

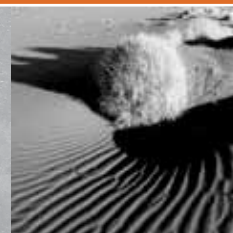


Australia's Strategy for the National Reserve System
2009–2030





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2009–2030



Endorsed by the Natural Resource Management Ministerial Council
May 2009

Photos *Clockwise from top left* Thorny devil, Cravens Peak QLD, Nick Rains. Mornington Sanctuary WA, Nick Rains. Pygmy possum at Gluepot Sanctuary SA, Nick Rains. Cravens Peak QLD, Nick Rains. White tern at Pulu Keeling National Park Indian Ocean, Peta North.

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Executive Summary





Ned's Corner Station, River Murray VIC, Peter Taylor.

Executive Summary

The National Reserve System is the cornerstone of our national efforts to protect terrestrial biodiversity.

It stands as Australia's commitment to future generations that land vital to the survival of our unique native species, ecosystems and associated cultural values will be protected in perpetuity.

The National Reserve System is a national network of public, Indigenous and private protected areas over land and inland freshwater. Its focus is to secure long-term protection for samples of all our diverse ecosystems and the plants and animals they support. It also complements measures to achieve conservation and sustainable use of biodiversity across the landscape, which are increasingly important under conditions of climate change.

The National Reserve System includes the protected areas and reserves established and effectively managed through the collective efforts of the Australian Government, the states, territories, local government, Indigenous and private landholders and non-government organisations. This strong partnership has underpinned the success of the National Reserve System to date.

Australia's approach to protected areas is highly regarded internationally. In 2008 there were more than 9000 protected areas covering 12.8 per cent of the continent. As the nation's chief investment in terrestrial biodiversity conservation, the rate of growth of protected areas has been impressive. But the work is far from complete as there are still many environmental challenges facing Australia. There are still notable gaps in the protection of native species and ecosystems.

Our biodiversity continues to decline, and many important ecological processes and threats operate at scales larger than individual protected areas. Climate change, along with invasive species, land use change and altered landscape hydrology, presents a major challenge for biodiversity conservation planning in Australia. While we need to accelerate our efforts to expand and better manage Australia's National Reserve System, some of these threats will be best addressed at multiple scales—local, regional and landscape—through collaborative approaches that better coordinate conservation and management efforts on public and private lands.

Protected areas are valuable in their own right by maintaining functional ecosystems and a wide range of other environmental values. But they also provide significant social, economic, cultural and health benefits and services to the Australian community. Essential ecosystem services, such as clean water, clean air, pollination and carbon sequestration, are being increasingly recognised as vital to community well-being. Other community benefits are derived from tourism, recreation and scientific reference opportunities as well as the flow-on benefits from the development of landscape restoration technologies and mitigating the effects of climate change on our natural environments.

Protected areas also provide a suite of benefits to local and Indigenous communities. Involving communities in protected area management directly values local knowledge of the environment and encourages long-term stewardship of our biodiversity assets. Community connection to natural areas can be enhanced along with the local cultural identity of places across the landscape. Recognition of these mutual benefits is particularly important in rural and remote areas facing significant changes to pastoral and agricultural enterprises as a result of climate change and globalised commodity markets.

Australia's Strategy for the National Reserve System (the Strategy) has been developed within the context of these emerging issues. The Strategy is an important update of the 2005 *Directions for the National Reserve System – A Partnership Approach*¹ endorsed by the Natural Resource Ministerial Council in 2005. It responds to the findings of evaluations of the National Reserve Program,² the Indigenous Protected Areas Program,³ the Senate Inquiry on Conserving Australia,⁴ and the WWF – Australia evaluation of progress on the directions for the National Reserve System.⁵

It also serves to complement the National Biodiversity Conservation Strategy, the Native Vegetation Framework, the National Forests Statement and other national and international commitments and policies, including the Convention on Biological Diversity.

This Strategy recognises that setting aside and managing areas in the National Reserve System will not, of itself, ensure that all biodiversity conservation objectives are met. Successful

biodiversity conservation requires protected areas to be established and well-managed in conjunction with the full range of conservation measures applied to other lands across the landscape.

The challenge is to achieve by 2030 a truly effective National Reserve System that secures Australia's biodiversity assets in their landscape setting and ensures that they are effectively managed. While governance and institutional arrangements vary between jurisdictions, four types of protected areas are recognised in the National Reserve System:

- public reserves (or government-owned)
- Indigenous Protected Areas
- private protected areas
- shared management reserves.

1 Natural Resource Management Ministerial Council 2005, *Directions for the National Reserve System – A Partnership Approach*, Australian Government Department of the Environment and Heritage, Canberra, ACT.

2 Gilligan, B 2006a, *The National Reserve System Programme 2006 Evaluation*, Department of the Environment and Heritage, Canberra.

3 Gilligan, B 2006b, *The Indigenous Protected Areas Programme 2006 Evaluation*, Department of the Environment and Heritage, Canberra.

4 Senate Standing Committee on Environment, Communications, Information Technology and the Arts 2007, *Conserving Australia: Australia's National Parks, Conservation Reserves and Marine Protected Areas*, Commonwealth of Australia.

5 Sattler, PS & Taylor, MFJ 2008, *Building Nature's Safety Net 2008, Progress on the Directions for the National Reserve System*, WWF – Australia, Sydney.

This Strategy provides national guidance for improved cross-jurisdictional coordination and supports collaborative action by protected area managers and key stakeholders to enhance the National Reserve System by addressing six themes:

Theme 1: international and national context

Theme 2: protected area design and selection

Theme 3: protected area establishment

Theme 4: protected area planning and management

Theme 5: science, knowledge management, monitoring and performance reporting

Theme 6: strengthened partnerships and community support.

The Strategy identifies priority actions to provide a nationally coordinated approach under each theme, including the following national targets for a National Reserve System:



Kosciuszko National Park NSW, Tim Bond.

- examples of at least 80 per cent of all regional ecosystems in each bioregion by 2015
- examples of at least 80 per cent of all regional ecosystems in each subregion by 2025
- core areas for the long-term survival of threatened ecosystems and threatened species habitats in each of Australia's bioregions by 2030
- critical areas for climate change resilience, such as refugia, to act as core lands of broader whole of landscape scale approaches to biodiversity conservation by 2030.

Actions to meet the national targets will also be supported by:

- clear identification and adequate protection of the biodiversity assets of each bioregion through collaborative and integrated management with other landowners and managers using a

whole of landscape approach to address conservation priorities

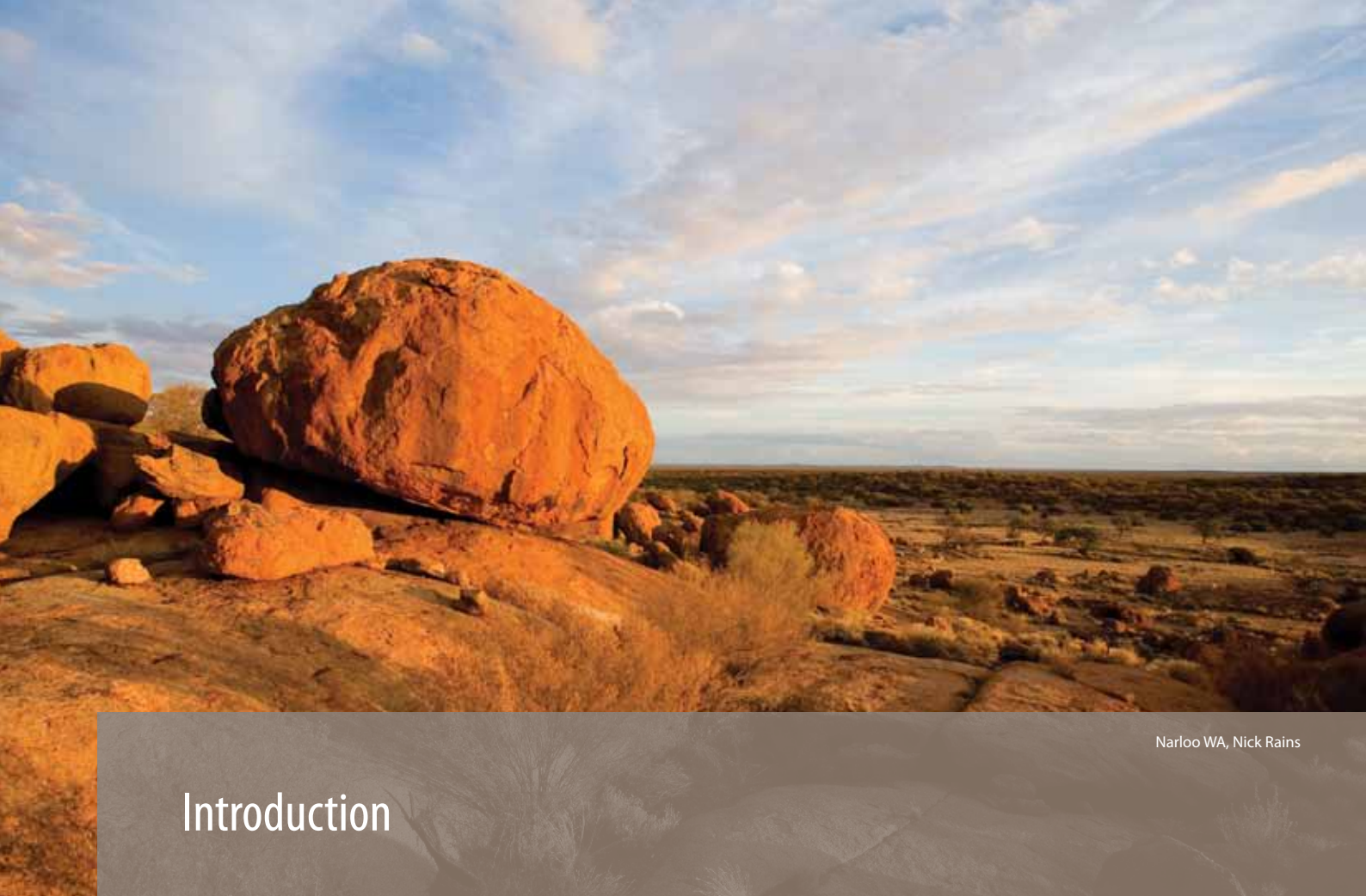
- rigorous science and robust monitoring
- effective and adaptive management regimes
- consistent approaches informed by the development of national frameworks for management effectiveness and protected areas on private lands
- strong partnerships between governments, private landholders and Traditional Owners, industry, local communities and non-government organisations
- routine reporting to a well-informed and supportive Australian community.

The national targets and guiding principles contained in this Strategy will provide direction to individual jurisdictions to set interim milestones and short-term targets to achieve a well-managed, comprehensive, adequate and representative National Reserve System. The Strategy aims to complement and reinforce existing jurisdictional strategies and actions to be carried out under current resources. Accordingly, the Strategy will be implemented through five year implementation plans to be developed by jurisdictions with respect to their priorities, opportunities and capacity to achieve outcomes. These plans will be reviewed every two years, using as a basis national, state and territory reports on progress towards targets and how the priority actions identified in this Strategy have been achieved.



Introduction





Narloo WA, Nick Rains

Introduction

Australia's biodiversity is essential to our existence and it is at risk. As one of 17 countries in the world described as 'mega diverse' Australia stands as a global centre of species richness.⁶ With 10 per cent of the global landmass, Australia has 10 of the 14 internationally recognised biomes or eco-regions that occur around the globe. About 84 per cent of plants, 83 per cent of mammals, and 45 per cent of birds (or about 600 000 to 700 000 species) are only found in Australia.⁷ If not protected here, they will be lost forever.

Changes to the landscape and native habitat over the past 200 years, as a result of human activity, have put many of these unique species at risk. Sadly, many species of plants and animals in Australia have become extinct. For other threatened plants and animals, a range of conservation measures are in place to help them recover. But despite many successful conservation outcomes resulting from protected areas, species and threat management, and other natural resource management processes, biodiversity in Australia is still declining.^{8,9,10}

This Strategy confirms the commitment of all Australian governments to ensure our biodiversity is healthy, resilient to climate

change and valued in its own right as well as for its essential contribution to our well-being and existence.

6 Sattler, PS & Taylor, MFJ 2008, *Building Nature's Safety Net 2008; Progress on Directions for the National Reserve System*, WWF – Australia report, Sydney.

7 Chapman, A 2005, *Numbers of living species in Australia and the world*, A Report for the Department of the Environment and Heritage.

8 Sattler, P & Creighton, C 2002, *Australian Terrestrial Biodiversity Assessment*, Australian Government, National Land and Water Resources Audit, Canberra.

9 Beeton RJS, Buckley KI, Jones GJ, Morgan D, Reichelt RE & Trewin D (Australian State of the Environment Committee) 2006, *Australia State of the Environment 2006*, Independent report to the Australian Government Minister for the Environment and Heritage, Department of the Environment and Heritage, Canberra.

