugial_coms_current_extent'.
AVU_coastal_veg_current_extent	ARVS units associated with coastal dunes	AVUs containing coastal dune vegetation: 2, 3, 5, 8. Those with these veg units in MapCodeA were exported to a layer called 'AVU_coastal_veg'. This layer was then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_coastal_veg_current_extent'
AVU_DBCA_ConsCovenants_Current_Extent	ARVS vegetation on properties with registered conservation covenants	ARVS Vegetation Units were clipped to the DBCA Conservation Covenant areas. This was then clipped to the Native Vegetation Extent (DPIRD-005). Resulting layer is called AVU_DBCA_ConsCovenants_Current_Extent
AVU_dieback_susceptible_current_extent	ARVS units that are susceptible to dieback	AVUs susceptible to dieback: 4, 11, 12, 13, 14, 15, 16, 17, 18, 21, 24, 30, 31, 32, 37, 38, 39, 40, 44, 45, 46, 47, 51. Those with these veg units in MapCodeA were exported then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_dieback_susceptible_current_extent'
AVU_estuarine_veg_current_extent	ARVS units associated with estuaries	AVUs containing estuarine vegetation: 60, 65, 66, 67. Those with these veg units in MapCodeA were exported to a layer called 'AVU_estuarine_veg'. This layer was then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_estuarine_veg_current_extent'
AVU_fire_sensitive_current_extent	ARVS units that are fire sensitive	AVUs that are sensitive to fire: 5, 10, 12, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 27, 30, 31, 32, 34, 37, 38, 39, 40, 46, 47, 48, 49, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65. Those with these veg units in MapCodeA were exported then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_fire_sensitive_current_extent'
AVU_granite_outcrops_current_extent	ARVS units associated with granite outcrops	AVUs associated with granite outcrops: 24, 25, 26, 28. Those with these veg units in MapCodeA were exported to a layer called 'AVU_granite_outcrops'. This layer was then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_granite_outcrops_current_extent'
AVU_high_flora_rich_current_extent	AVUs with highest average flora species richness	AVUs with highest average flora species richness: 13, 14, 15, 22, 29, 31, 40. Those with these veg units in MapCodeA were exported to a layer called 'AVU_high_flora_rich'. This layer was then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_high_flora_rich_current_extent'
Output Name	**Description**	**GIS Analysis**
AVU_hydro_change_susceptible_current_extent	ARVS units that are susceptible to hydrological change	AVUs susceptible to hydrological change: 58, 64. Those with these veg units in MapCodeA were exported then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_hydro_change_susceptible_current_extent'
AVU_low_reg_connect_score_current_extent	AVUs with low regional connectivity score	ARVS2 V_6 layer clipped to 2020 Native Vegetation Extent (DPIRD-005)

