



Biodiversity Knowledge Priorities

Emerging themes from stakeholder consultation





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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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Globally informed, locally relevant and end user led



In early 2022, WABSI undertook extensive consultation with more than 50 end users across industry, financial services organisations, government, conservation groups, non-profits, scientists and researchers. This document sheds light on emerging, strategic, biodiversity knowledge priorities that were identified.

We outline the research needed to address large, complex issues which can only be solved through collaboration. Our consultation will form the basis for an updated WABSI Research Priorities Plan 2023–2028, guided by the WABSI Strategic Plan 2022–2032.





Leading collaboration to address complex biodiversity science issues

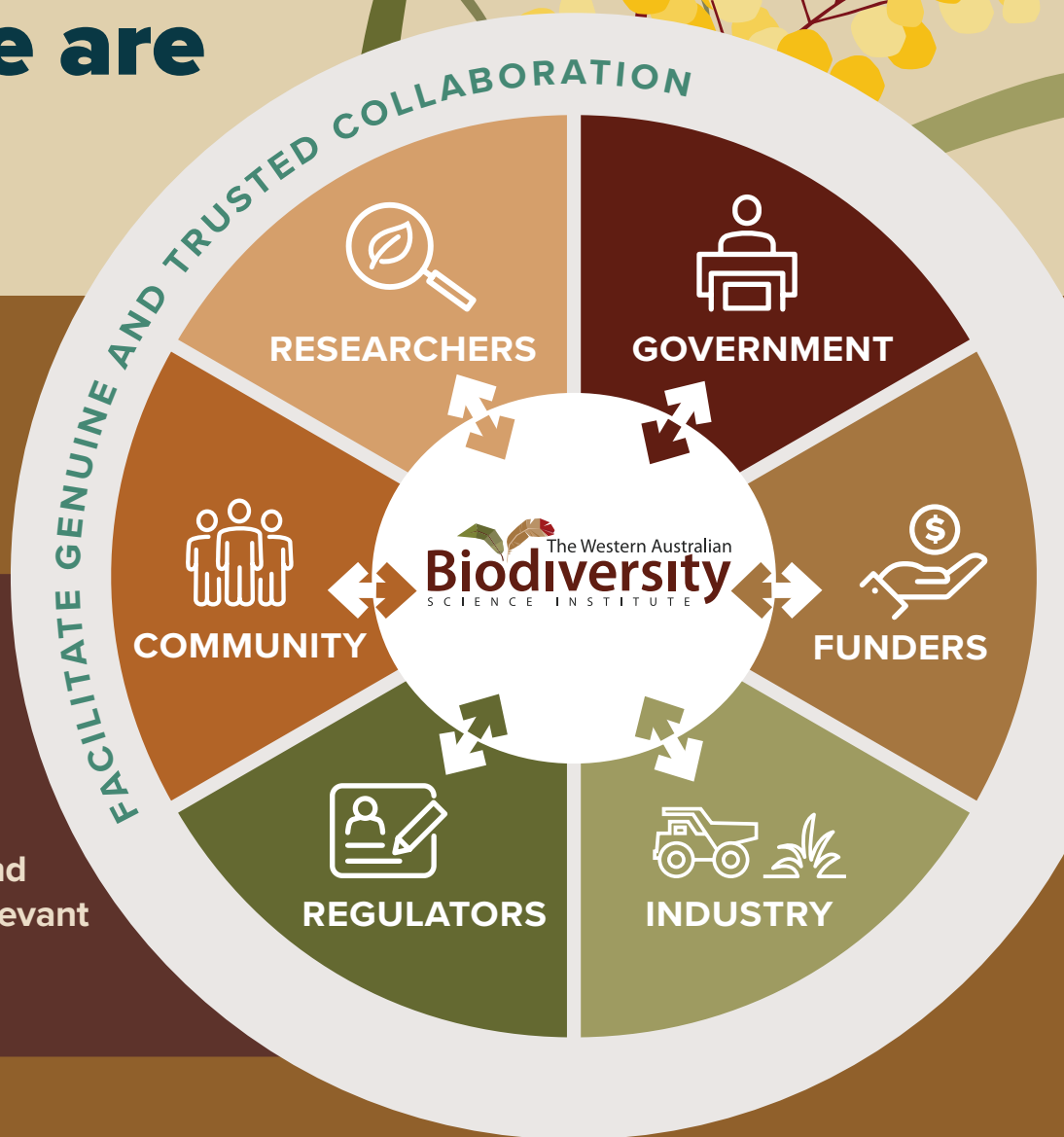
WABSI's purpose is:

**To facilitate collaboration for identifying and
addressing strategic biodiversity knowledge priorities
for a sustainable future.**



Who we are

- We are an independent, collaboration mechanism.
- We facilitate end user driven, relevant research.