10 Organisation for the Economic Co-operation and Development (OECD) 2008, *Environmental Performance Review of Australia*, OECD Publishing, Paris.

In Australia, protection of diverse habitats is a critical part of national, state and private conservation investments. A strategic, well-planned and managed network of protected areas is probably the most important strategy for reducing the negative impacts of climate change on biodiversity.¹¹ Australian governments have recognised the urgency of this task and the need to work together to protect the best of what is left. This approach underpins the National Reserve System, our national network of public, Indigenous and private protected areas over land and inland freshwater.

As the nation's premier investment in biodiversity conservation, the National Reserve System has been very successful in terms of overall conservation gains. For example, between 1995 and 2005 the number of bioregions with less than two per cent reservation fell from 26 to 16 bioregions (as shown in Figure 1).¹² On a global scale, our reserve system is the envy of many countries. In 2008 protected areas covered around 98.5 million hectares (12.8 per cent) of Australia's landmass and include samples of many elements of Australia's biodiversity.¹³ While this is a significant achievement, Australia continues to face challenges to achieve a cohesive and truly National Reserve System—many ecosystems are still to be adequately protected.

This Strategy seeks to assess gaps in the current reserve system and identify priorities for action. It supports the bioregional framework based on the Interim Biogeographic Regionalisation for Australia (IBRA)¹⁴ for building a system of protected areas that is robust under climate change. The Strategy also acknowledges the crucial role of the National Reserve System in dealing with broad scale ecological processes and the need to improve the coordination of on-ground actions to strategically address climate change issues and conservation objectives across the whole landscape.

The foundation of the National Reserve System is based on the strong partnerships between the Australian Government and the various state, territory and local governments, with a commitment to ongoing collaboration and sharing of information and resources. Acknowledging that states and territories are primarily responsible for reserve establishment and management, this Strategy provides a national framework to support collective efforts and strategic investment in the protection of nationally important terrestrial and aquatic ecosystems.

The National Reserve System cannot be built solely on public lands and there is a significant role for Indigenous groups, local communities, private landholders and non-government organisations to play in establishing and managing protected areas to ensure the success of the National Reserve System. These mutually beneficial partnerships are particularly important in rural and remote communities, many of which are likely to see significant social changes as a result of climate change and globalisation impacts on pastoral and agricultural activities.

While this Strategy does not cover the establishment of protected areas in the marine environment, the National Reserve System's approach aligns with that of the National Representative System of Marine Protected Areas, which provides for the conservation, protection and management of marine and estuarine environments. The links between terrestrial, inland freshwater and marine protected areas will be particularly important in the context of climate change and for Indigenous land and sea country aspirations. Where possible, it would be beneficial to adjoin terrestrial and marine protected areas to enhance connectivity. A strong alliance between the two approaches will also improve coordination of on-ground actions to strategically address conservation objectives for the whole landscape and adjoining marine environments.



Egg Island TAS, Matthew Newton

11 Dunlop, M & Brown, PR 2008, *Implications of Climate Change for Australia's National Reserve System: A Preliminary Assessment*, Report to the Department of Climate Change and the Department of the Environment, Water, Heritage and the Arts, Canberra..

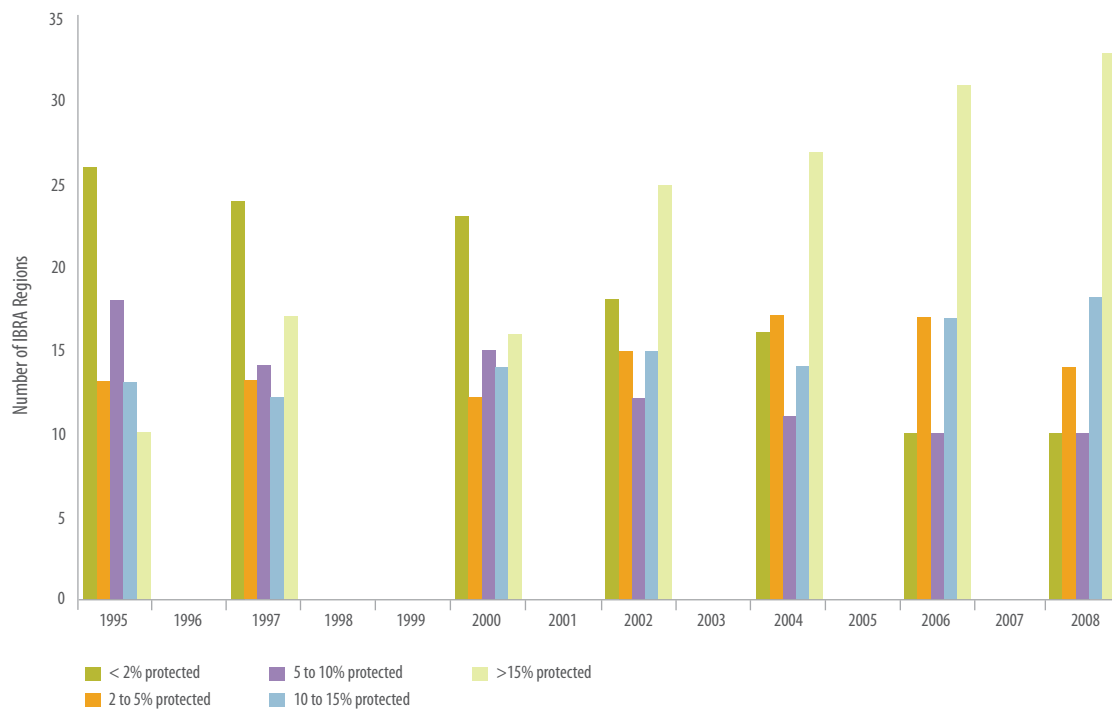
12 Gillgan, B 2006.

13 CAPAD Collaborative Australian Protected Areas Database, 2006. Retrieved from <http://www.environment.gov.au/parks/nrs/science/capad/index.html>

14 The national and regional planning framework for the National Reserve System is provided by the Interim Biogeographic Regionalisation for Australia and is updated regularly. Thackway R & Cresswell I (Eds) 1995, *An interim Biogeographic Regionalisation for Australia; A Framework for Establishing the National System of Reserves, version 4.0*, Australian Nature Conservation Agency, Canberra.

Figure 1

Proportion of IBRA bioregions included in the National Reserve System 1995-2008



Source: CAPAD 2008 and IBRA 6.1, Department of the Environment, Water, Heritage and the Arts



Kakadu National Park, NT



Newhaven Sanctuary, WA, Nick Rains

What is the National Reserve System?

The National Reserve System is the system of formally recognised parks, reserves and protected areas primarily dedicated to the long-term protection of Australia's biodiversity. The protected areas occur on public, private and Indigenous land and are formally protected through legal or other effective means and managed in perpetuity.

Only those areas that fall within the International Union for the Conservation of Nature (IUCN) definition of a protected area form part of the National Reserve System. According to the IUCN, a protected area is: 'A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.'¹⁵

A secure and well-managed National Reserve System is essential for conserving Australia's biodiversity values within the broader context of integrated landscape management. They provide the foundation for building ecosystem resilience, buffering natural systems against pressures and threats, including climate change.

Along with providing long-term protection of habitat and species, protected areas also provide significant other benefits such as ecosystem services, scientific reference sites, scenic amenity, nature-based recreation and tourism opportunities. They also contribute to cultural identity, community well-being and economic prosperity.

The National Reserve System complements other efforts (in particular actions to improve vegetation, habitat, and water quality) to conserve biodiversity across terrestrial, inland freshwater and marine ecosystems and meet Australia's international obligations to protect our native species and habitats.

¹⁵ Dudley, N (Ed) 2008, *Guidelines for Applying Protected Area Management Categories*, International Union for Conservation of Nature and Natural Resources, Gland, Switzerland.

New conservation challenges, such as climate change, increase the importance of having a resilient, well-managed National Reserve System to form the cornerstone for biodiversity conservation, protecting viable samples of all regional ecosystems and the plants and animals they support.

This Strategy seeks to provide a framework to address current obligations and emerging issues in particular:

- meeting Australia's obligations under the Convention on Biological Diversity
- responding to climate change

- guiding identification of realistic short-term targets
- ensuring the ecological viability and integrity of species, populations and communities by improving the adequacy of the National Reserve System
- enhancing the ecological resilience of landscapes spanning protected areas and adjoining land.

Goal of the National Reserve System

The goal of the National Reserve System is to develop and effectively manage a comprehensive, adequate and representative national system of protected areas, as the primary means for securing long-term protection for Australia's terrestrial biodiversity.

In so doing, the National Reserve System seeks to secure rapid and significant improvements in the reserve system by incorporating examples of the full range of regional ecosystems and other important environmental values across the continent.

- **Comprehensiveness** refers to the aim of including samples of the full range of regional ecosystems recognisable at an appropriate scale within and across each IBRA bioregion.
- **Adequacy** refers to how much of each ecosystem should be sampled to provide ecological viability and integrity of populations, species and ecological communities at a bioregional scale. The concept of adequacy incorporates ecological viability and resiliency for ecosystems for individual protected areas and for the protected area system as a whole.
- **Representativeness** is comprehensiveness considered at a finer scale (IBRA subregion), and recognises that the regional variability within ecosystems is sampled within the reserve system. One way of achieving this is to aim to represent each regional ecosystem within each IBRA subregion.



Tjakura, NT, courtesy Central Land Council

key directions (Table 1).

A well-designed and effectively managed National Reserve System will provide ecosystem services, recreation and tourism opportunities, scientific reference sites and a wide range of other benefits that underpin social and economic well-being and cultural identity of communities. This will be achieved through actions grouped under six themes and



Table 1

Strategic themes and directions for the National Reserve System

1. INTERNATIONAL AND NATIONAL CONTEXT

Key direction: Improved integration of the National Reserve System with international, national and regional goals and strategies for biodiversity conservation and natural resource management within a clear legislative and policy framework.

2. PROTECTED AREA DESIGN AND SELECTION

Key direction: Improved design and selection to ensure National Reserve System assets and services:

- match priorities for biodiversity conservation and associated ecosystem services and cultural values
- meet comprehensive, adequacy and representative criteria
- provide the core lands for landscape-scale conservation to enhance ecosystem resilience and connectivity.

3. PROTECTED AREA ESTABLISHMENT

Key direction: Accelerated establishment of the National Reserve System through effective partnerships to secure significant areas and diverse habitats that best contribute to a comprehensive, adequate and representative system of protected areas under a changing climate.

4. PROTECTED AREA PLANNING AND MANAGEMENT

Key direction: Effective planning and management of the system of protected areas to meet National Reserve System and relevant international goals and standards and to support integrated conservation management across tenures.

- **Planning:** Management plans relevant to bioregional priorities and the surrounding landscape.
- **Managing:** Adaptive management of threats to biodiversity assets and other ecosystem services; and to provide for a broad spectrum of activities and community values compatible with biodiversity conservation objectives.

5. SCIENCE, KNOWLEDGE MANAGEMENT, MONITORING AND PERFORMANCE REPORTING

Key direction: Improvements in the availability, accessibility and integration of knowledge and information to support protected area system planning, effective management, and regular public reporting of National Reserve System performance to deliver biodiversity outcomes and associated socio-economic and cultural benefits.

6. STRENGTHENED PARTNERSHIPS AND COMMUNITY SUPPORT

Key direction: Strengthened partnerships and increased community support for the National Reserve System with improved understanding of its primary role in biodiversity conservation in the broader context of integrated landscape management and associated cultural values and socio-economic benefits.

National targets for the National Reserve System

The next 20 years will be a critical period for biodiversity conservation. Protecting larger areas of habitat and more of the variation within each ecosystem is urgently required to respond to existing threats to biodiversity and help species adapt to a changing climate.¹⁶

Accelerated effort to expand and better manage our national system of protected areas is central to this Strategy and will complement other efforts to meet Australia's obligations under the 1993 Convention on Biological Diversity. The Convention is supported by a Program of Work on Protected Areas that sets out global targets within which Parties to the Convention may develop national and regional targets and

activities and implement them with respect to their national priorities, capacities and needs.

This Strategy establishes aspirational national targets to establish a well-managed, comprehensive, adequate and representative National Reserve System in the Australian context (Table 2). In achieving these targets, protected areas will be designed, selected and managed to maximise the probability of survival of their biota in the context of a changing climate.