AVU_lt_1500_rem_current_extent	ARVS veg units with total current extent less than 1500 ha	Clipped the ARVS veg units to the 2020 Native Vegetation Extent (DPIRD-005). Then calculated how many hectares of each veg unit remaining. AVUs with <1500 ha extent (2020 extent): 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67. Then exported only the above vegetation units to a layer called 'AVUs_lt_1500_rem_current_extent'
AVU_lt_5_occurences_current_extent	ARVS units with 5 or less occurences in the ARVS area	AVUs with 5 or less occurrences in ARVS area: 6, 16, 27, 43, 51, 60. Those with these veg units in MapCodeA were exported and then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_lt_5_occurences_current_extent'
AVU_lt17_percent_protected_current_extent	AVUs with <17% in protected areas	AVUs with <17% in protected areas: 9, 10,11, 12,15, 18, 19, 20, 23,24, 27, 30, 32,33, 34, 35, 36, 40, 41, 42, 45, 46, 47, 48,49, 50, 53, 54, 55, 56, 57, 59, 60, 61, 62, 63, 65, 66, 67. Those with these veg units in MapCodeA were exported then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_lt17_percent_protected_current_extent'
AVU_lt30_residual_cond_current_extent	Vegetation units with <30% of their extent in residual condition	Vegetation units with <30% of their extent in residual condition: 10, 41, 57. Those with these veg units in MapCodeA were exported then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_lt30_residual_cond_current_extent'
AVU_macro_corridor_current_extent	Native vegetation associated with South Coast Macro Corridors	Vegetation units that intersected with Strategic Zone A and B of the Macro-Corridor network were clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_macro_corridor_current_extent'
AVU_morethan_3avus_current_extent	Native vegetation patches with more than 3 AVUs	ARVS2 4_1 layer clipped to Native Vegetation Extent (DPIRD-005)
AVU_national_wetlands_current_extent	AVUs associated with Wetlands of National Significance	AVUs associated with Wetlands of National Significance: 35, 46, 47, 59, 64, 65, 66, 67. Those with these veg units in MapCodeA were exported to a layer called 'AVU_national_wetlands'. This layer was then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_national_wetlands_current_extent'
AVU_poten_restrict_current_extent	ARVS units potentially restricted to the ARVS area	AVUs potentially restricted to ARVS area: 12, 13, 14, 15, 16, 17, 18, 19, 23, 30, 32, 34, 37, 39, 44, 51, 56, 60. Those with these veg units in MapCodeA were exported to a layer called 'AVU_potentially_restricted'. This layer was then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_poten_restrict_current_extent'
AVU_priority_fauna_current_extent	AVUs with Priority fauna records	AVUs that intersect with the priority fauna buffer layer were exported to a layer. This layer was then clipped to the Native Vegetation Extent (DPIRD-005). Resulting layer is called 'AVU_priority_fauna_current_extent'
AVU_priority_flora_current_extent	AVUs with Priority flora records	AVUs that intersect with the priority flora buffer layer were exported to a layer. This layer was then clipped to the Native Vegetation Extent (DPIRD-005). Resulting layer is called 'AVU_priority_flora_current_extent'
AVU_single_occurence_current_extent	ARVS units with a single occurrence	AVUs with single occurrence in ARVS area: 7, 19, 29, 42, 58, 61. Those with these veg units in MapCodeA were exported to a layer called 'AVU_single_occurence'. This layer was then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_single_occurence_current_extent'
AVU_single_occurence_in_patch_current_extent	ARVS units with a single occurrence in a discrete patch of vegetation	AVU with a single occurrence in a discrete patch: 7. Those with these veg units in MapCodeA were exported then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_single_occurence_in_patch_current_extent'
AVU_specially_protected_fauna_current_extent	AVUs with Specially protected fauna records	AVUs that intersect with the specially protected fauna buffer layer were exported to a layer. This layer was then clipped to the Native Vegetation Extent (DPIRD-005). Resulting layer is called 'AVU_specially_protected_fauna_current_extent'
AVU_TEC_PEC_current_extent	AVUs with TEC/PECs	AVUs that intersect with DBCA TEC/PEC buffer layer were clipped to the Native Vegetation Extent (DPIRD-005). Resulting layer is called 'AVU_TEC_PEC_current_extent'
AVU_threatened_fauna_current_extent	AVUs with Threatened fauna records	AVUs that intersect with the threatened fauna buffer layer were exported to a layer. This layer was then clipped to the Native Vegetation Extent (DPIRD-005). Resulting layer is called 'AVU_threatened_fauna_current_extent'
Output Name	**Description**	**GIS Analysis**
AVU_threatened_flora_current_extent	AVUs with Threatened flora records	AVUs that intersect with the threatened flora buffer layer were exported to a layer. This layer was then clipped to the Native Vegetation Extent (DPIRD-005). Resulting layer is called 'AVU_threatened_flora_current_extent'
AVU_waterways_current_extent	Native vegetation associated with waterways	Vegetation units that were within 20m of waterways (CoA Portal dataset) were clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_waterways_current_extent'
AVU_wetland_veg_current_extent	ARVS units associated with wetlands	AVUs containing wetland vegetation: 10, 33,34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 51, 52, 53 - 67. Those with these veg units in MapCodeA were exported to a layer called 'AVU_wetland_veg'. This layer was then clipped to the 2020 Native Vegetation Extent (DPIRD-005) and called 'AVU_wetland_veg_current_extent'

