

NSW FOREST AGREEMENTS AND INTEGRATED FORESTRY
OPERATIONS APPROVALS

NSW Forest Agreements

Implementation Report

Upper North East

Lower North East

Eden

Southern regions

2003/2004



NEW SOUTH WALES GOVERNMENT

Minister for Climate Change, Environment and Water

NSW FOREST AGREEMENTS AND INTEGRATED FORESTRY OPERATIONS
APPROVALS

NSW Forest Agreements

Implementation Report

*Fifth annual report on the implementation of the NSW forest agreements and integrated
forestry operations approvals*

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Southern regions



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INFORMATION



This report was coordinated by the Resource and Conservation Unit of the Department of Environment and Climate Change (formerly both the Forestry and Rural Industry Policy within the Department of Natural Resources and the Resource and Conservation Division of the Department of Planning)

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ISBN 1 74029 226 X

Preferred way to cite this publication:

New South Wales Government 2007, *NSW Forest Agreements Implementation Report 2003/2004: Upper North East, Lower North East, Eden and Southern Regions 2003/2004*. A report prepared by the Minister for Climate Change, Environment and Water as part of the implementation of the NSW forest agreements and integrated forestry operations approvals. Resource and Conservation Unit, Department of Environment and Climate Change, Sydney.

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Foreword

The Hon Peter Primrose MLC
President of the Legislative Council
Parliament House
Macquarie Street
Sydney NSW 2000

The Hon Richard Torbay MP
Speaker of the Legislative Assembly
Parliament House
Macquarie Street
Sydney NSW 2000

Dear Mr Primrose and Mr Torbay

I am pleased to present the fifth annual implementation report on the NSW forest agreements and integrated forestry operations approvals. The report has been prepared in accordance with section 21(1) and 21(2) of the *Forestry and National Park Estate Act 1998*, and tracks progress in the regions for the period 1 July 2003 to 30 June 2004 on:

- the achievement of milestones defined in the NSW forest agreements for the Upper North East, Lower North East, Eden and Southern regions;
- monitoring the ecologically sustainable forest management (ESFM) criteria and indicators by Forests NSW and the Parks and Wildlife Division of the then Department of Environment and Conservation; and
- compliance with the integrated forestry operations approvals for the Upper North East, Lower North East, Eden and Southern regions.

The report demonstrates further improvements in managing NSW forests sustainably.



Carmel Tebbutt MP
Deputy Premier
Minister for Climate Change and the Environment

Executive summary

This is the fifth annual report on the implementation of the NSW forest agreements and integrated forestry operations approvals (IFOAs). It has been prepared in accordance with section 21 of the *Forestry and National Park Estate Act 1998*, which requires that progress on the implementation of the agreements and approvals be reported each year.

There are four forest agreements and IFOAs currently in place, covering the Upper North East (UNE), Lower North East (LNE), Eden and Southern regions. The agreements and approvals for the UNE, LNE and Eden regions were put in place in 1999, followed by those for the Southern region in 2002.

These agreements and approvals provide a strategic and operational framework for the management of public forests in New South Wales, with the overall objective of achieving ecologically sustainable forest management (ESFM). Progress towards meeting this objective is partially achieved by regular reporting of the:

- n achievement of a range of undertakings or 'milestones', defined in each of the NSW forest agreements;
- n results of monitoring of the ESFM criteria and indicators;
- n compliance of harvesting activities on State forests and other Crown timber lands with the IFOAs.

The implementation of the agreements and approvals is a cooperative undertaking between key land management agencies: National Parks and Wildlife Service (NPWS) and Environment Protection Authority (EPA) of the Department of Environment and Conservation (DEC), State Forests of NSW (SFNSW), and NSW Fisheries and Resource and Conservation Division (RACD) of the Department of Infrastructure, Planning and National Resources (DIPNR).

This report details activity related to the implementation of the NSW forest agreements and IFOAs for the UNE, LNE, Eden and Southern regions during 2003/2004.

Additions to the reserve system

A significant outcome in 2003/2004 was the commencement of the *National Park Estate (Reservations) Act 2003* in July 2003. The Act provided for the protection of about 65 000 hectares of priority conservation areas in north east New South Wales. The inclusion of these areas into the reserve system ensures the long-term protection of remaining old growth forest on public lands in the north of the State. Significantly, the Act allowed for the creation of a new national park and nine new state conservation areas, as well as various additions to existing reserves.

These additions, and those made in 2002/2003, have also increased the extent of forest ecosystem types on the NPWS estate. Land transfers to the NPWS estate during the year resulted in the protection of over 4 700 hectares of high conservation value old growth forest in the UNE and LNE regions, and over 1 660 hectares of candidate old growth forest in the Southern region.

Land available for timber and volumes harvested

These land transfers to the NPWS estate during 2002 and 2003, resulted in corresponding decreases in the size of the SFNSW estate. The SFNSW native forest estate now covers approximately 1.3 million hectares, of this about 61% was available for harvest this year, with the remaining 39% protected within SFNSW' Forest Management Zoning (FMZ) system.

Timber volumes harvested by SFNSW have remained stable, and have not exceeded those permitted under the terms of the NSW forest agreements and IFOAs. A total of 342 665m³ of High Quality Large and Veneer sawlogs (quota sawlogs) were harvested from SFNSW native forest and/or hardwood plantation in the UNE, LNE, Eden and Southern regions. A further 411 879m³ of non-quota sawlogs were also harvested from SFNSW native forest and/or hardwood plantation across the four regions.

Integrated forestry operations approvals

The operational framework for the carrying out of forestry activities in State forests and other Crown timber lands is contained in the IFOAs for each region. SFNSW is required to comply with the terms and conditions of the approvals when undertaking forestry activities in native forests. Its compliance with the terms and conditions of the IFOAs is regularly monitored and audited by the DEC (NPWS and EPA), NSW Fisheries and DIPNR.

Comprehensive auditing programs implemented in previous years ensure regular and consistent audits are undertaken by regulatory agencies. In 2003/2004, 14 operational and planning audits of the Environment Protection Licence were undertaken across the four regions, identifying 198 non-compliances. SFNSW were subsequently issued 10 warning letters outlining the non-compliance and were required to undertake remedial work at 68 sites.

Seven field audits were undertaken in relation to the Threatened Species Licence, which resulted in the identification of three non-compliances. Fourteen public complaints were also investigated by DEC in relation to apparent non-compliances with the Threatened Species Licence. Only two non-compliances resulted from these investigations, both in the LNE region.

NSW Fisheries have yet to identify any non-compliance of the Fisheries Licence by SFNSW.

The IFOAs were also amended during the year, commencing at the end of May 2004: amendment no. 3 for the UNE, LNE and Eden IFOAs and amendment no. 1 for the IFOA for the Southern region.

The amendments to the UNE, LNE and Eden IFOAs included changes to provisions contained in the non-licence terms (administered by DIPNR) in relation to planning documentation requirements. This aligns requirements to those contained in the IFOA for the Southern region. Other minor amendments to the Environment Protection Licence and Threatened Species Licence were also made, related to electronic transfer of documents, filter strip and operational zones to make consistent with the IFOA for the Southern region, and prescription for the Hastings River mouse (*Pseudomys oralis*) (UNE region).

The amendment to the IFOA for the Southern region principally dealt with altering the prescriptions around buffer or protected areas, including the structure of filter/buffer strips and felling of trees near certain protected areas. These changes to the IFOA for the Southern region align conditions in the approval to those previously amended in the IFOAs for UNE and LNE regions in 2003 (Amendment 2).

Fire and control of negative agents

The impact of bushfire in 2003/2004 was much less extensive and intense than in recent years. About 57 000 hectares were burnt by bushfire in 2003/2004, down from over 1.45 million hectares burnt in the previous year (NSW Rural Fire Service, 2004). This fall in the total area burnt across the State was also reflected on a region by region basis; all forest agreement regions experienced a much less extensive fire season, with the exception of the Southern region, which increased.

Efforts to control pests and disease in forests also continued across both the NPWS estate and State forests. Expenditure by SFNSW in 2003/2004 increased to over \$1.3 million, with control efforts undertaken across more than 1.69 million hectares.

Visitation, employment and cultural heritage

Visitation to forest areas has risen, with about 5.6 million visits recorded on NPWS' parks and reserves in the four forest agreement regions. However, this rise is in part due to the recent implementation of the NPWS' Visitor Data System, which provides more accurate and comprehensive figures on visitation.

Employment by SFNSW (direct and indirect) and NPWS (direct) was 7 240 equivalent full time (EFT) employees, an increase of 4% in the last 12 months.

Since the implementation of the Aboriginal Heritage Information Management System (AHIMS) and Historic Heritage Information Management System (HHIMS) by the NPWS in 2001/2002, more accurate data on cultural heritage has been available. This has been mainly due to the new systems encouraging and to an increase in survey and research activity which, in turn, has increased the number of sites identified. In 2003/2004, 4 775 sites of Aboriginal significance (or Aboriginal objects) and 4 521 sites of historic significance were recorded on the NPWS estate.

To further progress towards the achievement of ESFM, both SFNSW and the NPWS have continued a range of public education and awareness activities and programs to improve community understanding and participation in forest management. The NPWS' ongoing Discovery program was more popular than ever in 2003/2004, with nearly 90 000 people taking part in over 3 000 activities across the State. SFNSW directed \$4.9 million towards community education programs for primary, secondary and tertiary students, as well as community activities and Bushcare.

2003/2004 was the fifth year of implementation of the NSW forest agreements and IFOAs. The agreements and approvals have now firmly established a framework for the management of public forests. The majority of establishment work is now complete and participating agencies are now working towards refining processes and improving efficiencies. Although more work needs to be done, the continuing collaboration between agencies and better systems in place to measure progress towards the achievement of ESFM will help the achievement of this goal.

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Acronyms and abbreviations

AHIMS	Aboriginal Heritage Information Management System
CAR reserve system	Comprehensive, Adequate and Representative reserve system
CRA/RFA	Comprehensive Regional Assessment/Regional Forest Assessment
CRAFTI	Comprehensive Regional Assessment Aerial Photo Interpretation
DEC	Department of Environment and Conservation
DIPNR	Department of Infrastructure, Planning and Natural Resources
DMR	Department of Mineral Resources
EFT	equivalent full time
EPA	Environment Protection Authority (part of the Department of Environment and Conservation)
ESFM	ecologically sustainable forest management
FMZ system	Forest Management Zoning system
GIS	geographic information system
HCVOG	High Conservation Value Old Growth
HHIMS	Historic Heritage Information Management System
IFOA	Integrated Forestry Operations Approval
ILUA	Indigenous Land Use Agreement
JANIS	Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee
LNE region	Lower North East region
MIG	Montreal Process Implementation Group
MOU	Memorandum of Understanding
NaTREC	Nature and Tourism Recreation Database
NPWS	National Parks and Wildlife Service (part of the Department of Environment and Conservation)
RFA	Regional Forest Agreement
SEEDS	Social, Environmental and Economic Data System

SFNSW	State Forests of NSW
UNE region	Upper North East region
VCA	voluntary conservation agreement (as per the <i>National Parks and Wildlife Act 1974</i>)
VDS	visitor data system
Wildlife Atlas	Atlas of NSW Wildlife

Glossary

biodiversity – the variety of life forms, the different plants, animals and microscopic organisms, the genes they contain and the ecosystems they form.

CAR reserve system – was established in accordance with the *Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia* (Commonwealth, 1997) [commonly referred to as the JANIS Report]. These criteria were developed in accordance with the *National Forest Policy Statement* (Commonwealth, 1992). The national reserve system, or CAR reserve system, aims to ensure the protection of a range of forest values. The acronym 'CAR' defines the goals of the reserve system: *Comprehensive* – full range of forest communities recognised by an agreed national scientific classification at appropriate hierarchical levels; *Adequate* – the maintenance of ecological viability and integrity of populations, species and communities; *Representative* – those sample areas of the forest that are selected for inclusion in reserves should reasonably reflect the biotic diversity of the communities.

carbon sequestration - Carbon sequestration in terrestrial ecosystems can be defined as the net removal of carbon dioxide from the atmosphere into long-lived pools of carbon, so that the carbon dioxide originally in the atmosphere effectively can no longer physically or chemically act as atmospheric carbon dioxide. The pools can be living, above ground biomass (e.g. trees); products with a long, useful life created from biomass (e.g. lumber); living biomass in soils (e.g. roots and micro organisms); or deeper subsurface environments such as depleted oil and gas reservoirs, unmineable coal seams, deep saline formations or deep ocean (Oak Ridge National Laboratory website – <http://www.ornl.gov/>).

committed volume – the volume of timber that may be harvested each year under the terms of the NSW forest agreements and IFOAs.

Comprehensive Regional Assessment (CRA)/Regional Forest Assessment (RFA) - Assessments undertaken by the NSW Government and Australian Government agencies and community stakeholders which look closely at the impacts of changes to forest use and management on the environment, economy and community. This included an assessment of natural, cultural, social and economic values.

Dedicated reserve – Reserve equivalent to IUCN (International Union for the Conservation of Nature and Natural Resources) Protected Area Management Categories I, II, III, IV as defined by the IUCN Commission for National Parks and Protected Areas (1994). Dedicated reserves include, but are not limited to, parks under the *National Parks and Wildlife Act 1974* and flora reserves under the *Forestry Act 1916*. Status of reserves requires action by Parliament in accordance with legislation for reservation or revocation.

ecological community – An assemblage of species occupying a particular area.

ecologically sustainable forest management (ESFM) – The management of forests so they are sustained in perpetuity for the benefit of society, by ensuring that the values of forests are not lost or degraded for current and future generations.

ecosystem – Communities of organisms and their physical environment interacting as a unit.

ecosystem health – The state of an ecosystem's processes (energy, nutrient, hydrological and biological processes) which maintains the vitality of the system.

filter strip – a strip of vegetation or groundcover along each side of a watercourse/drainage line retained for the purposes of retarding/reducing lateral flow of run off and sediment movement into the watercourse/drainage line and reducing the risk of channel and stream bank erosion.

forest – A vegetation type dominated by woody vegetation having a mature or potential mature stand height exceeding five metres, with an overstorey canopy cover greater than 20%.

Forest Management Zone (FMZ) – A land classification system which sets out management intent across State forests and differentiates between those areas of State forest set aside for conservation and those areas available for timber harvesting and other activities.

Forest Resource and Management Evaluation System (FRAMES) – SFNSW' statewide forest resource inventory, growth modelling, simulation and harvest scheduling system for New South Wales public native forest resource.

forest type – A class in the hierarchy of vegetation classification of forests characterised by the taxonomic and or structural composition of canopy trees (usually by a dominant species).

habitat – The living space of a species or community, providing a particular set of environmental conditions.

Informal reserve – A reserve that contains and is managed for conservation values which contribute to the CAR reserve system and meets the principles for Informal reserves as described in the JANIS report.

JANIS report – The report by the Joint Australian and New Zealand Environment and Conservation Council (ANZECC)/Ministerial Council on Forestry, Fisheries and Aquaculture (MCFFA) National Forests Policy Statement Implementation Sub-committee, titled *Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia* (Commonwealth, 1997).

modelled forest type extent involved a number of projects in the CRA/RFAs to determine the pre-1750 extent of forest types including; *Forest Ecosystem Classification and Mapping for the Upper and Lower North East Regions* (NPWS, 1999a), *Forest Ecosystem Classification and Mapping for the Hunter Sub-region in the Lower North East Comprehensive Regional Assessment* (NPWS, 1999b), and *Forest Ecosystem Classification and Mapping for the Eden Comprehensive Regional Assessment* (NPWS, 1998a). The modelled pre-1750 extent of forest types identified as a result of the CRA/RFA projects are contained in Table 1A and 1B, Attachment 1 of the North East Regional Forest Agreement (RFA), Table 1, Attachment 1 of the Eden RFA, and Table 1, Attachment 1 of the Southern RFA. A key objective of the CAR reserve system was to protect "15% of the pre-1750 distribution of each forest ecosystem

native forest – Any locally indigenous forest community containing the full complement of native species and habitats normally associated with that community, or having the potential to develop those characteristics.

national park estate land declared as a national park, state conservation area, nature reserve or others areas under the *National Parks and Wildlife Act 1974*.

old growth – Forest that is ecologically mature and has little disturbance by activities such as logging, building roads or clearing. The definition focuses on forest in which the upper layer or overstorey is in the late mature to over mature growth phases.

plantation – Intensively managed stands of trees of either native or exotic species, created by the regular placement of seedlings or seed.

public forest – Any forest on Crown land for which management responsibility has been delegated to government agencies, local governments or other instrumentalities.

species – A group of organisms which are biologically capable of breeding and producing fertile offspring with each other but not with other organisms in other groups.

State forest – Land dedicated under the *Forestry Act 1916*.

sustainable yield – The long term estimated wood yield from forests that can be maintained from a given region in perpetuity under a given management strategy and suite of sustainable use objectives.

tenure – Title to land as controlled by legislation.

threatened species – Any species of plant or animal listed under Schedule 1 Part 1 (endangered species), Schedule 1 Part 4 (presumed extinct) and Schedule 2 (vulnerable species) of the *Threatened Species Conservation Act 1995*.

threatening process – A process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities.

i**Introduction**

This is the fifth annual report on the implementation of the NSW forest agreements (FAs) and integrated forestry operations approvals (IFOAs) for the Upper North East (UNE), Lower North East (LNE) and Eden regions and the second report on NSW forest agreement and IFOA implementation for the Southern region. This report is a requirement under section 21 of the *Forestry and National Park Estate Act 1998*. **Map 1-A** shows the extent of the forest agreement regions.

Ecologically sustainable forest management (ESFM) is a key objective of the NSW Government's forest policy. The NSW forest agreements and IFOAs provide a strategic and operational framework for achieving this objective. Progression towards ESFM is partially achieved by regular reporting of the:

- n** achievement of milestones as defined in the NSW forest agreements (Chapter 1 and Appendix 1);
- n** results of monitoring of the ESFM criteria and indicators (Chapter 2);
- n** compliance with the IFOAs which cover forestry operations on State forests and other Crown timber lands (Chapter 3).

This implementation of agreements and approvals is a cooperative undertaking between the¹:

- n** National Parks and Wildlife Service (NPWS) and Environment Protection Authority (EPA) of the Department of Environment and Conservation (DEC)²;
- n** State Forests of NSW (SFNSW);
- n** NSW Fisheries;
- n** Resource and Conservation Division (RACD) of the Department of Infrastructure, Planning and National Resources (DIPNR)³

Changes to reporting structure

The presentation of reporting for 2003/2004 has been modified. Previously two reports were prepared, this report focused on progress of the various undertakings, or 'milestones' detailed in the agreements and compliance with the IFOAs, and a supplementary report detailed the results of monitoring ESFM through the criteria and indicators. Given that a large proportion of milestones required by the agreements are required within the first five years and have been largely achieved, this single report now contains a general discussion on key undertakings and achievements during the reporting period. It includes any specific milestones continuing or achieved during the reporting period as well as complimentary activities related to the management of public forests. The supplementary report for the ESFM criteria and indicators, previously summarised into this report, is now solely reported here. The

¹ References to NSW Government Agencies are as they were known at 30 June 2004.

² DEC was formed through the amalgamation of the EPA, NPWS, Botanical Gardens Trust and Resource NSW in September 2003.

³ DIPNR was formed through amalgamation of the Department of Planning (PlanningNSW) and the Department of Land and Water Conservation (DLWC) in July 2003.

presentation and reporting of the results of monitoring of the ESFM criteria and indicators has been refined, limited where possible to presentation of data and identification of trends (where appropriate).

Further refinement of the reporting process is continuing and will provide a more concise and accessible record of progress of the implementation of the NSW forest agreements and IFOAs.

Map 1-A: NSW forest agreement regions



1 Milestones and highlights

There have been demonstrable improvements this year in the management of the public forest estate and achievements in various components of the management system. This chapter outlines some significant highlights and milestone achievements.

Milestones are set out in attachment 9 of the Forest Agreement for the Southern region, attachment 11 of the forest agreements for the Eden region and attachment 12 of the forest agreements for the UNE and LNE regions. One measure of progress towards ESFM is the achievement of these milestones. Further information on the progression of milestones contained in the forest agreements is provided in **Appendix 1**.

Environmental Management System (EMS)

An Environmental Management System (EMS) defines and guides the approach an organisation takes to protecting the environment from harmful impacts of its operations. This year both SFNSW and NPWS continued refining their respective EMS⁴

The SFNSW EMS underpins its native forest and plantation management activities. The EMS for native forest operations has been implemented and audits completed in all regional centres. Major remaining areas to be addressed are the completion of the Ecologically Sustainable Forest Management (ESFM) plans and the finalisation of a non-conformance system.

SFNSW have identified a strong customer interest in forest certification, which ensures the environmental credentials of the timber supply. This demand is likely to increase; SFNSW is currently determining the best certification scheme from international and national options.

Development of the NPWS EMS is progressing and is intended to cover all areas of its operations. In particular, The *State of the Parks* report (which will contribute to measuring and evaluating park management performance) will comprise a major element of the system. The next *State of the Parks* report is expected to be conducted in 2005.

National Park Estate (Reservations) Act 2003

The *National Park Estate (Reservations) Act 2003* commenced 1 July 2003, providing for the protection of about 65 000 hectares of priority 'icon' areas in north east New South Wales. The inclusion of these areas to the reserve system ensured the long-term protection of remaining old growth forest on public lands in the north of the state. Much of the land was protected as reserves on the NPWS estate, with about 19 000 classified as special management zones (under section 21A of the *Forestry Act 1916*) in State forests⁴.

⁴ areas of non-productive forests managed by SFNSW.

Specifically, the *National Park Estate (Reservations) Act 2003* allowed for the transfer of areas of State forest to the NPWS estate in the UNE and LNE regions, creating:

- n one new national park (1 662 hectares);
- n seven additions to existing national parks (13 151 ha);
- n two additions to existing nature reserves (1 591 ha);
- n nine new state conservation areas (22 832 ha);
- n two additions to existing state conservation areas (3 304 ha).

A further 3 045 hectares were transferred for State forest to be vested in the NPW Minister, including land with leases (3 003 ha) and other areas (around 42 ha). An additional 119 hectares will be transferred from State forest to a national park and nature reserve once logging of plantations has been carried out.

To ensure continuing timber supply by SFNSW at contracted levels, operational changes were made to timber harvesting practices to allow the availability of additional timber resources without compromising environmental outcomes.

Timber volumes harvested

It is a requirement of the forest agreements that details on the production of products other than quota sawlogs be provided annually. In 2003/2004, 411 879m³ of non-quota sawlogs were harvested from SFNSW native forest and hardwood plantation. A further 1 307 769m³ of non-quota sawlogs (including Veneer and High Quality large sawlogs) were harvested from SFNSW softwood plantations.

Non-quota pulp grade and chipwood timbers were also harvested from SFNSW native forest and hardwood plantation in the UNE and LNE regions and native forest in the Southern region, totalling 209 531 tonnes. The total volume of these timbers has fallen by about 22% between 2002/2003 and 2003/2004.

Note that hardwood pulp grade and chipwood volumes for the Eden region are not included here as they form part of the quota volumes designated in the IFOA for the region.

Non-quota pulp grade and chipwood timbers harvested from SFNSW softwood plantation in the UNE, LNE, Eden and Southern regions totalled 640 800 tonnes in 2003/2004. The volume of these timbers has increased significantly over the past few years, this is principally due to the increase in volumes associated with the inclusion of harvesting information from the Southern region. Pulp grade and chipwood timbers taken from SFNSW softwood plantation in the Southern region accounted for more than half the total annual harvest volume (571 634 tonnes).

Softwood pulp grade and chipwood timbers are largely obtained from SFNSW plantation in the south east regions as many of its softwood plantations are situated in these regions.

Further details on the actual volumes of non-quota sawlogs harvested from each forest agreement region (by log type) are presented in **Table 1-1-A** and **1-1-B**.

Table 1-1-A: Volumes of timber products other than quota sawlogs from State forests 2003/2004 – UNE and LNE regions

Log /product type	Unit	UNE region			LNE region		
		native forest	hardwood plantation	softwood plantation	native forest	hardwood plantation	softwood plantation*
High Quality small	m ³	29 209	699	51 508*	26 321	2 319	725*
low quality	m ³	73 346	14 856	36 653	111 624	44 622	3 447
poles/piles and girders	m ³	8 890	3 063	0	12 362	4 406	0
preservation logs	m ³	0	0	0	0	0	0
mining timber (round)	m ³	0	0	0	0	0	0
fencing/landscape /sleepers (sawn)	m ³	0	0	0	0	0	0
total	m ³	111 445	18 618	88 161	150 307	51 347	4 172
pulp grade and chipwood	tonnes	11 002	5 262	9 090	88 286	0	

* includes high quality large sawlogs.

Source: SFNSW

Table 1-1-B: Volumes of timber products other than quota sawlogs from State forests 2003/2004 – Eden and Southern regions

Log/product type	Unit	Eden region		Southern region	
		native forest	softwood plantation	native forest	softwood plantation
High Quality small	m ³	1 257	115 024*	6 826	925 329*
low quality	m ³	18 465	44 404	51 792	2 237
poles/piles and girders	m ³	0	0	155	0
preservation logs	m ³	0	37 327	0	7 226
mining timber (round)	m ³	0	0	0	0
fencing/landscape /sleepers (sawn)	m ³	43	0	619	0
total	m ³	19 765	196 755	59 392	934 792
pulp grade and chipwood	tonnes	309 088	60 076	78 291	571 634

* includes high quality large sawlogs.

Source: SFNSW

Full details on SFNSW actual harvest volumes against committed volumes permitted under the terms of each forest agreement and IFOA are provided under Criterion 2, Chapter 2 of this report.

Plans of Management

Plans of management for areas dedicated under the *National Parks and Wildlife Act 1974* continue to be developed. These plans are legal documents outlining how areas will be managed.

Of the 476 national parks/nature reserves/state conservation areas (SCAs)/historic sites/Aboriginal areas in all regions, 135 areas had plans of management adopted or awaiting adoption by the NSW Minister for the Environment by the end of this year.

Plans approved during the year included Yuraygir National Park and State Conservation Area, Cooperabung Nature Reserve and Middle Brother National Park in the north east regions. Plans for Nadgee Nature Reserve, Mount Imlay and Mimosa Rocks national parks in the Eden region and Throsby Park Historic Site and Cullendulla Creek Nature Reserve in the Southern region were also approved.

Collaborative recreational planning

SFNSW Recreational Planning

This year SFNSW began developing a training policy and strategic framework for sustainable recreational, sporting and tourist use of the forests. As a first step, it held meetings with peak user groups and government departments in Sydney, the Hunter and the Central Coast. Over 200 people joined the workshops to discuss issues and develop joint opportunities. The following were identified as major issues and opportunities:

- n maintaining access to forests for recreation, sport, tourism and training;
- n appropriate, safe and responsible use of forests;
- n understanding the social, environmental and economic benefits of forests; and;
- n improving the administration and management of State forests for recreation, sport, tourism and training.

Far South Coast Nature Tourism and Recreation Plan

For the Eden and part of the Southern region a multi-agency joint strategy cooperative plan entitled the 'Far South Coast Nature Tourism and Recreation Plan' was released in May 2004 and is now being implemented. Representatives from SFNSW, NPWS, Eurobodalla Tourism, Sapphire Coast Tourism, Umburra Aboriginal Cultural Heritage Tours and the Department of Lands were involved in the development of the plan.

Recreation area maintenance and community involvement in forests

SFNSW

During 2003/2004, 13 volunteer programs were undertaken in State forests, involving 194 participants (25 staff members and 169 community volunteers) over 111 days.

A joint SFNSW and Conservation Volunteers Australia program, 'Communities in Forests', was established this year. The program harnesses community and volunteer skills in the support of conservation management programs. Projects included threatened species habitat surveys, the development of ponds to enhance frog diversity, maintenance of eight kilometres of recreational trails, weed eradication, participation in community days and bush regeneration.

NPWS

The NPWS Mid North Coast Region conducted regular tours of parks for staff of local visitor information centres, and continued to work with local government to provide tourist attractions and activities for local residents and visitors. New colour brochures were produced for Hat Head, Crowdy Bay and Coorabakh national parks, Arakoon State Conservation Area, and Wingham Brush and Brimbin nature reserves (LNE region), as part of an upgrade of visitor information.

The NPWS Northern Branch also developed camp grounds and facilities, such as toilets, picnic tables, interpretation, barbecues and bollards, balancing visitor enjoyment with environmental conservation.

In the LNE region, 6 000 trees were assessed and hazard rated, dangerous trees were removed and visitor use areas re-designed, following the Myall Lakes National Park Tree Risk Management Plan. Following the Revised Campground Strategy all key camping areas were assessed and treated for risk, which included some upgrading of facilities, signage, and bollards. Seven boat-based camping areas (26 sites) were redeveloped and opened for public use, and three picnic areas were formalised. A car park at Mungo Brush campground was re-developed and the Yagon camping area also underwent major works including roads, re-design and bollarding.

An upgrade of the lookout at Mary's view in Oxley Wild Rivers National Park (LNE region) improved visitor safety and a new walk and cycleway at Cape Byron links Clark's Beach to the Pass. It was a joint project of Byron Shire Council, Cape Byron Trust, the Roads and Traffic Authority, the NPWS and the Department of Commerce. In Glenrock State Conservation Area (LNE region) disabled access along a section of the Yuelerabah Track and a picnic area beside Flaggy Creek have followed the track and bridge upgrade.

In March 2004 the NPWS resumed management of the Sea Acres Rainforest Centre at Port Macquarie (LNE region). Built in 1988 with National Rainforest Conservation program funding, the centre provides a unique educational rainforest experience. It includes an ecological display, cafe and wildlife shop, theatre and classroom. Volunteer guides conduct tours along the 1.3 kilometre elevated boardwalk that traverses rare littoral rainforest. Since coming under NPWS management, the centre has been refurbished.

This year the NPWS completed five years of a six-year renovation program for older coastal facilities in the Eden region. In the Southern region, new camping facilities included walking trails and lookouts at Waratah Creek and Nunnocks Swamp in the South East Forests National Park. Picnic facilities at Myrtle Mountain and Goodenia rainforest are also being renovated.

Aboriginal cultural heritage management

SFNSW

SFNSW is currently developing corporate *Operational Guidelines for Aboriginal Cultural Heritage Management*. These guidelines will contain a consultative framework and process that SFNSW regions will utilise for addressing local Aboriginal cultural heritage issues on State forests. The operational guidelines will also include Aboriginal site protection measures and a review of how well these consultative arrangements worked over the previous period.

In the LNE region, State forests near Walcha will be used for Aboriginal cultural revival and cultural teaching following the signing of a unique agreement between SFNSW and the Anaiwan traditional owners in March 2004. The agreement covers an area of Riamukka and Nowendoc State forests on the northern tablelands. Under the agreement, SFNSW gains cooperation with pest and weed control, fire detection, fire control and building maintenance, while the Anaiwan elders will use the area for camping, caretaker accommodation and cultural heritage teaching. The agreement aims to strengthen the positive relationship between the Anaiwan traditional owners and SFNSW.

NPWS

In the UNE region, management planning for Aboriginal cultural heritage by the NPWS included continued consultation with the Bundjalung and Githabul communities, to improve management and ensure sensitivity to cultural issues. Steering groups have been formed for Mount Warning (Wollumbin) and Bundjalung national parks and are being established for parks and reserves of the Kyogle area with the intention of developing co-management agreements.

The Tabulam Aboriginal Place was gazetted early 2004 and received funding under the Aboriginal Heritage Projects funding scheme for implementation works including restoration of 20 hectares of riparian and floodplain vegetation and replanting 740 trees.

Activities in the LNE region included the declaration of Mount Mackenzie Aboriginal Place, Barrington Tops as an Aboriginal Place. This has high cultural significance to the Aboriginal community of the Gloucester area, as it was a major massacre site. The Dark Point Community Working Group was established to plan management of the site.

The NPWS South Coast Region Cultural Heritage Management Strategy 2003–2008 was endorsed by the regional executive and the Director, Southern Branch this year. It is consistent with the Southern Branch Cultural Heritage Management Strategy 2003–2008 which prioritises significant Aboriginal and historic heritage places and landscapes in the NPWS South Coast Region for assessment and long term conservation and management. The strategy recognises Aboriginal association with landscape as well as Aboriginal sites as defined by the *National Parks and Wildlife Act*.

In the Eden region, the handback of Biamanga National Park continued in conjunction with the handback of Gulaga National Park. Aboriginal representatives are negotiating an Aboriginal Board to own and oversee the park management.

2

Monitoring the ecologically sustainable forest management

A key objective of the NSW forest agreements and IFOAs is the achievement of ESFM. In order to measure progress towards this objective, a set of indicators are applied to each region. These indicators must be reported against each year and contribute to the annual report to Parliament, as required by section 2.11.2 of the forest agreements for the UNE, LNE and Southern regions and section 2.10.2 of the Forest Agreement for the Eden region.

In previous years details on the results of monitoring of the ESFM criteria and indicators were compiled in a separate report and summarised as a chapter in this report. In an attempt to simplify the reporting process, details on indicator monitoring are now solely provided in this report. This ensures the above requirement of the forest agreements continues to be met, but also provides a more accessible and concise record of monitoring.

Requirements of the Commonwealth/New South Wales North East Regional Forest Agreements (RFA) (UNE and LNE regions) [clause 49], Eden RFA [clause 47] and Southern RFA [clause 53] requiring the reporting of 'sustainability indicators' also continue to be met.

The presentation of the results of monitoring remains relatively unchanged from previous years. Data for each indicator and related undertakings which contribute to the achievement of the objective of each indicator continue to be presented. However, undertakings are now limited to selected key activities and sources of further information are cited where possible. Additionally, detailed data sets have not been included in this report, but may be obtained on application. A summary of the outcomes of monitoring are provided in the report text.

The following chapter provides details on monitoring carried out by DEC and SFNSW during 2003/2004. As in previous years, the results have been collated by RACD of the DIPNR.

Since monitoring began in 1999/2000 substantial progress has been made in the quality and quantity of data. Establishing the foundation for ongoing monitoring of the ESFM criteria and indicators has involved significant development and adaptation of existing processes and resources. The success of

What are the ESFM criteria and indicators

The ESFM indicators are monitoring tools that provide cumulative data on changes to social, environmental and economic values of forests. Developed during the CRA/RFAs for each region, the indicators enable the uniform collection of data over time, which in turn supports an evaluation of the achievement of ESFM. The indicators do not explain reasons for any change.

There is an explicit link between the ESFM indicators with the Montreal Implementation Group (MIG) set of sub-national indicators, which form part of the Australian Government's State of the Forests reporting.

The ESFM criteria and indicators have been monitored for the UNE, LNE and Eden regions since 1999/2000 and for the Southern region since 2002/2003, following the implementation of each region's forest agreement.

this work is reflected in more consistent data each year and in the early trends. The trends however are yet only indicative. As monitoring continues, the continuously improving quality and quantity of data will provide better information to determine progress towards ESFM.

Criterion 1 - Biodiversity

Key outcomes

Additions to the NPWS estate in the UNE, LNE and Southern regions resulted in increases in the extent of forest ecosystems and forest types conserved in the reserve system.

Long-term connectivity of forests was improved by the signing of 19 VCAs covering almost 1 460 hectares.

The NPWS estate in the UNE region supported 2 912 forest dwelling species, the LNE region supported 2 932 forest dwelling species, the Eden region supported 1 757 forest dwelling species, and the Southern region supported 1 683 forest dwelling species.

There were 77 recovery plans at various stages of completion for species relevant to the UNE region, 48 recovery plans for species relevant to the LNE region, 44 recovery plans for species relevant to the Eden region, and 64 recovery plans for species relevant to the Southern region.

Nineteen key threatening processes listed are relevant to the management of forest dwelling species were listed; two of these have approved threat abatement plans.

Forest type

MIG Indicator 1.1.a: Extent of area by forest type and tenure (UNE, LNE, Southern regions)

Indicator 1.1: Extent of forest ecosystem types and vegetation types by growth stage (Eden region)

Sub-indicator 1.1.a.1: Understorey vegetation layer (Southern region)

Data

Change within the NPWS estate

Modelled forest type extents listed in the RFAs⁵ are used as the baseline to measure changes to the extent of forest types. Between 1999 and 2002, NPWS recorded only minor changes to the extent of modelled forest ecosystems. However, following the NSW Government's further assessment and gazettal⁶ of lands in the north east regions in 2002 and 2003, significant changes in forest type extent (and growth stage) on the NPWS estate have been recorded.

UNE and LNE regions

The UNE region had an increase in the extent of 72 of its 163 identified forest ecosystems in NPWS estate. The area of protected threatened ecosystems also increased. For example, the extent of

⁵ The modelled pre-1750 extent of forest types are contained in Table 1A and 1B, Attachment 1 of the North East RFA, Table 1, Attachment 1 of the Eden RFA and Table 1, Attachment 1 of Southern RFA.

⁶ The formal process of land becoming NPWS estate by notice in the *NSW Government Gazette*.

rainforest increased by 1 735 hectares and swamp areas by 33 hectares. The area of protected vulnerable ecosystems also increased: a further 83 hectares of Lowlands Scribbly Gum, 72 hectares of Paperbark and 122 hectares of Wet Bangalow Brush-box are now protected.

In the LNE region there was an increase in the extent of 78 of the 200 identified forest ecosystems. This included a 1 295 hectare increase in the extent of Wet Foothills Blackbutt-Turpentine forest. The area of protected threatened ecosystems also increased, with the addition of 164 hectares of Dry Open New England Blackbutt, 125 hectares of Manna Gum, 203 hectares of Peppermint and 125 hectares of Peppermint-Mountain/Manna Gum ecosystems.

In the UNE region, a total of 15 321 hectares was added to the NPWS estate, across 16 reserves. This includes the 14 378 hectares increase to forest ecosystems in the region. Ten endangered flora species and nine vulnerable flora species have been recorded in these additions along with seven endangered and 36 vulnerable fauna species.

The gazettal of Wollumbin National Park, adjoining Mount Warning National Park on 1 July 2003 has increased protection for the rainforest parks of the Tweed Caldera, which conserves many threatened flora and fauna species.

Previous additions to Arakwal National Park have improved protection for the Byron Bay Dwarf Graminoid Clay Heath Endangered Ecological Community, and at least three threatened plants, including the endangered Byron Bay Diuris orchid (*Diuris* sp. aff. *chrysantha*), endemic to the Byron Bay area.

In the LNE region 23 815 hectares was added to the NPWS estate across 13 reserves. This includes the 15 506 hectare increase to forest ecosystems in the region. One endangered and five vulnerable flora species have been recorded in these additions along with two endangered and 24 vulnerable fauna species.

Eden region

With no additions to the NPWS estate in the Eden region, no progress in the achievement of the region's forest ecosystem conservation targets was made this year.

Southern region

There were gains in the reservation of forest types in the Southern region due to new gazettals. Changes to forest type, structure or growth stage resulting from fire were not recorded.

In the Southern region there was an increase in the extent of 33 of the 144 forest ecosystems, by a total area of 4 613 hectares, increasing the percentage of target reservation achieved for these forest ecosystems.

In March 2004 a tenure layer was used to calculate the extent and growth stage of the forest ecosystems of areas gazetted since July 2003. This means that reserves gazetted between March and June 2004 have not been included in the data.

Calculating extent and growth stage

The total area of forest type is calculated by adding the area (in hectares) of forest ecosystem in new areas gazetted to the baseline area of land already reserved within the regions, as calculated during the Comprehensive Regional Assessments/Regional Forest Assessments (CRA/RFAs). The growth stages of the forest ecosystems are recalculated after a large fire event.

For all regions, the original tenure data were derived from the Final and Agreed Planning Unit layer, used during the forest agreement negotiations. In subsequent years the most recent tenure layer has been used to calculate the extent and growth stage of the forest ecosystems for any newly gazetted areas, as it is the most accurate. This may lead to inaccuracies in interpretation as the new and old data sets may not align precisely.

Conservation targets used for the forest agreement regions were calculated from the pre-1750 and current extant vegetation and growth stage maps. If the relative areas of pre-1750 and extant forest ecosystems change as a result of data validation then re-applying the formula used to calculate the original targets will create a new target percentage. DEC recommend that at the five yearly reviews of the forest agreements, targets are recalculated to track conservation improvement.

Change within State forests

The increases discussed above in the NPWS estate resulted in a reduction in land in State forests. Information on the extent of forest ecosystem types on State forests are obtained from SFNSW' Forest Management Zoning (FMZ) system⁷.

Discussion/research and development

To improve data on forest types and extent, the NPWS has been involved in, or undertaken several vegetation mapping activities, including flora surveys in reserves in the UNE and LNE regions (see indicator 1.2.a). Some of these surveys mapped vegetation communities, while others mapped species (including threatened or regionally significant species).

In the Eden region, the NPWS is in the final year of a five year program to validate vegetation assemblage mapping for the region, produce a classification map for reserve fire management and park management planning and improve fauna modelling. The program will correct errors and validate the extent of vegetation assemblages with conservation significance, particularly on the NPWS estate and private lands, and integrate the Eden forest ecosystem map into the Southern CRA/RFA maps.

Validation of vegetation communities in NPWS reserves in the Southern region has also progressed, as communities are identified and mapped during the CRA/RFA process, though no projects validating the structural growth stage of forests have been implemented. Three reports were produced as a result of validation work and are listed in the references and bibliography section of this report.

Mapping work was also conducted by the NPWS in the South West Slopes Region, involving the reclassification and remapping of original Southern CRA maps, with the aim of producing accurate and reliable vegetation maps for park management. The revised vegetation maps are based on survey data and aerial photograph interpretation, which relies on knowledge of vegetation type in relation to

⁷ FMZ system – adopted in 1999, to provide a standardised means of classifying areas of State forest as available for harvesting and those to be protected for conservation purposes.

lithology, physiographic position such as exposure and topographic position, and other factors. **Table 2-1-A** lists the reserves in Southern region that have been validated (in the NPWS South Coast Region, Southern region) and those reserves where vegetation type has been reclassified (in the NPWS South West Slopes Region, Southern region). Of the 121 reserves in Southern region, 51 have undergone re-analysis of their vegetation mapping. An additional 13 reserves in the alpine and subalpine sections of the Southern region were also validated.