Creating opportunities for meaningful change in biodiversity conservation to enable sustainable development

To enable sustainable development in Western Australia, strategic biodiversity knowledge gaps need to be addressed in a timely, targeted and collaborative way.

WABSI ensures that government, industry, regulators and the community have access to relevant information so that end users of biodiversity science can apply knowledge across all stages of the sustainable development cycle, to make more informed decisions.





- Planning and approvals
- Development and operation
- Recovery, rehabilitation and repurpose

The global and local environment: Emerging issues

Stakeholder consultation identified **land use change and climate change** as key drivers of end user need for greater biodiversity knowledge. The global and local environment including, social and policy drivers, are helping to shape emerging biodiversity knowledge priorities. Key themes and issues include:

Green bonds

Global growth in the green bond market (financing projects offering climate change and environmental benefits) is driving new investment in the renewable sector. An expanding investor base is providing access to new sources of capital, with much of it being channelled towards solar and wind energy projects, to underpin the energy demands of economic growth. The planning, development and establishment of large scale, renewables infrastructure is posing new science questions about the impact on biodiversity and how best to plan and mitigate impacts.

Taskforce on Nature-related Financial Disclosures (TNFD)

Nature loss represents a significant corporate and financial risk to organisations and the framework being delivered by the TNFD will enable organisations to report and act on nature-related risks. This will drive the consideration of nature and nature-loss to become a critical factor in management decision-making. This important change will allow the market to reduce the impact on nature, and biodiversity, by tackling the risk of nature loss.

Carbon and biodiversity markets

Efforts to limit greenhouse gas emissions have given rise to several market-based tools such as emissions trading schemes in the form of a fast-growing global carbon market. The Australian carbon market is maturing, with a carbon exchange that will enable organisations to trade credits more easily, potentially driving up corporate demand. This will provide an incentive to industry to transition to alternative energy sources to meet voluntary or regulatory targets towards carbon neutral certification and could include actions such as carbon storage and sequestration. More informed planning decisions, supported by greater biodiversity science knowledge will be critical to ensure good conservation outcomes, in the face of these changes.









Target 30 by 30

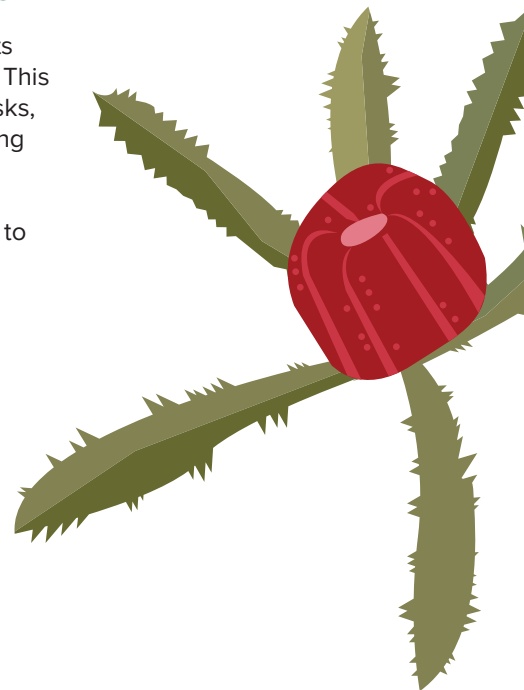
Under the United Nations Convention on Biological Diversity, the target to protect at least 30% of the Earth's land and sea by 2030 is driving awareness and actions by governments for greater conservation efforts. Measures being proposed to mitigate climate change and protect biodiversity include areas-based conservation measures and the drastic reduction in the impacts of invasive alien species. A Global Biodiversity Framework will drive the push to better protect the integrity and connectivity of ecosystems, safeguard the genetic diversity of species, whilst halting the risk of extinctions.

