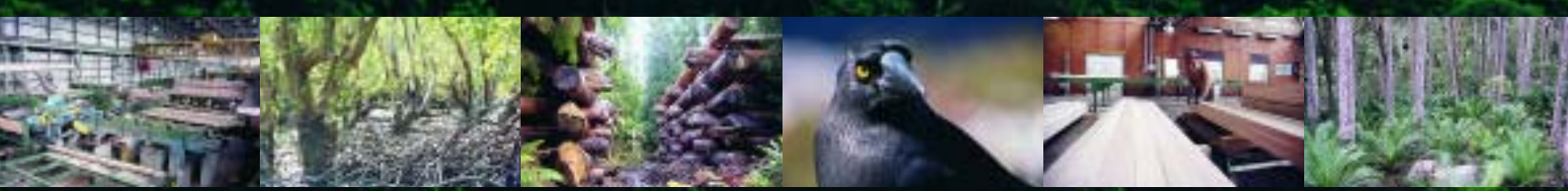
Australia's State of the Forests Report 1998



Australia's State of the Forests Report 1998

National Forest Inventory

Bureau of Rural Sciences

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The Bureau of Rural Sciences is a professionally independent scientific bureau within Agriculture, Fisheries and Forestry - Australia (AFFA). Its mission is to provide first-class scientific assessments, analysis and advice to enable AFFA to achieve its vision — rising national prosperity and quality of life through competitive and sustainable agricultural, fisheries and forestry industries.

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Foreword

Forest issues remain high on the public agenda. Concerns range across economic, social, cultural, and conservation matters. Sound decisions as well as soundly based opinions depend upon access to factual information. Australia's first national *State of the Forests Report* aims to provide factual information at the State, Territory and national levels for a wide range of forest values. I believe that it will make an important contribution to identifying and implementing the national interest in whole-of-forest management.

The national *State of the Forests Report* was called for in the *Ecologically Sustainable Development Strategy* (1992) and the *National Forest Policy Statement* (1992). It is to be a report to the public, published every 5 years. The present report was compiled by the Management Team of the National Forest Inventory, which is based in the Bureau of Rural Sciences. The National Forest Inventory represents the forestry and conservation agencies of the Commonwealth Government as well as all the States and Territories. Together, these agencies have compiled the most comprehensive factual information about forests currently available, and presented it in a form that can be used primarily by the general public, but by specialists as well.

For the first time in the public arena, this Report covers all of the forests of Australia. All previous summaries have tended to focus on forests or forested regions from which timber was harvested for commercial operations. Other forests, some have been called 'woodlands', have generally been ignored in forest reports. Now, following the definition of forest agreed upon in the *National Forest Policy Statement*, the full extent of forested lands is formally recognised. This view will make it easier for land managers, and others interested in the Australian landscape, to appreciate fully the extent and diversity of forested lands in this country.

Compiling this Report has not been easy. Much of the information contained here has not been reported on comprehensively before or was not available in standard formats. During the preparation of the report, many significant gaps in our information base about Australian forests were exposed. Many of these gaps are noted within the text of this document. Also, extensive new information that was gathered during the currently ongoing comprehensive regional assessments of forests has not been included here. This information will be analysed and presented in the next *State of the Forests Report*.

This *State of the Forests Report* will be of value to general readers with an interest in forests as well as many others with professional needs for a broad overview of our forests. It will provide a base line against which to evaluate changes in forests, how we use forests, and how much we know about forests.

