Australian Government

National Land & Water Resources Audit

An Initiative of the Natural Heritage Trust

Native vegetation

Status of information for reporting against indicators under the National Natural Resource Management Monitoring and Evaluation Framework

www.nlwra.gov.au

About the National Land & Water Resources Audit

The National Land & Water Resources Audit ('the Audit') provides data, information and nationwide assessments of Australia's land, water and biological resources to support sustainable development. It is an initiative of the Natural Heritage Trust. It commenced in 1997 and published the first set of detailed assessment reports in 2002.

The Audit (2003–08) has six key areas of activity:

- developing a consistent national reporting mechanism for collating natural resource information collected under the National Natural Resource Management Monitoring and Evaluation Framework
- collating information to support the national State of the Environment (SoE) reports
- developing nationally consistent, but regionally relevant integrated resource condition reports
- facilitating reporting on the ongoing collection of natural resource information for key theme areas, including those related to the National Natural Resource Management Monitoring and Evaluation Framework
- reporting on national data and information management (in collaboration with ANZLIC — the Spatial Information Council)
- developing national assessments (as requested) and supporting program evaluations.

For further information see http://www.nlwra.gov.au

The Audit's mission

To provide data, information and nationwide assessments of Australia's land, water and biological resources to support sustainable development.

Native vegetation

Status of information for reporting against indicators under the National Natural Resource Management Monitoring and Evaluation Framework

Published by:
National Land & Water Resources Audit

Level 1 The Phoenix
86 Northbourne Avenue
Braddon ACT 2612

Telephone: 02 6263 6035
Facsimile: 02 6257 9518
Home page: http://www.nlwra.gov.au

Disclaimer

We invite all interested people, both within and outside government, to make use of the Audit's reports, information, its Atlas and products. We encourage you to discuss the Audit's findings with the various partners and contributors that have prepared this information.

The Commonwealth accepts no responsibility for the accuracy or the completeness of any material contained in this report and recommends that users exercise their own skill and care with respect to its use.

Publication data: National Land & Water Resources Audit (2007). *Native Vegetation — Status of Information for Reporting against Indicators under the National Natural Resource Management Monitoring and Evaluation Framework*, NLWRA, Canberra.

ISBN: 978 0 642 37145 4
Product number: PK071400

Acknowledgment: With thanks to the significant input from a range of stakeholders, particularly the Audit Management Team and Executive Steering Committee for Australian Vegetation Information (ESCAVI) members.

Authors: Peter Wilson, NLWRA
Lisa Robins, Robins Consulting, Turner ACT.

Editors: Biotext Pty Ltd
Graphic Design: Design ONE
Printing: Finsbury Green
Cover photo: Heath forest by Robert Ashdown

December 2007

Printed with vegetable based inks on stock which comprises 80% recycled fibre from post-consumer waste and 20% TCF pulp sourced from sustainable forests.

Foreword

Effective management of natural resources requires good quality data and information at the right level of detail to be available for those who need it. Australia invests significant resources each year in the collection and maintenance of data to inform natural resource management decisions.

Since 1997, the National Land & Water Resources Audit has played a vital role in the national co-ordination, collation and reporting of this information. The Audit collaborates with a range of partners, including the Australian Government, state and territory governments, regional natural resource management bodies, industry, the private sector and community organisations.

This booklet is part of a series that describes the status of data and information relevant to national indicators agreed under the National Natural Resource Management Monitoring and Evaluation Framework. It specifically reports on the status of information relating to indicators of Native Vegetation Communities' Integrity. Clarifying the current status of data and information on native vegetation is a vital step towards more strategic future investment.

Noteworthy advances with native vegetation information include:

- combined sponsorship by the Department of Agriculture, Fisheries and Forestry and the Department of the Environment and Water Resources
- a strong partnership between the Australian Government and state and territory governments through the Executive Steering Committee for Australian Vegetation Information
- significant progress with national vegetation information systems and associated standards
- progress with native vegetation extent indicators and reporting, building on the Audit's *Australian Native Vegetation Assessment* (2001)
- continuing work on filling key data gaps, particularly vegetation extent and type mapping
- significant and progressive debate on, and development of, indicators for vegetation condition.

Geoff Gorrie
Chair, Audit Advisory Council

Acronyms and abbreviations

AAC	Audit Advisory Council
ARO	Australia's Resources Online
ESCAVI	Executive Steering Committee for Australian Vegetation Information
GIS	geographic information system
IBRA	Interim Biogeographic Regionalisation of Australia
National M&E Framework	National Natural Resource Management Monitoring and Evaluation Framework
NCC	National Coordinating Committee
NLWRA	National Land & Water Resources Audit (the Audit)
NRM	natural resource management
NRMMC	Natural Resource Management Ministerial Council
NRPPC	Natural Resource Policies and Programs Committee
NVIS	National Vegetation Information System

Contents

Executive summary

The National Land & Water Resources Audit and its partners have made substantial progress with vegetation information since the Audit assessment of native vegetation in 2001.

Nationally consistent vegetation information is critical to better manage Australia's natural resources, achieve sustainable land management and improve our capacity to manage biodiversity and other environmental values.

This booklet summarises the current capacity to report on the Native Vegetation Communities' Integrity 'matter for target' agreed under the National Natural Resource Management Monitoring and Evaluation Framework ('the National M&E Framework').

Four indicators for monitoring the integrity of native vegetation communities have been recommended by the Executive Steering Committee for Australian Vegetation Information. Three of these (on the extent and type of vegetation) have been endorsed by the Audit Advisory Council and a fourth (on the condition of native vegetation) is being trialled.

