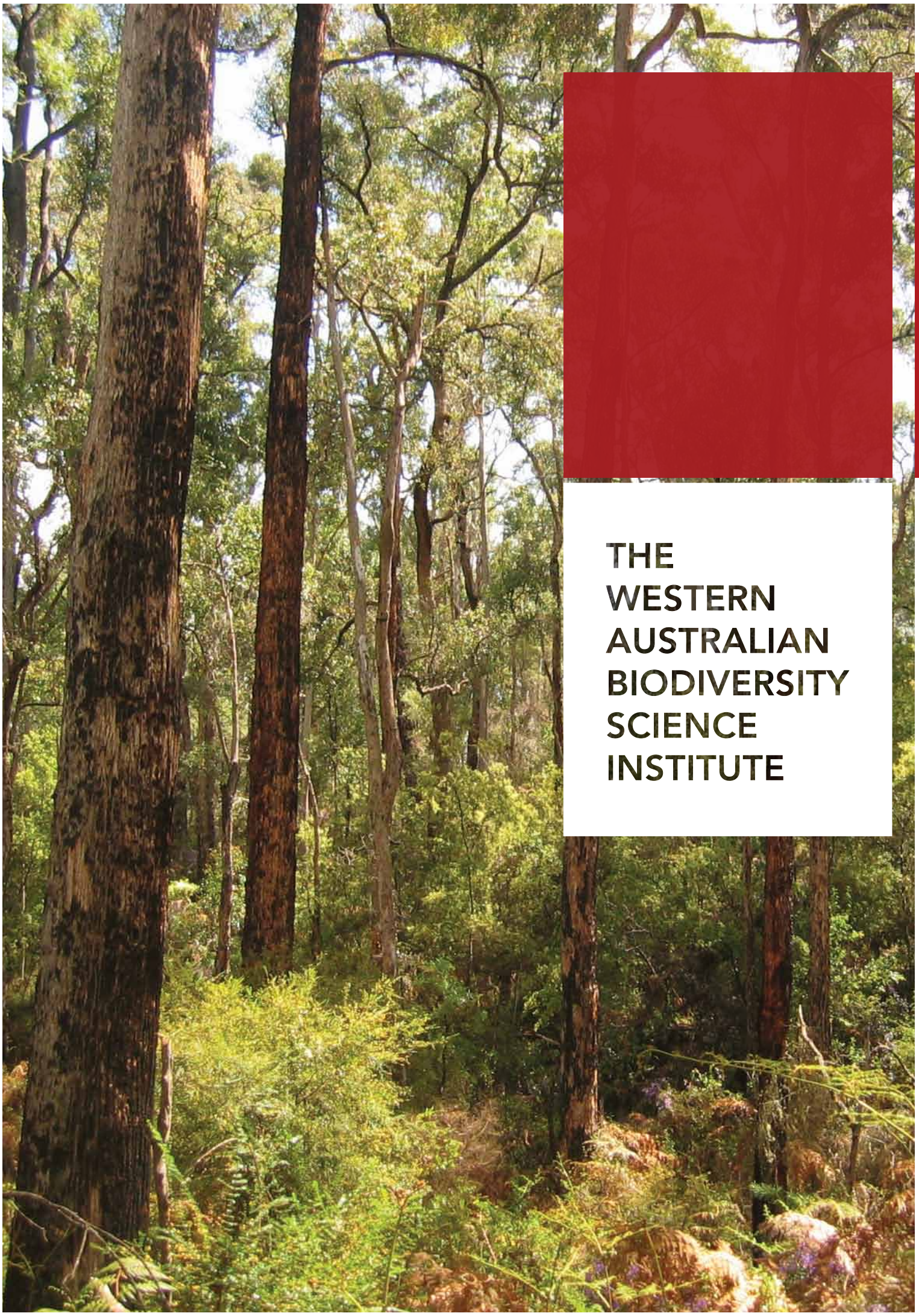
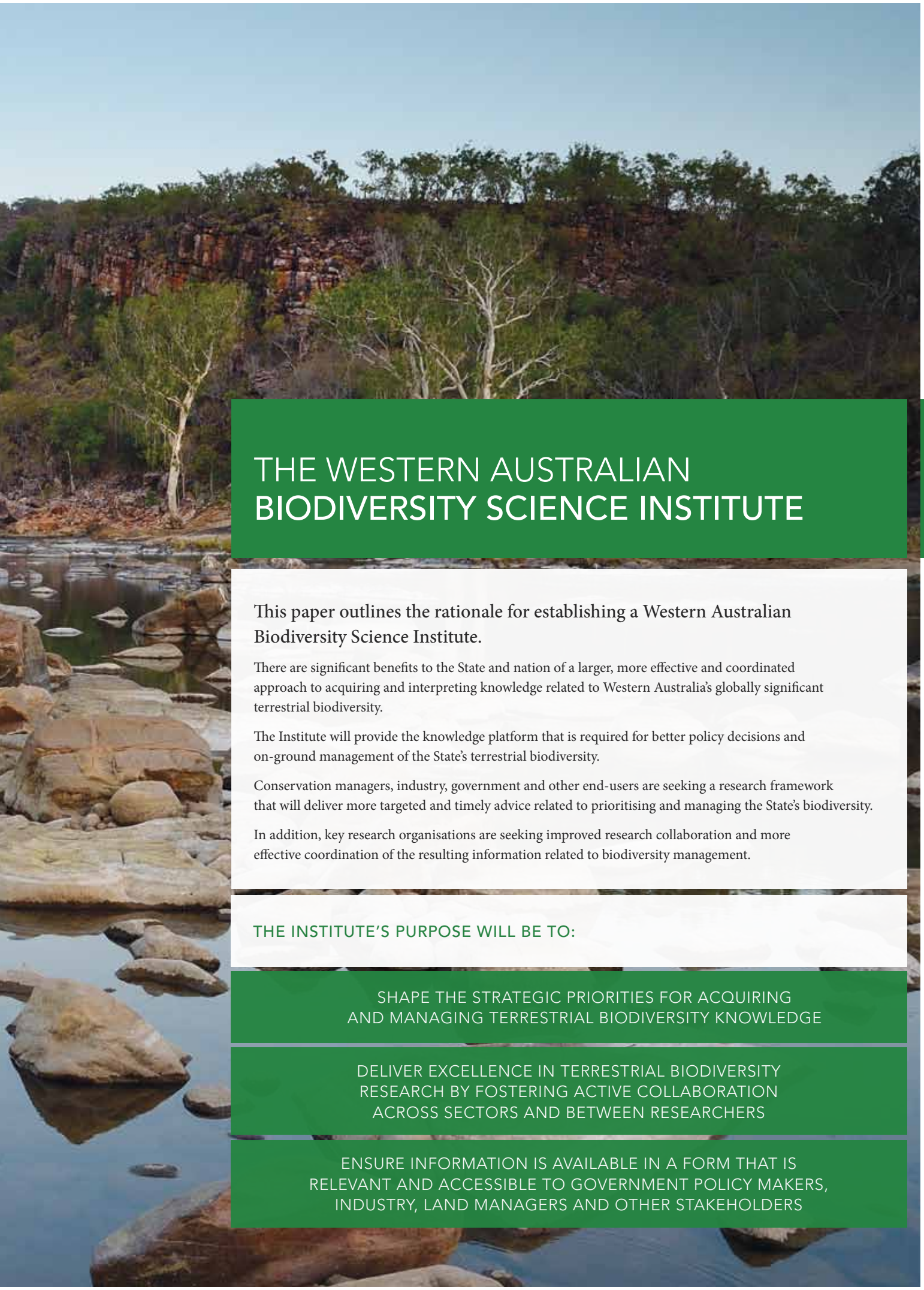