PETER O'BRIEN
Executive Director
Bureau of Rural Sciences

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Acronyms

ABARE	Australian Bureau of Agricultural and Resource Economics
ABS	Australian Bureau of Statistics
ANCA	Australian Nature Conservation Agency
ANM	Australian Newsprint Mills
ANZECC	Australian and New Zealand Environment and Conservation Council
APEC	Asia–Pacific Economic Cooperation (forum)
AUSLIG	Australian Surveying & Land Information Group
CAR	Comprehensive and adequate reserve (system)
CO_2	Carbon dioxide
CRA	Comprehensive regional assessment
CRC	Co-operative research centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EMS	Environmental management system
ESOCLIM	Computer program that models climate
IBRA	Interim Biogeographic Regionalisation of Australia
IUCN	International Union for the Conservation of Nature and Natural Resources
NEFBS	North East Forests Biodiversity Study (Report)
NFI	National Forest Inventory
NFPS	National Forest Policy Statement
NGGI	National Greenhouse Gas Inventory
NP	National park
NWI	National Wilderness Inventory
RFA	Regional forest agreement
ROTAP	Rare or threatened Australian plants
TAFE	Technical and Further Education

Glossary

Biodiversity	A concept encompassing the diversity of species and communities occurring in a given region. It includes 'genetic diversity', which reflects the diversity within each species; 'species diversity', which is the variety of species; and 'ecosystem diversity', which is the diversity of different communities formed by living organisms and the relations between them. Biological diversity is the variety of all life forms - the plants, animals and micro-organisms - the genes they constitute, and the ecosystems they inhabit.
Biogeography	The study of the distribution of living things
Biological diversity	See biodiversity
C+ log grades	Classification unit of native forest sawlog quality
Category 1/category 3	Classification unit of native forest sawlog quality
Closed forest	Forest in which the tree crowns cover 81–100 per cent of the land area when viewed from above
Code of forest practice	A set of principles and standards that specify minimum acceptable practices in harvesting and associated forest management operations
Community	See plant community
Crown cover	Area of ground covered by tree canopies, ignoring overlaps and gaps within individual canopies
Crown cover density	See crown cover
Ecologically sustainable forest management	A complex concept with many definitions relating to the management of forests for a wide range of values for very long periods of time.
Ecosystem diversity	See biodiversity
Edge effect	In relation to forests, it refers to the extent of effects which non-forest environmental influences have upon the forest along the edges where forest meets non-forested land
Endangered species and communities	Species in danger of extinction and whose survival is unlikely if the factors causing population decline continue operating.
Farm forest plantings	Deliberate establishment of trees on cleared farm land for environmental or commercial reasons
Forest	An area, incorporating all living and non-living components, that is dominated by trees having usually a single stem and a mature or potentially mature stand height exceeding 2 metres and with existing or potential crown cover of overstorey strata about equal to or greater than 20 per cent. This definition includes Australia's diverse native forests and plantations, regardless of age. It is also sufficiently broad to encompass areas of trees that are sometimes described as woodlands.
Genetic diversity	See biodiversity
Geodiversity	The variety of different kinds of rocks, landforms and soils found in the natural world

Geographic information system	A computer-based system for spatially relating geographic data for analysis, presentation and storage.
Global carbon cycles	The movement of carbon between different parts of the Earth, including the storage of carbon in those parts
Greenhouse gases	Gases that affect the temperature of the Earth's surface and have a large bearing on the Earth's climate. They include water vapour, ozone, chlorofluorocarbons, carbon dioxide, methane and nitrous oxide. The 'enhanced greenhouse effect' refers to changes in the Earth's climate as a result of increasing levels of greenhouse gases in the atmosphere due to human activity.
High forest	A term previously used widely that refers to forest usually greater than 20 metres high at maturity and capable of producing commercial timber
Intergenerational equity in natural capital	Ensuring that future generations will have access to natural resources of the same health, diversity and productivity as those available to current generations
Lignotuber	Woody swelling at the base of the plant stem carrying buds by which the plant can regenerate
Low forest	Dominated by trees capable of a mature height ranging between 2 metres and 10 metres
Medium forest	Dominated by trees capable of a mature height ranging between 11 metres and 30 metres)
Montreal Process	The informal agreement by the Montreal Process Group of countries (currently 12) to work towards the implementation of a comprehensive set of criteria and indicators for forest conservation and sustainable management
Old-growth forest	Ecologically mature forest where the effects of disturbances are now negligible.
Open forest	Forest in which the tree crowns cover 51–80 per cent of the land area when viewed from above
Plant community	Recognisable association of a number of plant species
Plantation	Intensively managed stands of trees of either native or exotic species created by the regular placement of seedlings or seeds.
Precautionary principle	Where there is a threat of serious or irreversible environmental damage, lack of full scientific certainty of that damage occurring should not be used as a reason for postponing measures to prevent it
Recruitment	Immature plants of the next generation
Regional forest agreement	An agreement about the long-term management and use of forests in a particular region between the Commonwealth and a State or Territory government.
Remotely sensed data	Data which is obtained with a sensor which is physically separated from the object. Such sensors rely upon the detection of energy emitted from or reflected by the object
Shannon contagion	A measure of an entire region that focuses on the texture created by the distribution of forest and non-forest patches. Fine texture refers to many small patches across the landscape while course texture refers to patches which are large and clumped

