FROM KNOWLEDGE TO ACTION

Western Australia's biodiversity knowledge priorities



The Western Australian Biodiversity Science Institute (WABSI) is an independent, collaboration mechanism connecting biodiversity science with real world decision-making. We address end user needs through prioritised biodiversity research to enable smarter decisions and better biodiversity outcomes.

The Western Australian Biodiversity SCIENCE INSTITUTE

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Acknowledgement of Country

We acknowledge the Traditional Custodians throughout Western Australia and their continuing connection to, and deep knowledge of, the land and waters. We pay our respects to Elders both past and present.

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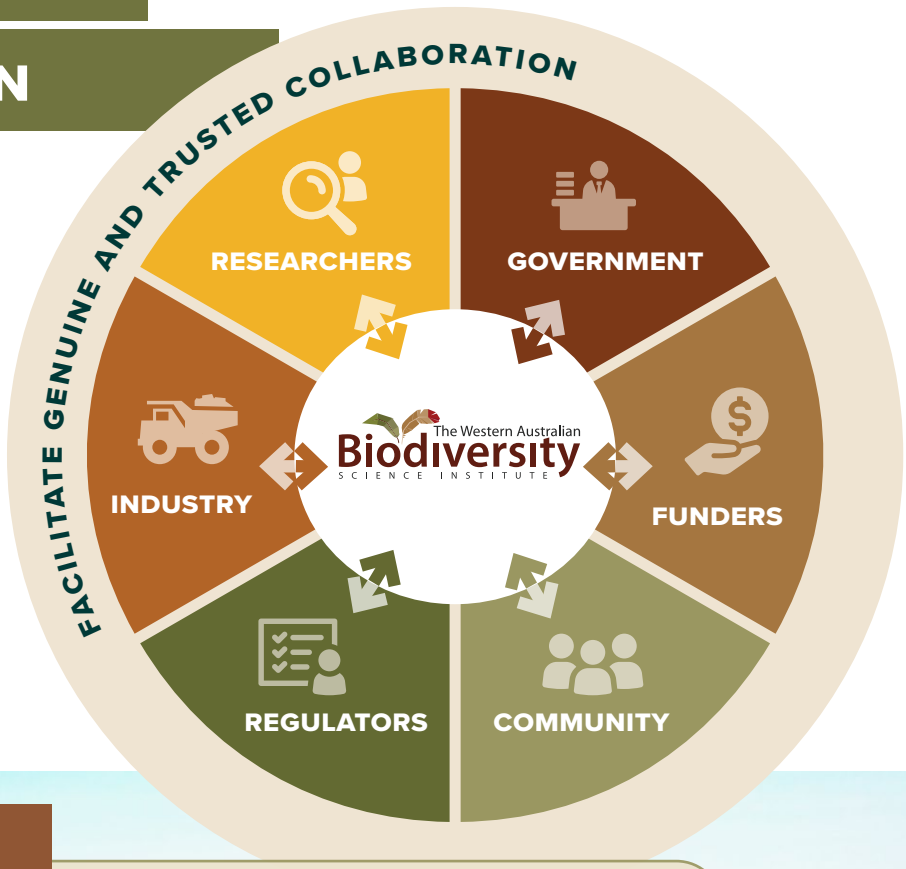
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AN INDEPENDENT COLLABORATION MECHANISM

Bringing together diverse knowledge to protect and conserve Western Australia's unique biodiversity.



COLLABORATE

Foster collaboration to build shared priorities

We help end users navigate complexity and uncertainty through collaboration, to reduce duplication, leverage investment and accelerate impact.

INFORM

Prioritise research to guide investment

We identify knowledge needs through structured engagement, to guide investment for co-designed research that is targeted to real decision contexts.

ENABLE

Transform knowledge to enable action

We enable the synthesis, integration and transformation of complex science into accessible, decision-ready formats to bridge the gap between knowledge and action.

