state forests of new south wales

seeing

social, environmental and economic report

2002/03

STATE FORESTS

An electronic version of this document is available from the State Forests of NSW website: http://www.forest.nsw.gov.au

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CONTENTS

foreword by the managing director

Historically, the commercial, environmental and social values associated with forestry have been portrayed as being in conflict. Meeting our objectives as a Government Trading Enterprise, through sustainable forest management, places State Forests in a unique and challenging position. By monitoring our performance and producing the Seeing Report each year we are better able to ensure that these objectives are met and our social, environmental and economic impacts are properly considered in all management decisions and operations.

In the past year we have learnt some important lessons, made significant achievements and identified a number of areas for future attention.

Financially we performed well during 2002/03, due mainly to the continuing buoyancy in the housing market. Harvesting of both plantations and native forests was within sustainable levels and assessment and success of regeneration in native forests was improved.

The 2002/03 fire season will be remembered as one of the most arduous and extended seasons ever faced. Our success in protecting our plantations and minimising the damage to native forests throughout the State was within an outstanding achievement. It is a tribute to the skills of our staff as well as the many additional firefighters from other NSW regions, agencies and States who provided support.

Providing access to forests for recreational activities is one of the most significant benefits that State Forests provide. However, as the number of people using State forests grows and the size of the estate continues to decrease, pressure is rising on popular high-use recreation areas and roads. I was most pleased with the many fruitful initiatives taken by State Forests regions towards improved community engagement in management of recreational areas. We have taken steps towards a long-term strategy for sustainable tourism and recreation in cooperation with major recreation and tourism groups that use State forests, including the development of a draft tourism and recreation policy and strategy document as a basis for further consultation with stakeholders.

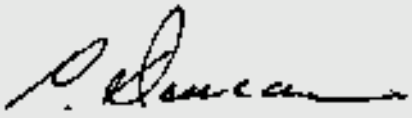
In 2003/04 we will be looking to improve our safety record. With hindsight many serious incidents could have been prevented. We will also be striving to maintain improvements in our environmental compliance record.

I would like recognise the foresight and effort of the previous Chief Executive, Dr Bob Smith, in instituting sustainability reporting six years ago. State Forests at that time was the first Australian forest management agency to produce an annual environmental and social values report.

This year we have again chosen to undertake independent verification of the Seeing Report. Verification is intended to provide assurance to our stakeholders that the data presented and the statements made in our report are valid and accurate. It will also provide internal assurance that our data collection, aggregation and transcription processes are sound and our interpretation of the data is accurate. The process also included a series of internal and external stakeholder interviews to further provide an opportunity for comments and feedback.

For 2003, an assurance evaluation was also undertaken in line with the AA1000 Assurance Standard (released in March 2003), which goes beyond the verification of report and data management systems. The evaluation aims to assess the quality of the subject matter and the underlying systems, processes and competencies that underpin the organisations' performance. Undertaking an independent assurance evaluation is a key step in assisting the report audience and other stakeholders gain confidence that State Forests is committed to being a sustainable organisation.

I am pleased to present State Forests of NSW' Seeing Report for 2002/03 and I would value hearing your opinions on our efforts to achieve and demonstrate sustainable outcomes in all of the forest that we manage.



Peter Duncan
Managing Director

Peter Duncan
Managing Director

introduction to the seeing report

This report marks State Forests' sixth year of publicly reporting on its social, environmental and economic performance. Since 1998, this report has evolved from having a focus on mainly environmental issues to one that examines our performance in a wide range of areas of interest or concern to our many stakeholders.

The evolution of the structure and content of the Seeing (Social, Environmental and Economic) Report mirrors developments internationally towards corporate bodies reporting on their 'triple bottom line' (TBL) or sustainability. This approach examines the outcomes of decision making in terms of social, environmental and economic results.

The long-term planning horizon of forestry and the community's demand for good governance and exercise of social responsibility puts the onus on resource management agencies like State Forests to communicate its overall performance and review its policies and activities based on objective data. The Seeing Report is one way of pursuing these worthwhile corporate goals.

PERFORMANCE AREAS

The report is structured around the performance areas of:

Social – building partnerships and generating economic and social benefits within the community, especially for rural and regional communities; developing and valuing our staff.

Environmental – ecologically sustainable management of native and planted forests to protect and enhance environmental and conservation values and to help meet the demands of future markets for environmental services.

Economic – ensuring an adequate return from the marketing of wood products from the State's native forest and plantations while also developing innovative commercial products and services to facilitate private investment in new planted forests.

The three icons above are used throughout the report to highlight the relationship between the indicators and these performance areas. For example, although an indicator may be predominantly measuring our social performance, there may be some environmental and/or economic outcomes also relating to that indicator.

FOREST VALUES

Each forest value that is reported is described and the results presented for this year along with comparative data available for previous years. Case studies and examples illustrate the results and trends in practical terms, highlight achievements and show the lessons we have learnt and new directions that have been set.

Performance information is combined with brief descriptions of some relevant research and development activities undertaken by State Forests that underpin future management improvement in relation to the various forest values.

For each forest value one or more indicators are used. These indicators link management activities and operations to specific forest values and policy objectives. The financial cost of undertaking particular management activities is also reported where available and relevant.

TARGETS AND BENCHMARKS

The nature of forest management and the process of collecting information about forests and forest ecosystems makes it difficult to measure outcomes, let alone set realistic and meaningful numeric targets for some values. However, we can measure what has happened and link these with management objectives. As the information we collect continues to grow we hope to be able to establish, firstly, performance benchmarks and later management targets.

Learning about bush tucker at Cumberland State Forest.

a corporate commitment to sustainability

Sustainable forest management is the key principle guiding State Forests' performance as a commercial forestry organisation. Our responsibility for managing forests and plantations for the wide range of values they offer to society brings many challenges.

State Forests seeks to establish and monitor its performance in terms of sustainability, that is, performance encompassing the social, economic and environmental outcomes we achieved. A sustainable outcome is one which successfully maintains economic prosperity, environmental quality and social responsibility.

CORPORATE PLAN 1998–2003

The corporate plan identifies our key result areas, management objectives and sets targets for each performance indicator for the period of the plan. The current corporate plan is for the five-year period 1998–2003 and embodies the following key result areas, vision, mission and values. A new Corporate Plan is currently being developed.

KEY RESULT AREAS

The four key result areas in the current corporate plan are:

- Ecologically sustainable forest management;
- Sustained financial performance;
- Accountability to the community; and
- Our people.

The Seeing Report demonstrates and comments on State Forests' performance in these key result areas.

Our Vision

More people benefiting from the diversity of State Forests' products and services more often.

Our Mission

We manage native and plantation forests for the widest possible range of benefits to current and future generations of people in New South Wales.

Our Values

- Open, accountable and credible to the people of New South Wales;
- Innovative and responsive in achieving commercial and environmental goals;
- Demonstrating integrity in how we deal with people both inside and outside of State Forests; and
- Meeting our commitments to our people, the community and the Government.

There are a number of mechanisms in place designed to guide State Forests' management practices towards sustainable outcomes. These include:

- Various State Forests' policies;
- Regional Forest Agreement outcomes, Integrated Foresty Operations Approvals requirements, and associated reporting commitments;
- Ecologically Sustainable Forest Management Strategic Plans;
- Management Information Systems; and
- Environmental Management Systems, where State Forests is currently putting in place standards and systems to achieve an ISO14001 accredited Environmental Management System for native forests.

2002/03 performance summary

	FOREST VALUE	TARGET	INDICATOR	PAGE
SOCIAL	**Community Benefits**	Provide a wide range of benefits that meet community needs and expectations.	1 Social responsibility 2 Regional opportunities for public participation 3 Recreation and tourism 4 Research and education 5 Indirect employment through forest dependent industries 6 Quantities of other forest products	12 13 14 15 17 18
	Staff	Provide a safe and forward thinking workplace with management that meets staff expectations.	7 Quality of management 8 Human resource management and staff training 9 Health and safety	19 20 20
	Cultural Heritage	Conserve and protect cultural heritage.	10 Protection of cultural heritage: – recorded places, artifacts, sites and other structures – number of staff and contractors with cultural heritage training	24
ENVIRONMENT	**Biodiversity**	Maintain the extent and distribution of native species of flora and fauna across the estate.	11 Extent of forest type – Native forests – Planted forests 12 Extent of native forest structure 13 Record of surveyed species 14 Managing a forest structure matrix	28 29 30 32
	Forest Health	Manage healthy forests.	15 Expenditure to control pest animals and weeds 16 Percent of forest affected by agents that may change ecosystem health and vitality 17 Fire fighting and prevention	34 34 36
	Soil and Water Quality	Maintain clean healthy streams and stable soils.	18 Soil erosion assessment – area and percent of forest harvested 19 Area and percent of forest managed primarily for catchment protection	38 39
	Compliance	Compliance through effective harvest planning and operations.	20 Regulatory compliance 21 Efficient harvest planning and operational compliance in native forest	40 41
	Environmental Services	Expand our contribution to reducing the green-house effect and salinity. Improve our eco-efficiency.	22 Annual carbon sequestration in planted forest 23 Energy consumption 24 Material consumption and recycling	43 45 46
ECONOMIC	**Productivity**	Ensure sustainable productivity in all managed forests.	25 Forest available for timber production 26 Plantation establishment 27 Percent of planted forest effectively stocked 28 Mean annual growth of planted softwood forest 29 Removal of sawlogs compared to allowable volume 30 Percent of native forest regenerated	49 51 51 52 52 53
	Marketing and Sales	Provide high-value products to meet customer demands.	31 Volume of timber harvested 32 Product mix of timber harvested	57 57

PERFORMANCE KEY:

↑ Improved performance compared to previous year.
←→ No change in performance compared to previous year.
↓ Reduction in performance compared to previous year.
1 This does not include approximately 61,000 hectares revoked in January 2003.

Note: Some figures have changed slightly from the performance summary table printed in the 2002/03 State Forests' Annual Report as a result of the external verification process.

RESULTS	PERFORMANCE
$279,000 in corporate sponsorships and other community services.	↑
1,739 various regional community forums attended.	←→
283 recreational facilities and 291 formal events.	↓
$7.1 million spent on research and $3.5 million spent on education.	↓
7,231 people employed through forest industries. Over 15,000 jobs generated in NSW through indirect employment.	←→
Continued sustainable provision of products from forests of value to society: water, opportunities for grazing and beekeeping, seeds and seedlings, firewood.	←→
1,146 people directly employed by State Forests. Aboriginal/Torres Strait Islander employees 2.4% of total staff.	←→
Over $2.4 million on human resource management and over $2.6 million on staff training.	←→
99 OH&S meetings; lost time accident frequency rate of 18.1; 827 voluntary safety initiatives adopted; 293 staff and contractors received first aid training.	↑
95 new sites of cultural significance to the Aboriginal community protected; 544 non-Aboriginal heritage sites protected in State forests.	←→
Additional 160 State Forests' staff and forest workers trained in cultural heritage awareness.	↑
Total forest estate managed by State Forests approximately 2,894,000 hectares.	←→
2,389,000 hectares of native forest estate[1].	↓
505,000 hectares managed for the establishment, management and protection of planted forest. Within this area, 269,000 hectares is established plantation.	↑
22.5% Regrowth, 25.1% Mature, 5.1% High Conservation Value Old Growth, 4.3% Rainforest and 43.0% unassigned.	←→
40 targeted species found in surveys prior to harvesting, with 2,800 sightings.	←→
Proportional representation of forest types and structure classes within the Forest Management Zoning System.	NEW
$2.1 million spent on feral animal and weed control.	↑
12% of new hardwood plantations and 1% of all softwood plantations with significant levels of insect infestation, fungal attack, frost damage or nutrient deficiency that could cause deleterious affects.	←→
5.7% of State forests burnt by wildfire.	←→
30% of State forests treated by fuel management strategies. $14.2 million spent on fire prevention and control.	↑
193,000 hectares or 6.9% of forest assessed for soil erosion hazard.	↑
All State forest managed for catchment protection with 10% of State forest managed with special emphasis on catchment protection.	←→
Nearly 4,000 internal compliance check sheets conducted, covering 335,000 potential items checked.	↑
1,810 recorded non-compliance incidents identified for corrective action by contractors (99% compliance rate).	↑
1 fine issued; no prosecutions by regulators.	↑
2,027 flora and fauna surveys and 270 soil and water surveys undertaken in native forest. $9 million spent on harvest planning and pre-harvest surveys and over $5.7 million spent on harvesting supervision and environmental compliance in native forests; 231 additional staff and contractors received environmental training.	↑
4.2 million tonnes of carbon dioxide (CO_2) equivalent sequestered by hardwood and softwood plantations.	↓
Over 10,000 tonnes of CO_2 emitted through electricity and fuel consumption; and 12.8% of electricity sourced from green power.	←→
53% of waste recycled or reused; 20% of product purchased with recycled content.	↓
1,580,000 hectares available for timber production on State forests.	↓
679,000 hectares in Dedicated and Informal Reserves on State forests.	↑
605,000 hectares of other areas estimated as protected from harvesting.	↑
5,500 hectares of softwood plantation and 1,680 hectares of new hardwood plantation established.	↑
81% of softwood plantation and 97% of hardwood plantation successfully established, one year after planting.	←→
Mean annual growth increment for softwood plantations of 16.7 m^3/ha/yr.	←→
Actual annual yield of high quality sawlogs as % of allowable volume: 82% from native forests in RFA areas; 97% from all softwood plantations.	↑
87% of surveyed harvested area successfully regenerated based on 36 regeneration surveys.	↑
2.27 million m^3 of mill logs and 1.52 million tonnes of pulpwood harvested from planted and native forest.	←→
No significant change in proportion of hardwood and softwood sawlogs processed into high value products.	←→

who is state forests of nsw?

State Forests of NSW is a State Government Trading Enterprise (GTE) responsible for managing some 2.9 million hectares of native and plantation forest on behalf of the people of New South Wales. State Forests is the trading name of the Forestry Commission of NSW, established under the *Forestry Act 1916* with the primary objective of providing a sustainable supply of timber to the community in conjunction with a range of environmental, social and economic values for the long term. Specifically, State Forests' objectives under the *Forestry Act 1916* are to:

- conserve and utilise timber;
- provide adequate supplies of timber;
- preserve and improve the soil resources and water catchment capabilities;
- encourage the use of timber;
- promote and encourage recreation;
- conserve native flora and fauna; and
- provide natural resource environmental services.

The management of these multiple values is assessed in the Seeing Report.

As a GTE, State Forests is also responsible for delivering a financial return to the State of NSW for its investment in State forests. State Forests' Annual Report provides full details of the organisation's financial performance.

ORGANISATIONAL PROFILE

State Forests' offices and facilities are distributed widely across NSW. There are 11 main Regional centres as well as a Head Office (at Pennant Hills) and a Research and Development Centre (in Cumberland State Forest at West Pennant Hills) in Sydney. A list of State Forests' offices around NSW is provided in our Annual Report.

We have four main operating businesses:

- Softwood Plantations;
- Future Forests (Hardwood Plantations);
- Native Forests; and
- Investment Services.

Growing and marketing wood products from the State's native forests and plantations, in accordance with principles for ecologically sustainable forest management, remains our primary business. Approximately four million cubic metres of sawlogs and pulpwood are harvested from State forest each year and sales of these products generate in excess of $100 million dollars in revenue for the organisation while maintaining and developing viable and economically sustainable timber industries in rural communities.

In addition, State Forests is responsible for developing new business services related to our primary role as a forest manager. Exciting new commercial business opportunities are being taken up in areas such as private forestry and plantation management services, carbon sinks and carbon trading, salinity mitigation, eco-tourism, biodiversity, land repair and mine site rehabilitation.

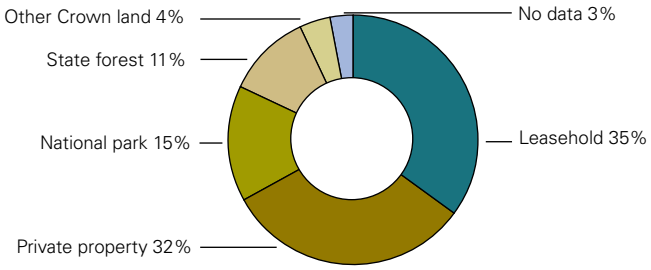
STATE FORESTS IN CONTEXT

In NSW there are approximately 27 million hectares of native forests and woodland covering approximately 34% of the State. Of this approximately 2.9 million hectares (3.5% of the State or 11% of NSW' forests and woodland (Figure 1)) are managed by State Forests as multiple use forest.

Approximately 55% of the State forest estate is available for harvesting. However, only 2.2% of the estate was actually harvested during 2002/03.

The forests of NSW are managed for a range of values including timber production, conservation, recreation, amenity and socio-economic benefits. In many multiple-use forests, such as State forests, timber and other wood products are the principal economic values. However parts of these forests are managed specifically for non-timber values such as biodiversity, community uses, water quality, research and education. In all cases, timber harvesting in State forests is practiced in such a way as to maintain all forest values in the long term.

FIGURE 1: TENURE AS A PERCENTAGE OF TOTAL FOREST AND WOODLAND IN NSW



* as defined by the National Forest Inventory

of nsw?

POLICY CONTEXT

Forest assessments were conducted as part of the State-Commonwealth Regional Forest Agreement (RFA) process. RFAs are one of the principle means of implementing the National Forest Policy Statement of 1992 under which the Commonwealth and all State and Territory Governments agreed to work towards a shared vision for Australia's forests. NSW RFAs are agreements between the Commonwealth and the NSW Governments on the future use and management of the State's coastal native forests. A RFA is a 20-year agreement with three main objectives:

- to protect environmental values in a world class Comprehensive, Adequate and Representative (CAR) Reserve system of dedicated and informal reserves and areas protected by prescription;
- to encourage development of an internationally competitive timber industry; and
- to manage native forests in an ecologically sustainable way.

They are the result of years of scientific study, consultation and negotiation covering a diverse range of interests. RFAs are in place for Eden, North East (Upper North East and Lower North East) and Southern (South Coast and Tumut) NSW. Copies of NSW RFAs can be downloaded from this web page: http://www.affa.gov.au.

The *Forestry and National Parks Estate Act* formalised the identified conservation reserves through the transfer of certain State forest and other Crown land to the national park estate. The Act also provides for the making of NSW Forest Agreements.

Forest agreements were prepared for all regions now covered by an RFA. These agreements were signed by the Ministers administering the *Environmental Planning and Assessment Act 1979*, the *Forestry Act 1916*, the *National Parks and Wildlife Act 1974*, the *Protection of the Environment Administration Act 1991* and the *Fisheries Management Act 1994*.

A NSW forest agreement is one means by which NSW implements the obligations and undertakings arising from an RFA for a region. A forest agreement contains provisions that promote ecologically sustainable forest management, sustainable timber supply, community consultation on forestry operations and arrangements concerning native title rights and interests or land claims, as well as other provisions the Ministers consider appropriate. Forest agreements establish a co-operative framework at a strategic, rather than operational, level for the management of forested areas across all tenures, including national parks.

In the western regions of the state, the NSW Government has begun Western Regional Assessments (WRAs) which are designed to ultimately deliver forest agreements as well as broadscale land use decisions across private and public lands. The first of these, for the Brigalow Belt South Bioregion, was completed in December 2002, although decision on the outcome has yet to be finalised. In the meantime, a WRA for the Nandewar Bioregion has begun.

REGULATION OF FORESTRY ACTIVITIES

The activities carried out by State Forests in native forests and plantations are governed by rules set by the NSW Government, agreed where necessary by the Commonwealth Government.

The *Forestry and National Park Estate Act* also institutes a coordinated approach to the regulation of forestry activities, providing for a system of Integrated Forestry Operations Approvals (IFOAs) for forestry operations on State forests and other Crown timber lands in areas covered by Forest Agreements.

IFOAs represent an integration of the regulatory regimes for environmental planning and assessment, for the protection of the environment and for threatened species conservation. The approval sets out the terms and conditions under which logging may occur in a State forest. The approval also contains the terms of relevant licences under the *Protection of the Environment Operations Act 1997*, the *Threatened*

who is state forests of nsw?

Species Conservation Act 1995 and the *Fisheries Management Act 1994*. It can be revoked, suspended or amended at any time by the relevant Ministers.

Ministers may also bring proceedings in the Land and Environment Court for breaches against the conditions of the approval, and licences granted under the approval can be enforced by Ministers and/or their agencies.

Copies of NSW Forest Agreements and IFOAs can be downloaded from the web page: http://www.racac.nsw.gov.au/rfa/.

Harvesting in forested areas which are not covered by RFAs, generally west of the Great Dividing Range, is undertaken in accordance with rules set by the Department of Infrastructure, Planning and Natural Resources, as well as a Threatened Species Licence issued by the National Parks and Wildlife Service (NPWS) (now within the Department of Environment and Conservation (DEC)).

To ensure that regulatory requirements are met, State Forests and its contractors are subject to compliance checks and audits by State Forests' supervisors and audit staff of the regulatory agencies i.e. the DEC (which incorporates the former NPWS and Environment Protection Authority) and NSW Fisheries.

STATE FORESTS' POLICIES AND CODES OF PRACTICE

A suite of policies has been implemented to help guide sustainable forest management practices. While not explicit in their stated objectives several policies seek outcomes that contribute to sustainable forest management. Some of these policies are available from State Forests' Statement of Affairs on our web page. These include:

- Native Forest Management System
- Managing our Forests Sustainably: Forest Management Zoning
- Environmental Policy
- The development of ESFM strategic plans for each region
- Recreation Policy
- Procurement Policy
- Workplace Safety
- Equity Policy
- Ethnic Affairs
- Safety Policy Harassment Policy
- Managing Reasonable Adjustment and Employment For People With A Disability Policy
- Employee Skill and Competency Development Policy
- Code of Conduct
- Good Neighbour Policy
- Commitment to Ethical Practices Policy
- Reasonable Adjustment During Pregnancy Policy
- Fire Management
- Voluntary commitment to Energy Policy (GEMP) Government Energy Management Policy
- Waste Reductions and Purchasing Policy (WRAPP).

State Forests has developed a number of Forest Practice Codes to identify non site specific terms and conditions for forestry activities that have the potential to impact on environmental values. These include codes for:

- Timber harvesting in State Forests plantations;
- Timber harvesting in native forests;
- Plantation establishment and maintenance; and
- Forest roads and fire trails.

STATE FORESTS' REPORTING FRAMEWORK

State Forests has a range of voluntary and statutory reporting commitments at the state, national and international levels.

State Forests has been producing voluntary public reports on environmental and social values through the Seeing Report (formerly known as the Environment and Social Values Report) for six years. The report is part of our commitment to communicate with the community, staff and other stakeholders to monitor our performance in managing public forests for a range of values identified as being of particular importance to State Forests and our stakeholders.