THE WESTERN AUSTRALIAN BIODIVERSITY SCIENCE INSTITUTE

PRINCE REGENT NATIONAL PARK ◊



THE WESTERN AUSTRALIAN BIODIVERSITY SCIENCE INSTITUTE

This paper outlines the rationale for establishing a Western Australian Biodiversity Science Institute.

There are significant benefits to the State and nation of a larger, more effective and coordinated approach to acquiring and interpreting knowledge related to Western Australia's globally significant terrestrial biodiversity.

The Institute will provide the knowledge platform that is required for better policy decisions and on-ground management of the State's terrestrial biodiversity.

Conservation managers, industry, government and other end-users are seeking a research framework that will deliver more targeted and timely advice related to prioritising and managing the State's biodiversity.

In addition, key research organisations are seeking improved research collaboration and more effective coordination of the resulting information related to biodiversity management.

THE INSTITUTE'S PURPOSE WILL BE TO:

SHAPE THE STRATEGIC PRIORITIES FOR ACQUIRING AND MANAGING TERRESTRIAL BIODIVERSITY KNOWLEDGE

DELIVER EXCELLENCE IN TERRESTRIAL BIODIVERSITY RESEARCH BY FOSTERING ACTIVE COLLABORATION ACROSS SECTORS AND BETWEEN RESEARCHERS