A UNIQUE PARTNERSHIP

ADDRESSING END USER NEEDS

Strategic research themes

- Integrating biodiversity into business and investment decisions
- Environmental data analytics to inform cumulative impact assessment and landscape-scale planning
- Restoration effectiveness and biodiversity offsets
- Climate change adaptation and resilience
- Biosecurity and emerging threats
- Nature positive and biodiversity outcomes frameworks

PROUDLY SUPPORTED BY:

CSIRO

Curtin University

ECU EDITH COWAN UNIVERSITY

Murdoch University

THE UNIVERSITY OF WESTERN AUSTRALIA

WAM WESTERN AUSTRALIAN MUSEUM

Department of **Biodiversity, Conservation and Attractions**

Department of **Mines, Petroleum and Exploration**

Department of **Energy and Economic Diversification**

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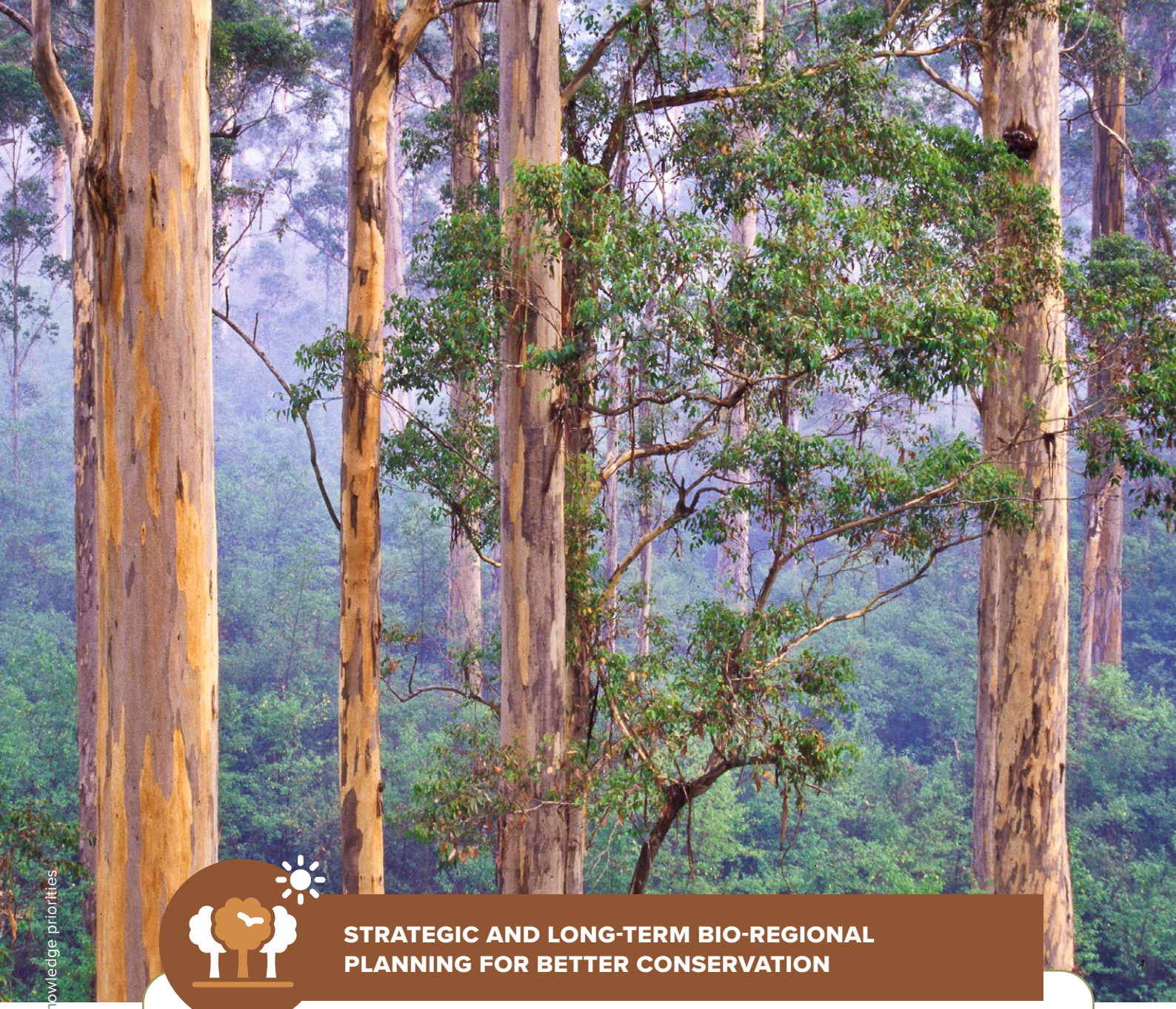
WESTERN AUSTRALIA'S END USER BIODIVERSITY KNOWLEDGE PRIORITIES