The Seeing Report is a companion document to State Forests' Annual Report. The Annual Report provides details of State Forests' financial and corporate performance as required under the *Public Finance and Audit Act, 1983* and the *Annual Reports (Statutory Bodies) Act 1984*.

Both the Seeing Report and the Annual Report can also be downloaded from State Forests' web page, http://www.forest.nsw.gov.au/.

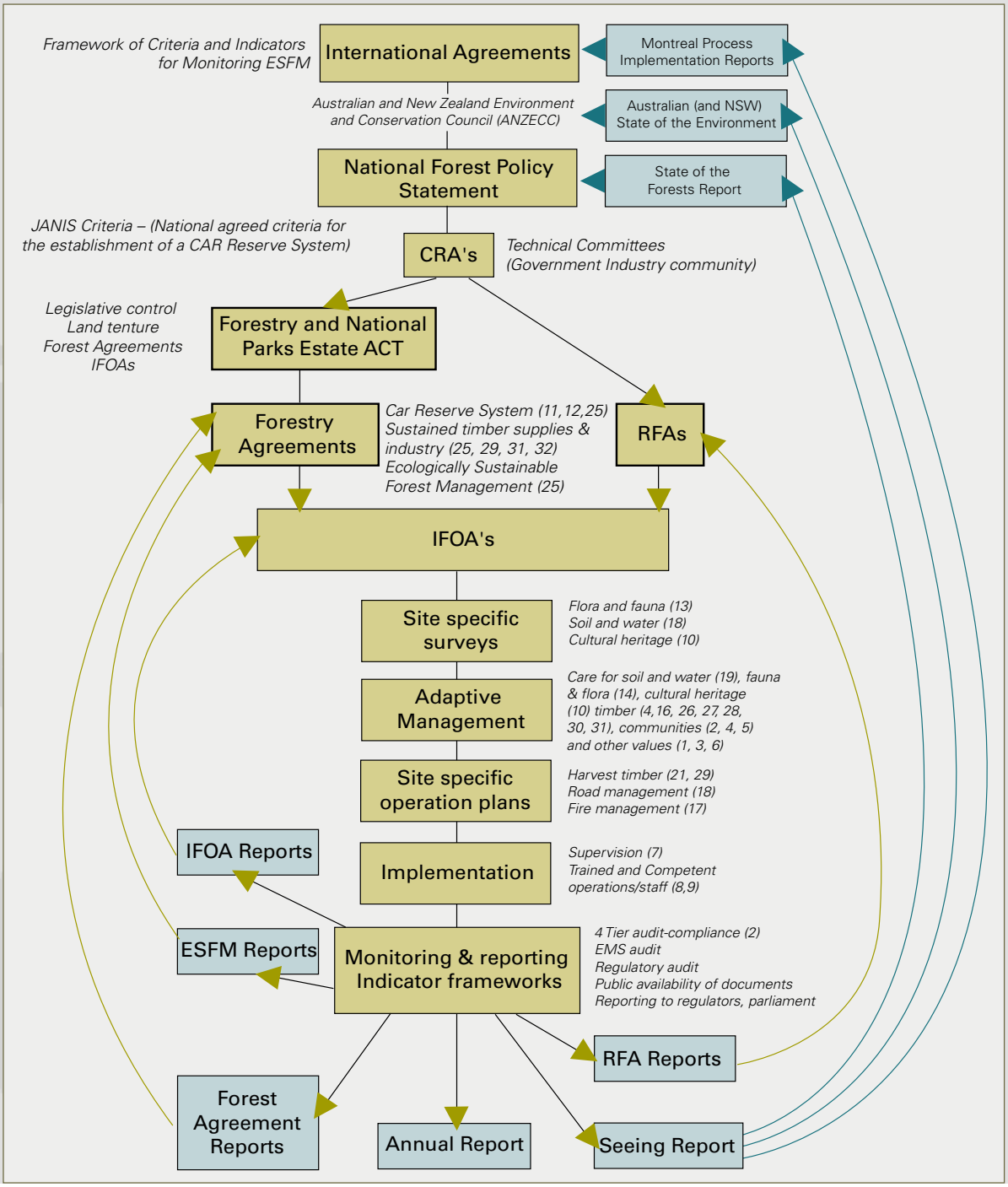
At the state level, State Forests' is also required to contribute to produce a range of other reports:

- Regional Forest Agreement Annual reports (http://www.affa.gov.au);
- Forest Agreement Annual reports;
- Forest Agreement Criteria and Indicator reports;
- IFOA (Integrated Forestry Operation Approvals) reports;
- ESFM (Ecologically Sustainable Forest Management) Plan Annual Report (being finalised); and
- State of the Environment Report (http://www.epa.nsw.gov.au).

At a national level, State Forests contributes to the State of the Forests Report and internationally to the Montreal Process. These reports are downloadable from http://www.affa.gov.au.

State Forests developed a social, environmental and economic data storage (SEEDs) system during the 2001/02 reporting period. The system was developed to streamline and integrate the collection and collation of data required for organisational wide reporting requirements, as outlined above. The system enhances data consistency, accuracy in data collation and provides Regions with data entry facilities and improved access to all levels of the data. SEEDs has been attracting interest from other organisations seeking to commence or improve the management of data for performance monitoring.

The following flow diagram depicts the policy, regulatory and reporting framework within which State Forests operates, linked to the indicators in the Seeing Report (relevant indicator numbers shown in brackets).


Framework of Criteria and Indicators for Monitoring ESFM
International Agreements
Montreal Process Implementation Reports
Australian and New Zealand Environment and Conservation Council (ANZECC)
Australian (and NSW) State of the Environment
National Forest Policy Statement
State of the Forests Report
JANIS Criteria – (National agreed criteria for the establishment of a CAR Reserve System)
CRA's
Technical Committees (Government Industry community)
Legislative control
Land tenture
Forest Agreements
IFOAs
Forestry and National Parks Estate ACT
Forestry Agreements
Car Reserve System (11,12,25)
Sustained timber supplies & industry (25, 29, 31, 32)
Ecologically Sustainable Forest Management (25)
RFAs
IFOA's
Site specific surveys
Flora and fauna (13)
Soil and water (18)
Cultural heritage (10)
Adaptive Management
Care for soil and water (19), fauna & flora (14), cultural heritage (10) timber (4,16, 26, 27, 28, 30, 31), communities (2, 4, 5) and other values (1, 3, 6)
Site specific operation plans
Harvest timber (21, 29)
Road management (18)
Fire management (17)
IFOA Reports
Implementation
Supervision (7)
Trained and Competent operations/staff (8,9)
ESFM Reports
Monitoring & reporting Indicator frameworks
4 Tier audit-compliance (2)
EMS audit
Regulatory audit
Public availability of documents
Reporting to regulators, parliament
RFA Reports
Forest Agreement Reports
Annual Report
Seeing Report

social

social

Building partnerships and generating economic and social benefits within the community, especially for rural and regional communities. Developing and valuing our staff.

forest value 1 – community benefits

State Forests manages land on behalf of the people of NSW. Regional communities are particular beneficiaries of forestry, mainly through employment and income generation through timber processing and value-adding. Providing secure access for all forest users to pursue and enjoy a range of activities – small business, recreation and education activities – is important to State Forests. Managing such a large and geographically widespread resource provides many opportunities to form constructive community partnerships and to build our stakeholder relationships.

INDICATOR 1: SOCIAL RESPONSIBILITY

Description

One way State Forests tries to improve its performance as a good corporate citizen is through volunteering, forming community partnerships and by sponsoring worthwhile events, as well as encouraging staff to support charitable fund raising initiatives. State Forests particularly recognises the contribution of community volunteers who donate their time and efforts to assist State Forests in undertaking various activities, for example, at Cumberland and Strickland State Forests.

Trends

The number of initiatives, activities and contributions made by State Forests have increased overall in the past year (Table 1). Activities attracting corporate sponsorships and donations included local sporting rallies and events, tree planting rehabilitation, landcare activities, prizes for competitions held by schools and other organisations.

A number of State Forests' regions chose to waive fees to assist with local development and projects including the provision of road gravel to local councils; fencing timber to neighbours; chainsaw and four wheel drive training for the Rural Fire Service and State Emergency Service. Ninety community based programs were undertaken by regions and over 790 volunteers participated in programs at Cumberland State Forest.

State Forests is a major sponsor of the woodchopping competition at the Sydney Royal Easter Show.

TABLE 1: SOCIAL RESPONSIBILITY

	Number			Amount ($)		
	2000/01	2001/02	2002/03	2000/01	2001/02	2002/03
Corporate sponsorships, donations and waived fees	>50	135	268	97,924	105,905	278,692

INDICATOR 2. REGIONAL OPPORTUNITIES FOR PUBLIC PARTICIPATION

Description

Different communities have different values and expectations about forest management. Community engagement is necessary to better understand the range of local and general attitudes about forest management. State Forests is committed to involving the public in making management decisions about State forests and the landscapes in which they occur. Our staff often organise and/or attend meetings and community forums related to land and forest management issues. The attendance level indicates our commitment to listening to and involving the public and contributing to the decision making process.

Trends

The number of public forums attended by State Forests' staff remained stable during the 2003 period (Figure 2). Hunter Region was particularly active in the development of community engagement initiatives through the Ourimbah Protocol (refer to Feature Story 1) as well as educational opportunities for schools and community groups. Consultation around conservation and the environment remains high and a significant increase in the number of forums relating to cultural heritage values is particularly noteworthy (refer Appendix 1).

FEATURE STORY 1

FOREST PARTNERSHIP LAUNCHED ON CENTRAL COAST

In June, the Minister Assisting the Minister for Natural Resources (Forests) Michael Costa, announced an innovative collaboration in forest management.

The Ourimbah Protocol is a unique partnership between State Forests of NSW and central coast community groups and businesses including Darkinjung Local Aboriginal Land Council, The Combined Community Organisation (Gosford), Central Coast Landcare Network and The Sydney Rainforest.

Speaking at the launch in Gosford, Mr Costa said that the development of the Ourimbah Protocol was a first for collaborative forest management in NSW.

"These groups approached State Forests to become involved in forest management in the spirit of communication and collaboration, not confrontation," Mr Costa said. "The partners have made a commitment to develop new opportunities for the wider community to become involved in forest management. Their aim is to improve the social, cultural, environmental and economic benefits arising from the management of the 65,000 hectares of State forests along the central coast.

"This is a real, tangible example of how Government is prepared to hear the needs of the community and work to address the needs in a genuine collaborative manner."

Darkinjung Local Aboriginal Land Council chair, David Pross, said that the name 'Ourimbah' comes from the traditional Darkinjung word 'Nourimbah' meaning 'a place to dance'.

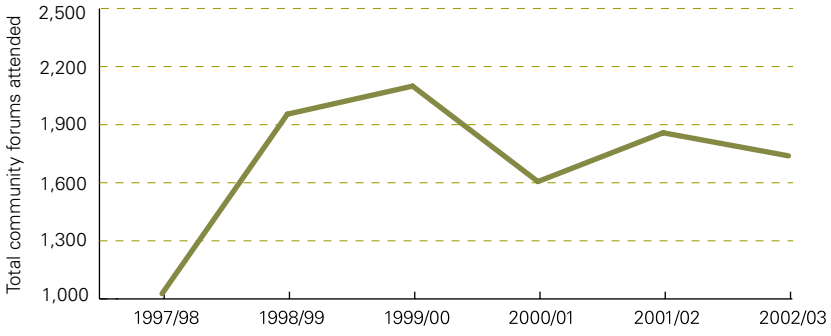


FIGURE 2: NUMBER OF REGIONAL COMMUNITY FORUMS ATTENDED BY STATE FORESTS

forest value 1 – community benefits

"Ourimbah is a traditional meeting place of Darkinjung people. We thought it an appropriate name for the protocol, which is a meeting of government and the community," Mr. Pross said.

Lyn Dullo, President of Combined Community Organisations (Gosford), the group that instigated the process, said she was pleased to see the formalisation of the relationship between the organisations.

"We came to State Forests because we were interested in learning more about the forestry debate and being empowered to be more involved in the way the beautiful forests on our backdoor are managed," Mrs Dullo said.

"We hope that the success of this partnership encourages more groups to join with State Forests and enhance opportunities and benefits for the whole community."

Copies of the Ourimbah Protocol are available from our Hunter Region office or it can be downloaded from State Forests' web page.

Representatives of Ourimbah Protocol Partners – left to right: Philip Bligh, Deidrie Jinks, Dayan Noonan, Lyn Dullo, Pat Groenhout, with Minister Michael Costa.

INDICATOR 3. RECREATION AND TOURISM

Description

State Forests maintains forest environments and provides access to forests and facilities for a wide range of activities for community benefit. Almost all State forests are available to the public year-round for a range of recreational activities. State forests have an extensive road network, maintained primarily for harvesting operations and fire management. However, this road network means that State forests are also accessible for a range of recreational pursuits. Many activities, such as mountain bike riding, horseriding, camping and four-wheel driving can be undertaken in State forests free of charge and often with fewer restrictions than on other public lands. Organised groups can use State forests under a permit system that allows for public notification and orderly management of events, forest access and safety.

Monitoring the number and type of recreational facilities and the area of forest zoned primarily for recreation indicates our performance in meeting these needs. The management of recreational facilities is also a useful indicator of our commitment to managing forests for these values.

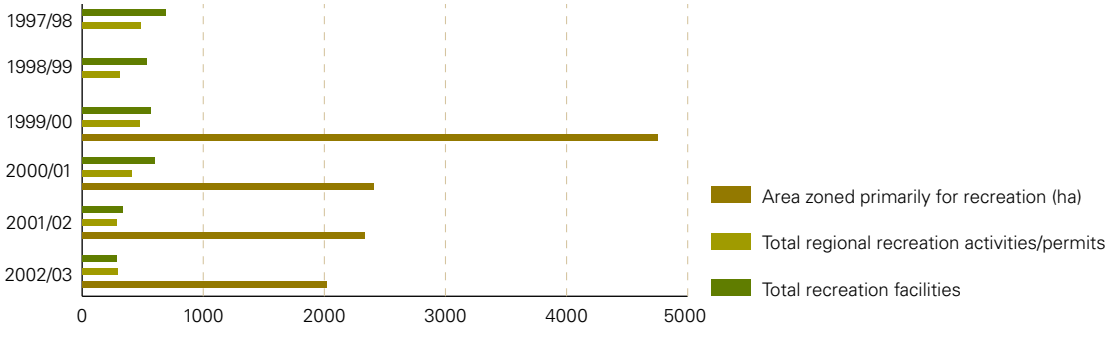
Trends

While there has been a reduction in the number of specific facilities provided for recreation and the number of organised activities undertaken, the area of State forest zoned primarily for recreation has remained relatively stable compared to previous years (refer Figure 3 and Appendix 2).

The significant reduction in the number of permits issued for organised events in 2001/02 was not a trend that persisted into 2002/03, perhaps due to recent reforms due to the *Civil Liability Act 2002* and workers compensation insurance.

FIGURE 3: RECREATION FACILITIES AND ORGANISED REGIONAL EVENTS

* These figures refer to regional events only



Monitoring actual visitation to State forests is difficult because individuals and casual groups do not require permits nor pay entrance fees. In June 2003, State Forests commenced a program of consultation with peak State-level recreation and tourism groups to develop a corporate strategy for delivering sustainable recreation and tourism opportunities on State forest. In conjunction with this process, a visitation survey (available on State Forests' web page), will be run during 2004.

State Forests spent $1.7 million over the past year on specific management to support recreational activities within its forests. This amount represents the Community Service Obligation (CSO) grants from the NSW Government to State Forests that was allocated to recreation. A significant proportion of other State Forests' funding goes towards the maintenance of roads and bridges in non-commercial areas, providing ongoing access to visitors as well as local residents and other road users.

INDICATOR 4. RESEARCH AND EDUCATION

Description

Many management decisions are influenced by the findings of State Forests' program of research and development. In conjunction with our contribution to education on forest management, State Forests takes part in many collaborative research programs with universities and cooperative research centres within Australia and around the world. Monitoring our expenditure on research and education helps track our commitment to, and improving the scientific basis for, forest management and public awareness and understanding of forest ecosystems and sustainable management.

State Forests' research goals currently focus on maintaining and expanding the State's planted forests and marketing the environmental benefits to be derived through the strategic location of planted forests in the landscape. Research emphasis has included investigation of the issues that impact on the establishment, management and quality of products from sustainable planted forests in lower rainfall areas as well as the traditional higher rainfall zones. Significant work has been directed at establishing the benefits of planted forests for such purposes as carbon sinks, identifying effective mine-site rehabilitation techniques, biodiversity enhancement and the development of sustainable land use practices for salinity-prone areas.

Cumberland State Forest at West Pennant Hills continues to be the focal point of our education program providing hands-on experience for a range of school and community groups in and around Sydney and information for the general public about NSW forestry.

Trends

Expenditure by State Forests' Research and Development Division has remained relatively stable at about $7 million per year for the last five years. Expenditure relating to educational activities by State Forests was around $3.5 million this year (Table 2).

The Cumberland Bushcare program is continuing to attract increasing numbers of volunteers who have an interest in bush regeneration, plant propagation and tree planting (Table 3). The forest based education program for Years 3 to 6 has focussed on addressing key curriculum areas that include learning modules such rainforests and discovering our State's forests. The staging of special presentations such as 'Biodiversity Express' and the 'Strickland Expo' saw increased interest and participation from schools.

Carriage driving in Vulcan State Forest – one of the many recreational pursuits undertaken in State forests.

forest value 1 – community benefits

TABLE 2: ANNUAL EXPENDITURE ON RESEARCH AND EDUCATION

	Research ($M)*	Education ($M)
1998/99	7.2	Not previously reported
1999/00	7.1	2.8
2000/01	7.1	4.6
2001/02	7.2	3.9
2002/03	7.1	3.5

* Includes expenditure on community service obligations.

TABLE 3: NUMBER OF PEOPLE PARTICIPATING IN PROGRAMS AT CUMBERLAND STATE FOREST

Activity	1998/99	1999/00	2000/01	2001/02	2002/03
School – lower primary	1,197	962	993	1,479	706
School – upper primary	1,585	1,979	2,059	3,561	3,105
School – secondary	753	834	906	460	463
At-school visits	180	1,805	1,054	335	1,241
School holiday activities	1,008	1,288	1,112	1,293	932
Community forest activities	1,065	1,282	1,268	1,873	1,035
Community group presentations	782	801	1,007	862	736
Community bushcare	257	200	729	613	1,604
Information services – by phone	n/a	n/a	2,730	1,922	2,401
Information services – by email	n/a	n/a	1,823	1,421	1,604

Primary School group participating in kids' activities at Cumberland State Forest.

FEATURE STORY 2

Educating the educators

Teachers, environmental educators and university lecturers continue to enjoy and benefit from professional development bus trips organised by State Forests.

Run for the past seven years, the two-day trips see teachers camp out in State forests around Coffs Harbour, Newcastle and Bathurst. The trips link educators with dedicated local State Forests' staff including foresters, ecologists, Aboriginal cultural heritage officers and rangers to examine the complex science of forest management.

Participants visiting the Newcastle and Coffs Harbour forests see first hand how these native forests are managed for multiple uses and values including timber production, catchments, biodiversity conservation, cultural heritage, recreation and education.

Softwood plantation forestry is the focus of the Bathurst trips. These plantations are important for producing the timber needs for the community. The role planted forests play in addressing key environmental issues such as dryland salinity, greenhouse gas emissions and biodiversity enhancement are also examined as these are future business areas for State forests.

Coordinated by State forests' education officers, the trips are offered free of charge to the education community in NSW with accommodation sponsorship offered to teachers who have to travel long distances to attend. Individual resource packages are provided together with details of State forests' education programs and events.

For many teachers it is their first camping experience. Sharing a campfire yarn, boiling the billy and searching for nocturnal creatures on a spotlight walk are all part of enjoying a State forest experience.

For further information contact Carmen Perry on ph: 4927 2900 or State Forests' website.

INDICATOR 5. INDIRECT EMPLOYMENT THROUGH FOREST DEPENDENT INDUSTRIES

Description

Forest management activities are an important source of employment in regional communities in NSW. It is useful to measure employment in forest related industries to monitor the social and economic benefits it brings to these communities and, more broadly, the NSW economy.

As defined in the *Criteria and indicators for sustainable management of Australia's forests. Report on implementation of category A indicators* report, "direct employment includes employment in traditional forest industries (eg forestry and logging and wood and paper products), forest management in government and industry, and other forest contact industries (eg eco-tourism and beekeeping). Indirect employment is employment that is generated within a community as a result of direct forest employment (ie the multiplier effect from direct forest employment such as employment in service-based industries including shops, schools and hospitals)", (Montreal Process Implementation Group for Australia, November 2001).

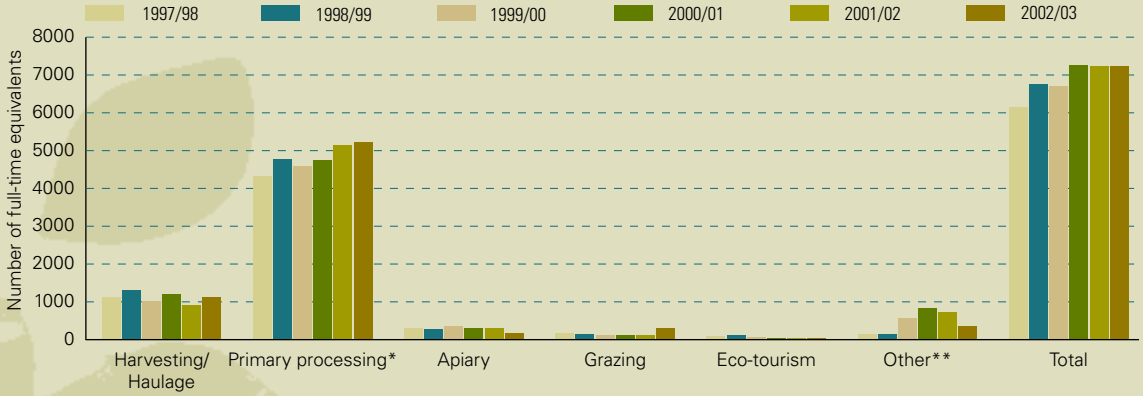
Trends

The total number of people employed in industries directly dependent on the sustained supply of timber from State forests has increased over the last three years, particularly the primary wood processing sector.

