Australia's Native Vegetation Framework

Consultation draft

A national framework to guide the ecologically sustainable management of Australia's native vegetation for ecosystem resilience

February 2010

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The NRMMC consists of the Australian, state, territory and New Zealand government ministers responsible for primary industries, natural resources, environment and water policy. Addresses of relevant government authorities may be found on the final page.

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This report is available at: http://www.environment.gov.au/native-vegetation-review

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Invitation to stakeholders to comment by 7 April 2010

Australia's Native Vegetation Framework
A consultation draft for public comment

Dear Stakeholder

On 5 November 2009 the Natural Resource Management Ministerial Council (NRMMC) endorsed the draft *Australia's Native Vegetation Framework* for public consultation. The NRMMC consists of Australian, state, territory and New Zealand government ministers responsible for primary industries, natural resources, environment and water policy.

The NRMMC invites members of the public to read this draft and welcomes your comments and ideas for improvement.

Who should read this consultation draft?

All Australians have a potential role to play in managing our native vegetation. Sectors particularly engaged in native vegetation management include government, the scientific community, regional natural resource management groups, industry, non-government environment organisations, Indigenous groups, farmers and other landholders.

What is the role of this framework?

This draft is a strategic national policy framework, aimed at guiding management decisions that affect native vegetation in all jurisdictions and all sectors of the community.

The NRMMC is currently developing a new national biodiversity strategy. When finalised, *Australia's Biodiversity Conservation Strategy* will provide an overarching national policy framework for other more specific national policy frameworks, such as this one. Information on the review of the national biodiversity strategy can be found at http://www.environment.gov.au/biodiversity/strategy/review.html. The NRMMC has requested that *Australia's Native Vegetation Framework* be aligned with *Australia's Biodiversity Conservation Strategy*.

What should I comment on?

In particular we would like your thoughts on the following:

1. Are the vision, goals and principles appropriate?
2. Are the outcomes for each goal logical and achievable? Should there be others instead of or in addition to these?
3. What are your suggestions for national, measurable targets?

Secretariat to the Native Vegetation Framework Review Task Group

4. Do you think the framework will adequately address the major native vegetation issues? If not, do you have any suggestions for improvement?

5. Is there anything else this framework should cover?

To help guide your comments you can download a submission template from http://www.environment.gov.au/native-vegetation-review. However, its use is optional.

National measurable targets

Following public and expert feedback on the consultation draft of *Australia's Biodiversity Conservation Strategy 2010-2020*, the NRMMC decided that the national biodiversity strategy should contain measurable national targets. Those targets are currently being developed.

The NRMMC has not yet developed measurable national targets for this framework, and would like to hear ideas on what the targets should be.

We welcome suggestions on national measurable targets, for example, one for each of the five goals of the framework.

Indicative examples of national measurable targets are set out below. These indicative targets are suggestions to assist the public consultation process and have not been endorsed by any government.

Goal 1: *Increase the national extent of native vegetation to build ecosystem resilience and improve the productive capacity of the landscape*

Examples for Goal 1:

- By 2015 there is a X% net national increase in the extent of native vegetation
- By 2015 all strategic land-use planning decisions maximise opportunities to encourage revegetation, build conservation connectivity and limit clearing of native vegetation

Other examples for Goal 1:

Goal 2: *Maintain and improve the condition of native vegetation*

Examples for Goal 2:

- By 2015 the condition of X% of Australia's native vegetation has been significantly improved
- By 2015 all of Australia's native vegetation is covered by management planning aimed at reducing priority threats to condition and their underlying drivers

Other examples for Goal 2:

Goal 3: *Maximise the native vegetation benefits of carbon markets*

Examples for Goal 3:

- By 2013 national standards have been developed for accreditation and reporting of schemes that promote biodiverse native vegetation outcomes along with carbon sequestration and other environmental benefits
- By 2015 all native vegetation plans, policies and programs will be designed to maximise native vegetation condition outcomes of carbon market opportunities

Other examples for Goal 3:

Goal 4: *Build capacity to understand, value and effectively manage native vegetation by all relevant stakeholders*

Examples for Goal 4:

- By 2015 X% of Australians understand and value native vegetation
- By 2015 the functions and values of native vegetation are appreciated and existing knowledge is shared among the wider community

Other examples for Goal 4:

Goal 5: *Progress the engagement and inclusion of Indigenous peoples in management of native vegetation.*

Examples for Goal 5:

- By 2015 X% of decision-makers understand the cultural significance of native vegetation to Indigenous peoples and give that significance weight in their decision-making
- By 2015 Indigenous peoples are fully involved in native vegetation management and decision making

Other examples for Goal 5:

What else do I need to know?

Once this framework is finalised, more specific guidelines will be developed to support this framework. They will provide practical on-ground advice and best practice principles for native vegetation management.

In the interests of transparency, all submissions will be made public. If you do not wish your contribution to be made accessible to the public, please advise us in your submission.

Where can I find out more?

More information is available on the web at: http://www.environment.gov.au/native-vegetation-review where you will find:

- the consultation draft
- background information
- frequently asked questions
- information on how to make a submission
- a downloadable submission template.

Enquiries and requests for further copies of the framework may be directed to:

The Community Information Unit
Department of the Environment, Water, Heritage and the Arts
Freecall 1800 803 772 or
Email: ciu@environment.gov.au

Where should I send my comments?

Direct your submissions in hard copy, Word or PDF format to:

Via email (preferred method):
vegsubmissions@environment.gov.au

Via post:
Native Vegetation Framework Review Secretariat,
Biodiversity Conservation Branch
Department of the Environment, Water, Heritage and the Arts
GPO Box 787
CANBERRA ACT 2601

Please remember to include your name and contact details.

All submissions must be received by 5 pm Australian Eastern Standard Time (AEST) 7 April 2010.

Secretariat to the Native Vegetation Framework Review Task Group

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Executive Summary

Australia's native vegetation, that is all vegetation that is local to a particular site or landscape, is vital to us all. It provides essential environmental, social, economic, spiritual and cultural benefits.

Native vegetation sustains Australia's biodiversity. It also sustains ecological processes critical to delivering the ecosystem services that provide the life support systems for our planet. These processes and services include:

- forming the basis of food chains
- purifying air and supplying oxygen
- protecting water quality and yield
- supporting forestry, agriculture and aquaculture
- maintaining soil fertility and stability upon which many productive enterprises rely.

Native vegetation is vital for many traditional Indigenous uses, such as medicine and food, and contributes to spiritual and cultural wellbeing. It also plays an essential role in carbon storage, helping to address the causes and impacts of climate change.

Our vegetation is unique, having evolved in isolation from other continents for around 30 million years. It has adapted specifically to cope with variations in climate, impoverished soil, fire, and traditional Indigenous land management practices.

This consultation draft of *Australia's Native Vegetation Framework* is a joint initiative of the Australian, state and territory governments. It builds on the existing 1999 *National Framework for the Management and Monitoring of Native Vegetation* to guide policies, programs, legislation and activities related to native vegetation conservation throughout the country.

Since the establishment of the initial framework in 1999, all Australian governments and the broader community have invested significantly in developing and implementing policies and programs for the sustainable use and conservation of native vegetation. Despite these efforts, native vegetation in many parts of Australia has become degraded and fragmented. Its integrity is at risk from changing land use along with unsustainable clearing, changed water and fire regimes, overgrazing and invasive species (Beeton et al. 2006). Climate change is a further threat and will also exacerbate other threats.

Although Australia retains more than 87 per cent of the pre-European (1750) extent of native vegetation cover, its condition is variable, fragmented and often degraded (Beeton et al. 2006 p69). Some vegetation types are reported as having less than 10 per cent of their original cover (National Vegetation Information System), with some of those down to less than one per cent (Beeton at al. 2006 p69).

Since European settlement almost one-third of Australia's native vegetation located in agricultural and urban zones has been cleared or greatly modified, and the components of many ecosystems have been severely disrupted (Beeton et al. 2006 p69).

Concerted action will be required to reverse the ongoing decline in Australia's vegetation. This challenge is greatly increased in the face of climate change.

In many areas it is vital to rebuild the resilience of ecosystems through measures such as:

- enhancing the protected areas system
- redoubling efforts to minimise or remove existing stresses
- improving connectivity
- identifying and protecting habitat refugia for animals, including key areas of native vegetation.

In relatively undeveloped areas, mechanisms are needed to prevent over-clearing and to ensure that development is planned so that maximum native vegetation is retained.

Existing native vegetation, particularly in fragmented landscapes, should be retained and restored. The condition of both remnant and degraded vegetation in extensive land use zones such as pastoral rangelands should be improved as a matter of urgency.

The vision of this framework is that native vegetation across the Australian landscape is managed in an ecologically sustainable way in recognition of its enduring environmental, economic, social, cultural and spiritual values in a changing climate.

This framework sets out five goals to meet its vision:

Goal 1 Increase the national extent of native vegetation to build ecosystem resilience and improve the productive capacity of the landscape

Goal 2 Maintain and improve the condition of native vegetation

Goal 3 Maximise the native vegetation benefits of carbon markets

Goal 4 Build capacity to understand, value and effectively manage native vegetation by all relevant stakeholders

Goal 5 Progress the engagement and inclusion of Indigenous peoples in management of native vegetation.

Outcomes and targets are identified for each of these goals as well as key actions to be undertaken by a range of governments, organisations and interest groups.

The actions are an indicative set, acknowledging that as our native vegetation conservation efforts progress we may develop new actions to help achieve our vision. Actions should be carried out according to jurisdictional circumstances and bioregional character.

Every Australian has a role to play. Governments at all levels, Indigenous peoples, and public, private and corporate land managers across the country, must all help to ensure that Australia's native vegetation is protected and enhanced, in recognition of its inherent values and multiple community benefits for Australian society.

The Framework

Vision and principles for Australia's Native Vegetation Framework

The framework's vision

Native vegetation across the Australian landscape is managed in an ecologically sustainable way in recognition of its enduring environmental, economic, social, cultural and spiritual values in a changing climate.

Principles underlying the development and implementation of the framework

Vegetation is vital for life on earth; its conservation is fundamental to our survival.

Australia's native vegetation is important to our national identity, and integral to the relationship of Indigenous peoples with country—their traditional lands and waters.

Our natural resources are finite: the sustainable use of native vegetation is important for maintaining ecosystem services, as well as for the economy.

Investment in native vegetation management should be ecosystem-based, strategic and efficient. Whole-of-ecosystem approaches should be complemented by species-specific management for threatened species or species with unique requirements.

A decision-making hierarchy should be applied to native vegetation management where the first aim is to avoid loss; and, if that is not possible, then to minimise loss; and if vegetation loss is unavoidable, that loss should be managed to maintain ecosystem function including, where appropriate, identification of offsets.

Our environment is continually changing, accelerated by human disturbance including impacts of climate change, and we need to adapt our native vegetation management accordingly.

All decisions should be made according to the best available knowledge and we should apply the precautionary principle where knowledge is incomplete.

Climate change will affect the composition, structure and functioning of native vegetation through altering species habitat thresholds, and modifying threatening processes.

Knowledge about the value and management of native vegetation, including Indigenous knowledge (where culturally appropriate), should be widely disseminated and used.

What is native vegetation?

Native vegetation is all vegetation that is local to a particular site or landscape. In this framework it includes all terrestrial and aquatic plants (but not marine plants), and both living and dead individuals: for example, trees, shrubs, grasses, groundcovers, fungi, lichen, moss, seeds and some algae. Sometimes the seed bank in the soil is the only remaining record of a native plant in the area. These seed banks represent the potential future vegetation of the area.

For the purpose of this framework, native vegetation is considered to consist of natural biodiverse vegetation and permanent biodiverse locally-native plantings. This framework does not deal in detail with principles for forest and plantation management (see also Section 1.3).

Assemblages of native plant species can be classified hierarchically, from broad major vegetation groups to more detailed associations and communities, based on their characteristic structure and composition. Examples of major vegetation types include rainforests, eucalypt forests, woodlands, shrublands, heathlands, grasslands, sedgelands, rushlands, herblands, bogs and mangroves. An ecological community includes the animal, fungal and microbe components, as well as the plants.

Hunter Estuary Wetlands, NSW (Photo: Sarah Stuart-Smith & the Department of the Environment, Water, Heritage and the Arts).

All vegetation, whether native or introduced, has value, as all vegetation can provide services such as storing carbon, providing oxygen and shelter, and controlling erosion. However, for the purpose of this framework it is recognised that some vegetation is of greater value to Australia than other vegetation, largely due to its contribution to biodiversity. Locally-native, biodiverse vegetation that remains relatively undisturbed is of greater value than locally–native biodiverse native plantings. In turn, locally-native biodiverse native plantings are of greater value than locally–native monoculture plantings, which is of greater value than a monoculture planting consisting of an introduced or non-locally native species.