WABSI targeted knowledge gap

Targeting knowledge gaps to enable action

WABSI undertakes structured end user engagement to unpack complex issues and identify priority knowledge gaps. The consultation findings are published periodically on the WABSI website and insights help shape targeted research programs which are co-developed with end users. The programs enable action-ready knowledge to inform smarter decisions and deliver stronger environmental outcomes.





STRATEGIC AND LONG-TERM BIO-REGIONAL PLANNING FOR BETTER CONSERVATION

Project developments are assessed in isolation, leading to fragmented and siloed environmental decisions set within short-term planning horizons. Despite regulatory compliance, offsets under these conditions often fall short of delivering intended ecological benefits. Priority research and sustained, multi-stakeholder efforts are needed for science-informed landscape scale or bio-regional scale planning approaches. This would enable evidence-based decisions with greater certainty throughout the stages of planning, assessment, development and operation, and for the rehabilitation and recovery of landscapes by coordinating conservation efforts.

- End users want to better understand the effects of multiple projects over a region, over time including how to account for long-term, cumulative impacts.
- Greater knowledge will enable more informed assessment and development decisions.
- Lifting access and a collective understanding of baseline environmental condition, to assess cumulative impacts of developments will help implement a more strategic approach to offsets.

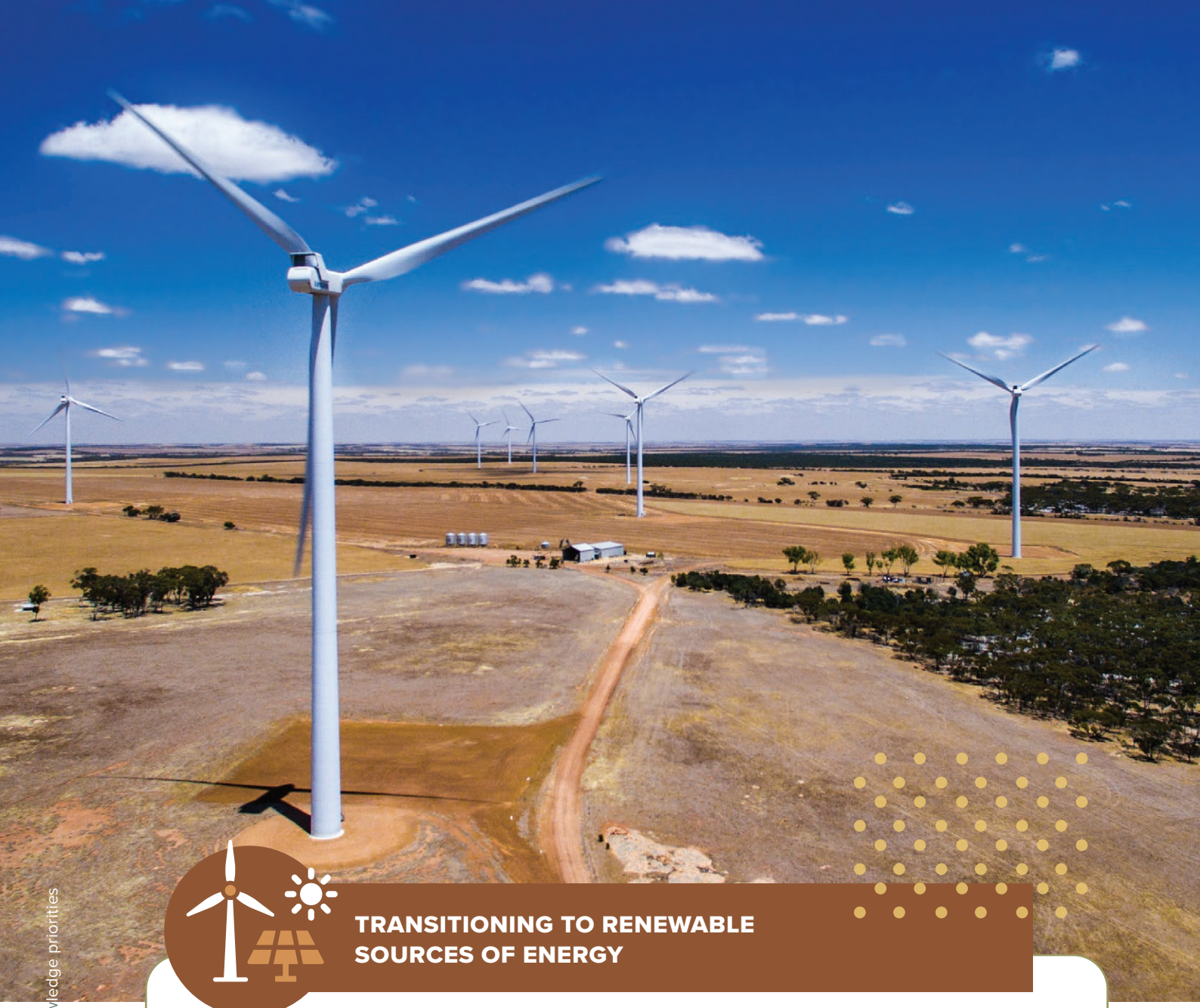


ENSURING FOOD SECURITY AND SUSTAINABILITY

As the agricultural sector seeks to ensure long-term regional resilience by maintaining productivity and addressing challenges like reducing emissions, it places a priority on boosting defences biosecurity threats, both to food production systems and native species. Pests like the shot hole borer, invasives like feral cats and weeds are extremely harmful to native species. Without timely scientific knowledge, biosecurity measures could prove ineffective or even harmful.

- End users have a clear and urgent need to better understand how these threats spread so that they can be detected early and effective strategies and measures can be put in place.
- A greater understanding is required of how soil, water, pollinators and pests interact. This will enable end users to better measure, monitor and model impacts on ecosystems, whilst supporting food production and maintaining ecosystem connectivity.
- Priority research that can help inform a strategic approach for planning and development at a landscape scale is essential to expand agricultural regions, and protect both food crops and biodiversity.





TRANSITIONING TO RENEWABLE SOURCES OF ENERGY

Minerals like lithium, nickel and rare earths are in high demand for use in electric vehicles, computers, smartphones and are deemed essential for the transition to clean, renewable energy. Western Australia has rich sources of these critical minerals and is well positioned to meet global demand. The location of these critical minerals often coincides with biodiversity-rich areas. Increased demand for resource developments that can satisfy the demand for renewables brings with it greater, long-term impacts on the landscape.