¹⁶ Dunlop & Brown 2008, *op. cit.*

Table 2

National targets for a comprehensive, adequate and representative National Reserve System

| | | |
|--|---|--|
| Progressing comprehensiveness | <p>Include examples of at least 80 per cent of the number of regional ecosystems in each IBRA region</p> <p>Priority will be given to under-represented IBRA bioregions with less than 10 per cent protected in the National Reserve System</p> | All jurisdictions by 2015 with reports on progress every two years |
| Progressing representativeness | <p>Include examples of at least 80 per cent of the number of regional ecosystems in each IBRA subregion</p> | All jurisdictions by 2025 with reports on progress every two years |
| Protecting threatened species and ecosystems | <p>Include critical habitats and core areas important for the long-term survival of rare, migratory, threatened or other priority species and ecological communities, including those listed under Commonwealth, state or territory legislation in each IBRA bioregion</p> | All jurisdictions by 2030 with reports on progress every two years |
| Protecting critical sites for climate change resilience | <p>Include critical areas to ensure the viability, resilience and integrity of ecosystem function in response to a changing climate, such as large and small refuges, critical habitats, broad landscape-scale corridors, places of species and ecosystem richness, sites of endemism and sites that support threatened species and/or ecological communities, and places important for the stages in the life cycle of migratory or nomadic species, to act as core lands of a broader whole of landscape approach to biodiversity conservation.</p> | All jurisdictions by 2030 with reports on progress every two years |

While these targets apply across all 85 bioregions, there may be variation in the timing of the application of the targets especially in those bioregions that are highly fragmented or where land is not available for acquisition.



Jervis Bay Territory, NSW, June Andersen

Landscape Planning Context

The physical and biological diversity of the Australian landscape, coupled with its social and cultural history, has created complex patterns of land use and land ownership. Determining the diversity, status and resilience of native ecosystems and associated biota in each of these landscapes—and the actions that are required for their long-term protection—is the essence of systematic conservation planning.

It involves approaches that integrate:

- the establishment and management of a secure comprehensive, adequate and representative protected area system
- the ecologically sustainable management of ecosystems and their services to ensure complementary land uses on both public and private lands and linkages that strengthen ecological connectivity and resilience of ecological processes
- adaptive management to deal with changing threats associated with invasive species, altered fire and water regimes, the compounding impacts of climate change and other disturbances.

The effective management of ecological linkages across the landscape ensures that the natural movement of species and gene flow between populations will enhance resilience in the face of changing climate and system-wide threats to biodiversity. This requires investments in the conservation and management of private land that complement the National Reserve System. The importance of collaborative efforts to manage feral animals and recovery of threatened species has long been clear, but the recent experience of Landcare groups and catchment and natural resource management regional bodies has highlighted that the same principle is equally relevant to weeds and fire management, and fundamental issues such as water availability and bioregional patterns of vegetation clearance. Collaborative and integrated management with other landowners and managers to implement a whole of landscape approach will help address conservation priorities in each bioregion, respond to a changing climate and build on the existing investment in the National Reserve System.

Case Study

Clarence Lowlands, New South Wales

The National Reserve System program provided funding support to the NSW Department of Environment and Climate Change (DECC) in 2008

to advance the investigation of priority wetland sites in the Clarence River lowlands subregion in northern NSW. This investigation was the result of a review of available data and collaboration between DECC, three local governments, expert wetland ecologists, university academics, the Northern Rivers Catchment Management Authority and non-government organisations through a 'panel of experts' approach.

The highest priority wetlands for inclusion in protected areas under the National Reserve System have been identified. It includes additional land to protect Everlasting Swamp, listed on the Directory of Important Wetlands in Australia and one of only two freshwater wetlands in NSW greater than 1000 hectares, and part of which (460 hectares) was acquired with National Reserve System program funding support in 2002.

(Conservation Assessment of Wetlands in the Clarence Lowlands IBRA Subregion Sept 2008)

Climate Change and the National Reserve System

Climate change will affect ecological processes operating across landscapes and increasingly presents a major challenge for biodiversity conservation in Australia. It is adding directly to risks of land use change, habitat loss and degradation and the arrival of invasive species (native and exotic). Rivers, wetlands and groundwater-dependent ecosystems will be directly affected by altered hydrological regimes and, indirectly, by efforts to secure water supplies for communities. Sea levels and fire regimes will inevitably change, with impacts on biodiversity and society, complicating reserve design and management.¹⁷

The National Reserve System approach has been recognised as providing ‘an excellent basis for developing a protected area system that effectively and practically conserves as many species as possible.’¹⁸ However, the key to managing climate change impacts is to look beyond the borders of protected areas and work with managers of private land and other public natural resources, integrating the National Reserve System with other habitat protection schemes to maintain ecological processes across the landscape. Some species will need protected islands of habitat, while others will need connected chains of protected areas. In addition, protecting more ecosystems now is likely to increase the prospects of more species adapting to and surviving under future climates.¹⁹

Knowledge of the implications of climate change for Australia’s national network of protected areas will develop during the coming decades. Reserve management will need to develop and adapt, finding a balance between facilitating changes and conserving elements of biodiversity that are particularly valued but threatened. Some actions can be taken with limited knowledge. The priority is to manage landscape scale issues by building ecosystem resilience. This can be achieved by integrating the National Reserve System with off-reserve conservation mechanisms, such as stewardship and incentive programs. Habitat and landscape diversity will also be a priority—both within individual protected areas and within IBRA bioregions—when assessing potential additions to the National Reserve System and selecting sites for other conservation actions.²⁰ Consideration of climate change issues also highlights the value of linkages across the entire continent, and also across protected areas and economically productive lands. There are common challenges facing all land managers seeking sustainability and opportunities for complementary actions on both public and private land should be explored.

The necessary focus is to *manage the change to minimise the loss* in native species and ecosystems and prevent adverse ecological change. It will not be possible to prevent all future extinctions²¹, but the dynamic between single species and strategic management will be affected as threats to individual species increase. Managing change at landscape scales is also increasingly important. One key mechanism to



Paruku Indigenous Protected Area, WA , Mali Stanton

enhance ecosystem resilience is replication; to protect a greater number of similar representative ecosystems across the landscape.

¹⁷ Dunlop & Brown 2008, *op. cit.*

¹⁸ *ibid.*

¹⁹ *ibid.*

²⁰ *ibid.*

²¹ *ibid.*

Systematic bioregional assessments should identify key requirements for building climate change resilience, such as the refuge value of certain habitat areas in each bioregion. Maintaining a high diversity of species and healthy functioning ecosystems and minimising extinctions will require significant areas, more diverse habitats and better ecological connections to maximise the diversity of protected habitats for native species to occupy.²²

Implementation and Review

This Strategy provides the overarching framework, national targets and guiding principles to all parties with responsibility for protected area establishment and management. It recognises that the establishment and management of individual protected areas is primarily the concern of the jurisdictions and that there is a range of national, state and territory mechanisms to achieve biodiversity conservation. The aim is to complement and reinforce the existing jurisdictional strategies and actions for protected areas to be carried out under current resources.

As the circumstances to progress the National Reserve System are not uniform around Australia, the Strategy will be put into effect through five year implementation plans that are tailored to the needs, opportunities and capacity of each jurisdiction to deliver national targets and outcomes at the bioregional level.

In addressing the national targets, the implementation plans will focus on bioregions where levels of reservation are low, where capacity for future recovery of biodiversity values is limited and where biodiversity goals can best be achieved through collaboration with other land management initiatives. Implementation plans will also reinforce and respond to:

- clear identification and adequate protection of the biodiversity assets of each bioregion through collaborative and integrated management with other landowners and managers using a whole of landscape approach to address conservation priorities

²² Dunlop & Brown 2008, *op. cit.*



- rigorous science and robust monitoring
- effective and adaptive management regimes
- consistent approaches informed by the development of national frameworks for management effectiveness and protected areas on private lands
- strong partnerships between governments, private landholders and Traditional Owners, industry, local communities and non-government organisations
- routine reporting to a well-informed and supportive Australian community.

Each jurisdiction will determine achievable five yearly interim targets at a scale that best reflects the particular challenges in the bioregions, while aiming to meet the national targets agreed by all governments. The implementation plans will identify the range of on-ground operational activities to apply in each bioregion consistent with the priority actions identified in the Strategy.

Implementing the Strategy at this scale will help focus attention on opportunities for strategic acquisition to the National Reserve System and foster links to private land conservation, reform of agriculture, revegetation and other mechanisms for restoring ecological function in areas between and around parks and reserves. It will also provide the flexibility needed to respond to climate change. In bioregions where opportunities to progress protected areas are limited there will be an even stronger imperative to deliver biodiversity conservation objectives through integrated natural resource planning and management programs operating across productive agricultural and pastoral landscapes.

The Australian Government has identified the National Reserve System as a priority area for investment and has established strong targets to achieve a real and measurable difference to the National Reserve System to 2013. These targets are:

- To expand the area that is protected within the National Reserve System to at least 125 million hectares (a 25 per cent increase), with priority to be given to increasing the area that is protected in under-represented bioregions
- To expand the contribution of Indigenous Protected Areas to the National Reserve System by between eight and 16 million hectares (an increase of at least 40 per cent)
- To complete management plans for 100 per cent of Australian Government-funded protected areas under the National Reserve System within two years of the formation of agreements relating to these areas.

The Australian Government will work with state and territory governments, Indigenous groups, conservation organisations and other landholders to collectively aim to, as a minimum, meet these targets. Further progress beyond these targets will be developed in collaboration with all National Reserve System partners as part of establishing implementation plans for 2010–2014.

The implementation plans will be submitted through the jurisdictions for endorsement at a national level and made publicly available. Every two years all jurisdictions will report on progress towards targets and the priority actions identified in this Strategy to inform future planning and the setting of targets for subsequent five-yearly implementation plans. This review will be made publicly available and overall outcomes reported to the Natural Resource Management Ministerial Council.

Supporting this process will be ongoing feedback from agencies and stakeholders. A forum of National Reserve System managers, partners (government and non-government), Traditional Owners and relevant catchment and natural resource management regional bodies will be convened every two years to be briefed on implementation plans, progress against priority actions and review of the Strategy.



Theme 1

International and National Context





Wet Tropics QLD, Mike Trenerry

Theme 1

International and National Context

**KEY
DIRECTION**

Improved integration of the National Reserve System with international, national and regional goals and strategies for biodiversity conservation and natural resource management within a clear legislative and policy framework.

**STRATEGIC
APPROACH**

- Actively engage in natural resource management and biodiversity conservation-related policy development and implementation.
- Respond to new knowledge on climate change and other threatening processes by developing integrated management responses at landscape scales.
- Integrate reserves and their management into regional and local economies to build community capacity and resilience and facilitate delivery of environmental, social, economic and cultural benefits.
- Reinforce the role of the National Reserve System and its contribution to international, national, state, territory and local government policies related to biodiversity conservation, natural resource management, vegetation, species and ecosystem management and the conservation of Indigenous cultural values and Native Title rights.

Priority Actions

- 1.1

Ensure targets for the National Reserve System meet Australia’s international responsibilities under the Convention on Biological Diversity and its Program of Work on Protected Areas that are priorities in the Australian context.
- 1.2

Each jurisdiction prepares five-year implementation plans to progress the National Reserve System and priority actions under this Strategy.
- 1.3

Incorporate a contemporary scientific understanding of climate change risk, systematic conservation planning, species and

ecosystem dynamics and adaptive management approaches in the development and management of the National Reserve System, including through:

- application of the National Climate Change Adaptation Framework
- implementation of the Biodiversity and Climate Change Action Plan
- consideration of the *CSIRO Implications of Climate Change for Australia's National Reserve System* and related National Reserve System climate change projects, such as a national overview of refugia
- assessment of the implications of climate change on species of high conservation significance.

- 1.4 Develop Australian Interpretative Guidelines on the new IUCN Guidelines for Applying Protected Area Management Categories and apply these for consistent national classification and reporting purposes.
- 1.5 Implement mechanisms to ensure effective linkages with water entitlement buy-backs and other reform initiatives so that water availability for National Reserve System aquatic ecosystems is routinely addressed as part of natural resource management and water policy processes.



Mulga parrots at Gluepot Sanctuary SA, Nick Rains

- 1.6 Collaborate with other programs and organisations including catchment and natural resource management regional bodies, National Reserve System partners and Indigenous communities to integrate and align protected area management with off-reserve approaches to biodiversity conservation in the context of wider socio-economic considerations.

Rationale

The Australian Government is committed to the conservation and sustainable management of the nation's biodiversity in accordance with the Convention on Biological Diversity, to which Australia is a signatory.

The Convention asks countries to establish a system of protected areas to conserve biodiversity; develop guidelines for the selection, establishment and management of protected areas to conserve biodiversity; promote the protection of all ecosystems, natural habitats and manage land to maintain viable populations of species. It includes a goal of a comprehensive, adequate and representative system of protected areas, which is also endorsed under the National Forest Policy Statement; and it is strongly linked to other national policies that apply across the landscape, such as the National Framework for the Management and Monitoring of Australia's Native Vegetation and the National Strategy for the Conservation of Australia's Biological Diversity.