There has been an initial assessment of the specific data needs of the indicators. A common set of national standards for vegetation data collection and collation is now in place. Data and information systems operating at national, and state and territory levels were established at different times (and scales) for a range of purposes, and are primarily mapping and inventory systems. These existing systems are now progressively adopting national information standards and moving towards baseline and trend reporting.

The National Vegetation Information System (NVIS) is the principal source of nationally consistent data and information for reporting on the agreed indicators. It is a collation of data and information supplied by the states and territories according to the national standards. Other sources of information can also be used as multiple lines of evidence to support the outputs of NVIS where data gaps exist.

Nationally consistent vegetation information is critical for improved natural resource management

Information products for reporting on the extent, type and condition of native vegetation will take many forms. System flexibility enables reporting according to different boundary delineations, for example national, jurisdictional, natural resource management regions, biogeographic regions or catchments. A web-based system for reporting on the matters for target indicators, called *Australia's Resources Online*, is being developed by the Audit.

Brigalow (*Acacia harpophylla*) by Robert Ashdown

States and territories are compiling a 2004–05 baseline for the extent of native vegetation and the Audit will report their findings in early 2008. This baseline will allow improved national reporting of changes or trends in native vegetation in the future.

The collection, collation and reporting of native vegetation across multiple agencies and natural resource managers, all with different needs and perspectives, is an ongoing challenge. However, this booklet shows that the Audit and its partners are making significant progress toward these goals.

Introduction

This booklet summarises the current capacity to report on the native vegetation 'matter for target' (Native Vegetation Communities' Integrity) agreed under the National Natural Resource Management Monitoring and Evaluation Framework (the National M&E Framework). Appendix 1 provides further information about this framework.

Nationally consistent vegetation information is critical to better manage Australia's natural resources, achieve sustainable land management and improve our capacity to manage biodiversity and other environmental values.

Table 1 Agencies represented on the Executive Steering Committee for Australian Vegetation Information (ESCAVI)

Jurisdiction	ESCAVI agency
ACT	Environment ACT
NSW	Department of Environment and Climate Change
NT	Natural Resources, Environment and the Arts
Qld	Environment Protection Authority
SA	Department for Environment and Heritage
Tas	Department of Primary Industries and Water
Vic	Department of Sustainability and the Environment
WA	Department of Agriculture and Food
Australian Government	Department of Agriculture, Fisheries and Forestry
	Department of the Environment and Water Resources
National	National Land & Water Resources Audit

The Audit works with a series of national coordination committees to further the development and implementation of indicators for natural resource management (NRM) programs. The national coordination committee for the Native Vegetation Communities' Integrity matter for target is the Executive Steering Committee for Australian Vegetation Information (ESCAVI). This committee is jointly sponsored by the Australian Government Department of Agriculture, Fisheries and Forestry and the Australian Government Department of the Environment and Water Resources. Each of the states and territories are represented on ESCAVI (Table 1).

ESCAVI meets at least four times a year to consider the following key issues:

- coordination and partnerships
- standards and indicators
- data infrastructure and systems
- trials and information delivery
- communication and products
- analysis and assessments.

Ghost gum (*Eucalyptus papuana*) by Robert Ashdown

National indicators

Four indicators have been identified for Native Vegetation Communities' Integrity and recommended by ESCAVI (Figure 1). The indictors represent an understanding of native vegetation in terms of:

- the remaining extent of native vegetation (indicator 1)
- the remaining extent of native vegetation types (indicator 2)
- the remaining extent of native vegetation types compared to pre-1750 vegetation (indicator 3)
- the proportion of remaining native vegetation in specified condition classes (indicator 4).

Contextual information such as total land cover, land use and climate is also important for assessing native vegetation status.

The first three indicators (which can be summarised as the extent and type of native vegetation) have been endorsed (see Figure 2) by the Audit Advisory Council. Endorsement of the fourth indicator (the condition of native vegetation) will follow jurisdictional trials and further development through ESCAVI.

Once endorsed by the Audit Advisory Council, indicators are forwarded to the Natural Resource Policies and Programs Committee under the Natural Resource Management Ministerial Council for agreement and consideration of approaches to implementation.

Data and information collated against the vegetation indicators can also assist assessments on other issues such as water quality, salinity, soil condition, weeds, river and wetland health or the provision of ecosystem services.

Further details of the indicators, including full protocol documentation, are progressively being made available on the Audit's web pages.[1] Protocols are 'guidelines' for measurement and reporting of the indicators.

[1] See http://www.nlwra.gov.au/About_Us/Monitoring_and_Evaluation for endorsed indicators and http://www.nrm.gov.au/publications/factsheets/me-indicators/index.html for the indicators still being developed.

Screenshot of the National Land & Water Resources Audit website

Figure 1 The indicators provide useful information for considering the role and condition of native vegetation in a whole-of-landscape context