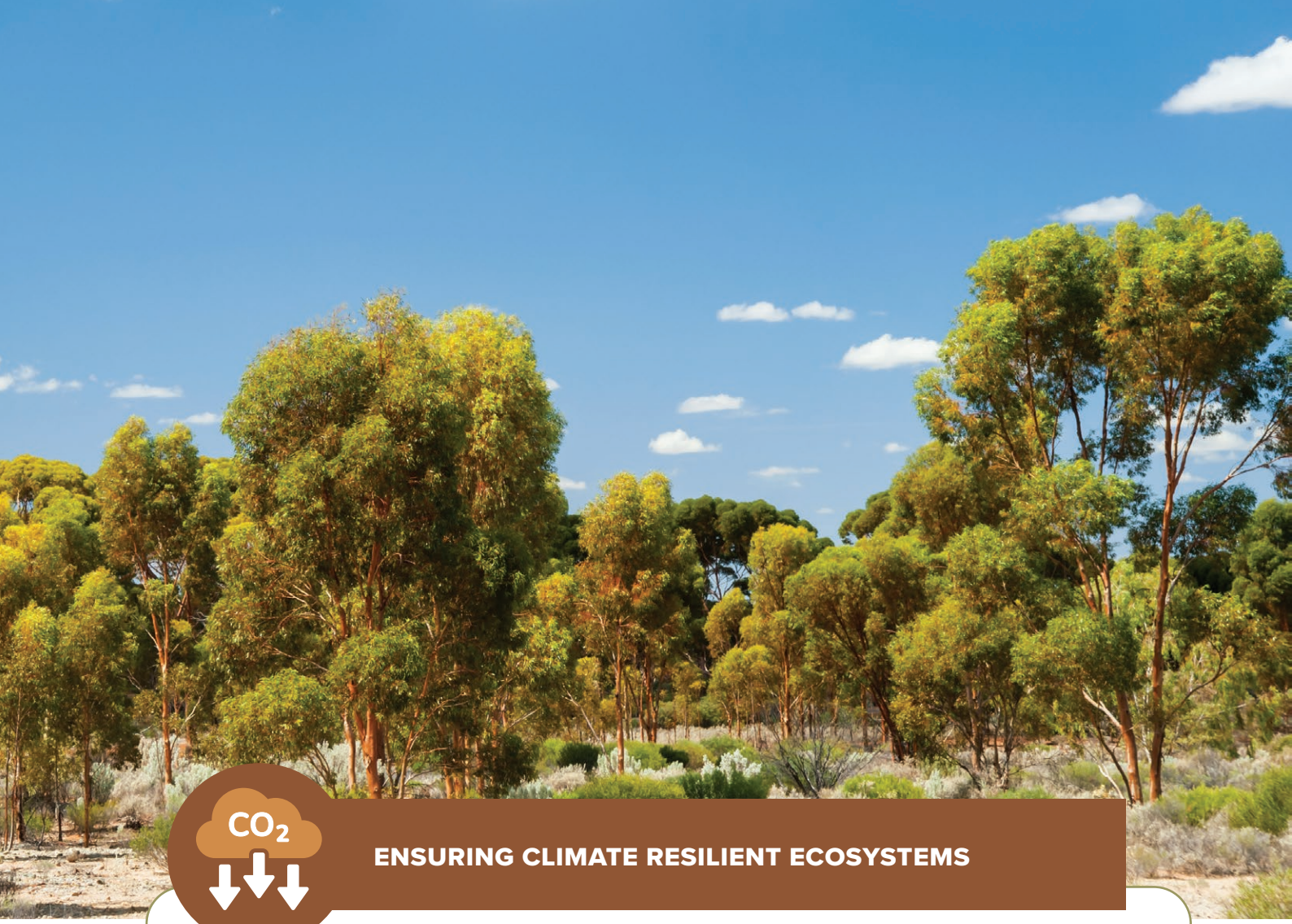
- End users need access to information to better understand landscape impacts. Baseline data, information on ecosystem services, and cumulative impacts on flora, fauna, water and soil can provide deeper insights and enable effective bio-regional planning.
- Access to reliable biodiversity information is a clear priority, where data from disparate sources can be accessed, interpreted and applied in decision-making.
- Priority research areas include trusted data to better understand landscape and ecosystem cumulative impacts from the establishment of renewable energy infrastructure. This is vital to ensure that resource developments balance conservation and regulatory requirements with economic activity.