The National Reserve System provides long-term protection of Australia's biodiversity assets, playing a key role in implementing the objectives of the Convention. For maximum effect, National Reserve System protected areas must be managed in a broader landscape or bioregional approach to conservation and land/water use, which is in line with the Convention's principles. A landscape-scale approach recognises the importance of sustainable use strategies and optimises linkages of protected areas with management of adjoining land through collaboration with catchment and natural resource management regional bodies, public and private land managers and community groups.

A combination of protected areas and coordinated responses to unsustainable land uses and other threatening processes across all land tenures helps maximise the resilience of native ecosystems, enhancing their capacity to adapt to climate change and other threats.



Securing Biodiversity Assets by applying National Reserve System standards

The IUCN emphasises that protected areas should not be seen as isolated entities, but part of broader conservation landscapes, including both protected area systems and wider conservation approaches implemented across the landscape.²³ While the part played by the sustainable management of productive ecosystems outside of protected areas, such as well-managed forests and defence areas, is recognised as an important contribution to the conservation of biodiversity, they are not managed exclusively for secure long-term conservation.

Standards for security of tenure and management effectiveness have been established to determine whether or not a protected area counts as part of the National Reserve System (for further information see page 42). Areas in the National Reserve System must have enough security to be retained for the long-term either through legal or other effective means. The term ‘in perpetuity’ is often used in this context.

Public reserves commonly fit in the National Reserve System as they are defined by statute and are generally able to be revoked or subject to boundary change only through an Act of the Parliament of the relevant jurisdiction.

A comprehensive, adequate and representative system of protected areas cannot be achieved through the public reserve system alone. As a result, there are now protected areas on Indigenous land and private land where the primary purpose of management of the land is conservation of biodiversity and associated values.



Northern Tanami Indigenous Protected Area, NT, Central Land Council.

In accelerating efforts to secure Australia’s biodiversity in the National Reserve System, contracts, covenants on title and other legal instruments and agreements complement public reserves and are important mechanisms to expand the area under protection. In some cases, further work to strengthen these mechanisms may be required to ensure these lands are effectively secured and managed by legal or other effective means for the long-term.

The Australian Government routinely collects information from state and territory governments and other protected area managers about the location and management of protected areas in four governance categories—public reserves; Indigenous Protected Areas; protected areas on private lands; and shared management reserves. This information is collated and stored as the Collaborative Australian Protected Areas Database (CAPAD). More information about reserve governance is provided in Table 3 and on page 26.

²³ Dudley 2008, *op. cit.*

Table 3

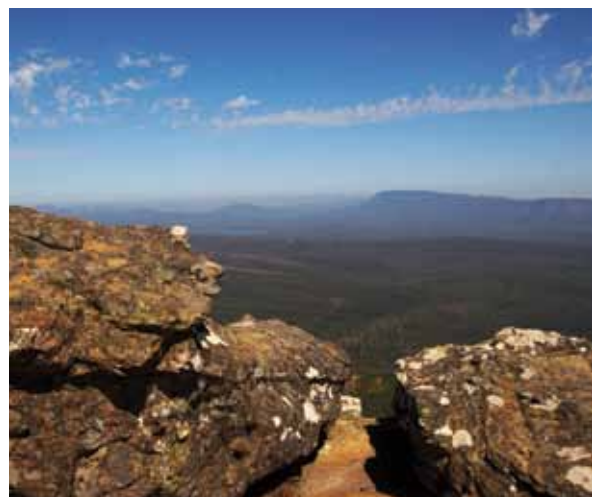
Percentage of protected areas and reserves by governance arrangements and IUCN categories 2008*

| Jurisdiction | IUCN category | Government | Indigenous | Shared Management | Private | % total Protected Areas |
|--------------|---------------|------------|------------|-------------------|---------|-------------------------|
| ACT | I–IV | 100% | 0 | 0 | 0 | 0.13% |
| | V–VI | 0 | 0 | 0 | 0 | 0 |
| NSW | I–IV | 71.98% | 0 | 26.39% | 0.96% | 7.05% |
| | V–VI | 0.49% | 0.07% | 0.12% | 0 | 0.05% |
| NT | I–IV | 13.81% | 0 | 36.87% | 5.34% | 6.95% |
| | V–VI | 2.21% | 41.39% | 0.37% | 0 | 5.46% |
| QLD | I–IV | 75.25% | 0 | 1.86% | 6.80% | 8.93% |
| | V–VI | 7.30% | 1.73% | 0 | 7.04% | 1.71% |
| SA | I–IV | 51.8% | 9.3% | 11.8% | 5.2% | 20.55% |
| | V–VI | 18.4% | 3.4% | 0 | 0 | 5.74% |
| TAS | I–IV | 66.31% | 0 | 0.64% | 1.10% | 1.96% |
| | V–VI | 31.23% | 0.08% | 0 | 0.64% | 0.92% |
| VIC | I–IV | 95.15% | 0 | 0 | 0.59% | 5.00% |
| | V–VI | 4.24% | 0.01% | 0 | 0 | 0.22% |
| WA | I–IV | 65.21% | 0.13% | 0 | 1.84% | 23.73% |
| | V–VI | 2.69% | 30.13% | 0 | 0 | 11.59% |
| AUS | All | 66.5% | 19.4% | 9.8% | 4.3% | 100.00% |

Source: CAPAD 2008, Department of the Environment, Water, Heritage and the Arts.* Interim protected areas are included in these figures. These are land parcels purchased or identified to become protected areas with binding agreements. Most are properties purchased through the National Reserve System Program which have an agreement to establish a protected area and are now in the process of getting formal recognition as a protected area.

IUCN Protected Area Management Categories

The IUCN Protected Area Management Categories provide an internationally recognised framework that categorises the variety of protected area management types according to their management objectives (see Table 4).²⁴ The IUCN states that the categories are not to be viewed as a hierarchy in terms of quality, importance or naturalness, as all are important in their contribution to the system of protected areas.



Grampians National Park VIC, At a Glance

²⁴ *ibid.*

Table 4
IUCN Protected Area Categories²⁵

| CATEGORY | | DEFINITION |
|----------|----|--|
| I | Ia | Strict Nature Reserve: strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring. |
| | Ib | Wilderness Area: to protect large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition. |
| II | | National Park: to protect a large natural or near natural areas set aside to protect large scale ecological processes, along with the complement of species and ecosystem characteristics of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities. |
| III | | Natural Monument or Feature: to protect a specific natural monument, which can be a landform, seamount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value. |
| IV | | Habitat/Species Management Area: to protect particular species or habitats and management reflects this priority. Many category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category. |
| V | | Protected Landscape/Seascape: where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values. |
| VI | | Protected Area with sustainable use of natural resources: conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area. |

²⁵ Dudley 2008, *op. cit.*



Preminghana Indigenous Protected Area, TAS, Ivan Haskovec.

Challenges for different types of protected area governance

All types of protected areas across Australia are facing challenges, particularly in the level and security of resourcing and ensuring that management is effective in achieving conservation objectives. While the protected area network should, as far as possible, be first selected from existing public land, many regional ecosystems and vegetation communities exist largely on private land, Indigenous land and pastoral/leasehold land (Figure 2).

There has been a significant expansion in Indigenous Protected Areas, private protected areas and investment by non-government organisations in acquisitions, such that these areas constitute almost 25 per cent of the National Reserve System in 2009. The establishment and management of these protected areas is a voluntary act on the part of the landowners. There is potential for this contribution to grow with the use of incentives, sharing of management skills and awareness of the issues that affect private landholders and Indigenous communities to conserve their lands. Improved articulation of the criteria for the National Reserve System will assist in delivering added security and effective management.

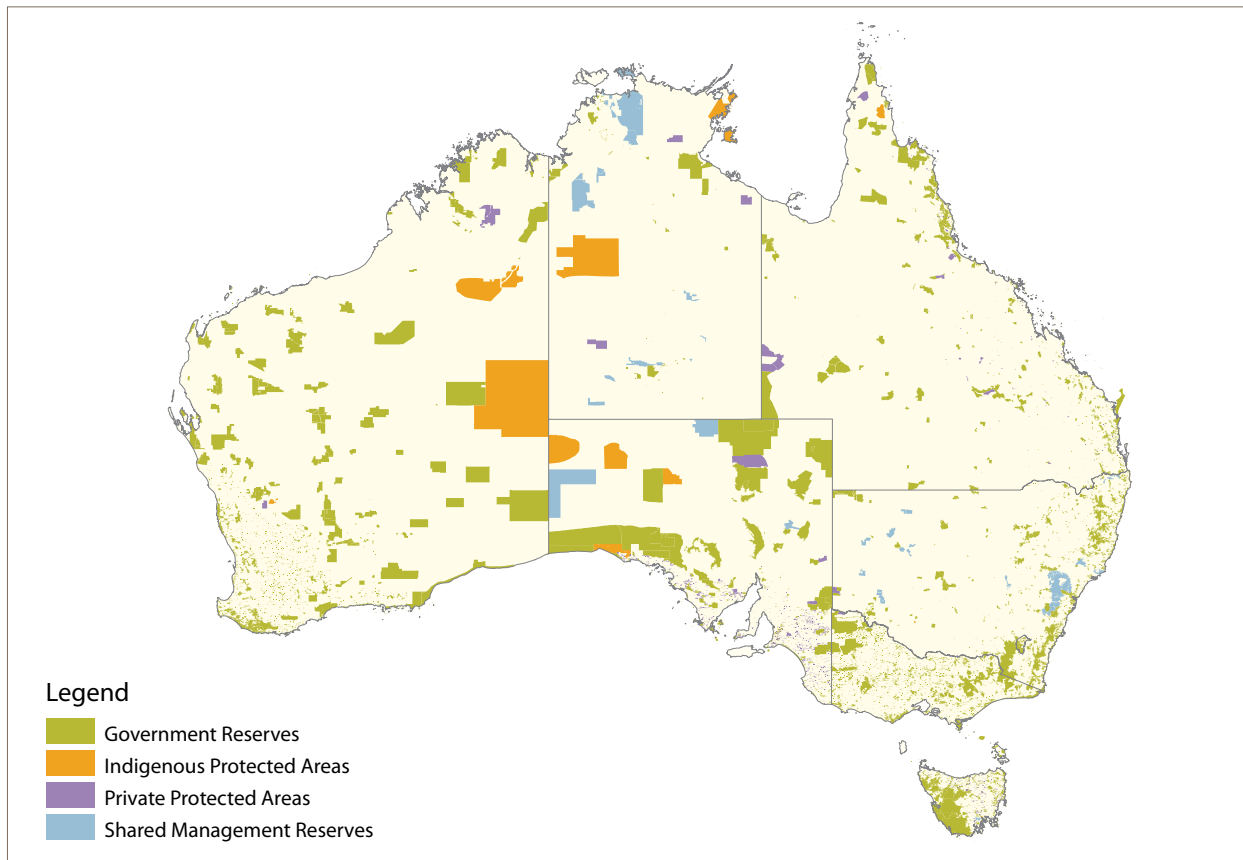
Protected areas managers continue to address questions related to accountability and security of protection where there is no statutory legal recognition of the long-term commitment to managing land for conservation purposes. Where all parties are willing, the strength of agreements, contracts and covenants on title can be enhanced by ensuring the nature conservation agency in each jurisdiction is a

party to the contract and is involved in monitoring and reporting on outcomes.

For most public, private and Indigenous Protected Areas, governance and ownership will often be the same. Shared management reserves, also referred to as co-management or joint management reserves, most often applies to partnerships with Indigenous stakeholders to create opportunities for sharing of expertise and responsibility for management. While such an approach can be complex, the additional investment in building effective capacity and governance to protected areas is offset with improved opportunities for conservation, cultural and social outcomes. More information about the reserve types is provided on Table 3 and pages 43 to 44.

The shared aspiration to have a truly effective National Reserve System by 2030 will require all reserve owners and managers working together to successfully address these challenges in partnership with surrounding landholders.

Figure 2
Australia's protected areas in 2008



Source: CAPAD 2008, Department of the Environment, Water, Heritage and the Arts.



Theme 2

Protected Area Design and Selection





Long Point TAS, Matthew Newton

Theme 2

Protected Area Design and Selection

KEY DIRECTION

Improved design and selection to ensure National Reserve System assets and services match priorities for biodiversity conservation and associated ecosystem services and cultural values; meet comprehensive, adequacy and representative criteria; and provide the core lands for landscape-scale conservation to enhance ecosystem resilience and connectivity.

STRATEGIC APPROACH

- Identify and select comprehensive, adequate and representative areas of Australia's ecosystems for the protection of native biodiversity with associated ecosystem services and cultural values.
- Give priority to increasing the area that is protected in under-represented bioregions (less than 10 per cent).
- Use best scientific practice to define gaps in the National Reserve System, using IBRA and other relevant tools to select priority areas of land for inclusion.
- Give priority to ecosystems where there is a high risk of loss which may foreclose future options for the conservation of biodiversity within the region.
- Strengthen ecosystem resilience by considering ecological processes through whole of landscape approaches that seek to link protected areas and off-reserve conservation efforts across a range of scales.