Moreover, lifespan and condition are other aspects that impact on the value of native vegetation. Both old growth and regrowth vegetation constitute native vegetation, and in many cases maintaining a representative mix of regeneration stages should be a key consideration for vegetation conservation and strategic planning. While all growth stages contribute towards biodiversity, the time required for old growth vegetation to reach maturity makes it particularly valuable because it cannot be replaced, or its loss offset, easily.

Questions remain about how to measure the condition of native vegetation and what constitutes good or poor condition. These questions are especially pertinent where vegetation experiences natural seasonal variation, or variation due to locality or climate factors. It can also be difficult to determine which aspects of condition are natural and which aspects are as a result of human-induced degradation. However, in some instances condition is relatively easy to determine.

Native vegetation condition can range from a relatively pristine state to one with a degree of disturbance from human impacts such as clearing or the spread of exotic species. Generally, native vegetation in good condition is of greater conservation value than highly degraded vegetation in poor condition, due to its relative ability to contribute to biodiversity, habitat and ecosystem services. However, on a landscape scale, it may be strategically important to improve the condition of degraded native vegetation, and to give special attention to degraded threatened ecological communities.

1 Call to action

The vision of this framework is that native vegetation across the Australian landscape is managed in an ecologically sustainable way in recognition of its enduring environmental, economic, social, cultural and spiritual values in a changing climate.

1.1 Native vegetation matters

Australia's native vegetation is extraordinarily diverse and is an integral part of our natural heritage. It has many unique physical features, and a large proportion (around 85 per cent) of our plant species are endemic to the continent.

Living or dead, native vegetation is a vital component of the nation's biodiversity. It forms the basis of the food chain, and is a fundamental element of ecosystem productivity, functioning in a direct relationship with soil and water. It directly provides many environmental, economic, cultural and social benefits.

Serious consequences resulting from the loss of native vegetation include dryland salinity, declines in river and wetland health, reduced water quality and quantity, biodiversity decline, increased greenhouse gas emissions, reduced ecosystem functioning and declining ecosystem resilience.

1.1.1 Environmental benefits

Australia's native vegetation holds significant genetic and biological resources and it plays a pivotal role in ensuring the health of Australian ecosystems. It also plays an essential environmental role in sustaining ecosystem functions and processes including:

- **biodiversity services** (for example, providing wildlife habitat and food, improving resilience to disturbance and climatic change, harbouring pollinators for crops and natural predators of agricultural pests)
- **ecosystem function** (for example, maintaining biomass, nutrient cycling and controlling groundwater salinity)
- **land production services** (for example, forestry, native grasses for grazing, fisheries and aquaculture, providing sustainable harvest of native flora, and bush foods)
- **water quality and hydrology services** (for example, regulating groundwater movement, sustaining riparian zones, water filtration and nutrient cycling through wetland and riparian ecosystem services)
- **soil services** (for example, supporting soil integrity and physical stability, providing nutrients and water retention)

- **climate regulation services**, including through carbon storage and sequestration, moderating air and water temperature and humidity, and maximising rainfall
- **air quality services** (for example, taking in carbon dioxide and releasing oxygen, and helping to cleanse the air of particulates and industrial pollution, sustaining animal life).

In addition to providing ecosystem services, native vegetation has intrinsic values and is increasingly recognised as a broad indicator of habitat condition and biodiversity health.

1.1.2 Economic benefits

Native vegetation supports the productive capacity of many important sectors of the Australian economy—agriculture, forestry, fisheries and aquaculture, and tourism. Many economic benefits are derived from native vegetation through direct harvest and use (for example, in grazing and forestry industries), seed and flower harvesting, bioprospecting and honey production. Native vegetation also provides numerous indirect economic benefits, including:

- maintaining the health of ecosystems and related agricultural productivity
- maintaining drinking water catchments
- maintaining soil fertility and stability
- protecting stock and crops, including through resistance to pest invasions
- providing potential financial returns from carbon sequestration through carbon markets.

1.1.3 Cultural and social importance

Native vegetation is part of Australia's unique heritage, and it occupies a central place in Australian culture by:

- reflecting and informing Australia's national identity
- supporting and sustaining Australia's unique wildlife
- supporting Indigenous peoples' identity and wellbeing, and spiritual and traditional uses
- supporting healthy and functioning communities with employment and income generation opportunities
- maintaining environmental knowledge and using traditional Indigenous knowledge
- maintaining social, cultural and spiritual values
- providing places of scenic beauty
- providing sites for tourism and recreational services.

1.2 The recent record

Native vegetation in many parts of Australia has become degraded and fragmented and is at risk from changing land use, unsustainable clearing, changed hydrological and fire regimes, overgrazing and invasive species (Beeton et al. 2006). Climate change is a further threat and will also exacerbate other threats.

The National Vegetation Information System (NVIS) which provides information on the extent and distribution of vegetation types in Australian landscapes, reports that 87 per cent of the extent of Australia's pre-European native vegetation remains. However, almost all of our native vegetation has been significantly impacted by the introduction of European land uses to this ancient and fragile continent.

Some of this impact has been well documented as reduction in extent. The continental figure of 87 per cent masks the fact that some major vegetation groups have been reduced to less than 10 per cent of their former distribution. Beeton et al. (2006 p69) reports that some individual ecological communities occupy less than one per cent of their original extent.

In addition, more widespread and diffuse impacts on the condition of vegetation have also contributed significantly to declines in biodiversity, losses of critical ecosystem processes and reduced ecosystem resilience in the face of current and future threats, including climate change.

Australia-wide, 1.5 million hectares of forests, including native and non-native forest vegetation, were cleared between 2001 and 2004 (Beeton et al. 2006 p70; see Figures 1, 2 and 3). After forest regrowth, the net change was a loss of 287 000 hectares, however, often the replacement vegetation is not the same as the vegetation that was previously cleared (Beeton et al. 2006 p70). This 'forest' dataset is the only nationally consistent, long-term dataset for vegetation extent currently available.

Australia has no precise national tracking of clearing of non-forest vegetation types such as woodlands, heathlands and grasslands. However, it can be estimated that almost one-third of Australia's native vegetation located in agricultural and urban zones has been cleared or greatly modified since European settlement (Cofinas & Creighton 2001).

The level of clearing varies across regions and states and territories, impacting on some ecological communities and species more than others. Often, the greatest pressure to clear is in areas that have already been badly affected by high levels of clearing in the past, such as in the intensive land use zones—the high rainfall areas of the south-east and far south-west of the continent—and temperate grasslands and grassy woodlands.

Much of the extensive land-use zones that have been used for pastoral activities are now highly degraded through trampling and grazing pressure from hoofed animals such as cattle and sheep and from feral animals such as camels. This degradation leads to substantial loss of topsoil and reduced capacity of these rangeland landscapes to absorb rainfall. Many of these landscapes have crossed a threshold from being predominantly water absorbing to now being predominantly water shedding. In many instances, there are processes entrenched in these rangeland landscapes that will continue the degradation process unless there is active intervention.

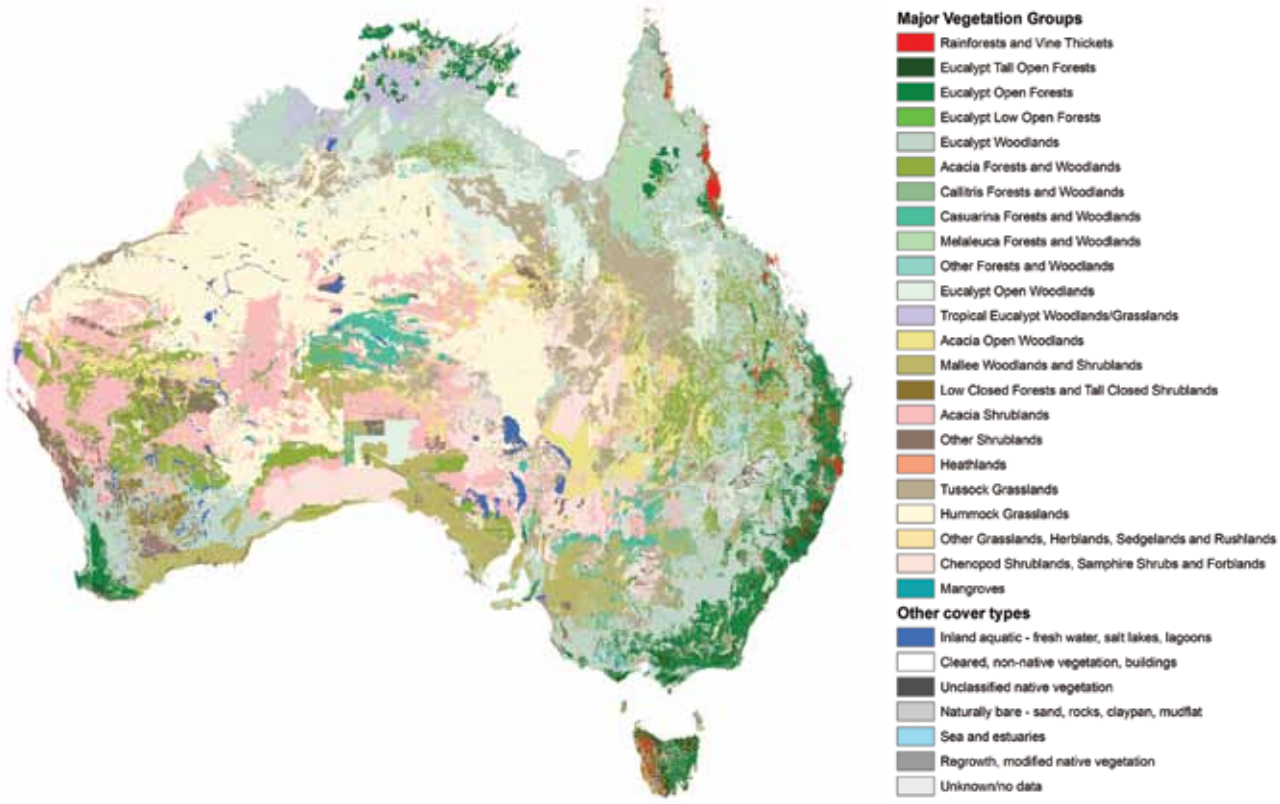

Figure 1: Estimated pre-1750 native vegetation by Major Vegetation Group (as described by NVIS). Source: Department of the Environment and Water Resources 2007.

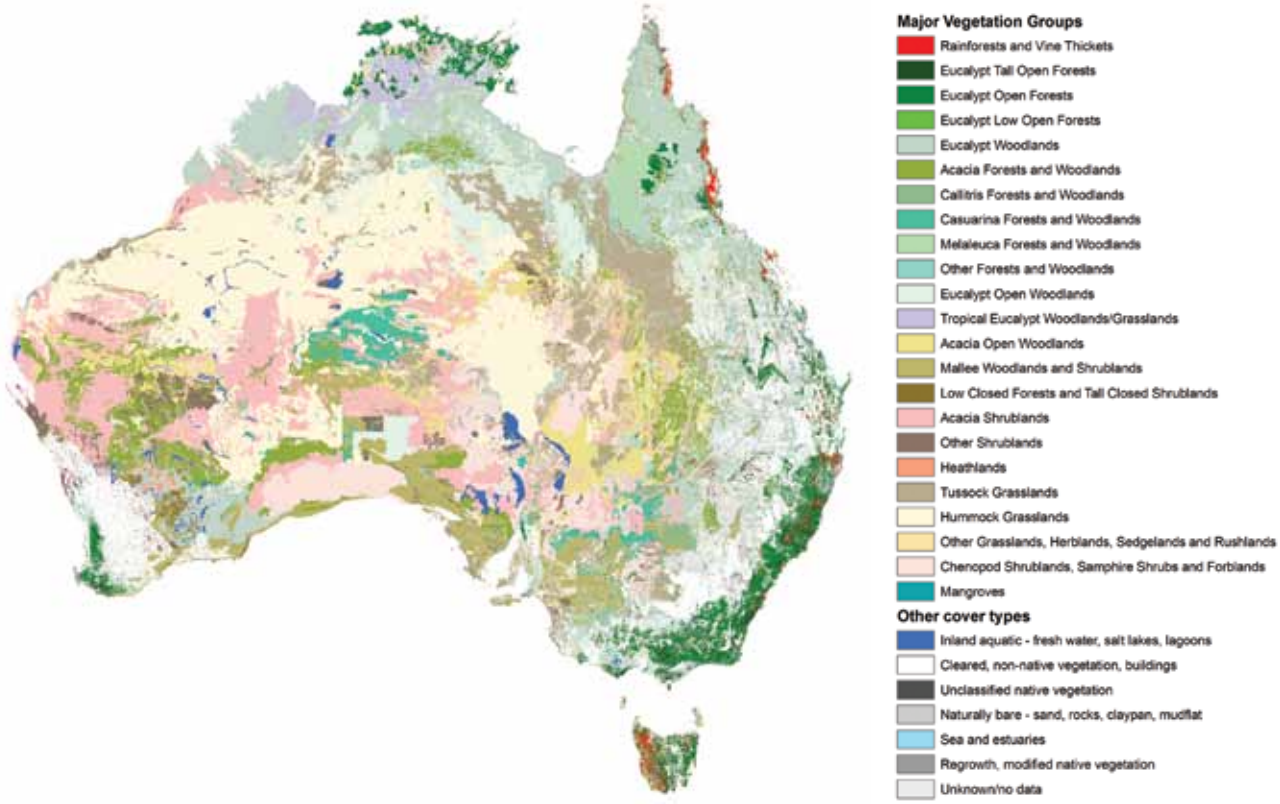

Figure 2: Current distribution of native vegetation by Major Vegetation Group (as described by NVIS). Source: Department of the Environment and Water Resources 2007.