Table 2-1-A: Reserves where vegetation types has been validated and reclassified in the NPWS South Coast and South West Slopes Regions, Southern region

Validated Reserves (NPWS South Coast Region)		Reclassified Reserves (NPWS South West Slopes Region)	
Bangadilly National Park	Joadja Nature Reserve	Benambra National Park	Scabby Range Nature Reserve
Barnunj State Conservation Area	Kooraban National Park	Black Andrew Nature Reserve	Stony Creek Nature Reserve
Barren Grounds Nature Reserve	Maxwell Swamp Nature Reserve	Burnt School Nature Reserve	Strike-a-light Nature Reserve
Bimberamala National Park	Meroo National Park	Courabyra Nature Reserve	Tabletop Nature Reserve
Bungong National Park	Monga National Park	Cuumbeun Nature Reserve	Tumblong Nature Reserve
Cambewarra Range Nature Reserve	Montague Island Nature Reserve	Downfall Nature Reserve	Ulandra Nature Reserve
Clyde River National Park	Morton National Park (east)	Ellerslie Nature Reserve	Wanna Wanna Nature Reserve
Conjola National Park (including old Cudmirrah Nature Reserve and National Park)	Murramarang National Park	Livingstone National Park	Wee Jasper Nature Reserve
Wadbilliga National Park	Narrawallee Creek Nature Reserve	Minjary National Park	Wreboldera Nature Reserve
Eurobodalla National Park	Tapitallee Nature Reserve	Mount Darling Nature Reserve	Woomargama National Park
Gulaga National Park		Mudjam Nature Reserve	Yanununbeyan Nature Reserve
		Nest Hill Nature Reserve	Yaouk Nature Reserve
		Oak Creek Nature Reserve	

Source: NPWS

Interpretation

- ↑ NPWS estate - UNE, LNE, Southern regions
- ↔ NPWS estate - Eden region
- ↓ State forest – UNE, LNE, Southern regions
- ↔ State forest – Eden Region

Growth stage

MIG indicator 1.1.b: Area of forest type by growth state distribution by tenure (UNE, LNE, Southern regions)
 Indicator 1.1: Extent of forest ecosystem types and vegetation types by growth stage (Eden region)

Data

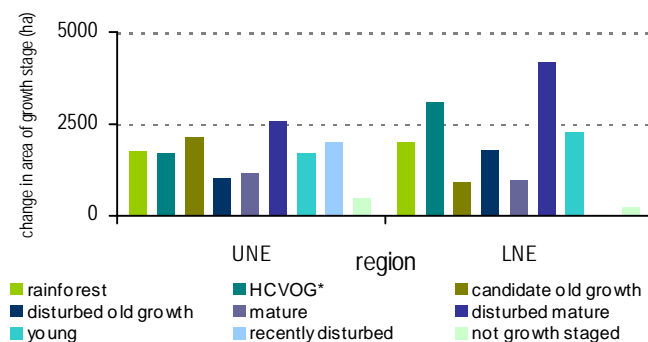
Modelling of the extent of growth stages was completed during the CRA/RFAs for each region between 1996 and 2001. As referred to under the previous indicator, Attachment 1 of each RFA set out modelled forest growth stage extent, and provide the baseline against which changes in forest growth stage extent are measured.

Like the previous indicator (forest type), the extent of growth stages in State forests and the NPWS estate remained relatively stable between 1999 and 2002. Following the completion of the FMZ Assessment/Northern Additions in the UNE and LNE regions in late 2002 and additions to the NPWS estate in 2003, some larger changes in forest type extent and growth stage have subsequently been recorded. Corresponding decreases to growth stage categories on State forests in the UNE and LNE regions have also resulted.

Change within the NPWS estate

UNE and LNE regions

New gazettals of land to the NPWS estate increased the area of forest ecosystem by growth stage distribution in the UNE and LNE regions. In the UNE region additions to the reserve system totalled 14 378 hectares; of this, 1 701 hectares were classified as high conservation value old growth forest. A further 2 093 hectares were classified as candidate old growth forest, resulting in the increase of this growth stage for 52 forest ecosystems. Another 1 006 hectares were classified as disturbed old growth forest. One third (33.38%) of these additions are therefore classified as old growth forest in some form. In the LNE region additions to the reserve system totalled 15 506 hectares. Of this, more than one third (37.43%) was classified as some form of old growth forest, with 3 075 hectares classified as high conservation value old growth forest, 910 hectares as candidate old growth forest, and 1 819 hectares as disturbed old growth forest. The extent of candidate old growth forest in the region increased by 910 hectares for 60 of the 200 forest ecosystems (**Figure 2-1-A**).



*high conservation value old growth

Source: NPWS

Figure 2-1-A: Change in area (ha) of growth stage categories - UNE and LNE regions

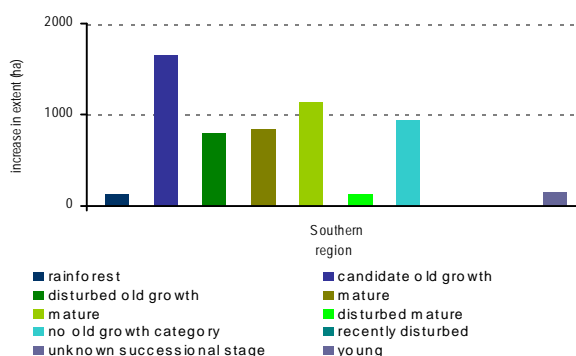
Eden region

No additions were made to the NPWS estate in the Eden region therefore no progress towards growth stage targets has been made. Forest growth stage was not affected by fire during this period, as fires were not sufficiently intense. The drought is considered very unlikely to have changed forest growth stage classes. The continuing validation program will produce new mapping and record changes in the area and growth stage of vegetation assemblages.

Southern region

In the Southern region, the extent of the area of candidate old growth forest increased for 22 forest ecosystems (by a total area of 1 663 hectares) as a result of new gazettals. The 'Eucalypt forest growth stage' categories used in **Figure 2-1-B** for the Southern region were sourced from a geographic information system (GIS) growth stage layer, developed as part of the CRA/RFA process.

Additions to the reserve system total just over 4 613 hectares. A significant portion of this was classified as candidate old growth forest (1 663 ha) and disturbed old growth forest (791 ha). Changes to growth stages resulting from fire were not recorded. Additions were made to nine reserves in the Southern region during 2003/2004 including Cambewarra Range Nature Reserve and Conjola, Eurobodalla, Jervis Bay, Morton and Wadbilliga national parks.



Source: NPWS

Figure 2-1-B: Change in area (ha) of growth stage categories - Southern region

Change within State forests

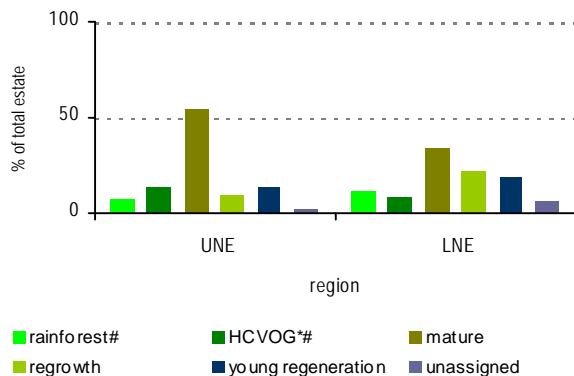
Growth stage extent in State forests in the UNE, LNE, Eden and Southern regions are shown in **Figure 2-1-C** and **2-1-D**. Data for the Southern region were only available for the Tumut sub-region, as no agreed growth stage layer was produced for the South Coast sub-region (the remainder of the Southern region).

As the FMZ Assessment/Northern Additions in 2002 and additions in 2003 resulted in increases to the extent of growth stages in the NPWS estate, similar decreases were recorded on State forests. Specifically, a decrease in the area of native forests in informal reserve and across all forest types and structural classes managed by SFNSW occurred as a result of these tenure changes in the UNE and LNE regions.

Significantly, an additional 13 000 hectares of rainforest and almost 30 000 hectares of high conservation value old growth are now within the NPWS estate, where they were previously managed under the informal reserve system in State forest.

All growth stage categories in State forests for the UNE and LNE regions decreased in 2003/2004. This is directly attributable to the land tenure changes mentioned above.

The extent of growth stages across State forests in the Eden region remained stable.

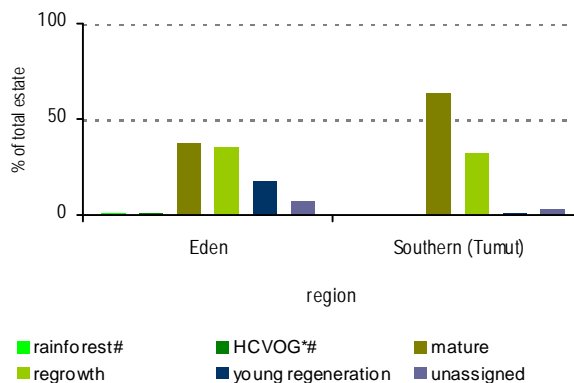


* high conservation value old growth

HCVOG and rainforest areas are protected from harvesting as FMZ 2 exclusions or by prescription

Source: SFNSW

Figure 2-1-C: Growth stage extent on State forests – UNE and LNE regions



* high conservation value old growth

HCVOG and rainforest areas are protected from harvesting as FMZ 2 exclusions or by prescription

Source: SFNSW

Figure 2-1-D Growth stage extent on State forests – Eden and Southern (Tumut sub-region) regions

Discussion/research and development

Refer to previous indicator.

Interpretation

- ↑ NPWS estate – UNE, LNE and Southern regions
- ↔ NPWS estate – Eden region
- ↓ State forest estate – UNE and LNE and Southern regions
- ↔ State forest estate – Eden Region

Fragmentation

MIG Indicator 1.1.e: Fragmentation of forest types (UNE, LNE, Southern regions)

Indicator 1.2 Extent of connectivity in the forest landscape in relation to threatened species habitat, general retained habitat on public and private land, and conservation reserves (Eden region)

Data

Present data can only indicate change in the connectivity of individual forest areas in the absence of a more thorough landscape measure. Reporting therefore continues against programs and activities, including voluntary incentive programs, and the expansion of the SFNSW plantation estate.

Land additions and plantations

Land additions are provided for in the previous indicators.

SFNSW established about 5 850 hectares of hardwood and softwood plantation this year.

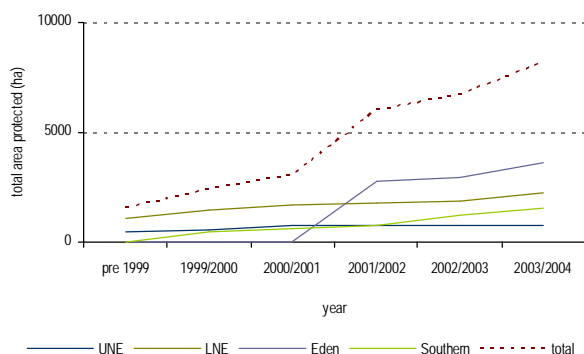
Conservation mechanisms

Within the landscape the majority of land is privately owned. Therefore, private landholders play an important role in reducing fragmentation and protecting biodiversity. They can do this through a range of voluntary conservation mechanisms including the Voluntary Conservation Agreement (VCA) program administered by the NPWS.

VCAs are formal agreements between a public or private landowner and the NSW Minister for the Environment under the *National Parks and Wildlife Act* which protect, conserve and manage high conservation value natural and cultural heritage in perpetuity. A plan of management is negotiated for each VCA, outlining its management and monitoring regime.

The contribution of VCA program to reducing fragmentation has been consistently reported and monitored since 1999. Private landholders have shown a strong interest in the program, so much so that the area of land protected by VCAs within the forest agreement regions increased from 1 544 hectares to over 8 150 hectares in the last four years.

The LNE and Eden regions have experienced the largest increase in area protected by VCAs since 1999/2000, rising by 48% and 126% respectively (**Figure 2-1-E**). However, the Southern region contains the largest total area of land protected by VCAs (more than 3 640 hectares).



Source: NPWS

Figure 2-1-E: Total area protected by VCAs at 30 June 2004

In 2003/2004 19 new VCAs were entered into, covering about 1 459 hectares. Seven of these were in the LNE region (total area of 448.83 ha), two in the Southern region (total area of 709.48 ha), and ten in the Eden region (total area of 300.39 ha). No VCAs were signed in the UNE region.

A measurement of the value of VCAs is the improved connectivity of forest areas, either by providing corridors between habitat patches, or extending existing reserves. This year over 1 640 hectares of VCAs in the LNE, Eden and Southern regions provided a link in a wildlife corridor. No VCAs provided a link to a wildlife corridor in the UNE region.

VCAs adjoining the NPWS estate now cover 1 360 hectares. Much of this is in the LNE (522 ha) and Eden (445 ha) regions.

Table 2-1-B provides a summary of VCAs by forest agreement region and their connectivity with existing NPWS estate and wildlife corridors.

Similarly to last year, a GIS layer of VCAs helped report on the number and area of VCAs. Figures for previous years were recalculated in 2002/2003 from the data in this GIS layer. This method is more accurate than before when there were no spatial data so figures reported before 2002/2003 are slightly different from those reported here.

The data on the area of VCAs that link wildlife corridors and the area of VCAs adjoining the NPWS estate have been sourced from the NPWS Conservation Partners database and GIS information. A number of VCAs reported as adjoining the NPWS estate (four VCAs in LNE region and one in Eden region) also provide a link in a wildlife corridor. Data for VCAs that provide a link in wildlife corridors may contain some inaccuracies, as conservation agreements do not always include this information.

Table 2-1-B: Number and area of VCAs adjoining the NPWS and providing a link with wildlife corridor

Region	Total number of VCAs	Total area (ha) of VCAs	Number of VCAs adjoining NPWS estate	Area (ha) of VCAs adjoining NPWS estate	Number (ha) of VCAs linkage with wildlife corridor	Area (ha) of VCAs linkage with wildlife corridor	Number VCAs adjoining NPWS estate and link with wildlife corridor
UNE	18	740	3	117	0	0	0
LNE	28	2 264	4	522	3	256	4
Eden	60	1 514	18	445	12	569	2
Southern	25	3 644	5	279	3	821	2
Total	131	8 162	30	1 363	18	1 646	8

Source: NPWS

Discussion/research and development

The NPWS' new Conservation Partners database has improved data for this indicator by allowing access to more detailed information about VCAs. Since 2002/2003, the NPWS has been able to report the number of VCAs adjoining its estate and the number of VCAs that provide links in wildlife corridors. The database can also report values of the VCAs such as old growth, threatened species or remnant vegetation.

The NPWS has also been conducting research to improve the measurement of fragmentation of forest areas. In 2002/2003, a research project developed, then applied a fragmentation measure to the extant vegetation of UNE and LNE regions. Although there are no updates to this project, a case study on the key habitats and corridors project is provided on the next page.

There was no research on fragmentation in the Southern and Eden regions this year. However, the NPWS helped the Southern Rivers Catchment Management Authority (formerly the South East Catchment Management Board) analyse priority areas for conservation on private land. The analysis includes expert desktop assessments of the size, shape, connectivity and distribution of different native vegetation types, and assessments of remnant condition, type rarity and dependant threatened species. An expert assessment of threatening processes currently and potentially affecting the sites is also included. The resulting conservation significance assessment has been applied to the original Southern and Eden CRA/RFA forest ecosystem by growth stage maps and new mapping of wetland and heath, grassland and rocky outcrops. It is also being applied to new vegetation mapping covering the NPWS Far South Coast Region.

Although the NPWS does not monitor landscape fragmentation outside reserves, the viability of ecosystems within reserves is dependent on the ecosystem matrix extant throughout New South Wales. There are currently no formal measures by which connectivity of forested ecosystems can be measured. However, additions to the formal and informal reserve system provide recognised contributions to the improvement of the overall connectivity of forested ecosystems. The additions to the formal reserve system outlined for the previous indicator have improved perimeter boundaries of existing reserves or the acquisition of in-holdings. VCAs also make an important contribution to landscape connectivity.

Interpretation

↔ Connectivity – NPWS estate - UNE region

↑ Connectivity - NPWS estate – Eden, Southern, LNE regions

No interpretation available - State forests

An example - Conserving ecosystems by VCAs in the Southern region

Eight VCAs in the NPWS South Coast Region conserve a range of ecosystems in two biogeographical regions, Sydney Basin and South East Highlands. They are very diverse, as these brief sketches of these eight VCAs show:

- The first VCA in the NPWS South Coast Region. Conserves cool temperate rainforests (*Eucryphia moorei*) and tall, moist old growth eucalypt forest including *Eucalyptus fastigata*. Plan of Management in place.
- Conserves tablelands forest. Provides a corridor to Bangadilly National Park. Has a plan of management.
- Conserves old growth *Eucalyptus quadrangulata*, *Eucalyptus elata* and patches of cool temperate rainforest. Habitat for sooty owl (*Tyto tenebricosa*), powerful owl (*Ninox strenua*) and *Pterostylis pulchella*. Plan of management in place. Weed management being undertaken by owners.
- Plan of management in place. Weed management being undertaken by owners. Provides connectivity within Morton National Park and contains cool temperate rainforest.
- Plan of management operates. Protects moist subtropical rainforest.
- Conserves moist subtropical rainforest. Has a plan of management, Significant regeneration work with removal of lantana (*Lantana camara*), mistflower (*Argeratina riparia*) and other weeds.
- Endangered plants, *Daphnandra* sp C (Illawarra Socketwood), *Cynanchum elegans* (white flowered wax plant) and lowland subtropical rainforest at West Kiama. Plan of management working. Weeds are a major threat to this conservation area, but owners becoming actively involved in weed control.
- Has a plan of management. Conserves a significant population of *Pterostylis gibbosa* and the Illawarra Grassy Woodland Endangered Ecological Community.

Key habitats and corridors – a case study for north east New South Wales

To maximise the conservation management of the New South Wales parks system and to conserve biodiversity, it is necessary to facilitate species' capacities to live within and move throughout entire landscapes including reserves and the landscape habitat mosaics that surround and link them. The conservation of natural and cultural values cannot be achieved solely by the parks system.

To provide a framework for conservation planning at a landscape scale, the NPWS developed a project that assessed key habitats and corridors in the north east of the State. Key habitats are areas of predicted high conservation value for forest fauna, and include many large areas of vegetated lands and important vegetation remnants on- and off-park. A habitat corridor facilitates important ecological processes such as migration, colonisation and interbreeding of plants and animals between two or more larger areas of habitat.

New datasets have been developed to support conservation programs. The potential distributions of important forest fauna, modelled for all land tenures, are ideal for conservation planning.

New GIS analysis tools have been used to consolidate and integrate all the species distributions. **Map 2-A** demonstrates their usefulness: it shows an increasing number of important species, and predicts areas with high conservation values for fauna assemblages and identify local forest vertebrate or invertebrate species. Map 2-A also shows the important corridors for forest fauna likely to sustain the habitation and movement of populations. Maps like this can be overlaid with the predicted distributions of forest fauna assemblages to determine where the links between habitats may be insufficient.

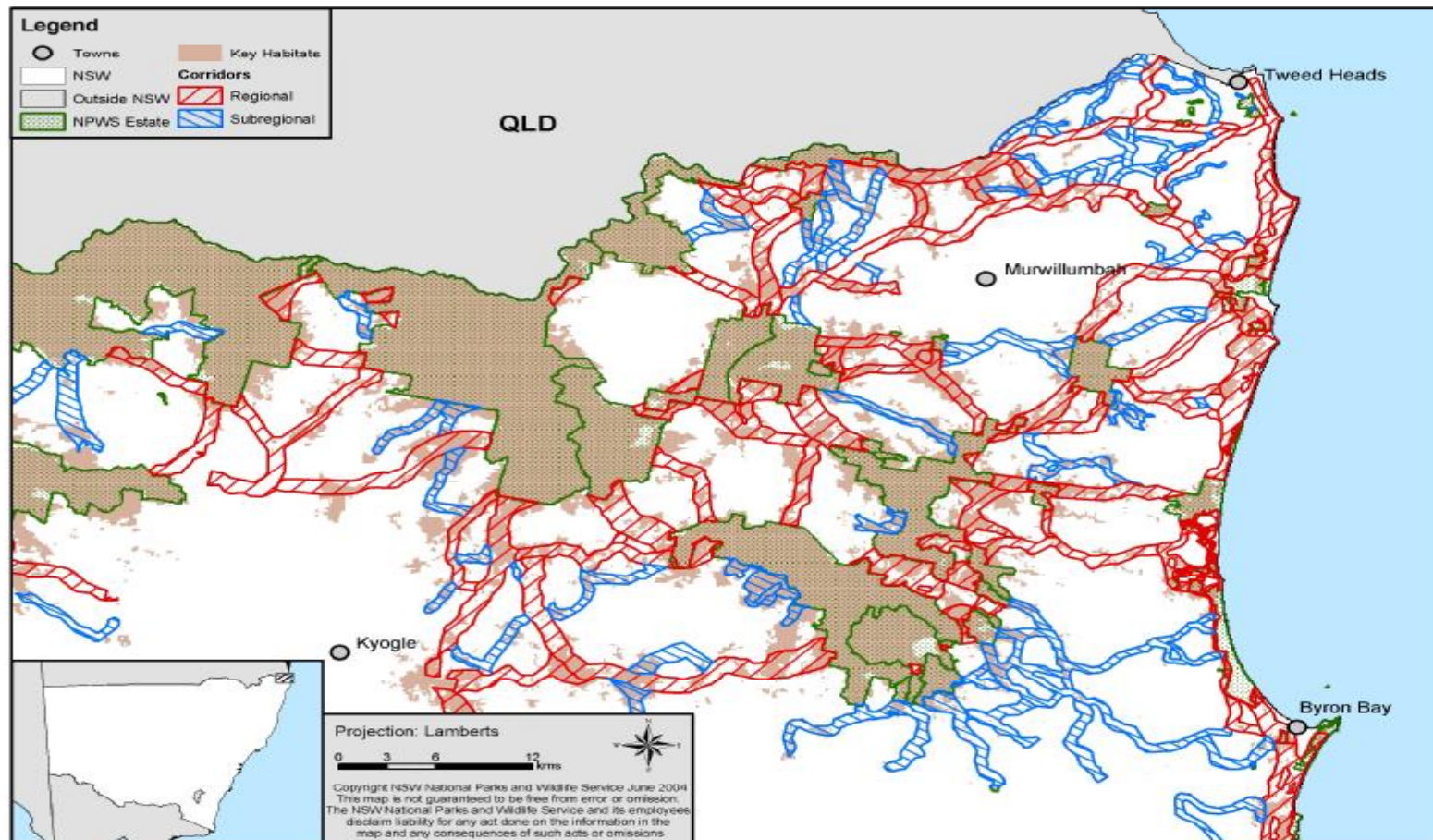
Corridors may be broken or fragmented by currently degraded or cleared areas yet still contribute to landscape connectivity. Discontinuous corridors often provide important stepping stone links and many are immediately identifiable as focus areas for habitat restoration programs.

These maps of key habitats and corridors provide the only current, consolidated regional depiction of high conservation value habitats for forest fauna, an explicit basis for conservation planning in the region and the only spatially complete regional landscape conservation framework for north east New South Wales.

The mapping has a number of different applications: in planning roads, tracks or visitor facilities away from key habitats and corridors, to direct fire planning by guiding burning, or non-burning, regimes within key habitats and corridors for certain assemblages, to plan pest control and to educate neighbours with key habitats and corridors on their lands. It can help target areas for habitat restoration through cooperative programs with Landcare groups or Catchment Management Authorities.

Regional and national conservation programs take many forms, from community projects to management plans for national parks, state forests, catchments and individual species. The key habitats and corridors method informs and integrates regional community and government conservation programs.

Map 2-A: key habitats and corridors



Forest dwelling species

MIG Indicator 1.2.a: A list of forest dwelling species (UNE, LNE, Southern regions)

Indicator 1.3.b: List of representative species by extent and abundance. Representative sample to include threatened species, key functional groups and indicator species (Eden region)

Data

It is presently not possible to comprehensively report against this indicator for the whole public forest estate, due to differences in data collection methods by the NPWS and SFNSW. However, each agency has consistently provided data for the indicator since 1999. The NPWS provides an updated species lists for its estate each year. SFNSW provided a list of threatened species identified during survey or field operations. Details of SFNSW threatened species findings are found within the next indicator.

Revisions of NPWS' forest dwelling species list are derived from the *Atlas of NSW Wildlife (Wildlife Atlas)* records applied to the NPWS estate. New records in the *Wildlife Atlas* were matched to a national list of known forest dwelling species (from the Australian Government Department of Agriculture, Fisheries and Forestry) to identify additional forest dwelling species. Additional species not on the national list were also assessed to determine their forest dwelling status. SFNSW routinely provides species lists and assorted data to NPWS for inclusion in the *Wildlife Atlas*.

Baseline data were set in 2001/2002 for the UNE, LNE and Eden regions and in 2002/2003 for the Southern region.

This year the following species occurred on the NPWS estate:

- n 590 vertebrate fauna, three invertebrate fauna and 2 319 vascular plant species in the UNE region;
- n 581 vertebrate fauna, one invertebrate fauna and 2 350 vascular plant species in the LNE region;
- n 362 vertebrate fauna, one invertebrate fauna and 1 394 vascular plant species in the Eden region;
- n 485 vertebrate fauna and 1 198 vascular plant species in the Southern region. No invertebrate fauna species were identified in the region.

Information on the Atlas of NSW Wildlife

There were 186 441 records added to the Atlas of NSW Wildlife this year, bringing the number of *Atlas* records of which the NPWS is custodian to 1 334 816. A further 3 704 457 records from external organisations are also now held in the *Atlas* database for internal use by NPWS staff. These organisations are: SFNSW, the Australian Museum, Birds Australia, Australian Bird and Bat Banding Scheme, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Botanic Gardens Trust (now part of DEC), the South Australian Parks and Wildlife Service, and the Queensland Department of Environment.

During 2003/2004, licences for the supply of detailed data were granted to consultants, government agencies, local government, students and conservation groups.

Atlas of NSW Wildlife <http://wildlifeatlas.nationalparks.nsw.gov.au>.

The numbers of vertebrate species recorded for each region increased slightly this year, following a decrease the previous year due to inaccurate analysis in 2001/2002.

As was the case in 2002/2003, the two groups of invertebrate fauna (Mollusca and Insecta) have been amalgamated as 'Invertebrate species' in **Table 2-1-B**, along with new records of these taxa. One new invertebrate species was recorded in the Eden region. Because few invertebrate species records are sent to the NPWS, the *Wildlife Atlas* has limited invertebrate records.

Only a small number of native fauna species were recorded and no additional records of introduced vertebrate species were made for any of the regions.

Substantial additions of native vascular plants and a number of introduced vascular plants, particularly in the LNE and Southern regions, were identified.

As 2002/2003 was the first year of reporting for the Southern region, the data in **Table 2-1-D** represents the first identified increase in species records for this region.

Table 2-1-C: Number of forest dwelling species recorded on the NPWS estate - UNE and LNE regions

Fauna (vertebrate and invertebrate) and vascular plants	Region			
	UNE		LNE	
	Total number at 30 June 2004	No. of new species recorded during 2003/2004	Total number at 30 June 2004	No. of new species recorded during 2003/2004
Native amphibian	50	0	48	1
Native aves	341	2	330	4
Native mammalia	82	0	77	1
Native reptilia	94	1	100	1
Introduced vertebrate species	23	0	26	0
Total number of vertebrate species	590	3	581	7
Total number of native vertebrate species	567	3	555	7
Total number of invertebrate species	3	0	1	0
Total number of native fauna species	570	3	556	7
Total number of native vascular plant species	2 163	45	2 153	93
Introduced vascular plant species	156	4	197	21
Total number of vascular plant species	2 319	49	2 350	114

Source: NPWS

Table 2-1-D: Number of forest dwelling species recorded on the NPWS estate – Eden and Southern regions

Fauna (vertebrate and invertebrate) and vascular plants	Region			
	Eden		Southern	
	Total number at 30 June 2004	No. of new species recorded during 2003/2004	Total number at 30 June 2004	No. of new species recorded during 2003/2004
Native amphibia	23	2	38	1
Native aves	235	0	299	0
Native mammalia	49	0	64	0
Native reptilia	35	2	61	0
Introduced vertebrate species	20	0	23	0
Total number of vertebrate species	362	4	485	1
Total number of native vertebrate species	342	4	465	1
Total number of invertebrate species	1	1	0	0
Total number of native fauna species	343	5	462	1
Total number of native vascular plant species	1 321	20	1 136	88
Introduced vascular plant species	73	0	62	12
Total number of vascular plant species	1 394	20	1 198	100

Source: NPWS

Discussion/research and development

SFNSW undertakes survey work prior to commencing harvesting and roading. A range of survey techniques are used to determine the presence of species.

The final NPWS regional lists are unlikely to contain all forest dwelling species as data in the *Wildlife Atlas* relies on ongoing public and government research contributions. The lists will become more comprehensive over time.

During 2003/2004 the NPWS conducted the following flora surveys in the UNE and LNE regions:

- n stratified plot-based flora surveys in Carrai National Park and State Conservation Area;
- n flora surveys within reserves in the North Grafton Area of NPWS North Coast Region;
- n plots and random flora sampling in part of Picapene National Park;
- n survey for threatened plant species along the Rabbit Board fence in Border Ranges National Park.

In the NPWS South West Slopes Region (Southern region) surveys included the number and diversity of species in Black Andrew Nature Reserve (1 559 ha) that was burnt out during the fires of January 2003.

Vegetation surveys commissioned in the NPWS South Coast Region sampled areas not previously surveyed. A number of rare ecosystems and plant species were found including *Galium australe* a species listed as extinct in nature. The rare *Pultenaea villifera* var. *villifera* was also identified. Several vegetation communities of regional significance were identified including relatively large areas of

Eucalyptus robusta, which may correspond to the Sydney Coastal Estuary Swamp Forest Complex Endangered Ecological Community in the Sydney Basin bioregion.

DEC undertook no forest flora and fauna survey activities in the Eden region during 2003/2004.

The recorded increases in forest dwelling species in all regions are more likely to reflect research and survey effort than increases in species richness. There are several weaknesses in the reporting methodology. Significant increases in the number of forest dwelling species within a region for a given year are often due to the contribution of large data sets, such as those resulting from research and surveys undertaken by other NSW government agencies. These data sets can have records dating back over many years, so reported increases might include species recorded prior to the reporting period. Very few invertebrate species records are sent to the NPWS therefore the *Wildlife Atlas* has limited invertebrate records.

A further reporting weakness arises from taxonomic changes being counted as additional species.

Past inconsistencies in reporting on this indicator due to the size and complexity of the data sets used have been corrected this year.

Interpretation

↑ NPWS estate

No interpretation available - State forests

Threatened species, populations and ecological communities

MIG Indicator 1.2.b: The status (threatened, rare, vulnerable, endangered or extinct) of forest dwelling species at risk of not maintaining viable breeding populations, as determined by legislation or scientific assessment (UNE, LNE, Eden, Southern regions)

Sub-indicator 1.2.b.1: The status of endangered populations and ecosystems as determined by legislation or scientific assessment (UNE, LNE, Southern regions)

Data

The *Threatened Species Conservation Act 1995* protects flora and fauna in New South Wales. Flora and fauna species, populations and ecological communities may be listed for protection under Schedules 1 and 2 of the Act.

The status of forest dwelling species is most readily monitored via Schedule 1 (endangered species, populations and ecological communities) and Schedule 2 (vulnerable species) of the *Threatened Species Conservation Act*. Any person may nominate a species, population or ecological community for listing. Determinations for listing are made by the NSW Scientific Committee⁸.

Schedules of the *Threatened Species Conservation Act* apply across all land tenures are maintained by the NSW Scientific Committee.

⁸ NSW Scientific Committee – an independent committee of scientists appointed by the Minister for the Environment.

Listing of flora and fauna species

Although there were no new fauna species listed as threatened in the *Threatened Species Conservation Act* for any of the regions during 2003/2004, several flora species were listed this year as endangered or vulnerable in the UNE and Southern regions.

In summary, at 30 June 2004 the *Wildlife Atlas* recorded 249 threatened species in the UNE region:

- n** Fifteen vertebrate fauna species and three invertebrate fauna species were listed as endangered under Schedule 1 of the *Threatened Species Conservation Act*;
- n** Ninety-two vertebrate fauna species were listed as vulnerable under Schedule 2 of the *Threatened Species Conservation Act*;
- n** Eighty vascular plants were listed as endangered under Schedule 1 of the *Threatened Species Conservation Act*. Two species were newly listed during 2003/2004, *Mitrasacme pygmaea*, *Solanum limitare*;
- n** Fifty-seven vascular plants were listed as vulnerable under Schedule 2 of the *Threatened Species Conservation Act*.

The *Wildlife Atlas* recorded 204 threatened species in the LNE region:

- n** Thirteen vertebrate fauna species and one invertebrate fauna species were listed as endangered under Schedule 1 of the *Threatened Species Conservation Act*;
- n** Seventy-eight vertebrate fauna species were listed as vulnerable under Schedule 2 of the *Threatened Species Conservation Act*;
- n** Forty-two vascular plants were listed as endangered under Schedule 1 of the *Threatened Species Conservation Act*;
- n** Seventy vascular plants were listed as vulnerable under Schedule 2 of the *Threatened Species Conservation Act*.

The *Wildlife Atlas* recorded 90 threatened species in the Eden region:

- n** Twelve vertebrate and one invertebrate fauna species were listed as endangered under Schedule 1 of the *Threatened Species Conservation Act*;
- n** Thirty-nine vertebrate fauna species were listed as vulnerable under Schedule 2 of the *Threatened Species Conservation Act*;
- n** Twenty-two vascular plants were listed as endangered under Schedule 1 of the *Threatened Species Conservation Act*;
- n** Sixteen vascular plants were listed as vulnerable under Schedule 2 of the *Threatened Species Conservation Act*.

The *Wildlife Atlas* recorded 130 threatened species in the Southern region:

- n** Twenty vertebrate fauna species were listed as endangered under Schedule 1 of the *Threatened Species Conservation Act*;
- n** Fifty-seven vertebrate fauna species were listed as vulnerable under Schedule 2 of the *Threatened Species Conservation Act*;
- n** Twenty-four vascular plants were listed as endangered under Schedule 1 of the *Threatened Species Conservation Act*. One species was newly listed during 2003/2004, *Solanum celatum*;

- n Twenty-seven vascular plants were listed as vulnerable under Schedule 2 of the *Threatened Species Conservation Act*. One species was newly listed during 2003/2004.

Tables 2-1-E and 2-1-F provide a summary of the status of forest dwelling species for all regions.

Table 2-1-E: Status of forest dwelling species on the NPWS estate - UNE and LNE regions

Threatened Species Conservation Act listing	Region							
	UNE				LNE			
	Schedule 1 Endangered		Schedule 2 Vulnerable		Schedule 1 Endangered		Schedule 2 Vulnerable	
	Listed before 03/04	Listed during 03/04	Listed before 03/04	Listed during 03/04	Listed before 03/04	Listed during 03/04	Listed before 03/04	Listed during 03/04
vertebrate fauna	15	0	92	0	13	0	78	0
invertebrate fauna	3	0	0	0	1	0	0	0
vascular plants	80	2	57	0	42	0	70	0
total	98	2	149	0	56	0	148	0

Source: NPWS

Table 2-1-F: Status of forest dwelling species on the NPWS estate – Eden and Southern regions

Threatened Species Conservation Act listing	Region							
	Eden				Southern			
	Schedule 1 Endangered		Schedule 2 Vulnerable		Schedule 1 Endangered		Schedule 2 Vulnerable	
	Listed before 03/04	Listed during 03/04	Listed before 03/04	Listed during 03/04	Listed before 03/04	Listed during 03/04	Listed before 03/04	Listed during 03/04
vertebrate fauna	12	0	39	0	20	0	57	0
invertebrate fauna	1	0	0	0	0	0	0	0
vascular plants	22	0	16	0	24	1	27	1
total	35	0	55	0	44	1	84	1

Source: NPWS

Listing of endangered populations and ecological communities

Data for endangered populations and ecological communities were sourced from Schedule 3 of the *Threatened Species Conservation Act* and the NPWS Recovery Database. These data sets are statewide and therefore include data for the entire LNE region (parts of both NPWS Northern and Central Branch management areas).

At 30 June 2004, there were nine endangered populations listed under the *Threatened Species Conservation Act* relevant to one or more regions. Four were relevant to the UNE region and six to the LNE region.

Only one of the nine endangered populations (relevant to the LNE region) was newly listed during 2003/2004: *Eucalyptus parramattensis* C. Hall subsp. *parramattensis* population in Wyong and Lake Macquarie local government areas.

No endangered populations were relevant to the Eden or Southern regions.

There were 39 ecological communities listed under the *Threatened Species Conservation Act* relevant to one or more regions at 30 June 2004. Seven were relevant to the UNE region, 22 to the LNE region, five to the Eden region and 16 to the Southern region. Of these, two were newly listed during the year:

- n Littoral rainforest in the New South Wales North Coast, Sydney Basin and South East Corner bioregions (UNE, LNE, Eden and Southern regions);
- n New England Peppermint Woodland on Basalts and Sediments in the New England Tableland Bioregion (UNE and LNE regions).

It should be noted that in some cases a community's distribution, as described in the Scientific Committee's final determination, may include an entire bioregion or local government area. In these cases, the forest agreement regions named may include the extremities of a community's bioregional distribution, although it may not be certain that they contain specimens of the community.

Key threatening processes

In New South Wales there were 22 key threatening processes listed under the *Threatened Species Conservation Act* at 30 June 2004. Of these, 19 are relevant to forest dwelling species of these four were new listings were made in 2003/2004, relevant to all regions:

- n infection of frogs by amphibian chytrid causing the disease chytridiomycosis;
- n introduction of the large earth bumblebee, *Bombus terrestris*;
- n invasion of native plant communities by exotic perennial grasses;
- n removal of dead wood and dead trees.

Threatened species surveys on State forests

SFNSW undertake flora and fauna surveys during the planning phase of forestry operations according to their current licensing conditions under the *Threatened Species Conservation Act*⁹. The surveys record the presence of native species or their preferred habitat on State forests. A list of sightings and recordings are routinely prepared for pre-harvest planning or pre-hazard reduction burning and assists SFNSW measure the impact of its activities on threatened species. The number of threatened species determines the harvesting prescriptions, which in turn affects the area available for harvesting.

The number of threatened species sighted depends on how often surveys are conducted in areas of forest scheduled for harvesting. Different forest types contain different species and habitat. The locality and seasonality of surveys and prevailing climatic conditions also have a bearing on the species, and the numbers that are sighted. While some annual variation is acceptable, any significant decline in the number of individuals sighted over time could act as an early warning and trigger a more thorough investigation.

SFNSW pre-harvest surveys were undertaken across 51 876 hectares of State forest during 2003/2004. The surveys resulted in 2 166 individual sightings of 37 of the targeted 60 threatened fauna species across the four regions. Specifically:

⁹ Threatened Species Licence contained in the IFOA for each region.

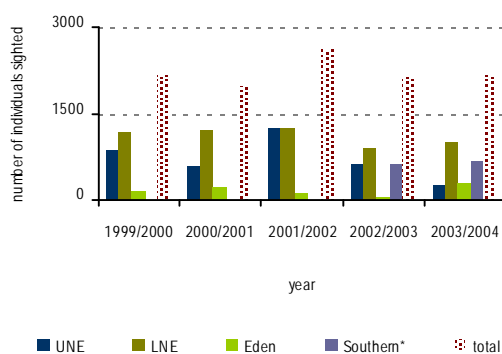
- n 243 individuals were sighted in the UNE region;
- n 1 008 individuals were sighted in the LNE region;
- n 271 individuals were sighted in the Eden region;
- n 644 individuals were sighted in the Southern region.

Species sighted for the first time since 1999/2000 included the long-nosed potoroo (*Potorous longipes*) in the Eden region, where 27 individuals were sighted.

A further 54 520 sightings of the grey-headed flying fox were also recorded from three flying fox camps in the LNE region. This is an increase of 14 499 individuals from that recorded in 2002/2003.

Surveys were also undertaken for two flora species in the LNE region; *Melaleuca groveana* (21 sightings) and broad-leaved pepperbush *Tasmannia purpurascens* (186 sightings).

The total number of species sighted as part of SFNSW pre-harvest surveys decreased again in 2003/2004 (**Figure 2-1-F**). However, this may not mean a decline in species abundance (refer above).



* monitoring for the Southern region commenced 2002/2003

Source: SFNSW data

Figure 2-1-F: Number of threatened species sighted during SFNSW pre-harvest surveys

Discussion/research and development

In the Southern region 88 threatened plant species are protected. Of these only 48 are recorded in the *Wildlife Atlas*, emphasising the need for improved systems of reporting to the *Wildlife Atlas*. To date, 20 species have been monitored or surveyed. There were no data available on population trends for threatened flora.

The Southern region is home to 121 threatened fauna species. Of these, 31 species are, or have been, the subject of monitoring programs.

In Kosciuszko National Park there are declining trends for the Northern and Southern corroboree frogs (*Pseudophryne pengilleyi* and *Pseudophryne corroboree*), the broad toothed rat (*Mastacomys fuscus*) and the spotted tree frog. This decline is partially attributable to the significant and widespread fires of 2002/2003.

This indicator should be interpreted with care. Increases in the number of species listed on the schedules under the *Threatened Species Conservation Act* are a result of a number of issues, including:

- n increasing knowledge about species, populations and communities;
- n taxonomic revision resulting in the splitting of previously identified species into a number of new species (sometimes with particular habitat requirements and/or limited ranges);
- n improvements to the Scientific Committee process allowing for efficiencies in processing proposals for listing;
- n changes to the *Threatened Species Conservation Act* regarding what can be listed;
- n increasing knowledge among the community regarding the listing process.

The increases may not reflect the true rate at which species are becoming threatened. While species, populations and communities are undoubtedly still at risk in New South Wales, the values presented in this indicator are likely to reflect the management response to the issue more than the true status of all forest dwelling species. This measure does not distinguish those species for which threatened status is worsening or improving under current management practices.

Interpretation

↔ Insufficient data all tenures

Species management measures

Indicator 1.3: Management measures in place to maintain species extent and abundance (interim for the first five years of Agreement (Eden region))

- *This is an Eden region indicator. For consistency of reporting all information related to the development and implementation of management measures have been reported here for all regions.*

Data

Two key management measures to improve species extent and abundance are recovery planning and threat abatement planning. These plans are completed by the NPWS. SFNSW contribute to recovery and threat abatement planning by providing professional input when required. These key management measures are reported on here.

Recovery planning

Flora and fauna species

Recovery plans are the main planning documents prescribing management actions which maintain and secure threatened species, endangered populations and endangered ecological communities. Plans are completed by the NPWS for flora and fauna species listed under Schedules 1 and 2 of the *Threatened Species Conservation Act*. Each plan includes measures of its own effectiveness, which becomes a tool for evaluating the recovery planning process over time.

Data for this indicator were sourced from the *Wildlife Atlas* and its Recovery Database, which records the status of recovery planning and threat abatement planning for threatened species and key threatening processes.

Vascular plants and vertebrate fauna are reported for all regions, as are the limited records for invertebrates.

At 30 June 2004, there were 44 vertebrate and one invertebrate fauna species in the UNE region with operational recovery plans. There were also 32 vascular plants with recovery plans ranging in status from the initial planning stage through to nationally adopted¹⁰.

Of the 77 flora and fauna species with recovery plans at various stages of completion in the UNE region, eight species (four fauna species and four flora species) had approved plans in New South Wales, including those for fauna species red goshawk (*Erythrotriorchis radiatus*), double-eyed fig parrot or Coxen's fig parrot (*Cyclopsitta diophthalma coxeni*) and yellow-bellied glider (*Petaurus australis*), and flora species Minyon Quandong (*Elaeocarpus* sp.) 'Rocky Creek' and *Eleocharis tetraquetra*.

At the end of the reporting period, recovery planning had not begun for 2 834 species recorded in the UNE region (547 fauna species and 2 287 flora species).

In the LNE region there were 35 vertebrate species with operational recovery plans. There were a further 13 vascular plants with recovery plans ranging in status from the initial planning stage through to nationally adopted. Of the 48 flora and fauna species with recovery plans at various stages of completion in the LNE region, three species (two fauna species and one flora species) had approved plans in New South Wales, including those for fauna species yellow-bellied glider and Murray short-necked turtle (*Emdurya macquarii*).