INFORMATION FOR DECISION-MAKING

Vast amounts of environmental data is collected in Western Australia each year from multiple sources. Some of the data makes it way to Dandjoo, a whole-of-state biodiversity data platform, while the rest is held in disparate locations.

- End users require better access to this data and need to trust that it is dependable, so it can be understood and applied for making critical decisions.
- A trusted and shared data and environmental information supply chain can transform landscape-scale planning, environmental assessments, reporting and assurance for development.
- Priority research initiatives are required to help interpret and apply environmental data. For example, spatial biodiversity information can help map the type and extent of native vegetation and identify high-value conservation areas; predictive models can anticipate the cumulative impacts of land use change; robust and repeatable reports and forecasting tools can lift efficiencies, confidence and transparency in environmental assessments and decisions. These initiatives are critical to enable a more sustainable and diversified economy that also delivers better outcomes for nature.





ENSURING CLIMATE RESILIENT ECOSYSTEMS

Organisations across the globe have set targets, pledging to reduce greenhouse gas emissions by the year 2030 or targeting carbon neutrality by 2050. Targets include adopting more sustainable practices, transitioning to renewable energy sources and offsetting emissions by removing or sequestering carbon.

- End users require a better understanding of natural ecological processes, and which species and ecosystems store carbon most effectively.
- There is a need to explore which biodiversity protections can mitigate the risks of ecosystems becoming degraded or impacted by extreme climate change and releasing carbon back into the atmosphere.
- Priority research is needed to ensure our ecosystems are climate resilient and to transition to renewable energy, whilst minimising and mitigating impact on our landscapes. Nature-based solutions require deep biodiversity knowledge and expertise, without which organisations cannot meet their carbon commitments.

UNDERSTANDING HOW TO VALUE BIODIVERSITY AND IMPACTS

Western Australia has unique biodiversity and an economy that is heavily dependent on nature. There is competing land use demand from infrastructure developments to cater for a growing population, mining, agriculture and food production. In addition, a changing climate, regulatory and community expectations, including consideration of Traditional Knowledge and values, increasingly require organisations to disclose impacts of their activities on nature.

- End users need to better understand ecological interactions and economic implications. Inconsistencies and vast challenges currently exist in how biodiversity and impacts are understood and valued across different landscapes and ecosystems. This includes how Traditional Knowledge and community values are incorporated in decision-making.
- End users need to access a single source of trusted data and information for baseline information about the state of biodiversity, to measure and monitor impacts, and enhance conservation efforts.
- Priority research into how biodiversity economics and finance intersect with biodiversity markets is urgently needed, to ensure that biodiversity considerations become an integral part of decision-making, reduce risk and support investment.



THREE REASONS TO PARTNER WITH WABSI

1. **Reduce risk and uncertainty, increase confidence**

   If you are a decision-maker, maximise your return on investment through targeted research, aligned to real-world needs and facilitated by WABSI. In an increasingly complex operating environment, you need more than information, you need confidence.

2. **Access end user ready tools and resources**

   With WABSI's focus on end user needs, we accelerate knowledge communication, transforming complex science into relevant tools to help you protect Western Australia's unique biodiversity.

3. **Maximise your real world impact**

   If you are a researcher, align your research to end user priorities, especially in a competitive funding environment. Address knowledge priorities, enable more informed decisions and better outcomes.

Enabling Western Australia to go from knowledge to action

The Western Australian Government's 10-year Science and Technology Plan builds capability and collaboration, and its investment in WABSI supports evidence-based environmental decision-making. This commitment enables the implementation of updated WA Environmental Offsets Guidelines. It also supports de-risking of clean energy developments through informing offsets and cumulative impact management. The Science and Technology Council guides the plan's implementation assisted by scientific experts, including WABSI.

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The Western Australian Biodiversity Science Institute

LEADING KNOWLEDGE COLLABORATION
ENABLING SMARTER DECISIONS

CELEBRATING 10 YEARS