Priority Actions

Bioregional planning

- 2.1 To the extent possible, collaborate with key stakeholders to contribute to broad landscape conservation plans at the bioregional scale for priority IBRA bioregions to:
- identify significant biodiversity assets for inclusion in the National Reserve System (or other effective conservation measures)
 - consider landscape processes (including fire, movement of species, hydrological flows) and cultural values in assessments of potential additions to the National Reserve System
 - assess landscape ecological function for major ecosystems at scales larger than the individual protected areas (such as the IBRA subregion) and aim to maximise representativeness in the National Reserve System and other key requirements for building climate change resilience
 - maximise the viability and integrity of ecosystem function and protect key refugia in the face of a changing climate by protecting the full range of ecosystems and complementing the National Reserve System with other off reserve conservation mechanisms
 - develop regional responses to climate change, including protecting refuges, managing invasive species, maintaining ecologically appropriate fire regimes, providing access to water and integrating with changing land use.
- 2.2 Revise guidelines for establishing the National Reserve System to address issues related to adequacy, such as climate change, aquatic ecosystems, landscape integration and water availability.



Laughing Kookaburra, Tim Bond.

Comprehensiveness and representativeness

- 2.3 By 2015, achieve a national target of examples of at least 80 per cent of the number of regional ecosystems in each IBRA bioregion as a measure of comprehensiveness. Priority to be given to under-represented IBRA regions that have less than 10 per cent of their remaining area currently protected in the National Reserve System.
- 2.4 By 2025, achieve a national target of examples of at least 80 per cent of the number of regional ecosystems in each IBRA subregion as a measure of representativeness.
- 2.5 By 2030, include critical habitats and core areas important for the survival of rare, migratory, threatened or other priority species and ecological communities, including those listed under Commonwealth, state or territory legislation in each IBRA bioregion.

Adequacy (including resilience)

- 2.6 By 2030, include critical areas to ensure the viability, resilience and integrity of ecosystem function in response to a changing climate, including large and small refuges, critical habitats, broad landscape-scale corridors, places of species and ecosystem richness, sites of endemism and sites that support threatened species and or ecological communities, and places important for the stages in the life cycle of migratory or nomadic species, to act as core lands of a broader whole of landscape approach to biodiversity conservation.
- 2.7 Finalise and implement measures for assessing adequacy of protected areas and the protected area system in the context of surrounding land use, complementary off-reserve measures, connectivity and adaptation to climate change.
- 2.8 Use the IBRA bioregional planning framework to further assess landscape scale issues—such as ecological connectivity of habitat—to inform planning and protected area system design to minimise fragmentation of reserves and maintain ecological processes and services for all major ecosystems that occur at scales larger than individual protected areas.



Willi Willi National Park, New South Wales

Rationale

Urgent action is needed to protect Australia's biodiversity because of the accelerating decline in the health of native ecosystems, the loss of existing remnant native vegetation and critical habitats for native species as well as other impacts associated with population growth and urban expansion. Climate change will exacerbate these threats and add others, including altered fire regimes, the arrival of new (native and exotic) species, changing land use and altered hydrology.

These threats have serious implications for the National Reserve System²⁶ They necessitate changing the very nature of Australia's long-established conservation objective from essentially 'preventing ecological change' to 'managing the change to minimise the loss'.

This means current approaches for addressing *comprehensiveness* and *representativeness* remain valid, but with an additional emphasis on areas that maintain landscape diversity (including both well-connected and isolated areas of habitat), areas of high habitat diversity, and known fire and climate refuges.

However, the question of *adequacy* is much more challenging and in general, protecting larger areas and more populations of species is needed to ensure the same viability for species as could be expected without climate change.²⁷

This requires a focus on protecting vulnerable biodiversity components and ecological processes and significant refuge areas and more diverse habitat. It also requires managing changes in species, habitats and ecosystems, such as controlling establishment of invasive species. Better coordination across natural resource management programs to strategically address habitat protection and ecological connectivity, threat management and landscape scale objectives will be increasingly important and the IBRA framework provides an effective basis for such integration.



Bago Bluff National Park NSW, Tim Bond.

Bioregions

The IBRA is a classification of Australia's landscapes based on climate, geology, landform, native vegetation and species information from fieldwork, mapping and relevant reports. The IBRA 85 bioregions and 403 subregions across Australia provide the basis for assessing and planning the National Reserve System. Some IBRA bioregions already have a substantial proportion of their total area included in protected areas that are managed primarily to conserve natural and cultural heritage values. Other IBRA bioregions, especially in places where large tracts of land have been cleared for agriculture or urban development, have very little area protected.

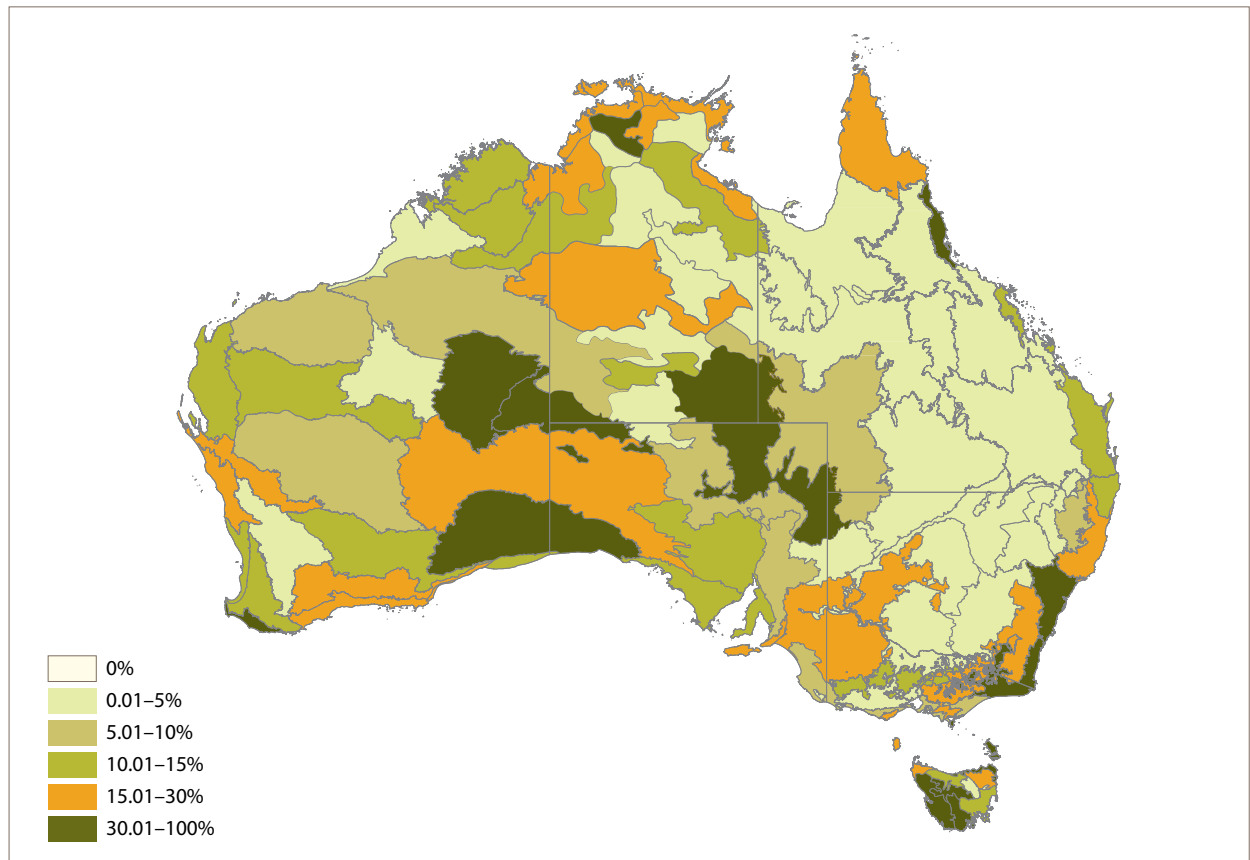
Figure 3 shows the broad configuration of Australia's 85 IBRA bioregions and the proportion of each bioregion included in the National Reserve System.

²⁶ Dunlop & Brown 2008, *op. cit.*

²⁷ *ibid.*

Figure 3

Reservation level for each bioregion



Source: CAPAD 2008 and IBRA 6.1, Department of the Environment, Water, Heritage and the Arts

Adequacy and the National Reserve System

The adequacy of the reserve system is influenced by the landscape context of the protected area network, the degree of fragmentation,²⁸ the amount of the landscape being protected, as well as the proportion that is natural and being sustainably managed. The species populations, the size of patches of remnant native habitats and their location within the landscape determines the viability of populations, species and ecosystems. The ecological connectivity of habitats determines the capacity of species to meet their habitat requirements, exchange genetic material and adapt to environmental change.

Assessing adequacy requires:

- considering the distribution of Australia's native plants and animals and native ecosystems in each bioregion and subregion
- understanding the functional requirements of native ecosystems and life histories of native species and their resilience to natural and human-induced disturbance within a bioregion or subregion
- reviewing the status of native ecosystems and species in a standardised and repeatable approach across Australia using a series of measurable parameters, including their occurrence within protected areas

²⁸ Morgan, G 2000, *Landscape Health In Australia: A rapid assessment of the relative condition of Australia's bioregions and subregions*, Environment Australia, Canberra.

- establishing reference points for ecosystem function and population viability of related species within IBRA bioregions, subregions and their constituent regional ecosystems to better monitor the impacts of climate change and other disturbances
- considering how other land management measures influence the interaction of a range of threats on a whole of landscape basis.

As the climate changes, it is necessary to protect core areas of important habitat to maximise ecological connectivity, landscape diversity, environmental gradients, catchments and topographic features with microclimates to enhance adequacy of the reserve system. In this regard, the IBRA approach is well-suited for building a system of protected areas that is robust under climate change.²⁹

Figure 4 shows how a range of protected areas under different governance arrangements play an important role in maintaining the diversity of ecosystems across the landscape along with other complementary conservation tools.

Inland aquatic ecosystems

More than 80 per cent of Australia's Ramsar listed wetlands are already protected in the National Reserve System, but there are substantial areas with no protection. For example, only three per cent of wetlands in New South Wales are currently protected in the National Reserve System.³⁰

Extended droughts and the expected effects of climate change highlight the need to secure water for wetlands and floodplain ecosystems. Aquatic ecosystems, including groundwater systems, are major drivers of landscape scale ecological processes. Sites with reliable surface waters and accessible groundwater could be vital drought refuges for mobile native species, making them a priority for addition to the National Reserve System. Efforts to 'buy back' water for the environment have shown the need for collaboration between agencies involved in land acquisition for the National Reserve System and those agencies engaged in buying water entitlements. It is important that aquatic ecosystems, particularly those represented in the National Reserve System are represented in water sharing plans.

High conservation value aquatic ecosystems are being identified on the basis of drainage basins for national listing such as Ramsar sites. The IBRA is being used to provide context for the selection of aquatic



Vale of Belvoir, TAS, Matthew Newton

ecosystems using comprehensive, representative and adequacy criteria for inclusion of these ecosystems in the National Reserve System. Changes to water availability affect biodiversity across entire landscapes and across all tenures—so an integrated catchment approach will be essential for developing strategic responses and priorities for managing protected areas containing aquatic ecosystems.