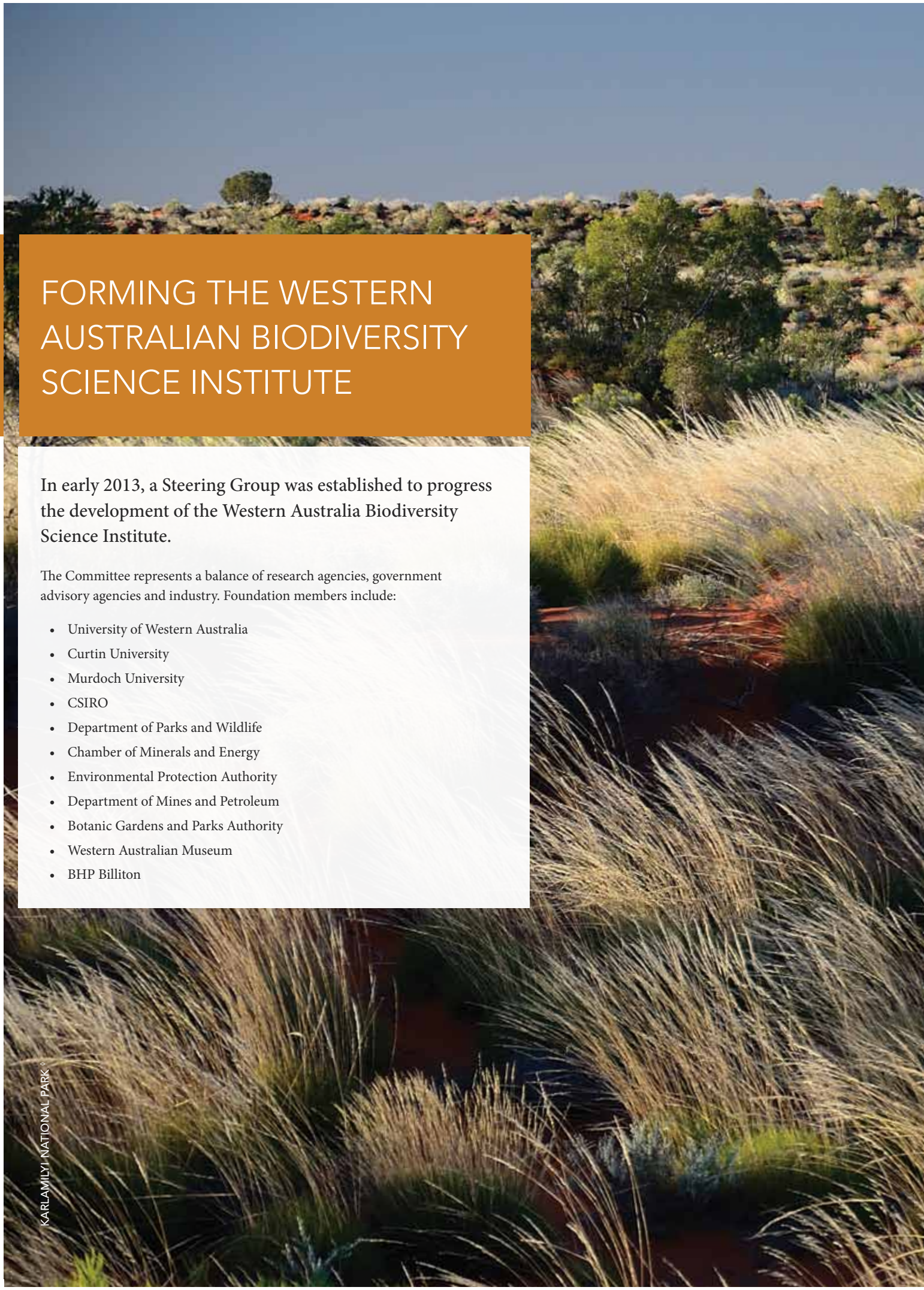
ENSURE INFORMATION IS AVAILABLE IN A FORM THAT IS RELEVANT AND ACCESSIBLE TO GOVERNMENT POLICY MAKERS, INDUSTRY, LAND MANAGERS AND OTHER STAKEHOLDERS

FORMING THE WESTERN AUSTRALIAN BIODIVERSITY SCIENCE INSTITUTE

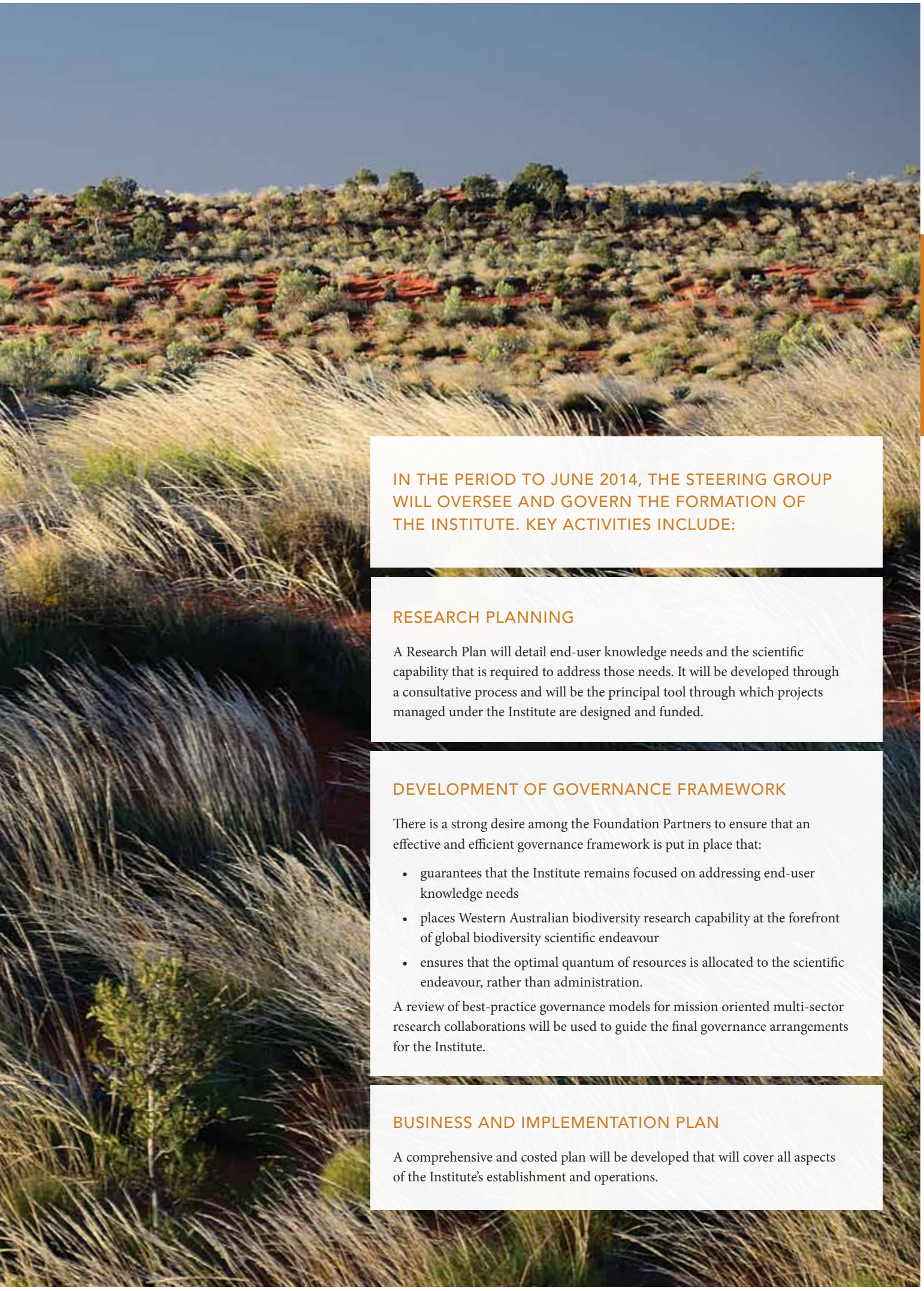
In early 2013, a Steering Group was established to progress the development of the Western Australia Biodiversity Science Institute.