AVUs_lt_400_rem_current_extent	ARVS veg units with total current extent less than 1% in ARVS area	Clipped the ARVS veg units to the 2020 Native Vegetation Extent (DPIRD-005). Then calculated how many hectares of each veg unit remaining. AVUs with <400 ha extent (2020 extent): 1, 2, 6, 7, 8, 11, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 32, 33, 34, 35, 36, 37, 38, 40, 41, 42, 43, 44, 45, 48, 50, 51, 52, 53, 54, 55, 56, 58, 60, 61, 62, 63, 64, 65, 66, 67. Then exported only the above vegetation units to a layer called 'AVUs_lt_400_rem_current_extent'
BEARD_IBRA_LGA_postclearing_stats	Pre-European and current extent of Beard Vegetation associations with IBRA subregion boundaries	2020 Vegetation retention status in Local Government for Beard Associations by IBRA Sub-Regions (WALGA)
BEARD_IBRA_postclearing_stats	Priority Beard vegetation associations according to 10% and 30% thresholds in IBRA subregions	2020 Vegetation retention status for Beard Associations and by IBRA Regions (WALGA)
high_reg_connect_score_current_extent	Native vegetation patches with high regional connectivity score	Used the Native vegetation patches with high regional connectivity score data from the ARVS2 study (P6_2) and clipped to the 2020 Native Vegetation Extent (DPIRD-005)
low_frag_score_current_extent	Native vegetation patches with low fragmentation score	Used the Native vegetation patches with low fragmentation score data from the ARVS2 study (P5_7) and clipped to the 2020 Native Vegetation Extent (DPIRD-005)
Pre_Euro_DBCA_Convenants_exARVS_current_extent	Pre-European vegetation on properties with registered conservation covenants	Pre-European vegetation (DPIRD-006) was clipped to the DBCA Conservation Covenant areas. This was then clipped to the Native Vegetation Extent (DPIRD-005). The conservation covenant areas that have ARVS units over them were removed from this dataset. Resulting layer is called Pre_Euro_DBCA_Covenants_exARVS_current_extent
Pre_Euro_DBCA_Current_Extent_exARVS	Pre-European vegetation in DBCA conservation estate	Pre-european vegetation (DPIRD-006) clipped to Native Vegetation Extent (DPIRD-005). Then clipped to DBCA Legislated Lands and Waters (DBCA-011). Then the area that overlapped with the ARVS vegetation units was clipped out so that only those areas not captured by the ARVS areas within the City of Albany remain. Resulting layer is called 'Pre_Euro__DBCA_Current_Extent_exARVS'
Pre_Euro_Enviro_Cons_exDBCA_exARVS_extent	Pre-European vegetation in all other (than DBCA conservation estate) Crown reserves with conservation zoning	Any areas that were zoned 'Environmental Conservation' or 'ENVIRONMENTAL CONSERVATION' in LPS2 were exported to their own layer. Pre-European Vegetation (DPIRD-006) was clipped to the 2020 Native Vegetation Extent (DPIRD-005). The Pre-European Vegetation was then clipped to the Environmental Conservation zoned areas. Those areas that were DBCA-managed land were then clipped out. The areas that were covered by ARVS mapping was also clipped out. The resulting layer is called 'Pre_Euro_Enviro_Cons_exDBCA_exARVS_extent'
Priority_Fauna_Buffer	Priority fauna records	DBCA fauna records. Only those with a WA_Status of P1, P2, P3, P4 were included in this datset. A 50m buffer was created around each fauna point. Resulting layer is called 'Priority_Fauna_Buffer'
Priority_Flora_Buffer	Priority flora records	DBCA TPFL & WAHerb records. Only those with a ConsStatus of 1, 2, 3, or 4 were included in this datset. A 50m buffer was created around each flora point. Resulting layer is called 'Priority_Flora_Buffer'
scs_wetlands_evaluation_urban_current_extent	South Coast Significant Wetlands, Evaluation Wetlands Albany Urban, and Evaluation Wetlands	Used the South Coast Significant Wetlands, Evaluation Wetlands Albany Urban, and Evaluation Wetlands data from the ARVS2 study (P5_1) and clipped to the 2020 Native Vegetation Extent (DPIRD-005)
Shorebird_bird_sites	Shorebird Areas and Significant Birding Sites	Used the Shorebird Areas and Significant Birding Sites data from the ARVS2 study (P3_6) and added the Lake Saide polygon from the South Coast Significant Wetlands (DBCA-018) dataset
Output Name	**Description**	**GIS Analysis**
Specially_Protected_Fauna_Buffer	Specially protected fauna records	DBCA fauna records. Only those with a WA_Status of CD, CD & MI, EX, MI, MI& P4, OS were included in this datset. A 50m buffer was created around each fauna point. Resulting layer is called 'Specially_Protected_Fauna_Buffer'
Threatened_Fauna_Buffer	Threatened fauna records	DBCA fauna records. Only those with a WA_Status of VU, EN, CR or EN or P4 were included in this datset. A 50m buffer was created around each fauna point. Resulting layer is called 'Threatened_Fauna_Buffer'
Threatened_Flora_Buffer	Threatened flora records	DBCA TPFL & WAHerb records. Only those with a ConsStatus of T were included in this datset. A 50m buffer was created around each flora point. Resulting layer is called 'Threatened_Flora_Buffer'
veg_pred_good_cond_current_extent	Native vegetation in predominantly good condition	Used the Native vegetation in predominantly good condition data from the ARVS2 study (P5_8) and clipped to the 2020 Native Vegetation Extent (DPIRD-005)