Recovery planning had not begun for 2 884 species recorded in the LNE region (547 fauna species and 2 337 flora species).

In the Eden region there were 26 vertebrate species with operational recovery plans. There were also 18 vascular plants with recovery plans ranging in status from the initial planning stage through to approval. Of the 44 flora and fauna species (two fauna and five flora species) with recovery plans at various stages in the Eden region, seven species had approved plans, including those for fauna species long-footed potoroo and yellow-bellied glider; and flora species, *Gentiana baeuerlenii* and *Viola cleistogamoides*.

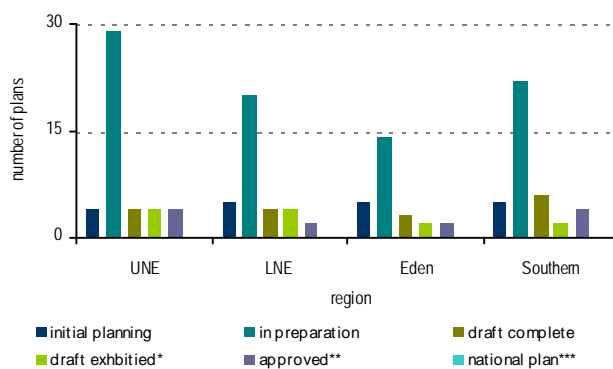
At the end of the reporting period, recovery planning had not begun for 1 713 species recorded in the Eden region (446 fauna species and 1 173 flora species).

In the Southern region there were 39 vertebrate species with operational recovery plans. There were 25 vascular plants with recovery plans ranging in status from the initial planning stage through to nationally adopted. Of the 64 flora and fauna species with recovery plans, eight species had approved plans, including those for fauna species, spotted frog (*Litoria spenceri*), mountain pygmy possum (*Burramys parvus*) and southern corroboree frog (*Pseudophryne corroboree*); and flora species, *Genoplesium vernale* (approved in 2003/2004) and *Pterostylis gibbosa*.

¹⁰ Plan prepared under the regulations of the Commonwealth *Endangered Species Protection Act 1992*, but yet to be upgraded to the requirements under the *Threatened Species Conservation Act*.

Recovery planning had not begun for 1 619 species recorded in the Southern region (337 fauna species and 1 376 flora species).

The majority of threatened species recorded in each region now have recovery plans at the initial planning stage. The status of recovery plans for each region for which some planning had commenced at 30 June 2004 is illustrated in **Figures 2-1-G** and **2-1-H**.



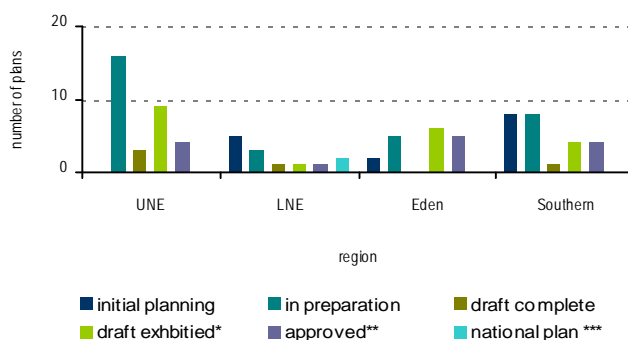
* draft recovery plan publicly exhibited as required under the *Threatened Species Conservation Act*

** final recovery plan approved by the Minister for the Environment

*** plan prepared under the regulations of the Commonwealth *Endangered Species Protection Act 1992*, but yet to be upgraded to the requirements under the *Threatened Species Conservation Act*

Source: NPWS data

Figure 2-1-G: Status of recovery planning for fauna species at 30 June 2004



* draft recovery plan publicly exhibited as required under the *Threatened Species Conservation Act*

** final recovery plan approved by the Minister for the Environment

*** plan prepared under the regulations of the Commonwealth *Endangered Species Protection Act 1992*, but yet to be upgraded to the requirements under the *Threatened Species Conservation Act*

Source: NPWS data

Figure 2-1-H: Status of recovery planning for flora species at 30 June 2004

Endangered populations and ecological communities

There has been progress in the recovery planning status for endangered populations and endangered ecological communities. This may be attributed to the addition of endangered ecological communities

within the regions, or – in the case of the White Box Yellow Box Blakely's Red Gum Woodland endangered ecological community, listed nationally as Grassy White Box Woodland – a change of name.

One recovery plan for the endangered population, Koala, *Phascolarctos cinereus* (Hawks Nest and Tea Gardens population), has been approved. The remaining plans for endangered populations and ecological communities range from initial planning to preparatory stages.

A summary of the recovery planning status of forest dwelling endangered populations and ecological communities in all regions is illustrated in **Table 2-1-G**.

Table 2-1-G: Status of recovery planning for endangered populations and ecological communities at 30 June 2004

Plan status	Endangered populations	Ecological communities
initial planning	6	36
in preparation	1	1
draft complete	1	1
draft exhibited*	0	0
approved**	1	0
national plan***	0	0

* draft recovery plan publicly exhibited as required under the *Threatened Species Conservation Act*

** final recovery plan approved by the Minister for the Environment

*** plan prepared under the regulations of the Commonwealth *Endangered Species Protection Act 1992*, but yet to be upgraded to the requirements under the *Threatened Species Conservation Act*

Source: NPWS data

The number of recovery plans ranging in status from the initial planning stage through to approval and subject to a national plan, increased for the UNE and Eden regions but decreased for the LNE and Southern regions. These decreases are due to the discontinuation of plans and to errors in previous data. In addition, a number of species (e.g. black-breasted button-quail, *Turnix melanogaster* and austral toadflax, *Thesium australe*) that were subject to a national recovery plan in previous years are now the subject of updated plans. This has contributed to changes in the data.

Threat abatement planning status

Of the 19 key threatening processes relevant to one or more of the forest agreement regions, predation by the European Red Fox, *Vulpes vulpes* (Linnaeus, 1758) and predation by Plague Minnow or Mosquito Fish, *Gambusia holbrooki* (Girard, 1859) have approved threat abatement plans. Key threatening processes, predation by the Feral Cat, *Felis catus* (Linnaeus, 1758) and Invasion of native plant communities by Bitou Bush, *Chrysanthemoides monilifera* had draft plans completed and were awaiting public exhibition.

Discussion/research and development

Changes in this indicator are likely to reflect the NSW Scientific Committee process of nomination and listing of endangered populations and communities rather than the rate at which populations and

communities become endangered. Additionally, not all forest dwelling species on Schedules 1 or 2 of the *Threatened Species Conservation Act* may be recorded as present and not all recovery plans may be listed. This is due to the difficulties in matching recovery plan data to each of the regions, especially in the case of multi-species plans. While staff entering data into the NPWS Recovery Database are asked to specify the region this may not be entered if the staff member is unsure. This stops the plan being identified in regional data.

A further anomaly in data may occur if the extremities of a bioregion fall within a region. The community is included on the list when it may in fact fall outside regional boundaries. In addition, some species may not be considered to be true forest dwellers.

As the list of endangered ecological communities was revised this year, the recovery planning status of newly added endangered ecological communities has also been revised for previous years.

In addition to recovery planning, the NPWS continue to undertake a range of work and surveys to improve knowledge of and maintain species extent and abundance. Examples include the continuation of the Fox Threat Abatement programs in the UNE and LNE regions and population monitoring of the broad-toothed rat (*Mastacomys fuscus*), brush tailed rock wallaby (*Petrogale penicillata*), Albert's lyrebird (*Menura alberti*), rufous bettong (*Aepyprymnus rufescens*), pied oystercatcher (*Haematopus longirostris*) and little tern (*Sterna albifrons*).

In the Southern region, the NPWS conducted surveys in its South West Slopes Region which identified a range of threatened flora and fauna species and vegetation communities.

In the Eden region there are several long term threatened species recovery programs. All programs are covered in the NPWS Fox Threat Abatement Program and are cooperative programs with adjoining landholders, including SFNSW. Threatened species monitored included the southern brown bandicoot (*Isodon obesulus*), smokey mouse (*Pseudomys fumeus*) little tern and hooded plover (*Thinornis rubricollis*).

Interpretation



Number of forest dwelling species at risk (UNE/LNE/Southern) – NPWS estate



Management measures in place to maintain species extent and abundance (Eden) – NPWS estate.

No interpretation available - State forests

Impact of drought and fire – Southern region

With regard to the status of forest dwelling species at risk of not maintaining viable breeding populations, the drought affecting much of Australia has also impacted on the reserves of the Southern region. The drought has dried out vegetation and forest floor litter to such an extent that during the summer months, risk of bushfire was far greater than usual. The drought has also led to stress and dieback in established and mature trees in many reserves including Mudjarn Nature Reserve, Minjary National Park, Nest Hill Nature Reserve, Livingstone National Park, Flagstaff Memorial Nature Reserve and Ellerslie Nature Reserve. The potential impact of long term drought on the threatened species and endangered ecological communities of the Southern region has not yet been determined.

Several projects have examined the impact of the intense and widespread fires during 2003/2004 in the Southern region.

Criterion 2 – Productive capacity of forest ecosystems

Key outcomes

SFNSW native forest covered about 1.3 million hectares across the UNE, LNE, Eden and Southern regions; of this 61% (793 868 ha) was available for harvest and 39% (501 636 ha) protected for conservation purposes.

Land transfers to the NPWS estate were primarily responsible for an 11% decrease of SFNSW native forest estate in the UNE and LNE regions. SFNSW native forest extent remained stable in the Eden and Southern regions.

Quota sawlogs harvested by SFNSW in 2003/2004 did not exceed volumes permitted under the terms of the agreements and approvals.

64 apiary licences were issued for 324 sites on the NPWS estate in the Southern region, and four licences for 21 sites in the Eden region.

The total area of State forest leased for grazing across the four regions has fallen by about 27% since 1999/2000 to 278 350 hectares.

SFNSW hardwood plantation and softwood plantation in the UNE, LNE and Southern regions has increased by 34% and 10% respectively.

Land available for timber production

MIG Indicator 2.1.a: Area of forest land and net area of forest land available for timber production (UNE, LNE, Eden, Southern regions)

- Information provided for this indicator applies to State forests only. Figures reported do not include private native forestry activities.

Data

Native forest

Before 2003/2004 the area of harvestable State forest remained relatively stable; the minor changes were the result of various land purchases, revocations and re-assessment. However, following the finalisation of numerous land transfers, particularly in the north east regions, with the ascension of the *National Park Estate (Reservations) Act 2002* and *National Park Estate (Reservations) Act 2003*, larger changes have occurred.

At 30 June 2004, SFNSW native forest covered about 1.3 million hectares across the UNE, LNE, Eden and Southern regions. About 61% (793 868 ha) was available for harvest and 39% (501 636 ha) protected for conservation purposes¹¹. Recent changes in harvestable area have largely occurred in the north east regions, with the Eden and Southern regions remaining relatively stable. Earlier land transfers made in 2002 did not greatly alter the area of harvestable land on State forests, as much of the land transferred to the NPWS estate was already protected within the FMZ system. However, transfers made in 2003 were production area, therefore altering the proportion of State forest available

¹¹ Lands for harvest and conservation classified by the FMZ system described in *Managing Our Forests Sustainably: Forest Management Zoning in NSW State Forests* (SFNSW, 1999).

for harvesting. As a result of these land transfers, the total area of SFNSW native forest in the UNE and LNE regions has decreased by 11% (102 061 ha). Specifically, at 30 June 2004:

- n total SFNSW native forest in the UNE region was 391 009 hectares. Fifty-two percent (203 637 ha) was available for harvest and 48% (187 372 ha) reserved for conservation;
- n total SFNSW native forest in the LNE region was 459 789 hectares. Sixty percent (276 633 ha) was available for harvest and 40% (183 156 ha) reserved for conservation;
- n total SFNSW native forest in the Eden region was 168 757 hectares. Seventy-four percent (124 784 ha) was available for harvest and 26% (43 973 ha) reserved for conservation;
- n total SFNSW native forest in the Southern region was 276 100 hectares. Sixty-eight percent (188 965 ha) was available for harvest and 32% (87 135 ha) reserved for conservation.

Plantation

SFNSW hardwood plantation (64 630 ha) occurs largely in the UNE, LNE and Southern regions. The total area of SFNSW hardwood plantation has increased by about 34% between 1999/2000 and 2003/2004. This is attributable to increases in plantation area in the north east regions, as only a minor area of hardwood plantation occurs in the Southern region (9 ha).

SFNSW softwood plantation covers about 312 875 hectares across the UNE, LNE, Eden and Southern regions. The area of SFNSW softwood plantation in the UNE, LNE and Eden regions has increased by about 10% since 1999/2000. With the inclusion of the Southern region in 2002/2003, the total area rose by 75%. Each region has experienced an average 9% increase in total softwood plantation area since 1999/2000 (2002/2003 for the Southern region).

Discussion/research and development

The area of State forest identified as available for harvest does not represent the actual area of native forest harvested within any given year. Harvestable areas are subject to the conditions of the IFOAs¹² which protect various forest values, such as riparian zones, water quality and threatened species habitat. Lands excluded from the harvest area may include those classified as historic/Aboriginal sites, wildlife corridor, rocky outcrop, rainforest and rare non-commercial forest types and high conservation value old growth forest. Accessibility issues (e.g. difficult terrain) may also further reduce the actual area harvested.

Interpretation

↓ State forest
N/A NPWS estate

¹² Made under Part 4 of the *Forestry and National Park Estate Act 1998*, which provides the operational framework for forestry operations in State forests and Crown timber land.

Total growing stock

Indicator 2.1.b: Total growing stock of both merchantable and non-merchantable tree species on native forest land available for timber production (UNE, LNE, Southern regions)

Data

No data provided available.

Discussion/research and development

The picture of current and predicted growth stock on land subject to timber production will be improved through SFNSW' program of FRAMES development. In 2003/2004, SFNSW concentrated their FRAMES improvements in the UNE and LNE regions.

SFNSW expects to address a broad series of improvements to its FRAMES modelling, including inventory data, silvicultural and harvesting assumptions, growth modelling, biometrics, and the architecture of the model itself.

Interpretation

Inadequate data available.

Timber products compared to sustainable volume

Indicator 2.1.d: Annual removal of wood products compared to sustainable volume (UNE, LNE, Southern regions)

Indicator 2.1.b: Annual removal of timber and non-timber products from forest ecosystems compared with those estimated to be ecologically sustainable by tenure (Eden region)

Indicator 2.1.d: Annual removal of timber products and non-timber products from forest ecosystems by volume (Eden region)

Indicator 6.1.a: Value and volume of wood and wood production (Southern region)

- *Harvested timber volumes reported for these indicators are those harvested by SFNSW only. Volumes do not include those obtained through private property timber harvesting activities.*

Data

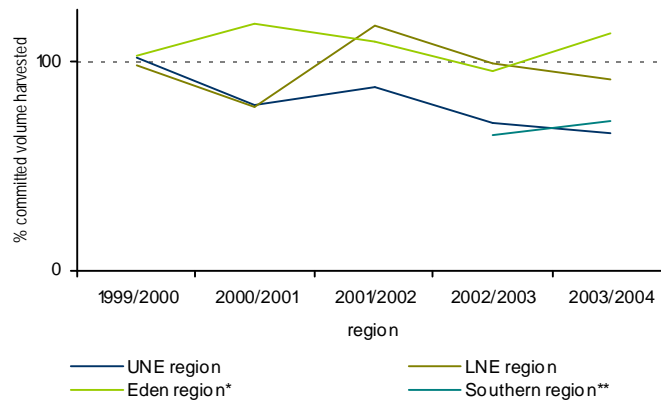
Committed/sustainable volumes harvested

Quota sawlogs

Timber volumes that SFNSW is permitted to harvest are designated in the NSW forest agreements, regional forest agreements and IFOAs. The IFOAs allow an annual variation to accommodate changes in environmental and economic circumstances. Volumes harvested in any one year may vary from the committed volume¹³ by 25%, but not exceed 5% over a five year period.

¹³ Committed volume – the volume of timber that may be harvested each year under the terms of the NSW forest agreements and IFOAs.

Committed volumes designated in the agreements and approvals are made up of Veneer sawlogs and High Quality Large sawlogs¹⁴, otherwise known as 'quota sawlogs'. Quota sawlogs harvested by SFNSW in 2003/2004 did not exceed volumes permitted under the terms of the agreements and approvals. As shown in **Figure 2-2-A**, quota sawlog volumes have not exceeded the permissible harvest range for any region since the agreements and approvals came into effect in 1999 (2002 for the Southern region).



* all quota sawlogs harvested from native forest

** timber harvesting under the terms of a NSW forest agreements and IFOA commenced in 2002.

Source: SFNSW data

Figure 2-2-A: Committed sawlog volumes harvested – All regions

The volume of quota sawlogs harvested from SFNSW native forest and hardwood plantation in the UNE region has remained below 100% of the committed volume since 2000/2001. A total of 76 751m³ of quota sawlogs were harvested in the region during the year, representing 66% of the committed volume. Volumes calculated using a sustainable volume of 115 800m³ per annum as extrapolated from the IFOA [109 000 per annum + 19 770 per first five years (pro rata is 3 954)].

For the LNE region, harvest volumes fluctuated between 1999/2000 and 2002/2003. However, over the past two years, volumes have remained just below 100% of the committed volume. Quota sawlogs harvested during 2003/2004 were 169 762m³, representing 92% of the committed volume. Volumes calculated using a sustainable volume of 170 592m³ per annum as extrapolated from the IFOA [160 000 per annum + 23 407 per first five years (pro rata is 4 681)].

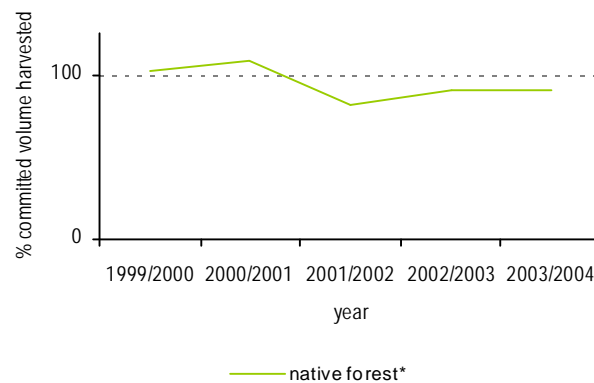
Quota sawlogs harvested from the Eden region are wholly obtained from SFNSW native forests, as little or no hardwood plantation is located in the region. Quota sawlog volumes harvested from the Eden region have remained above 100% of the committed volume since 1999/2000, with exception of 2002/2003 when harvest volumes fell to 95%. This year volumes again rose to above 100% of the committed volume, to 26 131m³, representing 114% of the committed volume. Volumes calculated using a sustainable volume of 23 000m³ per annum.

Timber harvesting in the Southern region has been undertaken under the terms of the NSW forest agreements and IFOAs since 2002/2003. Committed harvest volumes taken from the region increased

¹⁴ High Quality large sawlogs – having a centre diameter under bark of at least 40 centimetres.

this year to 70 021m³ of High Quality large sawlogs from SFNSW native forest only. This is 72% of the committed harvest volume, calculated using a sustainable volume of 96 500m³ per annum, extrapolated from the IFOA [48 500 (South Coast) and 48 000 (Tumut)].

In the Eden region, pulp grade sawlogs also form part of quota log volumes. The IFOA requires that quota pulp grade sawlogs are calculated using a sustainable volume of 345 000 tonnes per annum. Quota pulp grade sawlogs are hardwood only, obtained from either native forest or plantation. There is no hardwood plantation located in the Eden region, therefore all quota pulp grade sawlogs are taken from native forest. The volume of pulp grade sawlogs harvested this year fell marginally since 2002/2003 to 309 088 tonnes or 90% of the committed volume (**Figure 2-2-B**).

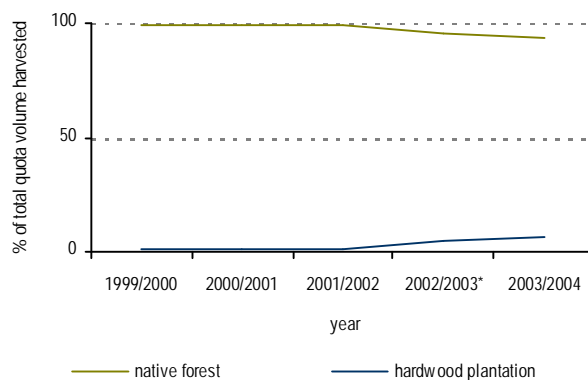


* quota pulp grade sawlogs harvested from native forest only

Source: SFNSW data

Figure 2-2-B: Committed volumes harvested – pulp grade sawlogs – Eden region only

Of the total volume of quota sawlogs harvested in 2003/2004, 94% were obtained from SFNSW native forest and the remaining 6% from hardwood plantation. The proportion of quota sawlogs obtained from SFNSW hardwood plantation has increased by about 80% since 1999/2000 (**Figure 2-2-C**).



* includes volumes for the Southern region

Source: SFNSW data

Figure 2-2-C: Source of quota sawlogs - All regions

Non-quota sawlogs, pulp grade and chipwood timbers harvested

Details of the volume of non-quota sawlogs, pulp grade and chip wood timber harvested in 2003/2004 are contained in Chapter 1.

Softwood

Softwood plantations are an important timber source for SFNSW. During 2003/2004, 1 307 769m³ were harvested (including Veneer and High Quality Large sawlogs). By region:

- n 176 039m³ of non-quota softwood sawlogs were harvested from SFNSW plantation in the UNE and LNE regions;
- n 196 755m³ of non-quota softwood sawlogs were harvested from SFNSW plantation in the Eden region;
- n 934 975m³ of non-quota softwood sawlogs were harvested from SFNSW plantation in the Southern region.

Discussion/research and development

No discussion available.

Interpretation

- N/A NPWS estate
- ↔ State forest - UNE, LNE, Eden regions
- ↑ State forest – Southern region

Standing volume of species logged

Indicator 2.3: Standing volume of log stocks by species groups and diameter at breast height class for multi-aged and regrowth native forest and available for timber production by land tenure (Eden region)

Data

No data available.

Discussion/research and development

No discussion available.

Interpretation

Inadequate data available.

Species and royalty of logs harvested

Indicator 6.1: Average volume and royalty of logs harvested per annum by species and grade by tenure (Eden region)

- *This indicator was defined within the set of indicators for the Eden regions under Criterion 6 – Socio-economic benefits. For continuity of reporting it has been included under Criterion 2 – Productive capacity of forests*

Data

No data available.

Discussion/research and development

No discussion available.

Interpretation

Inadequate data available.

Volume of non-timber products

Indicator 2.1.b: Annual removal of timber and non-timber products from forest ecosystems compared with those estimated to be ecologically sustainable by tenure (Eden region)

Indicator 2.1.d Annual removal of timber products and non-timber products from forest ecosystems by volume (Eden region)

Indicator 2.1.e Annual removal of non-timber forest products (e.g. berries, mushrooms, game, honey, wildflowers, tree ferns and possums) compared to the sustainable level (Southern region)

- *These indicators apply to the Eden and Southern regions. However, data have been provided on the quantities of non-timber products harvested for all regions. Values of products harvested are for the Eden region only.*

Data

Non-timber, or forest products, are goods taken from or activities undertaken in forests (other than timber supplied to sawmills or processing plants). They include firewood, seeds, gravel, bark and seedlings and activities such as apiary, grazing and horse riding and four-wheel driving.

State forests are the source of most forest products, as the NPWS estate is managed principally for conservation with minimal commercial activity. However, data on the limited products taken from the NPWS estate are also reported against this indicator.

State forest

Quantities of products harvested from State forests each year fluctuate according to demand and sustainability considerations. Overall there has been a general decrease in forest product volumes harvested since 1999/2000, with individual regional trends.

The total area of State forest leased for grazing in all regions was 278 350 hectares at 30 June 2004. This area has decreased by 27% since 1999/2000, despite the inclusion of the Southern region since 2002/2003. All regions have shown a decrease in grazing leases since 1999/2000, particularly in the UNE region (53% fall in area). Only the Eden region recorded an increased grazing area, rising by 16% since 1999/2000.

The number of apiary sites has increased, to 1 908 sites, 26% more than in 1999/2000. The increase is due to the inclusion of the Southern region since 2002/2003, countering the decreasing trend in the other regions. The north east region has shown the greatest decline, averaging a 65% decrease in total sites since ESFM monitoring began.

Products which have increased include gravel, sand, rock and firewood. Over 88 400 tonnes of gravel, sand and rock were extracted from State forests, a 71% increase since 1999/2000. Over 70% increases in volume from the UNE and Eden regions have countered a 90% decrease in volume taken from the LNE region. No gravel, sand or rock was quarried from State forests in the Southern region.

Firewood taken from State forests totalled almost 9 520 tonnes, increasing by 38% since 1999/2000 due to the inclusion of the Southern region. Most firewood came from forests in the Southern region (6 838 tonnes).

The value of non-timber products taken from State forests was \$248 764, an increase of 56% since 1999/2000.

Details of the type and volume of non-timber products taken from State forests in 2003/2004 are provided in **Table 2-2-A**.

Table 2-2-A: Non-timber products harvested from State forests 2003/2004 – All regions

Product	unit	Eden	Southern	LNE	UNE
grazing	ha	8 495	73 243	74 970	121 640
apiculture	sites	164	1105	246	393
leaf/oil	kg	0	81	0	0
seed	kg	0	512	3	10
bark	tonnes	0	0	0	4
firewood	tonnes	384	6 838	2 000	297
craft timber/burls	m ³	0	4	3	0
miscellaneous native plant species	number	0	1 375	10 977	1 605
wood blocks	number	0	4 226	0	0
film/documentary	permits	0	2	0	0
communication sites	permits	7	20	49	7
Other structures	permits	7	20	51	124
powerlines/cables/pipelines	km	50	534	98	6
gravel/sand/rock	tonnes	76 203	0	1 824	10 388
research*	permits	10	14	12	15

* number for all regions

Source: SFNSW

NPWS estate

In NPWS estate in the Southern region, the only non-timber forest product licensed for removal is honey. The NPWS issued 64 apiary licences for 324 sites this year. Unfortunately, apiary licensees are not required to report annually on the honey they remove, so it is not possible to report on non-wood products removed under licence from the NPWS estate.

Other non-forest products licensed in the Southern region were products such as film documentary permits (4), communication site permits (14), transmission lines, cables and pipelines (193 km), and other structures (17).

In the Eden region, there were four beekeepers in 21 sites, with an unknown number of hives. There is limited data for other non-timber products although two permits were issued for communication sites and one permit for other structures.

Discussion/research and development

No discussion available.

Interpretation



State forest

N/A NPWS estate

Plantations

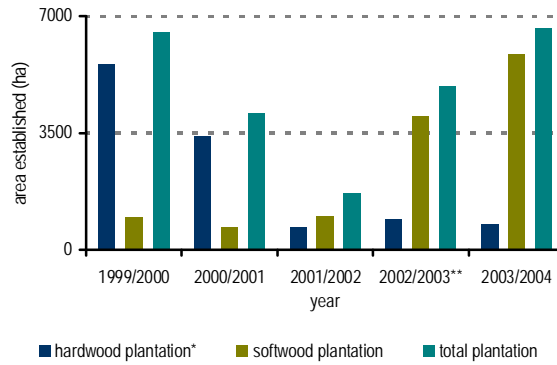
MIG Indicator 2.1.f: Area and percent of plantation established meeting effective stocking on year after planting (UNE, LNE, Eden, Southern regions)

Data

Plantation establishment

At June 2004, SFNSW hardwood and softwood plantation covered almost 377 530 hectares across all regions. This total area includes harvest exclusion areas.

Over 6 600 hectares of hardwood and softwood plantation were established by SFNSW during the year (**Figure 2-2-D**). Much of the area established was softwood (5 846 ha), mainly in the Southern region. Only 770 hectares of hardwood plantation were established, all of which was in the north east regions.



* no hardwood plantation was established in the Eden or Southern regions

** includes plantation established in Southern region for first time

Source: SFNSW data

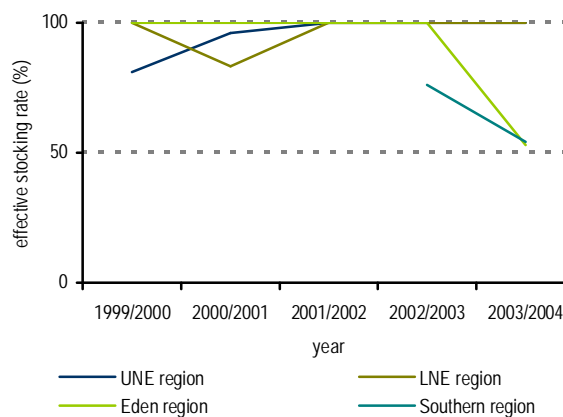
Figure 2-2-D: Area of hardwood plantation established by SFNSW

Effective stocking rates

Effective stocking rate is the survival of planted trees one year after planting at a level that promotes a cost-effective return upon harvest. Since 1999/2000, effective stocking rates of SFNSW's hardwood and softwood plantations has remained high.

Effective stocking rates for hardwood plantations average 95%.

Effective stocking rates for softwood varied between regions, with an average rate of 97%. Poorer rates in the Southern and Eden regions this year reduced the average to about 70% (Figure 2-2-E).



Source: SFNSW data

Figure 2-2-E: Effective stocking rates – SFNSW softwood plantation

Newly planted forest and re-establishment of planted forest after final harvesting together make for a sustainable timber supply. The final productivity of a newly planted forest depends on achieving vigorous growth in the first few years. SFNSW monitors the effectiveness of newly planted forest by surveying seedling survival in the first year after planting. If survival rates are generally low or low in specific locations, the failed areas are replanted.

Accredited plantations

In New South Wales, plantations may be certified under the *Plantations and Reafforestation Act 1999* and the *Plantations and Reafforestation (Code) 2001*, which was introduced in 2001 following the repeal of the *Timber Plantations (Harvest Guarantee) Act 1995*.

Between December 2001 and December 2003 about 160 plantations, covering about 15 800 hectares were certified under the *Plantations and Reafforestation Act*. A large proportion of plantations accredited under the Act are softwood plantations (11 300 hectares, or 72% of authorised area), the main species being *Pinus radiata*. Hardwood plantations account for a much smaller area (about 4 200 hectares or 26%) (DIPNR, 2004).

Much of the area authorised under the Act are plantations established by SFNSW, followed by private plantation companies. SFNSW and private plantation companies have principally established softwood plantations, whilst individual private growers have established mainly hardwoods.

Plantation accreditation is aligned with the DIPNR departmental boundaries, which do not fully coincide with the forest agreement regional boundaries.

However, indicatively, about 40% of authorised plantations fall within the DIPNR North Coast region, which encompasses the UNE region and some of the LNE region¹⁵. The DIPNR South Coast region includes the Southern and Eden regions and is the location of about 9% of the total statewide area of authorised plantations, whilst the DIPNR Hunter region (part of the LNE region) accounts for about 2% of the total authorised plantation area (DIPNR, 2004).

National Plantation Inventory

The National Plantation Inventory (NPI) is compiled by the Bureau of Resource Sciences (published on a calendar year basis) and provides data on public and private plantations across Australia. Data collated includes total plantation area nationally and by State, new areas of plantations established and plantation ownership.

New South Wales contains the third largest plantation area in Australia (331 228 ha or 20% of the national total), following Victoria and Western Australia. Much of the total plantation area in New South Wales is softwood (270 467 ha), the largest area in Australia (National Forest Inventory, 2004).

Rehabilitation of Radiata Pine areas in the NPWS South Coast Region

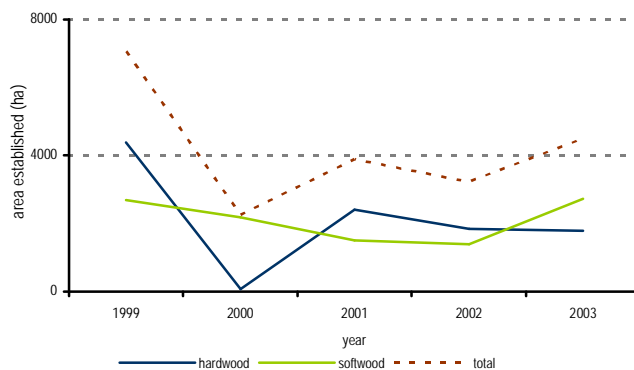
Most of Woodburn State Forest (2 112 ha) was acquired for Meroo National Park as a result of the RFA. Some areas contained mature pine plantations planted circa 1931/2. These adjoined Tabourie Lake and other high conservation values such as threatened plant habitat (*Cryptostylis hunteriana*). SFNSW previously clear-felled some areas of plantation. After acquisition the NPWS cleared 60 hectares of residual pine plantation, and wind-rowed and burnt the residue. This year fire was also applied to 15 hectares of the plantation where seedling regrowth was particularly dense one year after clearing activities. Natural regeneration is now occurring on many of these old plantation sites. Other areas are currently being prepared for regeneration. This year 300 Eucalypt seedlings, grown from endemic seed stock, were planted over 10 hectares adjoining the highway, to aid regeneration where wind rows had been burnt.

Several photopoint monitoring sites have been established to record changes in forest structure and dominant species composition as regeneration proceeds.

¹⁵ The DIPNR North Coast Region is likely to extend further west than the UNE/LNE regional boundaries.

The NPI reported that in 2003 around 4 500 hectares of hardwood and softwood plantation were established across the State. Of this 1 770 hectares was hardwood and 2 717 hectares was softwood plantation.

As shown in **Figure 2-2-F**, there has been an increase in the area of softwood plantations established in New South Wales in 2003. However the total area of both softwood and hardwood plantation established has decreased substantially since 1998. The lowest level of establishment was in 2000.



Source: NFI 2004 data

Figure 2-2-F: Newly planted plantation areas (public and private)

Discussion/research and development

No discussion available.

Interpretation

- ↑ State forests - Area of softwood plantation established
- ↓ State forests – Area of hardwood plantation established
- ↔ State forests - effective stocking – UNE, LNE regions
- ↓ State forests – effective stocking – Eden, Southern regions
- N/A NPWS estate

Regeneration

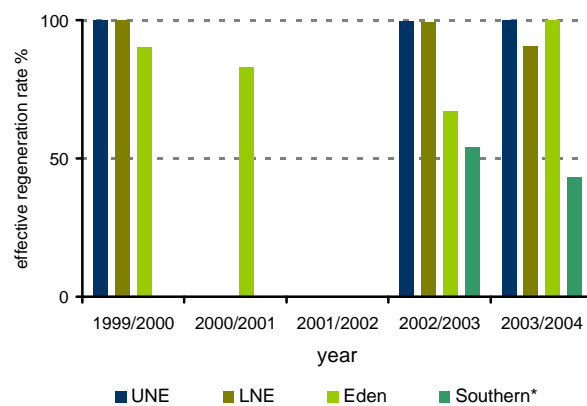
Indicator 2.1.g Area and percent of harvested area of native forest effectively regenerated (UNE, LNE, Southern)

Data

SFNSW regenerates harvested native forest to re-establish pre-harvest forest structure and species composition, specific to each forest type and locality. Surveys determine effective regeneration rates.

During 2003/2004, SFNSW carried out 93 regeneration surveys over 5 426 hectares in the UNE, LNE, Eden and Southern regions. Much of this work took place in the LNE region (3 821 ha) and UNE region (1 257 ha), with smaller areas assessed in the Eden (40 ha) and Southern regions (308 ha). No regeneration surveys were completed in the UNE region.

Since ESFM monitoring began, regeneration rates in the UNE, LNE and Eden regions have remained consistently high. Results of effective regeneration in 2003/2004 were 90% and 100% in the LNE, Eden and UNE regions. However, regeneration has not been as successful in the Southern region, where the effective regeneration rate fell from 54% to 43% since 2002/2003 (**Figure 2-2-G**).



* where value is zero '0' no regeneration surveys were undertaken

** Southern region reported for the first time in 2002/2003

Source: SFNSW data

Figure 2-2-G: Effective regeneration rates on State forests

In 2003/2004, the NPWS was in a position to assess the full extent of previously harvested and replanted lands in parks and reserves in the UNE and LNE regions. This included preparing initiatives for regeneration, as the transfer of lands under the forest agreements and RFAs had been completed.

Six hectares of previously harvested forest was regenerated in Bongil Bongil National Park in the UNE region during 2002/2003 in a research trial to find the best regeneration method. The area had been logged in February 2000 at various intensities and then received regeneration treatments. These were investigated as part of a PhD project of the University of New South Wales. This project will form the basis of a broad rehabilitation plan for the rehabilitation of flooded gum (*Eucalyptus grandis*)

plantations in Bongil Bongil National Park. A second PhD project to examine other plantation types and regeneration strategies was also underway in Bongil Bongil National Park.

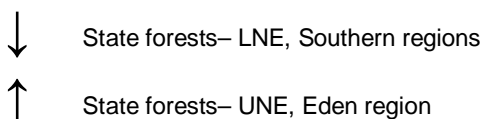
Discussion/research and development

In the Southern region several areas of reserves have previously been harvested. Most are recent NPWS acquisitions of former SFNSW lands. An example is the Jounama Pine Plantation in northern Kosciuszko National Park which is undergoing pine harvesting and will be both actively rehabilitated and naturally regenerated. 17 hectares of active regeneration works were undertaken this year.

The success of native forest regeneration in previously logged reserves has not been systematically evaluated. Evaluation on lands previously managed by another agency is problematic, as the NPWS does not currently have records of past harvesting activities so in many instances it is impossible to determine the exact area harvested and subsequently regenerated.

Interpretation

No interpretation available - NPWS estate – UNE, LNE, Eden and Southern regions



Criterion 3 – Ecosystem health and vitality

Key outcomes
<p>Feral animal and weed control efforts were undertaken across more than 1.69 million hectares of State forest at a cost of \$1.34 million. Total expenditure has risen by 32%.</p> <p>The extent of various insect pests, disease and fungi affecting SFNSW newly planted forests has continued to decline.</p> <p>NPWS Pest Measure has been applied to report pest species and weeds on the NPWS estate, identifying 38% of programs are effective for addressing biodiversity impacts, 68% for addressing neighbour impacts and 80% for addressing cultural heritage impacts.</p> <p>NSW Rural Fire Service reported over 57 000 hectares were burnt due to bushfire across New South Wales in 2003/2004. This compares to over 1.45 million hectares burnt in 2002/2003.</p> <p>Almost 39 420 hectares of the NPWS estate and 53 755 hectares of State forest was burnt by bushfire during 2003/2004. The UNE region was the most extensively affected region.</p> <p>Hazard reduction burning was undertaken across more 54 800 hectares of the NPWS estate and 46 000 hectares of State forest.</p>

Weeds, feral animals and disease

Indicator 3.1.a: Area and percent of forest affected by processes or agents that may change ecosystem health and vitality (narrative as interim) (UNE, LNE, Eden, Southern region)

Indicator 3.1: List of biological factors influencing forest health and vitality including weeds, feral animals, insects and diseases (Eden region)

Data

To maintain and improve forest biodiversity values and productive capacity, it is essential that NPWS and SFNSW land managers continue efforts to control and eradicate negative agents, mainly feral animals (including introduced predators), weeds, pests and disease.

Presently there is no accurate measure of the extent of negative agents across the forest estate, or compatibility between the data provided by land managers for ESFM monitoring. The most readily available sources of data remain expenditure on control efforts and the area over which these efforts were undertaken. However, improved measurement methods are being developed (see 'Pest Measure' below).

In 2003/2004, SFNSW directed almost \$1.34 million towards the control of a range of negative agents across nearly 1.7 million hectares of State forest¹⁶. Total expenditure rose by 32%, mainly on weed control (59% of total expenditure or \$791 440). Although expenditure was high, control works for weeds species were only carried out on 47 970 hectares, while feral animal control was conducted on 1.64 million hectares (at a cost of nearly \$550 000).

The NPWS developed a performance indicator for the effectiveness of pest management on its reserves in reducing these impacts, known as 'Pest Measure'. Thirty-three reserves were randomly selected from all NPWS reserves and the larger reserves selected. This was to avoid an over-emphasis on small reserves in the measure, given that the distribution of reserve size is highly skewed. Fifteen of these 33 reserves are within the four forest agreement regions. Up to six locally significant pest animal and six locally significant pest plant species were considered for each reserve. The potential or known impacts of these species on biodiversity, cultural heritage and the productivity of neighbouring lands were described and rated for significance. A pest was considered to have a high biodiversity impact if it impacted on the distribution or abundance of threatened or regionally rare species (e.g. foxes limiting the abundance of southern brown bandicoots in Nadgee Nature Reserve) or if it had broad scale impacts on whole ecosystems (e.g. bitou bush invasion of coastal dunes). This includes previously significant impacts now reduced by management or new incursions that are likely to have significant impacts in the absence of management. Similarly, a pest was considered to have high neighbour impact if it impacted on its productivity e.g. wild dogs from a reserve reducing wool production or lambing percentages.

Where a high impact was identified and there is a control program, the program was scored as either effective (1) or not (0). Effectiveness was assessed on objective data if available and determined by the response of biodiversity (or neighbour productivity) where it could be assessed in preference to pest distribution or abundance. Therefore a program that could demonstrate a reduction in pest

¹⁶ One area may be treated for more than one agent.

populations but not a response in biodiversity were scored as zero. The score was scaled where a control program was effective over part of the reserve only.

The format for reporting on feral animals and weeds is aligned to the data requirements for NPWS reporting and uses Pest Measure, developed by the NPWS Pest Coordination Unit. The reporting using Pest Measure is in its developmental stages and a comprehensive set of data is not available. Instead, there are data for a subset of parks within the regions, although it is hoped that Pest Measure will eventually be used in more parks.

For the cultural heritage issues, significant impacts were identified in the Kosciuszko National Park. This represents a small sample size of one park and may explain the difference between the effectiveness of programs for this and the biodiversity and neighbour issues.

The objective of NPWS pest control programs is to reduce the negative impacts of pests on the environment. These impacts include a reduction in the:

- n distribution and abundance of native species (biodiversity impacts);
- n impacts on cultural heritage values of NPWS reserves (cultural heritage impacts);
- n factors affecting productivity of neighbouring lands (neighbour impacts).

Noxious and environmental weeds

This year SFNSW expenditure on the control of noxious/environmental weed species was \$791 440. Control efforts treated 13 species over an estimated 47 970 hectares (**Table 2-3-A**), including blackberry (*Rubis fruticosus* sp. *Agg.*), lantana (*Lantana camara*), serrated tussock (*Nassella trichotoma*) and St John's Wort (*Hypericum perforatum*).

Table 2-3-A: SFNSW control efforts for noxious and environmental weeds – 2003/2004

Region	Number of species treated	Area treated (ha)	Expenditure (\$)
UNE	5	3 755	325 590
LNE	6	4 475	309 850
Eden	4	23 500	68 600
Southern	6	16 240	87 400
total	13*	47 970	791 400

* total number of individual species treated across all regions

Source: SFNSW data

The NPWS randomly selected six reserves in the UNE Region (Guy Fawkes National Park, Yuraygir National Park, Chaelundi National Park, Fortis Creek National Park, Sherwood Nature Reserve and Bundjalung State Conservation Area) and three in the LNE Region (Cottan-Bimbang National Park, Tappin Tops National Park, Booti Booti National Park) for analysis by pest measure.