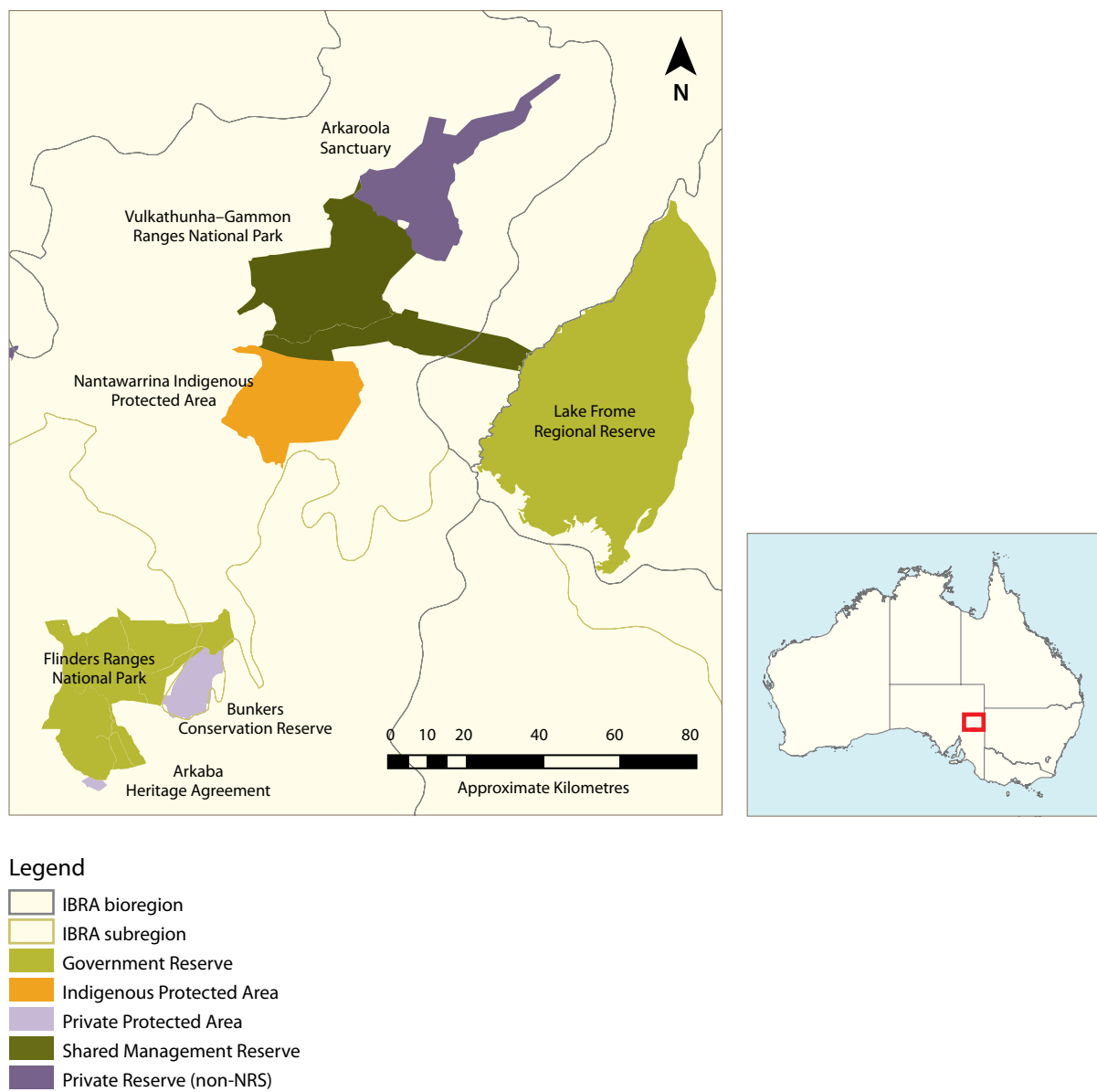
It is important to make sure that major wetlands are represented in water sharing plans and that management plans for National Reserve System protected areas recognise the significance of wetlands, groundwater dependant ecosystems and other aquatic habitats, even if they are outside the boundaries of a reserve.

²⁹ Dunlop & Brown 2008, *op. cit.*

³⁰ Kingsford, RT, Brandis K, Thomas RF, Crighton P, Knowles E and Gale E 2004, 'Classifying landform at broad spatial scales: the distribution and conservation of wetlands in New South Wales, Australia', *Marine and Freshwater Research*, 55: 17–31.

Figure 4

The National Reserve System as part of a whole of landscape approach to biodiversity conservation



Source: CAPAD 2008 and IBRA 6.1, Department of the Environment, Water, Heritage and the Arts





Theme 3

Protected Area Establishment





Wongalara NT, Ecopix

Theme 3

Protected Area Establishment

KEY DIRECTION

Accelerated establishment of the National Reserve System through effective partnerships to secure significant areas and diverse habitats that best contribute to a comprehensive, adequate and representative system of protected areas under a changing climate.

STRATEGIC APPROACH

- Use a variety of mechanisms—including acquisition by governments and the development of covenants, incentives, contracts and conservation agreements—to establish new protected areas that meet the minimum standards of the National Reserve System.
- Encourage complementary land management practices, sustainable use and property planning on a whole of landscape basis to build ecosystem resilience and protect key biodiversity assets in the face of rapid change, especially climate change.

Priority Actions

- 3.1 Accelerate and support the transfer and acquisition of lands for the public reserve system, as the foundation of the National Reserve System, to ensure that biodiversity assets that are at risk are protected, and lands important for biodiversity conservation are secured for the long-term. Pursue funding opportunities to secure strategic property acquisitions from willing vendors or through the open market.
- 3.2 Develop agreements that provide for the relevant state and territory governments to be involved in the establishment of Indigenous Protected Areas and private protected areas.
- 3.3 Develop and apply the National Framework for Protected Areas on Private Lands to facilitate cost-effective and consistent approaches to covenanting and enhance incentives to support and recognise the contributions of participating landholders, including use of market-based instruments and improved tax treatment for private initiatives. This framework will complement approaches to systematic conservation planning and management and will build capacity to strengthen landscape resilience to current and future pressures, including



Waratah, NSW, June Andersen

climate change.

- 3.4 Develop partnerships and build the capacity of Indigenous and private landholders, community groups, non-government organisations and the private sector to secure land and leverage better outcomes for the National Reserve System and the community.
- 3.5 Investigate and adopt suitable security mechanisms consistent with IUCN guidelines including long-term resourcing needs to strengthen Indigenous Protected Areas and private protected areas to meet standards for inclusion in the National Reserve System.

Rationale

There are more than 50 types of protected areas in Australia, from strict nature reserves and wilderness parks to native forest and game reserves. Each state and territory has a separate network of protected areas as does the Australian Government. In addition to government owned and managed protected areas, non-government organisations, private landholders and Indigenous communities can own and/or directly manage protected areas. The contribution of the different types of governance arrangements in the National Reserve System is shown in Table 3 on page 24.

A comprehensive, adequate and representative reserve system should, as far as possible, draw on existing public land (including leasehold land) in the first instance. Indigenous and private protected areas are an important mechanism to manage land for the protection of biodiversity values, particularly in northern and remote Australia, and in areas of major agricultural and pastoral production with fragmented remnants of healthy ecosystems and where integrated landscape management is a particular challenge.

The credibility and effectiveness of the National Reserve System will be maintained only if appropriate legislative mechanisms, incentives and resources are in place to support the establishment of new protected areas, accompanied by consistent application of national and international standards.

In most jurisdictions, when a protected area is established, it is assigned to an IUCN protected area management category, depending on specific management objectives. The purpose for which the protected area is established must be clearly identified and the management objectives understood in order to accurately assess how effective management efforts have been.

Standards for inclusion in the National Reserve System

A fundamental requirement of any area's eligibility for inclusion within the National Reserve System is that it must meet the IUCN definition of a 'protected area'.

This is defined as:

'A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.'³¹

Table 5
Standards for inclusion in the National Reserve System

| | |
|--|--|
| VALUABLE | <ul style="list-style-type: none"> • must enhance the comprehensiveness, adequacy and representativeness of the National Reserve System • must be established and managed for the primary purpose of protection and maintenance of biological diversity with associated ecosystem services and cultural values |
| SECURE THROUGH LEGAL OR OTHER EFFECTIVE MEANS | <p>Public</p> <ul style="list-style-type: none"> • must be statutorily defined and resourced <p>Private</p> <ul style="list-style-type: none"> • must be reserved in perpetuity • any change in management status must have Ministerial or statutory approval <p>Indigenous</p> <ul style="list-style-type: none"> • must have customary law protection with Traditional Owners holding a non-transferable interest in the land with a commitment to its long-term protective management • must be a commitment from Traditional Owners to discuss any changes with the Minister |
| WELL-MANAGED | <ul style="list-style-type: none"> • must be classified and managed in accordance with one or more IUCN management categories (I–VI) • must be adaptively managed to minimise loss of biodiversity values • effectiveness of management must be monitored and evaluated in a manner open to public scrutiny |
| CLEARLY DEFINED | <ul style="list-style-type: none"> • the area must be able to be accurately identified on maps and on the ground |

³¹ Dudley 2008, *op. cit.*

The terms *legal* or *other effective means* are used in describing how a protected area is established under the National Reserve System, as follows:

- **Legal means:** Land is brought under control of an Act of Parliament, specialising in land conservation practices, and requires a Parliamentary process to extinguish the protected area or excise portions from it.
- **Other effective means:** for contract, covenant, agreements or other legal instrument, the clauses must include provisions to cover:
 - long-term management—ideally this should be in perpetuity but, if this not possible, then the minimum should be at least 99 years
 - the agreement to remain in place unless both parties agree to its termination
 - a process to revoke the protected area or excise portions from it is defined; for National Reserve System areas created through contribution of public funding, this process should involve public input when practicable
 - the intent of the contract should, where applicable, be further reinforced through a perpetual covenant on the title of the land
 - ‘well-tested’ legal or other means, including non-gazetted means, such as through recognised traditional rules under which Indigenous Protected Areas (community conserved areas) operate or the policies of established non-government organisations.³²



Yellow footed rock wallaby sanctuary at Bunker Block SA, Nick Rains

Indigenous Protected Areas

Indigenous Protected Areas are an example of what are internationally known through the IUCN as community conserved areas. Although Indigenous protection of habitats, species and ecological functions has been in existence for thousands of years, formal recognition of these efforts by governments and the inclusion of these areas within national protected area systems are more recent. In 1997, Indigenous people and the Australian Government established the first Indigenous Protected Area at Nantawarrina in South Australia to engage Indigenous people in protected area management. It recognised a growing movement to re-establish Indigenous land management traditions and a willingness to engage with government on conservation issues.

In 2008, there were 25 Indigenous Protected Areas covering 20.3 million hectares. This is a significant contribution to the comprehensiveness, adequacy and representativeness of the protected area system in the 20 per cent of the continent under Indigenous ownership. It also provides important social benefits to Indigenous communities and helps maintain and strengthen attachment to the land.

Indigenous Protected Areas are internationally recognised as highly successful models for community conserved areas with an important role in the global protected area estate. IUCN guidelines recognise Indigenous ownership and the customary laws, institutions and traditional land management practices of Indigenous communities as mechanisms that can deliver protected area management and respond to any of the management objectives of the IUCN categories.

³² Dudley 2008, *op. cit.*

While Indigenous Protected Areas are inherently different from public protected areas in terms of formal security of conservation tenure and their governing institutions, management arrangements to secure biodiversity conservation can be made through other effective means. This includes arrangements such as management plans which specifically take into account Indigenous cultural issues and Native Title rights in the development of the National Reserve System.

In Australia, Indigenous Protected Areas are declared when Traditional Owners enter into an agreement with the Australian Government to promote biodiversity and cultural resource conservation. Prior to declaration, Indigenous Protected Areas must have a plan of management that identifies an IUCN category and provides a basis for assessing and monitoring management effectiveness. The Traditional Owners may also seek a conservation covenant under relevant legislation. In all cases, an Indigenous Protected Area is governed by the traditional responsibilities of Indigenous peoples to care for and protect lands and waters for present and future generations. Public scrutiny of management arrangements is delivered through the publishing of annual funding information, departmental and portfolio annual reports and regular independent program reviews.

Shared management reserves

A range of joint management or co-management arrangements are in place in most jurisdictions where responsibilities for protected area management are shared with Traditional Owners. This is particularly the case where an Indigenous Land Use Agreement (ILUA) has been negotiated as part of a Native Title claim. Other models include the lease-back of Indigenous owned lands to government for management as a protected area or co-management arrangements whereby the Traditional Owners, through a board of management, assume statutory powers and manage the protected area.

Private Protected Areas

Similar to Indigenous Protected Areas, private protected areas are a growing subset of the National Reserve System. In 2008, private protected areas contributed almost five per cent of the National Reserve System and fill an important gap where prospects for public reserves are limited. Private protected areas offer an attractive option for individual landholders, non-government organisations or corporate bodies who voluntarily seek a formal mechanism to protect and recognise the conservation values of their land. These areas have the potential to make a significant contribution to the adequacy and representativeness of the National Reserve System and are a useful tool for building connectivity and resilience. Standard mechanisms include either the donation of land or covenanting properties in a secure method that meets National Reserve System standards. Achieving long-term security and effective management are the main challenges facing private protected areas in meeting these standards.

As well as complementing the public reserve system, private protected areas can offer social and economic benefits to individual land managers and to regional communities by supporting people with local knowledge and practical land management skills to stay on the land. They also open new market opportunities for investing in specific conservation priorities.

A number of non-government organisations are active in raising funds to purchase and manage land with significant conservation values. In many cases, these organisations are working with relevant jurisdictions to target properties that are priorities, and there are significant benefits for all parties in this 'partnership' approach.





Theme 4
Protected Area Planning and Management





Edmund Kennedy National Park QLD, At a Glance

Theme 4

Protected Area Planning and Management

KEY DIRECTION

Effective planning and management of the system of protected areas to meet National Reserve System and relevant international goals and standards and to support integrated conservation management across tenures.