APPENDIX K

ARVS Vegetation Units – Priority Areas

ARVS2 PRIORITY AREAS BASED ON ALBANY VEGETATION UNITS (AVU)

This priority list includes:

1. AVUs potentially restricted to the study area
2. AVUs with 0% of current extent protected
3. AVUs with <1500ha
4. Priority Ecological Communities
5. AVUs potentially threatened due to existing land use provisions
6. AVUs potentially threatened by climate change and threatening processes

MAP ID	REASONS FOR SELECTION	LAND USE ZONING/RESERVE PURPOSE	ACHIEVEMENTS AND RECOMMENDATIONS
ARVS2_LNA1 Youngs Siding, Kronkup, Bornholm and Lowlands	<u>Main focus:</u> • Includes several AVUs dependent on conservation efforts on private lands: AVU 1, 9, 10, 33, 41, 47, 50, 56, 57. <u>Other conservation values:</u> • Other priority AVUs: 11, 33, 36. • Protection of riparian vegetation. • Protection of Priority 2 & 4 flora. • Threatened fauna and Priority Ecological community (AVU56). • Includes remnant vegetation with highest count of potential fauna habitat (14-15). • Strengthening connectivity. • Tennessee North Nature Reserve (TNNR). • Part of coastal macro-corridor. • High Connectivity reach and Regional Connectivity values (patches are part of a large network, contributing to landscape connectivity).	• R16136 Class A Nature Reserve (DBCA). Tennessee North Nature Reserve – Conservation Purpose. • DBCA Timber Reserve (Class C). • R42854 Parklands and Recreation, CoA. • R12012 Parklands and Recreation, CoA. • Rural zone, Public Purposes, No zone.	• DBCA to change purpose of Timber Reserve to Conservation Reserve (Class C, no reserve number) – 18ha AVU9, 1.4ha AVU10 and 0.5ha AVU11. • City of Albany has designated Reserves R42854 (Purpose: Parklands and Recreation) to 'Environmental Conservation' under LPS2 to improve protection local status of AVU 46 and AVU 49 and R12012 (Purpose: Parklands and Recreation) and to improve protection status of AVU 9 (3.9ha). • Manage threats in these reserves to maintain values. • Seek opportunities to increase protection of vegetation on private lands adjoining the local reserves and to maximise connectivity within the coastal macro corridor. • Maintain ecological linkages between the TNNR, the Timber Reserve and through retention/ management on private lands.
ARVS_LNA2, Youngs Siding	<u>Main focus:</u> • Includes 40% of AVU 54 (0% protected) which occurs in mosaic with AVUs 12, 53, 57 and 11. ` <u>Other conservation values:</u> • Protection of Priority 4 flora, Priority 4 fauna and Priority ecological community. • Identified as priority area for strengthening landscape connectivity.	• Major highways. • Rural zoning.	• As most of the remaining vegetation is within a Major Road Reserve, future extension of South Coast Hwy and other connecting roads should be designed in a way to minimise impacts on this remaining vegetation, in particular AVU54. Consider using the yellow 'Significant flora' roadside markers to designate highest value areas to minimise impacts of potential future roadside maintenance. • Provide assistance to landowners to retain a mosaic including AVU54 on Rural zoned lands adjoining the Major Road reserve.
ARVS_LNA3,	<u>Main focus:</u>	• Rural zone, Public. Purposes,	• Explore opportunities to provide protection of vegetation on