Net zero and nature positive

A stronger recognition of the connection between climate and nature, following the COP26 summit in late 2021 has meant that 'nature positive' is fast becoming a key component of 'net zero' pledges and targets committed to by organisations and governments. This will drive the demand for greater scientific knowledge to help tackle climate and biodiversity.

Environmental, social and governance (ESG) reporting

Globally there is increasing momentum behind a push for mandatory requirements for companies to disclose their performance with reference to material ESG risks. This will help lift transparency around a company's efforts to mitigate environmental risks, essential for retaining stakeholder trust, continued success and growth, maintaining 'social licence', and delivering environmental sustainability. This broader focus on environment and the push towards international standards in ESG disclosure will strengthen the need for enhanced biodiversity knowledge to assist organisations to make decisions with greater certainty and confidence.



Positioning Western Australia as a leader in natural capital

Western Australia is already leading the way in biodiversity information management and mine site completion criteria, with the work of WABSI gaining national and international recognition. With the wealth of natural capital in the State, WABSI's research capabilities through the joint venture partners and our trusted stakeholder partnerships, WA is well positioned to be a global leader in biodiversity science, with WABSI the ideal mechanism to deliver relevant and timely research.

WABSI's 10-year vision, as set out in the Strategic Plan, demonstrates our commitment to being end user led and to respond to emerging issues and key biodiversity science questions. The following themes have emerged from WABSI's consultation with over 50 stakeholders across sectors.

Key science questions and research themes 2023–2028:

Measuring biodiversity

- How do we value nature and biodiversity? A consistency of measure is needed but one that takes into account diverse landscapes and ecosystems.
- How can we quantify impacts and gains in, for example, degraded land from agricultural or mining use?
- How do we incorporate community values and traditional knowledge into measurement?
- What do we need to consider for quantifying gains in the journey from net zero to nature positive?
- What tools would be required to report on the value and the benefits from nature?



Carbon and biodiversity values

- What are the benefits of carbon sequestration and de-carbonisation that would help organisations determine the most appropriate course of action? How do we better understand the nexus between carbon and ESG?
- What are the optimum locations to undertake biodiverse plantings?
- What biodiversity values can be put back into nature?
- How do we optimise biodiversity and carbon through the quantitative benefits of offsets?
- National consistency and better guidance are required to access appropriate land for offsets and in the context of restoration practices.
- How do we capture benefits from biodiversity offset sites that are not recognised as carbon credits and *vice versa*?
- What would be the impact of large-scale renewable energy infrastructure on biodiversity?