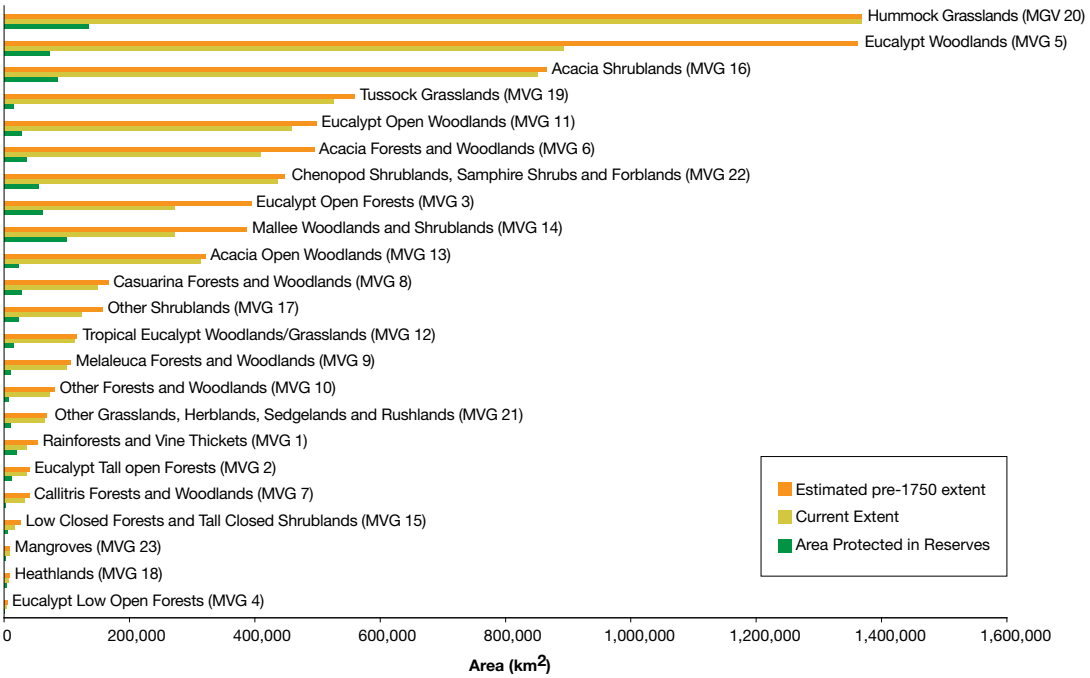

Figure 3: Areas of estimated pre-1750 extent, current extent and protection of Major Vegetation Groups in Australia (as described by NVIS). Source: Department of the Environment and Water Resources 2007.

1.2.1 Increasing threats

A range of factors threaten the extent and condition of remaining native vegetation, and related ecosystem function. These vary across the country. They are likely to be exacerbated by increasing temperatures and changes in rainfall regimes due to climate change. Key threats are:

- climate change itself, including the rate of change
- invasive species, plant pests and pathogens
- loss, fragmentation and degradation of habitat
- unsustainable use of natural resources
- changes to the aquatic environment and water flows
- inappropriate fire regimes.

Water is not only vital to sustain floodplain and aquatic ecosystems but patterns of rainfall and water movement are significant determinants of native vegetation distribution and abundance throughout bioregions. Hydrological regimes have been impacted by over-allocation of water resources, surface water harvesting and diversions, and they are exacerbated by climate change. Environmental watering of aquatic ecosystems is being undertaken in some areas in response to changes in hydrological regimes.

Many native vegetation communities rely on particular fire frequency, intensity and seasonality for their long-term health, recruitment and survival. Greater human populations living in fire-prone areas have increased pressure to establish artificial fire and fuel reduction regimes that provide increased protection from wildfire for communities living in fire-prone areas.

Changed fire regimes, post-European arrival in Australia, have had varying effects on native vegetation cover, with fire affecting the species composition, vegetation coverage and fuel load present in natural areas. Managing these areas presents region-wide challenges to protecting both ecosystem health and human safety and property.

Climate change models predict major changes to fire frequency, extent, intensity and seasonality. Components of native vegetation may not be able to adapt successfully. Equally, changes in natural fire regimes as a consequence of climate change have the potential to increase pressure to protect communities in areas of wildfire risk.

Australia's biodiversity, already facing serious threats and in decline, is at great risk from climate change. Of all sectors, natural ecosystems are the most vulnerable to climate change (Hennessy et al. 2007). On the basis of present knowledge, an increase in global temperature of 1.5˚–2˚C is likely to lead to massive biodiversity loss (extinctions) across Australia (and globally). We are already facing at least a 1.3˚C increase.

A 'business as usual' approach to managing biodiversity is unlikely to be a sufficient response to the combined impacts of existing threats and increasing climate change.

A scientific consensus has emerged that climate change will now intensify and accelerate environmental changes. These must be managed to minimise the loss of essential ecosystem services and consequent impacts on society.

Climate change will cause shifting climatic zones throughout Australia, including changes to rainfall and temperature, which may occur too quickly to allow for species to evolve, adapt or translocate. This may be especially problematic for plant species with long lifecycles, meaning the climatic zone they require may shift too quickly for them to reseed and thus relocate. Animals may also be affected if their habitat is not continuous, i.e. they cannot migrate with their preferred temperature zone as it moves, because of fragmented vegetation cover, or if they are already at the extreme end of their habitat zone, for example, alpine species.

Plantings that provide multiple benefits and enhance the overall resilience of native vegetation communities will be particularly important in the face of escalating climate change.

A strategic assessment of the vulnerability of Australia's biodiversity to the impacts of climate change was completed in 2009. The resulting report, *Australia's Biodiversity and Climate Change: A strategic assessment of the vulnerability of Australia's biodiversity to climate change* (Biodiversity Vulnerability Assessment) provides important guidance on developing climate change adaptation strategies for Australia's biodiversity, including native vegetation.

Efforts to prioritise conservation actions for native vegetation under a changing climate will need to include identifying functionality—a key attribute of ecosystems to be conserved in future. Noting that biodiversity is declining across most of Australia as a consequence of existing threats, a substantial, additional effort will be required in order to avoid a major phase of extinctions.

Snow topped mountains, Perisher, NSW. (Photo: Trevor Preston & the Department of the Environment, Water, Heritage and the Arts)

1.2.2 Action is needed

Change is inevitable but the pace of change has accelerated in recent times. This rapid change is intensifying threats and jeopardising our capacity for adaptive management: that is our ability to assess situations, pilot new responses and monitor outcomes. At the same time, new technologies such as remote sensing provide opportunities to study native vegetation at larger scales and develop responses to change.

Past and ongoing actions, while growing the economy and improving our quality of life in many areas, have had serious and lasting impacts on the condition and extent of our native vegetation. Current generations have derived short-term benefits from unsustainable land management practices, at the cost of our biodiversity and of future generations. These pressures have damaged the resilience of our native vegetation and made vegetation communities vulnerable to further changes such as expanding human settlements, the continuing intensification of resource uses and the impacts of climate change.

Current generations have both the capacity and the responsibility to restore the health and resilience of native vegetation in regions where it has been degraded. In other parts of Australia where over-clearing has been avoided so far, we have obligations to ensure that degradation does not occur, by placing well-considered limits on change.

We have an opportunity to learn from the experience of Indigenous peoples who have lived with changes to the Australian continent over many thousands of years and have adapted their management practices to changing circumstances. However, some current threats may fall outside of traditional Indigenous experience, such as invasive species, and the current rate of climate change. For these new threats, it is essential that all Australians, especially scientists, work to expand our knowledge and learn together, using adaptive management techniques and processes.

1.3 Role of this framework

Ecologically sustainable management of native vegetation is a critical part of Australia's commitment to the United Nations' Convention on Biological Diversity (1993) and other national environmental policies.

The National Strategy for the Conservation of Australia's Biological Diversity (National Biodiversity Strategy) is the country's overarching national biodiversity policy framework. It was released in 1996 and is currently being revised.

In 1999 *The National Framework for the Management and Monitoring of Australia's Native Vegetation* was released as the basis for developing and implementing a range of government policies, programs and legislation on native vegetation management. These were aimed at:

- reversing the long-term decline in the quality and extent of Australia's native vegetation
- phasing out and avoiding the clearance or degradation of significant native vegetation
- strategically restoring degraded areas
- reinstating native vegetation in over-cleared areas.

Enduring changes in our approaches to land management are needed to sustain the integrity of Australia's native vegetation and natural ecosystems. Many of these were set out in the 1999 framework. The 1999 framework has also been useful in recognising and promoting opportunities to achieve multiple environmental objectives through revegetation and other plantings.

This document, *Australia's Native Vegetation Framework,* has been developed to provide an updated national policy framework for native vegetation management and to contribute to achieving the goals of the National Biodiversity Strategy. It takes the broad principles in the National Biodiversity Strategy and translates them into specific goals for native vegetation.

It further develops national directions and priorities to guide action across the country and provides a framework for the goals, actions and outcomes of government strategies, policies, legislation and programs related to native vegetation conservation.

This document is also intended to guide the approaches taken by all natural resource managers at regional, catchment and local levels.

As well as this framework, there are other related national policy statements under the broad policy framework of the National Biodiversity Strategy including the:

- National Reserve Strategy
- National Forest Policy Statement (NFPS).

These policy statements seek to be complementary and consistent. The NFPS is the key intergovernmental agreement guiding Australia's domestic forest policy. It sets out agreed principles for using Australia's natural and plantation forests, including conservation and environmental principles. Under the NFPS, governments have implemented a series of Regional Forest Agreements across Australia, and strategies including *Plantations for Australia: the 2020 Vision*.

Related national environment and natural resources policies and programs are identified in Appendix 2.

2 Goals, actions and results

2.1 Outline of goals

This framework is built around the following goals:

Goal 1 Increase the national extent of native vegetation to build ecosystem resilience and improve the productive capacity of the landscape

Goal 2 Maintain and improve the condition of native vegetation

Goal 3 Maximise the native vegetation benefits of carbon markets

Goal 4 Build capacity to understand, value and effectively manage native vegetation by all relevant stakeholders

Goal 5 Progress the engagement and inclusion of Indigenous peoples in management of native vegetation.

2.2 Goal table structure and context

These five goals are vital for achieving the framework's vision.

Outcomes and targets for each of the goals have been identified to help provide direction for these goals. The targets are national, and are designed to be measurable, achievable and realistic. An indicative set of actions designed to achieve the targets under each of the goals is listed in Chapter 3.

A number of different pathways and mechanisms can be used to meet many of the targets. Generally, there is no right or wrong way to approach them. The particular action will depend on the jurisdictional or regional situation, including existing priorities, availability and leveraging of funding and opportunities to build on local experience and capacity.

2.3 Goal 1 – Increase the national extent of native vegetation to build ecosystem resilience and improve the productive capacity of the landscape

2.3.1 Outcomes for Goal 1

- A net national increase from 2010 in native vegetation extent.
- An increase in use by jurisdictions of a system to apply a decision-making hierarchy to managing native vegetation where the first aim is to avoid loss; and, if that is not possible, then to minimise loss; and if vegetation loss is unavoidable, impacts should be managed to maintain ecosystem functions including, where feasible, the use of offsets.
- An increase in jurisdictions establishing and implementing mechanisms for strategic land-use planning to encourage revegetation, build conservation connectivity and limit clearing of native vegetation.
- Increased implementation of management practices that achieve conservation and sustainable use of native vegetation by private landholders to provide economic benefits and environmental services.