MAP ID	REASONS FOR SELECTION	LAND USE ZONING/RESERVE PURPOSE	ACHIEVEMENTS AND RECOMMENDATIONS
Torbay	• A large patch of vegetation in good condition (residual) contains several priority AVUs: 12, 41, 50, 54 and 57. • One of few examples of AVU57 in good condition as >70% of its mapped extent is considered modified. <u>Other conservation values:</u> • Priority ecological community. • Threatened and Priority 4 fauna. • Protection of riparian vegetation. • High regional connectivity values and low fragmentation.	No zone.	rural-zoned lands via Conservation Covenants or grant funding. • Manage weeds and other threats within the Water Corporation Drain reserve R24566. • To improve connectivity in this part of the study area, restoration works should be supported on private properties between the large remnant patch in ARVS_LNA3 and the Conservation Reserve 1998 (DBCA managed).
ARVS_LNA4, Torbay, Kronkup	<u>Main focus:</u> • Includes the largest concentration of AVU46 (17% of mapped area) and poorly protected AVU56. <u>Other conservation values:</u> • Riparian vegetation. • Protection of Priority 2, 3 & 4 flora, Threatened and Priority 4 fauna, Priority ecological community. • Part of coastal macro corridor (Strategic Zone A).	• Rural zone. • No zone around Railway Rd.	• As most of the remaining vegetation adjoins Railway Road, future extensions should be designed to minimise impacts on the remaining vegetation. • Improve the long-term viability of AVU46; restoration of vegetation between remaining patches should be supported. • Note that ARVS_LNA4 contains fragmented vegetation. Biodiversity values would be enhanced through protection from stock and weed management and including other areas to improve connectivity.
ARVS_LNA5, Torbay	<u>Main focus:</u> • Includes poorly protected AVUs: 9, 10, 11, 33, 50. <u>Other conservation values:</u> • Protection of Priority 4 flora. Threatened and Priority 4 fauna. • Part of coastal macro corridor (Strategic Zone A).	• Environmental Conservation, Civic and Cultural, Rural, No zone. • R12599 Recreation, CoA. • R26888 Recreation, CoA.	• Some areas reserved under LPS2 for Environmental Conservation.
ARVS_LNA6, Torbay	<u>Main focus:</u> • Poorly protected AVUs: 9, 10 and 23 in good condition. <u>Other conservation values:</u> • Includes records of Priority 1, 2 and 4 flora. • Threatened and Priority 3, 4 and 5 fauna. • Includes remnant vegetation with very high count of potential fauna habitat (12-13). • Part of coastal macro corridor (Strategic Zone A).	• Rural.	• Provide support for native vegetation protection, restoration and management on private lands.
ARVS_LNA7, Torbay and Kronkup	<u>Main focus:</u> • Poorly protected AVUs: 9, 34 (PEC), 41, 50, 56 (PEC), 57, 65. <u>Other conservation values:</u>	• R24514 – Camping and Recreation, CoA. • R24548 – Camping and Recreation, CoA.	• R24514 & R 24548 – Camping and Recreation (include the only example of AVU41 on reserved land), R42256 – Recreation and Drainage. These areas are designated Environmental Conservation under LPS2.

MAP ID	REASONS FOR SELECTION	LAND USE ZONING/RESERVE PURPOSE	ACHIEVEMENTS AND RECOMMENDATIONS
	• Priority 4 flora, Priority 4 fauna, Priority ecological communities. • Part of coastal macro corridor (Strategic Zone A).	• R25556 – Drain, Water Corporation. • R42256 – Recreation and Drain, CoA. • Environmental Conservation, Rural, Public Purposes, No zone (along roads).	• Provide support to private landholders to manage biodiversity assets on private lands, providing buffers to protected areas.
ARVS_LNA8, Elleker	Main focus: • Poorly protected AVUs: 1, 9, 34 (PEC), 35, 57, 59 and 65. • 36.5% of mapped extent of AVU35. occurs within ARVS_LNA8, all in good condition. AVU10 - <30% remaining & >70% considered modified, poorly protected. Other conservation values: • Priority 2 and 3 flora. • Threatened and Priority 4 fauna. • Priority ecological community. • Part of coastal macro corridor (Strategic Zone A).	• R20367 – Common for Use of Settlers, CoA reserve. • R42256 – Recreation and Drainage, Water Corporation. • Environmental Conservation, Rural, Public Purposes, No zone (along roads).	• R20367 and R42256 - These areas are designated Environmental Conservation under LPS2. • Reserve land shown as Environmental Conservation (adjoining R20367) and include Conservation purpose. • Provide support to manage biodiversity values on privately owned land, explore opportunities to provide protection via Conservation Covenants.
ARVS_LNA9, Marbelup, Drome	Main focus: • Potentially restricted AVUs: 12, 13, 14 (PEC), 39. Other conservation values: • Records of Priority 1-4 flora. • Several Threatened, Priority 3, 4, 5 fauna recorded within 5km radius. • Priority ecological communities. • Includes remnant vegetation with very high count of potential fauna habitat (10-11). • Adjoins National Park/Conservation Reserve. • Large remnant patches in good condition, examples of various catenas. • Part of Marbellup Link (Strategic Zone A macro corridor).	• R24000 Timber, firewood reserve, CoA. • R24661 – Camping and recreation, CoA. • Rural, Important Regional Roads, Public Purposes, No zone.	• Reserves R24000 and R24661 - These areas are designated Environmental Conservation under LPS2. • Provide support to manage biodiversity values on privately owned land, explore opportunities to provide protection via Conservation Covenants.
ARVS2_LNA10, Torndirrup and Little Grove	Main focus: • The only locality in the study area with AVU60, a PEC. All patches of AVU60 are within about 1km radius of each other in ARVS2_LNA10. Other conservation values:	• R25551 Recreation, CoA. • R22747 Fire Station, CoA. • R22735 Waterway, Water Corporation. • Residential, Environmental	• R25551 CoA for Recreation - designated Environmental Conservation under LPS2. • R37867 CoA Recreation reserve includes 0.9ha, an additional 1ha is on adjoining lands reserved for Environmental Conservation and with No Zone in LPS2. Consider adding the