Biodiversity data and cumulative impact

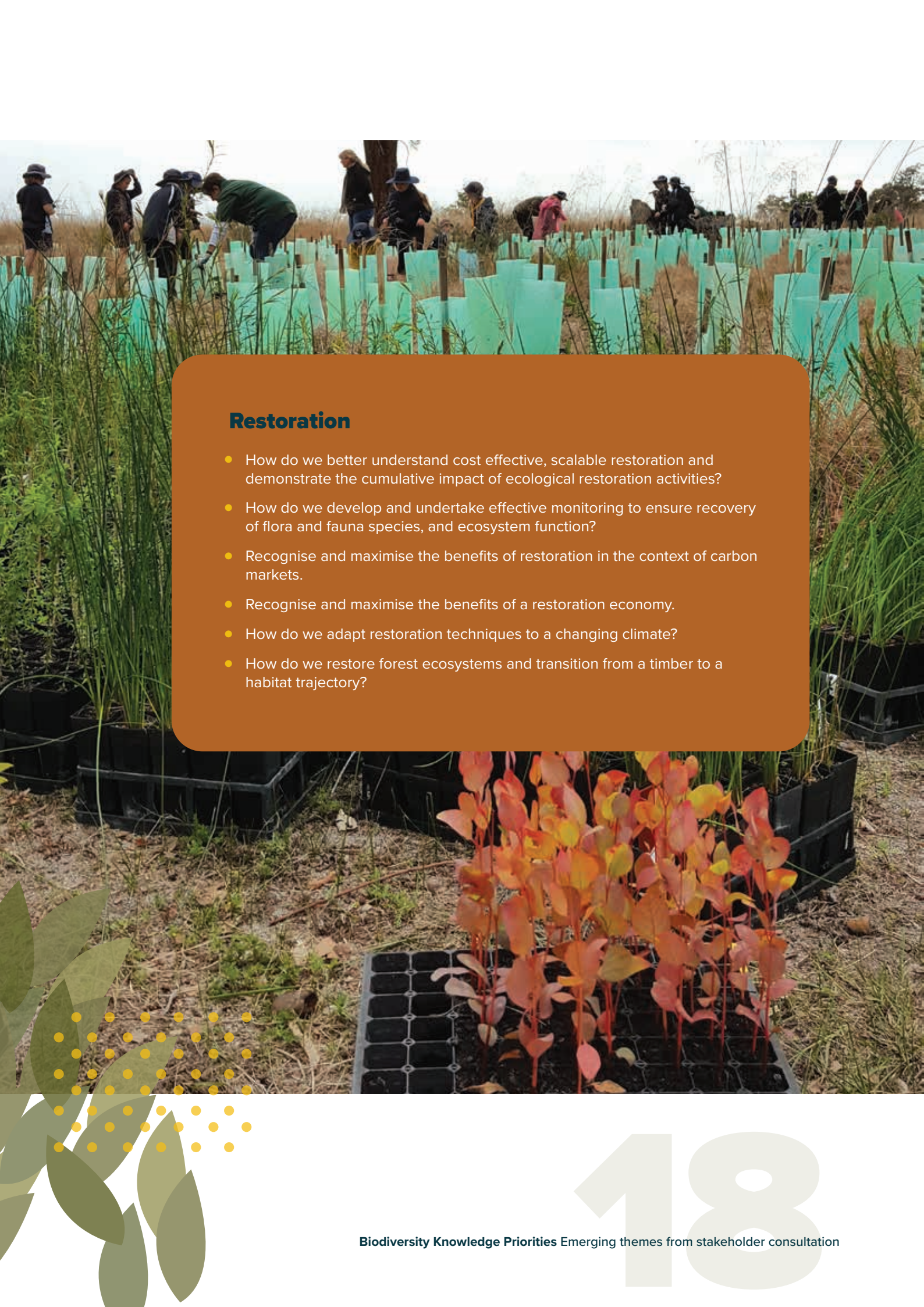
- A large data knowledge gap currently exists about the occurrence and distribution of flora and fauna across Western Australia. The lack of comprehensive mapping means current assessment is flawed.
- The steps taken recently towards digital environmental impact assessment needs to assess the cumulative impact of development and restoration. How do we better understand this using agreed frameworks? How do we enable data aggregation at a regional scale?
- How do we use shared analytics to establish common baselines for common reporting and assessment of cumulative impact at a regional scale?
- We need to ensure access to linked, shared and accessible data, as well as adoption of better survey and data collection methods to help standardise habitat and vegetation mapping.
- How do we better utilise remote sensing technologies to establish better baseline data for identifying habitat and species of interest; one that is aligned with guidance from the regulator?
- Drive the push for shared access to historic biodiversity data including, data from non-rare species.





Incorporating traditional knowledge and values into biodiversity conservation

- There is an increasing effort to recognise, respect and incorporate traditional knowledge into research however, greater guidance is needed on the application of traditional ecological knowledge in co-design for maximising conservation outcomes.
- Traditional burning practices and cultural land management values should be incorporated into contemporary science to lift fire management outcomes. Greater access to existing and new knowledge is required to enable co-design and improved management.



Restoration

- How do we better understand cost effective, scalable restoration and demonstrate the cumulative impact of ecological restoration activities?
- How do we develop and undertake effective monitoring to ensure recovery of flora and fauna species, and ecosystem function?
- Recognise and maximise the benefits of restoration in the context of carbon markets.
- Recognise and maximise the benefits of a restoration economy.
- How do we adapt restoration techniques to a changing climate?
- How do we restore forest ecosystems and transition from a timber to a habitat trajectory?