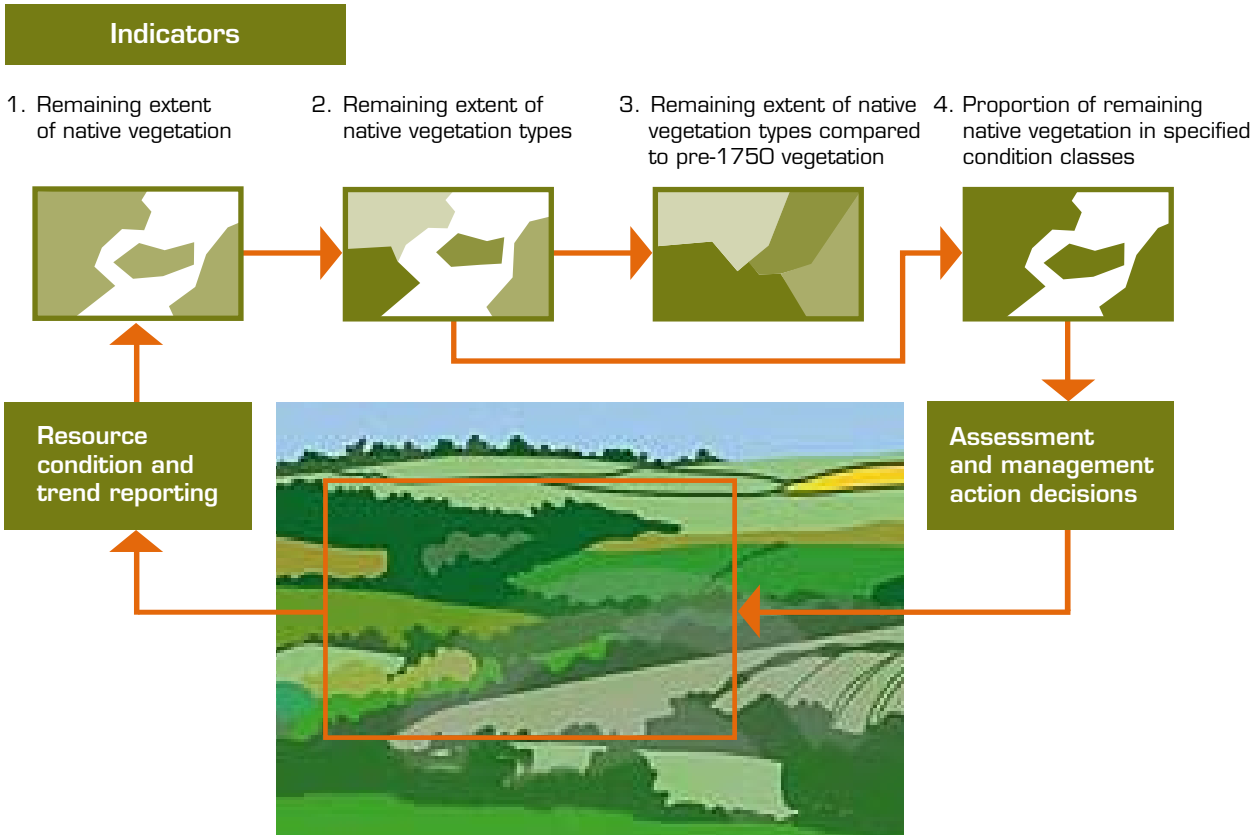
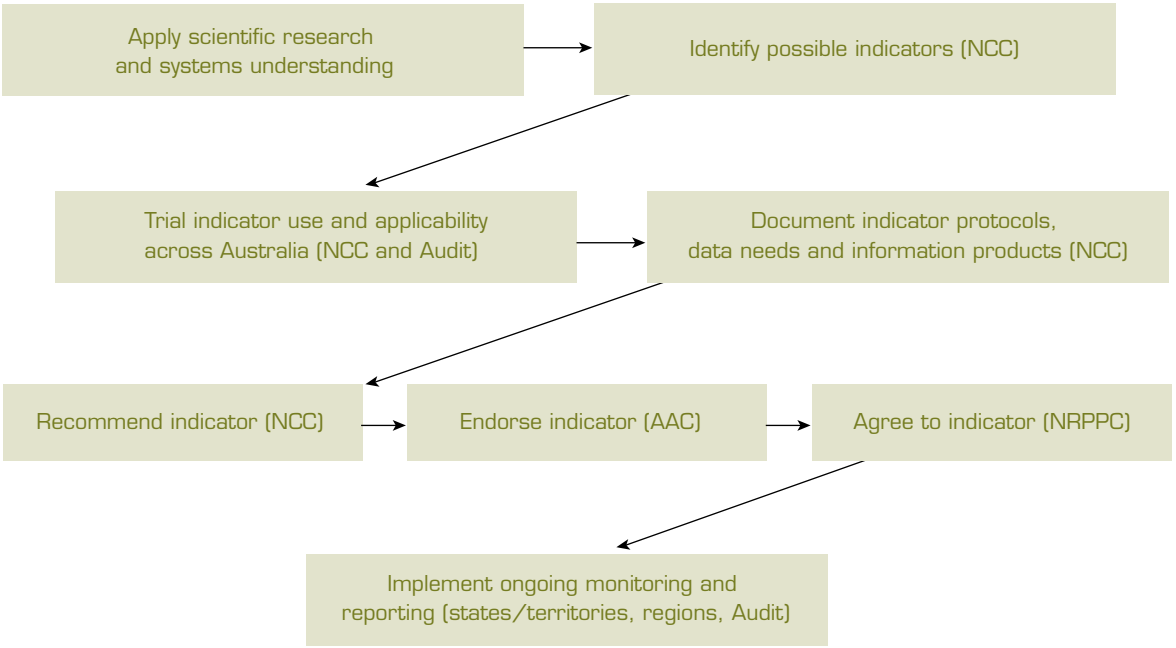


Figure 2 The stages of development, endorsement, agreement and implementation of the indicators



AAC = Audit Advisory Council; NCC = National Coordinating Committee; NRPPC = Natural Resource Policies and Programs Committee

Indicator data needs

The Audit has completed an initial assessment of the specific data needs required to report against the National M&E Framework indicators (The Beaten Track Group 2004).

Table 2 shows data needs according to three categories:

- specific data for the indicator measurement as defined in the protocol
- critical contextual data needed to understand the indicator
- useful contextual data that helps to understand the indicator.