MAP ID	REASONS FOR SELECTION	LAND USE ZONING/RESERVE PURPOSE	ACHIEVEMENTS AND RECOMMENDATIONS
	• Records of Priority 2-4 flora, several Threatened and Priority 5 fauna recorded within 5km radius, Priority ecological communities. • Area within 'Confirmed' roosting site buffer for Carnaby's black cockatoos • AVU with 0% protected, and most approved for residential development (Little Grove Structure Plan) or zoned Residential, No Zone or reserved as Important Regional Road in the Local Planning Scheme (LPS). • Part of Strategic Zone A macro corridor.	Conservation, No zone, Public Purposes.	area reserved in the Scheme and those within lands marked as No Zone to R37867, and extend the purpose of the larger reserve to include conservation. • Around 1ha is spread over the southern portion of R22735, Water Corporation reserve for Water purposes, R24747 CoA reserve for Fire Station and land to the south of R22735 that is reserved for Environmental Conservation in LPS2. Create a new reserve south of R22735 and provide for adequate management of AVU60 across all adjoining reserved areas. • An additional 1ha AVU60 occurs within the northern extent of R22735 and R24747 and adjoining lands with no zoning or reserved for Important regional roads. • Provide for adequate management of AVU60 across all adjoining reserved areas and retain AVU60 within adjoining lands when designing future land developments.
ARVS2_LNA11, Big Grove	Main focus: • Poorly protected climatic refugia AVU 9 & AVU24 (restricted to granite outcrops). Other conservation values: • Includes Priority flora records within the site, records of Threatened, Priority 2-4 flora. • Several Threatened and Priority 4 and 5 fauna recorded within 5km radius. • Adjoins Torndirrup National Park and the foreshore. • Includes remnant vegetation with very high count of potential fauna habitat (10-13). • Part of Strategic Zone A macro corridor.	• Rural and Environmental Conservation.	• Seek to consolidate the foreshore reserve to provide for the protection of the foreshore areas, including AVU9 and AVU24. • Consider expanding the proposed Regional Open Space (as per the Local Planning Strategy) to increase the portion of AVU24 in the future reserve. Set the vesting purpose to include conservation. • When considering future development within 'Future Residential' areas as identified in the Local Planning Strategy, consider retaining AVU9 in a large viable POS area strategically located to act as a stepping stone between the foreshore areas and the National Park.
ARVS2_LNA12, Vancouver Peninsula	Main focus: • Poorly protected AVU 23 (one of the very few good opportunities to protect), 24, 28, 45 (examples elsewhere on private land are degraded) and also an opportunity to improve the protection levels of AVU 4, 10 and 11. Other conservation values: • Records of Threatened, Priority 1-4 flora. • Threatened and Priority 4 and 5 fauna, and PEC recorded within 5km radius.	• Environmental Conservation, No zone (road). • R25295 –Recreation Reserve, CoA.	• Designated Environmental Conservation under LPS2.