Ten weed species were identified in one or more of the selected reserves in the UNE region, with the most extensive being lantana (occurring in all selected reserves) and groundsel bush (occurring in four of the six selected reserves). Most weed species identified in each reserve were considered of high conservation significance.

For the LNE region, 10 weed species were also identified in one or more of the three selected reserves. The most extensive species was *Lantana camara*, identified in all selected reserves; crofton weed (*Ageratina adenophora*) and giant parramatta grass (*Sporobolus fertilis*) were identified in two of the three selected reserves. Most weed species identified were of low conservation significance.

In the Eden region, the NPWS monitor and control 50 noxious or environmental weeds at 76 identified locations within its estate. About 18 060 hectares are affected by weeds, or 0.073% of the region. In 2003/2004, an area of 34 160m² of reserve was treated for weeds.

An inventory of weeds undertaken by the NPWS in the Southern region identified 102 weed species are recognised as pests in this region. The NPWS database for Southern region is at the developmental stage but has attempted to outline all those pest species occurring on-park and to provide, where possible, information on those species including control programs, population sizes and population trends. The following information has been summarised from that database.

The database lists 1 127 weed issues. Of these 31% are currently being treated and 69% remain untreated. A total of 3 350 hectares of weeds were treated in 2003/2004. However, about 50% of weed programs have no data about weed population sizes, population trends or infestation in reserves.

Of the untreated weed issues, 37% are at low infestation levels in reserve, 12% were at moderate levels and 7% were at high levels. Of these weed issues 44% were at unknown levels of infestation in the reserve.

Feral animals

SFNSW expenditure on the control of feral animals during 2003/2004 was \$547 030. Control efforts treated nine species over more than 1.6 million hectares (**Table 2-3-B**). Key species treated were fox (*Vulpes vulpes*), wild dog (*Canis familiaris*) and rabbit (*Oryctolagus cuniculus*).

Table 2-3-B: SFNSW control efforts for feral animals – 2003/2004

Region	Number of species treated	Area treated (ha)	Expenditure (\$)
UNE	3	6 700	8 000
LNE	8	59 150	141 930
Eden	7	660 170	158 200
Southern	8	920 400	238 900
total	9*	1 646 420	547 030

* total number of individual species treated across all regions

Source: SFNSW data

Using the Pest Measure, the NPWS analysed nine randomly selected reserves in the UNE and LNE regions.

In the UNE region, nine feral animal species were identified on one or all of the selected reserves by pest measure. Cats (*Felis catus*) and wild dogs were identified in all six reserves in the region and distributed widely. In all reserves cats and wild dogs have low conservation significance due to species/habitat abundance for native species, with the exception of cats in Chaelundi National Park where they have a significant impact on the Hastings River mouse (*Pseudomys oralis*). Foxes were

identified in five of the six selected reserves, and considered of high conservation significance in two of these (Chaelundi National Park and Sherwood Nature Reserve).

In the LNE region seven feral animal species were identified in one or all of the selected reserves by Pest Measure. Cats, wild dogs and foxes were identified in all three reserves in the region; all have low conservation significance due to species/habitat abundance for native species. Rabbits, pigs (*Sus scrofa*), goats (*Capra hircus*) and deer were found on Cottan-Bimbang National Park, and deer in Tappin Tops National Park.

The NPWS Pest Measure was not applied in the south east regions. However, an analysis of feral animals affecting the estate in the Eden region was completed. Six feral animal species were identified in one or all of the 17 reserves. The fox was identified in all reserves and pig, rabbit and feral cat in 16 of the 17 reserve areas. Goat and wild dog were evident in over half of the reserves.

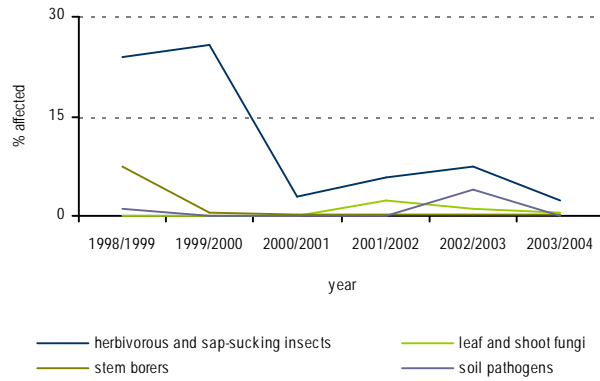
Because eradication of introduced pest species is rarely possible, resources are directed into treatment programs where the benefits of control are the greatest. For the southern region 464 pest issues are listed in the NPWS database, of these 37% of issues are currently being treated. Wild dogs have the highest treatment rate of any feral animal species (70% of listed issues now have a treatment program). Where pest issues remain untreated, in the majority of cases the trend of the population is stable. This implies that high priority issues are being targeted for treatment.

Insect pests, disease and physical agents

Fungal diseases, insect pests, fungi or other physical agents can severely affect biodiversity and productivity by limiting the growth rate and survival of trees. As SFNSW invests a significant amount in planted forests each year, effective management is crucial. SFNSW regularly monitors biological agents and critical nutrient deficiencies in both hardwood and softwood plantations as a planning tool for remedial and control measures.

Surveys are carried out for all agents, but only four are regularly reported in hardwood plantation: herbivorous and sap-sucking insects, leaf and shoot fungi, stem borers and soil pathogens, and five agents in softwood plantations: *Dothistroma* (needle blight), *Sphaeropsis* (fungus), boron deficiency, *Sirex noctilio* (Sirex wood wasp) and possum damage.

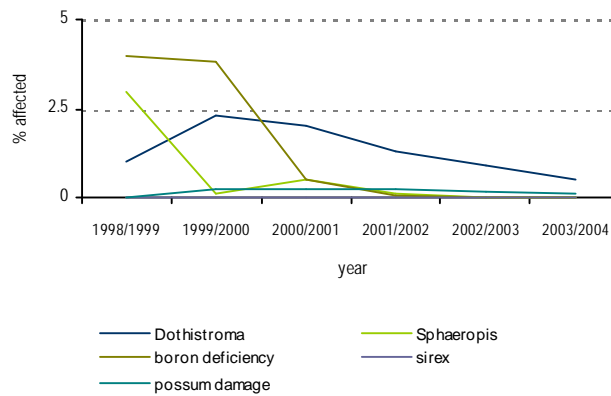
As illustrated in **Figures 2-3-A** and **2-3-B**, the extent of various pest, disease and fungi affecting SFNSW newly planted forests has declined. Small peaks in the extent of some agents (e.g. herbivorous and sap-sucking insects and soil pathogens) were recorded between 2001/2002 and 2002/2003.



* data for planted hardwood forest post 1995 only

Source: SFNSW data

Figure 2-3-A: Percent of new SFNSW hardwood plantation affected by selected agents



Source: SFNSW data

Figure 2-3-B: Percent of new SFNSW softwood plantation affected by selected agents

Pathogens or fungi are not extensive in the NPWS estate in the UNE and LNE regions. While the vegetation in the UNE region is subject to the fungus *Phellinus noxius*, which causes root rot, it is not widespread. Likewise *Phytophthora cinnamomi* is causing substantial native plant dieback in the LNE region, although it is not a widespread problem.

In the Southern region, *Armillaria luteobubalina* was detected during 2002/2003 in a small area at Mass Cave and Bungonia lockdown. *Xanthorrhoea glauca* subsp. *glauca* exhibited gross symptoms of armillaria attack, with plants at all stages of dieback. In 2003/2004 the *A. luteobubalina* site has been revisited. Symptoms of dieback to *Xanthorrhoea glauca* subsp. *angustifolia* are still apparent and a similar area remains affected.

Discussion/research and development

In 2003/2004 the NPWS and SFNSW undertook eradication programs on a range of weeds and pests, monitored the impact and control of various weeds, feral animals, pests and diseases. Some activities were collaborations with neighbouring landholders, community groups, and other government agencies.

Noxious and environmental weeds on NPWS estate

Suppression and control of weeds is a significant challenge in conservation reserves. This is due to a combination of factors including disturbance by fire (e.g. resulting in the spread of lantana), a large adjoining human population, pest ecology, and targeted management delays. In some reserves weed infestation is chronic and will take concerted, targeted effort to control. The focus of weed control is where it is present in rare and vulnerable ecosystems.

Integrated weed management is the best strategy for long term weed reduction and avoids herbicide resistant weeds: biological control is usually supplemented with conventional control techniques.

The NPWS is continuing control efforts on priority weed species, bitou bush in the north east regions. Bitou bush covers 900 kilometres of coastline and imperils rare and threatened species. Priorities are minimising infestation, reducing large and dense infestations and cooperative programs with neighbours and community groups. Helicopter spraying treated large infestations in Moonee Beach Nature Reserve (50 ha), Yuraygir National Park (104 ha) and Bundjalung National Park (434 ha) and 212 hectares on the Tweed Coast. Ground control is used in sensitive environments. The area requiring treatment was greatly reduced this year.

In the Eden region, the NPWS weed management strategy has greatly reduced weed infestations over the last decade and is maintaining that reduction. Priority weeds on the NPWS estate in the region have been bitou bush, willows (*Salix spp.*), serrated tussock (*Nassella trichotoma*) and now include sea spurge (*Euphorbia paralias*) and pine wildlings (*Pinus spp.*). These species are also priority species for control in the Southern region.

Weed control programs in the Southern region are undertaken along roads, in areas of severe infestation, high visitation or recreation, and where threatened species are vulnerable from weed invasion. Priority weeds have been bitou bush, willows (*Salix sp.*), serrated tussock (*Nassella trichotoma*) and recently, sea spurge (*Euphorbia paralias*), lantana and kikuyu (*Penisetum clandestinum*).

Some significant weed management programs in the Southern region include:

- n** removal of kikuyu and revegetating headland scrub on Montague Island for the conservation of nesting little penguins (*Eudyptula minor*) and other phelangic ground nesting or burrowing birds. This is a nine year program.
- n** the control of bitou bush and sea spurge in Eurobodalla National Park.
- n** control of at least fourteen highly invasive weeds at the Minnamurra moist subtropical rainforest (an endangered ecological community) in Budderoo National Park. This program is now in its third year.

Feral animals on NPWS estate

Resources for vertebrate pest management in NPWS are directed where the problem areas/concentrations are identified, and where the benefits of control are the greatest. A range of pest management programs are described below.

Predation of native fauna by foxes is a key threatening process under the *Threatened Species Conservation Act* and a threat abatement program will mitigate the impact foxes have on threatened species. The brush-tailed rock-wallaby (*Petrogale penicillata*) protection program is continuing in Bannaby (Southern region). It involves ten properties surrounding the brush-tailed rock-wallaby colony with an area of about 10 600 hectares.

In the Southern region control programs are in place for the control of feral pigs. These have been undertaken due to their ecological and economic impacts, which include soil erosion and fouling of waterways, major disturbance to vegetation communities and threatened species habitat, and predation on native fauna and lambs.

Control programs for rabbits to mitigate the negative impacts on vegetation, erosion, historic relics and pastures continue.

Feral goats adversely affect conservation values and biological diversity by damaging the vegetation and competing with native fauna. In the South Coast Region, the feral goat program is having remarkable success and is expanding in its scope as goat populations are stabilised or reduced in target areas. The program is run with the Goulburn Rural Lands Protection Board and participating landholders. This culling of goats is continuing in Tarlo River National Park and the Shoalhaven corridor with neighbours participating. Judas goats will be introduced in September 2004.

Cat trapping in alpine resorts of Kosciuszko National Park continued this year and will carry on next year when it will include a tracking project on five to 10 threatened mountain pygmy-possum (*Burramys parvus*).

The management of wild horses in Kosciuszko National Park continues but is contentious.

The management of wild dogs on the boundaries of the NPWS estate and grazing properties requires NPWS to balance the conflicting objectives of protecting dingoes on the NPWS estate and meeting its responsibilities under the *Rural Lands Protection Act 1998*, which declares wild dogs a noxious animal and requires wild dogs, including dingoes, to be controlled. Control programs are cooperative initiatives between the NPWS, adjoining landholders and/or the rural lands protection board. In the UNE and LNE regions there are regular ground baiting and monitoring programs, and also reactive control programs. The North Coast Region also contracts a dog trapper to work with neighbours in the management of wild dogs. The Northern Tablelands Region has run field days with Rural Lands Protection Boards to train members of wild dog associations in trapping skills. This has been highly productive.

Monitoring of wildlife benefit from pest management has been increased this year and programs have had varying successes. In the Eden region, there are long-term monitoring programs on the impact of pest control on smoky mouse (*Pseudomys fumeus*) in the Yowaka section of the South East Forest National Park, the little tern (*Sterna albifrons*) and hooded plover (*Thinornis rubricollis*) in Mimosa Rocks and Bournda National Parks, and small marsupials (particularly bandicoots and potoroos) in Nadgee Nature Reserve and Ben Boyd and South East Forest National Parks.

Pests, disease and physical agents on national park estate

Phytophthora cinnamomi

Phytophthora cinnamomi (Cinnamon fungus) has the potential to cause substantial native plant dieback. In the LNE region containment measures have been implemented in areas of Werrikimbe National Park and Barrington Tops National Park. These containment measures have included signage and exclusion of the public from infested areas.

In the Southern region the spread of *P. cinnamomi* is being monitored in the Southern region at sites in Monga National Park and Bungonia SCA. In the Eden region monitoring of spread is occurring at sites in Mount Imlay National Park and South East Forest National Park.

Phellinus noxius

Phellinus noxius has been found in an area of littoral rainforest at The Pass in Cape Byron Headland Reserve (UNE region). This fungus causes root rot and has affected *Banksia integrifolia*, *Litsea australis*, *Acronychia littoralis*, *Cupaniopsis anachardioides*, *Arytera divaricata* and a species of ficus. Its distribution and rate of spread is now being determined.

Interpretation

Insufficient data - NPWS estate and State forests

Pandanus Plant Hopper (*Jamella australiae*)

Pandanus is an iconic species growing in distinct areas such as Byron Bay and Broken Head. Deaths of pandanus in the local area (off park) in the past have attracted substantial media attention. From 1990 coastal pandanus (*Pandanus tectorius* var. *pedunculatus*) in south east Queensland has been infested by the insect pandanus plant hopper (*Jamella australiae*) causing severe dieback. Control measures were initiated in 1995 and in 1998 on the Gold and Sunshine Coasts and more than 3 000 pandanus were treated with an insecticide. Ongoing monitoring of pandanus is required.

A report written for the Queensland Department of Environment and Heritage and the Queensland Department of Primary Industries in 1998 recommended that cursory monitoring be implemented in Tweed, Byron and Ballina Shires to prevent the spread of the plant hopper into New South Wales.

Tweed Shire Council detected the plant hopper at Kingscliff and Bogangar in New South Wales. They have been conducting monthly inspections of pandanus on the Tweed Coast, and notified the NPWS of the infestation at the end of March 2004.

Large coastal developments currently under construction on the Tweed Coast include extensive landscaping. Pandanus is a feature tree and stocks are being sourced from Queensland to fulfil orders. Queensland prepared draft quarantine guidelines for the transport of pandanus from the Sunshine Coast and Gold Coasts to Fraser Island and Moreton Island.

An aerial inspection of Bundjalung National Park in April 2004 revealed a number of areas with pandanus dieback. These sites will be inspected from the ground and control options investigated.

Bell Miner Associated Dieback

Bell Miner Associated Dieback is a complex phenomenon in which native forest species, particularly mature eucalypts, develop an unexplained proliferation of sap-sucking insects called psyllids, which is usually also associated with alteration of forest structure and a proliferation of bell miners (*Manorina melanophrys*) (bellbirds).

The resultant cycle of tree stress commonly causes the eventual death of forest stands and serious ecosystem decline. In New South Wales the potential impact of dieback of native vegetation due to Bell Miner Associated Dieback represents a serious threat to sclerophyll forest communities, particularly wet sclerophyll forests, from Queensland to the Victorian border. The forests most susceptible to dieback are those dominated by Dunn's white gum (*Eucalyptus dunnii*), Sydney blue gum (*E. saligna*), flooded gum (*E. grandis*) and grey ironbark (*E. siderophloia*). There is also evidence that some normally non-susceptible dry sclerophyll types may be affected when dieback is extreme. About 2.5 million hectares of public and private land in New South Wales is at risk.

Bell Miner Associated Dieback is a pressing forest management issue in the UNE and LNE regions. The potential impacts of Bell Miner Associated Dieback on forest productivity and biodiversity cannot be overstated, and include:

- degradation of sclerophyll forest ecosystems in the UNE and LNE;
- reduction in diversity and abundance of threatened flora and fauna species including Dunn's white gum and rufous bettong;
- increased weed invasion and associated displacement of native forest species.

Impacts on forest productivity can be severe. Dieback defoliates the crown, ultimately leading to the death of standing trees. Not only do the standing trees die, but the lack of foliage and flowering and subsequent fruiting reduce and eventually eliminate the seed production necessary for forest regeneration. Weed invasion (primarily lantana) continues with little overstorey and reduced alternative species competition. Reduced eucalypt flowering directly impacts on honey production and on bird species and populations that compete with bell miners.

Dieback affected areas are located in the catchments of the major rivers of the North Coast of New South Wales including the Tweed, Richmond, Clarence, Macleay and Hastings Rivers. Maintenance of water quality in these river systems is critically dependent on maintenance of healthy forest cover over the catchment uplands. Bell Miner Associated Dieback has the potential to degrade these forests, and consequently impact negatively on rivers and catchment communities through increased sediment and nutrient loads, and increased frequency and intensity of flooding.

The Bell Miner Associated Dieback Working Group formed this year as a result of community and Government concern. Its members are the NPWS, local landholders, Landcare groups affiliated with Richmond Landcare Inc., North Coast Environment Council, North East Forest Alliance, DIPNR and SFNSW. The Working Group produced the *Bell Miner Associated Dieback Strategy* (2004) to provide a coordinated approach to the management of Bell Miner Associated Dieback in north eastern New South Wales. This work is likely to have relevance to other forest types and tenures.

This working group raises public and government awareness of dieback, promotes research into its causes, supports trials and implementation of control measures, coordinates control programs, develops risk assessment criteria and risk management guidelines and lobbies for resources.

Mapping from helicopter shows that about 20 000 hectares of forest in the Toonumbar/Richmond range are affected by dieback. Even better mapping of dieback using remotely sensed data from satellite is planned; Initial funding has come from the former Northern Rivers Catchment Management Board.

The Natural Heritage Trust has funded actions the *Strategy* names as high priority. They include a literature review, scientific symposium, formulation of a research plan, development of guidelines for management trials and risk assessment and further development of remote sensing techniques.

Fire

Indicator 3.2: Impact of fire on forest-related values (Eden region)

- *This indicator is defined in the Eden region set of indicators. For continuity of reporting all regions are reported here.*

Data

The size, intensity and frequency of fire events (a bushfire or a prescribed burn) in public forest areas are monitored to determine the impact of fire on biodiversity and economic values and to improve emergency and land management practices.

Prescribed burns have a lower intensity than bushfires and occur during the cooler months. The exception to this is backburning conducted to control the spread of bushfires.

Data for this indicator are for the NPWS estate and State forests only.

NPWS data were sourced from its Incident Database, compiled from daily situation reports to the NPWS Fire Management Unit during fire incidents and from monthly regional reports. These statewide data sets include data for the entire LNE region (parts of both the NPWS Northern and Central Branch management areas). NPWS information for the Southern region on the percentage of vegetation formations with inappropriate fire intervals was sourced from GIS layers.

SFNSW data comes from regional fire plans, plans submitted to bushfire management coordinating committees and records of seasonal burning.

Bushfire

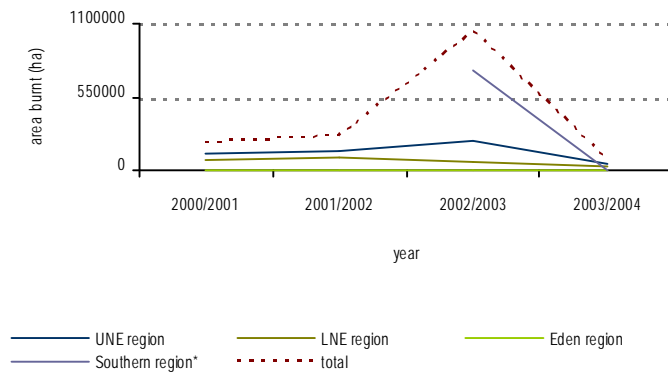
Bushfires can cause severe and widespread damage to the environment, infrastructure, and threaten human life, but also plays a crucial role on the diversity and productivity of the Australian bush.

The 2003/2004 fire season was much less severe and extensive than previous years. The NSW Rural Fire Service reports (2004) that about 57 000 hectares were burnt across New South Wales in 2003/2004, compared to over 1.45 million hectares in 2002/2003. Bushfire affected 23 local government areas this year, compared to 81 the previous year.

The less extensive fire season across the State was reflected in the extent of fire affecting the NPWS estate and State forest (**Figure 2-3-C**). Both estates recorded a reduction in the total area burnt across the regions. The fall in extent of area burnt is mainly attributable to the Southern region. The total area burnt across the Southern region fell from 750 000 hectares burnt in 2002/2003 to a little over 4 100 hectares in 2003/2004.

The UNE region also recorded a significant fall in the total area burnt between 2002/2003 and 2003/2004. The total area burned fell from over 220 000 hectares to 47 450 hectares in 2003/2004.

The LNE and Eden regions also recorded a fall in the area burnt.



* ESFM monitoring commenced in 2002/2003

Area burnt for 1999/2000 was not included as incomplete data were available at the time.

Source: NPWS and SFNSW data

Figure 2-3-C: Total area of NPWS estate and State forests affected by bushfire

SFNSW Fires

The total area of State forests burnt from bushfire fell by 64% since last year to 53 754 hectares (including 1 013 ha of plantation). The UNE region was the most extensively affected: 26 225 hectares (5.6%) of State forest burnt. However, the area burnt in the UNE region still decreased by 78% since last year.

The Eden Region was the only region whose bushfires increased over the past twelve months. The area of State forest burnt in the region increased from less than 2 000 hectares to over 17 300 hectares (including about 1 000 ha of plantation). The total area of State forest burnt as a result of bushfire in the region represented about 3.7% of the regional estate.

NPWS Fires

The extent of fire on the NPWS estate fell over the last year by 95%, from almost 880 000 hectares to less than 40 000 hectares. This year the UNE region was the most extensively affected by fire (21 200 ha burned), about 79% less than 2002/2003. In the UNE region, 39 ignitions were recorded with 15 of these ignitions beginning on-park. Of the total number of ignitions, 15 were from legal burning off (refer to prescribed burning sub-section below), five from lightning, five from arson, and four from suspected arson.

The LNE region was the second most extensively affected with 14 276 ha burnt, a decrease of 66%. There were fires from 101 ignitions, 71 of which began on-park. Of the total number of ignitions, 25 were from suspected arson, 24 from confirmed arson, 23 from lightning and 13 from legal burning off.

The Eden region continued to be only marginally affected by bushfire. About 2 203 hectares were burnt, a decrease of 19% compared to 2002/2003. There were fires from 16 ignitions, 15 of which began on-park. Of the total number of ignitions, seven were from lightning, three from suspected arson and two from confirmed arson.

The Southern region was extensively affected by bushfire (734 273 ha burnt) in 2002/03, the area affected in 2003/04 fell dramatically and less than 2 000 hectares were burnt. There were fires from 53 ignitions, 45 of which began on-park. Of the total number of ignitions, 28 were from suspected arson, seven from lightning and six were the result of confirmed arson.

In all regions the most common ignition types were legal burning off, lightning strikes, arson, and suspected arson. In most cases, the legal burning off category is applied to bushfires caused by burning off on neighbouring lands. If prescribed burns move beyond control perimeters they are reclassified as bushfires. There were two instances of this: in the LNE and Eden regions.

Guidelines on the appropriate fire frequencies for different vegetation types, combined with GIS analyses have enabled reporting on a number of vegetation types that fall outside recommended guidelines for fire frequency. For 2003/2004 these data are only available for Southern region and are summarised in **Table 2-3-C**. It should be noted that the reliability of this mapping varies from place to place because of variability in the underlying source maps and because of inherent uncertainties in the assembly process. Analysis of extent of vegetation formations falling outside the recommended guidelines for appropriate fire frequency will be undertaken in all regions in future.

In the Southern region, twelve out of 14 vegetation formations had some percentage of their range fall outside of the fire intervals appropriate to them, indicating that the 12 formations were either burnt too frequently or not frequently enough. In either case the fire frequencies in these vegetation formations were inappropriate.

The analysis showed that many vegetation communities were underburnt in the Southern region, including 67% of grassland. In contrast, the alpine complex and rainforest formations had been overburnt, with 74% of the alpine complex formation and 67% of rainforest falling outside their appropriate fire intervals. Until several periods of this type of reporting have been completed, meaningful conclusions are unable to be drawn from these data. It is hoped that the analysis can be undertaken across all regions in future reporting periods.

Analysis of extent of vegetation formations falling outside the recommended guidelines for appropriate fire frequency will be undertaken in all regions in future.

Table 2-3-C: Percentage of each vegetation formation (Keith 2002) falling outside the recommended guidelines for appropriate fire frequency - Southern region

Broad vegetation formations (from Keith 2002)	% vegetation formation falling outside recommended guidelines for appropriate fire frequency for Southern region
rainforest	67
alpine complex	74
saline wetland	19
wet sclerophyll forest	32
semi-mesic grassy forest	17
swamp sclerophyll forest	56
sclerophyll grassy woodland	16
grassy dry sclerophyll forest	8
shrubby dry sclerophyll forest	31
semi-arid woodland	0
arid and semi arid shrubland	0
heathland	43
grassland	67
freshwater wetland	18

Source: NPWS

Prescribed burning

Prescribed burning is an important component of fire management reducing the incidence and severity of bushfires and improving bushfire control. Prescribed burning, hazard reduction burning and fuel reduction burning are interchangeable terms, meaning the controlled use of fire to reduce fuels for subsequent fires. Planning involves predicting fire behaviour using rainfall or drought history, weather (temperature, humidity, wind speed and direction), vegetation and fuel characteristics and topography.

This year prescribed burns were conducted on 103 423 hectares of State forests and NPWS estate.

State forests conducted prescribed burns on 48 599 hectares of land, mainly in the Southern region (30 582 ha). A further 29 810 hectares were subject to post-log burns¹⁷. Area establishment burns were also conducted in more than 1 730 hectares of planted forest.

Milder conditions and fewer bushfires in 2003/2004 allowed prescribed burns to be undertaken across a larger area of the NPWS estate. Prescribed burning on the NPWS estate was carried out on 54 824 hectares. Most of these were in the LNE and Southern regions (20 438 ha and 19 073 ha burnt respectively); 246 hectares of the NPWS estate was mechanically treated (e.g. slashed), mainly in the Eden region (206 ha).

On NPWS estate In the UNE region the area of prescribed burns increased from 736 in 2002/2003 to 3 389 hectares this year. In the LNE region prescribed burns increased from 2 800 hectares in 2002/2003 to 20 438 hectares this year.

On the NPWS estate in the Southern and Eden regions prescribed burns increased from 3 324 and 6 805 hectares respectively in 2002/2003 to 19 073 and 11 934 hectares in 2003/2004.

Some parks (Bindarri, Bongil Bongil, Cascade, Dorrigo, New England, and Nymboi-Binderay national parks) underwent burns that occurred in both UNE and LNE regions. This double counting means that the total area burnt, or that underwent hazard reduction, cannot be summed across the regions, as the area data are not mutually exclusive.

Discussion/research and development

In 2003/2004, the NPWS continued development of reserve fire management strategies. An example of this includes the completion of the draft Arakwal Reserve Fire Management Strategy was prepared by a partnership between the Arakwal National Park Management Committee, the NPWS, Byron Shire

Alps Vegetation Fire Response Monitoring System

The Alps Vegetation Fire Response Monitoring System (Alps Monitoring System), completed in 1997, established long-term monitoring plots to investigate the effects of fire on vascular plant species and communities in the Australian Alps National Parks. Forty sites were permanently established (21 plots in Kosciuszko National Park). An Access database now holds the information for all the vegetation monitoring plots for Victoria, New South Wales and the Australian Capital Territory. In Kosciuszko National Park the 2002/2003 fires affected 15 of the 21 established plots. This year each burnt plot was visited twice: to examine fire intensity, then to record all present species. The time taken for individual species to flower will be recorded and an analysis of pre and post fire condition completed.

¹⁷ Post log burn – undertaken to promote regeneration and reduce fire hazard that may be caused by residues (tree debris) left in an area after harvesting.

Council and Department of Lands and stakeholders, including Byron High School, St Finbars Primary School and reserve neighbours (UNE region).

In the Eden region long-term monitoring of relationships between changing habitat complexity, mammal population abundance and predator-prey relationships following bushfires in Nadgee Nature Reserve between 1974 and 1981 continued. This program is now in its thirty-second year. A preliminary vegetation survey and plant fire response strategies prior to coastal heath burns in Nadgee Nature Reserve was also undertaken. These burns are yet to be undertaken.

In Alpine areas in the Southern region, there has been a varied impact on the vegetation from the 2002/2003 fires. For example, because 54% of Kosciuszko National Park was burnt, the impact of the fires on the functioning of various forest ecosystems is likely to vary markedly. The Kosciuszko National Park Fire Management Resource Document (1997) identifies desirable fire regimes for aggregated vegetation communities. Further fire could have a significant impact in communities such as sub-alpine woodlands, wet sclerophyll forest and sub-alpine frost hollows where no fire event is desired for at least another 30 or 60 years.

Post fire research in alpine areas has been on the match of fuels (e.g. surface, shrub fuels or tree canopies) to weather conditions. Future research on practices to manage fuels will be done with Bushfire Cooperative Research Centre.

Last year the South Coast sub-region of the Southern region began to monitor the floristic response to fire. So far 29 plots have been established in recently burnt and recently unburnt ecosystems. Full floristic information, plant regeneration information and other fire related data have been collected. Data will go into the statewide fire response database of the Bushfire Research Unit and contribute to understanding fire responses in a range of vascular plant species and ecosystems.

In 2003/2004, 18 fire plots out of the original 29 were selected for more detailed analysis of species trends because they had been burnt recently and had at least two field measurements since the fires. The project analysed trends of plants species in three successive measurements taken between three months and two years after the Nowra fires. Results will help conserve rare, threatened and fire sensitive flora species and communities. (EcoGIS 2004, Graham-Higgs 2004). The aims of the report were to:

- n provide preliminary results of vegetation fire responses on 18 fire monitoring plots established in May 2001, and remeasured in early autumn 2002 and spring/early summer 2003;
- n provide preliminary conclusions and recommendations on the survey methods used and on the future monitoring regimes;
- n identify plant species which require specific monitoring on each site, and methods to monitor changes in these plant species' survival and persistence;
- n outline possible effects of recent fire regimes on vegetation structure and species composition.

Interpretation

- ↓ Total area of forest affected by bushfire (all regions)
- ↑ Total area of forest subject to prescribed burns (all regions)

Criterion 4 – Soil and water resources

Key outcomes

7 018 kilometres of roads and management trails and 103 kilometres of walking trails are maintained by the NPWS in the Southern region. Forty-four works programs reduced sedimentation or improved water quality.

3 850 kilometres of roads and management trails are managed or co-managed by the NPWS in the Eden region. Six works programs were completed which targeted reduced sedimentation or improved water quality.

Over 80 000 hectares of State forest were assessed for soil erosion potential as part of harvest planning activities across the four regions.

Roads and crossings

Indicator 4.1.a Area and percent of forest land covered by comprehensive Road Management Plans, which include, an assessment of the extent of existing road infrastructure, processes for ongoing improvement, targets and milestones. (UNE, LNE, Southern)

Indicator 4.1 Road density by category and catchment, and stream crossing density by catchment, for the total RFA area, including forest and non-forest areas. Calculation of an Ecologically Sustainable Roading Index and an Ecologically Sustainable Crossing Index (Eden)

Data

NPWS estate

UNE and LNE region

In 2003/2004 the NPWS undertook a comprehensive mapping program to rationalise and update classifications of roads across its Northern Branch in the UNE and LNE regions. As a result the length of roads classified as 'unknown' or 'not classified' in the UNE region was reduced from 1 448 kilometres last year to 350.76 kilometres this year, a reduction of 1 097.24 kilometres. In the LNE region the length of roads classified as 'unknown' or 'not classified' was reduced from 675 kilometres to 413 kilometres, a reduction of 262 kilometres. The mapping gives a more complete picture of the status of the roads. **Table 2-4-A** summarises the extent of NPWS roads and trails in UNE and LNE regions.

Data for the UNE and LNE were obtained from the regional road layers in ArcView GIS 3.2a, with reserves clipped into either UNE or LNE regions.

Road data for the north east regions differed between reporting years: data for 2002/2003 came from the Asset Register and local records, but in 2003/2004 from the regional road layers in ArcView. Distribution of roads is likely to have been based on NPWS regional boundaries in 2002/2003, but ArcView has allowed a more accurate breakdown of individual reserves. This may account for the differences in road length between the two years so these figures cannot be compared.

In the UNE and LNE regions, road length decreased by 688 kilometres this year, probably due to the new comprehensive mapping program.

Table 2-4-A: The extent of roads and trails on NPWS-managed lands - UNE and LNE regions

Classification	Length (km)	
	UNE region	LNE region
access	606.41	483.36
closed	719.86	493.49
closed fire advantage*	136.55	534.04
closed for rehabilitation	93.71	761.19
road all weather	528.60	1 075.79
road dry weather	211.22	434.58
trail all weather	716.92	1 258.99
trail dry weather	2 524.64	3 487.34
unknown	345.10	689.35
not classified	5.66	176.20
total	5 888.67	9 394.33

* may be re-opened if required for fire advantage

Source: NPWS

Eden region

Almost 3 950 kilometres of roads and management trails are managed or co-managed by the NPWS in the Eden region (**Table 2-4-B**) and 98 kilometres of walking trails are maintained. Grading and drainage of 91 kilometres of roads was carried out, and 298 kilometres of roadside and firebreak were slashed.

Table 2-4-B: Length and type of roads maintained by NPWS - Eden region

Road type	Extent of NPWS management	Length within NPWS estate (km)	Estimated average width (m)	Estimated area (ha)
former track	complete	175	2	35
unclassified	complete	245	2	49
walking/bridle track	complete	98	0.3	3
management track	complete	42	2	8
4WD track	complete	1 563	2	313
dry weather 2WD track	complete or cooperative	447	3	134
all weather 2WD track	complete or cooperative	1 185	3	355
minor sealed road	n/a	79	not available	not available
major sealed road	n/a	113	not available	not available
total		3 948	14	898

Source: NPWS

Southern region

A total of 7 016.82 kilometres of roads and management trails and 103.18 kilometres of walking trails are maintained by the NPWS in the Southern region (**Table 2-4-C**).

Most Southern region roads are not covered by road management plans. However, significant progress has been made in assessment of the existing road infrastructure as a basis for ongoing improvement, targets and milestones stipulated in the plans.

In the Southern region, total road length has increased by 1 473 kilometres since last year, due to a number of factors. Last year the NPWS South West Slopes Region had incomplete and confusing data sets, now rectified. This explains why road length increased from 410 kilometres last year to 1 304 kilometres this year, although there have been no major road works.

Estimation of the area affected by soil erosion is based on calculations of total road surface area and recreation facilities. This involves multiplying the average width of road or trail surface by the total length.

Table 2-4-C: Length and type of roads maintained by the NPWS - Southern region

Road type	Length (km)
park management roads	1049
public roads - sealed	407
public roads - unsealed	2305
walking tracks	103
unclassified	3256
total	7121

Source: NPWS

Reserves interim Road Density analysis

The Southern region's spatial roads, tracks and trails database which uses a roads, trails and tracks management classification adopted by ESFM reporting, was further refined this year. The road, trail and track network has been modelled systematically in a spatial database as a precursor to modelling and identifying hazard areas.

The roads, tracks and trails classification and database helps identify an interim road density index for each conservation reserve. The index is the ratio of length of road (km) per area of reserve (ha) and allows NPWS staff to identify reserves with a higher level of risk of erosion arising from the roading network density. **Table 2-4-D** shows reserves in the NPWS South Coast Region with a relatively high (>0.01) Road Density Index.

Table 2-4-D: Road density per hectare (>0.01) by reserve in the NPWS South Coast Region - Southern region

Park name	Park area (ha)	Road Density Category	Road Density Index (km per ha)	Public Roads, Formed Trails and Negotiable Routes Open (publicly accessible routes) (km)
Triplarina Nature Reserve	158	3	0.0457	7.214
Worrigeer Nature Reserve	232	3	0.0260	6.035
Cullendulla Creek Nature Reserve	127	3	0.0194	2.462
Barnunj State Conservation Area	164	3	0.0177	2.906
Bundundah Reserve	1 033	3	0.0170	17.586
Meroo National Park	3 582	3	0.0168	60.089
Bamarang Nature Reserve	369	3	0.0165	6.089
Woollamia Nature Reserve	451	3	0.0157	7.065
Corramy State Conservation Area	857	3	0.0154	13.185
Murramarang National Park	12 061	3	0.0131	157.618
Conjola National Park	11 053	3	0.0127	140.324
Narrawallee Creek Nature Reserve	875	3	0.0126	11.051
Clyde River National Park	1 114	3	0.0126	13.989
Saltwater Swamp Nature Reserve	214	3	0.0119	2.358
Bugong National Park	1 022	3	0.0116	11.848
Parma Creek Nature Reserve	3 490	3	0.0109	37.896
Barrengarry Nature Reserve	21	3	0.0104	0.218
Colymea State Conservation Area	1 669	3	0.0101	16.828

Source: NPWS

State forest

SFNSW has completed and implemented a number of road maintenance/construction plans consistent with the requirements of their Road Works Manual. Road plans covered 163 952 hectares in the Eden region; 256 015 hectares in the LNE region and 86 652 hectares in the Southern region. At this stage no plans have been implemented for the UNE region.

Across all forest agreement regions, there was over 32 750 kilometres of roads within State forests. The total length of road and classification for each region is presented in **Table 2-4-E**.

Table 2-4-E: Length of road by classification on State forests

Length of road by classification (km)	Eden	UNE	LNE	Southern
primary access	285	291	45	481
secondary access	759	399	595	1 480
feeder	259	83	677	2 715
harvesting, link and boundary	0	4 416	3 468	6 099
fire trail and service trail	952	6 315	1 791	1 658
total road length	2 255	11 504	6 576	12 433

Source: SFNSW

Discussion/research and development

The NPWS Northern Branch (UNE and LNE regions) has used a road management plan since 2001 for all their roads. A memorandum of understanding between the NPWS and SFNSW sets out management of access roads used by both agencies.

Maintenance of firetails and walking tracks usually requires improvements of soil and water quality such as erosion control, improving drainage, trail restoration and repairing wash-outs and culverts.

The Sensitive Area Management System marks areas of particular natural and cultural significance along roadways to minimise disturbance during roadworks. This is being trialled in Kyogle Area and will subsequently be adopted across the region.

In the Eden region, NPWS and the South Coast Water Catchment Committee continue to take a regional approach to sediment management from unsealed roads and crossings. A map identifying all crossing points for all tenures has been created. A stratified survey design is sampling the variation to identify the most problematic crossings.

A Roads Asset Management Plan exists for all major sealed roads in Kosciuszko National Park. It records of the location and condition of all assets and sets out their inspection program. The maintenance requirements are based upon designer recommendations as well as standards for stakeholder service. Kosciuszko Road and Alpine Way will be managed by the Roads and Traffic Authority from 14 May 2004, with a corresponding decrease in the length of road being managed by the NPWS.

Interpretation

Inadequate data available

Soil erosion

Indicator 4.1.a (Interim) Area and percent of forest land systematically assessed for soil erosion hazard, and for which site-varying scientifically-based measures to protect soil and water values are implemented. (UNE, LNE, Southern)

Data

NPWS estate

Under the *Environmental Planning and Assessment Act 1979* the NPWS completes a Review of Environmental Factors before activity or development on a reserve. This ensures soil loss is minimised and water quality maintained. Reporting includes data on improvements to soil and water quality, their location and expected outcomes.

Data on erosion is sourced from individual officers at the local level who hold detailed knowledge of erosion activity at the park level, including ESFM project officers and NPWS area managers.

In the LNE region, ten hectares of the Barrington Tops National Park and State Conservation Area were affected by erosion; five hectares was identified as having adverse impact on heritage values. Successful remedial works have been undertaken.

In the Eden region, the NPWS completed six works programs directly targeting a reduction in sedimentation or improvement in water quality.

There were no known areas affected by erosion in the Eden region.

In the Southern region, over 38 000 hectares is affected by erosion; 13 hectares are on the coast and 38 026 hectares are in alpine areas. An estimated 414.4 hectares has been treated with partial success. On the coast around 2 hectares were treated, although some stabilisation works are not complete and further work is not yet programmed. In the alpine areas, 412 hectares of erosion was stabilised through bulldozer works, while 36 911 hectares remain untreated and are at risk of topsoil loss due to their slope.

In the Southern region the NPWS completed 44 works programs to reduce sedimentation or improve water quality.

State forest

As part of the harvest planning process SFNSW assess areas for potential and existing soil erosion issues. In 2003/2004, over 81 000 gross hectares of native forest was assessed. **Table 2-4-F** provides details of the gross and net harvest areas assessed in each region. Based on the outcomes of these surveys, site specific prescriptions are implemented (in accordance with Environment Protection Licence requirements). This ensures that the probability of soil erosion and water pollution events are minimised.

Table 2-4-F: Area of native state forest assessed for soil erosion

Region	Gross Area	Net Harvest Area
Eden	13 010	4 160
Southern	24 774	5 473
LNE	27 476	9 853
UNE	16 114	6 331
All Regions (total)	81 374	25 817

Source SFNSW

Discussion/research and development

As part of its water quality monitoring program, SFNSW continue to manage a number of research trials that monitor soil erosion and water quality in pre and post logging areas.

Interpretation

Inadequate data available

Impact of fire on erosion – Southern region

Last year's fires impacted on roads and erosion in NPWS reserves. Sheet erosion by water following bushfires is likely until groundcover re-establishes. No extensive bushfires occurred in the region during 2003/2004 and no sediment (ash) plumes nor fish kills were reported or observed in any streams of parks in the region.

All roads, fire trails and management trails in the Southern region are periodically assessed for soil erosion hazard and site-specific scientific protection measurements are implemented. This process was particularly relevant in the South West Slopes area, where 2002/2003 fires affected all 570 fire trails and roads and 200 kilometres of new containment lines. Work on these roads and containment lines was finalised in April 2004.

In Kosciuszko National Park, to prevent further significant risk of erosion and to assist the natural post fire recovery process, the NPWS has requested park users to keep to designated walking tracks and/or fire trails within burnt areas. The NPWS has periodically closed some areas and have restricted some recreational activities such as bike riding in sensitive sub-alpine areas.

Criterion 5 - Maintenance of forest contribution to global carbon cycles

Key outcomes

About 284 960 tonnes of carbon were sequestered in a net stocked SFNSW hardwood plantation area of 13 340 hectares in the UNE, LNE and Southern regions.

About 2 989 820 tonnes of carbon were sequestered in a net SFNSW softwood plantation area of 171 880 hectares in the UNE, LNE, Eden and Southern regions.