The Committee represents a balance of research agencies, government advisory agencies and industry. Foundation members include:

- University of Western Australia
- Curtin University
- Murdoch University
- CSIRO
- Department of Parks and Wildlife
- Chamber of Minerals and Energy
- Environmental Protection Authority
- Department of Mines and Petroleum
- Botanic Gardens and Parks Authority
- Western Australian Museum
- BHP Billiton



KARLAMILYI NATIONAL PARK ©



IN THE PERIOD TO JUNE 2014, THE STEERING GROUP WILL OVERSEE AND GOVERN THE FORMATION OF THE INSTITUTE. KEY ACTIVITIES INCLUDE:

RESEARCH PLANNING

A Research Plan will detail end-user knowledge needs and the scientific capability that is required to address those needs. It will be developed through a consultative process and will be the principal tool through which projects managed under the Institute are designed and funded.

DEVELOPMENT OF GOVERNANCE FRAMEWORK

There is a strong desire among the Foundation Partners to ensure that an effective and efficient governance framework is put in place that:

- guarantees that the Institute remains focused on addressing end-user knowledge needs
- places Western Australian biodiversity research capability at the forefront of global biodiversity scientific endeavour
- ensures that the optimal quantum of resources is allocated to the scientific endeavour, rather than administration.

A review of best-practice governance models for mission oriented multi-sector research collaborations will be used to guide the final governance arrangements for the Institute.

BUSINESS AND IMPLEMENTATION PLAN

A comprehensive and costed plan will be developed that will cover all aspects of the Institute's establishment and operations.

THE RATIONALE FOR A BIODIVERSITY SCIENCE INSTITUTE

By virtue of its geographical expanse, climatic diversity, areas of relative wilderness, regions with extremely nutrient-impoverished soils, and the fact that significant areas of the State have not been covered by sea or glaciated for a very long time, Western Australia has a globally unique and immense biodiversity that is characterised by significant endemism.

By way of example, there are more species of flowering plants in the Fitzgerald River National Park than in the United Kingdom, contributing to the South West Region of Western Australia being one of only 34 Global Biodiversity Hotspots, defined as geographical regions that have at least 1,500 vascular plant species and have lost at least 70 percent of their original habitat.

In addition, Western Australia has many other important assets including:

A rich endowment of minerals and petroleum resources that account for around 30 percent of Gross State Product and provide the State Government with around 20 percent of its annual revenues through taxation and royalties.

A productive and diverse agricultural sector.

A growing services sector.

A growing population demanding increased urban development, particularly in the South West of the State.


FITZGERALD RIVER NATIONAL PARK ◊

By contrast with many other developed countries, Western Australia is relatively early in its development. Significant urban, industrial, resources and agricultural development has only taken place in Western Australia over the last 150 years. There remain significant and important opportunities for development and wealth generation within the State.

The dilemma is that past and future development of the State is occurring without an accessible and adequate information base or agreed priorities for biodiversity conservation. Over the course of the State's historical development, societal values have changed and now include a need to seek a balance between economic, environment and social factors so that the current high quality of life within the State is enduring. In particular, high value biodiversity within the State is at significant and increasing risk though a range of processes including:

- Land-use change for urbanization, agricultural, minerals and industrial development
- Introduction of exotic plants and animals, and disease
- Changes in the environment including altered fire regimes, changed hydrological processes and climate change

As a consequence, a growing number of ecosystem services and individual species are under threat. This in turn has triggered an ever-increasing suite of regulatory controls that are frustrating or delaying the development aspirations of industry and having sub-optimal impact as far as protecting the State's biodiversity.