Species diversity	See biodiversity
Structure/forest structure	Refers to the characteristic of forests to have layers of canopies with the uppermost being formed by the tallest trees. There may be none, or one to several understorey layers. The character of the ground surface (amount of litter, presence of dead fallen wood, stoniness) and the presence of vines also contribute to forest structure. Structure is usually very important to the creation of habitat for a wide range of species
Suite of forest values	A group of related values
Sustainable yield	The amount of forest produce which is believed can be harvested in perpetuity
Tall forest	Dominated by tree species capable of a mature height greater than 30 metres
Tenure	Title to land as controlled by legislation
Vulnerable species and communities	Species believed likely to move into the 'endangered[' category in the near future if the factors causing population decline continue operating
Wilderness	Land that, together with its plant and animal communities, is in a state that has not been substantially modified by, and is remote from, the influences of European settlement or is capable of being restored to such a state; is of sufficient size to make its maintenance in such a state feasible; and is capable of providing opportunities for solitude and self-reliant recreation)
Woodland	Forest in which the tree crowns cover 20–50 per cent of the land area when viewed from above

Summary

This is the first national State of the Forests Report for Australia. It has two purposes: to describe, at a national level, the broad characteristics, location, extent and ownership of Australia's forests; and to provide baseline information indicating the status of these forests and the range of uses to which they are put.

This report uses a definition of forest based on the one contained in the 1992 National Forest Policy Statement, signed by all State and Territory governments and the Commonwealth. It is:

> *An area, incorporating all living and non-living components, that is dominated by trees having usually a single stem and a mature or potentially mature stand height exceeding two metres and with existing or potential crown cover of overstorey strata about equal to or greater than 20 per cent. This definition includes Australia's diverse native forests and plantations, regardless of age. It is also sufficiently broad to encompass areas of trees that are sometimes described as woodlands.*

This definition is different from some previous widely used definitions in several important ways. In particular, it now encompasses woodland (20-50 per cent crown cover) and forest-forming mallees. These differences mean that Australia's view of its forests moves closer to the internationally accepted definition of forest. It now includes the major timber producing areas as well as those areas of trees that occur in largely agricultural and pastoral landscapes. The estimated forest area is now recognised as being close to 157 million hectares. This figure is expected to change when detailed work across the tropics is completed in about 2001.

This report has demonstrated that reasonable information is available for forests with multiple-use tenure, but is scarce for other tenures. Data on timber extraction could be collated nationally (mainly for multiple-use forests), but national-level information on other forest uses and services is largely unavailable. In addition, few data are available for use in this report to document the contemporary relationship between the forest and Indigenous peoples. This State of the Forests Report has demonstrated a good capacity to report on many issues relevant to forests, and has shown major gaps in capacities to report in other areas.

History

Australian forests have a distinctive ecology determined largely over the course of geological time. What became the Australian continent broke from the land mass of Gondwana about 135 million years ago. Since then, changes in climate have influenced the evolution of Australia's forests, as have other events such as the rise and fall of seas and the eventual separation of New Guinea and Tasmania from the mainland 10-15 thousand years ago.

The arrival of humans in Australia at least 40 000 and perhaps over 100 000 years ago appears to have coincided with a significant increase in the incidence of fire on the continent. This has also affected Australia's forest ecology.