Biomass and carbon

MIG indicator 5.1.a (Category B) Total forest ecosystem biomass and carbon pool, and if appropriate, by forest type, age class, and successional stages (UNE, LNE, Eden and Southern regions)

Data

Forests act as a sink that absorbs carbon from the atmosphere. Estimates of the total amount of carbon sequestered across the public forest estate are not available. While, DEC does not have the capacity to report on this indicator, SFNSW estimates the amount of carbon sequestered in its planted forest estate. The assumptions for the carbon sequestration calculations are contained in **Table 2-5-A**.

Table 2-5-A: Assumptions for the carbon sequestration on SFNSW' planted forest estate

Assumptions	Softwood	Hardwood
CO2 sequestered (tonnes CO2e) = net plantation area x Mean tree biomass increment (MTBI) X Carbon Proportion (CP) x Carbon to Carbon dioxide factor (CCDF) where		
MTBI = SBI + CBI + RBI	9.487296	11.64735
SBI (Stem Biomass Increment) = TSVI x BD	6.72	8.25
TSVI (Total Stem Volume increment)	16m ³ /ha/year	15m ³ /ha/yr
BD (Basic Density)	0.42 t/m ³	0.55t/m ³
CBI (Canopy Biomass Increment) = SBI x .1765	1.18608	1.456125
RBI (Root Biomass Increment) = (SBI + CBI) x .2	1.581216	1.941225
CP = 0.5	0.5	0.5
CCDF = 3.667	3.667	3.667

Source: SFNSW

Carbon sequestered for SFNSW hardwood and softwood plantations is calculated for the net stocked area only. All environmental exclusions and retained native vegetation have been excluded from the calculations to produce a more accurate estimation.

The amount of carbon sequestered is dependant on the area of plantation, which changes each year because of harvesting and plantings.

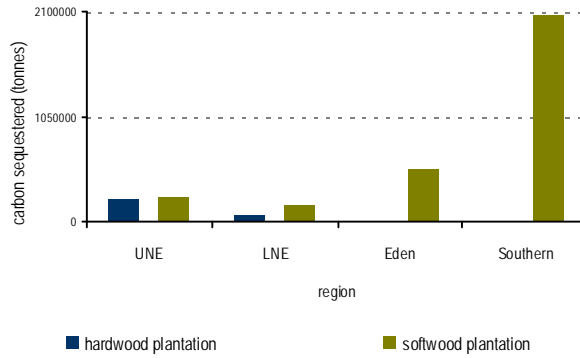
About 284 962 tonnes of carbon were sequestered in a net hardwood plantation area of 13 343 hectares in the UNE, LNE and Southern regions in 2003/2004 (**Figure 2-5-A**). By region:

- n 218 878 tonnes of carbon were sequestered in a net hardwood plantation area of 10 249 hectares in the UNE region;
- n 65 379 tonnes of carbon were sequestered in a net hardwood plantation area of 3 061 hectares in the LNE region;
- n 705 tonnes of carbon were sequestered in a net hardwood plantation area of 33 hectares in the Southern region.

There were no SFNSW hardwood plantations in the Eden region.

For softwood plantations, about 2 989 817 tonnes of carbon were sequestered in a net stocked area of 171 879 hectares in the UNE, LNE, Eden and Southern regions (**Figure 2-5-A**). By region:

- n 233 224 tonnes of carbon were sequestered in a net softwood plantation area of 13 408 hectares in the UNE region;
- n 162 071 tonnes of carbon were sequestered in a net softwood plantation area of 9 317 hectares in the LNE region;
- n 527 620 tonnes of carbon were sequestered in a net softwood plantation area of 30 332 hectares in the Eden region;
- n 2 066 902 tonnes of carbon were sequestered in a net softwood plantation area of 118 822 hectares in the Southern region.



Source: SFNSW data

Figure 2-5-A: Calculated carbon sequestered in SFNSW hardwood plantation – 2003/2004

Discussion/research and development

Progress occurred on a carbon sequestration project. In September 2003, the Premier of New South Wales and ST Microelectronics entered into a \$172 million carbon agreement. The agreement, to offset ST Microelectronics' greenhouse gas emissions, will result in about 12 million trees being planted in the mid north coast of New South Wales, around Taree, Port Macquarie, Casino and Grafton. The plantings will cover an area of about 12 000 hectares and create around 250 regional jobs in the forest industry (Flint, 2003).

Interpretation

Inadequate data available

Global carbon budget

MIG indicator 5.1.c (Category B) Contribution of forest products to the global carbon budget (UNE, LNE, Eden and Southern regions)

Data

No data available.

Discussion/research and development

No discussion available.

Interpretation

Inadequate data available.

Criterion 6 - Socio-economic benefits

Key outcomes
<p>More than 5.6 million visits were estimated to have been made to parks and reserves in 2003/2004. The UNE and Southern regions received the most visitors, about 1.37 million and 3.5 million visits were estimated respectively.</p> <p>125 recreational facilities were situated in State forests, mostly roadside rest areas or picnic areas and camping areas.</p> <p>Permits issued by SFNSW for educational and recreational activities on State forests fell by 14% over the last year.</p> <p>Employment by DEC (direct) and SFNSW (direct and indirect) in the UNE, LNE, Eden and Southern regions were estimated at 7 240 EFT employees, rising by 4% since 2002/2003.</p>

Visitation

MIG indicator 6.2.c: Number of visits per annum (UNE, LNE, Eden, Southern regions)

Data

No data on visits made to State forests were available for this report. The following data were available for the NPWS estate.

The NPWS estimate more than 5.6 million visits were made to parks and reserves in 2003/2004. The UNE and Southern regions were estimated to have received the most visitors, about 1.37 million and 3.5 million visits respectively

UNE and LNE regions

Visitor numbers for the UNE and LNE regions are sourced from the NPWS Visitor Data System. Data are estimates only, based on visits measured by traffic (vehicle and pedestrian) counters.

In 2003/2004 it was estimated that, 1 370 948 visits were made to parks in the UNE region, equal to 1 257 124 visitor days annually to forests. For the LNE region, there were 534 721 visits made to parks in the region, and the same number of visitor days to forests during this period (as all counters in the LNE region were located in forests, rather than coastal areas) (**Table 2-6-A**).

Table 2-6-A: Number of visits to the NPWS estate for UNE and LNE regions- 2003/2004

Region	Number of discrete management unit recording visitor numbers*	Number of visits**	Visitor days to forest**	Data source
UNE	32	1 370 948	1 257 124	Magnetic induction loops (vehicles) and laser beams (pedestrians)
LNE	5	534 721	534 721	

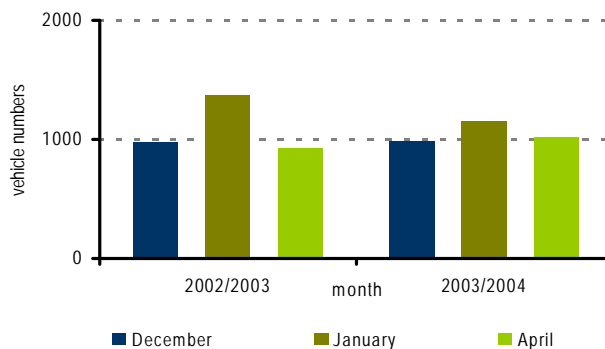
*total number management units (e.g. number of counters) that record visitor numbers.

** includes data from the management unit that records the highest value per park.

***Four counters in UNE region are located in coastal parks. The majority of visitors to coastal parks may visit the beach rather than the adjacent forest, but all sites are included in number of visits shown. Each count is represented as a single visitor day.

Source: NPWS

In the UNE region, the vehicle counter at Pebbly Beach in Yuraygir National Park provided the most accurate numbers of yearly visitation, collecting data over 350 days, or 96% of the year. As only four-wheel drive vehicles are able to access Pebbly Beach, its counters yield a relatively low number of vehicle counts. A comparison of visitor data for Yuraygir National Park for the last two years is illustrated in **Figure 2-6-A**.



Source: NPWS data

Figure: 2-6-A: Number of vehicles counted at Pebbly Beach, Yuraygir National Park (peak months in 2002/2003 and 2003/2004)

In the UNE and LNE regions, 30 digital traffic counter machines collate data on visitor numbers (19 in UNE and 11 in LNE region). This year each machine counted data from up to three vehicle and two pedestrian counters. The counters are linked to magnetic induction loops (for vehicles) and laser beams (for pedestrians). Using vehicle counters, the number of visits was calculated using an average of 2.7 passengers per vehicle.

The estimate of visits is affected by the number of days in a year the information is collected. Due to technical difficulties none of the 30 locations collected data every day of the year and only 14 traffic counter machines provided useful data (10 in UNE region and four in LNE). The NPWS is addressing these problems.

Eden and Southern regions

In the Eden and Southern regions, 3.7 million visits were recorded. There were over 3.5 million visits to more than 50 parks in the Southern region, and over 170 000 visits to eight parks in the Eden region.

Data for the Southern region were obtained from varying data sources:

- n** NPWS Southern Branch recreation facilities GIS layer;
- n** traffic counters;
- n** tickets sold at Yarrangobilly Caves in northern Kosciuszko National Park and number of bookings at the Currango Homestead Complex, also in Kosciuszko National Park;
- n** number of visits to NPWS visitor centres.

To avoid double counting of visitors who spent time in different areas of the same parks, the number of visits for parks with more than one counter includes only the highest value per park.

Seasonal variation in visitation was not taken into account in the extrapolation of visitor numbers across the twelve month period.

Discussion/research and development

Traffic counters keep an accurate record of the number of cars entering a park. This number is multiplied by an average number of occupants per vehicle, to give a figure on the number of people visiting the park. For visitor counts in 2003/2004, however, the multiplier used differed unintentionally for different regions, so that 2.33 was used for Eden region, 2.4 for some areas in Southern region and 2.7 for UNE and LNE regions. The NPWS will standardise this multiplier next year.

The NPWS continued to expand its Visitor Data System in key locations this year. In the north east regions training gave staff skills to collect data, import into Visitor Data System software and analyse results. A Visitor Data System coordinator was established in each region and a Visitor Data System Administrator established to collate data.

A review of visitor monitoring in the Eden region was completed and visitor monitoring equipment installed this year.

The Nature and Tourism Recreation (NaTREC) Database was developed to store data on recreation sites, such as information for each park by facility type (e.g. camping facilities, walking track) and visitor information.

As visitor numbers for the UNE and LNE region are collected from different sites and times periods, trends cannot be reported at this stage. Instead, individual sites can be compared over the last two years, as has been done for Yuraygir National Park, where vehicle numbers differed little between 2002/2003 and 2003/2004 during peak summer and Easter holiday periods. This trend is consistent with data in other locations in UNE and LNE regions.

In the Southern region, the number of visits increased by more than one million from 2 330 655 visits during 2002/2003 to 3 534 734 visits in 2003/2004 probably because of improved reporting capacity.

Interpretation

Inadequate data available

Visitor Management in Nadgee Nature Reserve:

A case study

The Nadgee Nature Reserve is a 20 671 hectare reserve on the far south coast of New South Wales, mostly classified as wilderness. It is the only coastal wilderness in New South Wales and continues into Croajingalong National Park in Victoria, where it meets the Cape Howe wilderness area. These adjoining areas are the largest unmodified coastal areas in south eastern Australia and together are recognised internationally as the Croajingalong Biosphere Reserve.

In New South Wales, nature reserves are not designed to attract visitors in order to preserve their significant natural values. However Nadgee Nature Reserve forms part of the Great South East Coastal Walk that extends for 140 kilometres of the coastline of Victoria and New South Wales. While this walk offers a unique coastal walking experience for skilled hikers, its importance for recreation must be balanced with efforts to protect its wilderness values. To achieve this balance the NPWS and Parks Victoria have jointly adopted a permit system within the Nadgee–Howe section of the walk this permit system to restrict the number of visitors at any one time to 30, limit the size of groups to eight people and restrict the number of consecutive nights that can be spent at a campsite.

The permit system allows accurate visitor information to be collected. There are also vehicle and pedestrian counters, surveys and a sign-in book for day visitors.

In 1995 and 1996, long-term monitoring was established at ten campsites recording site attributes such as the vegetation type, canopy cover, understorey cover, tree damage, distance to freshwater, firewood source and availability, facilities (i.e. fire ring, constructed seating), number of fire scars, soil exposure and litter. A detailed site plan is drawn up for each campsite and photos are also taken of each site from fixed photo-points to assess changes in the area over time.

This comprehensive monitoring allows effective management and minimises adverse visitor impacts: campsites showing signs of degradation can be closed and allowed to rehabilitate naturally and education campaigns can be targeted. For example, the collection of firewood may reduce the habitat for some reptiles and invertebrates. Campaigns for campers to bring their own fuel stoves for cooking have reduced this impact. Fire prohibitions also protect habitat. Education and prohibition are both management tools in the reserve.

Recreation/tourism facilities

Indicator 6.3: Availability and usage of recreation/tourism facilities (Eden region)

- Data have been provided for all regions.

Data

Visiting forest areas is encouraged by recreational facilities such as picnic and camping facilities, toilets, car parks, access to beaches, walking tracks, lookouts and scenic drives. Data on facilities comes from the NPWS and State forests.

State forest

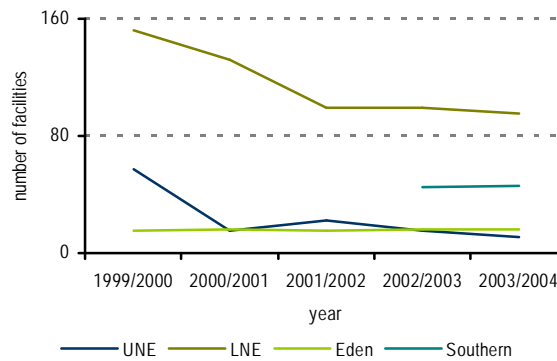
There were 125 recreational facilities listed in State forests this year (excluding forest drives and walks), mostly roadside rest areas or picnic areas and camping areas (**Table 2-6-B**).

Table 2-6-B: Type of recreational facilities on State forests in each region

Recreational facilities	UNE	LNE	Southern	Eden
Roadside rest areas/ picnic areas	2	20	12	8
Forest Drives (marked)	2	1	0	1
Forest walks (marked)	3	27	7	2
Lookouts	1	15	6	0
Camping areas	2	24	15	3
Camps /Huts /Cottages	1	8	6	2
Other	0	0	0	0
total facilities	11	95	46	16
Area zoned primarily for recreation (ha)	46	1 026	521	23

Source: SFNSW

Although the total number of facilities has remained stable over the past year, the total number of facilities has fallen by about 46% since 1999/2000, largely due to a significant decrease in recreation facilities between 1999/2000 and 2000/2001 in the LNE and UNE regions (decrease of about 49%). The number of facilities in the Eden region has remained stable since 1999/2000 (16 facilities). There were 46 facilities in the Southern region, remaining stable since monitoring began in 2002/2003 (**Figure 2-6-B**).



Source: SFNSW data

Figure 2-6-B: Recreation facilities available on State forests - All regions

SFNSW issues permits for organised recreational and educational activities like triathlons, car and bike rallies, four-wheel driving, ecotourism, educational camps and training exercises, horse and trail rides and orienteering. **Table 2-6-C** shows the number permits issued for recreational and educational activities for 2003/2004.

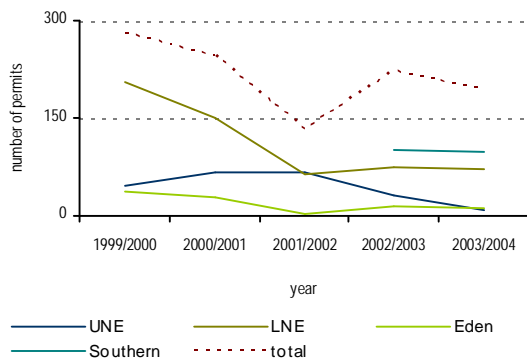
Table 2-6-C: SFNSW issues permits for organised recreational and educational activities

Permits for organised recreation activities	UNE	LNE	Southern	Eden
	No. of permits			
eco tourism / 4x4 tours	0	7	4	6
horse, trail and endurance rides	4	10	6	2
car rallies / go carts	1	7	6	1
motor bike rallies	2	3	3	0
mountain bike rallies	1	4	7	0
orienteering / mountain runs / triathlon	0	6	13	1
bushwalking	0	1	4	0
bowhunting / archery	0	0	0	0
other	0	13	25	0
total recreation activities	8	51	66	10
permits for education activities	No. of permits			
education / outdoor education schools	0	6	21	1
training / exercises	2	15	11	1
total education activities	2	21	32	2
area zoned primarily for education (ha)	14	681	-	10

Source: SFNSW

In 2003/2004, 192 permits were issued by SFNSW. This is a fall of 14% since 2002/2003 and a 31% fall since 1999/2000 (**Figure 2-6-C**). Note that the sharp increase in total number of permits illustrated in **Figure 2-6-C** (in 2002/2003) is due to the inclusion of permits issued in the Southern region, and not to an increase in permits issued in the UNE, LNE or Eden regions.

There was a decline in the number of permits SFNSW issued since 1999, particularly in the Eden region. This may be a reaction to changes to public liability insurance and increasing premiums. Since 2001/2002 the number of permits issued, although notably less than those issued pre-2001/2002, have remained stable.



Source: SFNSW data

Figure 2-6-C: Recreation and education activity permits issued on State forests

NPWS estate

There has been no change in the number of recreational facilities in the north east regions (there are 157 facilities in the UNE region and 201 facilities in the LNE region) since 2001/2002.

There was no change in the number or type of recreational facilities provided by the NPWS in the Eden region during 2003/2004. A total of 115 facilities at 73 locations and 112 kilometres of walking tracks were located in the NPWS estate within the Eden region. Facilities are mostly basic picnic and camping locations that provide parking, toilets, tables, fireplaces and access to beaches, waterfalls, rivers and lookouts. Several of the facilities are located in areas of particular Aboriginal and/or historic heritage significance. Booking systems are used at the most popular coastal facilities during peak summer and Easter holiday periods to manage visitor numbers and their potential ecological impacts.

Visitor facility data provided for the NPWS estate are not as comprehensive for the Southern region, as not all NPWS Regions were able to provide data in the new format. In addition, there is no consistent method across the region to record the number of visits to recreational facilities.

For Eden region, data on number of visits was not available for individual facilities.

Discussion/research and development

No further discussion available

Interpretation

Inadequate data available

Employment

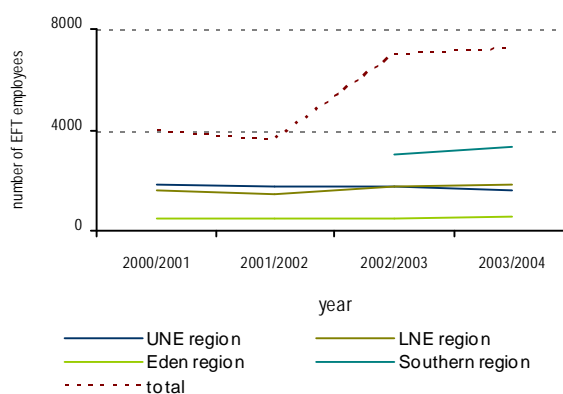
MIG indicator 6.5.a: Direct and indirect employment in the forest sector and forest sector employment as a proportion/percentage of total employment (UNE, LNE, Eden, Southern regions)

Indicator 6.4: Employment numbers by type across all forest users in the Eden region

Data

Employment derived directly or indirectly from forests is an important measure of the value of these areas to the regional economy, much like tourism. Data are not comprehensive for this indicator at present. Data comes from the two land management agencies operating in the forest agreement regions, DEC and SFNSW.

Total employment by DEC (direct) and SFNSW (direct and indirect) has remained relatively stable since 2000/2001¹⁸ (**Figure 2-6-D**). At 30 June 2004, employment by the DEC (direct) and SFNSW (direct and indirect) in the UNE, LNE, Eden and Southern regions was 7 240 equivalent full time (EFT) employees, rising by 4% since 2002/2003. SFNSW had a 5% increase in EFT employees while DEC had a 6% fall in the number of EFT employees directly employed.



* marked rise in total employment in 2002/2003 due to the inclusion of employment figures for the Southern region

Source: NPWS and SFNSW data

Figure 2-6-D: Total NPWS (direct) and SFNSW (direct and indirect) regional employment

SFNSW employment

Employment by SFNSW has been the most variable since 2000/2001, primarily because it includes so much indirect employment which may be seasonal, temporary or casual employees and contractors. In contrast NPWS employment numbers are stable as they are made up of direct employment only.

SFNSW' total direct and indirect employment this year was 6 514 EFT. Jobs included growing and managing forests, primary processes, apiary, grazing and ecotourism. Primary processing¹⁹ is the

¹⁸ Data for 1999/2000 have not been included as an accounting error was made in employment figures for SFNSW and incomplete data were available for employment by the NPWS.

¹⁹ Processing undertaken at a site where the input is raw material supplied by SFNSW.

SFNSW' largest employment category, accounting for 66% of employment. The other main employment categories were harvest and haulage (15%) and growing and managing²⁰ (10%).

NPWS employment

The number of NPWS employees decreased this year due to restructuring and the creation of DEC, which now includes the former NPWS, EPA, Botanical Gardens Trust and Resource NSW. The core of the former NPWS continues to manage New South Wales parks system and operates under the title of the NPWS, but is known as the Parks and Wildlife Division within DEC.

Employment within the forest agreement regions by the NPWS, of the total of 387 permanent EFT employed in the UNE and LNE regions, 138 were in the UNE region and 249 in the LNE region. These figures vary slightly from those presented in 2002/2003, decreasing from 176 EFT in the UNE region, and increasing from 223 EFT employees in 2002/2003 in the LNE region, although neither year included temporary, casual or seasonal positions.

In Southern region, the number of NPWS EFT employees decreased significantly from 318 last year to 281 this year. Employment also occurred in a broad range of employment categories, including Resorts Division and visitor centre staff. Seasonal, temporary or casual positions were not counted.

NPWS employment in the Eden region has remained constant at 58 positions, including part-time casual interpretative assistants, which are accurately reflected in the number of EFT positions reported. A new designated Aboriginal position has been filled and an existing Aboriginal position has become a ranger cadetship. The 40 permanent positions created with the South East Forest Reform program in 1994 still remain, including 4.5 Aboriginal positions and one cadetship but not temporary, casual or seasonal positions.

Total employment figures provided by the NPWS include its regional staff, even if some of their time is also spent outside the region. However, it is not possible to determine more accurate statistics from the current data sets or to isolate forest agreement tasks from other NPWS work. Another complication was the lack of a standard method of calculation because of staff losses.

While the 2002/2003 report contained data for the LNE region from the NPWS Northern Branch only, the 2003/2004 report includes data from both NPWS Northern and Central Branches. In addition, the split of employees into UNE and LNE regions was undertaken according to NPWS regions in 2002/2003 and by location of workplaces in 2003/2004, to align with the methods used for this calculation in Southern and Eden regions. A comparison between the number of staff in forest regions by reporting years is therefore not possible. As 58 staff were recorded in 2003/2004 to be from NPWS Central Branch, a comparison of NPWS Northern Branch staff between years is possible, with 399 staff recorded in 2002/2003 and 329 staff recorded in 2003/2004. This is a reduction of 70 staff within the 2003/2004 reporting period.

NPWS employees previously within the Conservation Programs and Planning Division and Human Resources Service Centre within the Northern Branch have now been relocated to other divisions of DEC. Staff freezes imposed on the agency during the restructure have limited the extent to which

²⁰ Includes administration, maintenance activities, consultants and contractors.

permanent vacant positions were able to be filled, and senior managers currently reducing staff numbers and determining future staffing levels. Voluntary redundancies have also reduced numbers.

The state of flux within the agency as it undergoes restructuring partly explains the changed data, as do the different calculation methods over the last two years and the impossibility of isolating forest agreement tasks from complex work loads.

Discussion/research and development

Discussion provided above.

Interpretation

↓ NPWS estate (direct employment)
↑ SFNSW (direct and indirect employment)

Gross income

Indicator 6.5: Gross income index related to forests (Eden region)

Data

No data available

Discussion/research and development

No discussion available except the following case study.

Interpretation

Inadequate data available.

Socio-economic benefits of parks to communities in Yuraygir National Park: a case study in the UNE region

Research can improve understanding of park-related tourism and regional socio-economic development.

An example is a study on the Yuraygir National Park, which protects the longest stretch of undeveloped coastline in New South Wales: from Red Rock to Yamba. The park was created in 1980 and is 30 406 hectares in area. In 2000 there were 450 000 visitors.

In 1999 and 2000, data were gathered from 486 on-site interviews and 333 mail-back questionnaires. It revealed that visitors from the North Coast region spent on average \$51 per trip, while visitors from outside the region spent on average \$31 per trip. In total, visitors to the park averaged an expenditure of \$36 per trip.

Visitors to Yuraygir National Park from the North Coast region spent \$5.5 million (\$1.1 million on accommodation, \$3.2 million on shopping and \$0.9 million on petrol). Visitors from outside the region spent \$10.5 million (\$1.8 million on accommodation, \$5.0 million on shopping, \$2.5 million on petrol, and \$0.6 million on meals). The total on-park expenditure for management of Yuraygir National Park in 2000 was \$1.5 million.

NPWS management expenditure at Yuraygir National Park is estimated to have generated \$1.0 million in regional household income, and created 14 jobs in addition to the 10 people directly employed in management of the park. The \$10.5 million expenditure by visitors to Yuraygir from outside the region is estimated to have generated \$5.7 million in regional household income and created 187 jobs.

Places of cultural significance

Indicator 6.4.c: Change in condition and number of recorded places, artefacts, sites, buildings or other structures (UNE, LNE regions)

Indicator 6.6: Change in condition and number of recorded places, artefacts, sites, buildings or other structures (Eden region)

Indicator 6.4.c(i): Change in condition and number of Aboriginal cultural heritage features within the forest estate including recorded places, artefacts, sites or other structures (Southern region)

Indicator 6.4.c(ii): Change in condition and number of historic heritage features within the forest estate including recorded places, artefacts, sites, buildings or other structures (Southern region)

Data

A change in the number of heritage sites is one indicator of the social and cultural values of forests.

Determining the cultural values of an area is difficult partly because the value is intangible, it changes depending on the person involved in its determination.

Aboriginal cultural heritage on NPWS estate

NPWS' Aboriginal Heritage Information Management System (AHIMS) began in 2001 and it has improved reporting on cultural heritage.

There were 4 775 Aboriginal objects recorded on the NPWS estate and 16 982 off-park, an increase since last year and mainly located in the LNE (10 909) and Southern regions (7 209).

This year a list of Aboriginal items or places, recorded in AHIMS, was identified for each of the relevant model parks selected for *State of the Parks* quantitative reporting. A summary table has been provided

(Table 2-6-D). As shown in the table, the number of Aboriginal objects found is highly variable reflecting survey effort rather than sites.

The term 'Aboriginal objects' has been used to describe Aboriginal sites since 2002/2003, consistent with the *National Parks and Wildlife Act* and AHIMS terminology. The *National Parks and Wildlife Act* defines objects as 'any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains'.

Table 2-6-D: Number of Aboriginal objects recorded on a sample of parks

Region	Park name	Number of Aboriginal heritage objects and places
UNE	Arakwal National Park (joint management)	2
	Bald Rock National Park	0
	Border Ranges National Park	6
	Yuraygir National Park	61
LNE	Arakoon State Conservation Area	2
	Barrington Tops National Park	5
	Clybucca Historic Site	12
	Wambina Nature Reserve	1
Eden	Nadgee Nature Reserve	38
Southern	Bogandyera Nature Reserve	2
	Bungonia State Conservation Area	14
	Kosciuszko National Park	615
	Murramarang Aboriginal Area	23

Source: NPWS

Aboriginal cultural heritage on State forests

There were 2 752 Aboriginal sites identified in State forests and 382 sites were found in 2003/2004. Most sites were found in the UNE region (1 012 sites) and Southern region (868 sites). Similarly, most new sites were found in the UNE region (194 sites) and Southern region (90 sites). These included natural features, art and ceremonial sites, sites associated with tools, artefacts and hunting, and traditional Aboriginal life. No sites of Aboriginal significance were destroyed.

There were also 4 729 hectares of State forest with predominantly Aboriginal management. The Eden region had the most land with such a management purpose (3 987 ha). In the LNE region two co-management agreements existed, covering an area of 50 000 hectares.

Historic (non-indigenous) cultural heritage

A total of 4787 historic sites were recorded on the NPWS estate and State forest (Table 2-6-E). This included 4 521 sites on the NPWS estate and the remaining 266 located on State forests.

Table 2-6-E. Number of historic places on NPWS estate and State forest - All regions- 2003/2004

	Region				
	UNE	LNE	Eden	Southern	Total
Number of historic places on national park estate	611	1 402	265	2 243	4 521
Non-indigenous sites on State forest estate	242	-	17	7	266
Area zoned primarily for heritage value on State forest estate (ha)	0	159	1 050	163	1 372
Area zoned primarily for aesthetic value on State forest estate (ha)	391	0	9 902	11 080	21 373

Source: NPWS and SFNSW

NPWS data on historic places have been derived from the statewide Historic Heritage Information Management System (HHIMS) since 2001. **Table 2-6-F** contains a list of the number of historic heritage items recorded in the HHIMS, identified for each of the model parks in forest agreement regions, that were also selected for NPWS *State of the Parks* quantitative reporting. The number is highly variable a reflection of survey effort rather than actual concentration of sites.

Table 2-6-F: Number of historic heritage items or places occurring on a sample of parks across all regions – 2003/2004

Region	Park name	Number of historic heritage items and places
UNE	Arakwal National Park (joint management)	1
	Bald Rock National Park	10
	Border Ranges National Park	21
	Yuraygir National Park	48
LNE	Arakonn State Conservation Area	0
	Barrington Tops National Park	62
	Clybucca Historic Site	2
	Wambina Nature Reserve	2
Eden	Nadgee Nature Reserve	33
Southern	Bogandyera Nature Reserve	2
	Bungonia State Conservation Area	16
	Kosciuszko National Park	2 283
	Murramarang Aboriginal Area	0

Source: NPWS

Discussion/research and development

Activities related to Aboriginal cultural heritage on NPWS estate

The AHIMS has the capacity to report on the number of Aboriginal sites managed, the number of threatening processes or conditions identified and thereafter removed, and the number of Aboriginal sites subject to an Aboriginal heritage permit. However, the AHIMS is accessible to a small number of staff and contains limited data, so cannot be reported this year. It is foreseen that this data will be available in future years.

The NPWS has attempted to align the data collected for ESFM reporting this period with data collected for other NPWS reporting processes. The information required for other types of reporting, particularly the *State of the Parks* reporting system (currently under development) is expected to generate more comprehensive and meaningful data.

The increase in the number of AHIMS records for the UNE, LNE and Southern regions is a result of survey and research activity, and more information coming from the community. In contrast, the number of Aboriginal objects recorded for the Eden region decreased, probably due to small differences in calculations, rather than a change in the number of sites. The changes in the AHIMS database also may have contributed to the decrease in sites. Data on the condition of sites are not available.

There was also an increase or no change in the number of Aboriginal objects recorded on the majority of parks sampled in each region, and a decrease in the number recorded for Murramarang Aboriginal Area and Nadgee Nature Reserve. Wambina Nature Reserves and Yuraygir and Kosciuszko National Parks had more Aboriginal objects recorded.

The NPWS undertook several surveys on Aboriginal cultural heritage features in the south western slopes area of the Southern region and numerous artefacts, sites and other structures were recorded. The surveys were in:

- n Black Andrew Nature Reserve;
- n Mudjarn Nature Reserve;
- n Happy Jacks Road (Kosciuszko National Park);
- n Currango Historic Precinct (Kosciuszko National Park);
- n Yarrangobilly Karst Management Area (Kosciuszko National Park).

The condition of numerous recorded Aboriginal cultural heritage features has changed because of the 2002/2003 fires or fire suppression activities. Fire damage was evaluated through the Premier's post-fire recovery program and found that the fires made minimal impacts on identified features. However, the impact of fire suppression activities on some Aboriginal sites and artefacts was more significant.

Last year the Goobarragandra rock art site in Kosciuszko National Park was damaged by stock and park users utilising the overhang as shelter and fireplace. Over the past 12 months, the NPWS has installed measures, such as a raised metal grid to prevent further deterioration. A photo monitoring program at Goobarragandra and another at the rock art site in Woomargama National Park now monitor changes in condition.

Trial Bay Gaol – LNE region

A conservation management and cultural tourism plan was completed for Trial Bay Gaol at Arakoon, and launched in June. The gaol is listed on the Register of the National Estate and is one of the best known historic sites in New South Wales. The 100th anniversary of the closure of the gaol was celebrated in 2003.

Some emergency works, such as treating the exposed brickwork and metal work and vegetation control were completed this year.

Activities related to historic (non-indigenous) cultural heritage on NPWS estate

In the Southern region there have been changes in the condition of historic buildings and places from restoration work and visitor impacts, although no systematic evaluation or monitoring has been done. Some historic buildings and sites have been altered by their popularity as visitor destinations: Cooinbil Hut, Coolamine Homestead, Cotteril's Cottage, the Currango Homestead Complex, the Kiandra Goldfields, Oldfields Hut and Yarrangobilly Caves House are examples.

The UNE and LNE regions have developed regional cultural management strategies which set out conservation priorities and plans for the next four years. Other conservation management plans are carried out under regional strategies. For example, in 2003/2004:

- n** a conservation maintenance plan was developed for the historic buildings in Cape Byron State Conservation Area;
- n** conservation management plans were finalised for Dalmorton Township and East Kunderang Station;
- n** a draft conservation management and cultural tourism plan for the Trial Bay Gaol at Arakoon was placed on public exhibition;
- n** a revised conservation management plan for the Seal Rocks Lighthouse was placed on public exhibition.

The number of historic items and places has increased since last year, attributable to more HHIMS records for the LNE and Southern regions. The recorded number of historic places actually decreased for the UNE and Eden regions probably due to small differences in the GIS data used in calculations rather than real changes. Changes in the HHIMS database may have contributed to the decrease in sites within these regions. Data on the condition of sites is not available.

Some historic sites in UNE and LNE have had maintenance work funded by the NSW Treasury-funded Historic Asset Maintenance Program.

There was an increase or no change in the number of historic heritage items and places recorded on the majority of the parks sampled in each region. There were decreases in numbers for the Border Ranges National Park (due to a correction to HHIMS records), Nadgee Nature Reserve and Yuraygir National Park (due to errors in the 2002/2003 data or corrections to HHIMS records during 2003/2004). Wambina Nature Reserve and Arakwal and Kosciuszko National Parks saw increases in the number of Aboriginal objects recorded.

The NPWS has also completed the first stage of implementation of the Conservation Management and Cultural Tourism Plan for Glenrock Lagoon Cultural Landscape in 2003/2004. This included conducting a Risk Assessment, preparing Works Documents and Specifications for Conservation Works to Burwood No.1 Colliery, the Coastal Railway, and other Colliery Sites in Glenrock State Conservation Area.

The NPWS is completing conservation management plans for remaining huts within Barrington Tops National Park (LNE region) to provide for continuing use and written histories of structures and their usage were compiled. Some interpretation signs have been completed as result of the study.

In the Southern region a consultant completed a heritage action statement and assessment of burnt huts in the Snowy Mountains in December 2003. It is an historical record as a works and restoration

plan and recommends the Doctors, Geehi, and Old Geehi huts be restored. A hut management strategy is being prepared.

In the Southern region a single conservation management plan, the Draft Currango Historic Precinct Conservation Management and Interpretation Plan, was prepared this year. It's supporting information and analysis section contains comprehensive historic information, including a summary of the evidence of Aboriginal occupation of the area and details of the role of Aboriginal people in the post-occupation period.

Interpretation

Inadequate data available.

Arakwal National Park – UNE region

There were a number of major achievements for the jointly managed Arakwal National Park, located in the UNE region. In September 2003 the Arakwal People of Byron Bay and the NPWS were awarded the international Packard Award for Distinguished Achievements in Wildlife Preservation in recognition of the achievement involved in creating and managing Arakwal National Park. The award was presented at the World Parks congress in Durban, South Africa. An Aboriginal cadet ranger and field officer were also appointed.

A Business Feasibility Study and Precinct Master Plan have been completed for the Arakwal Cultural Centre. Funding from the Department of Employment and Workplace Relations and the Department of State and Regional Development will develop a Business

Plan for the Cultural Centre and a Corporate Plan for Arakwal Corporation.

A study to identify the Aboriginal heritage values of Arakwal National Park has been completed. This has assisted the Management Committee to determine potential cultural impacts of management proposals and provided information for cultural interpretive programs. The study included 'back to country' days for the Byron Bay Arakwal people to meet and discuss past, present and future values associated with the Park and how these values can be incorporated in the plan of management.

An ethno-botanical study identified, mapped and made management recommendations relating to plants that are culturally important to the Byron Bay Arakwal people. The study provided educational material and cultural renewal opportunities for the Byron Bay Arakwal people as well as promoting the sustainable use of wild resources. The study is now complete and produced the publication, *Place of Plenty – culturally useful plants around Byron Bay* (NPWS and Arakwal Aboriginal Corporation, 2003).

South Coast Aboriginal Heritage and Cultural Mapping of the Lower Shoalhaven River Valley – Southern region

The Aboriginal Heritage and Cultural Mapping project of the Lower Shoalhaven River Valley is collecting information on Aboriginal associations with the landscape within a distinct landscape, cultural and language unit which covers eight new reserves and other crown lands within 10 kilometres of Nowra. The reserves are the Bamarang, Wogamia, Triplarina, Worrigeer, Brundee Swamp, Saltwater Swamp and Tapitallee Nature Reserves and Bomaderry Creek Regional Park. The project will take five years.

Stages Completed 2002/2003

Stage 1 - Archaeological and Post-Contact Literature Review and Ethnography of the Lower Shoalhaven River valley, (Goulding and Schell 2002). This report illustrates documented history and provides a basis and context for remembered histories.

Stage 2 - Technical Preparation of information from Stage 1 on enlarged aerial photos and preliminary Community consultation and field work.

Stages Completed 2003/2004

Stage 3A - Remembered Lands: Oral Histories of Aboriginal people with histories attached to the Lower Shoalhaven River valley study area and Cultural Mapping that identifies places and other themes. A small project team consulted the local Aboriginal community composed of five distinct groups or affiliations on their associations with country. (Waters et al. 2004)

Project Results include:

- description of 92 significant places by the 15 participants. These included bush tucker places (e.g. Cobrah, blackberries, fish and turtles), material use places (e.g. pipeclay, paperbark, medicines), social sites (e.g. Sunday School trees), spirits and spirit places (e.g. Dooligars, Bugeens), home places (e.g. houses, camps), work places (e.g. farms, sawmills, slaughter yard, brickworks, forest), walking tracks, recreation sites (e.g. swimming holes) etc;
- production of maps in the Interim Report, identifying the place names with the story and the participants. A database of places was produced;
- participation of Aboriginal people in recording their culture and histories and ultimately fostering participation in the planning for eight new reserves;
- ongoing dialogue with Aboriginal people of the Nowra area is a positive step in understanding culture and association with place as well as fostering trust and transparency between the NPWS and community.

Link with further cultural initiatives

This project will be a strong model for investigative and collaborative cultural work in other reserves and cultural landscapes. The NPWS pays for and recognises contributions creating employment opportunities and custodian-management involvement.

Criterion 7 - Legal, institutional and economic frameworks

Key outcomes
The <i>National Park Estate (Reservations) Act 2003</i> commenced on 1 July 2003.
The <i>Natural Resources Commission Act 2003</i> commenced on the 23 January 2004.
The <i>Native Vegetation Act 2003</i> was assented to on the 11 December 2003.

Consistent with previous years' reporting, the information provided for Criterion 7 is presented on a statewide scale and in most cases is not directly attributable to individual regions. However, individual projects undertaken in particular forest agreement regions have been reported separately where possible.

Legal framework

MIG Indicator 7.1 (narrative): Extent to which the legal framework (laws, regulations, guidelines) supports the conservation and sustainable management of forests (UNE, LNE, Eden, Southern regions)

Legislation

The legal framework for forests and forest management is extensive. It includes legislation, amendments to existing legislation, policies, guidelines and codes of practice.

The following discussion includes only information on the legal framework for forests and forest management not previously reported.

National Park Estate (Reservations) Act 2003

The *National Park Estate (Reservations) Act 2003* commenced in July 2003. This act provided for the transfer of specific areas of State forest land to the NPWS estate. Details of the transfers facilitated by this Act are provided in Chapter 1.

Natural Resources Commission Act 2003

The *Natural Resources Commission Act 2003* was assented to on 11 December 2003 and commenced on the 23 January 2004. The Act provided for the establishment of the Natural Resources Commission, an independent body with broad investigating and reporting functions for the purposes of:

- n establishing a sound scientific basis for the properly informed management of natural resources in the social, economic and environmental interests of the State;
- n enabling the adoption of State-wide standards and targets for natural resource management issues;
- n advising on the circumstances in which broadscale clearing is to be regarded as improving or maintaining environmental outcomes for the purposes of the *Native Vegetation Act 2003*.

Native Vegetation Act 2003

The *Native Vegetation Act 2003* was assented to on 11 December 2003, but had yet to commence at the end of this reporting period. The Act will replace the *Native Vegetation Conservation Act 1997*. The Act aims:

- n** to provide for, encourage and promote the management of native vegetation on a regional basis in the social, economic and environmental interests of the State;
- n** to prevent broadscale clearing unless it improves or maintains environmental outcomes;
- n** to protect native vegetation of high conservation value having regard to its contribution to such matters as water quality, biodiversity, or the prevention of salinity or land degradation;
- n** to improve the condition of existing native vegetation, particularly where it has high conservation value;
- n** to encourage the revegetation of land, and the rehabilitation of land, with appropriate native vegetation, in accordance with the principles of ecologically sustainable development.

Policy and guidelines

Both the NPWS and SFNSW have a number of policies and guidelines which assist in supporting the conservation and sustainable management of forests.

NPWS

Policy documents establish a corporate position or attitude on a particular issue, activity or service and are endorsed by the NPWS Executive. Policies that apply to the NPWS are:

- n** government policies and legislation, with broad application and a high level of permanency;
- n** strategic policies, which also have a broad scope and apply to the NPWS as a corporate entity. Strategic policies are designed to set broad directions, clarify corporate intentions or articulate matters of principle and have little or no procedural content;
- n** operational policies, developed at an organisational or sub-organisational level, are the most common policy instrument in the NPWS dealing with specific issues and having some procedural content. Operational policies are sometimes accumulated in manuals;
- n** procedural guidelines, the least permanent of the policy instruments, focus on one or several aspects of an operational policy and its application. Procedural guidelines are also sometimes accumulated into manuals and tend to describe tasks, accountabilities, specifications and other technical matters.

The NPWS Policy Guide outlines the process for policy review. It aims to:

- n** provide a quality control mechanism and a point of reference for matters related to policy;
- n** provide a template for NPWS staff to write policies relevant to their responsibilities;
- n** describe a standard process for developing and reviewing policies;
- n** provide a standard model for policy structure, style and presentation.

Each policy has a review date. The Division or Region responsible for policy development is also responsible for its review. All policies should be formally reviewed every three years. The Executive or a Director endorse corporate policies.