All four indicators use the Interim Biogeographic Regionalisation for Australia (IBRA) subregions as the basis for assessing and reporting on native vegetation (see Box 1).

Box 1 IBRA regions and subregions (Version 6)

The Interim Biogeographic Regionalisation for Australia (IBRA) divides the Australian continent into 85 bioregions. There are now 404 subregions defined Australia-wide, based on major geomorphic features in each bioregion. The bioregions and subregions are the reporting unit for assessing the status of native ecosystems, their protection in the national reserve system and for use in the monitoring and evaluation framework in the Australian Government's current natural resource management initiatives.

IBRA subregions provide an important reporting framework for natural resources such as native vegetation, species and communities.

For further information see http://www.environment.gov.au/parks/nrs/ibra/index.html.

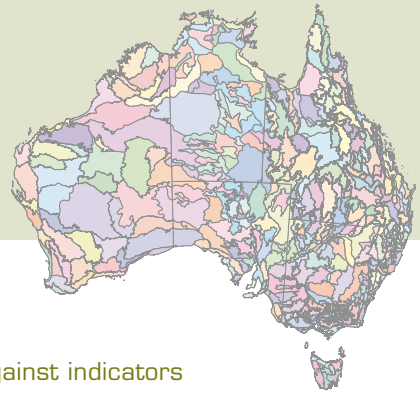


Table 2 Identified data needs for the Native Vegetation Communities' Integrity matter for target indicators

	Data need	Indicator 1	Indicator 2	Indicator 3	Indicator 4
Critical	Extent of native vegetation	***	***	***	***
	Type of native vegetation		***	***	***
	Pre-1750 extent of vegetation type			***	***
	Condition of native vegetation				***
	Interim Biogeographic Regionalisation of Australia (IBRA)	**	**	**	**
Useful	Land cover	*	*		*
	Soils		*	*	
	Landforms and geomorphology		*	*	
	Salinity		*		*
	Pests/weeds		*		*
	Land use	*	*		*
	Climate		*	*	*
	Digital elevation models		*	*	

Key:
*** = specific data needed for the indicator measurement as defined in the protocol
** = critical contextual data needed to understand the indicator
* = useful contextual data that helps to understand the indicator

Data and information systems

The National Vegetation Information System[2] (NVIS) is a set of standards and databases that allow the collation of nationally consistent native vegetation information. Through ESCAVI, a set of national standards has been developed and agreed for vegetation data collection[3] and data collation and mapping.[4]

Each state and territory has its own data and information systems, with each system having been developed over different timeframes and for various purposes (see Table 3). State and territory systems are progressively adopting the national standards and moving toward monitoring and reporting. Vegetation data and information are being collected and managed increasingly by regional NRM bodies and other stakeholders, and state and territory systems have varying capacity to integrate this data and information.

The first nationally collated NVIS dataset was compiled from state and territory data for the Audit in 1997 (NLWRA 2001) and has recently been updated to include data up to 2004–05, where available. This dataset has been used to generate a national map of major vegetation groups (Figure 3) and to define major vegetation subgroups.

While this is a very important national dataset, it cannot be used directly to report on the recommended indicators as it is a collation of mapping undertaken over many years rather than a monitoring product. The 2004–05 update generally represents improvements in data (attribution, scale, etc) rather than true on-ground changes in vegetation extent, type or condition. Direct comparison between the 1997 and 2004–05 datasets (such as to calculate trends in vegetation extent) is therefore not appropriate.

Figure 3 Major vegetation groups compiled through the National Vegetation Information System

[2] http://www.environment.gov.au/erin/nvis/index.html

[3] http://www.brs.gov.au/vegetationguidelines

[4] http://www.environment.gov.au/erin/nvis/publications/avam/index.html

State and territory information systems are currently the principal source of information for reporting on the agreed indicators. Other data and information, such as climate and land use, are needed to supplement and interpret the vegetation information. This context data and information is managed in a range of other state, territory and national systems.

Table 3 State and territory vegetation information systems

Jurisdiction	Main system	General description	Web site
ACT	ACT Vegetation Database	An MS Access system of point and polygon-based vegetation data collected from field surveys and studies since the 1970s.	http://incp.environment.act.gov.au
NSW	Vegetation coverage of NSW	A classification of vegetation mapping units appropriate for a state-wide map.	http://www.nationalparks.nsw.gov.au/npws.nsf/content/vegetation+coverage+of+NSW
	NSW woody vegetation change 2004–06	Changes to woody vegetation extent where the canopy cover is greater than 20%.	http://www.nativevegetation.nsw.gov.au/reports/
	NSW Native Vegetation Report Card for 1 January 2006 to 30 June 2006	The latest information on the conservation, revegetation, management and clearing of native vegetation.	

Jurisdiction	Main system	General description	Web site
NT	Primary vegetation mapping data sets	Surveys specifically undertaken for vegetation mapping purposes.	http://www.nt.gov.au/nreta/naturalresources/nativevegetation/vegmapping/datasets.html
Qld	Qld Herbarium, Environment Protection Agency	Provides mapping and statistical information on the pre-clearing and remnant extent of vegetation types and changes in remnant extent since 1997.	http://www.epa.qld.gov.au/nature_conservation/plants/queensland_herbarium/survey_and_mapping/
SA	SA Vegetation	Remnant floristic vegetation mapping.	http://www.naturemaps.gov.au (for data) http://www.environment.sa.gov.au/biodiversity/biosurveys.html#vegetation (for mapping)
Tas	TASVEG	1:25 000 polygon mapping, 158 units covering forest, non-forest vegetation and modified land.	http://www.dpiw.tas.gov.au/
Vic	Tree100	Tree cover defined by woody vegetation > 2 metres in height and crown cover > 10%.	http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/veget_vics_resources
WA	Shared Land Information Platform (SLIP)	Provides access to data and information products from agency repositories.	http://spatial.agric.wa.gov.au/slip

Data availability and gaps

Availability and gaps are discussed here in terms of:

- data needed for reporting on the indicators and understanding the indicators in context
- developing indicators of native vegetation condition
- measuring change and trends for all indicators.