The colonisation and settlement of Australia by non-Indigenous cultures, primarily the British, altered the state of the forests significantly. Forests were cleared to make way for settlement, for agriculture and for pastoralism. Timber was harvested to meet the demands of colonial society, and the condition of the forest resource was also affected by activities such as the gold rushes of the mid-to-late 1800s.

From the middle decades of the nineteenth century through to the first quarter of the twentieth century, States enacted major legislation to conserve forests in perpetuity. They protected both conservation and production forests, thus protecting them from clearing for other land uses and ensuring their active management. In the last quarter of the twentieth century, extensive areas of primarily public forest were added to the forest conservation estate.

The economic boom that followed World War II created an intense demand for construction timber that was met largely from native hardwood forests. In addition, a pulp and paper industry grew rapidly, based on native species such as *Eucalyptus regnans* and *E. delegatensis* and a growing resource of plantation softwoods, particularly *Pinus radiata*.

In the 1970s a woodchip export trade from Australia's forests commenced with the

construction of large woodchip mills in southern New South Wales, Tasmania and Western Australia. Other woodchip operations started elsewhere later.

An environmental movement expanded rapidly in Australia from the 1960s. It criticised forest harvesting and clearing for their impacts on biodiversity and other forest values, including wilderness and old-growth. The movement also called for an end to harvesting in rainforests and an expansion of the national park system. Public controversies about the nature, extent and intensity of timber harvesting, particularly in public forests, continue to the present.

The present extent of forest

Of the 910 plant communities generally recognised as occurring in Australia, 457 were considered to be forest communities for this report. These were grouped into eight broad native forest types: eucalypt, acacia, melaleuca, rainforest, casuarina, mangrove, callitris and 'other'. Plantation forests were treated in two additional categories: hardwood and softwood. Table A shows the total land area on which each of these forest types occurs.

Australia has a total forest area of close to 157 million hectares, made up of almost 156 million hectares of native forests and just over 1 million hectares of plantations. With a land area of almost 769 million hectares, this means that about 20 per cent of the continent is forested.

The biodiversity of Australia's forests is known to be high, even though many areas are yet to be carefully documented. There are 1239 vertebrate species and 13 622 higher plant species known from forested areas of the continent (Table B). There are no comprehensive lists of rare or threatened species available for forests as the habitat of species known to be rare or threatened has not been systematically recorded.

Australia's native forests can be categorised by their crown cover, which is determined by estimating or measuring the area of ground covered by tree canopies. In this report, three classes of crown cover are recognised: closed forest (81-100 per cent crown cover); open forest (51-80 per cent crown cover); and woodland (20-50 per cent crown cover). Table C shows the area of native forest in each of these classes, by State and Territory.

Five tenure categories are recognised in this report: conservation reserves; multiple-use forests; leasehold land; other crown land; and private forests. Table D shows the area of native forest in each of these tenure categories, by State and Territory.

Taking private and leasehold forests together, almost 70 per cent of native forests are on land managed by the private sector, while the rest are managed by government agencies, local governments or other instrumentalities.

Nearly 15 million hectares of eucalypt forest occur in conservation reserves and about 10.7 million hectares are classified as multiple-use. About two-thirds of all eucalypt forests, over 90 per cent of acacia forests, virtually all casuarina forests and more than half of all mangrove and callitris forests occur on private or leasehold land. Just over half of all rainforests are found on land designated as conservation reserve or multiple-use, and about 40 per cent occur on private or leasehold land.

Of the plantation estate, more than two-thirds is publicly owned and the remainder is private. The majority of softwood plantations are publicly owned, but more hardwood plantations are on private land than on publicly owned land. New South Wales, Victoria and Queensland contain the most plantations.

Uses and disturbances

This report describes and quantifies, where possible, the uses to which we put forests and the disturbances imposed upon them by people.

Such uses may be cultural. Indigenous peoples have lived in and used forested areas for thousands of years as hunting grounds, places for ceremony and learning, and as a source of bush tucker, medicines and raw materials. In recent times, the forests have formed an important economic resource for Indigenous and non-Indigenous peoples, as well as a source of cultural meaning.