2.3.2 Target

[Measurable national target to be developed. Please see information for stakeholders at the front of this document.]

2.3.3 Rationale for Goal 1

- Extensive clearing of native vegetation in some parts of Australia has resulted in a significant loss of biological diversity, ecological structure and function. This has resulted in fragmentation of native vegetation, loss of ecosystem resilience, and land degradation including increased salinity, a decline in soil fertility, soil erosion and declining water quality.
- Increasing the extent of native vegetation and its connectivity in fragmented landscapes means it will be better able to contribute effectively to the functioning of ecosystems, improve its ability to support land uses and environmental values, and will foster the resilience of ecosystems in the face of climate change. The value of native vegetation is enhanced if it contributes to ecosystem function at landscape scales. Increasing the extent and connectivity of native vegetation enhances ecosystem resilience because it:
  - can reduce edge effects, which otherwise act as stressors on small, isolated patches of native vegetation
  - facilitates the movement of certain species, individuals and genes across a wider range, allowing improved ability to adapt to climate change and other stressors
  - improves prospects for re-colonising damaged areas, by allowing movement from undamaged areas.

- The international Convention on Biological Diversity provides that Parties should establish and manage a system of protected areas, such as the National Reserve System (NRS), to protect biodiversity.
- Increasing the extent of native vegetation on private and leasehold lands, in addition to the NRS and other public land tenures, requires the collective efforts of Australian, state and territory governments, non-government organisations, private landholders and Indigenous peoples. It is important for all sectors to work collaboratively to achieve positive native vegetation outcomes on private land, to complement the NRS.
- It is recognised that some regions are still under development. In such cases strategic land use planning is essential to provide well-considered development opportunities. It is also needed to retain and favourably configure native vegetation, which is necessary to protect the function of ecosystems and to avoid environmental degradation as sustainable development proceeds.
- Decision-making hierarchies should be applied to native vegetation management where the first aim is to avoid loss; and, if that is not possible, then to minimise loss; and if vegetation loss is unavoidable, impacts should be managed to maintain ecosystem functions including, where feasible, the use of offsets.
- A key tool for protecting the extent of native vegetation is ensuring a high level of compliance with current policy and legislation, at all jurisdictional levels. This will require sufficient cost-effective resourcing for monitoring, legal and enforcement actions.
- Native vegetation provides a range of economic benefits, whether it occurs as native grasslands being sustainably grazed, sustainable forest operations, or permanent biodiverse native plantings. It also provides other environmental services such as clean water, maintaining beneficial insects for integrated pest management, preventing soil erosion, and depending on the intensity of production, providing biodiversity benefits such as native habitat and landscape connectivity. Where native vegetation occurs as part of a viable and sustainable farming operation, land managers may provide weed, pest and fire management services that help to maintain the condition of that vegetation.

2.4 Goal 2 – Maintain and improve the condition of native vegetation

2.4.1 Outcomes for Goal 2

- An agreed set of national standards is developed for classifying the condition of native vegetation that is relevant at a range of scales and is used for a variety of purposes including prioritising management actions.
- An increase in maintaining and improving the condition of native vegetation through investment and management priorities and through communicating information to land managers.
- An increase in the capacity of native vegetation to sustain critical ecosystem functions and provide multiple ecosystem services over the long term that will also enhance the productive capacity of land.
- An increase in the adoption of practices focussed on sustainably managing native vegetation in production landscapes.

2.4.2 Target

[Measurable national target to be developed. Please see information for stakeholders at the front of this document.]

2.4.3 Rationale for Goal 2

- Effectively managing the processes that threaten the condition of native vegetation is critical to ensure Australia's ecosystems remain healthy and resilient, biological diversity is conserved and the productive capacity of land is sustained into the future.
- Maintaining or improving the condition of native vegetation maximises its contribution to ecosystem function and its ability to support land uses and values. The capacity of native vegetation to provide a range of goods and ecosystem services—such as wildlife habitat, clean water, clean air, nutrient cycling, carbon storage, salinity mitigation, food products and fibre—is significantly influenced by land management practices.
- Ecologically sustainable management and protection of existing native vegetation avoids the mounting costs incurred by rehabilitating increasingly degraded areas.
- Proactive approaches are required to secure habitats and restore ecosystem function, so that the productive capacity and socio-cultural values of the landscape can be retained for the benefit of present and future communities.
- Restoring native vegetation on private and leasehold lands to good condition is important to maintain connectivity and to complement and buffer the NRS.

Grass trees at Wee Jasper, NSW. (Photo: Trevor Preston & the Department of the Environment, Water, Heritage and the Arts)

- A key tool for protecting native vegetation condition is to ensure a high level of compliance with current policy and legislation, at all jurisdictional levels. This will require cost-effective resourcing for monitoring, legal and enforcement actions.
- All land managers including governments, farmers, graziers, Indigenous landholders and others have a role in maintaining and improving the condition of native vegetation. Best results will be achieved if all land managers are involved in implementing the framework and in developing classification systems that can be applied broadly within particular landscape systems. Classification systems need to be simple to implement yet be able to accommodate the complexity inherent in assessments of biodiversity and ecosystem services.
- Better-managed native vegetation can contribute to both productivity and environmental outcomes. Good groundcover in rangelands grazing is best practice for production purposes but also provides benefits for wildlife habitat and in countering wind and water erosion. All land managers need access to good information and examples of best practice vegetation management.

2.5 Goal 3 – Maximise the native vegetation benefits of carbon markets

2.5.1 Outcomes for Goal 3

- An agreed set of national standards is developed to accredit and report on schemes that promote biodiverse native vegetation outcomes along with carbon sequestration and other environmental benefits.
- An increase in the effectiveness of native vegetation policies, plans and programs in order to maximise carbon market opportunities for native vegetation condition outcomes.
- An increase in the effectiveness of programs that promote the use of suitable fire management regimes that deliver positive native vegetation outcomes, protect the community and reduce greenhouse gas emissions, wherever feasible.

2.5.2 Target

[Measurable national target to be developed. Please see information for stakeholders at the front of this document.]

2.5.3 Rationale for Goal 3

- Carbon markets provide an opportunity to reap multiple environmental benefits particularly for native vegetation and biodiversity. Using carbon markets in this way is important because:
  - diversity of vegetation is important to support diversity of species
  - biodiverse plantings (for example, through revegetation of previously cleared land) can deliver multiple environmental benefits, by increasing the extent and condition of native vegetation, maximising biodiversity and providing carbon benefits over the long term
  - biodiverse plantings on previously cleared land can build the resilience of ecosystems
  - the carbon values of existing native vegetation can be recognised and promoted
  - the total area of land available for carbon planting may be significant, and that represents a major opportunity for biodiversity benefits.
- Some monoculture carbon plantings may sequester more carbon than biodiverse native vegetation, but would make a lesser or negative contribution to biodiversity conservation. Emerging carbon markets may lead to existing non-forest native vegetation, including biodiverse areas, being replaced (for example, cleared or oversown) by monoculture carbon plantings. Measures are therefore needed to support and complement the operation of carbon markets so as to enable them to contribute to positive outcomes for native vegetation or biodiversity.

2.6 Goal 4 – Build capacity to understand, value and effectively manage native vegetation by all relevant stakeholders

2.6.1 Outcomes for Goal 4

- An increase in incentive arrangements and business opportunities to encourage and support native vegetation conservation on private land.
- An increase in the resourcing, design and implementation of appropriate community awareness initiatives that align native vegetation, carbon and water management issues.
- An improvement in the national approach for native vegetation mapping so that data from all jurisdictions is consistent, comparable and can be incorporated into a national system through which native vegetation condition and extent can be measured and reported at multiple scales, including nationally.
- An improvement in mechanisms for communicating with landholders to enhance the protection and sustainable use of native vegetation

2.6.2 Target

[Measurable national target to be developed. Please see information for stakeholders at the front of this document.]

Sand Hill Cane Grass on the Moothandella Station near Windorah, QLD (Photo: Dragi Markovic & the Department of the Environment, Water, Heritage and the Arts)

2.6.3 Rationale for Goal 4

- Ecologically sustainable management of native vegetation relies on informed action—in legislation and policy, through to on-ground management—by government, the private sector and the community.
- Gaps in knowledge exist, as well as difficulties in managing information to ensure that it is disseminated and applied effectively in on-ground management. Information gaps need to be addressed by collecting and compiling comprehensive national datasets.
- The accelerating pace of change affecting management of native vegetation demands continual review and updating of relevant knowledge and practice.
- Twenty per cent of Australia is owned or managed by Indigenous peoples. The special relationship of Indigenous peoples with Australia's native vegetation along with traditional and contemporary knowledge of land management practices is highly relevant and needs to inform efforts to improve the extent and condition of native vegetation.
- Sixty per cent of Australian land is privately owned and managed, thus the involvement of all landowners and managers is crucial to the protection of native vegetation.
- A range of stakeholders, governments, farmers, graziers, Indigenous landholders and other land managers all have a role in managing native vegetation. Providing information to all land managers on vegetation condition, extent and services is integral to better management of native vegetation. It is essential that private landholders understand the native vegetation they are managing in a regional or landscape context in order to achieve effective vegetation connectivity that can deliver biodiversity benefits as well as other services. Where productive use is a goal, improving the understanding and application of sustainable practices is important.

2.7 Goal 5 – Progress the engagement and inclusion of Indigenous peoples in management of native vegetation

2.7.1 Outcomes for Goal 5

- An increase in Indigenous peoples' involvement in economic opportunities in native vegetation management.
- An increase in the use of Indigenous knowledge and recognition of its cultural significance to inform native vegetation management.
- An increase in the development of tools to assist Indigenous landowners to manage native vegetation.

2.7.2 Target

[Measurable national target to be developed. Please see information for stakeholders at the front of this document.]

2.7.3 Rationale for Goal 5

- Traditional Indigenous knowledge has an important role to play in managing native vegetation.
- Applying traditional and contemporary Indigenous knowledge and management techniques has environmental, social, cultural and economic benefits.
- In many parts of Australia, local Indigenous peoples are best placed to be able to manage native vegetation effectively. Indigenous peoples own, control and have significant influence over large areas of Australia, either through landholdings, or through native title rights and interests. Indigenous peoples' landholdings constitute 20 per cent of Australia, and in some states this is much higher (for example, 50 per cent of the Northern Territory).
- The traditional rights and aspirations of Indigenous peoples as well as their cultural and spiritual attachments and knowledge are important to the management of native vegetation.

3 Implementation

In native vegetation management, the primary responsibility rests with individual states and territories. The Australian Government has some specific legislative responsibilities for matters of National Environmental Significance under the *Environment Protection and Biodiversity Conservation Act 1999* and also maintains policies and programs to support native vegetation management.

All Australian governments, by developing and signing this document, have agreed to strive towards the goals and targets, and to implement relevant actions listed in Section 3.2, as customised to address local or regional conditions.

Long-term management and behavioural changes are needed to sustain native vegetation and the many ecosystem services it supports. In this framework, long-term goals are set to conserve native vegetation. Specific outcomes and targets to help guide and identify our progress support each goal.

A set of indicative actions is included, acknowledging that as we progress, we may develop new actions to help achieve our vision.

The actions cover a range of native vegetation management approaches, including:

- developing policy
- collecting and sharing information
- developing and implementing awareness and engagement strategies
- using market mechanisms and regulatory approaches.

Actions can be undertaken at a range of scales, from individual property owners or project-specific groups through to local government councils, Natural Resource Management (NRM) boards or Catchment Management Authorities (CMAs), or agencies with jurisdiction-wide responsibilities.

These actions form a 'tool box' from which government and non-government players can select, according to their role, responsibilities and expertise. The selection of locally relevant mechanisms should be based on risk assessment, threat abatement needs and trend monitoring. Although specific actions and delivery mechanisms may vary, it is important that they are aligned to demonstrate progress towards the nationally agreed outcomes and targets.

Case studies are included in this document to illustrate current action being taken across all sectors and states and territories. These highlight the varying approaches and pathways that can be pursued to meet specific outcomes and targets. They also show there is not one clear path to achieve our outcomes and targets. We must be flexible and innovative in the particular mechanisms and approaches we take. What is important is that all actions and pathways ultimately contribute to achieving our outcomes and targets.