Data and information status for indicator reporting

The four maps below (Figure 4) broadly depict the current status of data and information for reporting each of the Native Vegetation Communities' Integrity indicators. Regions shown are the 56 NRM regions (see Box 2) formalised under the Natural Heritage Trust as they are key mechanisms for delivery of NRM outcomes in Australia.

Figure 4 shows the availability and useability of relevant data for each region in terms of input data scale, attributes and currency. The maps illustrate the fragmented nature of data on native vegetation across the country. The vegetation resources of different areas have been mapped at different times and at various scales, with mapping for some areas being very old and only at a small scale and in limited detail.

Box 2 NRM regions

The Australian Government, in association with state and territory governments, has identified 56 regions, covering all of Australia, to improve the sustainable management of natural resources on a regional scale. At least one regional body in each region manages and protects the region's natural resources. Where possible and appropriate, existing organisations are used.

In order to ensure the best outcomes, investment in NRM plans by governments and other organisations is based on the establishment of clear targets and appropriate monitoring. A summary of each region, their NRM issues and each region's NRM plan and contact information can be found at http://www.nrm.gov.au/nrm/region.html.

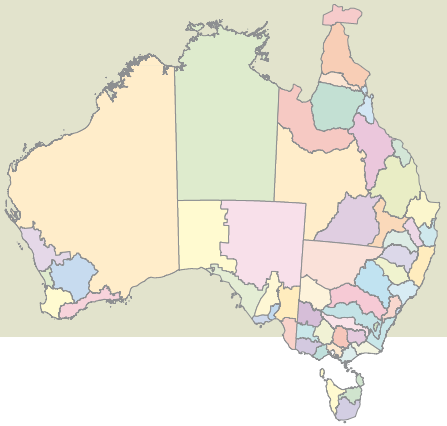
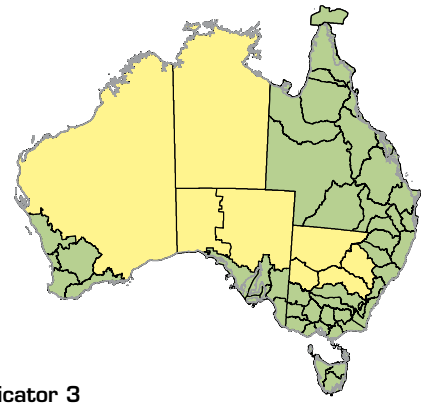
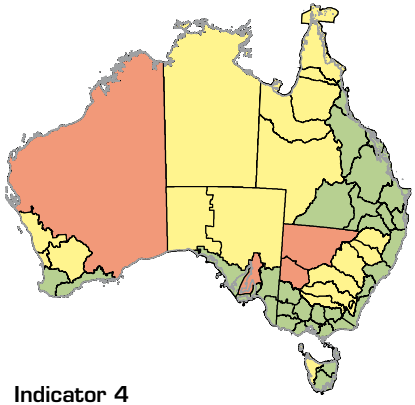


Figure 4 Data availability and useability for reporting on the National M&E Framework native vegetation indicators

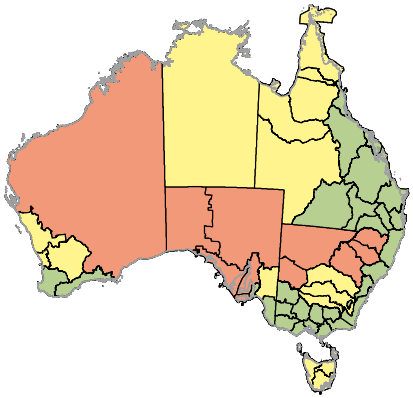
Indicator 1
Extent of native vegetation



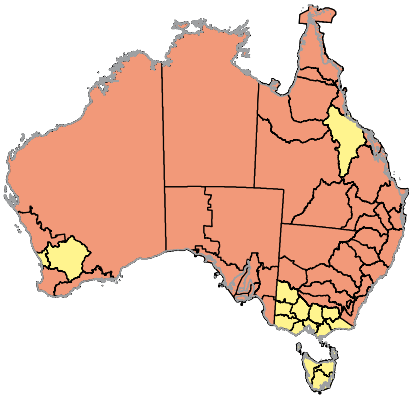
Indicator 2
Extent of each present native vegetation type



Indicator 3
Proportion remaining of each native vegetation type, measured as a percentage of the pre-1750



Indicator 4
Condition of native vegetation



a significant amount of relevant data available
a limited amount of data available or restrictive scale, attribution or currency
very limited data available

Condition indicator development

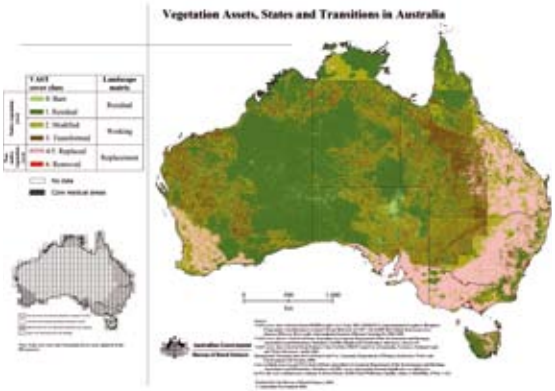
ESCAVI is progressing with an indicator for native vegetation condition that is consistent with current and emerging methods in a number of states. Pilot studies have demonstrated good potential for national collation of information produced by states and territories. Some states have made significant progress in collecting site-based data on condition using their own methods. Information products are likely to include maps and tables estimating the proportion of different vegetation types in different condition classes.