The extent of forest has changed since settlement by Europeans. Estimates have some inherent uncertainties, but it seems likely that about 36 per cent of Australia's forests were converted to agricultural land between the time of settlement and 1980. Forest cover has since increased in some regions, either through plantation establishment or through a reduction in pressures such as grazing, and decreased in others. Contemporary trends in forest cover change are not fully documented for all States and Territories: a current joint project between the Commonwealth and State

and Territory governments to develop a national land clearance database should yield results by the end of 1998.

Forests are naturally fragmented, but clearing has contributed to the fragmentation of the forest resource. This report estimates that about 76 per cent of Australia's native forest occurs in patches greater than 100 000 hectares, but there are also many very small patches. Forest patches are mostly clumped in the coastal forested regions, while they become smaller and more dispersed towards the interior of the continent.

Forests in the higher rainfall zones of Australia make important contributions to the nation's streamflows. For example, the forested mountains of the upper Murray River comprise only 2 per cent of the total Murray-Darling catchment area yet provide 25 per cent of its streamflow. The woodlands and mallee forests of relatively dry inland areas are much less important in terms of streamflow. However, their high water use characteristics help maintain a low water table and thus aid the prevention of dryland salinity.

Forest conservation is an important forest use. Its general aim is to ensure that forest ecosystems and the natural processes that sustain them remain intact for their own sake and for the benefit and enjoyment of future generations of people. To varying extents, this is undertaken across most tenures.

Individual States and Territories have developed reserve systems based on a range of conservation principles. In 1992 the National Forest Policy Statement advocated the development of a comprehensive, adequate and representative reserve system for forests occurring in regions where commercial forestry predominates. A nationally agreed set of criteria for such a system has been developed and is currently being applied to designated forests, but the results were not available for inclusion in this report.

This report documents timber production in the nation's multiple-use forests. An average of 0.8 per cent (110 000 hectares) of the gross area of forest in this tenure category (13.3 million hectares) is harvested for timber in any one year; this is about 1.5 per cent of the net multiple-use forest area available (7.3 million hectares) (net area excludes forest not available for harvesting, for example, buffers and steep land). Note that harvested areas include a wide range of silvicultural systems, from clear cut to light selective logging. Few data are available for the area of harvestable native forest in private forests, or on other crown lands or leasehold lands.

Table E shows the forecast sustainable yield of sawlogs in the multiple-use native forests for 1994–95 compared to actual harvested volume. Sustainable yield estimates do not appear to form part of management of forests in other tenure categories. Data are provided on the volume of timber harvested from forests with multiple-use or private tenure over the period 1969–70 – 1993–94, subdivided by hardwood and softwood, and by sawlog and pulplog.

Livestock grazing is a predominant form of land use in leasehold and privately owned forests, which together comprise in excess of 108 million hectares. It is also practised widely on other crown land and in multiple-use forests in Queensland and northern New South Wales. However, in this report it was not possible to fully document this forest use.

Australia's forests are subject to a range of other uses, including tourism and recreation, mining and the extraction of non-wood products. The whole of the wet tropical rainforests of north Queensland provided an estimated $750 million to the region in 1997. Similar information on the economic value of forest tourism does not appear to be available for other parts of the country. There is as yet no standard method for reporting visitor use of forested areas, although some data are presented in this report. Nor are nationally collated data available on the area of forest subject to mining or quarrying, or to the extraction of non-wood forest products such as firewood, honey, bush foods and wildflowers.

Carbon storage is increasingly recognised as an important forest use. Australian forests are estimated to store 13.1 billion tonnes of carbon. Changes in land use, primarily the permanent clearing of forest, were the source of most of the 75 million tonnes of CO_2 and CO_2 equivalents that were estimated to have been released annually by this sector. Multiple-use forests were thought to be a carbon sink in 1997, absorbing a net amount of about 19.5 million tonnes of CO_2 or CO_2 equivalents.