STRATEGIC APPROACH

- Ensure the effective and adaptive management of protected areas in the National Reserve System by developing national frameworks benchmarked against recognised international standards that all management plans should address.
- Undertake management planning and responses at the individual protected area level and collaboratively for networks of protected areas across a bioregion.
- Strategically manage landscape level threats and opportunities in the context of surrounding land use and tenures through collaboration with catchment and natural resource management regional bodies, private landholders and other key stakeholders.
- Actively recognise the value of information, knowledge and expertise held by Indigenous communities and private landholders and use it to enhance conservation management and associated cultural benefits.
- Use management effectiveness frameworks to robustly and routinely evaluate and report on the state of biodiversity assets and responses to management action.

Priority Actions

- 4.1 Develop a nationally agreed management framework and standards to provide for consistent management planning for all National Reserve System protected areas.
- 4.2 Consult stakeholders at the commencement of the planning process and ensure management plans or statements of intent are in place for individual protected areas (or groups of protected areas) as soon as possible and that they are consistent with any *Native Title Act 1993* considerations and responsive to the implications of a changing climate.
- 4.3 Contribute to IBRA bioregion, IBRA subregion, or landscape-scale approaches that provide the capacity to respond to large-scale threats such as altered fire and water regimes, introduced species, altered habitat and climate change. This should be undertaken in partnership with surrounding landholders and catchment and natural resource management regional bodies and identify opportunities to expand, consolidate, link or otherwise address small and fragmented protected areas.
- 4.4 Apply adaptive management strategies that incorporate lessons learnt into ongoing management to ensure flexible and effective responses to emerging threats.
- 4.5 Recognise and share the knowledge and expertise of Traditional Owners and private landholders that contributes to the long-term protection of key biodiversity assets or ecological processes at a regional scale.
- 4.6 Develop and apply a National Management Effectiveness Framework, based on the principles in Table 6, to evaluate the management of protected areas of all types consistently with the goals of the National Reserve System.
- 4.7 Stimulate funding from a variety of sources and use other incentives to enhance protected area management capacity to meet National Reserve System standards.
- 4.8 Complete management plans for 100 per cent of Australian Government-funded protected areas under the National Reserve System within two years of the formation of agreements relating to these areas.



Watarru and Walalkara Indigenous Protected Area SA, Bruce Rose.

- 4.9 Engage with universities and other educational institutions to enhance protected area management capacity and ensure that the next generation of protected area managers including managers of private protected areas and Indigenous Protected Areas are skilled in adaptive management techniques.

Rationale

Adaptive management of the National Reserve System is crucial for addressing the implications of climate change and other emerging threats to the long-term viability of protected areas. For all protected areas, management effectiveness provides a measure of the actual achievement of conservation goals. It is important to have nationally consistent approaches to adaptive management and the evaluation of management effectiveness to inform the maintenance of biodiversity assets, enhance transparency and provide a basis for good governance, accountability and protect the overall integrity of the National Reserve System (see Table 6).



Controlling weeds at Christmas Island National Park, Indian Ocean

Table 6

Principles for assessing management effectiveness³³

| | |
|--|---|
| 1. Values and Threats | Assessments should address the effectiveness of management in protecting and enhancing values and reducing threats to those values. |
| 2. Landscape Context | Assessments must take account of the relationship between protected areas and their biophysical and social landscape. |
| 3. Internationally Recognised Framework | Assessments should be customised to local circumstances, but apply an internationally recognised system such as the IUCN World Commission on Protected Areas management effectiveness evaluation framework. |
| 4. Clear Objectives and Assessment Criteria | Objectives and criteria for assessing management effectiveness must be clearly defined and understood by assessors, managers and stakeholders. |
| 5. Clear and Cost Effective Indicators | Indicators used in assessments must be cost effective and meaningful and capable of integration with broader natural resource management indicators. |
| 6. Comprehensive Engagement and Capacity Building | Managers, key stakeholders and those with expert knowledge about the environment should be engaged in the assessment process, where possible. Develop the capacity of Traditional Owners for the long-term effective management of protected areas. |
| 7. Qualitative and Quantitative Information | Assessments should make use of all relevant available information rather than deferring assessment pending finalisation of precise quantitative data sets. |
| 8. Adaptive Management | Assessments should be part of adaptive management processes responsive to climate change and other threats. |
| 9. Peer Review | Internal assessments should be subjected to meaningful external peer review. |
| 10. Transparency | Assessments should be publicly reported and routinely repeated to track trends. |

³³ Distilled from the draft principles for management effectiveness evaluation within State of the Parks reporting systems Hockings, M. 2007. Report to the Natural Heritage Trust Fund, January 2007. ARC Linkage project on building capacity for adaptive management of protected areas, The University of Queensland, Brisbane.

Management planning— protected area networks

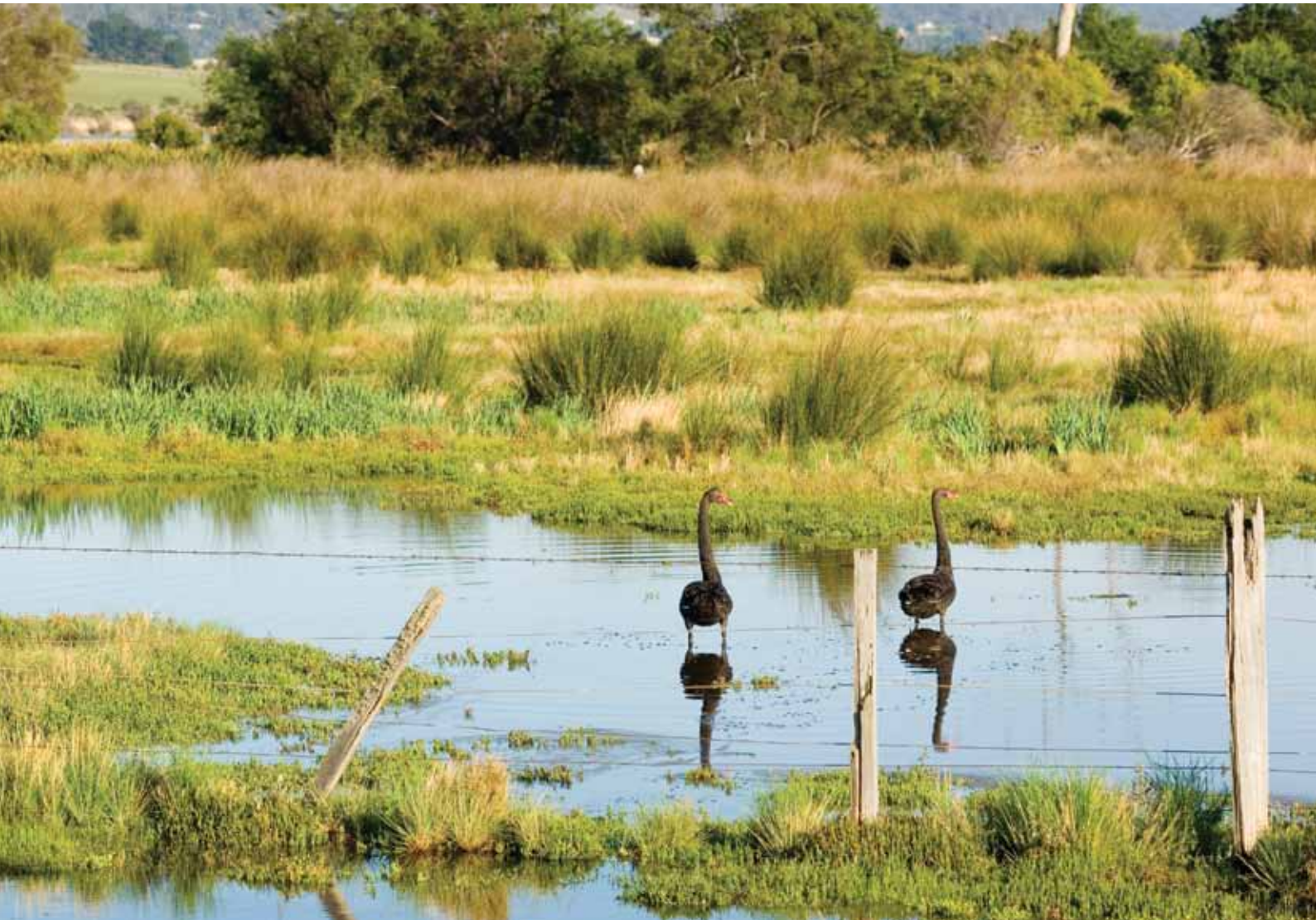
Historically, much importance has been placed on reviewing a specific plan of management for each individual reserve every five to 10 years. As the number of protected areas has grown, management agencies have recognised that it is often more practical to have a single plan covering a group of protected areas with a common management context and issues to be addressed, while still addressing the specific needs of each protected area in the plan. For example, Conservation Management Networks combine a multi-tenure approach to coordinate management across all conservation lands in a specific area.

At times, this has taken the extra step of establishing a cluster of properties as a single reserve with different sections or zones delineated for specific management treatment.

The approach of either establishing reserve fragments as consolidated entities or grouping them under a single management plan where there are shared issues has several benefits:

- the landscape context and ecological connectivity of each reserve unit is given focused attention in the management planning process
- the planning process is more meaningful and resource efficient, not only for the reserve manager, but also for the regional stakeholders engaged in the process
- complex connectivity issues such as the implications of climate change and collaboration with other land managers and catchment and natural resource management regional bodies are more readily addressed.

Pitt Water Nature Reserve TAS, Nick Rains



Adaptive management

While simply securing areas and removing damaging land uses can achieve some protected area management objectives, the National Reserve System needs management that is not only secure and robust, but also adaptable to changing circumstances, such as a changing climate. Adaptive management incorporates research into conservation action by integrating design, management, and monitoring to enable flexible and effective responses to emerging threats. Key indicators must be monitored using the best available science, with the results linked to flexible management options, applied to minimise species loss, and set to maintain ecological functions at a bioregional level.

Some management options—such as targeted cell grazing using exotic animals—could be counterintuitive, but may be a way to prevent the loss of critically endangered species where it can be demonstrated that these activities do not threaten other high conservation values within the protected area.

Similarly, ensuring the success of waterbird breeding events might require manipulation of water levels in regionally or nationally significant wetland reserves. Responsive operational arrangements and close collaboration between reserve managers and natural resource managers responsible for water entitlements and delivery will be essential.

Linked to transparent management effectiveness assessments, and clear communication with key stakeholders, adaptive management will be the dominant concept for protected area managers for the foreseeable future.

Reserve managers need to collaborate with universities and research institutions to support this approach at particular sites and also to ensure that the next generation of protected area managers are skilled in contemporary management approaches.

Shared management

Shared or joint management commonly represents an evolving cross-cultural approach to land use and management in protected areas on Indigenous land or land under Native Title agreements where all practicable steps are taken to promote Indigenous management and control of protected areas. The process is entirely voluntary and Traditional Owners can choose the level of government involvement, the level of visitor access (if any) and the extent of development to meet their needs consistent with biodiversity conservation objectives.

Shared management poses particular challenges in areas such as governance, land tenure, and clarity in roles and responsibilities. Standard public sector accountability arrangements do not always readily mesh with traditional tribal, clan and family responsibilities for land management. Family and clan roles and responsibilities need to be recognised in negotiation of shared management arrangements as they become more widely practiced.

Joint arrangements that provide financial and technical assistance and actively share and use traditional knowledge, practices and expertise can strengthen ecological protection of critical places and help maintain cultural values and connection to country. These arrangements can be an effective means of recognising the natural and cultural values of Indigenous land and also the capacity of Indigenous people to protect these values. The arrangements can also build on sophisticated ecological knowledge systems for wider application across the reserve system, improving protected area management objectives overall.





Theme 5
*Science, Knowledge Management,
Monitoring and Performance Reporting*





Cravens Peak QLD, Nick Rains

Theme 5

Science, Knowledge Management, Monitoring and Performance Reporting

**KEY
DIRECTION**

Improvements in the availability, accessibility and integration of knowledge and information to support protected area system planning, effective management and regular public reporting of National Reserve System performance to deliver biodiversity outcomes, socio-economic and cultural benefits.

**STRATEGIC
APPROACH**

- Support the maintenance and ongoing acquisition of core scientific data and information to inform planning and management.
- Establish nationally agreed protocols for monitoring ecological condition and management effectiveness, founded on rigorous science, to provide the basis for regular reporting of National Reserve System performance
- Ensure the best available scientific, economic, social, cultural and traditional information is available to all protected area and other managers.
- Provide information on the costs and benefits of protected areas including the likely investment needed to acquire land and other establishment and management costs
- Monitor and report on progress in the development and management of a comprehensive, adequate and representative National Reserve System at a system level on a regular basis using agreed base data sets.