Other complementary approaches also offer opportunities for reporting on vegetation condition. The Vegetation Assets State and Transition (VAST) methodology, developed by the Bureau of Rural Sciences, has been implemented at a national level (see Figure 5), in a number of states and territories, and in some regions and local areas. It is a classification approach that identifies six classes relative to the level of 'modification' and management of vegetation in the landscape.[5]

The outcomes of these and other research investigations will inform further development of the final protocols for indicators of native vegetation condition.

[5] http://www.daff.gov.au/brs/forest-veg/vast

Figure 5 Vegetation Assets State and Transition classification map



Source: Thackway and Lesslie (2005)

Change and trend measurement

The intent of the indicator framework is to develop the capacity to monitor changes in native vegetation extent and condition over time.

Currently, only Queensland has a program to monitor changes and trends in native vegetation extent. The Audit is making progress in this area through projects (currently under way in the states and territories) to develop a nationally consistent 2004–05 baseline, enabling assessment of future changes to native vegetation extent. A report on the national extent of native vegetation will be produced by the Audit and the Department of Agriculture, Fisheries and Forestry.

Remnant vegetation by Robert Ashdown

None of the states or territories yet monitors changes and trends in the condition of native vegetation. Assessment of changes and trends in this indicator at the national level therefore requires further attention. Additional work is also needed to clarify the definition of terms such as 'condition' (for what?) and 'change' (within a dynamic natural system) in future condition indicator protocols, as well as defining data requirements for interpreting the causality of change (such as fire, climate, land use).

Data and information from a number of sources will be drawn upon by the Audit to report on the agreed matters for target indicators through a web-based system called Australia's Resources Online.

Australia's Resources Online is a new application being developed by the Audit to report the latest information available against National M&E Framework indicators.

Screenshot of Australia's Resources Online website

Data and information products

In collaboration with ESCAVI, the Audit is building substantial capacity for long-term reporting on native vegetation at a variety of scales, especially changes or trends in native vegetation extent.

Data and information on native vegetation extent will be reported by the Audit for a range of purposes according to different boundaries of interest. These may include national, state, NRM regions, IBRA and catchments (Figure 6).

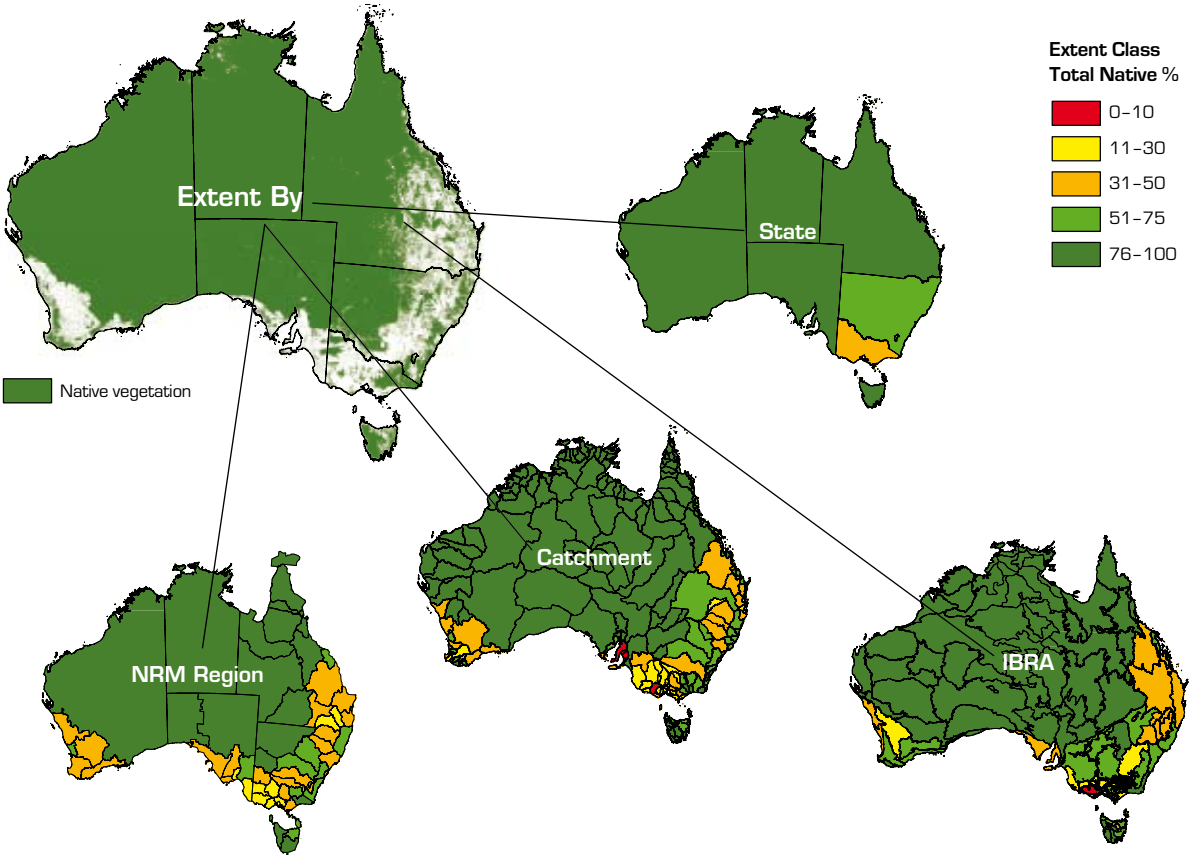
NVIS mapping products and those that provide multiple lines of evidence are increasingly underpinned by better data and information. The maps at national and state and territory levels shown throughout this booklet are examples of improved products resulting from the activities of the Audit and its partners.