To ensure the flexibility to address local or regional conditions in the manner most efficient within each area, states, territories and the Australian Government will develop their own implementation plans by the end of 2010. These implementation plans will detail the ways in which each jurisdiction will work towards achieving the national goals set out in Chapter 2.

3.1 Value of national coordination and collaboration

Currently, the extent to which native vegetation receives legislative protection varies considerably across jurisdictions. Some jurisdictions do not provide legislative protection for certain types of native vegetation. As a result, continued clearing of or damage to some high value native vegetation may still be occurring.

Varying definitions across different states and territories of what constitutes native vegetation has led to difficulties in mapping and monitoring the condition and extent of native vegetation across Australia. As a result there is a strong need to improve national coordination and consistency in managing and protecting native vegetation. This is a new area of endeavour in this revised document and builds on the outcomes of the 1999 framework.

Every Australian has a role to play in implementing *Australia's Native Vegetation Framework*, including governments at all levels, Indigenous peoples, scientists and public, private and corporate land managers across the country. Coordinated and effective action is required by all sectors of the community. Engagement with farmers and Indigenous land managers is particularly important, as together they manage 80 per cent of Australia's landmass.

Farmers are a major partner in delivering native vegetation outcomes on private land; they own, manage or control around 60 per cent of Australia. Many farmers make a significant contribution to biodiversity outcomes on private land: for example, Victoria's farm businesses invest around $500 million and spend an average 85 days work on natural resource management each year (Department of Primary Industries 2008). This framework aims to facilitate further native vegetation protection on private land through the development of appropriate policies and programs.

Indigenous-managed lands constitute 20 per cent of Australia. It is important that Indigenous peoples are engaged in the implementation of this framework. This will help to re-establish Indigenous land management traditions, and incorporate Indigenous peoples' knowledge and insight into sustainable land management wherever it is culturally appropriate. Engagement is also necessary to understand the wider economic aspirations of Indigenous landholders, and ensure that systems for native vegetation management do not deny opportunities to make sustainable use of recently acquired lands.

To achieve more effective Indigenous engagement, capacity needs to be developed within native vegetation management agencies and communities. The success of cultural landscape mapping and planning, for example, will depend on this capacity building. This document aims to provide an enabling policy framework, which will foster and engage Indigenous support and knowledge-sharing relating to managing native vegetation.

Fenced area with tube stock trees planted by local school children near Point Pearce, QLD (Photo: Dragi Markovic & the Department of the Environment, Water, Heritage and the Arts).

3.2 Actions

Actions	Responsibility
1 Develop national guidelines for native vegetation legislation to provide a basis for consistency, where possible, in definition and scope of coverage.	■ Australian Government ■ State and territory governments
2 Undertake risk assessments to identify vegetation types where action to improve condition or extent is urgently needed, is likely to be needed in the future, or where vegetation has the potential to act as a refuge from climate change.	■ Australian Government ■ State and territory governments ■ Local governments ■ Regional NRM bodies and CMAs
3 Develop national criteria for classifying the condition of native vegetation.	■ Australian Government ■ State and territory governments
4 Develop management plans to address priority threats to the extent and condition of native vegetation, based on the outcomes of Actions 2 and 3.	■ Australian Government ■ State and territory governments ■ Regional NRM bodies and CMAs
5 Develop a national approach for vegetation mapping so that data from all jurisdictions is consistent and can be aggregated, to: ■ measure the condition of native vegetation (Action 3) ■ measure trends over time and enable comparisons ■ incorporate biodiversity and ecosystem services into national accounts.	■ Australian Government ■ State and territory governments
6 Undertake mapping of native vegetation using the outcomes of Actions 3 and 5.	■ Australian Government ■ State and territory governments
7 Ensure native vegetation datasets are accessible and designed to facilitate national monitoring, mapping and reporting on trends in native vegetation condition and extent, in line with Action 5.	■ Australian Government ■ State and territory governments
8 Integrate native vegetation protection and management into regional strategic, long-term land-use planning. This should be informed by the outcomes of Actions 2, 3, 4 and 6. *(See Case Study 2)*	■ State and territory governments ■ Local governments ■ Regional NRM bodies and CMAs ■ Town planners.
9 Develop regional plans and programs (in combination with Action 2) that provide for regeneration and/or revegetation through: ■ reducing threats (as identified in Action 2) ■ connecting existing areas of native vegetation ■ encouraging natural regeneration ■ active revegetation.	■ State and territory governments ■ Local governments ■ Regional NRM bodies and CMAs ■ Town planners

Actions	Responsibility
10 Develop, resource and implement a range of innovative approaches and incentive programs (for example, market-based instruments, covenanting programs, economic/business opportunities to deliver ecosystem services) that encourage land managers to maintain and increase native vegetation on all land, including on private land. *(See Case Studies 3 and 4)*	■ Australian Government ■ State and territory governments ■ Regional NRM bodies and CMAs ■ Private land managers
11 Inform, engage, educate and where appropriate, train land managers and the community generally on the values (including biodiversity and carbon storage values) of native vegetation and its management (including appropriate fire regimes).	■ Australian Government ■ State and territory governments ■ Local governments ■ Regional NRM bodies and CMAs ■ Private land managers ■ Indigenous communities
12 Target planners, policy-makers, decision-makers and developers with an education campaign on the importance and value of native vegetation.	■ Australian Government ■ State and territory governments
13 Integrate native vegetation protection into planning instruments through implementing a decision-making hierarchy to native vegetation management where the first aim is to avoid loss; and, if that is not possible, then to minimise loss; and if vegetation loss is unavoidable, that loss should be managed to maintain ecosystem function including, where appropriate, identification of offsets. *(See Case Studies 5 and 6)*	■ State and territory governments
14 Develop standards for reporting and accreditation of schemes that promote biodiverse native vegetation outcomes along with carbon sequestration and other environmental benefits.	■ Australian Government
15 Develop policies and plans complementary to carbon and water markets, which maximise biodiverse native vegetation.	■ Australian Government. ■ State and territory governments
16 Facilitate dialogue between researchers, government, planners, developers, land managers, and Indigenous peoples to ensure knowledge of best practice native vegetation management is shared, regularly reviewed, updated and implemented.	■ Australian Government ■ State and territory governments ■ Local governments ■ Regional NRM bodies ■ Researchers ■ Planners ■ Private land managers ■ Indigenous peoples
17 Provide capacity building for Indigenous peoples to empower effective engagement, increase opportunities for Indigenous involvement in native vegetation management as significant landholders, and increase economic opportunities related to sustainable utilisation of native vegetation.	■ Australian Government ■ State and territory governments ■ Local governments ■ Regional NRM bodies and CMAs

Actions	Responsibility
18 Explicitly recognise, value, respect and provide for the consideration of traditional Indigenous knowledge in appropriate high-level government decision-making processes, policies and statutes related to native vegetation management.	■ Australian Government ■ State and territory governments ■ Local governments ■ Regional NRM bodies and CMAs
19 Identify knowledge gaps and prioritise research concerning the value and management of native vegetation.	■ Australian Government ■ State and territory governments. ■ Regional NRM bodies and CMAs ■ Researchers ■ Indigenous peoples
20 Adopt and promote use of appropriate fire regimes in native vegetation communities which aim to maximise biodiversity, reduce greenhouse gas emissions and protect public safety. *(See Case Study 7)*	■ State and territory governments ■ Fire authorities ■ Regional NRM bodies and CMAs
21 Develop a nationally consistent approach to management of sustainable harvesting of native flora and vegetation products through state and regional management plans and policies. (This does not include forestry industry products).	■ Australian Government ■ State and territory governments
22 Develop communication strategies aimed at encouraging and facilitating collaborative management of native vegetation at a bioregional scale.	■ Australian Government ■ State and territory governments ■ Local governments ■ Regional NRM bodies and CMAs ■ Private land managers
23 Identify and promote investment in the maintenance and appropriate sharing of traditional and contemporary Indigenous knowledge where relevant to native vegetation management.	■ Australian Government ■ State and territory governments ■ Local governments ■ Regional NRM bodies and CMAs ■ Indigenous peoples
24 Incorporate cultural landscape mapping and planning in the early stages of planning native vegetation management where this is appropriate.	■ Australian Government ■ State and territory governments ■ Local governments ■ Indigenous peoples
25 Develop and implement programs, in collaboration with Indigenous traditional knowledge holders, to ensure decision-makers understand the cultural significance of native vegetation to Indigenous peoples.	■ Australian Government ■ State and territory governments ■ Local governments ■ Regional NRM bodies and CMAs ■ Indigenous peoples
26 Resource and implement awareness programs to build land managers' awareness of their legislative responsibilities for native vegetation management and the consequences of non-compliance, and of conservation business opportunities.	■ Australian Government ■ State and territory governments

3.3 Case studies

The Case Studies that follow illustrate current action being taken across various sectors and states and territories.

Case Study 1: NSW Murray Wetlands Working Group

The Murray Wetlands Working Group was formed in 1992 to develop and implement well-researched, technically sound and community-endorsed management programs for specific wetlands.

It was an initiative of the Murray and Lower Murray-Darling Catchment Management Committees in response to the continuing loss and degradation of wetlands in the New South Wales catchment of the River Murray. Members of the working group include independent landholders and representatives of community groups, local councils, non-government and government agencies.

The Moira Lake wetland system is one of the largest and most significant wetlands in southern New South Wales and is situated on that state's side of the Ramsar-listed Barmah-Millewa Forest. It consists of two shallow, open freshwater lakes, covering 1500 hectares, fringed by rushes and reeds, and surrounded by large areas of marshland and river red gum forest.

Prior to the construction of the Hume Dam in 1936, Moira Lake supported large waterbird breeding colonies and was a major native fish breeding site for the central Murray region, particularly for Murray cod. However, once the dam was built, the frequency, extent and duration of winter and spring flood events declined, and regular periodic drying in summer and autumn ceased. These changes altered the ecology of the lake, reducing its ability to support many native plants and animal species dependent on flooding and drying, which in turn created ideal conditions for pest species such as carp and native opportunist species such as the giant rush (*Juncus ingens*).

The working group developed a rehabilitation plan that is designed to:

- allow the Moira Lake to drain back to the River Murray during periods of regulated flow
- improve the movement of native fish between the River Murray and the wetlands by providing fish passage
- maintain the productivity of nearby swamp meadows.

For further information visit www.mwwg.org.au.

Case Study 2: Building resilience to climate change (Tasmanian Government)

The Tasmanian Government's Department of Primary Industries, Parks, Water and Environment (DPIPWE) runs the 'Building resilience to climate change into Tasmania's natural systems' initiative.

This project aims at developing a body of knowledge on the likely impacts of climate change on Tasmania's natural values. It also focuses on incorporating adaptation-related policy and management responses into the department's core business of sustainably managing and conserving the state's natural resources.

The initiative takes a whole-of-landscape approach covering terrestrial, marine and freshwater environments. It will be implemented in collaboration with the Tasmanian Climate Change Office and other agencies.

The key outputs of this project will include:

- a preliminary report into the vulnerabilities of Tasmania's natural environments to climate change
- risk assessment tools
- spatial layers to inform planning processes, management and policy principles
- updated information and planning tools that incorporate climate change considerations.

These outputs will sit under the umbrella of the Tasmanian climate change adaptation strategy.

This project will help develop management responses aimed at encouraging natural systems to be resilient in the face of climate change.

On a national level, Tasmania actively contributes to the processes of national policy, legislation, regulation and program development through forums such as the Council of Australian Governments, Ministerial Councils, as well as working with research institutions.

At a state level the *Tasmanian Framework for Action on Climate Change* sets out eight priority areas for action, two of which relate to the impact of climate change on natural systems—planning for future changes and protecting Tasmania's natural carbon stores.

DPIPWE has established a range of projects to monitor the impacts of climate change on flora and fauna, particularly in coastal and alpine regions in the Tasmanian Wilderness World Heritage Area, and in the marine environment. It is exploring the potential to use monitoring data gathered for other purposes to inform climate change studies.

Case Study 3: Caring for our Country – Environmental Stewardship (Australian Government)

Environmental Stewardship is an element of the Australian Government's Caring for our Country initiative. It uses market approaches to maintain and improve the condition and extent of high value environmental assets listed under the *Environment Protection and Biodiversity Conservation Act 1999* as matters of National Environmental Significance.

The first asset targeted is the critically endangered white box, yellow box and Blakely's red gum and derived grasslands ecological community (box gum grassy woodland). This community extends from Queensland to Victoria predominantly within the wheat-sheep belt.

Box gum grassy woodland (Photo: Ian Davidson)

Environmental Stewardship provides competitive funding for private landholders to carry out conservation activities on their land for up to 15 years. These contract periods provide a timeframe sufficient to improve the condition or extent of vegetation and will also allow long-term monitoring of vegetation change.