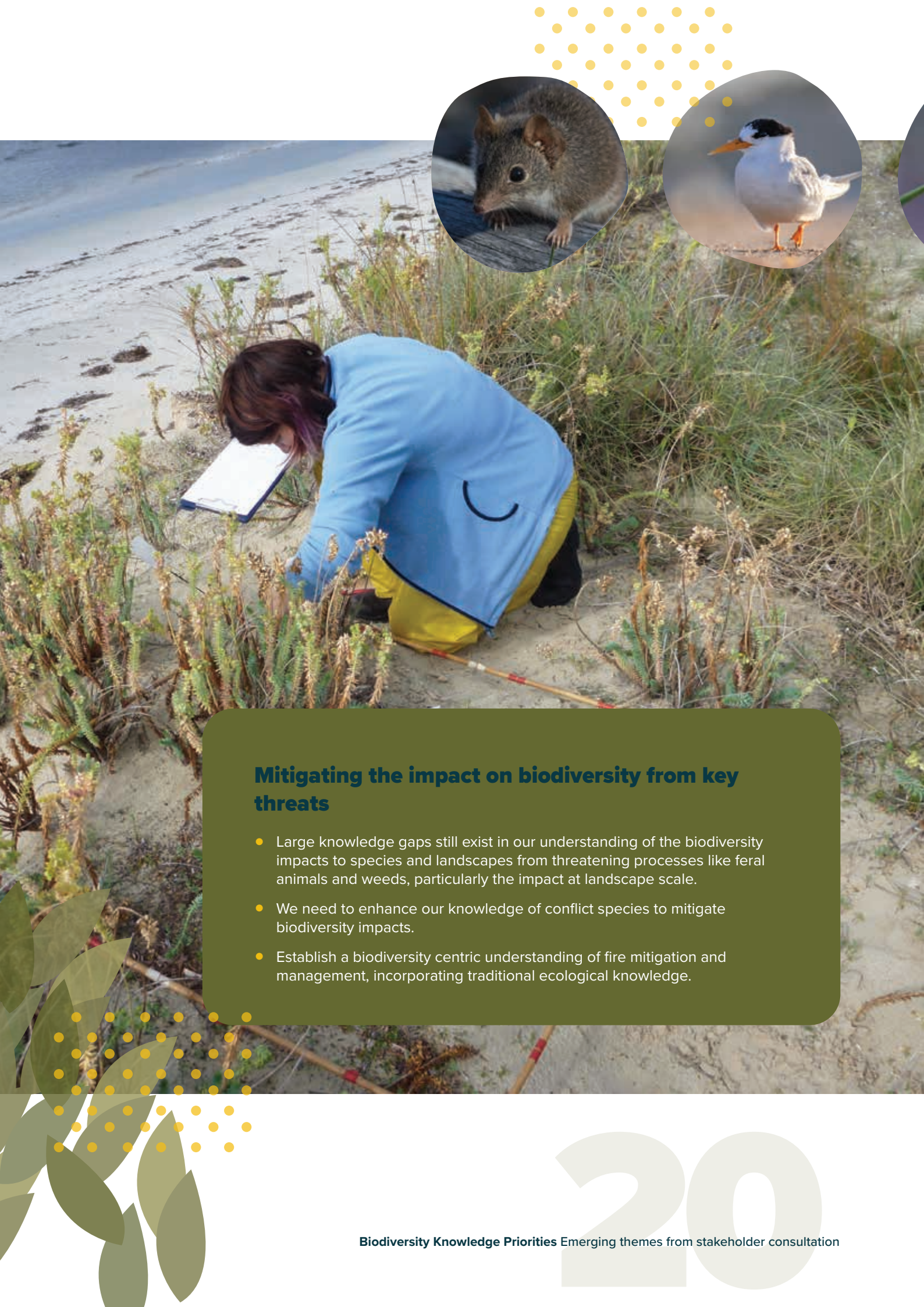




Climate adaptation and resilience

- Changing fire regimes
 - Better understand wildfires and prescribed burns to maximise conservation outcomes.
 - What is the interaction between connectivity and fire in the landscape?
- In the face of a drying climate:
 - Better understand ecosystem restoration in the context of climate change.
 - How does riparian vegetation (surface and ground-water dependent) adapt to altered water regimes?
 - What are the potential cumulative impacts on biodiversity above and below ground, from mine dewatering processes?
 - Science-based approaches to the use of wetland buffers in restoration, carbon capture and flood mitigation are required.
 - What are the knowledge gaps in our understanding of wetlands to ensure their survival in ecosystems?