Mapping products are also supported by data and information in other graphical forms, such as tables, charts and graphs (Figure 7).

The results of trials to test and refine methods for assessing native vegetation condition will be comprehensively reported through ESCAVI, and used to inform protocol development for condition indicators. Protocols will specify the data needs of indicators and the likely information products used to represent results of monitoring programs.

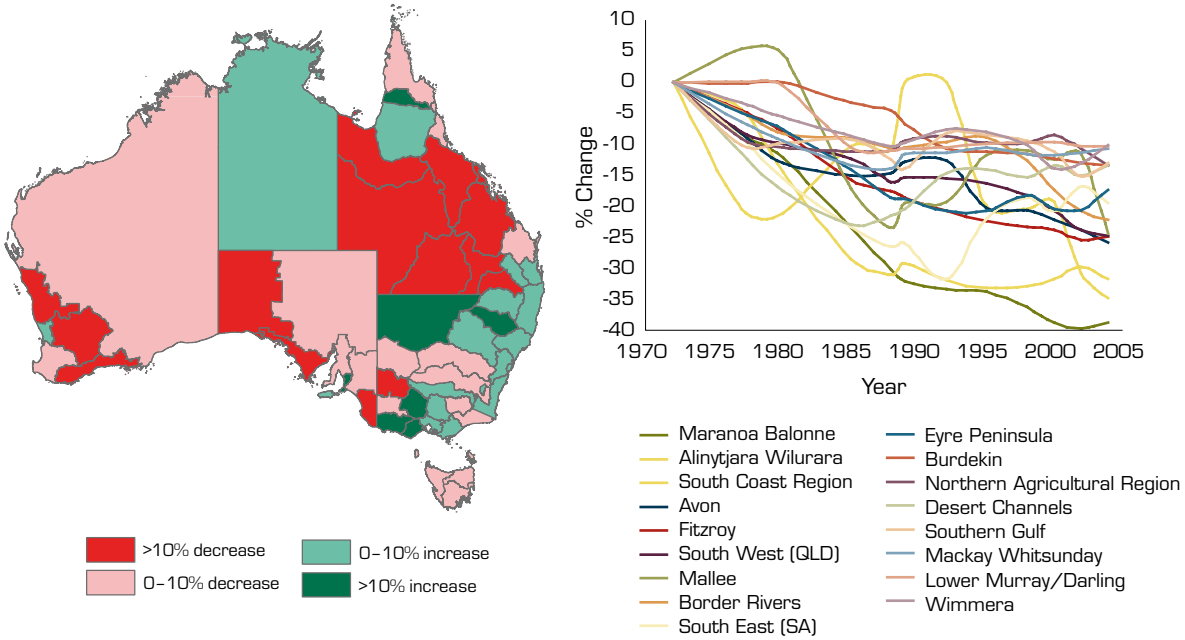
Future reports and assessment will also consider the range of ecosystem services provided by native vegetation (lead by the Bureau of Rural Sciences). Linkages will also be identified between the Audit's assessments of native vegetation extent, biodiversity, weeds and other theme-based reporting.

Figure 6 Example products for reporting on native vegetation extent according to different boundaries, such as state, catchment, IBRA and NRM region



Source: NLWRA, in preparation

Figure 7 Example of other reporting products: map of percentage increase/decrease in net woody forest extent between 1972 and 2004 for 56 NRM regions; and graph of percentage decrease in net woody forest extent of more than 10% between 1972 and 2004 for 17 NRM regions



Source: McDonald and Pinner (2007)

Related vegetation information

A number of systems and products are available that could provide information related to the Native Vegetation Communities' Integrity indicators. While they do not report directly on the indicators, they can provide multiple lines of evidence when evaluating progress against the matter for target and the effectiveness of management actions.

National

The Australian Natural Resources Atlas (the Atlas) provides a number of tools and access to theme summaries and reports from the Audit (http://www.anra.gov.au). The Map Maker is an online GIS tool for creating maps at regional, state and national levels.

The Australian Natural Resources Data Library enables discovery of and access to data and information products (http://adl.brs.gov.au/anrdl/php).

Australia's Resources Online, due for release in late 2007, is a new component of the Atlas being developed by the Audit for ongoing reporting on the National M&E Framework indicators (http://www.anra.gov.au/aro).

Integrated Vegetation Online is a database developed for regional users to support their reporting activities (http://www.brs.gov.au/intveg). It provides regional maps (at varying scales) and tabular information for three classes of vegetation (native, non-native, non-vegetated) for reporting on the first indicator (extent). As the focus of NVIS is on native vegetation, Integrated Vegetation Online provides important information about the entire landscape context.

Screenshot of a regional map product from Integrated Vegetation Online

The National Carbon Accounting System models changes in woody forest vegetation extent from satellite image analysis, primarily to inform greenhouse gas policy needs (http://www.greenhouse.gov.au/ncas). Its long-term database on woody vegetation cover and change (since 1972) provides valuable trend information for one component of vegetation.