The numbers of persons reported to be employed in the apiary industry in State forests reduced significantly, perhaps reflecting the impact of the prolonged drought across New South Wales. State Forests has waived its fees for beekeeping in drought affected areas. An increase in the area of State forests grazed, also possibly due to the drought, is mirrored in an increase in grazing-related employment.

forest value 1 – community benefits

FIGURE 4: EMPLOYMENT DEPENDENT ON PRODUCTS OF STATE FORESTS BY MAJOR CATEGORIES



* Processing undertaken at a site where the input is raw material supplied by State Forests.

** Includes plantation establishment contractors, gravel extraction, forest product removal and miscellaneous other timber harvesting.

In addition to the 7,231 people employed in forest industries and forest contact industries (Figure 4), an additional 1,146 people were employed in forest management by State Forests of NSW (refer indicator 7). Therefore, the total direct employment in forest based industries for 2002/03 was 8,377.

For every job generated in forest based industries in NSW, another 1.88 indirect jobs are generated at the State level (Montreal Process Implementation Group for Australia, 2001). Using this multiplier effect, 15,748 jobs were generated in indirect employment at the State level in 2002/03.

INDICATOR 6. PROVISION OF 'OTHER' FOREST PRODUCTS

Description

Forests provide many products and services other than timber that is processed in sawmills. Monitoring the sale of specific products from forests helps us understand the extent to which forests remain an important multiple-use resource, supplying products sought by the community.

Fallen timber in State forests often provides habitat for native fauna. State Forests ensures that removal of fallen timber for use as firewood and other products is sustainable by requiring commercial firewood operators to have harvesting plans and by issuing permits for people to collect limited quantities of firewood for personal use.

Trends

Demand for the majority of these products has remained relatively stable over the past six years. Fluctuations for specific products may be due to seasonal variation in availability or changes in demand.

The area of State forest used for grazing, for example, has increased as more plantations became available. An increase in the area of native forest accessed for grazing is due to the effects of drought on feed availability on other tenures or forest management zoning changes to some areas of State forests (refer Appendix 3).

State forests are a valuable source of seed stock for native plant nurseries in New South Wales.

forest value 2 – staff

State Forests' employee relations policies are reflected in the following objectives contained in the charter of its Human Resources Division:

- to promote strategic leadership and a best practice professional advisory service on human resources issues;
- to promote and develop a corporate environment where both the organisational structure and the skills held by staff enable the achievement of professional and technical excellence;
- to contribute to continuous improvement in customer and community awareness and satisfaction;
- to nurture a corporate culture which includes a safe, rewarding, equitable and ethical working environment with high morale where staff achievements are recognised; and
- to achieve excellence in the management of safety and rehabilitation that aims to be the best in the Australian forest industry.

INDICATOR 7. QUALITY OF PERSONNEL MANAGEMENT

Description

State Forests aims to provide a safe, productive and progressive work environment in each workplace its staff are located. The number of staff directly employed by State Forests is used as an indicator of the size of its task of human resources management and our ability to recruit and retain employees. This in turn is a reflection of the quality of management and the way in which working for State Forests is valued by its staff.

This year data is again provided against the key areas of representation of Equal Employment Opportunity (EEO) groups within levels, representation and recruitment of Aboriginal employees and employees with a disability.

Trends

The number of staff directly employed by State Forests has generally trended downward over the past decade. In 2002/03 there was 1,146 (full time equivalent) positions (including casual employees), a stable figure over the past three years. Within the overall wage groups, there has been relatively little change in the representation of men while the number of women in the workforce slightly decreased. However, female employees on average moved up the pay scales, indicating women in State Forests are achieving promotion and development opportunities (refer Appendix 4 and Appendix 5).

The proportion of staff identifying themselves as from Racial, Ethnic and Ethno/Religious Minority Groups also remained stable (based on 548 completed staff surveys) (Table 4). The percentage of Aboriginal/Torres Strait Islander employees as a proportion of all employees (excluding casuals) declined slightly from 2.6% to 2.4% but remained ahead of the general NSW public sector target of 2.0%.

State Forests' Equity Program includes ongoing operation of the strategic Equity Advisory Committee, which is now chaired by one of State Forests' Aboriginal employees. This Committee recently undertook a review of Recruitment Practices throughout State Forests' and recommendations to Senior Management were developed. The EEO Management Plan (2001 to 2004) includes a number of initiatives to enhance both employment and promotional opportunities for EEO group members within State Forests.

Salaries and wages during the year increased according to the NSW Public Service wide Industrial Relations Commission decision.

There were no major industrial disputes during the year.

TABLE 4: REPRESENTATION OF EEO GROUPS WITHIN LEVELS

	Women	REERM*	Persons with Disability	Aboriginal and Torres Strait Islanders	Total staff**
1999/00	253	45	74	26	1,218
2000/01	212	51	73	30	1,130
2001/02	206	51	76	29	1,095
2002/03	215	47	71	27	1,112

* REERM is an acronym for "Racial, Ethnic and Ethno/Religious Minority Groups".

** Excludes casual staff.

forest value 2 – staff

INDICATOR 8. HUMAN RESOURCE MANAGEMENT AND STAFF TRAINING

Description

Employee skill and competency development is an investment in people and essential to the continued success of State Forests and the career growth of employees. The quality of personnel management is reflected in opportunities provided to staff for development and training. Indicators include expenditure on human resource management and training opportunities provided for staff.

Trends

In the past financial year State Forests expended over $2.4 million on human resource management services, a slight reduction when compared to last year. This includes all activities associated with the management of personnel, including policy, recruitment and general administration of staff.

In 2002/03, over 1,800 training and development courses were undertaken by staff and contractors, at a cost of over $2.6 million. Courses undertaken were primarily in the areas of occupational health and safety, first aid, recognition and protection of environmental and cultural heritage values and soil and water training as part of the 'Forest harvesting operator' course for forest workers.

INDICATOR 9. HEALTH AND SAFETY

Description

State Forests aims to achieve a safety and rehabilitation record which is the best in the Australian forestry industry. Continuous improvement will be measured through a reduction of the accident frequency rate, the lost time severity rate and days lost due to workplace accidents.

Foresters planning for the future. State Forests' Human Resources Division promote and develop a corporate environment to enable the achievements of professional and technical excellence.

Health and safety in forests has become a priority issue for the wider forestry community following a number of deaths and many serious injuries among forest industry workers in the last few years. The recommendations of a Forest Safety Task Force are being implemented to improve safety in the timber harvesting industry.

Trends

A large number of initiatives were undertaken by all Regions during the year to improve the health, safety and fitness of staff (Table 5). One key initiative is the Driving Smarter Program that is in the process of being implemented across State Forests. The program aims to increase driver awareness and, in particular, defensive driving practices.

Another key initiative is the Fire Fighter Health and Fitness (FFHF) program that will be implemented over the next two years. State Forests has a duty of care to ensure its staff has the necessary training, information, equipment and competence to do their jobs safely. Fire fighting is arduous and mentally fatiguing and here we must particularly ensure the health and fitness of employees is adequate for the task. The aim of the FFHF program is to improve the general health and fitness of employees and involves a medical assessment, fitness testing and fitness improvement methods.

Despite increased awareness of health and safety issues through a higher number of safety meetings, the lost time accident frequency rate increased when compared to last year (Table 6). The total amount paid in workers compensation for claims finalised during the year reduced by over $1 million.

The John O'Rourke Safety Award is presented each year to the Region/Division with the lowest Lost Time Frequency Rate. This year, the award was shared by three Regions/ Divisions that did not record a lost time incident: Research and Development Division (also awarded last 2 years), Monaro Region and Northern Region.

TABLE 5: INITIATIVES TO IMPROVE STAFF HEALTH AND SAFETY

Initiatives to improve staff health and safety	2001/02 Number	2002/03 Number
Provision of health or fitness services	15	91
Provision of specialised equipment or clothing	367	262
Risk assessments	241	202
Training	194	165
Voluntary audits	72	107
Total	889	827

TABLE 6: OH&S STATISTICS

OH&S Issue	2000/01	2001/02	2002/03
Number of safety meetings held	76	83	99
Number of lost time accidents	42	36	40
Lost time accident frequency rate	18.6	16.4	18.1
Number of litigated workers compensation claims finalised	19	29	15
Cost of workers compensation claims finalised ($)	1,007,000	1,960,000	832,000
Number of new litigated workers compensation claims lodged	14	11	12

forest value 3 – cultural heritage

WHAT IS CULTURAL HERITAGE?

Cultural heritage encompasses the qualities and attributes of places that have aesthetic, historic, scientific or social value for past, present or future generations. These values may be seen in a place's physical features, but importantly can also be intangible qualities such as people's association with or feelings for a place.

State Forests is committed to continuing enhancement of our understanding, appreciation, management and conservation of Aboriginal cultural heritage values in forests. Aboriginal cultural places retain special values, which are being increasingly recognised in land management. These places may hold additional significance that is defined by the Aboriginal communities themselves.

HOW DOES STATE FORESTS MANAGE CULTURAL HERITAGE?

State Forests' Native Forest Management System (NFMS) strategic framework recognises our commitment to the protection of Indigenous interests and values and the protection of non-Indigenous cultural heritage. Some of the key strategies State Forests employs to protect Aboriginal heritage include:

- consulting with relevant government agencies and local communities;
- managing the protection of cultural heritage sites in harvest areas;
- developing co-operative arrangements with Aboriginal communities, including joint ventures that provide mutual benefit;
- formalising jointly agreed processes in agreements or Memoranda of Understanding;
- implementing training programmes to broaden the understanding of SFNSW staff concerning Aboriginal interests and the recognition of potential cultural heritage sites and forest resources useful for maintaining cultural practice; and
- protecting the confidentiality of Aboriginal site locations and cultural heritage data, in recognition that the Aboriginal community holds information that is important to them culturally and spiritually.

The NFMS also recognises strategies for the protection of non-Indigenous cultural heritage including consulting with appropriate government agencies and interested community groups regarding the policy and management of cultural heritage resources within the forest estate.

Our forest management and operational planning identifies places with cultural heritage significance and the protection measures necessary to safeguard heritage sites. Heritage values are protected through the incorporation of site-specific prescriptions in operational plans to avoid disturbance, and in the case of Aboriginal sites, following consultation with local Aboriginal communities. Cultural Heritage Guidelines are being incorporated into each region's Ecologically Sustainable Forest Management (ESFM) Plans for native forests.

Operational Guidelines for Aboriginal Cultural Heritage Management are also being developed for State Forests. The application of these guidelines will help ensure that Aboriginal values are duly recognised, considered jointly with Aboriginal communities and that decisions are made on an informed and responsible basis. The guidelines provide a due diligence process and minimum standards to assess impacts, to locate and manage Aboriginal sites and places and address issues relevant to Aboriginal people.

State Forests maintains a Section 170 Heritage and Conservation Register, using the State Heritage Inventory database developed by the NSW Heritage Office that identifies sites and objects of heritage significance for internal reference. Site details are also submitted to the NSW Heritage office for inclusion on the State Heritage Register.

ltural heritage

The Department of Environment and Conservation (DEC) maintains a comprehensive register of Aboriginal sites in NSW. State Forests is a major contributor to the DEC managed Aboriginal Heritage Information Management System (AHIMS). State Forests developed a Memorandum of Understanding with NPWS (now within the DEC) for the sharing of data from AHIMS for sites on State forest and within a five kilometre buffer.

We employ a cultural heritage policy officer in our head office to help develop and implement policy across the State forests of NSW, with an emphasis on indigenous cultural heritage issues. Specialist Aboriginal cultural heritage officers (ACHOs) are employed regionally to assist in identification and protection of Aboriginal sites in the forests and to liaise with Aboriginal communities and leaders. ACHOs meet internally to discuss cultural heritage issues and changes to relevant legislation.

An active Aboriginal employee network, with around 20 members, is in place within State Forests. The network was formed three years ago and meets annually in locations near Aboriginal communities, talking with local elders and community members, so that employees stay connected with their community and their culture. Other organisations and government departments are also invited to share information about what other Indigenous staff groups are doing in their work places. The network invites different groups within State Forests to come and talk with the group. For example, State Forests' ecologists have attended network meetings to discuss environmental management issues as the environment, and connection to the land, are such an important part of Aboriginal cultural heritage.

The network is also involved in reviewing and developing a range of State Forest policy documents. The network drafted the Operational Guidelines for Aboriginal Cultural Heritage Management and was instrumental in obtaining the data licence agreement with the DEC for the sharing of AHIMS data. Members of the network have also been trained in accessing information from the database. The network developed the Cultural Awareness Training package (refer Feature Story 3), with all members of the network trained to run the program.

SOME KEY INITIATIVES

State Forests is implementing processes for the management of forests or parts of forests where local Aboriginal communities share responsibilities for cultural heritage management. There are already many examples of works in progress where the Aboriginal community and State Forests' staff, especially Aboriginal staff, are developing Aboriginal co-management of areas of State forest.

In Hunter Region, a range of projects are up and running. The Aboriginal Keepa-Keepa Elders group are sharing their vision for the management of Aboriginal sites and places for future generations, in Heaton State Forest near Newcastle. Recognising the significance of both the site and the Keepa-Keepa Elders as Aboriginal culture and heritage knowledge holders, State Forests and the Elders have entered into an innovative co-management agreement. Under the agreement, State Forests will remain land managers while the Elders will have input to land management practices. The site will be used for cultural teaching as well as a place where all people can come together to share cultural and historical information. There are many different Aboriginal sites in the area and these will assist the Elders when reviving cultural practices.

Other projects with the Aboriginal community in Hunter Region include sharing skills and learning with the Mirring Women's Group (Central Coast) at Strickland State Forest. Ecologist staff work with the group to explain State Forests flora and fauna management practices and in turn learn about the Womens Groups' relationship with the land through totems, bush tucker and bush medicine.

State Forests, along with the former NPWS, has an agreement with the Darkinjung LALC regarding the protection of sites at Warre Warren in McPherson State Forest. The place was recognised for its significant cultural value to the community. Now work is progressing to educate the community about the cultural importance of the area, through such projects as the construction of an interpretive trail.

Local dancers celebrate the launch of the Keepa-Keepa co-management agreement at Heaton State Forest near Newcastle.

forest value 3 – cultural heritage

Forest based Aboriginal enterprises can lead to greater economic independence for Aboriginal communities. In State Forests' Riverina Region, partnership projects are being developed with Aboriginal communities. Some of the key projects are the Yorta Yorta commercial thinning of Red Gum forests. Thinning is an integral component of the silviculture required to enhance timber production of even-aged regrowth stands and maintain heathy forests. This project involves the use of Red Gum thinnings for domestic firewood and paddleboat steam engine fuel. These products have minimum processing requirements but have strong, established markets and can provide a regular cash flow to Aboriginal people. The Region has also been involved with developing the environmental and cultural TAFE training program to foster improved joint management of sites. Riverina Region assisted in the completion of the business plan for the native species nursery with the Yorta Yorta community and the completion of the nursery at Cummeragunya and the Region has made a commitment to purchase plants for rehabilitation work on State forest.

Mid-north coast Region is developing a strong relationship with the Southern Anaiwan/Guiwan Elders. The community provides information to State Forests about sites and they plan to run "culture camps" for children a couple of times a year in Coco and Keating State Forests to teach them lore and custom. The Taree Bahtoo Elders at Elands are undertaking commercial operations in bush tucker and bush medicine. In North East Region, the Githdabul and Bundgulung Native Title groups and the Mulli Mulli, Kyogle and Tabulum LALCs are working with State Forests regarding the transfer of ownership of Roseberry Park, located between Mulli Mulli and Kyogle. In Tumut, progress is being made at re-establishing Snowy Mountains elders travel routes.

State Forests is committed, in partnership with local Aboriginal communities, to the growing recognition, management and conservation of Aboriginal cultural heritage values in our forests.

INDICATOR 10. PROTECTION OF CULTURAL HERITAGE

Description

The number of cultural heritage sites identified and protected on State forests is an indicator of the level to which State Forests must incorporate considerations of cultural heritage values into landscape management. To ensure the management and protection of cultural heritage State Forests' staff and external contractors employed in forestry operations are trained in cultural heritage awareness.

Trends

There was increase in the number of Aboriginal sites identified and protected within State forest (refer Appendix 6). In the past year, 95 new sites were identified on State forest and some formerly identified sites were removed from the site list following more detailed assessment.

During the year, an additional 160 State Forests' staff and forest workers were trained in cultural heritage awareness, thereby increasing our ability to identify, manage and protect sites during harvesting, roading and other forest operations.

FEATURE STORY 3

CULTURAL AWARENESS TRAINING CONDUCTED ON THE NORTH COAST

State Forests Aboriginal staff have been actively developing an innovative cultural awareness program designed to give their fellow co-workers an insight into Aboriginal culture dealing with both contemporary and traditional issues that effect Aboriginal people.

The two-day program was held for staff in Hunter and Mid North Coast Regions in 2003.

Aboriginal cultural heritage coordinator, Cheryl Kitchener, said the program had been developed by Aboriginal staff to enable all staff to gain insight into the beliefs and practices of Aboriginal people.

"The first day of the course involved a welcome from a local Aboriginal Elder and the clearing of the air with a didgeridoo," Cheryl said.

"We then spent some time discussing how Aboriginal people would have lived over thousands of years, including an explanation of the complicated kinship structures and the connection of Aboriginal people to the land by totemship moieties, language and skin names," Cheryl said.

"Many of the course participants were surprised at the complexity of the kinship structure, designed to keep survival of the different Aboriginal nations in their respective environments."

A timeline of Aboriginal history since the first landing of Europeans in 1770 was also discussed, with Aboriginal staff sharing their own personal stories on growing up in Australia and the changes they have witnessed in the community during their lifetimes. Aboriginal Elders were involved in the sessions and brought with them their intermit knowledge of both cultural and political changes that have occurred during their lifetimes.

Participants also spent time talking about their own values and beliefs with one another, exploring their own culture and discussing confronting topics such as racism.

Day Two of the course was spent visiting key sites in State forests, with many staff seeing amazing cave and rock art sites for the first time.

Cheryl said the support from staff for the course had been strong, with many staff expressing the wish for more training in areas including bush tucker identification and the use of traditional uses of fire on the environment.

"We believe it is important that we share our cultural knowledge and we hope to see the program rolled out in other regions in 2004," Cheryl said.

Cultural awareness program participants leant about the importance of cave art in Aboriginal life.

environment

environment

Ecologically sustainable management of native and planted forest to protect and enhance environmental and conservation values and to help meet future markets for environmental services.

state forests of nsw' environmental policy

State Forests recognises that planted and native forests represent a wide range of values and uses to the people of NSW. One of our goals is to conserve and protect forest values ranging from biodiversity and forest productivity to the ability of forests to act as carbon sinks and for the many recreational and cultural values they provide.

This environmental policy statement reflects international, national, and State commitments, policies and programs to ensure that State Forests operates its business and manages forests in a way that is environmentally sensitive, socially beneficial and economically viable.

State Forests is committed to ensuring ecologically sustainable forest management (ESFM) in NSW by:

- managing forests to maintain and enhance the full suite of forest values for the benefit of current and future generations;
- working to ensure that our management is complementary to forest management on other tenures; and by
- working with others to ensure the development and operation of a sustainable forest industry.

To implement ESFM, State Forests is committed to:

- measuring and publicly reporting corporate performance concerning the:
  - conservation of biodiversity
  - protection of soil and water quality;
  - protection of cultural heritage; and
  - provision of social and economic benefits
- developing, implementing and continuously improving its Environmental Management Systems for both planted and native forests to achieve improvements in its environmental performance.
- meeting or exceeding regulatory requirements and government policy.
- implementing the outcomes of the NSW Forest Agreements by working with other land managers and stakeholders.
- being open and transparent to the community in undertaking its operations.
- adapting forest management practices and systems in the light of auditing, monitoring and research information, changing expectations, regulatory requirements, and government policy;
- implementing world's best practice in forest management by State Forests' staff and contractors, including the provision of training, professional development, and accreditation processes.
- adequately resourcing the organisation to achieve ESFM.
- developing and implementing efficient energy use and waste management measures in all its activities.

State Forests will be actively seeking global business opportunities relating to environmental services and environmental enhancement.

State forests are important for maintaining a range of biodiversity values.

forest value 4 – biodiversity

A key objective of ecologically sustainable forest management is to maintain and enhance natural levels of biodiversity. The forests of NSW have great biodiversity that must be managed in a way that is mindful of the variety of forest ecosystems and the different ways that these respond to different management practices.

State Forests is committed to the management and conservation of the biodiversity of the forests we manage. This commitment includes:

- Maintaining the extent and range of forest types, their distribution and abundance.
- Maintaining a range of all forest structural classes across the landscape including the protection of high conservation value old growth forests, rainforest and rare ecosystems.
- Maintaining the diversity of flora and fauna in forests, with particular attention to threatened species and their habitats.
- Undertaking relevant management practices based on sound research and scientific understanding of ecological characteristics of forest types.

Many areas of State forest have been recognised as having particular importance for the maintenance of biodiversity values. These areas are protected and managed for these values, which often results in special zoning and management prescriptions being applied during harvesting or the areas being excluded from harvesting altogether.

INDICATOR 11. EXTENT OF FOREST TYPE

To properly manage State forests, we need to know and understand the types of forest ecosystems, their management history and resultant structure of the forests, as well as other environmental factors. State Forests employ a range of specialist staff with expertise and training in silviculture (the science of forestry), ecology, botany, hydrology, soil science, geography, conservation and fire management. This knowledge allows us to determine the appropriate management practices that should be applied if different part of the forest estate.

NATIVE FOREST

Description

The native forest estate managed by State Forests comprises over 200 recognised forest ecosystem types. Each type has a unique combination of flora, fauna and other characteristics. Monitoring changes in the area and nature of these forests over time helps us make decisions about resource utilisation, silviculture, conservation and other issues relating to forest management.

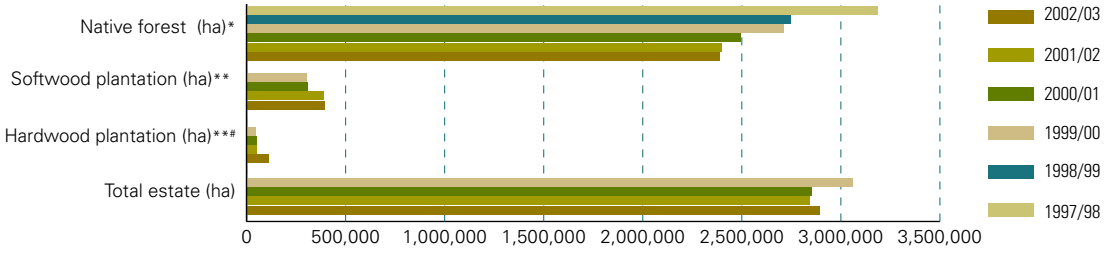
Trends

The area of native forest managed as State forest has steadily reduced between 1998 and 2002, as a result of the Regional Forest Agreement process and other decisions to transfer areas of State forests to the national parks estate.

