



**Australian Government**

**Department of the Environment, Water, Heritage and the Arts**

# **Assessment of Australia's Terrestrial Biodiversity 2008**

## **Chapter 1 Introduction**

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<http://www.environment.gov.au/biodiversity/publications/terrestrial-assessment/index.html>

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Editor: Biotext Pty Ltd and Department of the Environment, Water, Heritage and the Arts

# **Chapter 1**

## **Introduction**

## 1.1 Why assess biodiversity?

Over millennia of isolation, evolution in our island continent has produced extraordinary assemblages of plants and animals, many of which occur nowhere else. These assemblages have supported human societies for more than 40 000 years, providing essential food, shelter, clothing, fuel and medicines.

Today, all Australians are custodians of a biodiversity that has shaped our culture and on which our lives entirely depend. The consultation draft of *Australia's Biodiversity Conservation Strategy 2010-2020* describes biodiversity as the variety of life on earth including the different plants, animals and micro-organisms, their genes, and the terrestrial, freshwater and marine ecosystems that they are part of. The draft Strategy points out that the state of biodiversity reflects the state of the nation, and that all Australians have a stake in biodiversity and should contribute to its wellbeing.

Deep concern globally about the declining loss in biodiversity motivated the Convention of Biodiversity, which Australia ratified in 1993. But, in 2002, ten years after the entry in force of the Convention, the Conference of the Parties to the Convention acknowledged that the rate of biodiversity loss was accelerating. Responding to the challenge, the Conference of Parties adopted a target that by 2010 there would be a significant reduction of the current rate of biodiversity loss globally, regionally and nationally. More recently, in 2005, the global Millennium Ecosystem Assessment (MEA) (2005) not only confirmed the overwhelming importance of natural ecosystems to human life but also the rapid loss of these ecosystems, habitats and species, and their ecosystem services to humanity. Of the 24 ecosystem services assessed by the MEA, 15 are in decline. The MEA concluded that unprecedented additional efforts were needed to achieve the 2010 target.

Australia's rich and unique biota are under threat from changes in land use, the introduction and spread of invasive species, pathogens and diseases, altered hydrology and altered fire regimes. These threats are reducing species habitats, leading to loss of biodiversity at both local and national scales. A large number of Australian species have been lost in the past 200 years. The exact number is unknown, but conservative estimates suggest that up to 30 per cent of small mammals have been lost, as well as numerous plants, birds, reptiles, fish and amphibians. Climate change is expected to compound existing pressures, and place already stressed and vulnerable species at greater risk.

## 1.2 How do we assess biodiversity?

Australian governments, reflecting societal values, are strongly committed to managing biodiversity, addressing the pressures and arresting the losses. Pivotal to assessing the progress in these areas is the ability to assess the status and trends in biodiversity. Biodiversity indicators are communication tools that summarise complex data, summarise the status and trends of biodiversity, and build a bridge between policy-making and science (Secretariat of the Convention on Biodiversity 2006).

In Australia, governments at all levels implement a large range of programs to reduce threats and conserve habitat and biodiversity. Capacities and engagement in biodiversity conservation across sectors of society and industries are expanding gradually as cost-sharing partnerships with governments strengthen and mature. Our capacity to manage threats and achieve better long-term outcomes for biodiversity depends on a sound understanding of impacts and trends that can inform targeting of future programs and enable learning as these programs are implemented.

Internationally, the Global Biodiversity Outlook 2 of the Convention of Biodiversity (Secretariat of the Convention 2006) established for the first time, in 2006, a number of 'headline' indicators to assess global trends in biodiversity including extent of selected biomes and ecosystems, abundance and distribution of selected species, change in status of threatened species, coverage of protected areas, and water quality of aquatic ecosystems. As with most indicators, these vary in the length of underlying time-series data, temporal and spatial resolution, and confidence in trends of biodiversity, threats and responses. Nevertheless, as a suite they provide a view of biodiversity from a number of different, complementary angles. Trends in these indicators, amongst others, will be used in the forthcoming 2010 Global Biodiversity Outlook 3, to assess whether progress is being made in reducing the rate of biodiversity loss.