The program uses voluntary auctions to attract eligible land managers, who individually nominate the price they wish to be paid to undertake the management actions they have proposed to improve the vegetation. A conservation index ranks bids from highest to lowest based on their value for money.

Environmental Stewardship's focus on creating markets for purchasing long-term conservation improvements on private land fills a gap in the policy tools available to government. This approach, which over time will influence the values and behaviours of private land managers, is designed to complement existing approaches to conservation such as:

- regulation
- short-term grant programs
- setting aside land in protected areas such as national parks and reserves
- capacity-building and education activities.

For more information on Caring for our Country – Environmental Stewardship see: www.nrm.gov.au/stewardship/index.html

Case Study 4: Property Vegetation Plans and the Native Vegetation Assessment Tool (New South Wales Government)

A Property Vegetation Plan (PVP) is a voluntary but legally binding agreement between a landholder and the Minister for Climate Change and the Environment.

Under the plan, Catchment Management Authorities (CMAs) deliver incentive payments to landholders to conserve and enhance native vegetation on their properties. CMAs also assess whether clearing proposals meet the requirements of the *Native Vegetation Act 2003*.

PVPs are negotiated agreements between the landholder and CMA. The CMA and landholder can explore innovative solutions which may enable some additional clearing if environmental impacts are avoided or offset, deliver incentives for conservation or management of native vegetation, change or certify the regrowth date, protect vegetation and/or clarify the landholders rights and responsibilities in relation to native vegetation management.

PVPs are developed with the support of a computer modelling program—the Native Vegetation Assessment Tools (NVAT)—which provides objective, computer based, decision support programs and weighs up the value of the proposed clearing versus the value of the offset. This helps to make decisions based on the best available scientific information and satellite imagery.

CMAs use these tools and their local knowledge to assess each application. They are able to apply their own discretion to make minor variations or override the NVAT in some cases where they have more detailed local data or expert advice and where minor clearing under a vegetation plan will improve the quality of native vegetation in the long term.

NVAT has separate tools for land and soil capability, biodiversity and threatened species. The impact of the clearing is measured against these four environmental aspects. In the future, new modules may be added, for example, to assist farmers' access to trading in carbon credits.

Case Study 5: Integration of native vegetation and development assessments (South Australian Government)

The South Australian Government is seeking to better integrate the state's native vegetation and development planning systems.

Currently, applications to clear native vegetation are considered once a development approval has been obtained. In general, developers do not wish to commit resources to deal with native vegetation legislation requirements without development approval certainty. The native vegetation clearance approval process takes additional time, and inevitably the process is sometimes seen as holding up development, particularly if modifications to the development are required.

A review of the state's planning system has recently recommended better integration of the two systems, with native vegetation issues dealt with early in the planning process. Until a formal process has been developed, developers are encouraged to make early contact with the state's Native Vegetation Council to assist in identifying options for avoiding, minimising and/or offsetting vegetation clearance. They are also encouraged to prepare a native vegetation and biodiversity statement as part of their development application.

Developers are specifically asked to address the following:

N-No Loss: show how the proposed activity will not result in a loss of native vegetation or biodiversity.

A-Avoid: show how the proposed activity has been designed to avoid impacts on native vegetation and biodiversity.

M-Minimise: where it is not possible to avoid impact, show how the proposed activity has been designed to minimise the impacts on native vegetation and biodiversity.

O-Offset: if it is not possible to avoid all impacts, you may have to offset the clearance with a significant environmental benefit.

The NAMO process reflects the way applications to clear native vegetation are assessed.

Following the voluntary process helps a developer to:

- manage native vegetation legislation requirements as early as possible in the development application process
- progress the development application in a more timely manner
- minimise the ecological impact of the development.

A fact sheet outlining the process may be viewed at www.dwlbc.sa.gov.au/assets/files/fs0090_NV_bio.pdf

Case Study 6: BushBroker (Victorian Government)

The Victorian Government's policy for native vegetation is outlined in *Victoria's Native Vegetation Management – A framework for action.* Permit applicants generally need to provide offsets for permitted clearing of native vegetation.

An offset may be:

- an area of existing native vegetation that is protected and managed
- an area of land that is revegetated and protected
- an area that is set aside for regeneration or restoration or
- any combination of the above.

The Victorian Government launched BushBroker on 16 March 2006 to facilitate the trade of offsets between buyers and sellers of native vegetation credits.

BushBroker provides a system in which native vegetation credits can be generated and traded. It allows landowners to provide native vegetation credits and to sell them to buyers who require an offset for their clearing. Buyers must purchase credits according to the Like-for-Like rules in *Victoria's Native Vegetation Management*.

Landowners can generate native vegetation credits on their property by:

- protecting and managing a remnant patch of bush (through activities such as weed control, rabbit control and fencing to exclude stock)
- revegetating previously cleared land with native plants indigenous to the area and/or
- protecting large old trees within paddocks or remnant patches to encourage natural regeneration.

Transferring freehold land into conservation reserves can also generate credits.

BushBroker oversees the registration, listing, extinguishing, and quality control of native vegetation credits. Buyers and sellers are matched in the BushBroker database but then the two parties negotiate a price independent of BushBroker. BushBroker develops the necessary agreements to formalise the trade including a Landowner Agreement and Credit Trading Agreement.

The Landowner Agreement outlines the management actions and commitments which must be undertaken by the landowner over 10 years and into perpetuity in order to establish the native vegetation credits. Landowner Agreements are registered on-title under the *Conservation Forests and Lands Act 1987* (Vic).

Since the program commenced in 2006, BushBroker has completed 34 Agreement trades and 36 over-the-counter trades totalling over $4 million.

Case Study 7: Northern Kimberley Fire Project (Western Australian Government and CSIRO)

Fire in the Kimberley region of Western Australia has significantly changed in the past 30 years from small relatively mild fires managed locally, to large and intense fires that burn during the late dry season across broad areas of the landscape. This new fire regime is damaging biodiversity, soils, pastoral production and cultural values, and is generating very high levels of greenhouse gas emissions.

Late dry season fires are affecting fire sensitive species such as *Callitris intratropica* as well as reducing the area of old growth spinifex and the capacity of sandstone heath communities to recover from frequent burning. Annual grasses are also favoured by this fire regime and have become dominant in some areas.

Building on the landmark West Arnhem Fire Management Agreement in the Northern Territory, a similar fire management project is being developed for parts of the northern Kimberley region, as a joint project between Western Australia's Department of Environment and Conservation (WADEC) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

Initial results from the project have shed new light on how threatened mammal species in the north Kimberley respond to fire, and indicate the need to ensure an increased time between fires (two to three years) to maximise the benefit to native vegetation and the threatened mammal species that use such vegetation as habitat. It has been found that prescribed burning, undertaken in both the wet (January to March) and early dry season (April to June), will help to reduce the intensity of fires, and will lead to 'patchiness'—creating a mosaic effect of unburnt and burnt patches of land.

Mosaic effect of prescribed burning (Photo: WADEC)

In addition to these initial results, the project aims to achieve:

- a reduction in the extent, frequency and impacts of late dry season wildfires by using small low intensity fires during the early dry season
- an improvement in vegetation condition and habitat diversity through an expanded fire program to include prescribed burning during the wet season
- a reduction of greenhouse gas emissions by reducing the extent of late dry season wildfires
- the development of employment opportunities and economic capacity for Kimberley Indigenous communities
- a refinement of methodologies for measuring potential carbon credit offsets, and an evaluation framework to measure management effectiveness
- the development of best practice processes for carbon and biodiversity offsets that have low transaction costs and are attractive to investors.

The Northern Kimberley Fire Project is part of a program across northern Australia that will involve governments, Indigenous organisations and others in developing and applying appropriate multi-stakeholder business models and partnerships to achieve sustainable environmental, economic and social outcomes.

3.4 Monitoring and reviewing the framework

The elements of *Australia's Native Vegetation Framework* and the ways in which they are implemented need to be monitored systematically, so that the framework and associated management practices can be adjusted in response to new information or changing priorities.

The following outlines how progress will be monitored:

- The Natural Resource Management Ministerial Council (NRMMC) will monitor implementation of the framework and formally review it every five years. The role of the framework in changing the way the community, industry and governments understand and address native vegetation conservation issues will be considered as part of the review process.
- All jurisdictions will report to the NRMMC on progress in the second year and on actions and targets in the fourth year of the five-year review cycle. The Australian Government will coordinate reporting in consultation with all jurisdictions and will make every effort to streamline reporting with other reporting processes—for example, under the National Biodiversity Strategy.
- The NRMMC may, in considering progress in the implementation of the framework, request interim independent reviews to identify and address obstacles to implementation.
- Consolidated reports will be published in the second and fourth years of the five year review cycle, so the whole community can follow national progress.

Implementation of the framework will include the development of a long-term monitoring and evaluation plan and the incorporation of relevant actions into existing well-established systems. The information gained will be used to track trends in the condition and extent of Australia's native vegetation and to inform future reviews of this document and refinements to management practices.

Inspecting native grass growth in the Banjo Patterson Bush Park, Yeoval, NSW (Photo: John Baker & the Department of the Environment, Water, Heritage and the Arts).

3.4.1 Adaptive management

Australian federal, state and territory ministers, meeting as the NRMMC, recognise that coordinated adaptive management is needed. Policy makers and land managers must learn from experience and apply the best available knowledge to:

- protect valuable existing vegetation
- increase the extent of native vegetation
- improve the condition of degraded areas.

In order to more effectively understand and manage native vegetation, methods of managing native vegetation must be updated continually through adaptive management techniques and the practical use of new knowledge and research.

Adaptive management involves trialling a number of methods, evaluating their efficacy and then improving the methods in a cyclical process. An important aspect of this method includes sharing the knowledge gained from such trials, so that the wider community can learn about and use the best available knowledge and management techniques. Sound science, trend monitoring (extent, spatial distribution and condition) and clear public reporting are essential for adaptive management of native vegetation, especially in the continually changing circumstances associated with climate change.

4 Context

4.1 Building on current work

All Australian governments and the broader community have invested significantly in developing and implementing native vegetation conservation laws, policies and programs. These include:

- legislation to limit broadscale land clearing
- legislative protection and recovery programs for threatened species and ecological communities
- markets to encourage management of native vegetation on private land
- revegetation and vegetation rehabilitation
- supporting community action to manage and restore native vegetation
- sustainable harvesting of native flora
- improving approaches to vegetation management on public and private land, including developing sustainable forest management policies and programs throughout Australia's public and private native forests
- conserving important vegetation in protected areas that make up the National Reserve System (NRS).

Policy and management responses are becoming more sophisticated and experience is informing new approaches. It is important to build on our existing experience so that we are more able to act at the right scale, to get the right mix of management approaches within and outside protected areas, and to use an effective combination of legislation and incentives to achieve results. There should be a focus on continuing to improve our approaches to sustainably managing native vegetation.

Efforts should be focused on identifying and filling gaps in our knowledge of how native vegetation responds to change and how to strengthen its resilience and ensure our use of it is sustainable. Building public awareness of the critical importance of native vegetation for ensuring healthy and productive ecosystems for all Australians is highly important. Such approaches will underpin targeted and effective on-ground action to improve management where it will make a real difference through expanding the extent and improving the condition of native vegetation so that native species are more resilient to change.

As the impact of climate change increases, it is important that the expansion of native vegetation extent is managed to assist the migration of vulnerable native species rather than encouraging the expansion of threats such as exotic species and fire. Similarly, in areas where cover of native vegetation has been retained, it will be essential to manage any future changes in order to maintain ecosystem resilience.

Fire is a key process in many Australian ecosystems, and future changes to fire regimes, including changes to fire management, are a key consideration for native vegetation management. More sophisticated management regimes will be needed, for example, for fire and invasive species. These will need to improve the condition and extent of native vegetation for biodiversity outcomes, while also optimising other public good objectives such as human safety and property protection, water quality and yields, amenity, and greenhouse gas outcomes.

Australian governments recognise that a nationally consistent basis for managing native vegetation is central to meeting a range of natural resource management and biodiversity conservation objectives. All governments have cooperated to review the 1999 framework and to build on its successes. This revised framework is the outcome of that review.

As part of the review, jurisdictions examined changes and achievements in native vegetation management since 1999. At a national level, these include:

- Significant legislative reform, including development and amendment of laws, policies and guidelines relating to broadscale land clearing. As a result of the 1999 framework, all jurisdictions now have in place laws to restrict the broadscale clearing of native vegetation.

Termite mounds near Burketown, QLD (Photo: Allan Fox & the Department of the Environment, Water, Heritage and the Arts.)