In 2002/03, over 61,000 hectares of State forest (referred to as the 'Clump 500' areas because they are generally over 500 ha) were transferred to the national park estate. However the effect of this on forest type representation cannot be included in this year's report because new tenure layers reflecting these changes are not yet available.

The area of native forest managed by our Native Forests Division prior to these changes was 2,389,359 ha (Figure 5). Appendix 7 shows details of the area and percent of various Broad Forest Groups within native forests. An additional area of approximately 188,000 ha of native forest is managed as part of the planted forest estate. This area has increased over the past year as a result of property purchases.

FIGURE 5: TOTAL AREA OF FOREST ESTATE BY FOREST TYPE



* Does not include native forest on the planted forest estate and managed by Planted Forests Division.
** Includes planted area and areas for future planting within State forest, joint ventures and annuities.
\# This includes environmental exclusions, which have been mapped for the first time in 2002/03 (refer Indicator 25).

PLANTED FOREST

Description

The area and percentage of plantation managed by State Forests is an indicator of our commitment to meet both domestic and international opportunities in wood supply as well as in energy, carbon sequestration and third party investment.

The size of the plantation estate managed by State Forests continues to increase. There has been continuing public and private investment in the establishment of new forests for timber as well as other environmental services such as carbon sinks and combating salinity. Significant progress has also been made in gaining commitments to establish plantations in partnership with private landholders and via third party funding of plantings for environmental services.

Trends

Over 500,000 hectares are managed by State Forests for the establishment, management and protection of plantation forests (Figure 5). Within this area 269,439, hectares are established plantation while the remaining area may have been recently harvested and awaiting re-planting, newly purchased and not yet planted or retained as environmental exclusion zones, native vegetation and other natural features such as wetlands and rocky outcrops (refer Appendix 8).

INDICATOR 12. EXTENT OF NATIVE FOREST STRUCTURE

Description

Forest structure refers to the physical features of a forest which reflect the natural environment and management history of the forest. Largely determined by forest type, age and past disturbance, notably timber harvesting and fire, forest structure is an important consideration when planning future management, including harvesting, of forests. These are reflected in the proportion of trees of different age and size over given area.

For comparative analysis and management purposes, three forest structure classes are referred to in eucalyptus forests: regrowth forest, mature forest and high conservation value old growth. The proportion of older trees increases progressively through these categories.

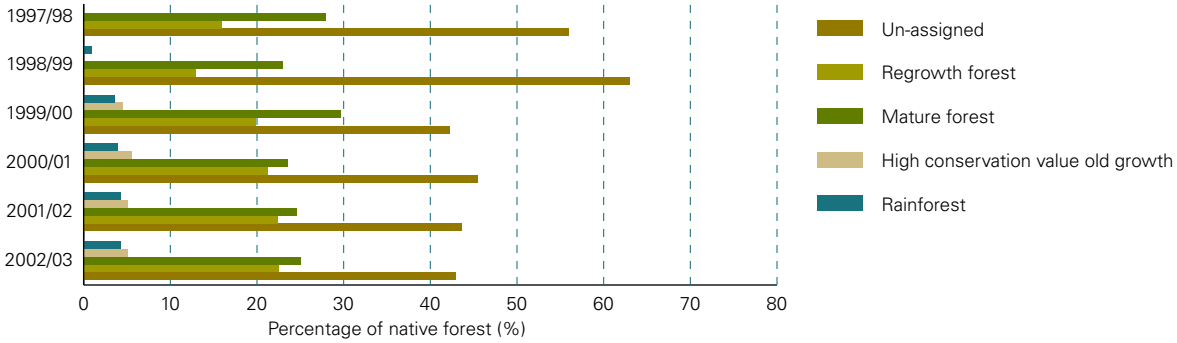
Areas identified as high conservation value old growth forest are not available for harvesting or silvicultural improvement. Areas identified as regrowth or mature forest may have specific silvicultural practices applied to enhance their productive capacity. A stable forest landscape requires a balanced range of forest structures in all forest types.

Trends

There were no significant changes in the proportion of each structure class during the year (refer Figure 6 and

Softwood plantations in Buccleuch State Forest.

FIGURE 6: PERCENTAGE OF NATIVE FOREST ESTATE WITHIN EACH FOREST STRUCTURE CLASS



forest value 4 – biodiversity

Appendix 9) suggesting that even though the estate has reduced in size we are managing our forest is way that is maintaining stable proportions of each structure class across the landscape (refer Indicator 14).

INDICATOR 13. RECORD OF SURVEYED SPECIES

Description

During the planning phase of forestry operations, flora and fauna surveys are undertaken to determine the presence of native species or their preferred habitat.

State Forests routinely compiles a list of sightings and recordings of targeted species of fauna and flora on State forest as part of pre-harvest planning or pre-hazard reduction burning. Special wildlife surveys are also carried out for research purposes. Sightings, past or new, trigger species-specific protocols as prescribed in the IFOA that are adopted in harvesting plans. For example, a feed tree used by sugar gliders would be marked for retention and a large buffer zone established around the tree from which harvesting equipment and disturbance would be excluded.

Trends

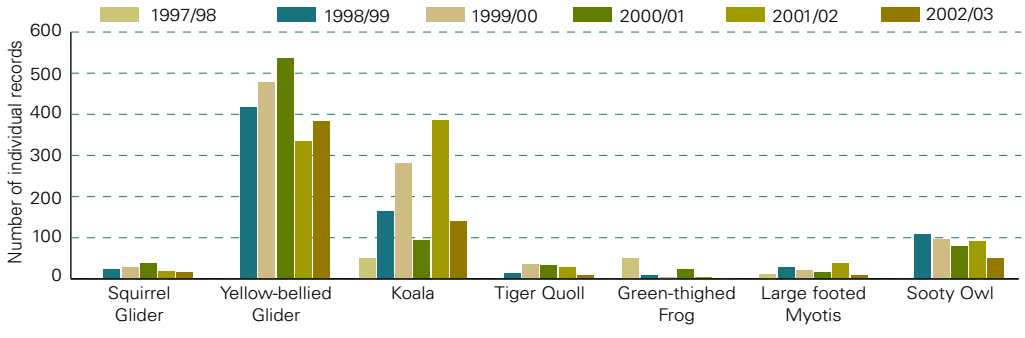
During the year, 3,500 individuals of flora and fauna species with endangered or threatened status were located (refer Appendix 10), in addition to 40,000 flying foxes were counted in one region. A suite of species of particular interest to community groups are shown in Figure 7. State Forests expended over $1.3 million undertaking pre-harvest surveys for targeted flora and fauna covering approximately 190,000 hectares of forest.

Variations in the number of reported sightings from year to year are expected because different forest types are surveyed each year

Top right: Rainforest and riparian ecosystems are protected during harvesting operations.

Right: Smoky mouse – a threatened species found in Southern NSW. If located during pre-harvest surveys, prescriptions are applied that exclude harvesting from an area of at least 100 hectares.

FIGURE 7: SIGHTINGS OF SURVEYED ANIMALS IN NATIVE FORESTS



FEATURE STORY 4

WATER BIRDS FLOCKING BACK TO THE REVIVED WETLANDS

Native birds have come back to the Barmah-Millewa forests of the Riverina of NSW and Victoria thanks to extensive flooding in 2000 and careful management of environmental water flows since the floods.

When the mighty Murray River burst its banks in 1998, about 30,000 birds flocked back to the rejuvenated Riverina wetlands of the Barmah-Millewa Forest, south of Deniliquin.

Birds like the threatened brown bittern have made an appearance, along with others such as the great egret, intermediate egret, black swan, nankeen night heron, carp-eating cormorants and locust-eating ibis. Water plants such as the water primrose, wavy mashwart, milfiol and moira grass also made a big comeback.

For years Moira Lake – the largest lake in the Barmah-Millewa Forest – was little more than a mudflat, with its ecology so changed by river flow regulation, that it was unable to support many native plant and animal species dependent on a flooding and drying lifecycle.

Birds such as the great and intermediate egret need about four months of wetland flood to breed and without better water flow management they are unable to complete their breeding cycle.

Also prior to the recent return of a regular drying cycle in the lake, conditions were ideal for alien species such as carp and native opportunists such as the giant rush. At one point carp made up 95 per cent of the Lake's fish population.

State Forests manages the wetlands on the Millewa side of the New South Wales/Victorian border. The flooding was the culmination of a rehabilitation plan to restore environmental values to the wetlands developed in the early 1990s. Half-a-million dollars was spent on civil engineering works for such things as water regulators to reinstate a more natural water regime of flooding and drying. The floods of 2000 enabled the area to be re-inundated, mimicking the natural flooding cycle that regularly occurred before irrigation was introduced.

The use of environmental flow allocations allowed the flow to be maintained for long enough to complete the necessary biological processes including the natural breeding cycles of many native fish and bird species.

This is an outstanding example of how our ecosystems can be rejuvenated by goodwill amongst landholders, good management and community involvement.

The white ibis is one of the wetland bird species returning to breed at Moira Lake.

forest value 4 – biodiversity

INDICATOR 14. MANAGING A FOREST STRUCTURE MATRIX

Description

An objective of our forest management is to preserve habitat that is critical for the survival of native species in our forests, particularly for threatened species. Protection and enhancement of critical fauna habitat requires management for a range of forest types and structure classes across the native forest estate. To protect critical habitat, State Forests must ensure that the appropriate mix of forest types and structure classes is maintained as well as plan timber harvesting to minimise possible impacts on flora and fauna.

In previous reports we have provided information about the proportion of forests in RFA regions that are appropriate as habitat for three key species: the koala, the greater glider and the squirrel glider. The stakeholder review process undertaken in 2001 and an internal review of this indicator suggests that this does not informatively reflect the sustainability of our forest management practices in relation to habitat values.

Following internal analysis and advice received from a key conservation stakeholder, we are reporting in more detail on our achievement of the goal of managing and maintaining a matrix of forest types and structure classes across the landscape. The underlying assumption is that, by achieving a stable distribution of all forest types and structure classes across the landscape, and in conjunction with the existing national park reserve system, we are providing appropriate habitat for the full suite of fauna species.

Trends

Table 7 below highlights the fact that 97% High Conservation Value Old Growth (HCVOG) in State forest and 78% of rainforest areas are managed in zones that ensure that they are completely excluded from disturbance associated with timber harvesting. The remaining 3% of HCVOG and 22% of rainforest are managed by prescription and are protected during harvesting.

TABLE 7: AREA OF NATIVE FOREST (NF) STRUCTURE CLASS WITHIN EACH FOREST MANAGEMENT ZONING (FMZ) TYPE

	Forest Management Zoning Type						
Structure Class	Dedicated Reserve	Informal Reserve – Special Management	General Management Native Forest	Non forestry use `	Land for further assessment	Informal Reserve – Harvest Exclusion	Special Prescription
High Conservation Value Old Growth	0.9%	40.9%	2.6%	0.1%	0.5%	54.9%	0.2%
Mature	1.5%	10.6%	60.5%	0.2%	10.5%	14.6%	2.0%
Regrowth	1.5%	6.1%	76.2%	0.3%	6.6%	6.5%	2.9%
Young Regrowth	0.1%	7.2%	74.3%	0.2%	9.6%	5.8%	2.8%
Rainforest	3.0%	38.0%	18.0%	0.0%	5.0%	36.0%	1.0%
Not Assigned	1.0%	11.0%	70.0%	1.0%	2.0%	12.0%	3.0%
% of Total NF	1.2%	12.5%	63.1%	0.4%	5.7%	14.8%	2.4%

odiversity

When compared to the distribution of each FMZ across the landscape, mature forest is well distributed within the management zones, while regrowth and young-regrowth forests are slightly over-represented in the General Management classification. However, regrowth forests are proportionally represented in the Dedicated Reserve and Special Prescription zones, ensuring their recruitment to protected mature forest in the future.

The 'not assigned' category are largely those forests types that cannot be classified according to one of the five 'pure' structure classes used for eucalyptus forests and include large areas of cypress pine forests in the Western part of the State.

Comparison of the representation of each Broad Forest Type within each FMZ (Appendix 11) shows that most forest types are also proportionally distributed across the management landscape, with the notable exceptions of Alpine Ash and White Cypress Pine. Both of these forest types are highly dependent upon disturbance for their regeneration. For the Alpine Ash communities this requires extreme but infrequent fire events and, for Cypress Pine, harvesting and/or thinning. By managing the majority of these types under the General Management classification, State Forests is able to undertake management that mimics natural disturbance and promotes regeneration.

This approach is made more apparent when each forest type is examined in terms of the existing structure classes. In response to disturbance, and as would occur under natural disturbance regimes, Alpine Ash stands are almost entirely either mature or regrowth in age class.

White Cypress Pine forest cannot be classified using the same structural classes as eucalyptus forest. Growth stage classification has not been complete for the River Red Gum estate or other inland types growing West of the Great Divide.

Research and development

Forest biodiversity research is mainly directed at threatened species ecology, wildlife response to disturbance, forest indicator species and biodiversity in eucalypt plantations.

Bats are monitored using either banding techniques or infra-red counters at known roosts. The information gathered to date confirms that State Forests' harvesting practices are effective in mitigating the immediate effects of logging on the bat species under study.

Monitoring of frogs in the Dorrigo area has demonstrated that frog populations can survive regular fire events quite well. Analysis of habitat data is being undertaken to determine what makes a good frog pond.

River Red Gums in Moira State Forest.

forest value 5 – forest health

A healthy and vital forest promotes biodiversity and productivity and also provides a greater range of possible community uses, products and benefits. Controlling populations and the effects of pest animals and weeds, conserving site fertility, reducing the impact of damaging insect and fungal pests and managing fire risks and bushfires are critical components of our forest management practices.

The conservation of biodiversity and opportunities for social and economic development are enhanced by healthy and stable forest ecosystems, across all tenures. State Forests has developed draft ESFM plans which are being progressively revised and implemented for all RFA regions. In respect to forest health, ESFM plans address such essential areas as: fire management, insect and disease management, forest regeneration, feral and introduced predator control, weeds management and forest research projects.

Our Forest Health Unit monitors planted forests for disease, insect attack and nutrient deficiency. Techniques to detect and accurately measure the extent of disease using remote sensing such as multi-spectral imagery are being developed.

Bushfire risk and bushfire suppression management plans have been developed in conjunction with local communities and agencies, and hazard reduction and fire suppression programs implemented to protect our forests and plantations from the effects of severe wildfire.

INDICATOR 15. EXPENDITURE ON PEST ANIMALS AND WEED CONTROL

Description

Tracking expenditure on programs to control pest animals and weeds indicates the effort made to maintain the health and vitality of forest ecosystems. Information about the extent of control efforts is also presented.

Trends

Expenditure in this area in 2002/03 increased when compared to previous years (Table 8). Significant efforts were made to control blackberry infestations in the planted forest estate.

Pest animal abatement was undertaken over more than 200,000 hectares of forest, around 7% of the estate and weed eradication was undertaken over 424,000 hectares, almost 15% of the estate.

INDICATOR 16. PERCENT OF PLANTED FOREST AFFECTED BY AGENTS THAT MAY CHANGE ECOSYSTEM HEALTH AND VITALITY

Description

State Forests invests significantly in the establishment of new planted forests and replanting of harvested areas. In order to protect these plantations, State Forests monitors for the presence of threatening biological agents and critical nutrient deficiencies and undertakes appropriate control or remedial measures.

TABLE 8: EXPENDITURE ON INTRODUCED PREDATOR, FERAL ANIMAL AND WEED CONTROL

Year	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Weeds	$1,325,000	$630,000	$552,000	$563,000	$690,000	$1,459,000
Pest animals	$328,000	$409,000	$369,000	$466,000	$526,000	$640,000
Total	$1,653,000	$1,039,000	$921,000	$1,029,000	$1,215,000	$2,099,000

The indicator for this forest value is the percentage of planted forest affected by selected agents that are severe enough to potentially cause a deleterious affect on plantation health and vitality.

Trends

The major agents impacting hardwood plantations continue to be insects, including herbivorous and sap-sucking insects (Table 9). A major outbreak of *Creiis* psyllid in early- to mid-2003 caused the most damage, in up to 1,000 hectares. *Geometrid* loopers also caused significant damage. Damage from leaf beetles, however, was less severe this year. Stem borers remain the most significant problem in plantations older than three years of age, and were not significantly different from previous years. Damage from leaf and shoot fungi was less significant this year due to drier conditions. Frost in winter 2002 caused significant damage to approximately 1,000 hectares.

The percent of planted softwood forests affected by selected agents that are considered severe enough to potentially cause a deleterious effect on plantation health and vitality is presented in Table 10.

TABLE 9: PERCENTAGE OF NEW HARDWOOD PLANTATION* THAT MAY BE ADVERSELY AFFECTED BY SELECTED AGENTS

Agent	1998/99	1999/00	2000/01	2001/02	2002/03
Herbivorous and sap-sucking insects	23.8%	25.8%	2.8%	5.8%	7.5%
Stem borers (insects)	7.5%	0.5%	0.3%	0.14%	0.14%
Soil pathogens (fungi)	1.0%	0.0%	0.0%	0.01%	0.0%
Frost damage	n/a	n/a	n/a	n/a	4.0%
Leaf and shoot fungi	n/a	n/a	n/a	2.4%	1.0%
Unaffected	67.8%	73.7%	96.9%	91.7%	87.36%

* Planted hardwood forest post 1994

TABLE 10: PERCENTAGE OF SOFTWOOD PLANTATION* THAT MAY BE ADVERSELY AFFECTED BY SELECTED AGENTS

Agent	1998/99	1999/00	2000/01	2001/02	2002/03
Dothistroma (Needle blight)	1%	2.3%	2%	1.3%	0.9%
Sphaeropsis (fungus)	3%	0.1%	0.5%	0.13%	0.01%
Boron deficiency	4%	3.8%	0.5%	0.03%	0.01%
Sirex (insect)	0%	0.0%	0.02%	0.01%	0.01%
Possum damage	0%	0.2%	0.23%	0.20%	0.18%
Unaffected	92.0%	93.6%	96.6%	98.3%	98.9%

* Based on the planted area of the softwood plantation estate

Forest health surveys identify individual trees in softwood plantations affected by Sirex wood wasp.

forest value 5 – forest health

Some agents manifest themselves over large areas of forest, such as *Dothistroma* needle blight, whilst other agents affect individual trees (eg *Sirex* wood wasp, *Sphaeropsis* fungus, possum damage). *Dothistroma* needle blight reached high levels in several areas this year, including the Northern Tablelands, but was lower than previous years due to dryer conditions and effective disease management. *Sphaeropsis* was lower than last year, despite significant drought. Possum damage was a little less than in previous years. Boron deficiency remains a problem in young pine trees planted on ex-agricultural land, but to a lesser extent than in previous years, and is managed by remedial fertilisation.

Research and development

Surveillance of pine plantation health has historically relied on manual ground and aerial surveys. Advances in remote sensing technologies and image analysis now offer an alternative approach. Research is directed at establishing connections between images of the forest canopy and the underlying forest condition.

INDICATOR 17: FIRE FIGHTING AND PREVENTION

Description

Fire can be either beneficial or detrimental to forest ecosystems depending on a variety of factors. Most Eucalyptus forests are dependent upon fire for regeneration and renewal but some native species, such as River Red Gum, are fire-intolerant. Planted forests, both softwood and hardwoods, are threatened with destruction by severe or frequent fire events.

Wildfires occur every year in the forests of NSW. They may threaten life, property and/or assets and State Forests places a high priority on suppressing wildfires and on preventing wildfires from occurring.

State Forests aims to reduce the frequency and size of wildfires by early intervention and by undertaking fuel management activities. Regional Fuel Management Plans are developed in conjunction with other fire-fighting agencies. Strategies are customised for the forest types being managed and the natural and climatic features of the areas in which they are to be implemented.

A program of hazard reduction burning of targeted areas is undertaken each year to reduce fuel loads and thus reduce the potential impact of wildfires and make fire suppression safer and more effective. Areas of forest identified as 'high-risk' should wildfire occur are intentionally burnt by low intensity fire of a manageable size, under controlled conditions.

Small scale, localised burning is often undertaken after timber harvesting to promote regeneration or during the establishment of planted forests to remove residual groundcover.

Grazing is also effective for managing fuel loads because it reduces the amount of fine fuel in forests without using fire. Grazing is particularly suited to forests with fire-intolerant species.

State Forests maintains a lightning strike detection system, numerous fire towers to detect fire out-breaks and an extensive network of road and fire trails to rapidly gain access to fires.

Trends

As in 2001/02, the 2002/03 fire season was an above average year for wildfire in many parts of NSW. Fires were experienced in all coastal regions of NSW, culminating in the severe fires experienced in the south-east. While 5.7% of State forests were burnt by wildfire, plantation losses were negligible (Figure 8).

In 2002/03, the fuel loads on approximately two per cent of all State forests were managed through the implementation of hazard reduction, post-harvesting or pre-establishment burning. In addition, 28 per cent was leased for grazing, with the effect of reducing the fine fuel load in those areas of forest (Table 11).

State Forests place a high priority on suppressing and preventing wildfires.

Expenditure on fight prevention and control was understandably high during the year (Figure 9). Hazard reduction measures undertaken in response to the 2001/02 season and prediction of poor conditions again for the 2002/03 resulted in a significant investment of $8.6 million with a further $5.6 million spend on fire fighting during the fire season.

Research and development

State Forests are studying the combined effects of timber harvesting and fire on the population dynamics of forest trees and understorey plant species. The aim is to provide improved understanding of fuel build-up following hazard reduction burning, and regeneration characteristics following logging and post-logging burning. Data will underpin the development of appropriate hazard reduction burning regimes in dry coastal eucalypt forests of southern NSW.

State Forests is also a major contributor to the newly established Cooperative Research Centre on Bushfires.