A major task confronting policy makers and industry leaders is to find strategies for the optimal management of biodiversity that are compatible with the ongoing imperative for the State's development. In the broadest terms, the following set of decisions need to be made:

1. Whether an area of land should be developed or protected for its biodiversity values.
2. When an area of land is to be developed, under what conditions development should occur, including ongoing monitoring arrangements.
3. How developed land can be most effectively managed to facilitate biodiversity conservation either on the land itself, or in a way that ensures development does not compromise biodiversity in adjacent and connected land areas.
4. Determining when and to what standard to rehabilitate land that has been disturbed.

In addition to decisions relating to land allocation and management, the growing number of species at threat of extinction also requires prioritisation of biodiversity management activities for greatest conservation return. A particular priority is how best to manage species and communities on conservation lands in a broader landscape context, including taking into account climate change.

At a fundamental level, the case for a Biodiversity Science Institute is to address these questions in a way that accommodates both the conservation of biodiversity and the development of the State.

Western Australia enjoys a rich endowment of natural resources. The continued development of land and resources will be the primary source of wealth within the State for many years to come. Development can be reconciled with the conservation of biodiversity, but only with robust scientific information that can be used by decision-makers to avoid and minimise impacts and, where necessary, develop complementary management strategies, such as biodiversity offsets to address significant residual impacts.

A Biodiversity Science Institute has the potential to address this need by providing more certainty around decision-making processes. Greater knowledge enables efficient decisions providing considerable benefit to both industry and environmental interests, substantially improving both productivity and biodiversity conservation.

CURRENT STATE OF BIODIVERSITY KNOWLEDGE

The cumulative and current biodiversity research effort within Western Australia is significant. Research is undertaken by a range of organisations.

Government Departments

A range of core government agencies have an interest in and manage research relevant to the conservation of biodiversity. These agencies are led by the Department of Parks and Wildlife, which has statutory responsibility for the management of biodiversity and conservation research across the State. Other key agencies include the Environmental Protection Authority, Department of Water, Department of Agriculture and Food, Department of Mines and Petroleum, and Department of State Development.

Statutory Agencies

A range of statutory agencies have a key role in biodiversity conservation and maintain active research programs. These include the Botanic Gardens and Parks Authority, Western Australian Museum and Perth Zoo.

Research Bodies

The Universities and CSIRO all maintain active research programs related to biodiversity conservation and ecological processes.

Industry

Resources and development industries undertake research into biodiversity, impact assessment and management strategies in their regions of operation.

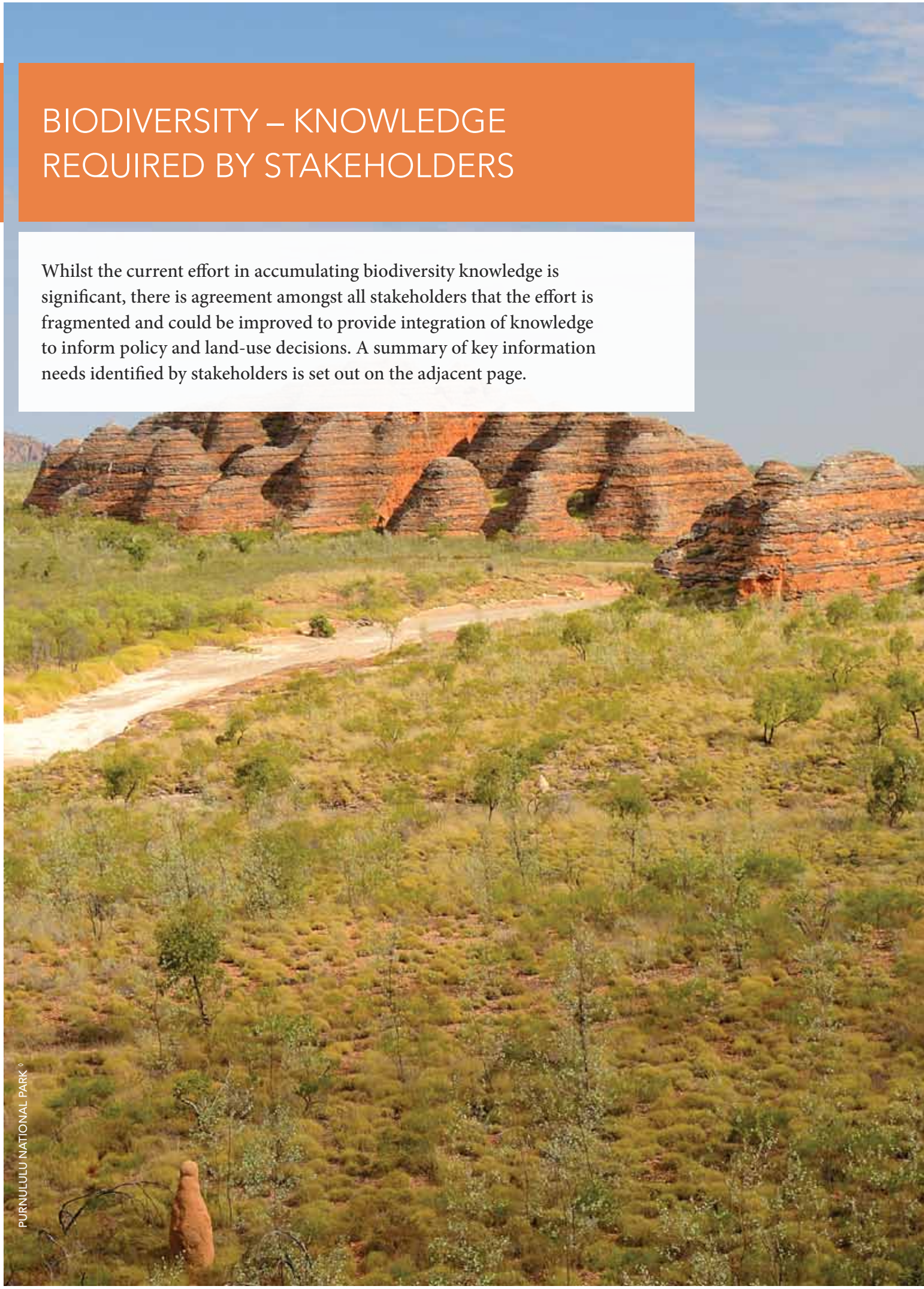
The current information base and research effort is significant, resulting in hundreds of written reports and peer reviewed scientific papers published each year.