The National Forest Inventory holds a wide range of forest-related data and covers public and private forests, and native and plantation forests, including pre-1750 vegetation (http://www.brs.gov.au/nfi/). Coordination between the National Forest Inventory Steering Committee and ESCAVI will ensure more consistent forest reporting between the National Forest Inventory and NVIS.

States and territories

Other datasets are also available and reported at the state, territory and regional levels. The state and territory vegetation information systems (see Table 3) may include contextual data and information in addition to that supplied to NVIS.

Grass trees (*Xanthorrhoea johnsonii*) after fire by Robert Ashdown

Discussion and way forward

The Audit and its partner organisations have developed methods and protocols, undertaken trials, improved existing data and information, and refined data management and exchange infrastructures.

A coordinated national system for reporting on the agreed indicators for Native Vegetation Communities' Integrity is progressively being put in place. This is a major achievement, and further development and alignment of state and territory systems will be highly beneficial. The Audit and ANZLIC — the Spatial Information Council, have recently released a *Statement of Intent,* including a vision, guiding principles and way forward for enhancing the Australian Natural Resource Information Infrastructure (NLWRA 2007). This should guide and assist the further development of native vegetation information systems as a key component of the infrastructure.

Ongoing effective coordination will require genuine commitment to a shared vision and clearer assignment of responsibilities (and associated costs) for data collection and management at national, state and regional levels. The capacity of regional NRM bodies to undertake long-term monitoring is limited, in part by the duration of their funding arrangements and the nature of their reporting requirements.

The partnerships developed through ESCAVI have greatly assisted in clarifying these responsibilities, and further advances will be achieved through this forum. There is a great collaborative spirit and willingness to continue to improve understanding, capacity and outcomes in the vegetation information arena.

Continued strategic, nationally coordinated investment in vegetation data and information is essential. Genuine commitment to long-term data collection will provide the ability to comprehensively report on all agreed indicators in an ongoing way, in keeping with the mission of the National Land & Water Resources Audit.

Appendix 1 The National Monitoring and Evaluation Framework

The National Natural Resource Management Monitoring and Evaluation Framework (referred to in this series as 'the National M&E Framework') was endorsed by the Natural Resource Management Ministerial Council in 2002. It was developed to assess progress towards improved natural resource condition through the development of accurate, cost-effective and timely information on:

- the health of Australia's land, water, vegetation and biological resources
- the performance of programs, strategies and policies that provide national approaches to the conservation, sustainable use and management of these resources.

Assessment of information collated under the National M&E Framework will assist the Ministerial Council to 'identify areas of concern and to better target the use of resources'.

The framework identifies three key requirements for monitoring natural resource condition:

1. a set of natural resource condition indicators (including those for the 'matters for target' identified in the National Framework for Natural Resource Management Standards and Targets[1]) to measure progress towards agreed national outcomes on a medium and long-term basis
2. a set of indicators for monitoring community and social processes relevant to or affected by NRM programs, as well as measures of the adoption of sustainable development and production techniques
3. contextual data pertinent to the indicator being considered.

The National Land & Water Resources Audit ('the Audit') is responsible for ongoing development of these indicators, as well as supporting the national collection and collation of data, and reporting against each indicator.

Such reporting will help to answer questions such as:

- What is the nature and extent of the issue?
- Is the existing or proposed intervention appropriate for the size of the issue?

- What types of intervention work best, are most cost-effective, and have the best transferability across regions?
- What was the impact of the policy or program investment — in the intermediate and long term?

Monitoring and evaluation of core indicators supports evidence-based decision making at national, state and territory, and regional levels. However, each level may have a wide variety of data and information needs, in terms of content, context or scale. There is also complexity across the three levels of use associated with multiple needs, values, preferences and timeframes.

Eucalypts after a heavy storm by Robert Ashdown

References

McDonald E and Pinner L (2007). *Vegetation and In-land Aquatic Ecosystems — National Matters for Target Information Products,* National Land & Water Resources Audit, Canberra.

Natural Resource Management Ministerial Council (2002). *National Natural Resource Management Monitoring and Evaluation Framework* — endorsed 3 May 2002. http://www.nrm.gov.au/me/index.html

NLWRA (National Land & Water Resources Audit) (2001). *Australian Native Vegetation Assessment,* NLWRA, Canberra.

NLWRA (National Land & Water Resources Audit) (2007). *Information for Sustainability — A Statement of Intent,* NLWRA and ANZLIC — the Spatial Information Council, Canberra.

Thackway R and Lesslie R (2005). *Vegetation Assets, States, and Transitions: Accounting for Vegetation Condition in the Australian Landscape,* Bureau of Rural Sciences, Department of Agriculture, Fisheries and Forestry, Canberra.

The Beaten Track Group (2004). *Assessment of Data Requirements and Availability to Address Natural Resource Condition and Trend Indicators – Part B: Identification of data needs and potential data sets, September 2004,* National Land & Water Resources Audit, Canberra. http://www.nlwra.gov.au/Publications_and_Tools/Project_Reports/index.aspx

Native vegetation in a complex Australian landscape by Robert Ashdown

About the 'Status of Natural Resource Information' series

This series of booklets outlines the status of data and information relating to indicators agreed under the National Natural Resource Management Monitoring and Evaluation Framework (2002). Each booklet describes the status of coordination, indicators, information management systems, and data and information products for a particular theme area.

- Estuarine, coastal and marine
- Inland aquatic ecosystems
- Land salinity
- Land use
- Native vegetation
- Significant invasive species (vertebrate pests)
- Significant invasive species (weeds)
- Significant native species
- Social and economic information
- Soil condition
- Water quality

www.nlwra.gov.au