FIGURE 8: PERCENT OF STATE FORESTS BURNT BY WILDFIRE

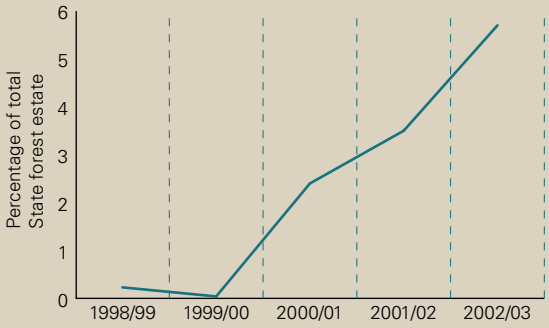


FIGURE 9: EXPENDITURE ON FIRE FIGHTING AND PREVENTION

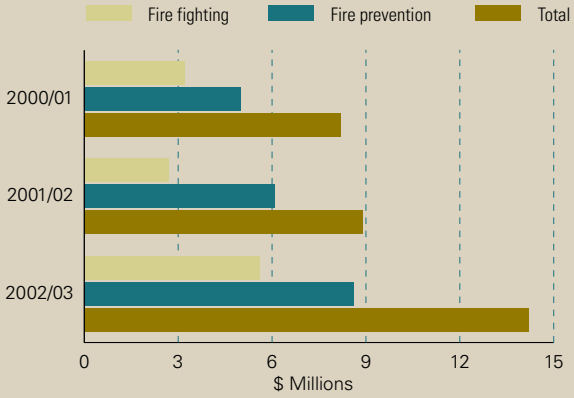


TABLE 11: AREA OF FUEL MANAGEMENT

Fuel management strategy	2001/02	2002/03
Hazard reduction (ha)	35,053 (1.3%)	30,267 (1.1%)
Post log burn (ha)	23,840 (0.8%)	24,242 (0.9%)
Grazing (ha)	644,966 (22.7%)	783,842 (28.0%)

forest value 6 – soil and water quality

Forests play an essential role in the protection and maintenance of soil and water resources. Conservation of soil and water contributes to the catchment health and biodiversity values of the landscape.

Through our Forest Practices Codes, operational manuals and guidelines, State Forests is committed to using world's best practice to ensure that soil and water quality are not adversely impacted by roading and timber harvesting operations. Our forest management also aims to maintain the capacity of the soil in State forests to support natural forest ecosystems and ecosystem processes.

Effective implementation of soil and water protection is further assisted through the regulatory conditions prescribed in Environment Protection Licences, issued by the Environment Protection Authority (EPA), (part of the Department of Environment and Conservation from September 2003). The EPA monitors the implementation of licence conditions. State Forests is also undertaking a program of water quality sampling and monitoring.

Beyond our regulatory requirements, State Forests is playing a key role in the delivery of the NSW Government's Salinity Strategy, including a pilot project involving farmers in the Liverpool Plains Region to determine the viability of future large-scale tree planting to manage salinity.

INDICATOR 18. SOIL EROSION ASSESSMENT – AREA AND PERCENT OF FOREST HARVESTED

Description

Prior to the establishment of any roads in forests that are scheduled for timber harvesting, a soil survey is undertaken, by an accredited officer, to identify areas that may be susceptible to soil erosion. Consequently, the area planned for harvesting can be used as a measure of the land systematically assessed for soil erosion hazard and for which water pollution prevention measures are put in place before harvesting commences.

Trends

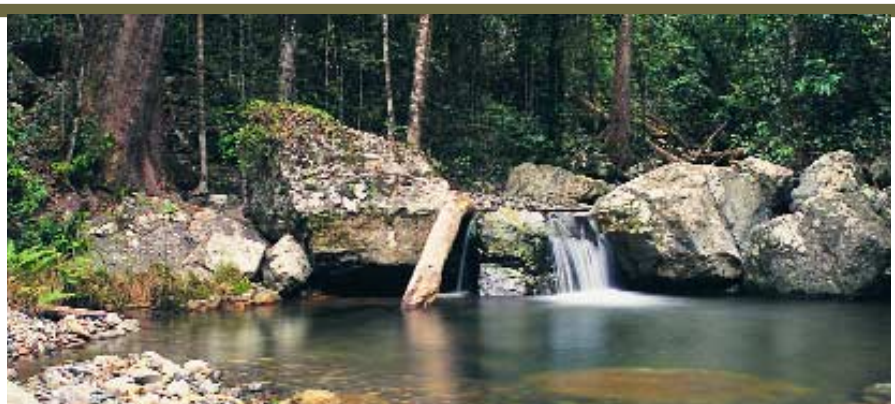
In 2002/03, 193,000 hectares or 6.9% of the total estate were planned for harvesting and therefore assessed for soil erosion hazard. State Forests' undertook a total of 377 surveys in relation to soil and water quality assessment to ensure that planned forestry operations would meet the conditions of the EPA licence.

The decline in the proportion of non-compliance incidents related to soil and water quality suggests that State Forests and its contractors are continuing to improve performance in this regard.

Research and development

A water quality monitoring program forms a very important component of the licences issued to State Forests by the EPA for the carrying out of forestry activities on State forests and Crown timber lands. The objective of the water quality monitoring program is to determine if there is an identifiable impact on water quality from licensed forestry activities and if so, to quantify the level of that impact.

A report summarising State Forests' results to date is planned to be written during 2003–04.



Riparian zones and catchment values are protected in State forests.

INDICATOR 19. CATCHMENT PROTECTION

Description

The entire State Forests' estate is managed for catchment protection. However this indicator reports on the area of land that is zoned 'catchment' as the primary special value in our Forest Management Zoning system (ie has a special emphasis for catchment protection). It also includes the current estimate of the extent of stream-side reserves and extreme soil erosion hazard land that is protected within the 'general management' native forest zone and the current estimate of the extent of filter strips in planted forest.

The indicator does not include land that has been primarily zoned for other ecological purposes, but for which catchment protection is also an important objective. Consequently, Informal Reserves that are managed primarily for flora or fauna are not included in this indicator.

Trends

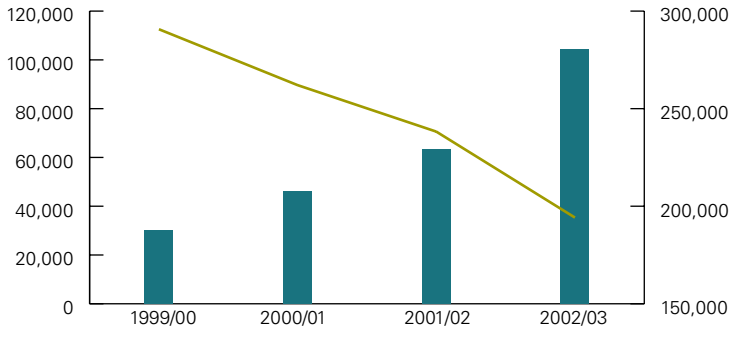
As a result of a reduction in overall estate size the proportion of the estate managed for catchment values has increased marginally in the past year. Almost 300,000 hectares, or 10% of the total State Forests estate, is managed with special emphasis on water catchment protection either as a special management zone of through the application of conditions during harvesting (fully and partly protected land in Figure 10).

All harvesting operations conducted by State Forests are subject to various regulatory regimes. In the native forests of eastern NSW, the regulatory regime is explicitly documented in legislation and detailed in such documents as the IFOAs under the NSW Forest Agreements and the Regional Forest Agreements with the Commonwealth.

Following the completion of four Forest Agreements in New South Wales, a large proportion of forests managed by State Forests are regulated under IFOAs. These IFOAs reflect the policy of the NSW Government to promote an ecologically sustainable, value added and secure native forest timber industry while establishing clear, consistent and strong environmental protections for areas available for timber harvesting.

During harvest planning and licenced harvesting operations, State Forests and external harvesting contractors are required to comply with conditions set out under the IFOAs and established best practice standards. To ensure that these requirements are met, State Forests supervises, checks and audits the work of contractors and is, in turn, subject to audit and inspection by the independent regulatory agencies.

FIGURE 10: AREA OF FOREST MANAGED PRIMARILY FOR CATCHMENT PROTECTION*



* Excludes substantial tracts of land otherwise zoned primarily for natural and cultural protection which also provide a catchment protective function.

** Includes wetlands, filter strips reserved from harvesting and areas with extreme risk of erosion or water pollution hazard.

*** Includes Forest Management Zone 'Catchment' and filter strips protected in areas where modified harvesting methods are permitted.

forest value 7 – compliance

INDICATOR 20. REGULATORY COMPLIANCE

Description

The number of audits undertaken and the number of fines and breaches reported are used to monitor compliance with both internal Codes of Operation and external licence conditions. State Forests undertakes routine monitoring for compliance and orders corrective action by contractors where necessary.

The number of compliance check sheets completed by State Forests' staff is proportional to the number of harvesting operations during the year, and also depends on the type and duration of each harvesting operation as checks are undertaken every two weeks of each operation. Each compliance checksheet covers some 85 potential non-compliance incidents. For the first time in 2002/03 the number of actual detected incidents is reported as compared with potential incidents.

Trends

There was an increase in the number of check sheets completed by forest supervisors during harvesting operations in 2002/03. The number of non-compliance incidents detected by State Forests' supervision decreased. Overall there was a compliance rate of around 99% with the compliance checks covered by check sheets (Table 12).

Most non-compliance incidents recorded related to soil and water quality issues including accidental tree felling into filter strips and stream exclusion zones, which are considered to have relatively minor environmental impacts or which are rectified before actual damage occurs.

The number of fines by external regulatory agencies was again very low. Only one fine was issued, in this case for a breach of a Threatened Species Licence condition. Details are provided in Appendix 12.

Supervision of road construction to ensure erosion mitigation measures are in place.

TABLE 12: REGULATORY COMPLIANCE CHECKING DURING HARVESTING

Compliance items	1999/00	2000/01	2001/02	2002/03
Compliance check sheets completed	5,848	3,424	3,573	3,942
Potential compliance checks covered by check sheets	497,080	291,040	303,705	335,070
Non-compliance incidents recorded by State Forests' supervision	2,039	1,538	2,242	1,810
Compliance rate	99.59%	99.47%	99.26%	99.46%
Fines issued to State Forests by regulators	3	5	4	1
Prosecutions of State Forests for regulatory non-compliance	1	0	0	0

INDICATOR 21. EFFICIENT HARVEST PLANNING AND OPERATIONAL COMPLIANCE

Description

Our harvest planning includes a number of processes undertaken to comply with internal codes of conduct and external licence conditions. Employees often suggest new and frequently cost-saving innovations that not only improve compliance performance but also add value to State Forests' operations and better environmental protection. Individual regions also undertake a range of activities beyond those required under the condition of the licence through which State Forests operates. Such initiatives are referred to as 'beyond compliance initiatives'.

Trends

The expenditure on and outcomes of activities undertaken during the harvest planning process remained relatively constant for 2002/03. An increase in expenditure during the harvest planning phase reflects an increase in the total area planned for harvesting.

The expenditure this year on meeting our harvest planning (including pre-harvest flora and fauna surveying), harvesting supervision and environmental compliance requirements was over $15 million (Table 13).

In addition, State Forests paid over $500,000 in annual licence fees to the Environment Protection Authority (DEC) to support its monitoring of forestry operations.

The successful implementation of training programs and protocols as a result of survey effort is reflected in the reduction of the number of non-compliance incidents and fines, as referred to in Indicator 20.

TABLE 13: HARVEST PLANNING AND OPERATIONAL COMPLIANCE IN NATIVE FORESTS

Harvesting activity	Outcome	2000/01	2001/02	2002/03
Desktop and field planning	Expenditure on harvest planning	$ 4,632,409	$5,634,045	$7,708,114
Pre-harvest surveys – soil and water	Number of soil and water surveys undertaken	261	189	271
	Area assessed for soil and water	64,166	105,433	193,000
Pre-harvest surveys – flora and fauna	Number of fauna surveys undertaken	2,082	2,277	1,616
	Number of flora surveys undertaken	638	723	411
	Number of species protocols invoked	496	475	635
Expenditure on pre-harvest surveys	Expenditure on pre-logging survey and assessment costs for factors such as Aboriginal sites, flora, fauna etc	$ 1,641,363	$1,605,375	$1,306,996
Harvesting compliance	Expenditure on harvesting supervision and environmental compliance	$5,560,205	$5,503,854	$5,693,545

forest value 8 – environmental services

The State of the Environment Report for Australia confirms that the greatest environmental challenges facing Australia include reducing greenhouse emissions, halting the spread of dryland salinity and reversing the decline in biodiversity. As State Forests' Annual Report and Seeing Report highlight, we are actively working to develop and provide innovative reforestation solutions to address all these issues.

The State of the Environment Report also highlights the need to reverse the traditional perception of conflict between economic and environmental objectives. The key to achieving this lies in developing new markets that value environmental services and foster investment in solutions to environmental problems. State Forests is hoping to contribute to the realisation of the NSW Government's visionary forestation plans to halt the spread of dryland salinity in the Murray-Darling Basin.

The forestation program is clearly only one part of the fight against salinity. But, in its simplest terms, it will begin to put back part of the forests and woodlands that were cleared more than 100 years ago and in the process produced the conditions that gave rise to the problem of salinity we face today.

One of the reasons that problems such as salinity have developed is that, traditionally, the 'environmental services' provided by forests have been treated as common goods and have not been assigned any economic value. Examples of environmental services include carbon sequestration, salinity amelioration, biodiversity enhancement, watershed management and water quality improvement. One consequence of the lack of recognition of economic value in environmental services is that there is no direct economic consequence for taking those services away by clearing the forest. Similarly, there has been little direct economic incentive on the part of individuals to undertake actions that generate new environmental services.

A key underlying principle of sustainability is that of inter-generational equity, under which current users do not diminish the level of natural capital to the detriment of future generations. We can make a major contribution to achieving sustainability by re-engineering production processes to recognise the true value of environmental services of all kinds and thereby manage use of those resources so as not to diminish their value for the future.

We can use the same techniques to seek to repair some of the damage already done to natural capital, such as by re-establishing forests to re-supply environmental services that themselves generate economic returns. One example is the use of new planted forests to capture carbon dioxide from the atmosphere via sequestration, thereby helping to reduce the impact of the greenhouse effect on climate change.

Forests are recognised as an important carbon dioxide store. There is also growing recognition that new planted forests have the potential to act as carbon sinks to absorb some of the greenhouse gases that have been building up in the atmosphere, particularly over the last century, as a consequence of land clearing and burning fossil fuels.

State Forests has been playing a key role in the development of a strategy to address the impacts of greenhouse gas emissions and actions to offset them. The two primary areas of focus have been on providing investment opportunities for companies to use State Forests' management services to establish new plantations on cleared land from 1 January 1990 onwards (thus being consistent with the requirements of Article 3.3 of the Kyoto Protocol) and developing carbon accounting systems for these plantations. The focus on consistency with Article 3.3 arises because this best suits investor requirements and because this component of the planted forest estate will underpin State Forests' proposed carbon trading activities, whether for Kyoto Protocol purposes or under the NSW Greenhouse Gas Abatement Scheme (the latter came in operation from 1 January 2003).

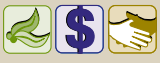
State Forests has attracted investment in new plantations that has already seen over 4,000 hectares established, with a final target area from existing

investments of between 20,000 and 55,000 hectares, at a cost to investors of up to $720 million over the life of the plantations. With respect to carbon accounting, State Forests was a major contributor to the development of Standards Australia's AS4978.1(Int), a carbon accounting standard for Article 3.3-consistent planted forests. State Forests is also contributing to development of ISO standards for carbon accounting and verification.

As it is progressively developed, the carbon accounting system used for Article 3.3-consistent forests is planned to be extended to assess the amount of sequestered carbon in all of State Forests' plantation estate. In the interim, a simplified approach to carbon accounting across the entire State Forests' plantation estate is reported below under Indicator 22.

State Forests is working with the Department of Infrastructure, Planning and Natural Resources to develop and implement tools and systems for calculating the quantity of environmental services produced by various changes to land management practices on rural properties. The land use changes are those anticipated as being required to restore land management to a more sustainable basis. Examples include planting of trees and deep-rooted perennial pastures for salinity amelioration, management of existing and planting of new areas of native forest for biodiversity, improved management and rebuilding of riparian corridors for water quality improvement and biodiversity, and better soil and nutrient retention on properties. Appropriate indicators for these kinds of services are still under consideration.

INDICATOR 22: ANNUAL CARBON SEQUESTRATION IN FORESTS



Description

This indicator expresses the total annual carbon sequestration within our existing planted forests. The calculations are affected by changes in net planted area and assume estate-wide mean annual increments (growth rates) for softwood and hardwood plantations.

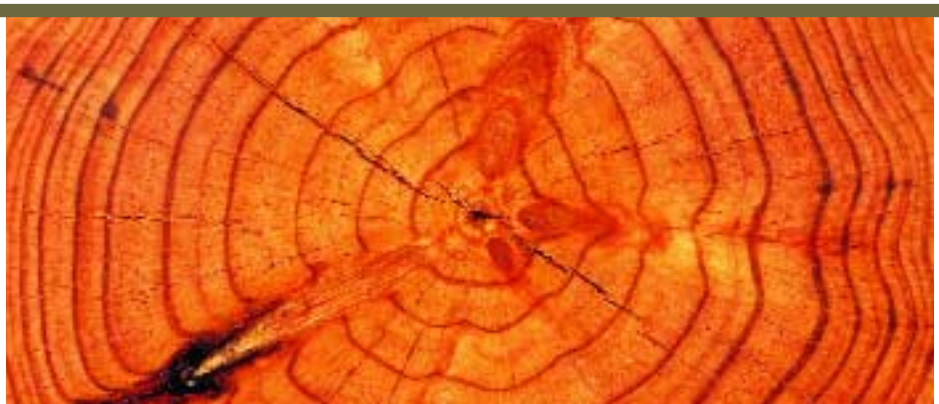
The calculations exclude plantations established under joint ventures and those established for external investors.

The carbon accounting models used to estimate the total sequestered carbon dioxide each year over the last few years from the total planted forest estate is a very simplified one. The calculation is based on the net area of plantation (ie after any final harvesting). The method for accounting for sequestered carbon was improved during the year and now includes estimates for changes in canopy biomass and root biomass. This new method has been applied to this and previous years' data. This method may change again as the models are further refined to include, for example, carbon sequestered in the undergrowth, litter and soil (which have been excluded from this calculation).

As mentioned above, a more comprehensive carbon accounting system is being developed for the subset of the total plantation estate that is consistent with Article 3.3. This refined system will underpin any currently anticipated carbon trading such as the NSW Greenhouse Gas Abatement Scheme, as well as carbon accounts prepared for external investors in new planted forests. The refined system will then be further developed to enable more general application across the total planted forest estate.

Trends

Figure 11 shows the amount of carbon dioxide sequestered per year during the growth of State Forests' total hardwood and softwood plantation estate. Data for hardwood plantations shows a significant decrease when compared to previous year's data. This is as a result of improved resource information, which more accurately defined the hardwood plantation estate.



Tree rings show the age of radiata pine as they convert atmospheric carbon dioxide into stored carbon.

forest value 8 – environmental services

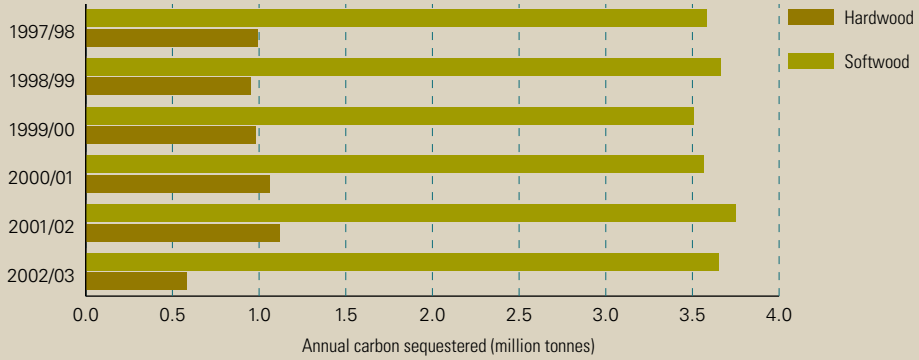
Research and development

Major research activities undertaken by State Forests' Research and Development Division into environmental services issues have centred around the Cooperative Research Centre for Greenhouse Accounting (http://www.greenhouse.crc.org.au/) on carbon accounting issues, the NSW Salinity Strategy (http://www.dipnr.nsw.gov.au) on assessing the role of trees and other land use changes on salinity and other environmental services, and research into tree planting on mine sites, using techniques to improve survival and growth such as soil improvement with biosolids (recycled sewage), green wastes and ash from coal-fired power stations.

State Forests' research on carbon accounting focuses on improving accuracy in carbon accounting methods, while stressing the need for practical and cost-effective approaches. In addition to improving its own accounting methods and providing key contributions to national and international standards, the following tools have been developed to facilitate carbon accounting:

- TimberCAM is a carbon accounting model that was developed within the ambit of the Cooperative Research Centre for Greenhouse Accounting. TimberCam accounts for the fate of carbon sequestered in trees through its harvesting, conversion to wood products, use and end of life options – reuse, recycling or disposal. TimberCAM will be the vehicle that will translate the results of separate studies into an understanding of carbon storage in wood products in Australia.
- A Carbon Sequestration Predictor toolkit has been prepared for predicting likely changes in both biomass and soil carbon associated with a number of land use changes.
- An internet-based 'Tree Carbon Calculator' has been developed to provide an easy-to-understand and use tool aimed at school students and the general public. It allows the user to estimate how much carbon is stored in a tree, based on a simple measure of the tree's circumference.

FIGURE 11: ANNUAL TONNES* OF CARBON DIOXIDE SEQUESTERED IN PLANTED FOREST



* Assumptions:

CO_2 sequestered (tonnes CO_2e) = net plantation area x MTBI x CP x CCF where:

MTBI = SBI + CBI + RBI where:

SBI (Stem Biomass Increment) = TSVI x BD where:

TSVI (Total Stem Volume Increment) – softwood = 16m^3/ha/year and hardwood = 15m^3/ha/yr

BD (Basic Density) – softwood = 0.42 t/m^3 and hardwood = 0.55t/m^3

CBI (Canopy Biomass Increment) = SBI x .1765

RBI (Root Biomass Increment) = (SBI + CBI) x 0.2

CP (Carbon Proportion) = 0.5

CCDF (Carbon to Carbon Dioxide Factor) = 3.667

INDICATOR 23: ENERGY CONSUMPTION

Description

As an organisation State Forests is committed to reducing its contribution to atmospheric carbon during the process of managing and harvesting forests. State Forests has made a voluntary decision to participate in the Government Energy Management Policy. The Policy expresses the Government's commitment and responsibilities under the National Greenhouse Strategy.

Trends

Consumption of greenhouse gas producing substances and the amount of atmospheric carbon released as a consequence increased by 4.9% during the year. This increase can be attributed, in part, to an increase in consumption of diesel fuels associated with the increase in number and utilisation of trucks and 'light plant' vehicles that have replaced several 'heavy plant' vehicles. An investigation is currently underway into the practicality of using dual-fuel vehicles to replace some of the unleaded vehicles in the fleet, and the consequences of using 'eco-diesel' (made from recycled vegetable oils) to power some of the heavy plant and truck fleet.

Use of electricity and petroleum products accounted for 33% and 67% of CO_2 emissions, respectively.State Forests increased the proportion of 'Green Power' purchased to 12.8% of all electricity consumed (refer Appendix 13).