MAP ID	REASONS FOR SELECTION	LAND USE ZONING/RESERVE PURPOSE	ACHIEVEMENTS AND RECOMMENDATIONS
	• Area within 'Confirmed' roosting site buffer for Carnaby's black cockatoos. • Coastal, wetland and foreshore areas. • Part of Strategic Zone A macro corridor.		
ARVS_LNA13, Emu Point and Collingwood Heights	Main focus: • AVUs 14 (PEC), 56 (PEC) & 59 (poorly protected). Other conservation values: • Adjoins Conservation reserve R6862. • Records of Threatened, Priority 1, 3,4 flora, several Threatened and Priority 4 & 5 fauna, and PEC recorded within 5km radius. • Area within 'Confirmed' roosting site buffer for Carnaby's black cockatoos. • Part of Strategic Zone A macro corridor.	• R15875 – Recreation Reserve, CoA. • Tourist Residential, Residential, Future Urban, Rural, Public Use, Environmental Conservation, No zone.	• Designated Environmental Conservation under LPS2. • Provide support to manage biodiversity values on privately owned land, explore opportunities to provide protection via Conservation Covenants. • Ensure retention and protection of AVU56 (PEC) on land adjoining R15875 and reserved for Public Use in the LPS.
ARVS2_LNA14, Yakamia	Main focus: • Potentially restricted AVUs 12, & considered to have <30% remaining 13, 14 (PEC) and poorly protected AVU59. Other conservation values: • Vegetation in very good condition, with examples of various catenas. • Records of Threatened, Priority 1-4 flora, several Threatened and Priority 4 & 5 fauna, and PEC recorded within 5km radius. • Includes vegetation potentially providing feeding habitat and within a buffer of a 'Confirmed' roosting site for the Carnaby's black cockatoo. • Most vegetation types provide habitat to 6-9 fauna species (considered in this study). • Wetlands mapped. • Part of Strategic Zone B macro corridor.	• Future Urban, Yakamia Creek, Rural.	• The ARVS has highlighted the possible presence of threatened flora in vegetation units 13, 14, 46 and 52. • The vegetation in the proposed Yakamia structure plan area should be assessed for its suitability as habitat for threatened fauna. Proposals that may impact the habitat for species listed under the EPBC Act (e.g. Black Cockatoos and Western Ringtail Possums). • The Yakamia structure plan aims to retain consolidated areas of native vegetation that contain a diversity of vegetation types (upland and wetland) in Excellent and Very Good condition and maintain connectivity.
ARVS2_LNA15, Lange, Walmsley and Bayonet Head	Main focus: • Potentially restricted AVUs 12, considered to have <30% remaining 13, 14 (PEC). Other conservation values: • Threatened and P5 fauna. • PEC.	• R27179 – Tertiary Education Centre, Minister for Education; R23074 – Cemetery, Department of Regional Development; R50166 – Public recreation	• Within reserves R329, R27179, R23074, R50166, R31174 and R31175 - Designated Environmental Conservation under LPS2. • Provide support to manage biodiversity values on privately owned land, explore opportunities to provide protection via Conservation Covenants. • In future subdivisions, retain vegetation within POS to form a

MAP ID	REASONS FOR SELECTION	LAND USE ZONING/RESERVE PURPOSE	ACHIEVEMENTS AND RECOMMENDATIONS
	• Threatened, Priority 1-4 flora, several Threatened and Priority 4 and 5 fauna, and PEC recorded within 5km radius • Includes vegetation potentially providing feeding habitat and within a buffer of a 'Confirmed' roosting site for the Carnaby's black cockatoo. • Part of Strategic Zone A & B macro corridor.	(Subject to 152), CoA. • R31174 & R31175 Church and children, Department of Regional Development. • R329 Recreation, CoA. • Rural, Residential, Public Purposes, Environmental Conservation • Urban Development	stepping stone within the ecological linkage.
ARVS_LNA16, Collingwood Park and Seppings	<u>Main focus:</u> • AVUs14 (PEC), poorly protected AVUs 50, 59 and 65. <u>Other conservation values:</u> • Records of Threatened, P1-4 flora recorded within 5km radius, P5 fauna within selected area, Threatened, P1-4 fauna within 5km radius. • Includes vegetation potentially providing feeding habitat and within a buffer of a 'Confirmed' roosting site for the Carnaby's black cockatoo. • Part of Strategic Zone A & B macro corridor.	• R32341 Recreation reserve, CoA. • Environmental Conservation, Rural.	• R32341 - Designated Environmental Conservation under LPS2. • Retain and manage for conservation priority areas within lands reserved for Environmental Conservation to protect wetlands, creek lines, and maintain connectivity. • Provide support to manage biodiversity values on privately owned land, explore opportunities to provide protection via Conservation Covenants.
ARVS_LNA17, King River, Kalgan, Lower King	<u>Main focus:</u> • Potentially restricted, considered to have <30% remaining AVUs 13, 14 (PEC), 15 (PEC), 49. <u>Other conservation values:</u> • AVUs 65-67, estuarine vegetation. • Records of Threatened and P4 flora, P5 fauna, Threatened, P3 &4 flora and Threatened, P4&5 fauna within 5 km radius. • Includes vegetation potentially providing feeding habitat for Carnaby's black cockatoo. • Wetlands. • Part of Strategic Zone A & B macro corridor (link between Bakers Junction Conservation Reserve (DBCA) and Oyster Harbour.	• R34934 – Parklands, CoA. • R18779 – Government Requirement, CoA. • R28686 – Recreation, CoA. • R30469 – Conservation fauna & flora, DBCA. • Environmental Conservation, Private Clubs and Institutions, Public Purposes, Special Rural, Rural, Residential.	• R34934, R28686 - Designated Environmental Conservation under LPS2. • Review management of R18779 through the lease agreement to minimise potential impacts on vegetation. Designate Environmental Conservation under LPS2. • Provide support to manage biodiversity values on privately owned land, explore opportunities to provide protection via Conservation Covenants. (on Special Rural lands to retain AVUs 65-67).
ARVS_LNA18, Kalgan	<u>Main focus:</u> • Potentially restricted, with <30% remaining AVU 12, 13 & 39, 14 (PEC), the only other opportunity to conserve AVU43 in the study area.	• R15949 Sand and Gravel, CoA • Environmental Conservation, Rural	• R15949 - Designated Environmental Conservation under LPS2. • Provide support to manage biodiversity values on privately owned land adjoining the reserve.