Priority Actions

- 5.1 Promote the development of common core data sets and a nationally consistent ecological monitoring and reporting system to underpin National Reserve System planning and public reporting. These programs are to be linked to broader natural resource management reporting to identify impacts of climate change and other threats to biodiversity, to inform protected area management and to provide a national benchmark for the state and condition of areas within the National Reserve System.
- 5.2 Invest in the best available science, data and knowledge to underpin protected area design and assessment of management effectiveness, including comprehensive biological surveys, cultural value assessment, ecosystem and vegetation mapping and related information systems to support systematic conservation planning.
- 5.3 Continue to invest in economic information to identify the costs and benefits to local and regional communities of protected areas, including ecosystem services to guide strategic investment in the National Reserve System.
- 5.4 Publicly report every two years on protected areas in each of the four reserve types in each jurisdiction according to IUCN categories in the Collaborative Australian Protected Areas Database (CAPAD) along with an assessment of their contribution to the National Reserve System.
- 5.5 Publicly report every two years on progress against the priority actions and national



Research at Newhaven Sanctuary NT, Nick Rains

- targets for comprehensiveness, adequacy and representativeness in the National Reserve System.
- 5.6 Develop a database of all the different types of conservation agreements offered at all levels of government to identify the location, security of tenure and management effectiveness of all privately conserved lands.

Rationale

Due to the changing nature of biodiversity, new threats and evolving conservation goals, new and improved data and information will be needed by managers, planners, researchers and the general community for them to fulfil their respective roles. Comprehensive monitoring of natural systems is needed now to provide managers in the future with long-term data to develop well-informed management programs.

Knowing the effectiveness of biodiversity conservation initiatives and reserve management is essential. Otherwise it will not be possible to know whether funding and effort is achieving cost-effective outcomes. Known and anticipated threats to biodiversity from a changing climate will create a need for new types of information. This will require carefully designed and implemented monitoring programs, adaptive management and good research. The results of this evaluation will

need to be publicly reported for accountability and to build community support for and understanding of protected areas and the National Reserve System.

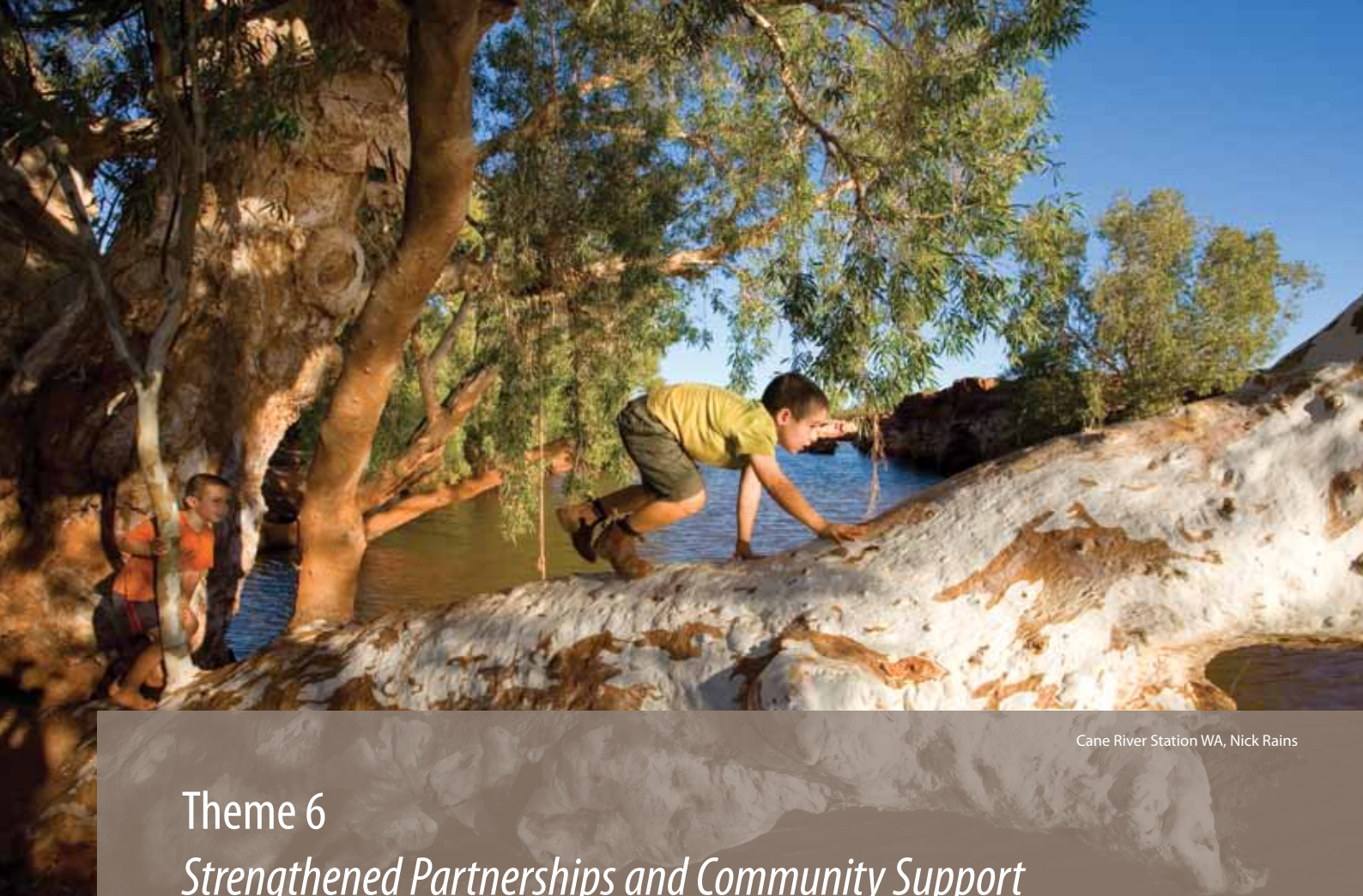
The performance assessment of individual protected areas or groups of protected areas is the responsibility of the jurisdiction in which the protected area is declared, or the private landowner in collaboration with the covenanting authority, including Indigenous protected area managers.



Theme 6

Strengthened Partnerships and Community Support





Cane River Station WA, Nick Rains

Theme 6

Strengthened Partnerships and Community Support

**KEY
DIRECTION**

Strengthened partnerships and increased community support for the National Reserve System and improved understanding of its primary role in biodiversity conservation in the broader context of integrated landscape management, associated cultural values and socio-economic benefits.

**STRATEGIC
APPROACH**

- Build on strong and effective partnerships between the Australian Government, state, territory and local governments, non-government organisations, the business sector, private and Indigenous landholders, and catchment and natural resource management regional bodies to ensure the effective development and management of the National Reserve System.
- Develop a targeted national communication plan to explain the role, composition and importance of protected areas to foster primary stakeholder and broader public support and recognition of the National Reserve System.
- Make the National Reserve System a focal reference point for communicating the impact of climate change on ecosystems, generating benefits for the wider landscape through increased protection of the full range of native ecosystems to minimise biodiversity loss.

Priority Actions

- 6.1 Prepare and implement a targeted communication plan for key stakeholders and decision-makers and the general public to increase awareness and understanding of the goals, benefits and achievements of the National Reserve System.
- 6.2 Seek input from protected area managers and National

Reserve System partners (government and non-government), Traditional Owners as well as relevant catchment and natural resource management regional bodies in the review and evaluation of the implementation of this Strategy.

- 6.3 Collaborate with private landowners and Traditional Owners to enhance their active participation in protected area management and in other ways that value, recognise and use their local knowledge, expertise and skills in the development of the National Reserve System.

Rationale

Almost half of the Australian public visit a World Heritage area, national or state park each year.³⁴ While support for protected area ideals is strong, there is very limited understanding about the National Reserve System and the principles that underlie it. A continuing program of education and interpretation about protected areas, their values and appropriate uses needs to acknowledge the range of community interests and expectations around the use and enjoyment of these areas.

Any system of protected areas needs to have wide community support if it is to succeed in its primary purpose of biodiversity conservation and in the context of broader biodiversity conservation and sustainable land use management practices. Success of the National Reserve System depends on effective cooperative arrangements and collaboration with key stakeholders and partners for the purposes of acquiring, establishing, managing and monitoring protected areas.

In particular, further education is needed about the role of protected areas in protecting a wide range of landscapes and ecosystems in a changing climate, and the benefits that this protection brings to local communities and the nation as a whole.

³⁴ Australian Bureau of Statistics 1301.0 – Year Book Australia, 2003, ABS, Canberra.

A break during work on the Nantawarrina Indigenous Protected Area SA, Nick Rains





Glossary



Glossary

Adaptive management: A systematic process for continually improving management policies and practices by learning from the outcomes of previously employed policies and practices.

Adequacy: Refers to how much of each ecosystem should be sampled to provide ecological viability and integrity of populations, species and ecological communities at a bioregional scale. The concept of adequacy incorporates ecological viability and resilience of ecosystems for individual protected areas and for the protected area system as a whole.

Comprehensiveness: Refers to the aim of including, within protected areas, samples of the full range of regional ecosystems recognisable at an appropriate scale within and across each IBRA bioregion.

Condition: The current state of ecosystems compared to what would be considered pristine.

Conservation: In relation to biodiversity, conservation is the protection, maintenance, management, sustainable use, restoration and improvement of the natural environment; in relation to natural and cultural heritage, conservation is generally keeping in safety or preserving the existing state of a heritage resource from destruction or change.

Consultation: The process of identification and selection of the National Reserve System will include effective and high-quality public consultation with appropriate community and interest groups to address current and future social, economic and cultural issues.

Covenant: A voluntary legal undertaking by a landowner registered on the land title for the purposes of protection of some nominated value or condition of the land.

Critical habitat: Areas of land that are crucial to the survival of particular threatened species, populations and ecological communities.

Ecological connectivity: Recognises that ecosystem processes are functionally connected across the landscape.

Ecosystem resilience: The capacity of an ecosystem to absorb disturbance and reorganise while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks.

IBRA: The Interim Biogeographic Regionalisation for Australia provides a broad level break-up of the Australian landmass into 85 biogeographic regions and 403 subregions. The IBRA bioregions were derived by compiling information on climate, lithology/geology, landform, vegetation, flora and fauna. IBRA provides the national and regional planning framework for developing the National Reserve System.

Indigenous involvement: The biodiversity conservation interests of Australia's Indigenous peoples should be recognised and incorporated in decision-making.

Integrated decision-making: Decision-making processes should effectively integrate both long-term and short-term environmental, economic, social and equity considerations.

Landscape context: The protected area system should maximise biodiversity conservation outcomes through the application of scientifically robust protected area and conservation design principles and collaboration with other land managers in the bioregion.

Management effectiveness: The development of better management in terms of efficiency and effectiveness in achieving reserve management goals.

Partnerships: The success of the National Reserve System depends on effective partnerships between the Australian, state and territory governments, and between governments and non-government organisations, private landholders and Indigenous landholders and organisations.

Precautionary Principle: The absence of scientific certainty is not a reason to postpone measures to establish protected areas that contribute to a comprehensive, adequate and representative National Reserve System.

Protected Area: 'A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective

means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values' (IUCN 2008).

Regional ecosystems: Ecosystems, or a unique unit such as a vegetation community mapped at appropriate scales, comprising a recognisable floristic composition in combination with a substrate (lithology, geology layers) and position in the landscape, and including their component biota.

Representativeness: Comprehensiveness considered at a finer scale (IBRA subregion), and recognises that the regional variability within ecosystems is sampled within the reserve system. One way of achieving this is to aim to represent each regional ecosystem within each IBRA subregion.

Threatening processes: Limiting factors that threaten, or may threaten, the survival, abundance or evolutionary development of a native species or ecological community.

Viability: The likelihood of long-term survival of the example/population of a particular ecosystem or species.



Pitt Water Nature Reserve TAS, Nick Rains

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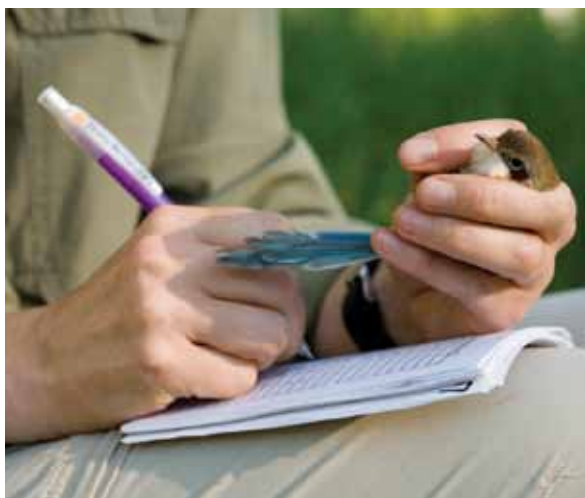
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Researching purple crowned fairy wrens at Mornington Sanctuary WA, Nick Rains