State Forests maintained a fleet of 625 light vehicles and 301 trucks and light and heavy plant equipment, an increase of 17 fleet vehicles when compared to 2002 (refer Table 14).

TABLE 14: FLEET SIZE

Fleet	Fuel Type	2000/01	2001/02	2002/03
Light vehicles	Number diesel vehicles	573	490	472
	Number petrol vehicles	239	170	152
	Number LPG vehicles	n/a	n/a	1
	Total number vehicles	**812**	**660**	**625**
Trucks and light plant	Number diesel fleet trucks and light plant	139	138	204
	Number petrol fleet trucks and light plant	11	7	7
	Number LPG fleet trucks and light plant	n/a	n/a	5
	Total number fleet trucks and light plant	**150**	**145**	**216**
Heavy plant	Number diesel fleet heavy plant	86	103	84
	Number petrol fleet heavy plant	0	1	1
	Total number fleet heavy plant	**86**	**104**	**85**

State Forests' mechanical workshops ensure the smooth and efficient running of the corporate fleet.

forest value 8 – environmental services

INDICATOR 24: WASTE MANAGEMENT

Description

State Forests participates in the NSW Government's Waste Reduction and Purchasing Policy (WRAPP). The policy is available from the Resource NSW web page at http://www.resource.nsw.gov.au. Under this WRAPP program we undertake to implement a number of strategies and monitor and report on key indicators of waste management performance that are standardised across participating organisations.

Trends

State Forests has submitted WRAPP reporting requirements to Resource NSW in line with government guidelines. The strategies to improve waste management are shown in the table below:

Reporting guidelines in line with the 2003 Resource NSW report will be continued on an annual basis throughout the organisation.

The figure below identifies the key performance areas by which State Forests will measure how effective the strategies are in improving waste management.

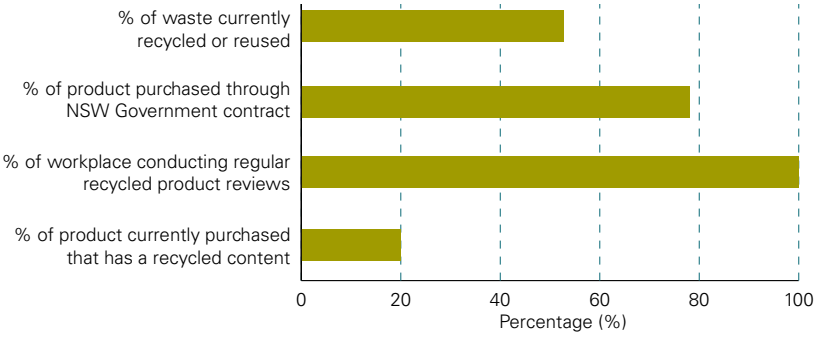
Research and development

The Life Cycle Analysis of Wood Products research program is one project within the CRC for Greenhouse Accounting that is being undertaken by State Forests. The aim of the project is to develop data to support an accounting system for carbon that is stored in wood products, including paper. To achieve that aim, seven sub-projects are being worked on. These are:

- Developing a database on the manufacture of wood products in Australia.
- Determining the carbon content and density of Australian wood products.
- Determining the carbon efficiency of harvesting a range of species and converting them to a range of wood products.
- Determining the wastage associated with the use or manufacture of articles or products from wood products.
- Determining the service life of wood products in Australia.
- Determining the fate of wood products disposed to landfill.
- Determining the greenhouse gas implications of substituting wood products for alternative materials in a range of building designs.

Strategy	Progress
Inclusion of WRAPP principles in corporate plans and operational policies and practices.	WRAPP reporting is being undertaken within State Forests Annual Report.
Ensuring contract specifications requiring the purchase of recycled content products where appropriate.	This is being undertaken where appropriate.
Improving waste avoidance and recycling systems across the agency.	Recycling of paper waste products is being undertaken throughout most offices where recycling systems are available.
Establishing data collection systems to report agency progress.	This is being incorporated with in procurement systems being established within the organisation.
Increasing the range and quantity of recycled content materials being purchased.	Where possible this is being encouraged. However some office machines are not user friendly to recycled materials.
Raising staff awareness about the WRAPP and best-practice management of waste and purchasing of recycled content materials.	Relevant staff are encouraged to implement the guidelines in the organisation's WRAPP policy.

FIGURE 12: WASTE MANAGEMENT



* Excludes toner cartridges as few regional areas have facilities to recycle. Excludes A4 and A3 paper as recycled paper causes problems with photocopiers.

Note: The figures in this table were calculated using the methodology required for WRAPP.

FEATURE STORY 5

WOOD THE WINNER IN GREENHOUSE FRIENDLY CONSTRUCTION

State Forests researchers are continuing their work on carbon accounting and greenhouse gases. In partnership with the Cooperative Research Centre for Greenhouse Accounting, efforts are under way to assess the storage of carbon in forest products from the harvesting of trees through to the production and use of timber products, their time in service and ultimate disposal to landfill. It's all aimed at gaining an accurate picture of how much carbon is stored in wood, and how long it remains 'locked up' in wood products.

As part of this assessment, researchers have recently collected all of the building material waste from two project homes being built in Sydney's north west. The aim was to gain accurate figures on the amount of timber, tiles, bricks and other materials discarded during construction as part of an assessment of the greenhouse gas implications of substituting forest products for alternative materials in building design.

"Building material waste from a single-storey and a two-storey house was collected," researcher Fabiano Ximenes said. "Both houses were brick veneer structures with softwood trusses and frames and built on concrete slabs."

The waste was grouped into products and weighed to determine the percentage of wastage of each of the materials delivered to the site for each house.

Fabiano said that in the construction of the two-storey house, 2.7% of bricks, 3.4% of roof tiles, 10.4% of guttering and 8.2% of the wood products (including sawn timber, particleboard and medium density fibreboard) were discarded.

The results were then processed in a Life Cycle Assessment (LCA) computer model to determine the greenhouse gas emission outcomes for constructing a house from a range of building materials.

The model, known as LISA (LCA in Sustainable Architecture), was developed by BHP and is being used in this project in conjunction with the University of Newcastle's Centre for Sustainable Technology.

"Data for six material combination options were processed for the selected house designs to quantify greenhouse gases emitted during the manufacture of each construction material," Fabiano said.

He said LISA shows that using timber for framing and flooring is a far better option when it comes to the amount of carbon dioxide released into the atmosphere as compared to bricks, steel and concrete.

"For example, for the single-storey, four bedroom brick veneer house of 180 square metres, LISA predicts that the equivalent of 2.7 tonnes of carbon dioxide would have been emitted during the manufacture of steel for steel frames, whereas only the equivalent of 0.4 tonnes of carbon dioxide would have been emitted during the production of the timber for the timber frames.

"For either timber flooring or ceramic tiles laid on a concrete slab, the equivalent of 0.4 tonnes of carbon dioxide would have been emitted during the processing of hardwood timber for timber floors, compared to the equivalent of 3.7 tonnes of carbon dioxide emitted during the manufacture of ceramic tiles."

The results demonstrate that the use of wood products can reduce the quantities of greenhouse gases associated with building construction.

Fabiano said that the greenhouse gas emissions generated during the manufacture of building products and the construction of a house was just one component of the emissions generated by a house during its life. Other sources of greenhouse gas emissions include those due to use and occupancy (for example energy for heating and cooling and emissions associated with the manufacture of furniture and carpet), maintenance (for example emissions associated with production of paints) and finally demolition.

"Our research demonstrates that the use of wood products extends the significant benefits for greenhouse gas reductions gained from sequestering carbon in trees," Fabiano concluded.

The use of wood products can reduce the quantities of greenhouse gases associated with building construction.

economic

economic

Ensuring an adequate return from the marketing of wood products from the State's native forest and plantations while also developing innovative commercial products and services to facilitate private investment in new planted forests.

forest value 9 – productivity

One of our main forest management objectives is to ensure our forest practices, including timber harvesting, are undertaken in a manner which provides for a perpetual supply of forest products in line with community expectations and to ensure all disturbed native forests are properly regenerated.

Managing forests is a long-term process. The impact of decisions and actions in our management today may not be visible in the forest for many decades. New management practices need a long time to be researched and practices implemented before they have an effect on forest growth and productivity. Monitoring and maintaining the forest's productive capacity is critical to the continued ability to provide, in perpetuity, the range of products and services demanded by society.

Measuring the sustainable production capacity is not a simple task, as the true productivity of a forest must be modeled over several centuries rather than a year, a decade or a human generation. Five indicators have been used across the forest to monitor productivity. The capacity to sustainably produce timber from the forest has been targeted, as harvesting is the most dramatic impact highlighted by our stakeholders.

INDICATOR 25. FOREST AVAILABLE FOR TIMBER PRODUCTION

Description

Within the estate managed by State Forests, an important sustainability indicator is the proportion of the forest that has a special management focus on conservation and how much of the forest has a management focus on timber production, subject to IFOA prescriptions to protect other forest values. The area available for timber production is a major determinant of the sustainable supply of raw timber products to the timber processing industry.

Trends

There was no significant reduction in area of native forest estate available for timber production in 2002/03 (refer Table 15). The areas transferred to the national park estate in 2002/03 were largely those zoned and managed for conservation or special values by State Forests and were already excluded from timber harvesting.

Currently, the nominal area of land available for harvesting within native forests is 55% of the total native forest estate. In reality, not all the area zoned for general forest management is harvested and many areas within the harvesting plan area are left undisturbed for environmental, silvicultural or aesthetic reasons. Even in our planted forest estate, just 53% is available for harvesting after environmental exclusions, infrastructure and other areas are taken into account.

Of the total estate, 2.2% was actually accessed for timber harvesting (refer Table 16). This area, 61,582 hectares, constitutes 3.9% of the forest zoned as available for harvesting.

Research and development

A project funded by the Joint Venture Agroforestry Program aims to assess the suitability of several drought-tolerant Pinus species for a range of wood and fibre end-products produced by existing forest industries in the Tumut/Tumbarumba region.

The applicability of non-destructive acoustic testing tools are being assessed for evaluating the wood properties on standing trees and logs of plantation grown Pinus radiata and Eucalyptus species. Such tools may be useful, for example, for determining when the plantation resource has reached the minimum desired wood properties prior to harvest. Specifically, this project has established strong relationships between non-destructive measurements of standing trees and sawlogs, and the stiffness of the dried sawn boards.

forest value 9 – productivity

TABLE 15: AREA OF FOREST ZONED AS AVAILABLE FOR TIMBER PRODUCTION

	Non harvest land				Land available for harvesting			
Forest Management Intent	1999/00	2000/01	2001/02	2002/03	1999/00	2000/01	2001/02	2002/03
Dedicated Reserve	33,500	34,581	27,275	29,852	0	0	0	0
Informal Reserve – Special Management	322,500	303,338	287,852	296,327	0	0	0	0
Informal Reserve – Harvest Exclusion	199,000	239,277	234,271	353,204	0	0	0	0
Special Prescription	54,500	8,552	15,690	24,025	13,500	21,728	13,305	32,905
General Management Native Forest	387,500	382,701	363,224	335,927	1,368,000	1,190,416	1,186,699	1,172,174
Hardwood Planted Forest Estate*	0	0	0	53,818	46,000	49,493	52,690	56,944
Softwood Planted Forest Estate*	102,600	103,653	184,311	182,603	201,720	204,817	206,739	212,495
Non Forestry Use	8,000	10,914	10,097	8,463	0	0	0	0
Land for Further Assessment	0	0	0	0	326,500	304,040	261,451	105,436
Total Forest Estate	1,107,600	1,083,017	1,122,270	1,284,219	1,965,720	1,770,494	1,720,885	1,579,954

* Includes State Forest (including pre 1994 plantations), Joint Venture and Annuities.

TABLE 16: AREA AND PERCENTAGE OF FOREST HARVESTED

	Percentage of forest harvested						Area of forest harvested (ha)	
Forest type	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2001/02	2002/03
Native forest	Not reported	Not reported	2.10%	2.60%	2.10%	2.04%	50,351	49,062
Planted softwood forest	Not reported	Not reported	4.60%	5.40%	3.00%	3.16%	13,271	12,486
Planted hardwood forest	Not reported	Not reported	4.60%	4.10%	0%	0%	0	0
Total estate	2.10%	2.40%	2.40%	2.90%	2.20%	2.20%	63,622	61,582

Plantation establishment in Sunny Corner State Forest.

INDICATOR 26. PLANTATION ESTABLISHMENT

Description

This indicator tracks the area of new ('first rotation') plantation and harvested and replanted ('second or third rotation') plantations established during the year. New planted forests are only established on land that was cleared in the past for agricultural purposes that is either purchased by State Forests or by contractual arrangements (i.e. joint ventures or annuities) with private landowners.

Direct State Government involvement in new hardwood plantations has continued, albeit at a slower pace than in the late 1990s, under RFA funding arrangements on the north coast. There has been significant planting on behalf of third party investors and there is further interest being shown in this area.

Trends

Figure 13 shows the area of newly planted forest established annually since 1995. The area planted to hardwood species is almost all new planted forest. About half of the recently planted softwood trees are in new plantation areas, while the other half are planted as second and third rotation crops on existing plantation estate that has been harvested.

High rates of hardwood plantation establishment in the latter half of the 1990s were driven by Government policy and funding to rapidly establish a substantial resource to supplement industry's reliance on natural native forests in the long term (20–30 years). By next year, we expect the size of the State's hardwood plantation estate will be double what it was in 1995.

INDICATOR 27. PERCENT OF PLANTED FOREST EFFECTIVELY STOCKED

Description

The establishment of new planted forest and re-establishment of existing planted forest after final harvesting contributes to the development of a sustainable timber supply in NSW. The final productivity of a newly planted forest depends on achieving vigorous growth in the first few years. State Forests monitors the effectiveness of the establishment of newly planted forest by undertaking surveys of seedling survival in the first year after planting. If survival rates are generally low or low in specific locations, the failed areas are replanted.

Results

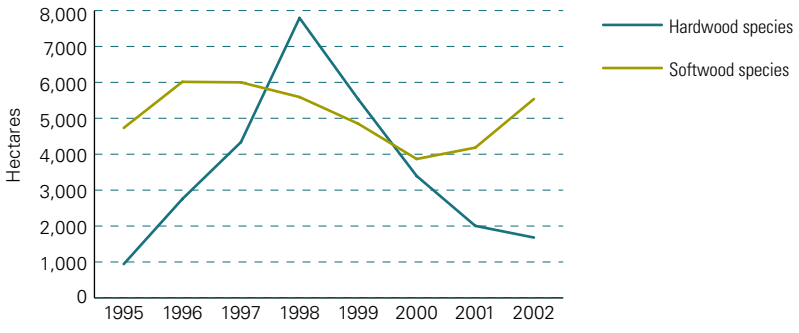
Softwood plantations established in 2001/02 attained a lower level of establishment than in previous years (Table 17). The drought and frost conditions experienced last year may have hindered the growth of these recent plantings.

The area of hardwood plantation established in 2000/01 was surveyed in October 2002 and achieved a 97% success. The success of hardwood plantation established during 2001/2002 will be reported in 2003/04.

TABLE 17: PERCENT OF NEWLY PLANTED FOREST EFFECTIVELY STOCKED

Plantation type	1998	1999	2000/01	2001/02	2002/03
Hardwood planted forest	94%	100%	95%	97%	n/a
Softwood planted forest	97%	98%	96%	95%	81%

FIGURE 13: AREA OF NEWLY PLANTED FOREST ESTABLISHED ANNUALLY SINCE 1995



forest value 9 – productivity

INDICATOR 28: MEAN ANNUAL GROWTH OF PLANTED FOREST

Description

High productivity in our planted forests is essential to achieving long term supplementation of timber from native regrowth forests. Monitoring the mean annual volume change in planted forests tells us whether we need to be seeking to improve productivity through additional attention to forest health, maintaining soil fertility, improving genetic stock and improving silvicultural practices.

Trends

The 'Mean Annual Increment' (MAI) is calculated by dividing the annual increment (ie change in timber volume across the estate) for the next 15 years by the net stocked area. Being effectively a 15-year average, the MAI is quite stable from year-to-year but should be reviewed every five years. Therefore, the same MAI of 16.7 has been used again this year to calculate the annual increment, the change in volume of the planted softwood estate (Table 18).

Research and development

The tree improvement program within FRDD aims to develop improved genetic material for softwood and hardwood species available and in use throughout the planted forest estate. The objectives of the program include genetically-improved planting stock delivered for use across a range of sites of softwood and hardwood plantations and the development of genotypes matched to sites and specific end-products. These objectives are being achieved through a number of programs including:

- An ambitious program of clonal trial establishment for hardwood plantation species (of blackbutt and *Corymbia citriodora* subsp. *variegata*) using some imported clones and others developed by Research and Development Division;
- The establishment and management of eucalypt breeding populations;
- The breeding seed orchards; and
- Vegetative propagation of eucalypts.

INDICATOR 29. REMOVAL OF SAWLOGS COMPARED TO ALLOWABLE VOLUME

Description

The average volume of high quality veneer logs and sawlogs that can be cut from State forests each year is set no higher than the long-term sustainable yield. For native forests in eastern NSW, this level of production has been established through the Regional Forest Agreement process and is reflected in long-term timber supply agreements with industry. Elsewhere, the sustainable level of production is based on forest harvesting and yield history and the advice of State Forests' operational,

TABLE 18: CURRENT GROWING STOCK IN PLANTED SOFTWOOD FOREST

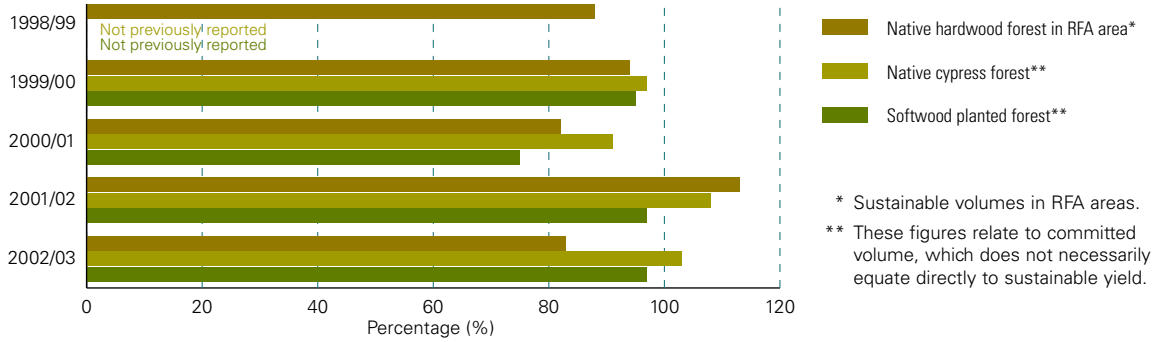
	2000/01	2001/02	2002/03
Annual increment* (m^3)	3,465,000	3,451,000	3,500,000
Net stocked area** (ha)	205,007	206,000	210,000
Mean annual increment*** (m^3/ha/yr)	16.9	16.7	16.7

* Annual increment is the change in volume of the planted softwood estate.

** Net stocked area is the area of the estate where trees are planted (i.e. does not include roads, environmental exclusion areas, area awaiting regeneration etc) as at the end of the financial year.

*** Mean annual increment (MAI) is an indication of the productive potential of an average hectare within the estate. The silvicultural and harvesting regimes adopted can influence this figure considerably, so calculating MAI over a 15 year timeframe gives a more balanced figure.

FIGURE 14: PERCENT OF HIGH QUALITY LOGS HARVESTED COMPARED TO COMMITTED OR SUSTAINABLE VOLUME



* Sustainable volumes in RFA areas.

** These figures relate to committed volume, which does not necessarily equate directly to sustainable yield.

Resources, Marketing and Research Divisions.

The harvesting of lower quality logs and other wood products is integrated with the harvesting of high quality logs. In the longer term it is important that the level of actual harvest does not exceed the agreed sustainable level of production.

Trends

Growth in the timber industry, following an increase in demand for new homes as a result of low interest rates, resulted in improved sales of timber during 2002/03. Actual volume harvested was around 80% of sustainable yield for native forests in RFA Regions while harvesting and sales of softwood plantation timber and cypress pine were near 100% of the allocated volume (Figure 14).

INDICATOR 30. PERCENTAGE OF NATIVE FOREST REGENERATED

Description

This indicator monitors the maintenance of the productive capacity of our native forests through regeneration. Regeneration of native forests after harvesting is the source of future forests and the key to maintaining future timber supplies as well as other ecological values within forest ecosystems. The nature of eucalypt and cypress pine forests allows for the natural regeneration of seedlings following a logging operation. In adverse conditions, restocking is undertaken by State Forests to ensure adequate regeneration occurs.

Trends

State Forests significantly improved its regeneration survey activity during 2002/03, conducting 36 surveys over an area of over 5,000 ha, compared to four surveys in the previous year (Table 19).

The surveys determined that 87% of the areas harvested and surveyed contain effective regeneration that is likely to develop into vigorous regrowth stands.

Research and development

Work continued to improve the forest resources management information and decision support system (Reden). This system combines the growth and yield models developed so far with inventory data for regrowth forests. It provides a user-friendly interface for forest managers to obtain growth and yield estimates of the regrowth forests at different levels of aerial photographic resolution. The output from this system has been linked with Geographical Information System (GIS) and used for short-term management planning and long-term strategic yield scheduling of the regrowth forests in the South East Region. In addition, components have been developed to implement thinning and thinning response models and provision for use of hand-held recording equipment.

Eucalyptus forests regenerate in response to soil disturbance associated with harvesting and fire.

TABLE 19: PERCENT OF RECENTLY HARVESTED NATIVE FOREST EFFECTIVELY REGENERATED*

Regeneration surveys	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Number of regeneration surveys undertaken	n/a	63	28	24	4	36
Area surveyed (ha)*	n/a	3,942	3644	2,157	1,325	5,410
Percent of harvesting with effective regeneration	n/a	n/a	98%	95%	68%	87%

* This indicator does not report regeneration surveys undertaken in cypress forests.

forest value 10 – marketing and sales

The marketing and sale of timber is included as a forest value in recognition of its importance to the organisation and the community. The steps involved in the timber production life cycle are harvest planning, harvesting operations and processing into the end product at the mills, monitoring of regeneration and growth for future harvest.

In NSW, timber is harvested from trees that grow either in native forest areas or in plantations. Inventories of how much and what type of trees are in the forest are undertaken and are used to develop 3-year plans of operations for individual compartments that range in size from tens to hundreds of hectares.

Once the timber has been harvested, it is transported to mills for further processing. Most timber goes to sawmills which produce various sawn timber products such as house framing, fencing, floorboards, decking and furniture. Some logs are processed into round timber such as poles and treated posts or into veneer for plywood. Sawmill residue and pulpwood logs are used for pulp and paper and reconstituted timber products (eg particle board, medium density fibreboard (MDF).