A comprehensive summary of the research effort across the State is available in the full report: *Pathway to an Enhanced Western Australian terrestrial Biodiversity Knowledge System, Australian Venture Consultants (2012).*

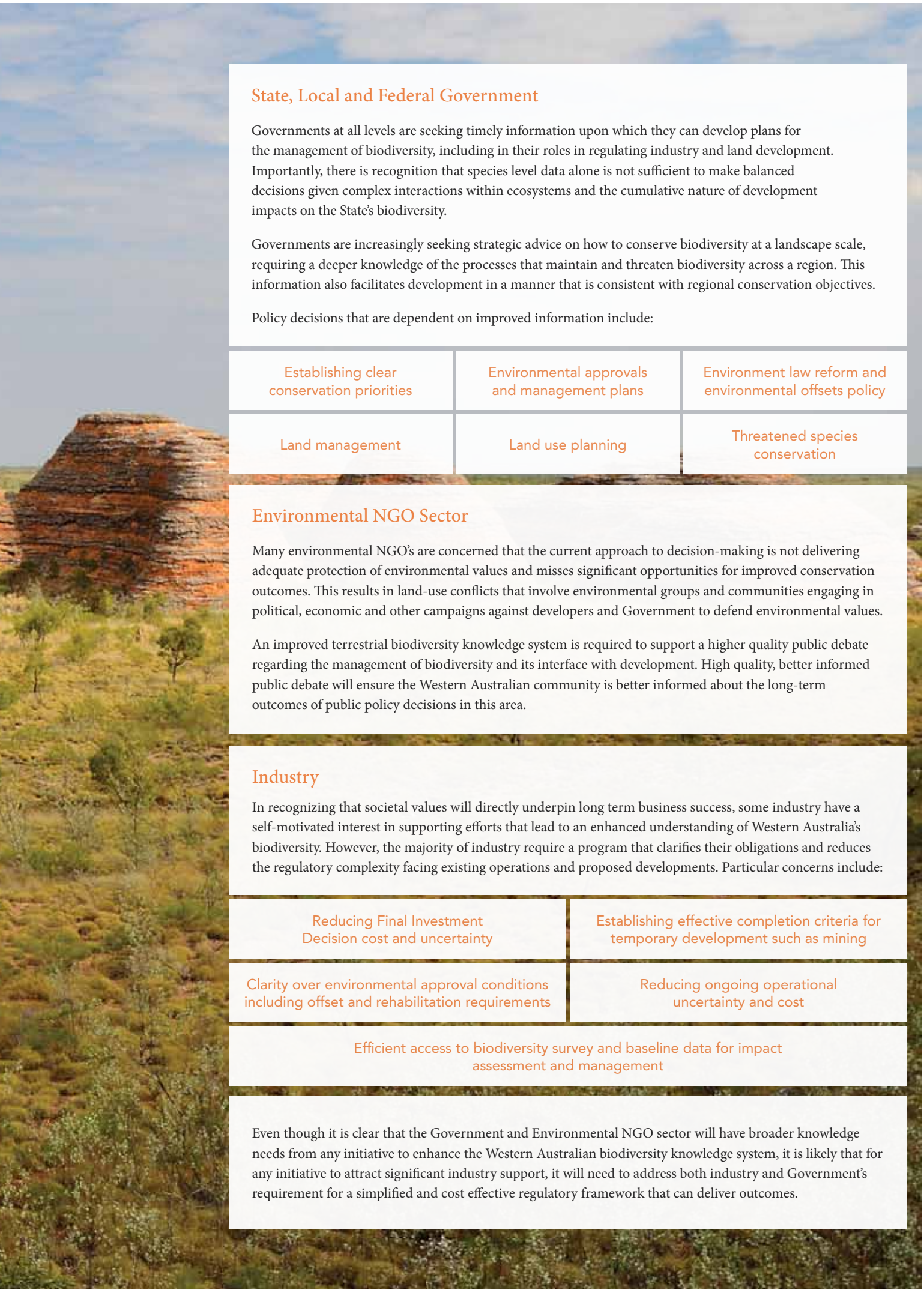
KARIJINI NATIONAL PARK ◊

BIODIVERSITY – KNOWLEDGE REQUIRED BY STAKEHOLDERS

Whilst the current effort in accumulating biodiversity knowledge is significant, there is agreement amongst all stakeholders that the effort is fragmented and could be improved to provide integration of knowledge to inform policy and land-use decisions. A summary of key information needs identified by stakeholders is set out on the adjacent page.