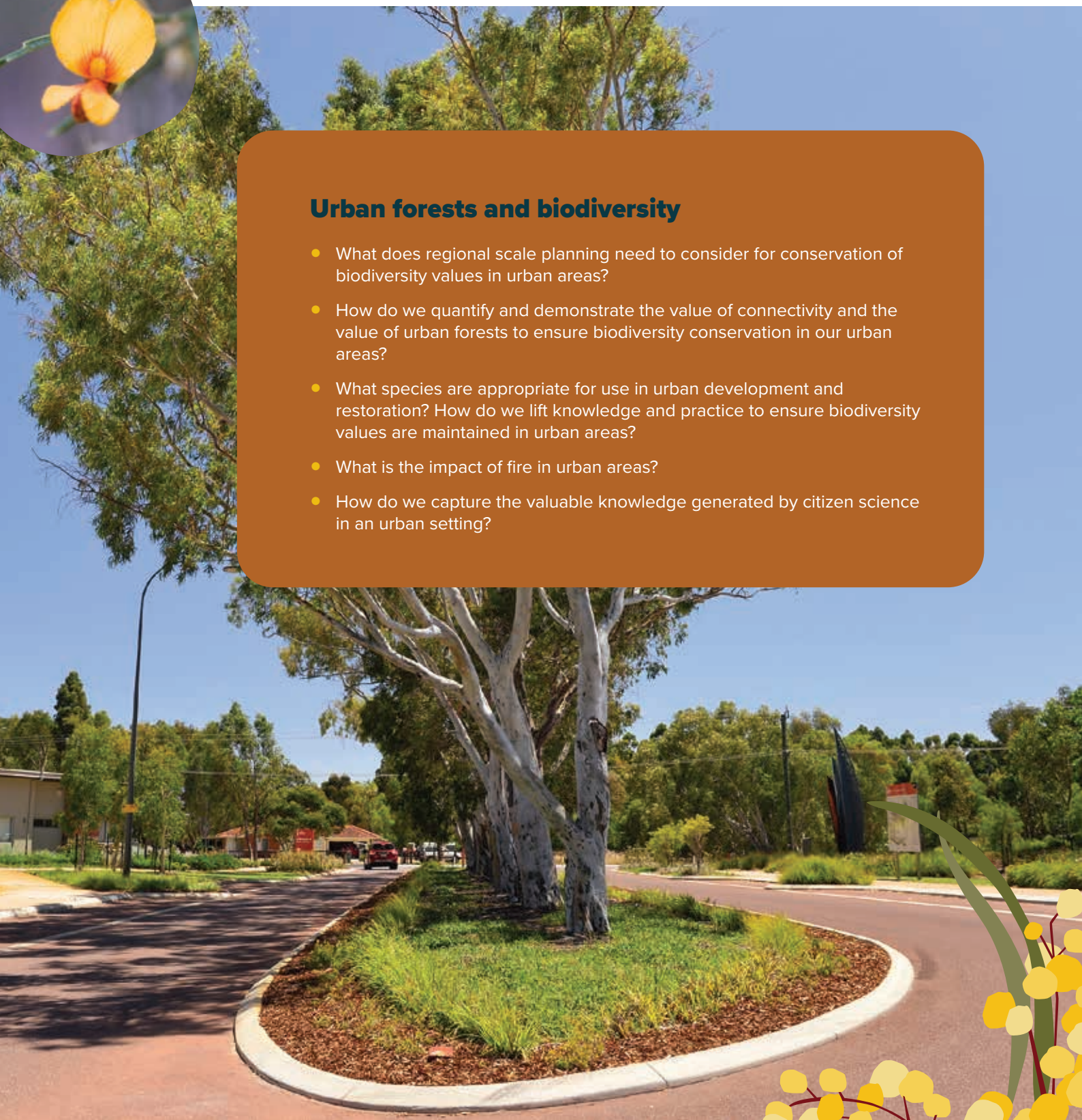
Mitigating the impact on biodiversity from key threats

- Large knowledge gaps still exist in our understanding of the biodiversity impacts to species and landscapes from threatening processes like feral animals and weeds, particularly the impact at landscape scale.
- We need to enhance our knowledge of conflict species to mitigate biodiversity impacts.
- Establish a biodiversity centric understanding of fire mitigation and management, incorporating traditional ecological knowledge.