The Marketing Division of State Forests, with support from industry groups, assesses the markets for timber products, timber end-use prices and volume trends over time. This helps the industry understand how the timber market is performing, where there will be short falls in supply to domestic markets and what products and species need to be planted, managed and cut in the future.

Timber from State forest is the source of wood for furniture craftsmen.

TABLE 20: PRODUCTIVITY MEASURES

Indicator	2001/02	2002/03
Employee Numbers (30 June)	1,121	1,146
Timber Sales by Volume (m^3)	3,943,304	4,133,719
Timber Sales Volume/Employee (m^3)	3,517.7	3,607.0
Timber Sales/Employee ($'000)	$97.50	$102.20

FEATURE STORY 6

WHERE DOES STATE FORESTS' WOOD GO?

The booming housing market has lead to plenty of talk around dinner tables about real estate and construction. And while these conversations go on, many people don't connect the State forests they drive past on highways or country roads with the construction and feature timbers they use to build or renovate their homes.

State Forests of NSW has been in the forest management business since 1916 and is Australia's largest forestry agency. Its core business is growing trees to satisfy the timber needs of the people of NSW. This generates a range of additional social, environmental and economic benefits that flow on from the sustainable forest management practices employed by the organisation.

According to General Manager of marketing, Gary Keating, State Forests is working to establish ever-stronger links with both the markets for timber and sawmill customers to meet a growing demand for timber products.

"We manage a planted area of around 260,000 hectares of publicly-owned plantation pine and plantation hardwood worth an estimated $1.5 billion," Gary said. "Most of these plantations are harvested and replanted to ensure supply into the future," he said. "State Forests also has stewardship of around three million hectares of publicly-owned native forests across NSW. "With a network of formal and informal reserves, only around half of State Forests' native forest estate is available for harvesting. Of the areas available for timber harvesting, only about 2% is harvested each year."

Close to three million cubic metres of sawlogs and pulpwood is harvested from plantations and native forests each year, generating in excess of $100 million in revenue annually. But Gary said the true value of the resource to the people of New South Wales is not obtained until State Forests' customers process and add value to the logs delivered from the forest.

"The import-replacement value of the finished products runs into billions of dollars," Gary said.

So where does the wood go to be value-added?

Plantation-grown pine logs are delivered to a whole range of processing plants. Higher quality logs are processed into plywood and boards for furniture making. Most of the remaining sawlogs are processed into sawn timber for house construction. In fact, 70% of softwood sawn timber from State Forests' extensive 206,000 hectares of pine goes into housing frames. State Forests sells more than one million cubic metres of softwood logs into the housing market a year. When these logs are processed, there is sufficient lumber to build approximately 36,000 houses.

"About one in four houses in Australia is constructed from State Forests' pine," Gary said. "There are approximately 12 cubic metres of pine logs, or around four trees, used in an average house frame. "Every log used is replaced with a new tree to grow to supply timber for future generations. "Even the sawdust and bark are not wasted and is used in potting mixes and garden mulches. "Around one third of all logs processed in sawmills finish up as residue, commonly known as woodchips. "A common misconception is that this is a waste product, but this is far from the truth. Woodchips are used to make value-added products like paper for newsprint, and particleboard and medium density fibreboard (MDF), which are used for kitchen cupboards, shelving, flooring and so forth," Gary said.

On the hardwood side of the business, around half of the native hardwoods harvested from both planted and native forests go into high-value products like structural beams, floorboards, furniture, plywood and the lovely hardwood appearance boards. Piles for wharves and telegraph poles are other major uses.

forest value 10 – marketing and sales

The lower quality hardwood logs are used for railway sleepers, pallets, fencing and landscaping.

The lowest quality wood removed from the forest is used for manufactured weatherboards and panels or export pulpwood.

As with softwoods, there is no wastage. Every bit of the hardwood log sent to the mill is used.

Gary said that many people heading into hardware stores would be familiar with the brand names of State Forests' customers.

"The list of softwood product names is huge and includes Visyboard, Structaflor, Pinex, Laser Frame, Stylewood, Ironwood, Rhino, Pinegard, Hyne Pine and Snow Pine. "People may have seen these products stacked on building sites or transported on the highway," Gary said. "Export markets for softwood are being developed for supply that can't be taken up by industries on-shore, mainly the lower sawn grades that cannot find a home in the domestic market.

"Many may also be familiar with hardwood product names including Boral T&G Flooring, F27, F17, Big River Formply, Weathertex, Musclebeam and Fords DPR. Most of the wood for these products came primarily from State forests. "We will continue to work with our customers to supply the timber to meet the demands of their markets.

"It's our goal to see value-adding occur to all timber coming from publicly-owned plantation and native forests and to thereby maximise the returns to the people of New South Wales," Gary said.

Plywood	Norply, Big River Timbers, Ausply and Carter Holt Harvey.
Softwood sawmiller	Mesray, Collenden, Highland Pine, Weyerhaeuser, ITI Sawmilling, Hyne and Sons, Carter Holt Harvey, D & R Henderson, Integrated Forest Products, Auswest and Penrose Pine.
MDF and particleboard	Carter Holt Harvey and Monsbent.
Softwood preservation	Prime Pine, Penrose Pine Products at Penrose, Treated Pine and Pacpine.
Major pulp and paper	Norske Skog and the Visy Kraft pulp mill.
Hardwood fibreboard	Weathertex.
Major hardwood	Boral Timber, Koppers, Big River Timbers, Davis and Herbert, Hurfords Building Supplies, Notaras and Sons, and Australian Solar Timbers.

The building industry depends on timber from State forests.

INDICATOR 31. VOLUME OF TIMBER HARVESTED

Description

Change in the volumes of logs and other products harvested reflects both the market fluctuations in the building industry and more importantly demand for different timber products. Trends in timber supply volumes and the mix of harvested products is of interest to many of our key stakeholders and therefore the data is reported here (Figure 15).

Trends

Total sales of logs for planted and native forests fluctuate from year to year. Variations mainly reflect the swings in the housing market.

Sales were quite strong in 2002/03 even though sales of most product categories decreased. Continuing concentration by industry on higher value products helped to maintain overall revenue (refer Appendix 14).

INDICATOR 32: SAWLOG PRODUCT MIX OF VOLUME HARVESTED

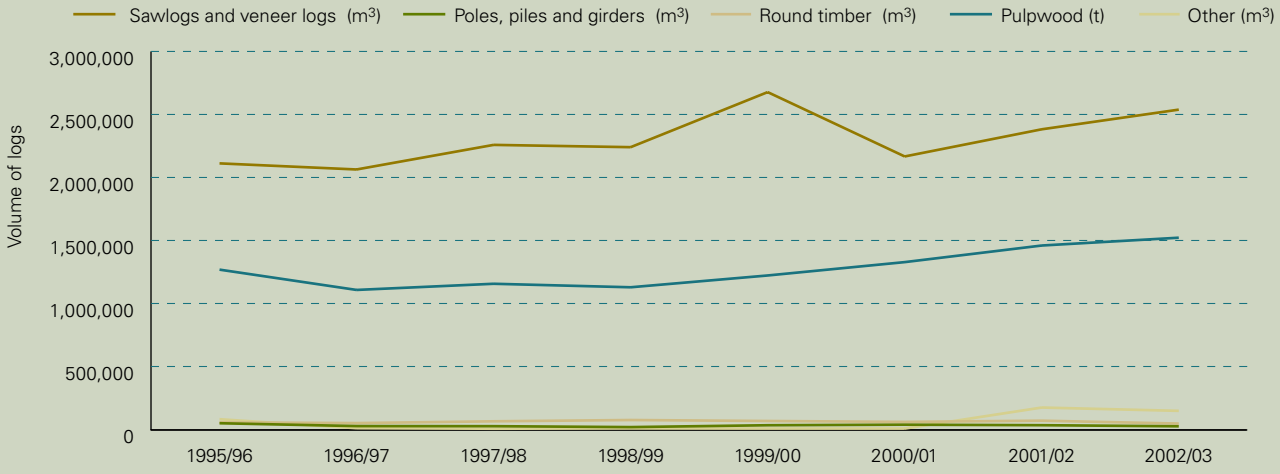
Description

Market demand for sawn timber contributes significantly to the type and volume of timber that is removed from different forest types. As market demand for sawn products changes so does the type, volume and quality of timber removed from forests. Monitoring change in product mix helps us plan our harvesting operations to make sure market demands can be met and confirms our focus on value-added products.

Trends

Hardwood products (Figure 16) continued to move into higher value markets which aim to extract maximum value from a scarcer timber resource. The most significant increase has been the volume of sawn hardwood products going to floorboards, doubling since 1995/96. The only hardwood product showing a decrease in volume over the past year was dry structural timber.

FIGURE 15: VOLUME OF LOGS HARVESTED IN PLANTED AND NATIVE FOREST



forest value 10 – marketing and sales

Hardwood house framing and pallets have continued their trend of a decreased proportion of the hardwood sawlog product mix, even though their volume did actually increase over the past year.

Softwood (Figure 17) retained its competitive advantage in producing low cost house framing material. The proportion of softwood going to produce house frames once again increased, with the actual volume increasing in the past year by over 100,000m^3. The only softwood product showing a trending down in volume, and proportion of the product mix, was unseasoned timber. While the volume of sawn softwood timber going to joinery/furniture and other preservation remained the same as last year, their proportion of the product mix decreased.

Research and development

A major project undertaken by the Silvicultural Systems Group to quantify the variation in wood density of *Pinus radiata* in relation to site specific, silvicultural, and genetic factors. The work so far has demonstrated that outer-wood density can vary significantly between sites, which may impact on wood quality and consequently monetary value to the grower and processor. Part of the work, to develop relationships between outer-wood density at breast-height and whole tree and tree component densities in the Hume and Monaro Regions has produced significant and promising results, but in some cases site-specific relationships may need to be developed.

FIGURE 16: SAWLOG PRODUCT MIX FROM HARDWOOD FORESTS (NATIVE AND PLANTATION)

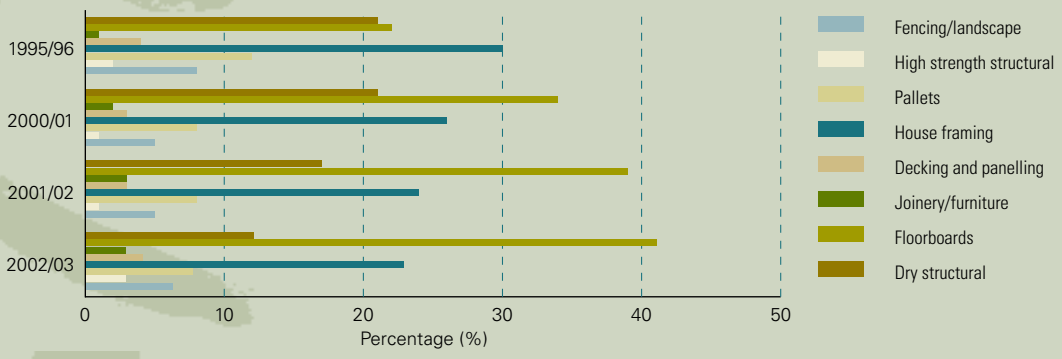
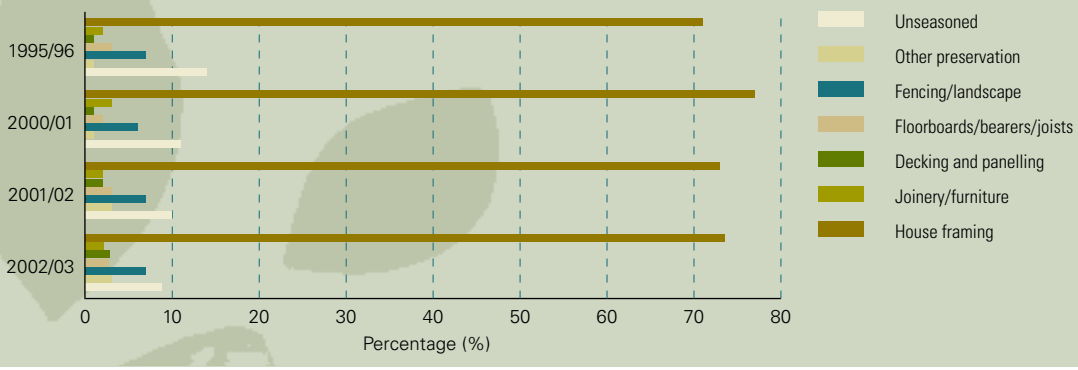


FIGURE 17: SAWLOG PRODUCT MIX FROM SOFTWOOD PLANTATION



FEATURE STORY 7

THANK PINES FOR OUR DAILY NEWSPAPER

Where does our daily helping of newsprint come from? From radiata pine trees and recycled paper, of course. During the 30 to 35 year life of a radiata pine plantation, several 'thinnings' are carried out to ensure the quality of the remaining trees is continually improved. This is done by removing smaller and poorer formed trees, allowing the select ones to grow on without undue competition to reach their maximum potential as high-value sawlogs, mainly used in the furniture and building industries.

Some of the thinned trees consist of logs, or parts of a tree, that don't meet the specifications for either sawlogs or preservation material. This timber is commonly referred to as 'pulpwood'. The pulpwood can be chipped and used for reconstituted wood products such as particleboard, medium density fibreboard and various types of paper.

The pulpwood from State Forests Hume Region – the largest grower of pine in Australia – did not always have a suitable market, and in the early days of plantation logging much of the pulpwood was left behind in the forest or the plantations left un-thinned.

For many years, some of the pulpwood had been used in the manufacture of chipboard at Tumut. But it was not until the arrival of Norske Skog (formerly Australian Newsprint Mills) near Albury and the new Visy Pulp and Paper mill at Tumut that demand has nearly fully utilised the supply generated from logging operations in the plantations. More importantly, it allowed the plantations to be thinned on time and hence produce quality large sawlogs for high value end uses.

What used to be a waste product is now an important and valuable resource that helps supply millions of dollars worth of paper products throughout Australia.

Norske Skog now buys about 130,000 tonnes of pulpwood a year from State Forests of NSW to complement its recycled paper for newsprint manufacture. This ensures State Forests maximises recovery from its softwood plantations located within a 150 kilometre radius of Albury.

Today, about 40 per cent of Norske Skog's newsprint is made up of recycled paper, a windfall for State Forests and the town of Tumut because it has allowed the allocation of large amounts of pulpwood to Visy.

The Albury mill ranks among the top newsprint production facilities in the world and produces about 35 per cent of Australia's annual domestic requirements for newsprint.

The recent announcement of a proposed $100 million expansion of the mill could considerably lift this figure as, despite the electronic age, demand for newsprint is still strong.

Australia is a world leader in recycling with about 70 per cent of newspaper in Australia now recycled.

However, the available supply of old newspapers and magazines is not sufficient to provide the amount of newsprint consumed in Australia and pulpwood fibre is still needed to give the paper strength.

This means that Australia will continue use both pine and recycled paper to produce one of the highest quality newsprint products in the world.

So it looks as if the humble pulp log will retain its spot on the breakfast table, after a long and important journey from the pine forests of southern NSW.

Newspapers – produced from radiata pine trees and recycled paper.

URS
Corporate Sustainable Solutions

verification/assurance statement

TO THE MANAGEMENT AND STAKEHOLDERS OF STATE FORESTS NSW:

State Forests NSW (State Forests) commissioned the URS Australia Pty Ltd (URS) to verify the data and content of this Social, Environmental and Economic Report (the 'report'), and to provide a statement of assurance in accordance with the AA1000 Assurance Standard of State Forests' progress towards sustainability. State Forests has the responsibility for the preparation of the report and this statement represents the auditor's independent opinion. URS was not responsible for preparation of any part of this report. URS has undertaken a number of other commissions for State Forests in the reporting period. Hence independence was ensured by selecting a team of assurance providers from the Corporate Sustainable Solutions Practice of URS' Melbourne and Sydney offices that had no other involvement with State Forests during the reporting period.

ASSURANCE OBJECTIVES

There are currently no statutory requirements or generally accepted standards for the preparation, public reporting and attestation of non-financial stakeholder reports. In the absence of such standards, our approach to assurance provision has been based on *AA1000 Assurance Standard* and requirements of the Global Reporting Initiative's Sustainability Reporting Guidelines.

The scope included:

- a review of the report for any major anomalies;
- an overview of the embeddedness of State Forests' key social, environmental and economic policies;
- an examination of State Forests' measurement and reporting procedures, SEEDs data management system, background documentation and data collection and reporting procedures; and
- the execution of an audit trail of selected material claims and data streams to determine the level of accuracy in collection, transcription and aggregation processes.

In addition, compared to previous years, the scope incorporated reviewing reported performance against the three principles of the AA1000 Assurance Standard: materiality, completeness and responsiveness.

ASSURANCE PROCESS

The assurance engagement was undertaken in November 2003. The process involved:

- a series of interviews with key personnel responsible for collating and writing various parts of the report in order to ensure selected claims were discussed and substantiated;
- a review of State Forests' policies, objectives, management systems, monitoring and reporting procedures, and an examination of selected data sets; and
- the examination of the aggregation and derivation of, and underlying evidence for, selected data presented and statements made in the report.

This is the first State Forests' public report to be subject to an assurance process using the *AA1000 Assurance Standard*.

OUR OPINION

This is the sixth environmental/sustainability report issued by State Forests. Based on the scope of the assurance process, the following represents URS' opinion.

- The level of data accuracy presented within the report is considered acceptable. The review found that the data management processes require further improvement so as to reduce potential for error, in particular minor anomalies. Data trails selected were easily identifiable and traceable, and the personnel responsible were able to reliably demonstrate the origin(s) and interpretation of data.
- The statements made in the report appropriately reflect environmental, social and economic performance achieved during the period.

Overall, the auditor is satisfied that the report is a fair and accurate representation of the organisation's environmental, social and economic performance. The report is fairly presented and materially not mis-stated. Further, State Forest's commitment to developing a data management system (SEEDS) that reduces that potential for human error, and allows regional data entry with relative ease is highly commendable.

GENERAL FINDINGS AND RECOMMENDATIONS

The following observations and recommendations are made as a result of the verification process:

- The findings of the verification process provide confidence on the reporting processes established. As a consequence of the findings of the 2000/01 verification process, State Forests established the SEEDS data management system and associated procedures to improve the integrity of reported information. Notwithstanding, the fields of data processing and entry need further improvement. Accordingly a Reporting System Diagnostic Audit is recommended. Additional staff awareness training on the use of this system is also suggested.
- It is recommended that some site level data is continued to be checked as part of next year's assessment.
- Consideration should be given to integrating the report with the organisation's Annual Report in a succinct, yet meaningful manner.
- **Materiality:** Issues material to stakeholders have been considered and reported within report. URS undertook external and internal stakeholder consultation as part of the assurance provision process, and found that whilst specific concerns existed, stakeholders were generally supportive of the level of public reporting by State Forests.
- **Completeness:** The report represents a complete account of organisational performance. It is suggested that supplier and customer level impacts be reviewed in the future. Information on the effectiveness of dollars spent should also be indicated.
- **Responsiveness:** The responsiveness to stakeholder concerns at State Forests is considered high. The URS consultation also found that stakeholder interaction and responsiveness remains an integral part of day-to-day business at State Forests.

The above findings represent a summary of a more detailed assessment report presented to State Forests.

On behalf of the audit team
10th December 2003
Melbourne, Australia

Terence Jeyaretnam
Principal, URS

APPENDIX 1: NUMBER OF COMMUNITY FORUMS ATTENDED

Community forum categories	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Community bushfire management	252	470	363	375	353	207
Catchment management	213	153	126	104	75	60
Local emergency management	14	23	14	17	30	19
Community/school/education	63	255	752	239	236	247
Local government	46	55	72	93	90	52
Flora and fauna management	47	52	30	47	149	73
Cultural management	116	285	214	137	197	336
Feral animals/noxious weed control	44	99	72	145	140	107
Industry/stakeholders	67	155	110	188	268	223
Recreation/tourism	17	53	64	52	37	52
Regional planning/RFA	79	83	94	43	91	64
Conservation/environmental	40	105	104	80	62	212
Forestry/forest practices	29	79	47	35	114	60
Other	n/a	73	37	51	16	27
Total	**1,027**	**1,954**	**2,099**	**1,606**	**1,858**	**1,739**

Source: Records from minutes, files, and personal diaries

APPENDIX 2: RECREATIONAL FACILITIES PROVIDED AND ORGANISED EVENTS

Recreational facilities provided	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Beaches	n/a	n/a	n/a	n/a	n/a	25
Roadside rest areas/picnic areas	160	123	119	87	64	63
Forest drives (marked)	30	34	31	24	19	16
Forest walks (marked)	90	61	61	46	48	47
Lookouts	84	71	49	33	30	25
Camping areas	308	225	266	115	160	87
Camps/huts /cottages	17	15	25	23	17	20
Other	2	3	16	273	0	0
Total facilities	**691**	**532**	**567**	**601**	**338**	**283**
Permits for organised recreation activities						
Eco tourism/4x4 tours	54	42	87	50	41	41
Horse, trail and endurance rides	32	32	32	45	32	22
Car rallies /go carts	38	36	36	34	30	20
Motor bike rallies	6	8	6	5	6	12
Mountain bike rallies	30	6	5	20	17	17
Orienteering/mountain runs/triathalon	37	37	34	21	16	9
Bushwalking	23	9	8	21	2	6
Bowhunting/archery	60	5	20	14	1	2
Other	22	13	29	28	55	79
Education/outdoor education schools	27	45	272	575	20	31
Training/exercises	152	77	84	79	68	52
Total activities	**481**	**310**	**613**	**892**	**283**	**291**
Area zoned primarily for recreation (ha)	**n/a**	**n/a**	**4,754**	**2,406**	**2,329**	**2,022**

appendices

APPENDIX 3: QUANTITIES OF OTHER FOREST PRODUCTS

Forest product	Unit	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Grazing	Ha	768,946	727,206	764,377	711,537	644,966	783,842
Apiculture	Sites	3,843	4,249	4,022	3,467	3,606	3,369
Leaf/oil	Kg	8,013	5,465	6,874	911	1,100	32,810
Seed	Kg	969	214	688	2,460	70	30
Bark	Tonnes	1,109	18	1,035	10	8	15
Firewood	Tonnes	75,615	66,970	77,628	77,203	26,090	18,746
Broombush	Tonnes	1,977	2,303	2,442	2,523	2,625	3,147
Charcoal	Tonnes	119	1,333	1,805	1,183	10,200	1,596
Craft Timber	Cubic metres	33	38	4,127	519	927	108
Misc native plants pieces	Number	1,219	8,179	23,449	9,873	4,446	3,456
Burls	Tonnes	44	16	13	12	8	8
Wood blocks	Number	0	435	7,045	4,550	4,090	4,612
Film/documentary	Permits	3	5	6	3	3	1
Communication sites	Permits	126	141	135	122	130	112
Other structures	Permits	227	203	486	97	177	161
Powerlines/cables/ pipelines	Km	2,886	853	1,461	2,904	1,333	925
Gravel/sand/rock	Tonnes	69,495	99,448	103,275	80,212	269,548	142,381
Research	New research permits	215	260	100	105	86	74
Nursery seedlings to public	Number	1,148,000	1,032,151	1,500,000	1,141,000	n/a	1,110,000
Maps sold to public	Items	5,491	5,152	19,945	19,143	n/a	12,767

APPENDIX 4: REPRESENTATION OF EEO GROUPS WITHIN LEVELS

Group	2000/01			2001/02			2002/03		
	Total staff**	Women	REERM*	Total staff**	Women	REERM*	Total staff**	Women	REERM*
Below C.O.1. (<$27,606 p.a.).	17	11	2	11	3	0	9	5	1
C.O.1. – <Gd 1 ($27,606–$36,258 p.a.)	354	34	3	324	27	5	328	33	3
A&C Gds 1–2 ($36,259–$40,535 p.a.)	134	43	0	202	42	4	98	44	1
A&C Gds 3–5 ($40,536–$51,293 p.a.)	273	75	12	205	80	8	313	80	8
A&C Gds 6–9 ($51,294–$66,332 p.a.)	197	37	20	201	40	21	214	39	21
A&C Gds 10–12 ($66,333–$82,914 p.a.)	72	10	11	73	12	11	70	13	10
Above A&C Gd 12 (>$82,914 p.a.)	83	2	3	79	2	2	80	1	3
Total	**1,130**	**212**	**51**	**1,095**	**206**	**51**	**1,112**	**215**	**47**

* Racial, Ethnic and Ethno/Religious minority groups.