Only NPWS corporate policies, as against regional ones, are reported on in this document.

A list of NPWS policy documents is published each June and December in the *NSW Government Gazette* and on the NPWS website at:

<http://www.nationalparks.nsw.gov.au/npws.nsf/Content/Corporate+policies+and+guidelines+by+doctype>.

They include corporate documents, scientific policies and manuals, personnel guidelines, field policies and procedures and are available for inspection by arrangement or purchase.

SFNSW

SFNSW also have a number of policies, codes and guidelines that assist in sustainable forest management. Some examples of these include:

- n Environmental Policy;
- n Recreation Policy;
- n Codes of Forest Practice;
- n Forest Practices Circulars.

A number of SFNSW' policies can be viewed on the SFNSW website <http://www.dpi.nsw.gov.au/forests>.

Legal Framework for Aboriginal Interests

The *Commonwealth Native Title Act 1993*, *NSW Native Title Act 1994* and the *NSW Aboriginal Land Rights Act 1983* relate to this indicator.

The NPWS acknowledges that the indigenous peoples of Australia are the original custodians of the lands and waters, animals and plants of New South Wales and its many and varied landscapes. The NPWS incorporates this recognition in all interactions with Aboriginal communities about heritage and conservation initiatives, while seeking greater involvement of Aboriginal communities in the management of the New South Wales parks system.

Updates on significant outcomes in 2003/2004 in relation to this indicator are presented below.

Activities in the jointly managed Arakwal National Park (UNE region) this year included a study identifying Aboriginal heritage values of the park as well as an ethno-botanical study which identified, mapped and made management recommendations on plants that are culturally important to the Arakwal people. The study resulted in the production of *Place of Plenty*, a booklet about wild resources in Arakwal country. The booklet is now on sale and proceeds will go towards cultural renewal opportunities.

In the LNE region in 2004, discussions continued on creating Aboriginal-owned reserves at Stockton Bight near Newcastle and Warrell Creek near Nambucca Heads.

The Kosciuszko National Park Aboriginal Working Group (Southern region) was established to provide cultural heritage advice and guidance to the NPWS on the Kosciuszko National Park draft plan of management.

In the Eden region in 2004, formal negotiations commenced for the return of Biamanga and Gulaga national parks on the NPWS Far South Coast Region to Aboriginal owners, to be leased back by DEC under Part 4A of the *National Parks and Wildlife Act*. Lease negotiation meetings are being held monthly between DEC, the negotiating panel (appointed by the Minister for Aboriginal Affairs) and Bega, Merrimans and Wagonga Local Aboriginal Land Councils.

Review of Part 4A of the National Parks and Wildlife Act

Part 4A of the *National Parks and Wildlife Act* recognises the cultural significance of certain lands to Aboriginal people and provides for their return to Aboriginal owners. The returned land is then leased back to the government and managed by a board with a majority of owners.

The *National Parks and Wildlife Amendment (Aboriginal Ownership) Act 1996* requires that a review of the policy objectives and operation of Part 4A be undertaken after five years, that is, by 16 December 2002. In 1998 the then Minister commissioned a preliminary review of the Part 4A provisions.

The recommendations of the preliminary review were presented to the Minister in August 2000. The subsequent National Parks and Wildlife Amendment Bill 2001 did not contain amendments to Part 4A. In December 2001 the Minister indicated that the Government would carry out a separate Part 4A review, to include consideration of the proposals review commissioned in 1998.

A parliamentary report reviewing Part 4A of the Act was tabled in the Legislative Council in the 2003 Budget session and subsequently tabled in the Legislative Assembly in the 2003 spring session. The report concluded that Part 4A is operating to meet its policy objectives but also identified a number of improvements to the operation of this part of the Act. Prior to the tabling of the report, preliminary discussions about its recommendations were held with key stakeholders. This process revealed a number of complex issues that warranted further consultation. After these final consultations the recommendations for improving Part 4A of the *National Parks and Wildlife Act* will be submitted to Parliament.

Repatriation to Aboriginal communities

The aim of the repatriation program is the return of Aboriginal ancestral remains, cultural material and information to Aboriginal communities under the provisions of the *National Parks and Wildlife Act*.

In 2003/2004, the program facilitated the return of ancestral remains and cultural material to Aboriginal communities in five areas. DEC dedicated areas within traditional territory for the reburial of ancestral remains and returned other cultural material.

In July 2003 the Survey of Sites of Significance repatriation project commenced. This project returns cultural information to Aboriginal communities and the descendants of the original informants who contributed to the original survey between 1973 to 1983:

Public Participation in Policy Development

The NPWS provides opportunities for public participation in policy formulation by way of membership on various bodies including:

- n the National Parks and Wildlife Advisory Council;
- n NPWS Regional Advisory Committees;
- n the Cultural Heritage Research Advisory Committee;
- n Trusts appointed under the *National Parks and Wildlife Act*.

The NPWS also seeks public submissions when developing and reviewing management and recovery plans and proposals for NPWS managed lands and programs. Details can be found on the NPWS website (<http://www.nationalparks.nsw.gov.au/>).

An example of public participation in policy formulation is underway in the UNE and LNE regions, where the NPWS, in conjunction with key stakeholders and community groups, has established the Bell Miner Associated Dieback Working Group coordinate management of Bell Miner Dieback in north eastern Australia.

Case study: Bega regional study

The first three stages of the Bega Valley Aboriginal Cultural Heritage Regional Study were completed in the Eden region this year. The study is being conducted in the Eden region by DEC and Bega Valley Shire Council in association with the Bega, Eden and Merrimans Local Aboriginal Lands Councils, with partial funding under the Natural Heritage Trust.

The study has produced a comprehensive report documenting the shire's post-contact Aboriginal history. It maps and describes the places that are important to contemporary Aboriginal cultures in the region, and complements archaeological records. The outcome will provide recommendations or protocols for future cultural heritage management, and involve a review of existing policies and procedures for environmental assessment and strategic land use planning.

Institutional framework

MIG Indicator 7.2 (narrative): Extent to which the institutional framework supports the conservation and sustainable management of forests (UNE, LNE, Eden, Southern regions)

Public Education and Awareness

SFNSW employees participated in a total of 776 community forums across all regions in 2003/2004. Of the total number of forums 336 were held in the LNE, 226 in the UNE, 137 in the Southern region and 75 in the Eden region. Key areas that these forums dealt with included community bushfire management, cultural management and interactions with industry stakeholders.

DEC aims to work with the community to foster understanding and appreciation of natural and cultural heritage. A number of programs are currently underway. These include:

- n Learning for Sustainability – NSW Environmental Education Plan
- n Community Programs Network;
- n Discovery program;
- n School Education programs;
- n Envirothon.

NPWS Volunteers
More than 2 500 volunteers have participated this year in bush regeneration, weed control, track maintenance, flora and fauna surveying and mapping, historic heritage restoration, and education.

Aboriginal programs and projects

A number of DEC programs and projects are being implemented in the forest agreement regions. These include:

Aboriginal heritage program

DEC's Aboriginal heritage program continues to contribute to conservation of Aboriginal sites and places of significance and aims to boost Aboriginal management and community knowledge of Aboriginal heritage.

Aboriginal Project Officer on the Coffs Coast

The NPWS Coffs Coast Area (UNE region) has undertaken an 18-month trial project to include Aboriginal people in reserve management and improve the protection and management of cultural heritage. An Aboriginal project officer was employed and there are now closer working relationships with Aboriginal Elders.

Aboriginal Living Places Project

The Aboriginal Living Places Project use archaeology and oral history to record Aboriginal post-contact with NSW settlement sites including Aboriginal reserves, fringe camps, pastoral station camps, town dwellings, seasonal work camps and holiday camps. The project will address a significant gap in knowledge by collecting records of post-contact living sites.

Aboriginal women's heritage project

The Aboriginal Women's Heritage project collects oral histories of Aboriginal women and publishes them through the Women's Heritage Series. Three books have now been published in this series; *Aboriginal Women's Heritage: Nambucca*, *Aboriginal Women's Heritage: Nowra* and *Aboriginal Women's Heritage: Brungle & Tumut*.

Working with Aboriginal communities
<p>A number of activities in 2003/2004 involved the NPWS working closely with local Aboriginal communities. Some examples are:</p> <ul style="list-style-type: none"> - The NPWS Hunter Region hosting a weekend Aboriginal Women's culture camp in May 2004 at Myall Lakes National Park (LNE region). - An Aboriginal Mentoring Program with Aboriginal students in Years 10, 11 and 12 at Shoalhaven High School (Southern region). The students spent a week with Aboriginal rangers, educators, guides, field officers, site officers and clerical staff, then planned and delivered cultural activities to several schools with NPWS <i>Discovery</i> Rangers.

Staff training and development

SFNSW staff and contractors continue to receive appropriate competency based training. Records of SFNSW staff training are maintained on a corporate database. Records of contractor competencies are maintained on the SFNSW Contractors' and Operators' Licensing and Permits system. Competencies are subject to the SFNSW internal audit system (Circular 2003/01 Monitoring and Measuring Compliance of Operations).

Over 2 850 NPWS employees statewide participated in training programs during the year. Note that the number of employees who participated in training programs exceeds the total number of NPWS staff because individuals can undertake more than one training program. During the year DEC ran training programs in a number of areas including: occupational health and safety, management development and Aboriginal Cultural Awareness.

Enforce laws, regulation and guidelines

Refer to Chapter 3 for compliance information

Capacity to measure and monitor change

MIG indicator 7.4 (narrative): Capacity to measure and monitor changes in the conservation and sustainable management of forests (UNE, LNE, Eden, Southern regions)

There is growing interest in protected area management assessment systems. For the NPWS, its *State of the Parks* program is intended to provide this. Its aims are:

- n Effective and responsive park management decision-making;
- n Systematic and transparent links between management objective and actions;
- n Transparent allocation of funding and resources to achieve outcomes;
- n Strong partnership with communities;
- n Effective communication of its management performance to the community.

Under the *State of the Parks* program, data were collected for a sample of 22 parks (15 within the forest agreement regions) and from qualitative survey of the 639 parks that were gazetted at 30 June 2003. This was the largest attempt to collect systematic information of this type from a reserve system anywhere in the world. It was designed by international experts in the evaluation of protected area management lead by the Vice-Chair World Conservation Union World Commission of Protected Areas. While the data collection process is still developing, a *State of the Parks* report is being produced.

The NPWS envisage the *State of the Parks* system will also help address issues identified in the recent NSW Audits Office performance audit on NPWS management of parks and reserves, and is a key component of its strategy for achieving excellence in protected area management.

NPWS Wild Resource Use Policy

Background

In 2002, the NPWS Executive endorsed the drafting of a policy for wild resource use by Aboriginal people who have a cultural association with a park. The policy recognises that wild resource use is a cultural practice that allows Aboriginal people to maintain their connection with the natural environment and supports cultural renewal. The policy will guide park managers in decisions about access to parks and reserves for wild resource use activities.

The Wild Resource Use Working Group was established in August 2003 to prepare a discussion paper for internal consultation.

Legislative Context

In 2001, the *National Parks and Wildlife Act* was amended to include objects and management principles. The aim with respect to cultural heritage (section 2A (1)(b)) is about the conservation of objects, places or features (including biological diversity) of cultural value in the landscape. Internal legal advice is that permitting wild resource use in accordance with tradition and custom on park would further the cultural heritage objects of the *National Parks and Wildlife Act*.

Wild resource use by Aboriginal people on parks and reserves is authorised and defined under *National Parks and Wildlife Act*. Section 120 of the *National Parks and Wildlife Act* allows a licence to harm protected native fauna (s120 licence) to be issued, specifying the number, location and species of objects. Under section 131, a licence can be issued to pick protected native plants (s131 licence). For threatened species, a section 91 licence is also required.

Opportunities

Existing opportunities for wild resource use in co-managed parks are listed below.

- (a) Parks returned to Aboriginal ownership under Part 4A of the *National Parks and Wildlife Act*. In parks returned to Aboriginal owners and leased back to DEC under Part 4A of the *National Parks and Wildlife Act*, the lease must acknowledge that Aboriginal owners are entitled (subject to relevant legislation and the plan of management) to enter and use the lands for hunting, fishing or gathering traditional foods for domestic, ceremonial and cultural purposes in accordance with the tradition of the Aboriginal owners. No harm can be done to a threatened species or an animal protected by a park's plan of management. Five national parks, two nature reserves and two historic sites have been listed under schedule 14 of the Act for this arrangement.
- (b) Native title holders and parks subject to Indigenous Land Use Agreements (ILUA). Native title rights are defined in section 223(2) of the *Native Title Act 1993* as including hunting, gathering and fishing rights. In order for native title holders to demonstrate their native title rights to a particular park they require a native title determination. Alternatively the Aboriginal community can negotiate an ILUA with DEC to establish rights and a framework for wild resource use for all native title holders for that land. Relevant licences are still required. Only one ILUA has been negotiated in New South Wales, at Arakwal National Park.
- (c) Aboriginal Areas. The management principles for Aboriginal Areas under the *National Parks and Wildlife Act* (s30K (2)(c)) include allowing the use of the Aboriginal area by Aboriginal people for cultural purposes. There are 11 Aboriginal Areas declared in New South Wales, consisting of about 11 643 hectares. The relevant provisions of the Act also limit activities within Aboriginal Areas that may harm protected fauna and flora.
- (d) Memorandum of understanding. At present, memoranda of understanding negotiated for co-management do not include provisions for wild resource use activities.

Whole-of-Government Framework

In May 2004, DEC led the development of the Culture and Heritage Action Plan under the Government's Aboriginal Affairs Strategy. This entails developing a whole-of-government framework for ecologically sustainable and culturally appropriate wild resource use of government managed lands and waters. A whole-of-government working group will prepare this framework. The interagency Wild Resource Use Working Group is chaired by DEC, and includes representation from SFNSW, NSW Fisheries, the Department of Lands, NSW Agriculture, the State Council of the Rural Lands Protection Board, and DIPNR. DEC is currently developing a scoping paper for the framework in consultation with the working group.

The framework will guide agencies when developing their own initiatives for wild resource use by Aboriginal people. It will apply to government-managed lands and waters only, though it can be adopted for private lands.

The framework will ensure that:

- wild resource use activities are satisfactorily accommodated and managed in appropriate areas;
- activities are environmentally sustainable, culturally appropriate and consistent with management principles and use of government managed lands and waters;
- Aboriginal culture is maintained and strengthened;
- the safety and enjoyment of the general public is protected.

Research and development

MIG indicator 7.5 (narrative): Capacity to conduct and apply research and development aimed at improving forest management and delivery of forest goods and services (UNE, LNE, Eden and Southern regions)

Examples of research work being undertaken are discussed under the relevant indicators in this report. A list of publications – relevant to the ESFM Criteria and Indicators where possible – produced by NPWS staff during 2003/2004 are contained in their annual report.

SFNSW research and development objectives are delivered primarily through its Research and Development Division. The Divisions' primary focus is on innovative scientific development in fields which can add value to the planted forests, investment services and native forests businesses of the organisation. Significant work has identified the benefits of planted forests for such purposes as carbon sinks, mine site rehabilitation, biodiversity enhancement and the development of sustainable land use practices for salinity prone areas. For further details on current research activities refer to the *SFNSW Research and Development – Annual Report 2003/04* (www.dpi.nsw.gov.au/forests)

The NPWS continued to conduct a range of research activities during the year, and produced a range of works which can now be purchased online through the online bookshop of NSW government agency publications (<http://www.bookshop.nsw.gov.au/>). A database of the photographic images held by the NPWS central image library has been developed and there are plans to connect this to the website next year.

3

Compliance with the integrated forestry operations approvals

Summary

The Integrated Forestry Operations Approvals (IFOAs) contain non-licence terms administered by RACD of DIPNR, and three licences: the Threatened Species Licence and the Environment Protection Licence, administered by DEC (NPWS and EPA), and the Fisheries Licence administered by NSW Fisheries. There are four IFOAs currently in place, covering each forest agreement region.

In 2003/2004 amendments were made to all four IFOAs. The principle change to the IFOAs involved changes to prescriptions around buffer or protected areas, including the structure of filter/buffer strips, and altering the rules that applied to the felling of trees near certain protected areas and use of machinery in and near such areas.

Regular audits of the Environment Protection Licence and Threatened Species Licence are undertaken by DEC. Environment Protection Licence and Threatened Species Licence audits resulted in the issuing of a number of warning letters to SFNSW. Environment Protection Licence audits also required SFNSW to seek soil conservation advice and remedial work at a number of locations. As a result of an Environment Protection Licence audit in the LNE region one prosecution commenced this year.

NSW Fisheries did not report any breach of the Fisheries Licence in 2003/2004.

SFNSW has provided various documents as required by the non-licence terms and has been implementing the prescriptions in the non-licence terms and ensuring compliance by supervising operations and undertaking internal auditing.

RACD within DIPNR also oversees implementation of the non-licence terms and investigates complaints. Discussions with SFNSW has occurred on issues such as procedures for notifying neighbours of proposed logging operations, procedures for undertaking logging in a compartment and procedures on management harvesting impacts on Aboriginal cultural heritage.

IFOA amendments

The IFOAs for the UNE, LNE and Eden regions commenced on 1 January 2000. The IFOA for the Southern Region commenced on 13 May 2002.

These approvals contain conditions governing forestry operations and the terms of the following licences: a licence under the *Protection of the Environment Operations Act 1997*; a licence under the

Threatened Species Conservation Act 1995; and a licence under Part 7A of the *Fisheries Management Act 1994*.

In 2003/2004 amendments were made to all four IFOAs.

Amendment No 3 – UNE, LNE and Eden regions

Amendment No 3 to the IFOAs for the UNE, LNE and Eden regions commenced on 31 May 2004. The amendment changes provisions in the non-licence terms such as altering the details in annual plan of logging operations, new requirements to prepare annual plan of thinning operations and site specific plans for harvesting and thinning operations, provision of monthly notices and monthly reports on harvesting and thinning operations instead of notification of commencements and cessation of operations and updating references to agencies in the IFOA. These requirements are based on those in the IFOA for the Southern Region.

Other amendments to the IFOAs for the UNE and LNE regions applied to the Environment Protection Licence. They included allowing electronic transfer of documents from SFNSW to DEC and minor amendments to filter strip/protection and operational zones so there was consistency with the similar amendments to the IFOA for the Southern Region and the Threatened Species Licence. For example, there was a minor amendment to correct a typographical error in referring to the date on which the data layer for “high conservation value old growth forest” was created and an amendment to the Hasting River Mouse Prescription in the Threatened Species Licence in the IFOA for the UNE Region.

Amendment No 1 – Southern Region

Amendment No 1 to the IFOA for the Southern Region commenced 31 May 2004. The principal amendment was altering the prescriptions around buffer or protected areas including the structure of filter/buffer strips, the felling of trees near certain protected areas and use of machinery in and near such areas. The amendment affected the non-licence terms, Environment Protection Licence, Threatened Species Licence (in South Coast Subregion) and Fisheries licence. This will bring the IFOA for the Southern region into line with the conditions in the IFOAs for the UNE and LNE regions (*Refer to 2002/2003 Forest Agreement Implementation Report*). Other miscellaneous amendments also occurred to the non-licence terms and licences.

Environment Protection Licence

DEC's role in the management of SFNSW' forestry operations involves the protection of the aquatic environment from water pollution. The Environment Protection Licence in the IFOAs issued to SFNSW assists in achieving this goal.

Where SFNSW chooses to seek licence coverage for its forestry operations in relation to water pollution, it must comply with the conditions of the Environment Protection Licence contained in each of the IFOAs for the UNE, LNE, Eden and Southern regions. Where SFNSW does not seek licence

coverage, its forestry operations are still subject to section 120 of the *Protection of the Environment Operations Act 1997*, which prohibits the pollution of waters.

Summary of auditing program

To determine SFNSW' compliance with licence conditions, DEC has developed an active audit program of forestry operations. The audit program ensures that SFNSW is taking the required measures to protect the environment through responsible planning and operational activities.

Non-compliance with conditions of the licences are dealt with through meetings with senior SFNSW' officers, issuing feedback or warning letters, clean-up notices, penalty notices or prosecution action as appropriate to the circumstances.

Upper North East region

In the UNE region, Environment Protection Licence coverage applied to 41 separate forestry operations during the period. There were 52 operations where harvesting occurred without licence coverage.

DEC conducted four operational and planning audits for the Environment Protection Licence in the UNE region for this period, identifying a total of 58 non-compliances. Twenty eight non-compliances related to pre-operational planning requirements. Fifteen non-compliances related to operational activities during harvesting and included instances where water flow along snig tracks had the potential to exceed the distances specified by licence conditions, crossbanks that were blocked or ineffective and snig track crossings not drained in accordance with the licence. Thirteen non-compliances related to operating conditions for roads and included crossing approaches that were not drained effectively and areas where water flow along roads had the potential to exceed the maximum distances specified by the licence.

As a result of these audits, DEC provided feedback and sent three warning letters to SFNSW outlining the issues of non-compliance identified. DEC also required expert soil conservation advice to be sought on four occasions and remedial work to be carried out at 29 locations.

Lower North East region

Licence coverage applied to 62 separate SFNSW' operations in the LNE region. There were 112 operations where harvesting occurred without licence coverage during the period.

DEC conducted four operational and planning audits which included two audits of unlicensed operations. These audits identified 77 non-compliances of best practice conditions in the region. Fifty seven non-compliances related to pre-operational planning requirements. Non-compliance included inadequate site specific planning and documentation of planning. Two non-compliances were identified with operational activities during harvesting. Eighteen non-compliances of operating conditions for roads were identified in the region and included ineffective or blocked road drainage structures and inadequate road drainage on the approaches to stream crossings.

As a result, DEC provided feedback and sent three warning letters to SFNSW regarding non-compliance with licence conditions in the region. SFNSW was required to undertake remedial work at 19 sites and seek expert soil conservation advice on one occasion. Prosecution action was commenced during the year as a result of one audit undertaken in the LNE region during the 2002/2003 reporting year.

Eden region

Licence coverage applied to 80 separate forestry operations in the Eden region.

DEC conducted two operational and planning audits and identified a total of 32 non-compliances with licence conditions in the Eden region. Seventeen non-compliances related to pre-operational planning requirements, including a lack of site specific planning and inaccurate or incomplete documentation. Two operational non-compliances were identified relating to trees felled into filter strips. Thirteen non-compliances were found with operational conditions for roads including the potential for water flow along roads exceeding distances specified in the licence and deposition of sediment into drainage lines and crossings.

As a result of these audits, DEC provided feedback to SFNSW and issued two warning letters regarding non-compliance with the Environment Protection Licence for the Eden region. SFNSW was required by DEC to undertake remedial work at thirteen sites and seek expert soil conservation advice on one occasion.

Southern region

Licence coverage applied to 58 separate SFNSW' operations in the Southern region.

DEC conducted four audits of operational and planning activities undertaken by SFNSW. DEC identified 31 non-compliances with planning requirements, including a lack of site specific planning and inaccurate or incomplete planning documentation. Four non-compliances were found with operational conditions for roads within the region and a further nine non-compliances were identified relating to harvesting, primarily for inadequate snig track drainage.

As a result of these audits, DEC provided feedback to SFNSW and issued two warning letters outlining non-compliance with licence conditions. SFNSW were required to undertake remedial work at seven sites and seek expert soil conservation advice on two occasions.

Threatened Species Licence

DEC's role in the management of SFNSW' forestry operations also involves the protection of habitat and threatened species. The Threatened Species Licence in the IFOA issued to SFNSW is a key tool to help achieve this goal as compliance is compulsory in all active forestry operations.

Upper North East region

DEC received eight new complaints from the public concerning alleged non-compliances of the Threatened Species Licence in the IFOA for the UNE region. The eight complaints covered five separate harvesting operations. In response to these complaints, non-compliances to two separate Threatened Species Licence conditions were identified during 2003/2004 and relevant enforcement actions were undertaken.

One proactive field audit was undertaken by the DEC during 2002/2003 in the UNE region. Further investigation is required to determine if a number of issues identified during this audit should be considered non-compliances of the Threatened Species Licence. One proactive desktop audit was undertaken which found non-compliances of the Threatened Species Licence. SFNSW was issued with a warning for these matters.

Lower North East region

DEC received one new complaint from the public concerning alleged non-compliances of the Threatened Species Licence for the LNE region. This matter did not relate to a harvesting operation but to management of fire within the habitat of a threatened species. Subsequent investigation did not identify any non-compliances of the Threatened Species Licence.

One proactive field audit was undertaken by the DEC during 2003/2004 in the LNE region. This identified two apparent non-compliances of the Threatened Species Licence. One proactive desktop audit was undertaken which found numerous non-compliances of the Threatened Species Licence. SFNSW was issued with a warning about these matters.

Eden region

DEC received two new complaints from the public concerning alleged non-compliances of the Threatened Species Licence for the Eden region. Subsequent investigations did not identify any non-compliances of the Threatened Species Licence.

One proactive field audit was undertaken by DEC. This identified one minor non-compliance of the Threatened Species Licence in relation to the marking of habitat and recruitment trees. No further action was undertaken.

Southern region

During 2003/2004, DEC received three new complaints from the public concerning alleged non-compliances of the Threatened Species Licence. Subsequent investigations did not identify any non-compliances of the Threatened Species Licence.

Four proactive field audits were undertaken by the DEC in the Southern region. No significant non-compliances of the Threatened Species Licence were found.

Fisheries Licence

No contravention of the NSW Fisheries Threatened Species Licence was detected, in any region, during the reporting period.

IFOA non-licence conditions

SFNSW continues to implement the IFOA, and provided required items such as the annual plan of logging operation for 2003/2004, monthly reports outlining all current and proposed operations and annual reports on logging operations. Training on Aboriginal cultural heritage and implementation of procedures related to identification and protection of heritage items occurred during the year. SFNSW continued to work on models plans for weeds, feral animals, grazing, roads and burning.

RACD within DIPNR was involved in ensuring compliance with the implementation the non-licence terms and investigation of complaints. Discussions with SFNSW occurred on issues including:

- n notification mechanisms of neighbours adjacent to proposed logging;
- n procedures to minimise impacts (such as visual and noise) on adjoining neighbours;
- n procedures for undertaking logging in a compartment;
- n procedures for identification of Aboriginal cultural heritage and managing harvesting impacts on Aboriginal cultural heritage;
- n link between bushfire, burning and planning of harvesting operations;
- n the location of rainforest boundaries;
- n the determination of rocky outcrops;
- n tree retention prescriptions.

SFNSW internal compliance program

The SFNSW internal audit system comprises a four-tiered system of compliance monitoring to be implemented in all regions. This procedure was updated in the SFNSW Forest Practices Circular 2003/01 - Monitoring and Measuring Compliance of Operations. Application of the audit system provides for:

- n Tier 1 monitoring - On-site monitoring by the Supervising Forest Officer, to ensure compliance with operational conditions;
- n Tier 2 monitoring - On-site checking of the Tier 1 level by the Supervising Forest Officer's supervisor to ensure correct application of standards;
- n Tier 3 audits - Independent audit of the Tier 1 and Tier 2 levels by regional staff not directly involved in the operation, and/or independent audit by the EMS Audit team from Environmental Management Branch;
- n Tier 4 audits - Independent audit by Management Audit and Review Branch.

All operations are covered by the audit procedure with risk assessments determining the focus of Tier 1 and Tier 2 monitoring and of the Tier 3 and Tier 4 audits.

Any non-compliance requires a corrective action request to address the non-compliance and minimise any future re-occurrences. Results from Tier 1 and Tier 2 monitoring checks are kept in SFNSW' Harvest Tracking System. Results are reported to regulators and published in SFNSW' *SEEing* report.

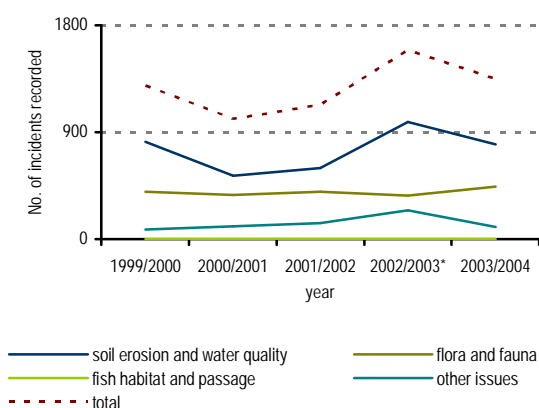
During 2003/2004 SFNSW' internal compliance monitoring identified 1 348 incidents of non-compliance, falling by 15% since 2002/2003.

The highest number of incidents of non-compliance identified by SFNSW occurred in the Southern region. Incidents recorded in the other regions remained relatively stable or declined in the last 12 months:

- n 253 incidents of non-compliance were recorded in the UNE region, a non-compliance rate of less 0.5%;
- n 248 incidents of non-compliance were recorded in the LNE region, a non-compliance rate of about 0.4%;
- n 255 incidents of non-compliance were recorded in the Eden region, a non-compliance rate of 0.7%;
- n 592 incidents of non-compliance were recorded in the Southern region, a non-compliance rate of about 0.2%.

Overall the number of non-compliance incidents identified has decreased across all regions since the implementation of each IFOA. The total number of incidents across the UNE, LNE and Eden regions has decreased by 41% between 1999/2000 and 2003/2004. While incidents recorded in the Southern region have decreased by 24% within the first two years the IFOA has been in place (**Figure 3-1-A**).

SFNSW check for non-compliance against four key areas; soil erosion and water quality, flora and fauna, fish habitat and passage and, other issues, such as safety. In 2003/2004 the main area of non-compliance soil erosion and water quality (59%), followed by flora and fauna issues (33%). The remaining 8% of incidents were related to other issues such as safety. No incidents related to fish habitat and passage have yet to be recorded.



* increase due to commencement of compliance monitoring for the IFOA for the Southern region
Source: SFNSW data

Figure 3-1-A: Total non-compliance incidents recorded through SFNSW internal monitoring – all regions

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Appendix 1

Individual milestone progress

Discussion of some of these milestones is contained in Chapter 2.

Definitions of milestones status

<i>Complete</i>	Indicates the milestone required the production of a document or plan which has been produced
<i>Implemented</i>	Indicates that the milestone required a process or system to be put in place and it has been put in place
<i>Continuing</i>	Indicates a product or process is ongoing or annually required
<i>In progress</i>	Indicates a product or process is still being developed or is draft
<i>Deferred</i>	Indicates that the action required by the milestone has been postponed
<i>No reporting required</i>	Indicates an action which is no longer required to be reported or to be reported in another way such as in the five-year review or on an 'as needed basis'

Due date	Region	FA section*	Milestone	Progress
MANAGING THE FORESTS				
Environmental Management Systems				
2001 80	1 April	UNE, LNE, Eden	2.1.1 Att 3 Att 4 Preparation of SFNSW EMS – Native Forest Management System.	<p>In progress</p> <p>SFNSW continued development of its EMS throughout 2003/2004, which included the completion of a series of internal EMS audits in its Native Forests Division in preparation for external EMS certification audits. As a result of these audits, SFNSW identified areas of business that needed further improvement, including corporate document controls, maintenance of training records (including training matrices to determine training shortfalls into the future), standardised road and harvest maps, management of occupation permits areas, safety issues and a need to update corporate systems and management documents. A key area is the corporate non-conformance reporting and tracking system, which is being developed to comply with the ISO 14001 standard, and to provide a standard tool for assisting in the delivery of ESFM.</p> <p>Development of an EMS for SFNSW' planted forests also continued throughout the year.</p> <p>During 2003/2004 a draft procedures EMS manual existed, specifically addressing native forest issues. The manual was being reviewed for its appropriateness for planted forests.</p> <p>SFNSW is working towards certification of a corporate EMS (ISO 14001) by early 2006 for both native and planted forests.</p>
2003 234	30 June	Sthn	2.1.1 Att 2 & 3 Att 6(2c) Complete and implement SFNSW EMS.	<p>In progress</p> <p>Refer to milestone above.</p>
2003 235	31 December	Sthn	2.1.1 A further part of the EMS will be prepared to cover the planted forest component.	<p>See above</p> <p>Refer to milestone above.</p>
2004 118	1 April	UNE, LNE, Eden	2.1.2 Att 3 Preparation of NPWS Environmental Management Systems.	<p>In progress</p> <p>Development of the EMS is continuing.</p>
2004 237	30 April	Sthn	2.1.2 Att 6 (2b) Development and implementation of and EMS by NPWS.	<p>In progress</p> <p>See above.</p>
Ongoing 238		Sthn	2.1.2 To facilitate implementation of the EMS, NPWS staff and contractors must continue to receive appropriate competency-based training.	<p>Continuing</p> <p>The EMS is yet to be developed. In the meantime, the NPWS is continuing staff training programs. These cover natural and cultural (including Aboriginal) heritage management and operational, technical and safety matters. Programs range from technical training related to occupational health and safety requirements to statewide capacity building initiatives targeted at particular staff classifications.</p>

Due date	Region	FA section*	Milestone	Progress
PLANS OF MANAGEMENT				
Plans of management for the NPWS estate				
2005 125	1 January	UNE, LNE, Eden	2.3.2 Att 8 Preparation of plans of management for dedicated reserves under the <i>National Parks and Wildlife Act 1974</i> .	<p>In progress</p> <p>Plans of management for areas dedicated under the <i>National Parks and Wildlife Act 1974</i> are being progressively completed.</p> <p>There were 18 national parks/nature reserves/state conservation areas/historic sites in the Eden region requiring the preparation of plans of management. Of these, ten areas had plans of management adopted by the NSW Minister for the Environment. A further two had draft plans finalised and three had plans in preparation. Negotiations with the Aboriginal community on leaseback arrangements for Biamanga National Park continued throughout 2003/2004. The preparation of a plan of management for the park will commence once leaseback arrangements are finalised. Preparation of the remaining two plans had yet to commence at 30 June 2004.</p> <p>There were 337 national parks/nature reserves/state conservation areas/historic sites/Aboriginal areas in the north east regions requiring management plans to be prepared. At 30 June 2004, 102 areas had plans of management adopted or awaiting adoption by the NSW Minister for the Environment (including 11 that were being revised). Plans approved during the year included, Yuraygir National Park and State Conservation Area, Cooperabung Nature Reserve and Middle Brother National Park. A further 44 draft plans of management had been publicly exhibited. Planning had also commenced for a further 105 reserves, six of which were in draft form.</p> <p>The increase in the total number of management plans required across the estate since 2002/2003 reflects the addition of new reserves and the inclusion of state conservation areas. One Crown reserve in the Eden region was converted to a state conservation area and 11 state conservation areas created from former Crown reserves in the north east regions following the commencement of the <i>National Park Estate (Reservations) Act 2002</i> in January 2003.</p>
2006 255	31 January	Sthn	2.3.2 Preparation of plans of management for dedicated reserves under the <i>National Parks and Wildlife Act 1974</i> .	<p>In progress</p> <p>Plans of management for areas dedicated under the <i>National Parks and Wildlife Act 1974</i> are being progressively completed.</p> <p>There were 121 national parks/nature reserves/state conservation areas/historic sites/Aboriginal areas in the Southern region that require plans of management to be prepared. At 30 June 2004, 23 areas had plans of management adopted or awaiting adoption by the NSW Minister for the Environment (including four that were being revised). Plans adopted during the year included those for Throsby Park Historic Site and Cullendulla Creek Nature Reserve. A further three draft plans of management had been publicly exhibited. There were a further 54 reserves for which planning had commenced, of which six were in draft form. Preparation of the remaining 41 plans of management had not yet begun.</p> <p>The increase in the total number of management plans required across the estate since 2002/2003 reflects the addition of new reserves and the inclusion of state conservation areas. There were nine state conservation areas created from former Crown reserves, following the commencement of the <i>National Park Estate (Reservations) Act 2002</i> in January 2003. Six Crown reserves remain in the Southern region.</p>
1999 5	31 March	UNE, LNE, Eden	2.4.1 Att 8 Release and adoption of NSW Biodiversity Strategy.	<p>Complete</p> <p>The <i>NSW Biodiversity Strategy</i> was released in March 1999 and has since been implemented.</p>

Due date	Region	FA section*	Milestone	Progress
Ongoing	Sthn	2.4.1 Att 6(2d)	Implementation of NSW Biodiversity Strategy.	Implemented Refer to milestone above.
Regional ESFM Plans				
2000 46	1 April	UNE, LNE, Eden	2.2.1 Preparation of Regional ESFM Plans and subject to public exhibition and consultation.	In progress Draft Regional ESFM Plans were publicly exhibited in 2000. In response to comments received from the public and other State agencies, SFNSW continued to develop the plans throughout 2003/2004. However, progress was limited due to SFNSW having to direct resources into key NSW Government activities, including the Western Regional Assessment. Planning was initiated for ESFM supplementary plans that specifically address areas of significant environmental risk to the forest including pests, weeds, roads and the management of informal reserves. The final plans are scheduled for completion towards the end of 2005, following which a further public exhibition period will occur prior to publication in 2006.
2002 239	31 August	Sthn	2.2.1, 4.3 Att 6(1) & 2(a) Preparation of Regional ESFM Plans.	In progress Refer to milestone above.
Annually 143	UNE, LNE, Eden	2.2.6	Report on progress on meeting targets in Regional ESFM Plans.	Continuing No progress to report. Regional ESFM plans are yet to be finalised.
Annually 249	Sthn	2.2.6	Progress in meeting the targets in the Regional ESFM Plans must be reported annually through Regional ESFM reports.	Continuing Refer to milestone above.
2002 359	30 June	Sthn	6.16 Formation of a working group to make recommendations on the management and tenure of areas of State forests that is isolated from the productive State forests.	In progress Working group to be formed.

Due date		Region	FA section*	Milestone	Progress
Flora reserves					
2001 76	1 April	UNE, LNE, Eden	2.2.2 2.2.3 (E)	Preparation of working plans for flora reserves, to be incorporated into the Regional ESFM Plans.	<p>In progress</p> <p>Working Plans are available for most flora reserves. These plans have been approved by the Minister for Forests. Outstanding plans for new flora reserves are due for completion and submission to the Minister for approval by December 2005.</p> <p>A model plan for Informal reserves is being developed as part of the ESFM plans and it will be assessed by the regulators as part of the regional ESFM planning process.</p> <p>All older pre-existing flora reserves have a management plan and any newly dedicated reserves will be incorporated into the current draft ESFM plans.</p>
2002 241	31 August	Sthn	2.2.2 2.3.2	Complete and make public working plans for land dedicated or set apart as flora reserves (attached to the Regional ESFM Plans).	<p>In progress</p> <p>Refer to milestone above.</p>
Informal reserves					
2001 83	1 April	UNE, LNE, Eden	2.3.3	Preparation of working plans for informal reserves and areas managed by prescription on State forests, to be included in the Regional ESFM Plans.	<p>In progress</p> <p>A model ESFM supplementary plan is currently being developed for informal reserves.</p>
2002 259	31 August	Sthn	2.3.3	Preparation of working plans for informal reserves (FMZ 2 and 3a) and guidelines for areas managed by prescription (FMZ 3b and 4) in consultation with Department of Planning, NPWS and DMR.	<p>In progress</p> <p>Refer to milestone above.</p>
Larger more significant exclusion areas of rainforest, high conservation value old growth forest and other prescriptive exclusions					
2001 96	30 June	UNE, LNE, Eden	2.4.4.5	Directors-General of NPWS, PlanningNSW and CEO SFNSW to agree on the larger more significant exclusion areas of rainforest, high conservation value old growth and other prescriptive exclusions.	<p>In progress</p> <p>No further progress on this milestone has occurred this year.</p>
2002 276	31 December	Sthn	2.4.5.6	The larger more significant exclusion areas will be those as agreed between the Director-General of NPWS, Chief Executive Officer of SFNSW and the Director-General of Department of Planning.	<p>In progress</p> <p>Refer to milestone above.</p>

Due date		Region	FA section*	Milestone	Progress
2002 112	1 January	UNE, LNE, Eden	2.4.4.5	Preparation of management plans for large areas of rainforest, high conservation value old growth and other areas excluded by prescription (attach to Regional ESFM Plans and in consultation with NPWS).	In progress Management plans for rainforest, high conservation old growth and other areas excluded by prescription will be incorporated into informal reserve supplementary ESFM plans. A model ESFM supplementary plan is currently being developed for informal reserves.
2002 275	31 August	Sthn	2.4.5.6	Preparation of guidelines for the management of large areas of rainforest, high conservation value old growth and other areas excluded by prescription and attached to the Regional ESFM Plan.	In progress Refer to milestone above.
Creation of special management zones					
1999 17	1 October	UNE, LNE, Eden	2.3.1	Minister for Forestry to create informal reserve pursuant to the amended <i>Forestry Act 1916</i> and called 'special management zones'.	In progress The <i>National Park Estate (Reservations) Act 2003</i> declared special management zones in the UNE and LNE regions. Special management zones in the Eden region are being considered.
2002 254	31 August	Sthn	2.3.1	Creation of special management zones on State forests.	In progress Special management zones in the Southern Region are being considered. They are expected to be finalised in 2005.
Forest Management Zoning					
1999 16	1 October	Eden	2.2.2 Att 5	Mapping of FMZs (as defined in Attachment 5 of Agreement) and attached to Regional ESFM Plans. Zones delineate areas of State forest to be managed as conservation reserves and those managed for timber production.	In progress The FMZ layers for the Eden region were attached to SFNSW draft Regional ESFM Plans in 2000. Final maps showing the FMZ layer are to be included in the revised Regional ESFM Plans (scheduled for public exhibition in 2005) and released with the final Regional ESFM Plans.
2000 47	1 April	UNE, LNE	2.2.2 Att 5	Provision of maps of FMZs (as defined in Attachment 5 of the Agreement) and attached to Regional ESFM Plans.	In progress A GIS operational layer was agreed at the time of signing of the NSW forest agreements for the UNE and LNE regions in 1999 and subsequently applied. These areas were illustrated on maps attached to SFNSW draft Regional ESFM Plans in 2000. The FMZ layer for the north east regions is complete. Final maps showing the FMZ layer are to be included in the revised Regional ESFM Plans (scheduled for public exhibition in 2005) and released with the final Regional ESFM Plans.
2002 240	31 August	Sthn	2.2.2	Provision of mapped FMZ on all State forests attached to the Regional ESFM Plans.	In progress A GIS operational layer was agreed at the time of signing of the NSW <i>Forest Agreement for the Southern Region</i> and applied. FMZ maps will be attached to SFNSW draft Regional ESFM Plans to be publicly exhibited in 2005. The maps will show the areas of State forest to be managed for conservation purposes and those to be managed for timber production by applying the FMZ system.

Due date	Region	FA section*	Milestone	Progress
Ongoing	UNE, LNE, Eden	Att 8	Implement the Forest Management Zoning System.	Implemented The FM Z system for State forests was publicly announced in March 1999 with the release of the document entitled, <i>Managing Our Forests Sustainably: Forest Management Zoning in NSW State Forests</i> . Implementation of this FMZ system continues in accordance with this document.