Fire is a natural part of many Australian forests, but it exhibits great spatial and temporal variability. The ecological effects of a given fire regime are also variable and depend on intensity, frequency and the season of burn. Indigenous occupation increased the frequency of fire as Indigenous peoples used fire as a tool to assist with hunting and other activities.

Deliberate burning appears to have been highly selective – frequent in some areas and absent in others. European settlement altered existing fire regimes, traditionally by limiting or attempting to exclude fire, but most recently by burning to reduce the risk of bushfire and to achieve forest management objectives. There are no consistent continental-scale data on the amount of forest burned annually by either bushfire or prescribed burning.

Australia's native forests are affected by a range of pests and pathogens: some are indigenous and some have been introduced since the time of European settlement. Currently, there are no quantitative national data on the extent to which such pests and pathogens affect forest health. This report presents the occurrence and significance of over 50 animal pests, more than 40 weeds and a small set of pathogens as examples of a much longer list of pathogens, based on responses from State and Territory conservation and production forest agencies. The extent to which pesticides, herbicides and fungicides are used in forests by State and Territory agencies is also documented qualitatively.

Policy and management

The management of forests is largely the responsibility of the States and Territories. This report lists the various Acts of Parliament most relevant to forest management and shows the institutional evolution of agencies in each State and Territory with responsibility for forest management. Recent initiatives related to forests that have been implemented at the State and Territory level are described.

In recent years the Commonwealth and some State governments have been engaged in joint forest planning exercises known as comprehensive regional assessments (CRAs) across parts of the forest estate, leading to the negotiation of regional forest agreements (RFAs). These set out how the forests of the region under assessment are to be managed and used over a period of up to 20 years. All current RFAs should be completed by the end of the year 2000. While this exercise has yielded significant new information about forests, it has generally not been possible to include such information in this report, but it is expected to inform the next State of the Forests Report.

The Commonwealth is responsible for ensuring that Australia's international obligations are met and that provisions of Commonwealth legislation are satisfied.

Australia is engaged in the Montreal Process, a non-legally binding agreement between 12 countries with significant areas of temperate and/or boreal forests. The Montreal Process has enabled the development of criteria and indicators for the sustainable management of temperate and boreal forests, which provide a common understanding of what is meant by sustainable forest management. These criteria and indicators will form the basis of national-level reporting of Australia's forests in future State of the Forests reports.

By far the most information on forest management activities is available for forests with multiple-use tenure; the report presents information on the silvicultural systems employed for various forest groups and the area of multiple-use forests and conservation reserves subject to management plans. It also summarises the content of codes of forest practice applied to multiple-use forests and, in some instances, to forestry on private lands. However, there is very little national-level information available to illuminate the management regimes imposed in forests with leasehold, private or other crown land tenure.

Forest industries

Information on forest industries presented in this report relates to the three principal wood-based industries: forestry and logging; wood manufacturing; and paper production. Collectively, these had a gross industrial product of more than $4.3 billion in 1989-90. They contributed 1.1 per cent to the national gross operating surplus in the same year and paid $2.2 billion in wages and salaries.

The three principal wood-based industries employed about 84 200 people in 1995, representing 1.02 per cent of the total Australian workforce. Of these, 11 000 were employed in forestry and logging, 19 900 in log sawmilling and timber dressing, 30 000 in other wood product manufacturing, and 23 000 in paper and paper product manufacturing. In 1996 nearly 6900 business establishments were engaged in wood-related forest industries.

Australia exported about 7 per cent of domestically manufactured wood-based products in 1993–94; the rest were sold domestically. About 27 per cent of wood-based forest products consumed domestically in that year were imported.

Sawnwood consumption has remained relatively constant at around 4 million cubic

metres per year for the last 20 years. The proportions of hardwood and softwood have changed significantly over this period, from about two-thirds hardwood in 1975–76 to about one-third hardwood in 1996–97. Australia is a net importer of wood-based forest products in terms of value, but is a net exporter in terms of volume. The annual deficit in the terms of trade in this sector was $1.4 billion in 1996–97.