** Does not include casual employees.

APPENDIX 5: REPRESENTATION AND RECRUITMENT OF ABORIGINAL EMPLOYEES AND EMPLOYEES WITH A DISABILITY AS AT 30 JUNE 2003

	1999/00			2000/01			2001/02			2002/03		
	Total Staff*	Aboriginal & Torres Strait Islanders	Persons with Disability	Total Staff*	Aboriginal & Torres Strait Islanders	Persons with Disability	Total Staff*	Aboriginal & Torres Strait Islanders	Persons with Disability	Total Staff*	Aboriginal & Torres Strait Islanders	Persons with Disability
Total employees	1,218	26 (2.1%)	74 (6.1%)	1,130	30 (2.6%)	73 (6.5%)	1,095	29 (2.6%)	76 (6.94%)	1,112	27 (2.4%)	71 (6.4%)
Entry level	13	2	0	17	0	1	3	0	0	1	0	0
Recruited year ending 30 June	139	5	0	64	2	0	31	1	2	50	0	0

* Does not include casual employees.

APPENDIX 6: NUMBER AND TYPE OF HERITAGE OR CULTURAL SITES PROTECTED IN STATE FOREST

	1997/98		1998/99		1999/00		2000/01		2001/2002		2002/03	
Sites of cultural, spiritual or heritage value	Total No. of Sites[1]	No. of Sites found or registered by State Forests[2]	Total No. of Sites[1]	No. of Sites found or registered by State Forests[2]	Total No. of Sites[1]	No. of Sites found or registered by State Forests[2]	Total No. of Sites[1]	No. of Sites found or registered by State Forests[2]	Total No. of Sites[1]	No. of Sites found or registered by State Forests[2]	Total No. of Sites[1]	No. of Sites found or registered by State Forests[2]
Aboriginal site												
Natural features	NA	99	90	1	84	2	588	20	488	1	487	1
Sites of historic importance	NA	172	2	1	1	1	14	0	13	0	18	5
Art and ceremonial sites	NA	68	66	0	69	5	139	3	93	0	118	18
Sites associated with tools, artifacts and hunting	NA	968	808	155	693	84	2,008	393	1,767	44	2,223	40
Sites associated with traditional Aboriginal life	NA	614	1,022	17	1,340	27	1,654	55	1,332	6	1,062	4
Not classified	NA	25	0	0	26	0	113	69	88	0	90	27
Total Aboriginal sites	NA	1,946	1,988	174	2,213	119	4,516	540	3,781	51	3,998	95
Non-Aboriginal sites		not assessed	509	not assessed	509	Not assessed	482	not assessed	554	not assessed	544	not assessed

1. Includes sites located on State forest during surveys undertaken by State Forests and other agencies or organisations.

2. Sites found by State Forests during pre-harvesting surveys.

appendices

APPENDIX 7: AREA AND PERCENT OF VARIOUS BROAD FOREST GROUPS WITHIN THE NATIVE FOREST ESTATE

Broad Forest Group*	Area (ha)						Percentage of total native forest					
	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Rainforest	116,429	63,768	71,869	72,903	75,114	102,345	3%	2%	2.60%	2.90%	3%	4.3%
Blue Gum forest	245,499	166,471	159,735	154,516	152,565	136,244	7%	6%	5.90%	6.20%	6%	5.7%
Blackbutt forest	186,388	139,415	139,346	128,905	129,591	127,253	5%	5%	5.10%	5.20%	5%	5.3%
Messmate forest	343,328	261,052	260,464	244,550	250,403	247,468	10%	9%	9.60%	9.80%	10%	10.4%
Stringybark forest	403,164	427,660	373,190	237,416	218,849	218,924	12%	16%	13.80%	9.50%	9%	9.2%
Spotted Gum forest	227,357	209,241	209,178	198,238	199,007	199,198	7%	8%	7.70%	7.90%	8%	8.3%
Mixed coastal eucalypt	257,915	180,427	202,116	192,901	197,087	195,024	8%	7%	7.50%	7.70%	8%	8.2%
Alpine Ash forest			17,806	17,361	17,833	17,802			0.70%	0.70%	1%	0.7%
Snow Gum woodland	37,085	33,774	33,763	25,758	28,090	28,093	1%	1%	1.20%	1.00%	1%	1.2%
River Red Gum forest	91,024	100,263	102,360	93,225	94,798	110,553	3%	4%	3.80%	3.70%	4%	4.6%
Other inland eucalypt types	76,916	212,813	276,444	284,776	186,940	322,577	2%	8%	10.20%	11.40%	8%	13.5%
White Cypress Pine forest	36,153	285,541	236,764	246,173	206,997	229,465	1%	10%	8.70%	9.90%	9%	9.6%
Non eucalypt forest	70,137	90,303	13,939	12,873	14,301	18446	0%	3%	0.50%	0.50%	1%	0.8%
Non forest	89,288	117,377	269,536	216838	3.30%	4.70%	12%	11%	9.1%			
Un-classified	1,094,879	578,704	526,225	468,574	358,321	219,129	38%	21%	19.40%	18.80%	15%	9.2%
Total	**3,186,274**	**2,749,432**	**2,713,000**	**2,495,548**	**2,399,432**	**2,389,359**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

* Classification into broad forest groups utilises forest types and leagues identified in State Forests Research Note 17. Variation may occur on the basis of new and/or improved classification.

APPENDIX 8: AREA AND PERCENT OF PLANTED FOREST* BY SPECIES

	1999/00		2000/01		2001/02		2002/03	
Species	area	%	area	%	area	%	area	%
Pinus radiata (Radiata pine)	190,217	54	190,870	53	192,933	44	196,582	38.9%
Other softwood species	11,503	3	13,947	4	13,805	3	15,913	3.1%
Eucalyptus grandis (Flooded gum)	8,775	3	9,088	3	9,348	2	8,859	1.8%
Eucalyptus pilularis (Blackbutt)	13,407	4	13,908	4	14,221	3	17,052	3.4%
Corymbia maculata (Spotted gum)	6,480	2	7,436	2	8,118	2	12,111	2.4%
Other hardwood species	17,404	5	19,061	5	21,004	5	18,922	3.7%
Total planted area	**247,795**	**71**	**254,310**	**71**	**259,429**	**59**	**269,439**	**53.6%**
Retained vegetation and infrastructure	74,634	21	75,084	21	158,759	36	207,785	41.1%
Land for future planting	28,030	8	28,570	8	25,552	5	25,523	5.0%
Other Exclusions							3,114	0.6%
Total planted forest estate	**350,459**	**100**	**357,964**	**100**	**443,740**	**100**	**505,860**	**100%**

* Note: this figure includes State Forest, Joint Venture and Annuities. Areas for hardwood plantation include pre-1994 plantations that may or may not be accredited.

APPENDIX 9: AREA AND PERCENTAGE OF NATIVE FOREST IN FOREST STRUCTURE CLASSES

	1997/98		1998/99		1999/00		2000/01		2001/02		2002/03	
Forest structure class	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%
Rainforest	0	–	20,382	1	98,000	3.6	100,709	4.0	102,287	4.3	101,918	4.3
High conservation value old growth	n/a	n/a	n/a	n/a	122,000	4.5	138,537	5.6	122,767	5.1	122,568	5.1
Mature	1,061,693	28	622,894	23	807,000	29.7	590,093	23.6	590,416	24.6	598,717	25.1
Regrowth	622,499	16	363,273	13	541,000	19.9	530,954	21.3	538,908	22.5	538,496	22.5
Un-assigned*	2,124,581	56	1,742,882	63	1,145,000	42.2	1,135,255	45.5	1,045,839	43.6	1,027,660	43.0
Total	**3,808,773**	**100**	**2,749,432**	**100**	**2,713,000**	**100**	**2,495,548**	**100**	**2,400,217**	**100.0**	**2,389,359**	**100**

* Un-assigned forest are areas of forest that have not been subject to assessments for structure class of for which classification of this type is not appropriate (eg Cypress forest)

appendices

APPENDIX 10: FAUNA AND FLORA SURVEY RECORDS

	No. of individual records						Cumulative no. of individual records
Target species	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	1997–2003
Arboreal mammals							
Squirrel glider	0	23	29	38	19	7	116
Greater glider	218	1241	320	483	837	568	3667
Yellow-bellied glider	0	416	477	535	335	384	2147
Brush-tailed phascogale	0	1	14	11	18	3	47
Koala	50	164	280	93	386	139	1112
Ground mammals							
Long-nosed potoroo	0	7	3	2	7	2	21
Southern brown bandicoot	0	0	0	9	10	4	23
Parma wallaby	43	5	7	5	2	1	63
Red-legged pademelon	94	4	0	1	0	1	100
Rufous bettong	0	35	4	28	36	4	107
Brush-tailed rock-wallaby	8	0	0	6	4	19	37
Long-footed potoroo	0	0	0	0	0	0	0
Tiger quoll	0	14	36	32	28	8	118
Broad-toothed rat	0	0	0	0	0	12	12
White-footed dunnart	0	0	0	1	1	0	2
Smoky mouse	0	0	0	5	1	0	6
Hastings River mouse	50	1	14	10	22	19	116
Frogs							
Giant burrowing frog	1	3	9	11	34	2	60
Heath frog	n/a	n/a	n/a	7	0	0	7
Glandular frog	n/a	n/a	n/a	7	35	10	52
Stuttering frog	0	132	60	83	123	81	479
Green-thighed frog	50	9	4	23	3	1	90
Giant barred frog	8	49	10	39	88	5	199
Red-crowned toadlet	94	118	30	2	10	0	254
Corroboree frog	8	185	240	350	284	266	1333
Pouched frog	43	0	0	0	70	0	113
Green and golden bell frog	0	0	0	0	1	0	1
Sphagnum frog	0	11	6	51	38	1	107

APPENDIX 10: FAUNA AND FLORA SURVEY RECORDS (continued)

	No. of individual records						Cumulative no. of individual records
Target species	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	1997–2003
Bats							
Eastern false pipistrelle	8	12	11	12	20	4	67
Golden-tipped bat	16	39	42	45	70	48	260
Large-footed myotis	12	28	21	16	38	9	124
Greater broad-nosed bat	16	10	5	8	7	11	57
Little bent-winged bat	17	64	167	25	62	12	347
Common bent-winged bat	8	82	156	44	76	18	384
Eastern cave bat	8	0	20	2	0	0	30
Eastern mastiff bat	8	0	0	0	1	1	10
Yellow-bellied sheathtail bat	0	1	0	1	0	0	2
Raptors							
Powerful owl	43	91	84	96	66	63	443
Masked owl	43	49	34	50	59	55	290
Sooty owl	0	109	95	78	90	50	422
Barking owl	n/a	1	2	13	35	130	181
Square-tailed kite	0	4	7	51	10	15	87
Red goshawk	0	0	0	17	0	0	17
Non raptor birds							
Marbled frogmouth	n/a	n/a	n/a	72	1	1	74
Glossy black-cockatoo	16	399	642	227	420	287	1991
Regent honeyeater	0	0	0	0	0	0	0
Turquoise parrot	0	0	0	0	2	0	2
Bush-stone curlew	8	2	1	0	1	0	12
Pink robin	43	0	0	1	2	0	46
Olive whistler	43	5	12	28	14	11	113
Wompoo fruit dove	0	5	4	10	33	10	62
Swift parrot	0	0	0	0	1	0	1
Rufous scrub-bird	0	6	0	3	0	0	9
Superb parrot	0	160	330	210	99	42	841
Regent parrot	0	200	250	120	0	0	570
Other						500	500
Reptiles							
Broad-headed snake	n/a	n/a	n/a	0	0	0	0
Heath monitor	n/a	n/a	n/a	4	0	0	4
Pale headed snake	n/a	n/a	n/a	0	0	0	0
Stephens banded snake	n/a	n/a	n/a	4	2	3	9
Flora							
Melalueca groveana	n/a	n/a	n/a	n/a	n/a	951	951

appendices

APPENDIX 11: AREA OF BROAD FOREST TYPE WITHIN EACH FOREST MANAGEMENT ZONE (FMZ)

Broad Forest Type	Dedicated Reserve	Informal Reserve – Special Management	General Management Native Forest	Non forestry use	Land for further assessment	Informal Reserve – Harvest Exclusion	Special Prescription
Alpine Ash	0.0%	1.8%	88.7%	0.1%	2.5%	0.6%	6.3%
Blackbutt	0.5%	10.7%	67.1%	0.2%	12.6%	6.5%	2.4%
Messmate	1.5%	10.5%	66.8%	0.1%	4.6%	13.8%	2.6%
Mixed Coastal Eucalypt	0.7%	12.5%	57.3%	0.3%	10.7%	17.2%	1.3%
Non-Eucalypt Forest	0.3%	24.5%	41.7%	0.1%	17.9%	14.6%	0.9%
Non-forest	2.1%	13.1%	63.6%	2.1%	2.8%	11.4%	4.9%
Other Inland Eucalypt Types	0.4%	7.4%	65.1%	0.1%	0.1%	25.7%	1.2%
Rainforest	3.2%	41.6%	6.4%	0.1%	0.6%	48.0%	0.2%
River Red Gum	2.2%	9.0%	69.5%	0.9%	0.3%	6.8%	11.3%
Snow Gum	0.5%	10.7%	67.6%	0.2%	6.0%	14.3%	0.7%
Spotted Gum	0.2%	8.4%	68.2%	0.3%	7.7%	13.6%	1.6%
Stringybark	3.1%	8.3%	71.4%	0.2%	1.8%	10.4%	4.8%
Sydney Blue Gum	1.2%	16.5%	50.2%	0.1%	17.8%	13.2%	1.1%
Unclassified	1.2%	23.2%	49.1%	0.2%	13.0%	12.9%	0.4%
White Cypress Pine	0.4%	5.6%	88.7%	0.0%	0.8%	4.4%	0.1%
Total forest in each FMZ	**1.2%**	**12.5%**	**63.1%**	**0.4%**	**5.7%**	**14.8%**	**2.4%**

APPENDIX 12: SUMMARY OF REGULATORY COMPLIANCE DURING HARVESTING IN 2000/2001

Compliance items	1999/00	2000/01	2001/02	2002/03
Number of compliance check sheets conducted				
– 1st tier supervision checks	5,428	3,122	3,192	3,532
– 2nd tier supervision checks	420	302	378	405
– 3rd tier supervision checks			2	4
– 4th tier supervision checks			1	1
Total	**5,848**	**3,424**	**3,573**	**3,942**
Number of non-compliance incidents (NCI) recorded by State Forests' supervision for corrective action				
– NCI's related to soil erosion & water quality	1,255	860	1,304	1039
– NCI's related to flora and fauna	469	399	689	372
– NCI's related to fish habitat & passage	1	7	0	0
– other NCI issues (eg safety)	314	272	249	399
Total	**2,039**	**1,538**	**2,242**	**1,810**
Number of fines issued to State Forests by regulators				
– Fines to NPWS (DEC)	0	0	0	1
– Fines to EPA (DEC)	3	5	4	0
– Fines NSW Fisheries	0	0	0	0
Total	**3**	**5**	**4**	**1**
Number of prosecutions recorded against State Forests				
– Prosecutions by NPWS (DEC)	1	0	0	0
– Prosecutions by EPA (DEC)	0	0	0	0
– Prosecutions by NSW Fisheries	0	0	0	0
Total	**1**	**0**	**0**	**0**

APPENDIX 13: ENERGY EFFICIENCY

	1998–1999			1999–2000			2000–2001			2001–2002			2002–2003		
Energy Use	Total Energy	CO_2 Emissions	% of total CO_2	Total Energy	CO_2 Emissions	% of total CO_2	Total Energy	CO_2 Emissions	% of total CO_2	Total Energy	CO_2 Emissions	% of total CO_2	Total Energy	CO_2 Emissions	% of total CO_2
	GJ	Tonnes	%	GJ	Tonnes	%	GJ	Tonnes	%	GJ	Tonnes	%	GJ	Tonnes	%
Electricity (kWh)	14,400	3,825	37%	13,331	3,541	35%	13,039	3,463	35%	13,039	3,463	35%	13,210	3,509	33.3%
Green power (kWh)	1,188	0	0%	1,933	0	0%	1,860	0	0%	1,860	0	0%	1,937	0	0.0%
Natural gas (MJ)	466	24	0%	590	30	0%	291	15	0%	291	15	0%	464	24	0.2%
LPG (kg)	1,446	86	1%	2,491	148	1%	2,069	123	1%	2,069	123	1%	2,378	141	1.3%
Petrol (L)	25,240	1,666	16%	25,411	1,677	17%	22,246	1,468	15%	22,246	1,468	15%	17,048	1,125	10.7%
Auto distillate (diesel) (L)	66,940	4,666	45%	65,350	4,555	45%	67,270	4,689	47%	67,270	4,689	47%	79,198	5,520	52.5%
Kerosene (L)	0	0	0%	0	0	0%	315	22	0%	315	22	0%	212	15	0.2%
Aviation gasoline (L)	474	32	0%	544	37	0%	1,566	107	1%	1,566	107	1%	1,085	74	0.7%
Aviation turbine fuel (L)	1,738	121	1%	1124	78	1%	2,084	145	1%	2,084	145	1%	1,695	118	1.1%
Total	**111,893**	**10,419**	**100%**	**110,774**	**10,066**	**99%**	**110,740**	**10,032**	**100%**	**110,740**	**10,032**	**100%**	**117,227**	**10,526**	**100%**

APPENDIX 14: VOLUME OF LOGS HARVESTED

Product	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Sawlogs and veneer logs (m^3)								
Native forest hardwood sawlogs	980,149	844,349	744,583	662,336	786,774	664,183	694,909	683,065
Hardwood plantation sawlogs				34,445	55,466	33,601	36,863	71,053
Cypress pine sawlogs	95,105	98,278	99,127	100,879	101,881	96,430	108,229	110,709
Plantation softwood sawlogs	978,621	1,050,554	1,337,540	1,351,798	1,648,790	1,306,614	1,449,940	1,578,085
Plantation softwood veneer logs	40,413	53,092	60,412	74,765	70,919	51,784	84,068	83,089
Native forest hardwood veneer logs	17,513	17,121	16,882	12,074	10,600	12,890	8,153	10,667
Hardwood plantation veneer logs				4,068	2,819	1,173	44	2,609
Total sawlogs and veneer logs	**2,111,801**	**2,063,394**	**2,258,544**	**2,240,365**	**2,677,249**	**2,166,675**	**2,382,206**	**2,538,276**
Poles, piles and girders (m^3)								
Native forest hardwood	49,752	27,226	26,448	15,804	28,432	34,039	26,428	23,006
Plantation hardwood				3,290	5,479	4,175	3,141	2,566
Total poles, piles and girders	**49,752**	**27,226**	**26,448**	**19,094**	**33,911**	**38,214**	**34,174**	**25,572**
Round timber (m^3)								
Preservation plantation softwood	49,752	47,240	63,274	71,314	56,422	57,780	69,749	47,293
Preservation native forest hardwood				2,201	11,169	2,633	291	0
Mining timber hardwood			6,955	3,794	1,834	1,805	0	0
Total round timber	**56,707**	**51,034**	**65,108**	**75,320**	**67,591**	**60,413**	**70,040**	**47,293**
Pulpwood (tonnes)								
Native forest hardwood pulpwood	768,191	605,254	614,623	472,970	503,546	533,113	391,340	540,760
Plantation hardwood pulpwood				81,751	82,660	66,498	42,631	40,571
Plantation softwood pulpwood	500,427	502,258	541,824	573,907	636,058	728,652	1,025,993	940,247
Total pulpwood	**1,268,618**	**1,107,512**	**1,156,447**	**1,128,628**	**1,222,264**	**1,328,263**	**1,459,964**	**1,521,579**
Other								
Fencing/landscape/ sleepers/firewood (m^3)	81,676	10,379	6,218	8,485	7,575	7,444	174,369	147,785
Total other	**81,676**	**10,379**	**6,218**	**8,485**	**7,575**	**7,444**	**174,369**	**147,785**

notes

ACKNOWLEDGEMENT

This report is produced by the Sustainability Group within Forest Policy and Resources Division. However, the report represents a combined effort across all State Forests' operations in terms of data collection and advice during report preparation.

Thank you to all staff who contributed to this report.

Impress Design for design and production.

STATE FORESTS VALUES YOUR OPINIONS

As a result of the feedback we have received on the report, particularly as part of the 2000/01 report verification process, we have been able to further develop the report so that it better meets the needs of internal and external stakeholders.

We hope you found our Seeing Report valuable, informative and easy to read and we would like you to let us know what you think of it. A feedback form for your opinions and comments is available on our website: www.forest.nsw.gov.au or you can just send us a letter or email with suggestions. To access the form on the website, click on 'managing forests', then 'reporting', then 'social, environmental and economic' and scroll down to 'feedback'.

Thank you

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