CAR RESERVE SYSTEM

Additions to the NPWS estate

Ongoing 197		UNE, LNE	6.16.2	The Government may attempt to voluntarily acquire leases using approaches coordinated with the NPWS purchase strategy. Funding to be sought for the purchase of leasehold lands.	Continuing Acquisitions are ongoing. The NPWS received a Treasury commitment of \$1.5million/yr for four years (2001/2002-2005/2006) to purchase leasehold and freehold lands as required by the forest agreements for the UNE and LNE regions. In 2003/2004 the NPWS purchased two leasehold properties in UNE region totalling 3 717 hectares (only approx. 2 235 ha of this is able to be gazetted) and two leasehold properties in the LNE region totalling 706 hectares (with only approx. 608 ha of this able to be gazetted). One freehold property was purchased in the UNE region (2 513 ha). Two freehold properties (1 663 ha) and one part freehold part Crown leasehold (2 640 ha) property were purchased in the LNE region (4303 ha).
Ongoing 198	As soon as practical	UNE, LNE, Eden	.16.2 6.16.1 (E)	Any areas for which leases are purchased must be incorporated by gazettal into the NPWS estate as soon as practical.	Continuing UNE – No previously purchased leases were gazetted in the UNE region. LNE – One previously purchased Crown lease (total 235 ha) was gazetted in the LNE region (this property was not in State forest). Eden - No leases were purchased.
1999 13	31 August	UNE, LNE, Eden	6.16.2 6.16.1 (E)	Preparation of procedures for purchasing leases on land.	Deferred Procedures have not been developed.
2001 90	1 April	Eden	6.16.1	Pursue the voluntary purchase of any leases on State forest tenure that has been revoked.	In progress No leases purchased.

Aquatic reserves

Ongoing 163	As required	UNE, LNE, Eden	2.3.4	Minister for Fisheries may declare aquatic reserves under the <i>Fisheries Management Act 1994</i> within State forests, national parks, native reserves and other Crown lands and develop management arrangements for these reserves.	Continuing No aquatic reserves were declared under the <i>Fisheries Management Act</i> .
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Due date		Region	FA section*	Milestone	Progress
Ongoing 263	As required	Sthn	2.3.4	Minister for Fisheries may declare aquatic reserves.	Continuing No aquatic reserves were declared under the <i>Fisheries Management Act</i> .
Upgrading FMZ areas/Mineral and petroleum interests/Additional Conservation areas					
1999 28	1 December	UNE, LNE	6.16.2	Identification of areas 'available for formal reservation' refined from the 'areas for further consideration'. Process for identifying these lands was outlined in the PlanningNSW Memo dated 4 February 1999, and entitled 'Procedure for dealing with lands for further consideration for reservation'.	In progress No further progress on this milestone has occurred this year.
1999 27	1 December	UNE, LNE	6.16.2	SFNSW must pursue upgrading to FMZ 2, and any FMZ 3 areas that would be classed as 'available for formal reservation' but for unresolved mineral issues.	In progress No further progress on this milestone has occurred this year.
2000 61	30 June	UNE, LNE	6.16.2	NPWS and SFNSW, in consultation with the Department of Mineral Resources, to complete negotiations on the FMZ category for State forests with mineral and lease interests.	In progress No further progress on this milestone has occurred this year.
2000 62	30 June	UNE, LNE	6.16.2 2.3.1	Lands must be zoned by SFNSW as FMZ 2 and FMZ 3 where they are encumbered by leases or have major mineral value precluding FMZ 2 and must be managed accordingly. Any activities on these lands which may diminish the values of the area must only be carried out with the agreement of NPWS and following consultation with leaseholders.	In progress No further progress on this milestone has occurred this year.
Ongoing 162	Every 5 years or as required	UNE, LNE	2.3.3	Review of mineral and petroleum objections over FMZ 2 and FMZ 3 lands every five years or as required and land may be added to the dedicated reserve system.	Continuing An assessment (undertaken as part of the Government's <i>Action for the Environment Statement 2001</i>) of some FMZ areas was completed in 2002 and, with the agreement of DMR, resulted in the transfer of up to 121 000 hectares of FMZ 2 and 3 lands to the NPWS estate through the <i>National Park Estate (Reservations) Act 2002</i> (gazetted in January 2003). Additional review processes will occur as required.
Ongoing 160		UNE, LNE, Eden	2.3.1 6.16.2 6.16.1 (E)	Consult with DMR when upgrading FMZ 3 to FMZ 2 and purchase of leases.	Continuing Process covered in the SFNSW Operation Circular Guidelines for using the FMZ system.

Due date		Region	FA section*	Milestone	Progress
2007	30 April and every 5 year review	Sthn	2.3.3	Review of mineral and petroleum objections over FMZ 2 and FMZ 3 lands.	In progress Milestone not due until 2007.
Crown reserves					
1999 14	30 September	UNE, LNE, Eden	2.3.3	Memorandum of Understanding regarding the management of Crown reserves.	Complete No Crown reserves managed by the NPWS exist in the UNE, LNE or Eden regions. All Crown reserves were reclassified as state conservation areas.
1999 15	30 September	UNE, LNE, Eden	2.3.3	Formation of a management committee regarding the management of Crown reserves.	No reporting required Refer to milestone above.
2002 256	30 June	Sthn	2.3.3	Formation of a committee to advise the Manager of the Reserve Trust on the matters specified in the MOU concerning Crown reserves.	Deferred A management committee is yet to be formed. It had been deferred pending reclassification of Crown reserves to state conservation areas.
Ongoing 161	Every 5 years	UNE, LNE, Eden	2.3.3	NPWS and DMR to review Crown reserves every five years, any areas no longer required for mineral interests must be dedicated under the <i>National Parks and Wildlife Act 1974</i> with concurrence of DMR.	No reporting required
2007 257	30 April and each 5 year period	Sthn	2.3.3	Undertaking of a review of Crown Reserves every five years.	In progress Crown reserves only remain in the Southern region. NPWS and DMR have signed a MOU that includes a process for review of state conservation areas and remaining Crown reserves every five years. The intent is that, every five years, DMR must provide reasons why a state conservation area could not be upgraded to a national park or nature reserve.
2002 111	1 January	Eden	2.3.3	Preparation of plans of management for Crown reserves which are adjacent to land dedicated or reserved under the <i>National Parks and Wildlife Act 1974</i> .	No reporting required No Crown reserves managed by the NPWS exist in the Eden region.
2005 126	1 January	UNE, LNE	2.3.3	Preparation of plans of management for Crown reserves which are adjacent to land dedicated or reserved under the <i>National Parks and Wildlife Act 1974</i> .	No reporting required No Crown reserves managed by the NPWS exist in the UNE or LNE regions.

Due date		Region	FA section*	Milestone	Progress
2006 258	31 January	Sthn	2.3.3	Preparation of plans of management for Crown Reserves.	<p>In progress</p> <p>Six Crown reserves are still subject to DMR objections to reclassification as state conservation areas.</p> <p>The management of the remaining six Crown reserves in the Southern region is primarily the responsibility of the Director-General of National Parks and Wildlife. The Director-General of DMR has responsibility for managing any mineral and petroleum exploration within the Crown reserves. Although a process for the preparation plans for the remaining Crown reserves had yet to be established at 30 June 2004, general park management is being undertaken within available resources, e.g. fire, pest and weed management.</p>
Crown land					
2003 116	1 January	UNE, LNE	6.16.2	NPWS to assess forest conservation values on remaining vacant Crown land in consultation with the DLWC, DMR and other relevant stakeholders.	<p>In progress</p> <p>Negotiations on the current round of reserve proposals have been completed with Department of Lands and DMR. Negotiations with other key stakeholders are being finalised and approximately 10 000 hectares of land is now available for the Government to add to the formal reserve system.</p>
COOPERATIVE APPROACHES FOR THREATENED SPECIES MANAGEMENT					
Assessment of species					
1999 10	30 June	UNE, LNE, Eden	2.4.4.3	Implementation of a process to assess conservation requirements in relation to important new information concerning the biology and ecology of a species and/or effectiveness of licence conditions.	<p>Implemented</p> <p>The process mirrors that adopted for species newly listed in schedules of the <i>Threatened Species Conservation Act 1995</i> (stipulated in Condition 1.3 of Appendix B in the Eden, UNE, LNE and Southern IFOAs and also Appendix C in the Southern IFOA). A process is also in place for the review of certain fauna conditions of the Threatened Species Licences. This process includes the exchange and assessment of new information by the NPWS, SFNSW and, where appropriate, independent experts. Recommendations from such reviews are provided to the relevant Ministers for approval. The assessment of conservation requirements in relation to important new information concerning the biology and ecology of species and the effectiveness of licence conditions will be considered as part the five year review of the IFOAs.</p>
Ongoing 167		UNE, LNE, Eden	2.4.4.3	Review of particular Threatened Species Licence conditions in light of new information on the distribution, population size or ecology of a threatened flora species.	<p>Implemented</p> <p>For details of IFOA/Threatened Species Licence amendments refer to Chapter 3 of this report.</p>
Ongoing 273		Sthn	2.4.5.4	New information is to be assessed, and where required Threatened Species Licence is reviewed and IFOA amended.	<p>Implemented</p> <p>For details of IFOA/Threatened Species Licence amendments refer to Chapter 3 of this report.</p>

Due date	Region	FA section*	Milestone	Progress
Ongoing 274	Sthn	2.4.5.4	Where new information on the distribution, population size or ecology of threatened flora and fauna suggests that the species allocation to a particular condition of the Threatened Species Licence needs to be reviewed, NPWS and SFNSW will undertake such a review.	Implemented For details of IFOA/Threatened Species Licence amendments refer to Chapter 3 of this report.
Ongoing 166	UNE, LNE, Eden	2.4.4.2	Details the process to be followed when an important new record of a species in the area is found.	Implemented SFNSW process is included in the provisions of the IFOA.
Ongoing 168	UNE, LNE, Eden	2.4.3 2.4.4.1	Agencies to notify each other of any proposal to nominate for listing or de-listing of any species, populations, ecological communities or key threatening processes. The IFOA provides a review process to deal with changes to threatened species schedules.	Implemented Refer to milestone above.
Ongoing 267	Sthn	2.4.4	Notify NPWS/SFNSW of listing and delisting of threatened species, populations, etc and review IFOA for changes to schedules on Threatened Species Licence.	Implemented Refer milestone above.
Ongoing 268	Sthn	2.4.5.1	Review IFOA for changes to schedules on Threatened Species Licence.	Implemented Refer milestone above.
1999 18	1 October	UNE, LNE, Eden	2.4.4.2	Development of a process for the assessment of new records of threatened species, populations and ecological communities not already covered by licences, whereby the conservation requirements of the species are assessed. Implemented The process mirrors that adopted for species newly listed in schedules of the <i>Threatened Species Conservation Act 1995</i> (stipulated in Condition 1.3 of Appendix B in the Eden, UNE, LNE and Southern IFOAs and also Appendix C in the Southern IFOA). Whenever the Scientific Committee makes a final determination to list a threatened species, populations and ecological communities not already covered by licences and considered likely to occur on State forest and be affected by logging activities, NPWS advises SFNSW of the determination and the need to comply with Condition 1.2 of the Threatened Species Licence. SFNSW receive regular NPWS Wildlife Atlas updates of all threatened species under their data licence. When SFNSW are planning logging operations, if a newly listed species is present in the compartment, then SFNSW contact the relevant NPWS office to develop an appropriate condition. NPWS then assesses the conservation requirements of the species and advises SFNSW of an appropriate condition.
Ongoing 272	Sthn	2.4.5.3	Implement stated process where important new record was discovered in an area.	Implemented Refer to milestone above.

Due date	Region	FA section*	Milestone	Progress
Ongoing 271	Sthn	2.4.5.3	Conservation requirements must be developed and implemented for new records of threatened species, populations and ecological populations and IFOA must be reviewed.	Implemented Refer to milestone above.
Ongoing 165	UNE, LNE, Eden	2.4.4.1	A process must be developed and implemented whereby the conservation requirements of a species new to science are assessed. The IFOA provides a review mechanism.	Implemented Refer to milestone above.
Ongoing 164	UNE, LNE, Eden	2.4.4.1	Details the process to be followed when a species new to science is found.	Implemented Refer to milestone above.
Ongoing 270	Sthn	2.4.5.2	Implement stated process when species new to science are found.	Implemented Refer to milestone above.
Ongoing 269	Sthn	2.4.5.2	Conservation requirements must be developed and implemented for species new to science and IFOA must be reviewed.	Implemented Refer to milestone above.
Ongoing 169	UNE, LNE, Eden	2.4.3	Cooperation over non-licence components of the <i>Threatened Species Conservation Act 1995</i> , such as nomination of species, populations, ecological communities and key threatening processes, recovery plans, threat abatement plans and critical habitat.	Implemented Cooperation continues as necessary. For instance, various recovery plans and threat abatement plans being prepared by the NPWS involve SFNSW through; provision of SFNSW expertise, representation on recovery teams, implementation of specific actions by SFNSW, and consultation during the drafting and public exhibition of plans.
Ongoing 266	Sthn	2.4.4	Preparation of cooperative approaches for non-licence components of the <i>Threatened Species Conservation Act 1995</i> and <i>Fisheries Management Act 1994</i> such as nomination of species, populations, ecological communities and key threatening processes, recovery plans, threat abatement plans and critical habitat.	Implemented Refer to milestone above.

Management and recovery planning

1999 29	31 December	UNE, LNE	2.4.3	Refinement of models to identify Hastings River Mouse habitat.	In progress Refinement of the models has been identified as an action in the publicly exhibited draft Hastings River Mouse Recovery Plan, and is to be completed in the second year of the life of the approved plan (yet to be approved). The draft plan also proposes that predictive habitat modelling should be used in conjunction with genetic studies to map and then manage boundaries of individual populations.
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Due date	Region	FA section*	Milestone	Progress
Ongoing 170	UNE, LNE, Eden	2.4.3	Continued implementation of joint management plans such as Pine Creek Koala Management Plan.	Deferred The Koala Management Plan for the Pine Creek State Forest in the UNE region may require significant amendments as a large portion of the former Pine Creek State Forest has now been added to the Bongil Bongil National Park. The amendments may be considered as part of the IFOA review process.
Pest, weed and feral animal control				
1999 3	All	UNE, LNE, Eden	6.16.3 Wild dog control using 1080 baiting on lands managed by the <i>National Parks and Wildlife Act 1974</i> where SFNSW has given approval.	Complete Baiting was underway throughout 1999 on lands transferred to the NPWS estate where SFNSW had provided approval. Baiting continues in accordance with NPWS regional pest management strategies.
2005 127	1 April	UNE, LNE, Eden	2.4.2 Preparation of grazing management plans, predator and feral control plans and threatened flora species management plans.	In progress SFNSW has been developing 'model' ESFM plans including weed and pest animal control management model plans to augment the strategic ESFM plans. Development of model plans has included consultation with RACD of DIPNR. Once model plans are approved, SFNSW Regions will develop supplementary ESFM regional weed and pest animal management plans based on the model to ensure consistency between regions. These plans will detail the specific regional conditions and processes for decision making in developing regional work schedules.
2006 256	31 July	Sthn	2.4.3 Preparation of grazing management plans and feral and introduced predator control plans.	In progress Refer to milestone above.
Ongoing 175	UNE, LNE	2.12	Cooperative programs in addressing noxious weed control, feral animal control and other matter relating to forest health.	Continuing Cooperative programs by NPWS have been established with a variety of landholders, land management agencies and interest groups for the management of pest animals (e.g. foxes, wild dogs, feral horses, pigs and deer) and weeds (e.g. bitou bush, lantana asparagus species and scotch broom). Pest animal and weed control programs are also integrated into NPWS plans of management, recovery plans and threat abatement plans. Additionally, regional pest management strategies have been prepared which; outline objectives and strategies for managing priority pest animals and weeds across the NPWS estate, aim to maximise the effectiveness of pest control programs, and outline how the NPWS will cooperatively manage pest issues across the landscape with other State government land management agencies, local government, rural lands protection boards, landowners and community groups. Pest management strategies have been prepared for all five NPWS Regions within its Northern Directorate. SFNSW continues to participate in local weed management committees and works in close cooperation with rural lands protection boards, other land management agencies and wild dog associations in determining local control priorities and cooperative control programs. Details of these arrangements will be listed in the Regional ESFM Supplementary Plans – Weed Management Plan and Pest Animal Control Plan (when finalised). Model plans for weed management and pest animal management are being developed by SFNSW. Each region will develop ESFM supplementary regional weed and pest animal management plans when the model plan has been approved by DIPNR. A cooperative wild dog/fox management plan has been developed between the Rural Lands Protection Board, SFNSW, the NPWS and the community relevant to the Eden region.
Ongoing	Sthn	2.12	NPWS and SFNSW must participate in cooperative programs where a broader landscape approach is	Continuing

Due date		Region	FA section*	Milestone	Progress
298				most effective in addressing noxious weed control, feral animal control or other matters relating to forest health.	Regional pest management strategies have been completed for the NPWS South Coast and South West Slopes Regions, and cooperative wild dog/fox management plans developed between the Rural Lands Protection Board, SFNSW, NPWS and the community in the NPWS Snowy Mountains and Far South Coast Regions. There is also a cooperative program covering bitou bush management, shorebird protection and conservation initiatives on private land. Refer also to milestone above.
2007	30 April	Sthn	Att 6(2m)	Incorporate into Regional ESFM Plans and plans of management under the <i>National Parks and Wildlife Act 1974</i> integrated feral animal and weed control programs.	In progress SFNSW are developing model ESFM plans for weeds, feral animals and introduced predators. SFNSW Regions will develop supplementary ESFM regional weed and pest animal management plans based on the model to ensure consistency between regions. Completion of these regional plans is expected by the end of 2005. NPWS plans of management identify priority pest and weed problems and the need for actions which as in turn addressed by statewide threat abatement plans or regional pest management strategies.

PRIVATE LAND

Regional Native Vegetation Committee

1999 9	30 June	Eden	2.8.1	Establishment of Regional Native Vegetation Committee under the forest agreement, to promote conservation of rare or non-existent ecosystems on private land.	Complete The Regional Native Vegetation Committee had been established. The first meeting of the Committee was held in October 2000, with representatives from PlanningNSW, NPWS, SFNSW and DLWC.
2000 34	1 January	UNE, LNE	2.9.1	Establishment of a committee under the forest agreement, to look at conservation values on private land which are a conservation priority for inclusion in the CAR reserve system, and seek funding.	Complete Refer to milestone above.
2002	30 June	Sthn	2.9	Establishment of a committee to look at conservation issues on private land.	Complete Refer to milestone above.

Regional Vegetation Management Plans

Ongoing 360		Sthn	Att 6(2e) Att 6(3) point 4	Establishment of Regional Vegetation Management Plans under the <i>Native Vegetation Conservation Act 1997</i> ; to cover private lands and form a basis for strategic regional planning of private native forestry.	No reporting required Two regional vegetation management plans were finalised under the <i>Native Vegetation Conservation Act 1997</i> : the Mid Lachlan Regional Vegetation Management Plan and the Riverina Highlands Regional Vegetation Management Plan. A number of other regional vegetation management plans were in final draft form when the <i>Native Vegetation Act 2003</i> was assented to in December 2003. The <i>Native Vegetation Act</i> establishes a different regime that does not include regional vegetation management plans. The focus of the native vegetation reforms is on catchment action plans prepared by Catchment Management Authorities, and on individual property vegetation plans. The <i>Native Vegetation Act 2003</i> was not in force for this reporting period.
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Identification of lands of conservation priority

Due date		Region	FA section*	Milestone	Progress
2000 35	1 January	UNE, LNE	2.9.1	Identification of forest ecosystems on private land which are of conservation priority for inclusion in the CAR reserve system.	In progress No progress to report.
2002 287	30 June	Sthn	2.9	Identification of forest ecosystems on private land that are a conservation priority for inclusion in the CAR reserve system.	In progress Refer to milestone above.
Voluntary conservation mechanisms					
Ongoing 173		UNE, LNE, Eden	2.9.1 2.8.1 (E) Att 7	Principles applying to land and voluntary mechanisms that may be applied to achieve conservation on private land (e.g. VCAs, property agreements, management contracts etc.).	Continuing Voluntary Mechanisms (such as VCAs) may assist in achieving conservation on private land. There were 19 new VCAs this year, covering 1 458 hectares. Seven of these were in the LNE region (total area of 448.83 ha), two in the Southern region (total area of 709.48 ha), and ten in the Eden region (total area of 300.39 ha). No VCAs were signed in the UNE region.
Ongoing 286		Sthn	2.9 Att 5	Voluntary conservation of private land, where conservation values either do not occur on public land or are not adequately reserved on public land. According to principles in Attachment 5.	Continuing Refer to milestone above.
Private native forestry and plantations					
2007 373	30 April	Sthn	Att 6(3) point 3	Codes of Practice for private plantations and private native forests will be in place within five years. The State will also provide advice regarding marketing and pricing.	In progress – native forest With the introduction of the <i>Native Vegetation Act 2003</i> (assented to on 1 December 2003) replacing the former <i>Native Vegetation Conservation Act 1997</i> , all private native forestry activities will need to meet the 'maintain or improve' test and be regulated by a Native Vegetation Regulation. In late 2003 a stakeholder working group was formed, lead by DIPNR, to progress the development of the regulations. The working group included representatives from industry and conservation groups, forest growers, and State government agencies such as SFNSW, DEC and NSW Agriculture. At 30 June 2004, development of the regulation was continuing. The draft regulation is expected to confirm that private native forestry conducted within the conditions of a Code of Practice will meet the "maintain or improve" test. Complete - plantations The <i>Plantations and Reafforestation Act 1999</i> and <i>Plantations and Reafforestation (Code) Regulation 2001</i> came into effect in December 2001. The five-year review of the Act and code is intended to commence in 2005.
Ongoing 372		Sthn	Att 6(3) point 2	As a means of encouraging private forestry development, the State will develop a regulatory framework that enables a more efficient integrated approval process to allow for effective private forestry development.	Continuing Refer to milestone above.
2001	Code	Sthn	Att 6(3)	NSW will ensure that an integrated Code of Practice is	Implemented

Due date		Region	FA section*	Milestone	Progress
275	commenced 14 December		point 5	developed for plantation activities across all tenures, under the <i>Plantations and Reafforestation Act 1999</i> . Existing plantations can also continue to obtain certainty for the purposes of harvesting as per the <i>Timber Plantations (Harvest Guarantee) Act 1995</i> , and similar provisions included in the <i>Plantations and Reafforestation Act</i> .	Refer to milestone above.
Ongoing 248		Sthn	2.2.3	For activities regulated under the <i>Plantations and Reafforestation Act 1999</i> plans must be prepared as required in the <i>Plantations and Reafforestation (Code) regulation 2001</i> .	Implemented Refer to milestone above.
Ongoing 374		Sthn	Att 6(3) point 4	With appropriate public involvement, and consistent with the <i>Native Vegetation Conservation Act 1997</i> , the Regional Vegetation Management Committees will pursue planning policies that provide for appropriate long term, secure, management provisions for private native forests including harvesting for commercial wood production.	Continuing In December 2003 the <i>Native Vegetation Act 2003</i> was assented. The <i>Native Vegetation Act 2003</i> does not make provision for Regional Native Vegetation Committees. No further progress was made during this reporting period on this milestone.
Ongoing 370		Sthn	Att 6(3)	Improve administrative arrangements and cooperation and coordination by State agencies to facilitate the timber industry utilising private forest resources.	Continuing No further progress was made during this reporting period on this milestone.
Ongoing 371		Sthn	Att 6(3) point 1	Arrangements to ensure ESFM on private forests involving the provision of technical advice, extension services, research and assistance in the estimation of Sustainable Yield.	Continuing No further progress was made during this reporting period on this milestone.
Ongoing 376		Sthn	Att 6(4)	Undertake a private forest inventory of southern NSW to determine the basis of yield of wood products from private land is required, with the agreement of forest owner groups.	Continuing No further progress was made during this reporting period on this milestone.
World Heritage and Wilderness					
2000 32	1 January	UNE, LNE	2.5	Public exhibition of wilderness assessment report for the UNE and LNE regions.	Complete The <i>Northern Wilderness Assessment Report</i> was publicly exhibited in mid 2001.

Due date		Region	FA section*	Milestone	Progress	
2002	31 December	Sthn	2.5	NPWS must provide advice to the Minister administering the <i>National Parks and Wildlife Act 1974</i> on the submissions received during public consultation and the areas recommended for wilderness declaration.	Complete The NPWS provided advice to the Minister for the Environment about the 27 500 submissions received during the public exhibition of the <i>Southern Wilderness Assessment Report</i> .	
Ongoing	205	UNE, LNE	Att 8	Make subsequent decisions on the declaration and management as wilderness of areas of the CAR reserve system provisionally identified as wilderness during the regional forest assessment.	Complete On 19 February 2003, 151 000 hectares of wilderness were declared in northern New South Wales. Seven new wilderness areas were created being the Levers, Bundjalung, Banyabba, Cathedral Rock, Carrai, Mount Seaview and Limeburners Creek wilderness areas. The declarations also included additions to the Washpool, Bindery-Mann, Guy Fawkes, New England, Macleay Gorges, Kunderang, Willi Willi and Barrington wilderness areas. These declarations were formally gazetted on 21 March 2003.	
2001	84	1 April	UNE, LNE	2.7	Review of CERRA World Heritage Areas to identify any additional rainforest to be included.	In progress Work has commenced on the proposed expansion of the Central Eastern Rainforest Reserves of Australia (CERRA) WHA, based on its current rainforest theme. Objective criteria to identify and score protected areas for inclusion were developed by the CERRA Technical and Scientific Advisory Committee and have been applied by staff in NPWS (for the New South Wales areas) and Queensland Parks and Wildlife Service (for the Queensland areas). These results are now being combined into a single ranked list. Further information on CERRA is available through the Australian Government Department of Environment and Heritage website: http://www.deh.gov.au
2002	114	1 April	UNE, LNE< Eden	2.7 2.6 (E)	Further studies of the dedicated reserve system to identify World Heritage values, including eucalypt dominant vegetation and religious beliefs embedded in the landscape.	In progress UNE/LNE - The Australian Government Department of Environment and Heritage has let out a contract to consult with Aboriginal communities and document the potential for the broader CERRA Region to be included on the National Heritage List on the basis of its Indigenous heritage values. The consultant will look at the following themes: Aboriginal earthen ceremonial initiation sites ('bora rings'), rock art sites, and dreaming/creation places. This is now seen as the first step in a process that may eventually lead to a World Heritage nomination. There is no progress on investigating the potential National or World Heritage values of the region's eucalypt forests. Eden -No further studies are planned at present.
2004	278	30 April	Sthn	2.7	Studies of the dedicated reserve system to identify World Heritage values.	In progress An assessment of the Australian Alps (including Kosciuszcko National Park), under consideration for a nomination for National Heritage Listing, has commenced. National Heritage Listing is a prerequisite before consideration can be given to World Heritage nomination.

Due date		Region	FA section*	Milestone	Progress
Cultural heritage					
1999 20	1 October	UNE, LNE, Eden	2.8 2.7 (E)	Cultural heritage management guidelines for SFNSW to be attached to the IFOA.	Complete Cultural heritage guidelines have been attached to the LNE, UNE and Eden IFOAs.
2002 280	30 June	Sthn	2.8	SFNSW cultural heritage management guidelines should be attached to the IFOA.	Complete Cultural heritage guidelines have been attached to the Southern IFOA.
1999 19	1 April	UNE, LNE, Eden	2.8 2.7 (E)	NPWS to review its cultural heritage guidelines and ensure consistency with the principles contained in CRA project reports prepared by the Cultural Heritage Working Group (2000 a and b).	Complete Cultural heritage policies endorsed by the NPWS Executive include its Cultural Heritage Strategic Policy, Consultation Policy, Cultural Heritage Information Policy and Guidelines for the Assessment of Impact on Heritage Places. These policies are consistent with the principles contained in the CRA/RFA project reports; <i>Protective Mechanisms for Cultural Heritage—Generic Version</i> (Cultural Heritage Working Group, 2000a) and <i>Protective Mechanisms for Cultural Heritage—Lower North East Region</i> (Cultural Heritage Working Group, 2000b). Ongoing review of NPWS statewide guidelines is also consistent with the principles contained in the abovementioned reports.
2001 49	1 April	UNE, LNE, Eden	2.8 2.7 (E)	Finalisation of SFNSW policy on Indigenous and Non-Indigenous cultural heritage.	In progress No further progress to report.
2002 284	31 August	Sthn	2.8	Finalisation of policy on Aboriginal and Non-Aboriginal cultural heritage (SFNSW).	In progress Refer to milestone above.
Annually 145 Sthn 285		UNE, LNE, Eden Sthn	2.8 2.7 (E)	Report on cultural heritage performance through annual report, State of the Environment reports that publish against performance indicators and provide access to the outcomes of performance reviews.	Continuing Cultural heritage performance and achievements are outlined in the NPWS' annual report. More detailed performance indicators for cultural heritage continue to be developed for <i>State of the Parks</i> reporting. The next <i>State of the Parks</i> report is scheduled for release in early 2005. The NPWS and SFNSW both contribute significant information to the ESFM criteria and indicators section of this report (chapter 2) each year, which includes cultural heritage indicators. Reporting of cultural heritage by SFNSW is contained within the 2003/2004 <i>SEEing</i> report.
Ongoing 1999		UNE, LNE, Eden	Att 8	Manage cultural values, both Aboriginal and non-Aboriginal, according to guidelines.	Continuing NPWS - Cultural values on the NPWS estate are managed according to NPWS' legislative responsibilities and existing statewide policies and guidelines. These include a Cultural Heritage Strategic Policy, Consultation Policy, Cultural Heritage Information Policy and Guidelines for the Assessment of Impact on Heritage Places. SFNSW - Operational Guidelines for Aboriginal Cultural Heritage Management are being prepared to assist SFNSW develop and maintain a systematic approach to consultation with Aboriginal communities on forest management and management of Aboriginal values on State forests. A draft is expected to be provided to DEC in late 2005.

Due date		Region	FA section*	Milestone	Progress
Ongoing		Sthn	2.8	Apply cultural heritage management guidelines when managing cultural heritage.	Continuing Refer to milestone above.
2005	31 December	Sthn	5.1.4.5	All NPWS staff located in the Southern Directorate be provided with adequate cultural awareness training to improve customer relations with Aboriginal communities.	In progress All NPWS South West Slopes and Far South Coast regional staff have attended cultural awareness training. Most South Coast Region staff have attended the three day Aboriginal Cultural Awareness Course. A course was run for staff at Illaroo Farm in 2003/2004.
Places of cultural significance					
Ongoing 172 Sthn 283		UNE, LNE, Eden Sthn	2.8 2.7 (E)	Updating of section 170 register, sites of state significance will also be listed.	Continuing The HHIMS was introduced in August 2002. It allows field staff and consultants to add or amend information related to heritage items they manage and also incorporates necessary technology such as GIS into the database. The system was updated as necessary during 2003/2004.
Places of Aboriginal cultural significance					
2001 85	1 April	UNE, LNE, Eden	2.8 2.7 (E)	NPWS to review indigenous cultural heritage management processes to provide a landscape-based system.	In progress The integration of natural and cultural values in the landscape is a goal of the NPWS and the identification and assessment of a landscape's cultural heritage values is vital to the effective management of the landscape. To assist NPWS staff, and the consultants and contractors the NPWS employs, in managing its cultural heritage responsibilities, strategic, information, community consultation and other policies form part of a broader package aimed at better integrating cultural heritage into NPWS conservation objectives and operations. Therefore, NPWS management processes for both natural and cultural heritage, through management planning and impact assessment, are taking a landscape approach. Aboriginal cultural heritage processes for consents and permits are being reviewed in part to ensure a more landscape approach is adopted. The review is ongoing and is considering improved landscape planning processes which take the emphasis away from individual consents and permits.
2005 281	31 August	Sthn	2.8	NPWS to review processes for Aboriginal cultural heritage management.	In progress Refer to milestone above.
Ongoing 189		UNE, LNE	5.1.1	NPWS to conduct a preliminary assessment of all new parks to identify priority areas that could be added to Schedule 14 of the <i>National Parks and Wildlife Act 1974</i> .	Continuing Guidelines have been developed for the assessment of all parks to determine whether they should be included in Schedule 14 of the <i>National Parks and Wildlife Act 1974</i> . No preliminary assessments have been undertaken to date, however the NPWS continues to respond and assess nominations proposed by Aboriginal communities as they occur.
2006 325	31 December	Sthn	5.1.1	Assessment of all parks to determine if any could be added to Schedule 14 of the <i>National Parks and Wildlife Act 1974</i> .	In progress Refer to milestone above.

Due date		Region	FA section*	Milestone	Progress
Ongoing 171		UNE, LNE, Eden	2.8	NPWS must continue to develop its information management system for indigenous heritage in consultation with Aboriginal communities and other stakeholders (information submitted to the Aboriginal Sites Register).	Continuing DEC commenced use of the AHIMS in June 2001 following two rounds of statewide consultation, conducted in December 2000 and June 2001. Newly discovered Aboriginal sites/artefacts are registered on AHIMS regularly.
Ongoing 282		Sthn	2.8	Preparation of an information management system for Aboriginal heritage including maintenance of Aboriginal Sites Register.	Continuing Refer to milestone above.
2006 339	31 December	Sthn	5.1.4.3	Creation of a zone to protect Aboriginal cultural heritage, with adequate measures (including buffers) to protect against adverse impacts by forest activities, soil erosion and visitation to sensitive cultural areas.	In progress SFNSW protect Aboriginal cultural heritage in accordance with legislative requirements.

ABORIGINAL INTERESTS

Aboriginal involvement in forest management

2000 58	1 April	UNE, LNE, Eden	5.1.3	SFNSW and NPWS each to prepare a strategy to ensure Aboriginal communities and stakeholders are given a greater participatory role in forest management.	In progress UNE/LNE –No strategy has been prepared, however, a draft plan of management has been developed for the Arakwal National Park in partnership with the Aboriginal community. It is anticipated that this will create a model for how to undertake plan of management processes for future co-managed parks. Various Aboriginal communities have been involved in the protection of threatened species. DEC's North Coast Region continued to employ a cultural heritage project officer who has been working extensively with staff and the local Aboriginal communities to foster better partnerships in the management of Aboriginal cultural heritage. NPWS has sought external funding to extend this initiative into other regions within Northern Branch. The NPWS is also developing a draft consultation toolkit to assist DEC more effectively engage with Aboriginal communities in park management. Eden - A draft joint strategy has been prepared by NPWS and SFNSW, but is yet to be finalised. Delays have continued t to a focusing of resources on the Biamanga National Park handback program. For parks in the Far South Coast, including Biamanga and Gulaga National Parks, the NPWS continued to release the newsletter <i>Coastal Custodians</i> , a specialist Aboriginal newsletter designed to increased awareness and participation of Aboriginal people in the NPWS estate.
2003 329	30 June	Sthn	5.1.3	Preparation of a strategy to ensure that Aboriginal communities and stakeholders are given a greater participatory role in forest management.	In progress The NPWS South Coast Region has prepared a Regional Cultural Heritage Strategy 2003-2008. This strategy identifies steps in the Aboriginal community consultation process and identification of long-term conservation management works. The NPWS Far South Coast Region has a continuing program associated with the handback of Biamanga/Gulaga national parks that will see a greater participatory role for Aboriginal communities in a landscape of high cultural importance.

Due date		Region	FA section*	Milestone	Progress
2001 89	1 April	UNE, LNE, Eden	5.1.3	SFNSW to involve Aboriginal communities in the development and finalisation of its policy in relation to Aboriginal involvement in forest management which will form part of the NFMS.	In progress The Aboriginal community is being consulted as part of developing ESFM plans and Operational Guidelines for Aboriginal Cultural Heritage Management.
2003 330	30 June	Sthn	5.1.3	SFNSW must involve Aboriginal communities in the development and finalisation of its policy in relation to Aboriginal involvement in forest management, which will form part of the EMS-NFMS.	In progress Refer to milestone above.
Co-management and joint venture arrangements					
Ongoing 186		UNE, LNE, Eden	5.1.1	SFNSW and NPWS must progressively negotiate joint management arrangements and joint ventures with local Aboriginal communities.	Continuing The NPWS and SFNSW are both engaged in various joint management arrangements with Aboriginal people on their own tenure. Eden – The NPWS has agreed to two formal cultural camps with basic infrastructure to be established on park under joint management arrangements with local Aboriginal communities. In addition, NPWS has negotiated a Statement of Joint Intent with the Eden Local Aboriginal Land Council to facilitate support for informal culture camping and cultural activities in other areas throughout the Eden Management Area. Biamanga National Park handback program is continuing with the lease negotiations commencing between the NPWS, Land Councils and negotiating panels. UNE/LNE - NPWS has various joint management, access or hunting and gathering arrangements in place, including the first Indigenous Land Use Agreement in the State, at Arakwal. SFNSW has developed access arrangements with the Githabul people to enable hunting.
2000 56	1 April	UNE, LNE	5.1.1	Examination of any State forest that could be considered for co-management and joint venture arrangements.	In progress No further progress to report.
Ongoing 187		UNE, LNE, Eden	5.1.1	Where further analysis indicates the feasibility of other ventures, project plan must be developed for implementation.	No reporting required UNE/LNE - No new ventures. Eden - No new ventures.
Ongoing 188		UNE, LNE, Eden	5.1.1	Ventures likely to generate mutual benefits to the Aboriginal, as well as the wider, community must also be considered.	Continuing UNE/LNE - A feasibility study was completed with the Arakwal community regarding the development of a cultural centre. Other possible ventures are currently under discussion with various Aboriginal communities, such as Bundjalung and Nambucca Valley. Eden- No new ventures entered into.

Due date		Region	FA section*	Milestone	Progress
2006 321	31 December	Sthn	5.1.1	SFNSW and NPWS must progressively negotiate joint management arrangements and joint ventures with local Aboriginal communities.	<p>In progress</p> <p>In the NPWS South Coast Region, joint management of Jervis Bay National Park is being sought. Negotiations are on hold while land claims are being processed. A significant number of land claims (about 6 parcels or more) have been lodged with the Department of Lands by the Jerrinja Local Aboriginal Land Council over lands within the Jervis Bay hinterland. The Minister for Lands has yet to decide whether to grant the claims on the basis of submissions received by the claimants and government agencies including Shoalhaven City Council. The NPWS Far South Coast Region is currently negotiating with Local Aboriginal Land Councils the leases required in order for the return of Biamanga and Gulaga National Parks to their Aboriginal owners to proceed</p>
Annually 322		Sthn	5.1.1	Annual reporting to RACD on the progress by NPWS and SFNSW on negotiating co-management and joint management arrangements with Aboriginal communities.	<p>Continuing</p> <p>Refer to milestone above.</p>
Ongoing 323		Sthn	5.1.1	Ventures likely to generate mutual benefits to the Aboriginal, as well as the wider, community must also be considered.	<p>Continuing</p> <p>The establishment of three permanent culture camps in the Eden region are nearing completion. Amendments to plans of management for Wadbilliga, Mimosa Rocks and Ben Boyd national parks are being drafted and Joint Statements of Management Intent between Aboriginal communities and the NPWS have been completed. The NPWS Far South Coast region also supports a cooperative twelve month oral history program that aims to provide background local cultural details for the significance of cultural places.</p> <p>The NPWS South Coast Region has a strong Aboriginal <i>Discovery</i> Ranger program run by four Aboriginal <i>Discovery</i> rangers (involving 90 schools and 22 000 children plus vacation discovery tours on-park). The NPWS also contracted two Aboriginal groups for weed control works on Seven Mile Beach National Park and Murramarang Aboriginal Area.</p> <p>The NPWS South West Slopes Region is working towards cooperative involvement of the Aboriginal community in park management issues and establishing an Aboriginal management committee. Members of various Aboriginal communities have been involved in park management processes including the plan of management process, interpretation activities, post-fire rehabilitation programs and site protection, rehabilitation and monitoring programs. An Aboriginal heritage and cultural mapping project is also in progress in the Lower Shoalhaven River Valley that encompasses Bomaderry Creek, Saltwater Swamp, Brundee Swamp, Worrigea, Triplarina, Bamarang and Wogamia nature reserves. The project has included an historical literature review. Oral histories are being conducted with 5 groups who have associations with the landscape. The interviews are taped, transcribed and documented. The project will move to a publication phase and Aboriginal site survey investigations. The project is being received favourably by the Nowra community with interested participation.</p> <p>The NPWS Far South Coast Region continues to provide opportunities for Aboriginal people to provide <i>Discovery</i> activities under contract. The NPWS previously supported the training of Aboriginal people of the Far South Coast as accredited tour guides. No new ventures were considered in the reporting period, however, the NPWS is supporting collection of oral histories from the Far South Coast as part of planning for Biamanga and Gulaga national parks handback.</p>
Ongoing 324		Sthn	5.1.1	Where further analysis indicates the feasibility of other ventures, project plan must be developed for implementation.	<p>Continuing</p> <p>No new ventures requiring project plans were initiated during 2003/2004.</p>

Due date		Region	FA section*	Milestone	Progress
2006 333	31 December	Sthn	5.1.4.1	Where consideration has identified venture, project plans must be developed for their implementation.	In progress Refer to milestone above.
2004 326	31 December	Sthn	5.1.1	SFNSW will examine any State forest that could be considered for co-management or joint venture arrangements.	In progress SFNSW is developing corporate Operational Guidelines for Management of Aboriginal Cultural Heritage on State forests. These guidelines will include consultative arrangements SFNSW regions will undertake with local Aboriginal communities on forest activities, when communication with the community could be expected, site protection and a review of how well these consultative arrangements worked over the previous period.
Cooperative management arrangements					
2006 331	31 December	Sthn	5.1.4.1	SFNSW and NPWS must progressively negotiate separate cooperative management agreements with local Aboriginal communities that enable Aboriginal people to be involved in the management of State forests and national parks.	In progress No progress to report.
2006 332	31 December	Sthn	5.1.4.1	Explore opportunities for joint ventures with SFNSW and NPWS that promote recognition, awareness and respect for Aboriginal cultural heritage. Other ventures likely to generate mutual benefits to the Aboriginal community must also be considered.	In progress No progress to report.
2006 341	31 December	Sthn	5.1.4.5	NPWS should enter into a cooperative management agreement with the relevant Aboriginal communities to develop cooperative management and funding strategies to ensure the effective protection and management of Aboriginal cultural heritage on the NPWS estate, subject to funding.	In progress Refer to milestone above.
2006- 342	31 December	Sthn	5.1.4.5	Aboriginal communities consider it a NPWS responsibility to develop and implement a policy in relation to access to parks, nature reserves and other appropriate service estate for traditional purposes. This policy framework will be developed by the Aboriginal Management Committee.	In progress Aboriginal co-management committee yet to be established.