PURNULULU NATIONAL PARK ©



State, Local and Federal Government

Governments at all levels are seeking timely information upon which they can develop plans for the management of biodiversity, including in their roles in regulating industry and land development. Importantly, there is recognition that species level data alone is not sufficient to make balanced decisions given complex interactions within ecosystems and the cumulative nature of development impacts on the State's biodiversity.

Governments are increasingly seeking strategic advice on how to conserve biodiversity at a landscape scale, requiring a deeper knowledge of the processes that maintain and threaten biodiversity across a region. This information also facilitates development in a manner that is consistent with regional conservation objectives.

Policy decisions that are dependent on improved information include:

Establishing clear conservation priorities	Environmental approvals and management plans	Environment law reform and environmental offsets policy
Land management	Land use planning	Threatened species conservation

Environmental NGO Sector

Many environmental NGO's are concerned that the current approach to decision-making is not delivering adequate protection of environmental values and misses significant opportunities for improved conservation outcomes. This results in land-use conflicts that involve environmental groups and communities engaging in political, economic and other campaigns against developers and Government to defend environmental values.

An improved terrestrial biodiversity knowledge system is required to support a higher quality public debate regarding the management of biodiversity and its interface with development. High quality, better informed public debate will ensure the Western Australian community is better informed about the long-term outcomes of public policy decisions in this area.

Industry

In recognizing that societal values will directly underpin long term business success, some industry have a self-motivated interest in supporting efforts that lead to an enhanced understanding of Western Australia's biodiversity. However, the majority of industry require a program that clarifies their obligations and reduces the regulatory complexity facing existing operations and proposed developments. Particular concerns include:

Reducing Final Investment Decision cost and uncertainty	Establishing effective completion criteria for temporary development such as mining
Clarity over environmental approval conditions including offset and rehabilitation requirements	Reducing ongoing operational uncertainty and cost
Efficient access to biodiversity survey and baseline data for impact assessment and management	

Even though it is clear that the Government and Environmental NGO sector will have broader knowledge needs from any initiative to enhance the Western Australian biodiversity knowledge system, it is likely that for any initiative to attract significant industry support, it will need to address both industry and Government's requirement for a simplified and cost effective regulatory framework that can deliver outcomes.

A FRAMEWORK FOR IMPROVED BIODIVERSITY KNOWLEDGE MANAGEMENT

All key stakeholders agree that an improved information base, which can be effectively interpreted by decision-makers, will improve decision-making. An opportunity exists to more effectively target biodiversity conservation strategies whilst concurrently enabling future economic development.

Key areas of focus for the Biodiversity Science Institute include:

Information Management Systems

A great deal of information on the State's biodiversity has been collected and interpreted by research agencies and industry. An improved knowledge management system will be developed to facilitate aggregation, interpretation and access to the existing data held by government, industry and research agencies.

Biodiversity Survey

Western Australia is blessed with incredible diversity in the range of plant and animal species across varied landscapes/ ecological communities. A comprehensive atlas of the State's biological resources can be delivered through a more coordinated and focused effort across agencies and industry.

Biodiversity Process and Threats

An understanding of the distribution of plant and animal species is not sufficient for effective management of biodiversity. Continued investment will build the capacity of land managers to understand and manage the processes that maintain or threaten ecosystems such as fire regimes, availability of water, climate, exotic species, fragmentation through land clearing and so on.

Restoration and Ex-Situ Conservation

Collaboration between industry and researchers has developed leading restoration technologies for some regions of the State, notably with the Alumina Industry in the Darling Range. These capabilities will be extended across other land use systems and ecological communities, including ex-situ conservation and translocations of plants and animals.

Whilst considerable goodwill exists amongst stakeholders to better coordinate the State's biodiversity knowledge, some significant barriers remain. These include competitive tensions between research providers that compete for funding or the protection of intellectual property and data that may have a commercial or strategic advantage. Similar competitive tension exists within industry as a result of the commercial advantage that a robust knowledge of biodiversity within a region can have in securing government approvals for projects.

In addition, a number of technical issues relating to privacy and variation in the quality and format of data will need to be resolved.