In 2002, the Australian Terrestrial Biodiversity Assessment was produced (NLWRA 2002). It provided important review information and trends related to various elements of biodiversity at a bioregional scale across the continent. The 2002 Assessment was the most comprehensive national collation and interpretation of information yet undertaken in Australia (Cork *et al* 2006).

The 2002 Assessment established its structure around pressure, state, response; the same structure adopted for State of the Environment reporting. Given the few systematic and quantitative data on biodiversity trends, the 2002 Assessment assembled information and opinion from over 40 leading ecologists to determine the key threatening processes. It was one input to *Australia State of the Environment 2006* (Beeton *et al* 2006) and the consultation draft of *Australia's Biodiversity Conservation Strategy 2010-2020*.

Nevertheless, in the Biodiversity theme report for the *Australia State of the Environment Report 2006*, Cork *et al* lamented that even after three national SoE reports there still remained a lack of long-term, systematic biodiversity information that allowed firm conclusions to be drawn about details and mechanisms of the nation's biodiversity decline and, especially, whether responses were being, or were likely to be, effective. It was not possible to draw firm conclusions about the trends in biodiversity due to the lack of consistent temporal and spatial data.

## **1.3 Assessment of Australia's Terrestrial Biodiversity 2008**

This Assessment was carried out between November 2006 and June 2008 as a cooperative partnership between the Australian Government, the NLWRA, science and state and territory agencies. The Biodiversity Assessment Working Group was formed to guide the work of the assessment, representing all states and territories, the Australian Government and CSIRO.

The aim of this Assessment was to build a framework that would enable the setting of baselines and the ongoing monitoring and reporting of trends in Australia's biodiversity on a national scale. Such a framework allows this Assessment to move beyond the earlier reliance on expert opinion, which—although of substantial value—is not repeatable.

This Assessment uses data and information that were available up to the end of June 2007. It identifies where data are not sufficient for national-scale reporting against indicators. The framework was built on the Matters for Target Framework which was used for previous Australian Government NRM programs.

### **1.3.1 Objectives**

The objectives of the Assessment are to:

- carry out an assessment of location, status, extent, condition and trends in biodiversity
- identify threats to biodiversity and responses to those threats
- build capacity to monitor trends in biodiversity and report through the consistent national framework
- define biodiversity assets according to an agreed set of themes and a consistent geographic basis (Interim Biogeographic Regionalisation for Australia, and NRM regions)
- consolidate a consistent national indicator set for biodiversity assessments that is compatible with reporting requirements for SoE reports, international agreements, and that can be used or generated within the integrated regional planning frameworks of the NRM regions
- review monitoring and evaluation of biodiversity at a regional level and confirm indicators for national reporting of regional investment and trends in biodiversity, and
- describe the institutional setting for management of Australia's biodiversity (policy, strategies, laws, institutions, management actions, investment programs).

### **1.3.2 Structure of the Assessment**

Significant biodiversity assets were identified to be:

- native vegetation
- aquatic ecosystems, and
- species and communities.

The Assessment does not address marine biodiversity.

Three key tasks were identified, in alignment with the asset, threats and response framework, and the objectives. These are:

- an assessment of extent, condition and trends in Australia's key biodiversity assets:
  - native vegetation community integrity
  - aquatic ecosystems community integrity, and
  - species and communities
- identification and assessment of key threatening processes, and
- an assessment of the institutional responses to key threatening processes.

### **1.3.3 Case studies**

The Assessment drew on national data compilations, updated by the states and territories where data were available. These data compilations were assessed in terms of their currency and durability for ongoing reporting of trends. Statewide sets were also included where these showed trends.

These national data compilations were complemented by region-specific case studies conducted by the states, territories, CSIRO and other agencies or consultancies. The case studies provided a more detailed analysis at a finer scale of trends in biodiversity and highlighted more direct impacts and relationships with species and communities. Case studies were of four types:

- Demonstrations of methodology; for example, assessment of native vegetation condition.
- Statewide reporting against condition and trend where there are good state or territory datasets but not national sets.
- Data-rich species, where change and impact of management (where available) can be demonstrated.
- Explicit links between threats, management of threats and biodiversity.