This report provides information on the productivity of the wood-based forest industries. Price indices for hardwoods, imported paper products and woodchips are also presented, as are revenues earned from the sale of wood from publicly owned native and plantation forests for the period 1991–95.

Social dimensions

A measure of the extent to which communities are financially dependent on forests is the number of people employed in forest-related industries as a proportion of the total working population. In Australia, 186 towns have a forest dependency above 5 per cent. Of these, 104 towns have a dependency in the range of 5–10 per cent; just 5 towns have a dependency of more than 50 per cent. In 35 towns, more than 20 per cent of the workforce is employed in forest industries; all are relatively small communities.

Communities may also depend on forests in non-financial ways, for example, for food, raw materials and cultural ties. Information of this kind is not available.

Improving occupational health and safety standards have contributed to making the forest, the sawmill and the paper mill safer places in which to work. Nevertheless, the wood-based forest industries remain risky. For example, in the period 1991-92, forest loggers suffered 386 fatalities per 100 000 person-years, compared to 70 per 100 000 person-years in mining and quarrying and 143 in fishing. The figure for sawmill workers was 30 fatalities per 100 000 person-years.

This report documents available information on current forest research efforts, education in the forest sector and nationally significant awards in fields relevant to Australian forests.

The state of knowledge

Much of our knowledge of forests is centred on the publicly owned, timber producing forests, which constitute a relatively small proportion of the total national forest estate. Less is known about forests of lower commercial quality, forests in conservation reserves and forests on private and leasehold estates.

In this report the state of the knowledge base is discussed under the seven headings that form the basis of the Montreal Process criteria for sustainable forest management. In addition, issues of concern to the Australian community are listed, to serve as a reference point for future reports about the issues considered nationally important in 1997.

Table A: Forest area, by forest type

Forest type	Area ('000 ha)
Eucalypt	124 463
Acacia	12 298
Melaleuca	4 093
Rainforest	3 583
Casuarina	1 052
Mangrove	1 045
Callitris	867
Other	8 435
Total native forest	**155 835**
Plantation softwood	884
Plantation hardwood	159
Total plantations	**1 042**
Total forest	**156 877**

Table B: Biodiversity of Australian forests—number of species known to occur in forests

Mammals	317
Birds	561
Reptiles	219
Amphibians	126
Fish	16
Higher plants	13 622
Rare or threatened vertebrates	81

Table C: Native forest area, by crown cover, by State and Territory ('000 ha)*

Crown cover	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia
Closed forest	0	217	693	2 964	20	545	8	180	4 627
Open forest	102	8 364	7 020	9 989	2 309	2 359	6 029	3 003	39 175
Woodland	17	12 206	27 671	36 102	3 170	0	1 248	31 617	112 033
Total	**135**	**21 057**	**35 389**	**49 226**	**5 602**	**3 038**	**7 501**	**34 930**	**156 877**

* Note: Column or row total may not add up due to rounding.

Table D: Area of native forest in each tenure category, by State and Territory ('000 ha)*

Tenure	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia
Conservation reserves	93	3 060	2 709	2 870	1 252	523	2 710	4 364	17 580
Multiple-use forests	5	3 095	0	3 983	27	1 285	3 346	1 612	13 351
Leasehold land	13	5 966	20 236	23 996	1 866	0	0	14 025	66 103
Other crown land	2	605	258	1 051	12	296	165	13 206	15 597
Private forests	7	8 046	11 187	17 111	2 327	801	1 038	1 502	42 018
Total	**135**	**21 057**	**35 389**	**49 226**	**5 602**	**3 038**	**7 501**	**34 930**	**156 877**

* Note: Column or row total may not add up due to rounding.

Table E: Calculated sustainable yield and actual harvest of native forest sawlogs ('000 m^3) from multiple-use forests, 1994-95

State	Sustainable yield	Harvested volume
ACT	N/A	N/A
NSW	801	781
NT	N/A	N/A
Qld	112	111
SA	N/A	N/A
Tas	300	309
Vic	743	664
WA	758	689
Total	**2714**	**2663**

Note: N/A = not applicable (commercial harvesting of native forest does not occur).