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	Other conservation values: • Records of Threatened and P4 flora. • Threatened, P4 and P5 fauna within 5 km radius. • Includes vegetation potentially providing feeding habitat for Carnaby's black cockatoo. • Wetlands. • Part of Strategic Zone A & C macro corridors.		
ARVS2_LNA19, Nanarup	Main focus: • AVU14 (PEC), poorly protected and with <30% remaining AVU47 and AVU57, which is also poorly protected and have >70% considered modified or transformed. Other conservation values: • Records of Threatened and P2-4 flora. • Threatened and P4 fauna within 5 km radius. • Includes vegetation potentially providing feeding habitat for Carnaby's black cockatoo. • Wetlands. • Part of Strategic Zone A macro corridors.	• R19539 – Conservation Reserve, CoA. • Rural, Environmental Conservation.	• Provide support to manage biodiversity values on privately owned land adjoining the conservation reserve R19539.
ARVS2_LNA20, Manypeaks, Kalgan	Main focus: • AVU10, 11, 12, 13, 14 (PEC), 15, 20, 38, 39, 63. • AVUs that only occur in TA20: 18, 19, 27, 30, 32, 40, 61. Other conservation values: • Very high diversity of flora and fauna habitat. • Records of Threatened, P3-4 flora. • Threatened and P5 fauna. • PECs within the selected area. • Further Threatened, P2 - 4 flora, Threatened, P4&5 fauna and PECs within 5km radius. • Includes vegetation potentially providing feeding habitat for Carnaby's black cockatoo. • Important bird area. • Wetlands. • Part of Strategic Zone A & C macro corridors.	• R13802 Water supply, Catchment, Water Corporation • R2031 – Parkland, Recreation, CoA.	• R2031 - Designated Environmental Conservation under LPS2. • Advocate for Minister for Environment to include purpose of 'Environmental Conservation' to secure protection of eight AVUs within the study area, and significantly improve the protection status of many other conservation priority AVUs.
ARVS2_LNA21, Manypeaks	Main focus: • Poorly protected AVU 9, 10, 12, 57. • The only other opportunity to protect AVU20. Other conservation values:	• Rural	• Provide support to manage biodiversity values on privately owned land, explore opportunities to provide protection via Conservation Covenants.

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	• Records of Threatened and P3 and 4 flora. • Threatened & P4&5 fauna within 5 km radius. • PECs. • Includes vegetation potentially providing feeding habitat for Carnaby's black cockatoo. • Riparian vegetation. • Part of Strategic Zone A & C macro corridors.		
ARVS2_LNA22, Cheynes	<u>Main focus:</u> • AVU13, with <30% remaining AVU10 and AVU57, which is also poorly protected and have >70% considered modified or transformed. <u>Other conservation values:</u> • Records of Threatened and P3 and 4 flora. • Threatened and Priority 4 and5 fauna within 5 km radius. • PECs. • Includes vegetation potentially providing feeding habitat for Carnaby's black cockatoo. • Riparian vegetation. • Part of Strategic Zone A macro corridors.	• Rural.	• Provide support to manage biodiversity values on privately owned land, explore opportunities to provide protection via Conservation Covenants.
ARVS2_LNA23, Mount Melville	<u>Main focus:</u> • AVUs 10, 23, 24, 25, 28.	• R2681 Parks, Telecommunications, CoA. • R26204, Animal Welfare, DPLH • Environmental Conservation	• Area designated Environmental Conservation under LPS2.
ARVS2_LNA24, Rushy Point, Little Grove	<u>Main focus:</u> • AVU66 (PEC) and 67 (PEC), 44 (PEC).	• R35754 Recreation, CoA. • Environmental Conservation, Residential Development, Residential.	Reserve and foreshore designated Environmental Conservation under LPS2.