- Broadscale clearing remained a significant threat to native vegetation prior to the strengthening or introduction of regulation in all jurisdictions. Other threats to the extent and condition of native vegetation, such as exotic species and diseases, urbanisation, and climate variability have continued or increased during the period.
- A key institutional reform was the development and implementation of regional natural resource management arrangements through the National Action Plan for Salinity and Water Quality and the extension of the Natural Heritage Trust from 1999 to 2007. Natural resource management institutional reforms also included changes to agency structures, responsibilities and approaches. In 2008 the Australian Government's Natural Heritage Trust was replaced by Caring for our Country.
- The formal National Reserve System expanded. Focus on private land conservation also increased, including through voluntary formal arrangements with freehold and leasehold landholders.
- Strategies to inform and engage stakeholders, including industry, land managers and the broader community, diversified. The use of incentives, which now include market-based approaches and biodiversity-benefit scoring systems, was developed and expanded.
- Most jurisdictions suffered the effects of severe drought. Some also suffered the consequence of extensive wildfire, resulting in an emphasis on fuel reduction techniques and post-fire vegetation recovery and monitoring. A number of jurisdictions have also made regulatory changes that increase flexibility to remove native vegetation in order to protect against wildfires.
- While there are still gaps in information, the extent and quality of data and the capacity for monitoring has improved significantly in most jurisdictions, and will continue to improve through use of cost effective techniques such as satellite imagery and through continued research.
- While nationally the net loss and degradation of native vegetation has continued, the rate has generally been decreasing (Beeton et al. 2006 p71). The quality of the remaining native vegetation continues to decline. Revegetation and restoration activity has continued.

Appendixes

Appendix 1: About native vegetation

A1.1 Origins

Australia's native vegetation is extraordinarily diverse and is an integral part of our natural heritage. It has many unique physical features and a large proportion (around 85 per cent) of our plant species are endemic to the continent.

Until geologically recent times, Australia was part of the larger 'Gondwana' landmass. Approximately 150 million years ago Gondwana began to break up. This coincided with the evolution and spread of the earliest flowering plants, the group that now dominates modern vegetation types.

As the Gondwanan landmass continued to break apart, forest covered most of Australia. At the separation of Australia from Antarctica (approximately 45 million years ago), Australia became completely isolated and the Australian plate began its shift northwards. Antarctica also subsequently became isolated.

Australia remained isolated for about 30 million years. It was during this isolation that climatic conditions changed significantly. Antarctica dramatically cooled and the Australian continent dried. Forests contracted and arid-adapted vegetation, dominated by *Eucalyptus* and *Acacia*, expanded. Changes in hydrology are a key determinant for the extent, distribution, evolution, and survival of aquatic vegetation. Hydrological extremes, as well as increased fire frequency, provided further environmental stress and increased the evolutionary pressure for specialisation. This combination of isolation and change has resulted in the unique character and endemism of the Australian flora.

The composition and uniqueness of ecological communities is a product of Australia's unique evolutionary history including long-term isolation, the ancient nature of our landforms, the long-term climate patterns and the complex interaction between species, fire, drought and human impacts. The flora has adapted to extreme conditions—Australia is the driest vegetated continent on Earth—yet the environment also ranges from tropical to temperate zones, and includes both alpine areas and desert.

A1.2 Human interactions with native vegetation

Human interaction with native vegetation has also played a major role in the condition and extent of native vegetation that we see today.

A1.2.1 Indigenous peoples

Australia's Indigenous peoples have occupied the continent for 60 000 years or more. Over that time they played a significant role in vegetation changes. Indigenous land management still plays an important role in shaping native vegetation: for example, Indigenous Australians actively use fire as a management tool. Indigenous fire management probably increased the frequency of fire in some regions, at local scales. This changed the existing vegetation types to more fire-tolerant species. Fire ecology is an important area of scientific study, and one with major implications for managing native vegetation.

Landscapes, including native vegetation, remain integral to Indigenous Australian culture and heritage. Indigenous peoples have a complex cultural, spiritual, social and economic relationship with native plants, through their relationship with their country.

Indigenous peoples' special knowledge of, and deep connection with, Australia's native vegetation supports the conservation and sustainable use of native vegetation and the native animals that depend on it. Maintaining native vegetation and associated biodiversity on country is linked to the wellbeing, identity, cultural and spiritual heritage and economy of Indigenous communities.

A1.2.2 European impacts

In the last two centuries, after the arrival of Europeans, large parts of the Australian landscape and its distinctive native vegetation were subjected to particularly intense change. Generations of settlers worked to convert the unfamiliar into the familiar, through introducing flora, fauna and management techniques from their previous homes, and by developing productive agricultural and pastoral enterprises, as well as urban areas.

In other areas, significant economic enterprises have been developed that depend on native vegetation, such as forestry and tourism. Since 1750, approximately 13 per cent of native vegetation has been cleared in Australia, and more than 90 per cent of some ecological communities in some intensive land use areas. The condition of existing native vegetation and hydrology has been greatly altered, affecting soil stability, catchment water yields, water quality, river and wetland health, air quality, biodiversity, and human health and wellbeing. Despite this degradation, native vegetation remains an integral part of our history and present day society, with many current enterprises based on use of native vegetation.

Appendix 2: Current frameworks, policy and legislation

Table A2.1: Commonwealth initiatives

Framework/policy/international convention	Year
Australia's Biodiversity Conservation Strategy 2010-2030	Draft
Australia's Biodiversity and Climate Change: a strategic assessment of the vulnerability of Australia's biodiversity to climate change	2009
Australia's National Framework for Environmental Management Systems in Agriculture	2002
Australia's Strategy for the National Reserve System 2009–2030	2009
Australian Pest Animal Strategy	2009
Australian Weeds Strategy	2007
Biodiversity Conservation Research: Australia's priorities	2001
Caring for our Country 2008–2013	2008
Caring for our Country—Environmental Stewardship Program	2008
Coastal Catchments Initiative	2001
Commonwealth Coastal Policy	1995
Convention on Biological Diversity	1993
Convention on Wetlands of International Importance (Ramsar Convetion)	1971
Council of Australian Governments - Water Reform Framework - National Water Quality Management Strategy - National Water Initiative	 1994 1998 2004
Forest Conservation Fund	2007
Global Strategy for Plant Conservation	2002
Heads of Government Agreement on Roles and Responsibilities	1997
Intergovernmental Agreement on the Environment	1992
Directions for the National Reserve System—a partnership approach	2005
Murray Darling Basin Salinity Management Strategy 2001–2015	2001
National Approach to Firewood Collection and Use in Australia	2001
National Biodiversity and Climate Change Action Plan 2004–2007	2004
National Forest Policy Statement	1992
Farm Forestry National Action Statement	2005
National Framework for the Management and Monitoring of Australia's Native Vegetation	1999

Framework/policy/international convention	Year
National Framework for Natural Resource Management Standards and Targets	2002
National Greenhouse Strategy	1998
National Local Government Biodiversity Strategy	1999
National Objectives and Targets for Biodiversity Conservation 2001–2005	2001
National Oceans Policy - Framework for a National Cooperative Approach to Integrated Coastal Zone Management	1998 2003
National Principles and Guidelines for Rangeland Management	1999
National Strategy for Ecologically Sustainable Development	1992
National Strategy for the Conservation of Australia's Biological Diversity	1996
Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia (JANIS criteria)	1997
Native Fish Strategy for the Murray-Darling Basin 2003–2013	2003
Strategic Plan of Action for the National Representative System of Marine Protected Areas	1999
Threat Abatement Plans (various)	From 1996
Wetlands Policy of the Commonwealth Government of Australia	1997
Water for the Future	2008

Commonwealth legislation	Year
Environment Protection and Biodiversity Conservation Act 1999	1999
Native Title Act 1993	1993
Natural Heritage Trust of Australia Act 1997	1997
Quarantine Proclamation Act 1998	1998
Water Act 2007	2007

Table A2.2: State and territory Initiatives

Jurisdiction	Framework/policy	Legislation
New South Wales	NSW Biodiversity Strategy (1999) (under review) NSW State Plan—A New Direction for NSW (2006) NSW Statewide Standard and Targets for Natural Resource Management NSW Native Vegetation Assessment Tool (PVP Developer) Private Native Forestry Code of Practice NSW/Commonwealth Regional Forest Agreements (North East, Southern and Eden) NSW Forest Agreements (Upper North East, Lower North East, Southern and Eden) NSW National Parks Establishment Plan 2008 NSW Biodiversity Banking and Offsets Scheme NSW Biobanking Assessment Methodology Native Vegetation Reform Implementation Group Final Report (2003) NSW Wetland Management Policy Wentworth Group of Concerned Scientists —A New Model for Landscape Conservation in NSW (2003) Brigalow-Nandewar Community Conservation Area Agreement Conservation Agreements Program Wildlife Refuges NSW Registered Property Agreements Program NSW Nature Conservation Trust's Covenanting Program NSW Cut-flower Management Plan Framework for Wild River Assessment Stressed Rivers Assessment Process Marine Parks Process (estuaries are included) NSW State Rivers and Estuary Policy NSW Wetlands Management Policy NSW State Groundwater Dependent Ecosystems Policy NSW Estuary Management Program DPI Policy and Guidelines for Aquatic Habitat Management and Fish Conservation State Water Management Outcomes Plan Water Sharing Plans	*Native Vegetation Act 2003* *Native Vegetation Regulation 2005* *Catchment Management Authorities Act 2003* *Natural Resources Commission Act 2003* *Threatened Species Conservation Act 1995* *Environmental Planning and Assessment Act 1979* *Crown Lands Act 1989* *Fisheries Management Act 1994* *Forestry and National Park Estate Act 1998* *National Parks and Wildlife Act 1974* *Protection of the Environment Operations Act 1997* *Rural Fires Act 1997* *Soil Conservation Act 1938* *Wilderness Act 1987* *Western Lands Act 1901* *Rural Lands Protection Act 1998* *Local Government Act 1993* *Marine Parks Act 1997*

Jurisdiction	Framework/policy	Legislation
Tasmania	Tasmania's Nature Conservation Strategy (2002–2006) Tasmanian Regional Forest Agreement 1997 Tasmanian Private Forest Reserve Conservation Covenanting Program Tasmanian Protected Areas on Private Land Conservation Covenanting Program Conservation of Freshwater Ecosystems Policy Wetlands Strategy Marine Protected Area Strategy Natural Resource Management Framework Water for Ecosystems Policy	*The Forest Practices Act 1985* *Threatened Species Protection Act 1995* *Nature Conservation Act 2002* *Water Management Act 1999* *Crown Lands Act 1976* *Inland Fisheries Act 1995* *Land Use Planning and Approvals Act 1993*
Queensland	Queensland Biodiversity Policy Framework (2003) Strategy for the Conservation and Management of Queensland's Wetlands 1999 Queensland Environmental Offsets Policy Policy for Vegetation Management Offsets Master Plan for Queensland's Parks System SEQ Regional Forests Agreement (1999) Delbessie Agreement (also known as the State Rural Leasehold Land Strategy) Queensland Biosecurity Strategy Queensland Weed Strategy 2002–2006 Queensland Pest Animal Strategy 2002–2006 Queensland Nature Refuge and Coordinated Conservation Areas Covenanting Program Wildlife Trade Management Plan for Flora in Queensland Aquatic Biodiversity Assessment Mapping Methodology Decision Support System (QWP) Strategy for the Conservation and Management of Queensland's Wetlands Queensland Wetlands Programme Qld Water Plan and Water Resource Plans	*Nature Conservation Act 1992* *Wet Tropics World Heritage Protection and Management Act 1993* *Vegetation Management Act 1999* *Vegetation Management (Regrowth Clearing Moratorium) Act 2009* *Fisheries Act 1994* *Coastal Protection and Management Act 1995* *Land Protection (Pest and Stock Route Management) Act 2002* *Cape York Peninsula Heritage Act 2007* *Land Act 1994* *Wild Rivers Act 2005* *Water Act 2000* *Environmental Protection (Water) Policy 1997* *Fisheries Act 1994* *Marine Parks Act 2004* *Environmental Protection Act 1994*