TOWARD A MODEL FOR A WESTERN AUSTRALIAN BIODIVERSITY SCIENCE INSTITUTE

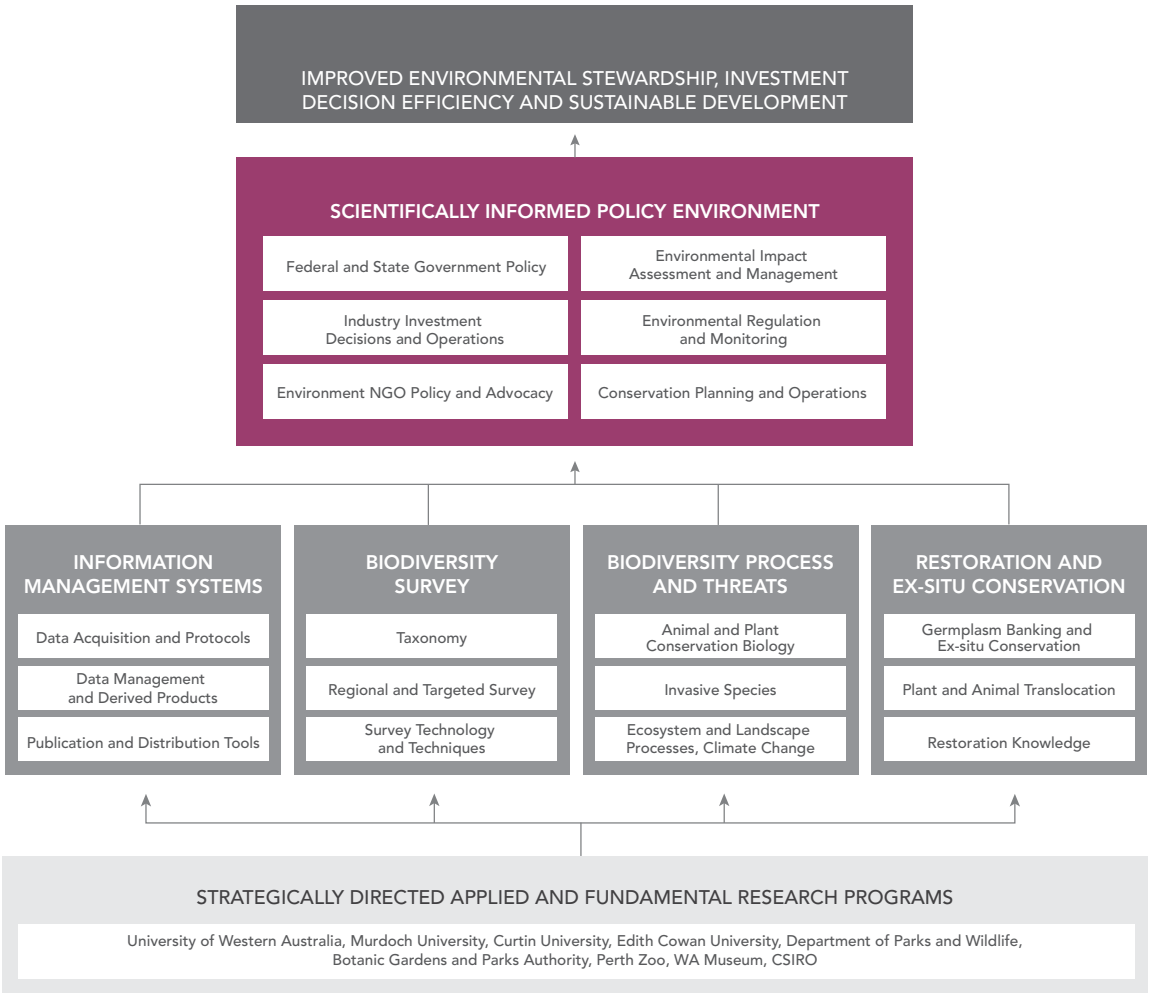


Figure 1: A Strategic Framework for Biodiversity Knowledge

HAMERSLEY RANGE

FIGURE 1 PROPOSES A POTENTIAL STRATEGIC FRAMEWORK FOR ESTABLISHING THE PRIORITIES OF A BIODIVERSITY SCIENCE INSTITUTE. TO BE SUCCESSFUL, AN INSTITUTE WOULD REQUIRE:

A State-Wide Focus - A remit across all of the State balanced across stakeholder needs, not focused on any particular region or sectoral interest.

Cross Agency Collaboration - The key contributors to biodiversity knowledge in the State will need to have a stake in the strategic directions of the Institute. Further, the Institute will need to actively cultivate cross agency collaboration at both the strategic and project level.

Strategic Focus - A clear focus on strategic priorities that are relevant to government and industry end-users will be required, leaving more fundamental research to individual research partners.

Leadership and Governance - Effective leadership through a board that is engaging of researchers and capable of sustaining the confidence of all stakeholders will be essential.

Excellence in Research - The Institute will need to quickly demonstrate its value by creating synergies between research agencies that in turn provide more timely and relevant advice.

New Investment - Stakeholders agree that additional effort, including increased financial resources, are required to build a comprehensive biodiversity knowledge base for government and industry.

FOUNDING MEMBERS OF THE WESTERN AUSTRALIAN BIODIVERSITY SCIENCE INSTITUTE 2013

The University of Western Australia
Achieve International Excellence

Curtin University

Murdoch University

Department of Parks and Wildlife

CSIRO

Environmental Protection Authority

Government of Western Australia
Department of Mines and Petroleum

Botanic Gardens & Parks Authority

CME

bhpbilliton
resourcing the future

Western Australian Museum

FOR MORE INFORMATION

IF YOU HAVE AN INTEREST IN THE DEVELOPMENT OF THE
WESTERN AUSTRALIAN BIODIVERSITY SCIENCE INSTITUTE PLEASE CONTACT

RUSSELL BARNETT 0438 710 917 | CARL BINNING 0408 681 076

PRODUCED BY

australian venture CONSULTANTS PTY LTD

PEFC

PRINTED ON ENVI CARBON NEUTRAL PAPER, 50% RECYCLED,
PEFC CERTIFIED FROM SUSTAINABLY MANAGED FORESTS.

DOCUMENT BY CREATING COMMUNITIES
◊ PHOTOGRAPHY BY ROB KETTELS