Urban forests and biodiversity

- What does regional scale planning need to consider for conservation of biodiversity values in urban areas?
- How do we quantify and demonstrate the value of connectivity and the value of urban forests to ensure biodiversity conservation in our urban areas?
- What species are appropriate for use in urban development and restoration? How do we lift knowledge and practice to ensure biodiversity values are maintained in urban areas?
- What is the impact of fire in urban areas?
- How do we capture the valuable knowledge generated by citizen science in an urban setting?



Stakeholders consulted: End users of biodiversity knowledge



WESTERN AUSTRALIAN GOVERNMENT

*Consultations with ministers
and advisors, regulators
and Western Australian
Government agencies*

- Department of Premier and Cabinet
- Department of Planning Lands and Heritage
- Environmental Protection Authority
- Infrastructure WA
- Office of the Minister for Environment
- Office of the Minister for Science
- Office of the Minister for Information, Communication and Technology
- Office of the Minister for Regional Development
- Pilbara Environment Offset Fund
- Western Australian Local Government Association



INDUSTRY

*(Resources, forestry,
agriculture, financial services)*

Peak bodies

- Association of Mining and Exploration Companies
- Chamber of Minerals and Energy
- Cooperative Bulk Handling
- Environmental Consultants Association
- Environment Institute of Australia and New Zealand
- Infrastructure Sustainability Council
- Minerals Council of Australia
- Urban Development Institute of Australia (WA)

Organisations

- | | |
|--|---------------------|
| • Alcoa | • Hanson |
| • ANZ | • Mineral Resources |
| • Bechtel (Western Australia) Pty Ltd | • NAB |
| • BHP | • Newmont |
| • Cameco | • Rabo Bank |
| • Forest Federation Industries (WA) Inc. | • Rio Tinto |
| • Fortescue Metals Group | • Roy Hill |
| | • South32 |
| | • Westport |



COMMUNITY

(Indigenous community leaders, conservation organisations including agricultural community)

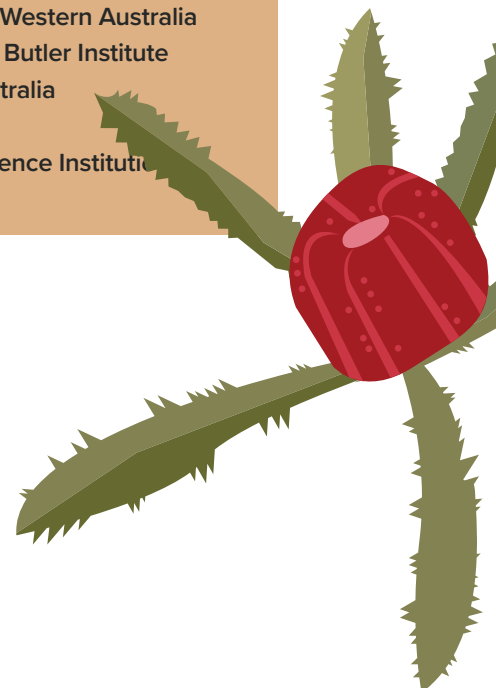
- Bush Heritage WA
- Greening Australia
- Northern Agricultural Catchment Council
- Noongar Chamber of Commerce and Industry
- Peel Harvey Catchment Council
- Perth NRM
- Rangelands NRM
- South Coast NRM
- South West Cultural Burning Project Steering Group: Including Breakaway Aboriginal Corporation, Undalup Association Inc., Woolkabunning Kiaka Aboriginal Corporation
- Wheatbelt NRM



RESEARCH

WABSI joint venture partners and other research organisations

- CSIRO
- Curtin University
- Department of Biodiversity, Conservation and Attraction
- Department of Mines, Regulation and Safety
- Department of Primary Industries and Regional Development
- Department of Water and Environmental Regulation
- Edith Cowan University
- Minerals Research Institute of Western Australia
- Murdoch University and Harry Butler Institute
- The University of Western Australia
- WA Museum
- Western Australian Marine Science Institute





Next steps

WABSI will build new programs of work to meet these emerging challenges and grow understanding of Western Australian biodiversity for a sustainable future across sectors.







wabsi.org.au