Jurisdiction	Framework/policy	Legislation
Victoria	Victoria's Biodiversity Strategy (1997) Victoria's Native Vegetation Management —A Framework for Action (2002) Trust for Nature (Victoria) Conservation Covenanting Program Our Environment Our Future River Health Strategy Conservation Agreements Covenants	*Flora and Fauna Guarantee Act 1988* *Planning and Environment Act 1987* *Catchment and Land Protection Act 1994* *Conservation, Forests and Lands Act 1987* *Wildlife Act* *Environmental Protection Act 1970* *Environment Effects Act 1978* *Heritage Rivers Act 1992* *Crown Land (Reserves) Act 1978* *Water Act 1989*
Australian Capital Territory	ACT Nature Conservation Strategy (1998) The Draft ACT NRM Plan 2008 The Territory Plan The National Capital Plan Weathering the Change, The ACT Climate Change Strategy 2007–2025 Aquatic Species and Riparian Zone Conservation Strategy Action Plan 29 ACT Lowland Woodlands Conservation Strategy (Action Plan 27) ACT Lowland Grasslands Conservation Strategy (Action Plan 26) Vertebrate Pest Strategy 2002 ACT Weeds Strategy 2008 ACT Draft Kangaroo Management Plan 2009 Strategic Bushfire Management Plan (Version 2 in progress) Sub regional fire management plans	*Nature Conservation Act 1980* *Environmental Protection Act 1997* *Gene Technology Act 2000* *Water Resources Act 2007* *Planning and Development Act 2007* *Pest Plants and Animals Act 2005* *Emergencies Act*

Jurisdiction	Framework/policy	Legislation
Northern Territory	Native Vegetation Clearing Regulation in the Northern Territory 2005 Northern Territory Parks and Conservation Masterplan (draft) NT Government policy for Native Vegetation Clearing (July 2002) Arafura to Alice Eco-Links Marine Protected Area Strategy Integrated NRM Plan for NT NT Parks and Conservation Masterplan Living Rivers Program NT Strategy for Conservation of Wetlands	*Territory Parks and Wildlife Conservation Act* *Territory Parks and Wildlife Conservation Amendment Act 2006* *Weeds Management Act 2001* *Pastoral Land Act* *Pastoral Land Regulations* *Planning Act* *Parks and Reserves (Framework for the Future) Act 2003* *Fisheries Act* *Environmental Assessment Act* *Waste Management and Pollution Control Act*
South Australia	Nature Conservation Strategy for South Australia 2007–2017 State Natural Resources Management Plan 2006 Wetland Strategy for South Australia 2003 South Australian Heritage Agreement Program Draft Estuaries Policy and Action Plan Living Coast Strategy Framework to Classify and Assess Wetland Condition	*Native Vegetation Act 1991* *Natural Resources Management Act 2004* *National Parks and Wildlife Act 1972* *Pastoral Land Management and Conservation Act 1989* *Wilderness Protection Act 1992* *Crown Lands Act 1929* *Environment Protection Act 1993* *Fisheries Management Act 2007*

Jurisdiction	Framework/policy	Legislation
Western Australia	A 100-year Biodiversity Conservation Strategy for Western Australia: Blueprint to the Bicentenary in 2029 (draft) Wetland Conservation Policy for Western Australia 1997 Department of Agriculture and Food 2009 State NRM Plan (draft) State Planning Policy No. 2—Environment and Natural Resources EPA Position Statement No. 2—Environmental Protection of Native Vegetation in WA EPA Position Statement No. 8—Environmental Protection in Natural Resource Management EPA Position Statement No. 9—Environmental Offsets EPA Guidance Statement 19—Environmental Offsets EPA Guidance Statement 33—Environmental Guidance for Planning and Development National Trust of Australia (WA) Conservation Covenanting Program Nature Conservation Covenant Program Western Australia Flora Wildlife Trade Management Plan Waterways WA Strategy Framework for Mapping, Classification and Evaluation of Wetlands in WA Environmental Protection of Waterways Position Statement Statewide Waterways Needs Assessment State Wild Rivers Policy (to be developed) Draft Wetlands Strategy	*Conservation and Land Management Act 1984* *Wildlife Conservation Act 1950* *Environmental Protection Act 1986* *Planning and Development Act 2005* *Land Administration Act 1997* *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* *Wild Rivers Act (proposed)* *Fish Resources Management Act 1994*

Glossary

Adaptation—Responses that decrease the negative effects of change and capitalise on positive opportunities associated with impacts.

Adaptive management—Adaptive management involves trialling a number of methods, re-evaluating their efficacy and then improving the methods in a cyclical process. An important aspect of this method includes the sharing of knowledge gained from such trials, so that the wider community can learn about and use the best available knowledge and management techniques.

Aquatic plants—Plant species/communities that are dependent on periodic or permanent inundation. This includes:

a) aquatic plants that are adapted to growing in, on or under water

b) semi-aquatic (amphibious) plants that have adapted to growing within a recurrently inundated environment for example, floodplains and mudflats.

For the purposes of this document, this does not include marine plants.

It is difficult to draw a clear distinction between aquatic plants and marine plants. There can be areas of overlap, for example in estuaries and inter-tidal zones.

For the purposes of the Native Vegetation Framework, it is left up to jurisdictions to make a sensible distinction between aquatic and marine zones.

Aquatic ecosystems—Those ecosystems where water, whether flowing or standing, whether persistent or intermittent, determines ecosystem functioning or character. This does not include marine waters.

Biodiversity (biological diversity)—Variability among living organisms from all sources (including terrestrial, aquatic, marine and other ecosystems and ecological complexes of which they are part), which includes genetic diversity, species diversity and ecosystem diversity.

Bioregions—Large, geographically distinct areas of land with common characteristics such as geology, landform patterns, climate, ecological features and plant and animal communities.

Broadscale clearing—Clearing of any remnant native vegetation or protected regrowth.

Carbon markets—A generic term for a trading system in which countries or private organisations may buy or sell emission units in an effort to meet limits on emissions.

Carbon sequestration—The process of removing carbon dioxide from the atmosphere by vegetation through photosynthesis. The carbon is used by the vegetation to build organic matter (biomass) and this process can lead to significant stores of carbon.

Climate change—Any long-term significant change in the 'average weather' that a given region, or the Earth as a whole, experiences. In recent usage, the term 'climate change' often refers to changes in the contemporary climate due to human activities, primarily the emission of greenhouse gases to the atmosphere. (This is sometimes called 'anthropogenic climate change' or 'global warming').

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.

Conservation connectivity—A management approach that focuses on the maintenance and restoration of functioning natural ecosystems across regions and marine areas, and requires systematic conservation planning that:

- identifies management responses at multiple scales
- uses whole-of-ecosystem approaches
- takes into account the dynamics of climate change.

Connectivity is built around core habitats (also known as refugia), some of which are protected in reserves, which are linked and buffered across different land uses and marine and coastal zones in ways that maintain critical ecosystem processes and thereby strengthen the resilience of biodiversity.

Country—in Indigenous contexts, used to refer to land and seas associated with a particular Indigenous group that has a traditional association with that land or sea in the form of interests, responsibilities and traditional connection. For Aboriginal people, 'country' includes all living things, incorporating people, plants, animals, dreaming stories and creation spirits.

Cultural landscape mapping—The historical reports, maps and historic documentation database produced by the mapping of Indigenous community/ peoples' cultural values in relation to Australia's native trees, shrubs, grasses and other forms of vegetation that are integral to Indigenous peoples' complex cultural, spiritual, social and economic relationship with their traditional lands and waters.

Ecologically sustainable management—Management practices that attempt to meet economic objectives in ways that do not degrade the environment; using, conserving and enhancing resources so that ecological processes in ecosystems are maintained (Burgman & Lindenmayer 1998 p330).

Ecologically sustainable use—The use of a species or ecosystem within the capacity of the species, ecosystem and bioregion for renewal or regeneration.

Ecosystem—A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit. A community of organisms, interacting with one another and with the environment in which they live (for example, a lake, forest, grassland or tundra). Such a system includes all abiotic

or non-living components such as mineral ions, organic compounds, and the climatic regime (temperature, rainfall and other physical factors). The biotic or living components generally include representatives from several trophic levels (steps in the food chain): primary producers (autotrophs, mainly green plants); macroconsumers (heterotrophs, mainly animals), which ingest other organisms or particulate organic matter; and microconsumers (saprotrophs, again heterotrophic, mainly bacteria and fungi), which break down complex organic compounds upon death of the above organisms, releasing nutrients to the environment for use again by the primary producers.

Ecosystem approach—See Whole–of–ecosystem approach.

Ecosystem resilience—The 'resilience' of an ecosystem refers to its capacity to adapt to changes and disturbances, yet retain its basic functions and structures. A resilient ecosystem can adapt to shocks and surprises, and rebuild itself when damaged. Resilient systems are more open to multiple uses and are more able to recover from management mistakes.

Ecosystem services—Functions of natural ecosystems that maintain the atmosphere; provide clean water; control soil erosion, pollution and pests; pollinate plants; and provide many other essential processes. The functioning of natural ecosystems provides services essential to human survival. Collectively, these services maintain the Earth in a state that can support life.

Edge effects—A term used to describe the various consequences, on vegetation and wildlife, that occur as a result of one type of vegetation sharing a border with another. These edges may be natural, such as forest grading into woodland, streamside vegetation passing through an arid zone, burnt and unburnt areas; or induced, such as pasture abutting forest or a road through a forest (Rowley et al. 2008). Burgman and Lindenmayer (1998 p321) defined edge effects as all changes at an ecosystem boundary and within adjacent ecosystems; an increase in species diversity in places where two habitats meet; the negative influence of a disturbed habitat edge on interior conditions of a habitat, or on species that use the interior habitat.

Endemic—Having a natural distribution confined to a particular geographic region.

Environment—Includes ecosystems and their constituent parts, including people and communities; natural and physical resources; the qualities and characteristics of locations, places and areas; and their social, economic and cultural aspects.

Invasive species—A species occurring as a result of human activities, beyond its accepted normal distribution, which threatens valued environmental, agricultural or personal resources by the damage it causes.

Landscapes—All the natural features of land or territory encompassed in a single view (for example, fields, hills, forests and water), which distinguish one part of the Earth's surface from another.

Marine plants—See Aquatic plants.

Market-based instruments and trading-based schemes—Market-based instruments encourage behaviour through price signals rather than through explicit directives or command and control regulation. Trading-based schemes are a subset of market-based instruments. They focus on instruments involving trading and include cap and trade schemes, auctions and information disclosure. However, they do not include taxes and subsidies.

National Reserve System (NRS)—Australia's network of protected areas that conserve examples of our unique landscapes, native plants and animals for future generations. The reserve system includes more than 9000 protected areas and is made up of national parks, Indigenous lands, reserves run by non-profit conservation organisations, and ecosystems protected by landholders on private properties.

Offset—Environmental offsets can be defined as measures taken to compensate for proposals where the environmental impacts cannot be reduced adequately through avoidance or mitigation.

Precautionary principle—Lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.

Resilience—See Ecosystem resilience.

Revegetation—The planting of native species in areas that have been cleared or highly modified. The mix of species may not be the same as originally occurring in that patch of vegetation.

Species—A taxonomic group comprising one or more populations of individuals capable of interbreeding to produce fertile offspring.

State of the Environment (SoE) Reporting—A process that provides a scientific assessment of environmental conditions, focusing on the effects of human activities, their significance for the environment, and societal responses to the identified trends.

Sustainable—see Ecologically sustainable use.

Sustainable use—see Ecologically sustainable use.

Whole-of-ecosystem approach— The Conference of the Parties to the Convention on Biological Diversity (United Nations 1992, COP 5 Decision V/6) has described the ecosystem approach as 'a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way'. While this description is useful, its focus on equity is beyond the scope of this framework. This document therefore uses the term 'whole-of-ecosystem approach' to encompass the ecological (as opposed to social and economic) elements of this concept.

A whole-of-ecosystem approach takes into account the essential structure, processes, functions and interactions among organisms and their environment at multiple levels of biological organisation, recognising that humans, with their cultural diversity, are an integral component of many ecosystems. The main goals of such an ecosystem approach are to:

- maintain viable populations of all native species in situ
- represent, within protected areas, all native ecosystem types across their natural range of variation
- maintain evolutionary and ecological processes
- manage over periods of time long enough to maintain the evolutionary potential of species
- accommodate human use and occupancy within these constraints.

Abbreviations

CBD	Convention on Biological Diversity
CMA	Catchment Management Authority
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEWHA	Department of the Environment, Water, Heritage and the Arts (Australian Government)
DPIPWE	Department of Primary Industries, Parks, Water and Environment (Tasmania)
NFPS	National Forest Policy Statement
NRS	National Reserve System
NRM	Natural Resource Management
NRMMC	Natural Resource Management Ministerial Council
NVAT	Native Vegetation Assessment Tools
NVIS	National Vegetation Information System
PVP	Property Vegetation Plan
SoE	State of the Environment
WADEC	Western Australia Department of Environment and Conservation

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