Due date	Region	FA section*	Milestone	Progress
Access for traditional and cultural purposes				
2006 338	31 December	Sthn	5.1.4.3	<p>Areas of State forest to be identified and set aside for Aboriginal education and specific community activities in accordance with Aboriginal traditional practices. Such areas to be determined and agreed upon by the Aboriginal Management Committees.</p> <p>In progress No progress to report.</p>
2000 55	1 April	UNE, LNE, Eden	5.1.1	<p>Preparation of a joint strategy which will include how Aboriginal communities can gain access to materials for traditional/cultural purposes (such as art and craft purposes, food sources and medicine, access to firewood).</p> <p>In progress Joint NPWS and SFNSW strategies have not yet been developed for the UNE and LNE regions. In the meantime, Aboriginal access to forest resources for traditional purposes is being facilitated by NPWS on an 'as needs' basis at regional level. The NPWS is also developing a statewide Wild Resource Use Policy in consultation with Aboriginal communities and other stakeholders. The policy will become part of a whole-of-government framework which is being developed on this issue.</p>
2003 327	31 December	Sthn	5.1.1	<p>Joint strategy on how Aboriginal communities can gain access to materials for art and craft purposes, food sources and medicine; access to firewood and opportunities for traditional use and cultural activity.</p> <p>In progress The strategy for the provision of access to Aboriginal people for traditional cultural purposes in the Southern region will be based on the strategy which is currently being developed for the Eden region (refer to milestone above). In the meantime, Aboriginal access to forest resources for traditional purposes is being facilitated by both SFNSW and NPWS on an 'as needs' basis at the regional level. The NPWS is also developing a statewide Wild Resource Use Policy in consultation with Aboriginal communities and other stakeholders. The policy will become part of a whole-of-government framework which is being developed on this issue.</p>
Employment and training opportunities				
2000 57	1 April	UNE, LNE	5.1.2	<p>Preparation of a joint strategy to facilitate employment and development program for Aboriginal people.</p> <p>In progress Joint NPWS and SFNSW strategies have not yet been developed.</p> <p>In the meantime, the NPWS continued to progress its own initiatives which include an Aboriginal employment and training strategy that seeks to facilitate employment and development opportunities for Aboriginal people. As part of this strategy cross-agency approaches to training are being examined. The strategy could be used as the basis of future negotiations on a joint strategy.</p> <p>SFNSW has identified potential for Aboriginals to become more involved in the timber and forestry industries. It is recognised that some functions are specialised and require specific skills which are dependent on training. SFNSW continues to assist with the Australian Government's development of a National Indigenous Forestry Strategy. A SFNSW Aboriginal Liaison Officer has been appointed to the National Indigenous Forestry Strategy working group, which oversees the development of the strategy. The potential for further Aboriginal employment and measures to overcome barriers to involvement will be investigated as part of the Strategy's development. It is expected that this strategy will provide and identify opportunities within a framework applicable to each region, although specific involvement would vary depending on the area involved.</p>

Due date		Region	FA section*	Milestone	Progress
2003 328	30 June	Sthn	5.1.2	Preparation of an employment and economic opportunities program with Aboriginal people.	In progress No program has been developed by the NPWS or SFNSW, however the NPWS continues to provide contract opportunities and employs Aboriginal contractors where available, e.g. weed control in Seven Mile Beach National Park and Murramarang Aboriginal Area. Implementation of the NPWS's Aboriginal Employment and Training Strategy continues and some NPWS regions are participating in the NPWS Aboriginal Cadet Ranger program. In South Coast Region, one cadet Aboriginal trainee ranger has commenced at Ulladulla area. Three Aboriginal field officers and one ranger (Highlands area) are also employed in the region. An Aboriginal heritage conservation officer is stationed in the South Coast region.
Ongoing 190		UNE, LNE, Eden	5.1.2	NPWS to offer permanent employment opportunities for Aboriginal people in operational management as part of the funding package for the management of additions to the reserve system.	Continuing UNE/LNE - There are 26 permanent positions identified within the NPWS Northern Directorate, comprising of 21 full-time field officer positions, two full-time senior field officer positions and three full-time ranger positions. In addition, there are 18 casual or contract positions, comprising of one trainee administration officer, one project officer, one field officer, 11 trainee field officers and four rangers. In addition, an emphasis has been placed in 2003/2004 on capacity building within communities involved in co-management, to provide the skills necessary for community members to be able to be employed by the NPWS on a permanent, temporary or contractual basis. Additional employment areas include the <i>Discovery</i> Ranger program and the Aboriginal identified field officer trainee positions across the Northern Branch. These trainees will be offered permanent employment upon successful completion of their traineeships. Eden - Four Aboriginal staff were appointed by the NPWS as a result of funding provided for management of additions to the reserve system. These were: a trainee field officer, two Aboriginal sites officers (one male and one female) and one project officer to manage the handback of Biamanga and Gulaga national parks. In 2003/2004, the trainee field officer became a trainee ranger. Additional employment areas include the <i>Discovery</i> Ranger program, two field officer training positions for young Aboriginal persons and one ranger training position for an Aboriginal person established by the Eden Region Forest Agreement. One of the trainee officers was previously permanently appointed in 2002/2003.
2005 337	31 December	Sthn	5.1.4.2	Enterprise development with SFNSW has been identified as a major interest for Aboriginal communities. Some examples are provided in the forest agreement.	In progress No progress to report.
2005 340	31 December	Sthn	5.1.4.4	SFNSW should initiate the specified employment opportunities to enable active Aboriginal participation in the management of forests, subject to funding.	In progress No external funds have been identified. However, Aboriginal representatives are engaged in the process of locating cultural heritage sites and assisting the identification of appropriate measures to protect sites. Contracts have been signed with a number of groups to assist with the investigation and management of cultural heritage.
2005 345	31 December	Sthn	5.1.4.6	Specified employment opportunities in NPWS were identified as a major priority for Aboriginal communities in the Southern region, subject to external funding.	In progress In the NPWS South West Slopes Region two field officer positions have been established and filled. The NPWS provides contract opportunities and employs Aboriginal contractors where available. Some NPWS regions, such as South West Slopes Region, are also participating in the NPWS Aboriginal Cadet Ranger program.

Due date	Region	FA section*	Milestone	Progress
Aboriginal Management Committee for the Southern region				
2003 334	31 December	Sthn	5.1.4.1	An Aboriginal Management Committee will be established for both State forests and national parks to represent and manage Aboriginal cultural heritage on State forests and national parks respectively. In progress A committee is yet to be established.
2003 335	31 December	Sthn	5.1.4.1	Terms of Reference for the Committees will be determined and developed by the Committee members upon establishment. Terms of Reference must include specified aspects. In progress Refer to milestone above.
2003 336	31 December	Sthn	5.1.4.1	Development of a Plan of Management which will address the management principles, guidelines and objectives of the Aboriginal Management Committee. In progress Refer to milestone above.
2005 348	31 December	Sthn	5.1.4.5	A provision be created for two Aboriginal representatives to sit on the South West Slopes Regional Advisory Committee. In progress Three Aboriginal representatives have been appointed to the South West Slopes Regional Advisory Committee.
MANAGING FOR OTHER FOREST VALUES AND USES				
Occupation permits on State forests				
1999 12	1 July	UE, LNE, Eden	2.3.3	Formation of Occupation Permit Taskforce. (Taskforce will also consider issues in the Eden region) Complete A taskforce was formed in November 2000. The taskforce is comprised of representatives from the NPWS, SFNSW and NSW Farmers.
2000 68	1 July	UNE, LNE	2.3.3	Phasing out of occupation permits. In progress Phasing of occupation permits on FMZ 2 land is being considered.
2002 261	31 December	Sthn	2.3.3	Consideration of the Southern region by the Occupation Permit and Permissive Occupancy Taskforce. In progress No progress to report.
Within 18 months of gazettal of new reserves 262		Sthn	2.3.3	Phasing out of occupation permits in State forests which currently exist in areas identified as formal reserves and informal reserves and permissive occupancies on Crown land identified as formal reserves and informal reserves. In progress A steering group comprised of representatives from DLWC, NSW Farmers, SFNSW and NPWS met several times over 2001/2002 to oversee the phase out of occupation permits and permissive occupancies. The group was chaired by NPWS. The phase out, which affected about 120 people, was completed over an 18 month period ending in June 2003.

Due date		Region	FA section*	Milestone	Progress
Roads and trails					
2000 37	1 January	UNE, LNE, Eden	2.13.4 2.12.4 (E)	Preparation of a MOU on joint roads and trails maintenance and access arrangements.	<p>Complete – UNE and LNE region A MOU was entered into by SFNSW and the NPWS in January 2000. Implementation guidelines currently being finalised and field tested.</p> <p>In progress - Eden region A draft MOU has been prepared but will be reviewed prior to finalisation to ensure compatibility with a similar MOU to be developed for the Southern region.</p>
2002 300	31 December	Sthn	2.13.4	MOU on the usage of roads and trails maintenance and access arrangements.	<p>In progress</p> <p>SFNSW and the NPWS have begun discussions on the development of the MOU for the Southern region. A set of actions has been developed, and operational protocols have been confirmed in some instances, but a formal MOU is yet to be drafted. The MOU for the region will contain two schedules covering the South Coast and Tumut sub-regions. The MOU will cover all roads of interest, including roads vested in the NPWS Minister (including roads of interest to SFNSW), roads on State forest of interest to the NPWS, other roads that are the responsibility of neither agency but of interest to both, and roads not yet built or that require construction outside land tenure corridors which may affect other agencies. The MOU will contain region-wide conditions based on the best components of the draft MOU for the Eden region and the finalised MOU for UNE and LNE regions.</p>
Fire management					
2001 86	1 April	UNE, LNE, Eden	2.10 2.9 (E)	Preparation of a joint agreement with District Fire Committees for the prevention, detection and suppression of bush fires.	<p>Implemented</p> <p>SFNSW and the NPWS continue to be represented on the District Fire Committees, formed under <i>Rural Fires Act 1997</i>, along with DLWC and the NSW Rural Fire Service. SFNSW and the NPWS are recognised as two of four fire authorities under the <i>Rural Fires Act</i>. SFNSW and the NPWS are also members of the NSW Bush Fire Coordinating Committee. The Bush Fire Coordinating Committee is the statutory body responsible for the coordination of all state fire fighting agencies including the NSW Rural Fire Service, NSW Fire Brigades, SFNSW, the NPWS and various animal and environment agencies and land managers, and for planning in relation to bush fire prevention and coordinated fire fighting. The Committee advises the Commissioner of the NSW Rural Fire Service on bush fire prevention, mitigation and coordinated bush fire suppression.</p> <p>Both SFNSW and the NPWS address fire management in all aspects of their activities.</p>
Ongoing 289		Sthn	2.10	Continuing participation in District Fire Management Committees for the prevention, detection and suppression of bush fires.	<p>Continuing</p> <p>Refer to milestone above.</p>
2007	30 April	Sthn	Att 6(2l)	Incorporate into Regional ESFM Plans and plans of management under the <i>National Parks and Wildlife Act 1974</i> , provisions which address bush and other fires ensuring ecologically sustainable forest management of forests.	<p>In progress</p> <p>The NPWS address bush fire management in several ways; ESFM principles are incorporated into bush fire risk management plans and reserve fire management plans (prepared at the individual reserve level). These address the provisions outlined and are important for risk management, threatened species management and recovery planning. The NPWS' reserve fire management plans are consistent with bush fire risk management plans but have a greater level of detail. These are prepared for reserves where such detail is necessary and a specific document is warranted. Where this level of detail is not required, provisions are incorporated directly in reserve plans of management.</p>

Due date		Region	FA section*	Milestone	Progress
					During the year, SFNSW identified the requirement for a corporate fuel management plan and supplementary ESFM regional fuel management plans. These plans will be developed in 2005/2006 to facilitate SFNSW contributions to the development of bush fire risk management plans and to provide integration of the various Bushfire Coordinating Committee plans into one consolidated plan for each region.
Recreation and tourism					
2001 87	1 April	UNE, LNE, Eden	2.13.1 2.12.1 (E)	Preparation of joint regional recreation and tourism plans.	<p>In progress</p> <p>UNE/LNE – A joint recreation and tourism plan has yet to be developed by NPWS and SFNSW. NPWS Northern Branch has independently completed a draft 'Recreation Planning Framework' to manage visitor impacts and experiences. The framework is still an internal working document at this stage and involves establishing criteria for recreation use, management and development of infrastructures in parks. Its aims include: more efficient allocation of resources for visitor facility development; ensuring appropriate development; maximising visitor satisfaction and experiences; minimising potential conflict between visitors; focusing visitor use to where it is ecologically sustainable and culturally appropriate; and guiding the plan of management process. The methodologies used would be suitable for application by other land managers should they wish. Completion of the framework is deferred while development of a statewide NPWS Ecotourism Strategy (Living Parks) is being considered.</p> <p>For SFNSW, there has been no further progress toward a recreation and tourism plan for the UNE region. However, requirements for the LNE region have been partially met through the release of 'A recreation and tourism strategy for the State forests of the Central Coast and Lower Hunter'. This strategy was developed by SFNSW in collaboration with the community. The NPWS participated in the consultation phase of this initiative.</p> <p>Eden /Southern– A multi-agency cooperative plan entitled the <i>Far South Coast Nature Tourism and Recreation Plan</i> was completed in May 2004 and is now being implemented. Development of the plan involved representatives from SFNSW, the NPWS, Eurobodalla Tourism, Sapphire Coast Tourism, Umbarra Aboriginal Cultural Heritage Tours and Department of Lands. This plan includes areas within the Eden region and some of the forests within the Southern region (www.nationalparks.nsw.gov.au/npws.nsf/Content/fsc_escarpment_relatedinfo).</p>
2003 299	31 August	Sthn	2.13.1	Preparation of joint regional recreation and tourism plans.	<p>In progress</p> <p>Refer to milestone above.</p>
Carbon sequestration opportunities					
2004 121	1 April	UNE	2.13.2	Undertaking of a revegetation project that includes carbon sequestration opportunities.	<p>Deferred</p> <p>No progress to report.</p>
Plantation areas within national parks					
2001 97	30 June	UNE, LNE	3.3 6.16.1 Att 11	Supply from logging associated with rehabilitation of identified hardwood plantations remaining within the new reserve system and completion of harvesting of plantations in national parks.	<p>In progress</p> <p>No harvesting of former SFNSW hardwood plantations areas within national parks has occurred to date. However, negotiations are continuing for a number of potential sites.</p>

Due date		Region	FA section*	Milestone	Progress
Ongoing 194	Within 6 months of harvest	UNE, LNE	6.16.1	Rehabilitation works on plantation areas within national parks must be completed within six months of harvest completion.	Continuing Refer to milestone above.
Ongoing 195		UNE, LNE	6.16.1	Works programs and rehabilitation plans to be jointly prepared and approved. Rehabilitation costs to be funded by sale royalties.	Continuing Refer to milestone above.

MANAGING TIMBER SUPPLY

Supply arrangements

1999 4	1 March	UNE, LNE	3.2	Amendment of wood supply agreement with Boral.	Complete Amended wood supply agreement was signed on 5 March 1999.
1999 30	31 December	UE, LNE, Eden	Att 8	Review legislation and policies relevant to the allocation and pricing of hardwood logs from State forest before the end of 1999.	In progress No further work has occurred on this milestone in this reporting period. The log pricing review is anticipated to be finalised by early 2007.
2000 52	1 April	UNE, LNE	3.2	Wood supply agreement arrangements for processing thinnings.	Completed No new markets for processing thinning from native regrowth and hardwood plantations have emerged this period. Therefore, no new agreements have been entered into.
2000 51	1 April	Eden	3.2	Amendment of wood supply agreement with Harris Daishowa Australia.	Completed Wood supply agreement was signed on 5 March 1999 and amended on 29 September 1999.
2000 75	31 December	UNE, LNE	3.2	Additional volumes supplied under a transitional "top-up" arrangement over two years to assist industry adjustments to terminate by 31 December 2000.	Completed SFNSW made arrangements for additional wood supply volumes over a two year period. These arrangements were terminated on 31 December 2000.
Ongoing 177 Sthn 132		UNE, LNE, Eden, Sthn	3.4 4.3	Consultation on timber supply arrangements must occur through the development of Plans of Operation.	Continuing SFNSW Regions consult with stakeholders in the development of the Plan of Operations consistent with Regional Protocol.

Due date		Region	FA section*	Milestone	Progress
Resource availability and sustainable yield					
Ongoing 181		UNE, LNE, Eden	3.5	Results of resource inventory and annual monitoring must be used to review performance in achieving the implementation of sustainable yield of timber products in State forests.	In progress This analysis has not been completed for 2003/04. Development of consistent capture of sales information into Data warehouse has been completed. This is required to allow efficient analysis of results.
Ongoing 182	Within next 5 years	UNE, LNE	3.5 Att 8	Refinement of resource availability by improving the inventory such as additional plot measurements (funding provided at \$500 000 pa for five years).	In progress Extensive updating of FRAMES plots in the UNE and LNE regions has been occurring since 1997 to provide an even intensity (at least 1 plot in 250ha) of plots across the estate. A plot replacement program occurs as existing plots are harvested. This process is encapsulated in the new draft inventory policy and procedures for SFNSW.
Ongoing 183		Eden	3.5 Att 8	Refinement of resource availability by improving the inventory such as additional plot measurements.	In progress Inventory of the regrowth area in the Eden region is ongoing and intensive. No further strategic inventory of the mature mixed age forests in the Eden region was conducted in this reporting period.
2007 308	30 April	Sthn	3.5 Att 6(6e)	Refinement of resource availability on native forests by additional inventory plot measurements to improve volume estimates at a regional level.	In progress No additional inventory plots have been set up during this reporting period. Continuous replacement of FRAMES plots is part of the new draft inventory policy.
Ongoing 315		Sthn	3.5	The results of resource inventory and annual monitoring of actual and predicted timber volumes must be used to review the performance in achieving the implementation of sustainable yield of timber products.	Continuing SFNSW has developed a forest inventory policy which is designed to account for harvesting activity and maintain currency of strategic resource data.
FRAMES improvement and review					
Ongoing 180		UNE, LNE, Eden	3.5	Inventory system used in FRAMES must be supplemented by progressive enhancement of modifier models, such as harvesting area exclusions and FRAMES parameters such as tree protection and tree availability modifier models.	Continuing UNE and LNE - Review of the FRAMES model in 2003/2004 has led to overall improvements in the FRAMES system. By the end of 2006 SFNSW expects to have completed a broad series of improvements to its FRAMES modelling, including inventory data, silvicultural and harvesting assumptions, growth modelling, biometrics, and the architecture of the model itself. These processes will contribute to improved strategic and tactical wood flow estimates, providing a better understanding of sustainable yield available from the forest estate and an excellent foundation for the formal review. In 2003/2004 further data were collected and analysed to improve the recovery factors, volume functions, taper functions, height/diameter functions and tree product proportionment equations biometrics for the UNE and LNE regions. Eden - SFNSW has implemented an inventory-plot management system for the Eden region, called REDEN. The system is designed to provide strategic analysis output for the even aged regrowth forests and includes biometrics specific to the regrowth forests of the south east of the State.

Due date		Region	FA section*	Milestone	Progress
2006 309	31 December	Sthn	3.5 Att 6(7)	Enhancement of modifier models in FRAMES including refinement of harvesting area exclusions and FRAMES parameters (such as the tree defect and tree availability modifier models), using locally specific data to replace RFA regional average modifier models.	In progress Much of the effort on FRAMES development (including enhancement of modifier models) have been specifically focussed on the north east regions. These improvements will be applied to other regions. FRAMES development for the Southern region will be able to proceed more rapidly once improvements to FRAMES systems in the North East region are finalised.
2006 382	31 December	Sthn	Att 6(7)	Establishment of an ongoing FRAMES development program to include the listed elements.	In progress Refer to milestone above.
Ongoing 179		UNE, LNE, Eden	3.5	SFNSW consultation with NPWS and PlanningNSW on the terms and conduct of the FRAMES assessment.	Continuing UNE and LNE -A joint agency group consisting of representatives from RACD, SFNSW, the NPWS and EPA was formed in 2003. This group conducted preliminary discussions about potential issues with the FRAMES tool. This group disbanded in March 2004. Eden -No formal consultation process in place. Expected to follow the process developed for the UNE and LNE region.
2002 312	30 September	Sthn	3.5 Att 6(7)	SFNSW will consult with NPWS, EPA and DoP on the terms and conduct of the FRAMES review/development program.	In progress Southern -No formal consultation process in place. Expected to follow the process developed for the UNE and LNE region.
2007 137	1 March	UNE, LNE	3.2 3.5	Review of supply levels at year 8, after inventory is reviewed, to determine a supply level for years 9-20, with value adding criteria applied at year 5.	In progress Timber supply on the North Coast was subject to a comprehensive review in 2003 following changes to State forest estate announced by the NSW Government. Subsequent changes to the wood supply agreements have extended the commitment period from 2018 to 2023. These contracts recognise the changing nature of future timber resources, particularly the increased supply from hardwood plantations and the capacity of industry to process and add value to smaller, lower quality logs. The changes will also ensure optimum use of the available wood resource. The logging industry benefits, along with many north coast communities.
2010 379	31 December	UNE, LNE Sthn	Att 8 1(q) Att 6 (6b)	Develop by the end of 2010, a model to predict recruitment and maintenance of habitat trees over time.	No reporting required Milestone not due until December 2010. Some progression has been made on this project including data collection, model development and incorporation into the FRAMES Yield Simulator. Sensitivity analysis and a report are still to be completed.

FRAMES monitoring and processes

2004 122	1 April	UNE, LNE	3.5	SFNSW, NPWS and PlanningNSW will consult on appropriate spatial scales for reporting actual yields against FRAMES estimates.	In progress Formal consultation in relation to this milestone is yet to take place.
Ongoing 178 Sthn 313		Eden, Sthn	3.5	SFNSW, NPWS and PlanningNSW will consult on appropriate spatial scales to reporting actual yields against FRAMES estimates.	Continuing Refer to milestone above.

Due date		Region	FA section*	Milestone	Progress
Annually 147		UNE, LNE, Eden	3.5	Reporting on actual versus predicted volume at the scale determined by SFNSW, PlanningNSW and NPWS. To be included in the annual report to Parliament.	Continuing Actual timber harvest volumes against IFOA wood supply commitments are incorporated into this implementation report.
Annually 314		Sthn	3.5 Att 6(6d)	Information on actual yields against FRAMES estimates at the agreed scale to be provided to DoP and included in the Annual Report to the NSW Parliament (at the determined scale).	Continuing Refer to milestone above.
Annually 150		UNE, LNE	3.5	Monitoring of FRAMES performance to include comparison of actual and predicted volume each 12 month period at the RFA region level. To be included in Annual Report to Parliament.	Continuing Refer to milestone above.
Annually 151		Eden	3.5	Monitoring of FRAMES performance to include comparison of actual and predicted volume for the multi-aged forest resource each 12 month period. To be included in Annual Report to Parliament.	Continuing Refer to milestone above.
Annually 310		Sthn	3.5 Att 6(6f)	Monitoring and review of FRAMES performance to include comparison of actual versus predicted volumes for each financial year.	Continuing Refer to milestone above.
Annually 148		UNE, LNE, Eden	3.5	Monitoring of FRAMES performance will include an assessment of the progressive 20 year supply. To be included in Annual Report to Parliament.	Continuing Refer to milestone above.
Annually 311		Sthn	3.5	Monitoring and review of FRAMES performance to include assessment of progressive 20 year supply.	Continuing Refer to milestone above.
2006 383	31 December	Sthn	Att 6(8) point 2	Commission and publish an independent review of the enhanced systems and process, models, information base, and assumptions which contribute to the FRAMES system applying to both the South Coast and Tumut subregions of the Southern region.	In progress Improvements to FRAMES are yet to be finalised. Therefore, an independent review of enhanced FRAMES has not been commissioned.

Due date		Region	FA section*	Milestone	Progress
2007 384	30 April and each 5 year review	Sthn	Att 6(8) point 2	Undertake a review of sustainable yield every five years using enhanced FRAMES systems and information bases. The results of this will inform the annual volume which may be harvested from the Southern region (or subregion), being mindful of achieving long-term sustainable yield and optimising sustainable use objectives consistent with this Agreement.	In progress No progress to date.
2007 385	30 April and each 5 year review	Sthn	Att 6(8) point 3	Undertake independent audits of sustainable yield to be completed and published in time for each subsequent five year review.	In progress No progress to date.
2007 381	30 April	Sthn	Att 6(6c) point 2	The FRAMES models will reflect the site-specific silvicultural regimes applied in the Southern Region.	In progress No progress to date.
1999 11	30 June	UNE, LNE	6.16.2	The development of a process (prior to any purchases) of selecting land for purchase by SFNSW for timber supply must consider substantially unmet CAR conservation targets. A process for this and the key targets must be developed by SFNSW including consultation with NPWS and PlanningNSW by the 30 June 1999. This is not to hinder the overall purpose of the Private Property Supplementation Program to supplement the SFNSW timber supply.	In progress Informal discussions have occurred between SFNSW and the NPWS on development of a process for considering unmet CAR conservation targets when SFNSW purchases land to supplement timber supply.
2002 306	30 June	Sthn	3.3.3	The process (prior to purchase) of selecting land for purchase by SFNSW for timber supply must address criteria to be agreed between SFNSW and NPWS. These criteria will consider: the key substantially unmet CAR conservation targets; whether there is any need for access through reserves; issues of reserve design; and proximity to national parks/reserves.	In progress See above.
Production of timber products					
Annually 149		UNE, LNE, Eden	3.5	Report on annual production of timber products other than the production of quota sawlogs.	Continuing SFNSW annually reports on production of timber products in its <i>SEEing</i> Report. Information on annual production of timber products is also contained within this report (refer to Criterion 2 in Chapter 2).

Due date	Region	FA section*	Milestone	Progress	
Annually 316	Sthn	3.5 Att 6(6d)	A report to DoP, NPWS and EPA on annual production of products other than production of quota sawlogs for each financial year.	Continuing Refer to milestone above.	
Timber supply arrangements and management and charcoal production					
2002 301	30 September	Sthn	3.3.2	SFNSW must undertake a baseline analysis of tree species mix, size, quality and quantity for each compartment within State forest (post-forest agreement) using existing data contained in harvesting records and other sources (i.e. sales data on sawlogs and higher value products). The results of this analysis must be provided to NPWS and DoP.	No reporting required Milestone no longer required.
Annually 302		Sthn	3.3.2	Each year SFNSW must monitor and report as part of the forest agreement annual report process, the amount of residual timber (tonnage) harvested from each compartment and amount of species, size, quality and quantity of trees harvested in each compartment from sales data on sawlogs and higher value products and compare this to the baseline data.	No reporting required Milestone no longer required.
Annually 303		Sthn	3.3.2	If monitoring each year indicates a change in these parameters (i.e. amount of species, size, quality and quantity of trees harvested), SFNSW must consult DoP and NPWS to determine if remedial action is required and SFNSW must implement appropriate actions agreed between the three agencies.	No reporting required Milestone no longer required.
Annually 304		Sthn	3.3.2	Each year SFNSW must monitor and report, as part of the forest agreement annual reporting process, the total quantity (tonnes) of fluxwood (if this is sourced from either as part of the 200 000 tonnes of residue timber or thinnings) and the total quantity (tonnes) of thinnings.	No reporting required Milestone no longer required.
Silviculture practices					
1999 24	1 December	UNE, LNE	2.2.4	Preparation of Eco-field Guides.	Complete Eco-field guides for the UNE and LNE regions have been published. They can be purchased through SFNSW.

Due date		Region	FA section*	Milestone	Progress
2002 107	31 August	Sthn	2.2.4 4.3	Prepare and publish Eco-field Guides for the Southern region.	In progress Preparation of a draft eco-field guide for the Southern region is continuing. The guide is expected to be complete in 2005
2000 48	1 April	UNE, LNE, Eden	2.2.4 Att 6	Preparation of SFNSW Forest Practices Code: Part 5 - Wildlife Management in Native Forests.	In progress No further progress to report.
2002 244	30 June	Sthn	2.2.4 Att 4	SFNSW Forest Practices Code: Part 5 - Wildlife Management in Native Forests.	In progress Refer to milestone above.
2001 81 Ongoing (Sthn) 252	1 April	UNE, LNE, Eden Sthn	2.2.8 Att 6(2c) (S)	Native forests silvicultural regimes must be implemented on State forests.	Implemented Native forest silviculture regimes are implemented on State forest according to the Native Silviculture Manual. Native forests silvicultural regimes are documented in the Native Forests Silvicultural Manual and Circulars 2002/02 'Implementing Silviculture in LNE and UNE' and 2002/03 'Implementation of IFOA Silviculture in the Southern Forest Agreement Region'. Site specific requirements are documented in each harvesting plan and the implementation and outcomes of each plan (including silviculture) is subject to monitoring and reporting as required by Circular 2003/01 'Monitoring and Measuring Compliance of Operations'.
2001 82	1 April	UNE, LNE, Eden	2.2.8	Preparation of arrangements for silvicultural practices including establishment of demonstration areas (UNE, LNE regions only), audit compliance, reporting and consultation.	In progress Silvicultural practices may be subject to auditing in accordance with Circular 2003/01 'Monitoring and Measuring Compliance of Operations'. Three silvicultural demonstration areas have been established in the Lower North East region, including sites at Queens Lake (2001), Kiwarrak (2002) and Tuggolo (2004) State forests. The three sites continued to be available throughout 2003/2004 to assist the training of forest operators, covering a range of forest types and silvicultural regimes permissible under the IFOA. No formal silvicultural demonstration sites have been set up in the Eden region.
2003 253	30 September	Sthn	2.2.8 Att 2(o) 4.2	Preparation of arrangements for silvicultural practices including demonstration areas (for silvicultural practices and suite of silvicultural regimes), auditing, report area harvested and silvicultural types and consult on ecosystem management.	In progress Refer to milestone above. No formal silvicultural demonstration areas have been established in the Southern region.
Ongoing 157		UNE, LNE, Eden	2.2.5	SFNSW to employ internal audit system to ensure consistent application of standards across Crown-timber lands.	Continuing SFNSW audit procedure has been defined in Circular 2003/01 'Monitoring and Measuring Compliance of Operations'. Responsibilities for auditing are defined for various sections of SFNSW, including each region and each division.

Due date	Region	FA section*	Milestone	Progress	
Ongoing 246	Sthn	2.2.5	SFNSW to employ an internal audit system to ensure consistent application of standards and monitor compliance with IFOA.	Continuing Refer to milestone above.	
Ongoing 247	Sthn	2.2.5	The results of this monitoring and auditing should be reported using a mechanism determined by DoP, NPWS, SFNSW, NSW Fisheries and EPA.	Continuing Public reporting of compliance is included in the SFNSW annual <i>SEEing</i> report which accompanies the SFNSW corporate annual report.	
Ongoing 247	UNE, LNE, Eden	2.2.3	Harvesting plans to be prepared for all logging operations and forest products conducted under a Timber Licence.	Complete Harvesting plans are prepared for all logging operations conducted under a timber licence. A harvest planning manual detailing the requirements to ensure consistency and standards has been developed.	
Ongoing 156	Sthn	2.2.3	For activities regulated under Part 4 of the <i>Forestry and National Park Estate Act</i> , harvesting plans must be prepared for all logging operations conducted under a Timber Licence.	Complete Refer to milestone above.	
Ongoing 159	UNE, LNE, Eden	2.2.7	Notification by SFNSW on the location and nature of forestry operations to be done at least bi-monthly to PlanningNSW, NPWS, EPA and NSW Fisheries as outlined in IFOA arrangements.	Implemented Location of forest operations are provided to regulatory agencies in the IFOA monthly report on the first of each month.	
Ongoing 248	Sthn	2.2.6	Notification of the location and nature of forestry operations to NPWS, EPA, NSWFW and DoP as outlined in IFOA arrangements.	Implemented Refer to milestone above.	
Ongoing 158	No less than 2 months before commencement of forest agreement	UNE LNE Eden	2.2.7	Liaison by SFNSW with DUAP, NPWS, and EPA on proposed forestry operations and activities not originally covered by forest agreement or IFOA. SFNSW must carry out an appropriate assessment of the impacts resulting from any proposed changes and each agency must consider the environmental consequences of any proposed changes in terms of their regulatory responsibility.	Continuing This process was not required during 2003/2004.
Ongoing 251	2 months before activities begin	Sthn	2.2.7	Liaise with DoP, NPWS and EPA on proposed forestry activities not covered by forest agreement and integrated forestry operations approval. Impacts from the proposed forestry activities must be assessed.	Continuing Refer to milestone above.

Due date		Region	FA section*	Milestone	Progress
2002 368	31 December	Sthn	Att 6(2n)	Establish a process, including public reporting, for regular audits of compliance and reviews of Codes of Practice, Eco-field Guides and Regional prescriptions.	<p>In progress</p> <p>SFNSW internal audit procedure is now defined in FNSW Circular 2003/01 'Monitoring and Measuring Compliance of Operations'. SFNSW publicly reports, at a statewide level, compliance and monitoring results in its <i>SEEng</i> report each year.</p> <p>Auditing and enforcement of SFNSW' compliance with the Threatened Species Licences and Environment Protection Licences is undertaken by DEC. The NPWS (within DEC) is responsible for assessing compliance with the Threatened Species Licences and the Environment Protection Authority (EPA) branch of DEC assesses compliance with the Environment Protection Licences.</p> <p>Compliance with the Threatened Species Licence is undertaken by DEC in accordance comprehensive guidelines and procedures (endorsed in March 2002). The guidelines and procedures were compiled into handbook form and are used across the NPWS to ensure a consistent approach to compliance monitoring and enforcement.</p> <p>DEC has also implemented an active audit program of SFNSW' forestry operations to assess compliance with the Environment Protection Licence. The audit program ensures that SFNSW is taking the required measures to protect the aquatic environment through responsible planning and operational activities. Non-compliance with conditions of the Environment Protection Licence are dealt with through meetings with senior SFNSW officers, issuing feedback or warning letters, clean-up notices, penalty notices or prosecution actions as appropriate at the circumstances.</p> <p>NSW Fisheries carry out opportunistic threatened species compliance activities in relation to forestry operations where they coincide with other fishery compliance duties. NSW Fisheries investigate complaints when received.</p> <p>Public reporting of compliance audits is provided in Chapter 3 of this report.</p>
2007 369	30 April and each 5 year review	Sthn	Att 6(2n)	Undertaking audits of compliance at first and subsequent five-yearly reviews.	<p>In progress</p> <p>Not required until the first and subsequent 5 yearly reviews.</p>

IMPLEMENTATION, REVIEW AND COMMUNITY AWARENESS

STAFF TRAINING, EMPLOYMENT AND INDUSTRY INITIATIVES

Staff training

Ongoing 154	UNE, LNE, Eden	2.1.1 3.6 (E)	SFNSW field staff and contractors must receive appropriate competency-based training. In Eden, establish timber industry training and accreditation program to assist workers in developing recognised competencies in soil and water, flora and fauna, indigenous and non-indigenous cultural heritage, log grading and log merchandising requirements.	<p>Continuing</p> <p>SFNSW staff and contractors continue to receive appropriate competency based training. Records of SFNSW staff training are maintained on the corporate CHRIS (Complete Human Resource Information System) database. Records of contractor competencies are maintained on the FNSW Contractor and Operators Licensing and Permits system. Competencies are subject to the SFNSW internal audit system (Circular 2003/01 Monitoring and Measuring Compliance of Operations).</p>
Ongoing 236	Sthn	2.1.1 Att 6(2k)	Field staff and contractors of SFNSW must continue to receive appropriate competency-based training including training in biodiversity management, soil and water management, log grading, silviculture, harvest planning and cultural heritage.	<p>Continuing</p> <p>Refer to milestone above.</p>

Due date		Region	FA section*	Milestone	Progress
Ongoing	155	UNE, LNE, Eden	2.1.2	NPWS field staff and contractors must receive appropriate competency-based training.	Continuing DEC continues to provide staff training programs. These cover natural and cultural (including Aboriginal) heritage management and operational, technical and safety matters. Programs range from technical training related to occupational health and safety requirements to statewide capacity building initiatives targeted at particular staff classifications.
2005	31 December	Sthn	5.1.4.5	All NPWS staff located in the Southern Directorate be provided with adequate cultural awareness training, to improve customer relations with Aboriginal communities.	In progress All NPWS South West Slopes and Far South Coast regional staff have attended cultural awareness training. Most South Coast Region staff have attended a three day Aboriginal Cultural Awareness course. A course was run for staff at Illaroo Farm in 2003/2004.
Employment and industry initiatives					
Ongoing	185	UNE, LNE, Eden	3.6	Employ a range of initiatives to facilitate employment, subject to funding.	Continuing The NSW Government has allocated \$9.1 million per year for 2002/2003 and 2003/2004 for establishment of the new reserves. Key establishment activities include pest species management, fire management, asset maintenance, preparation of management plans, Aboriginal heritage management and neighbour relations. Capital works outsourced by the NPWS since the forest agreement was signed include lookout and walking track construction, camping area development and interpretation facilities. Ninety one positions for conservation and Aboriginal heritage management have been funded and include four Aboriginal cultural heritage officers (of which one is a female position). The contribution of State forests to the economies of regional NSW continues to remain strong with more than 7000 direct jobs arising from forest dependent industries and an additional 1 100 in forest management. The flow-on effect of this is estimated to be over 15 600 additional jobs in regional communities across the State. Growth over the past five years has been most evident in the primary processing sector. In Tumut, in the Southern region, the Visy pulp and paper mill will be subject to a \$60 million upgrade, potentially creating a further \$300 million in investment creating about 550 new jobs in the region. The Visy mill was opened in 2001, and is now aiming to double production by 2007. The mill upgrade will initially see a 100 000 tonne per annum increase in paper production by 2005. A proposed feasibility study between Visy and SFNSW will investigate the viability of increasing production to 560 000 tonnes per annum by 2007. The expansion will also lead to salinity plantings around Tumut, which may have a positive effect on salinity in the Murrumbidgee River. Source: SFNSW (2003) '\$360m expansion for Visy mill', <i>Bush Telegraph Winter 2003</i> , June – August 2003.
Sthn	317	Sthn	Att 10 Att 8 (S)		
Industry initiatives					
2004	1 April	UNE, LNE, Eden	2.9.2 2.8.2 (E)	Private property supplementation program, involving the purchase of timber rights or private property to assist in supply arrangements to industry must apply controls in legislation.	In progress No additional private property purchases occurred or timber sale agreements were entered into during 2003/2004. However, in 2002/2003 two timber sale agreements (for the purchase of timber rights) were implemented in the LNE region. These agreements are expected to supply an estimated 2 000 m ³ of quota sawlogs.

Due date	Region	FA section*	Milestone	Progress
Ongoing 305	Sthn	3.3.3	SFNSW will undertake a private property supplementation program (such as purchase of timber rights or private property) and when any private land is purchased and dedicated as State forest, harvesting and roading operations must be subject to forest agreement and conditions of the IFOA.	Continuing Refer to milestone above.
Ongoing 184	Subject to funding	UNE, LNE, Eden	3.6 Extension of FISAP to fund various initiatives in the UNE, LNE and Eden regions.	Continuing UNE and LNE - FISAP allocated \$7.5 million to the Private Property Timber Supplementation Program to assist SFNSW to purchase timbered property as a means of providing additional resources to the native timber industry in the UNE and LNE regions. This funding was received as a result of the reduction in resource following the establishment of the CAR reserve system in the regions. Funding for this program was finalised in 2002/2003. No additional properties were purchased in 2003/04. However in previous years, ten properties were purchased totalling 13 357 hectares, of which 1 722 hectares were purchased. An estimated volume of 141 439 m ³ of high quality large quota sawlogs has been purchased on these properties. All land purchased under the private property supplementation program has been dedicated State forest. All harvesting and roading operations on these properties are subject to the forest agreement and the conditions of the IFOA. The Log Haulage Assistance program continued to be implemented across the UNE and LNE regions. Funds of \$1 million per year over five years were allocated to assist native forest quota sawmilling companies meet additional log haulage costs incurred where they have to obtain quota sawlog supplies from outside their usual areas of supply. In March 2003, the Premier announced a two year extension of the Log Haulage Assistance program, to 31 December 2005, with additional funding from SFNSW. To 30 June 2004, \$3 622 075 in FISAP funds had been expended on Log Haulage Assistance. Eden \$1 million was allocated to the Commercial Regrowth Thinnings initiative to provide assistance to enable one or more of the existing integrated harvesting crews to expand the commercial thinnings operations already being undertaken. The initiative aimed to assist in the purchase of suitable equipment and provide training to enable the transfer of a crew from mature stands harvesting to commercial regrowth thinning. The initiative was to be conducted under existing FISAP programs. Subsequently, through the Industry Development Assistance (IDA) component of the FISAP more than \$1 million has been paid to contractors in the Eden area to purchase mechanised harvesting equipment and training has been undertaken under the FISAP Training Strategy.
2006 318	30 June	Sthn	3.6 FISAP applies in the Southern region and will be available to fund initiatives until 20 June 2006.	In progress \$2.5 million of FISAP funds have been allocated towards the Sawlog Productivity Program – Silvicultural Program for the South East Region. Both the NSW and Federal government contribute to this initiative. The initiative aims to improve the sawlog productivity of South Coast forests. Within the operational constraints of the RFA and IFOA the strategy is to select and cull unmerchantable trees to restore productivity to degraded timber stands capable of improved sawlog growth, to release young, potentially merchantable trees otherwise inhibited by the non-merchantable overstorey. To 30 June 2004 \$1 825 000 has been expended under this program and 5 322 hectares have been treated. FISAP payments under this initiative are scheduled to conclude in February 2006.

Due date	Region	FA section*	Milestone	Progress
COMMUNITY PARTICIPATION, EDUCATION AND AWARENESS				
Complaint handling				
2000 88	1 January	UNE, LNE, Eden	6.15	Devise and implement a coordinated complaint handling and response system. Implemented A Coordinated Complaint handling Protocol was developed and implemented in 2001.
2002 358	30 June	Sthn	6.15	Devise and implement a coordinated complaint handling and response system for the IFOA. Implemented Refer to milestone above.
Ongoing 346	When making an amendment	Sthn	6.2	Public participation is required when making a forest agreement or when an amendment or revocation occurs. Continuing No amendments to the Southern Forest Agreement have occurred during 2003/2004.
Community awareness and education				
Ongoing 202 Sthn 362	UNE, LNE, Eden, Sthn	Att 8 Att 6(2g) (S)	Providing ongoing formal participation to raise awareness and understanding of ESFM and how it can be achieved in New South Wales forests.	Continuing Forests are only one element of a much broader landscape managed by the NPWS, hence ESFM is indirectly addressed as part of the broader conservation awareness and understanding promoted by the agency, rather than being a specific component. Public and educational programs with NPWS participation in 2003/2004 included; guided walks and tag-along four-wheel drive tours, ranger talks and on-site inspections, and training, planning and control programs for pest species. The NPWS also continued its <i>Discovery</i> program which focuses on providing community education opportunities for the general public and interested groups on natural and cultural heritage. SFNSW has publicly exhibited Regional ESFM Plans in 2000 as a first step in seeking greater involvement from stakeholders. As a result of input from the public and regulatory agencies the ESFM plans have been progressively refined. This process is part of the strategy for public education regarding the principles of ecologically sustainable forest management. The final plans are scheduled for completion in early 2005. SFNSW is not responsible for the forest practices governing activities on private forests.
Ongoing 365	Sthn	Att 6(2j)	Developing and implementing public education programs to deal with ecologically sustainable management issues including management requirements for conservation and codes of forest practice governing activities in both public and private forests.	Continuing Refer to milestone above.
Ongoing 201	UNE, LNE, Eden	Att 8	Continuing to develop the public consultation and public reporting mechanisms through the introduction of new partnerships (for example the International Model Forest Network).	Continuing No progress to report.

Due date	Region	FA section*	Milestone	Progress
Ongoing 204 Sthn 364	UNE, LNE, Eden, Sthn	Att 8 Att 6(2i) (S)	Improving cooperation and coordination between Government agencies so as to achieve integrated management for conservation, wood production and other values in both public and private forests.	Continuing An example of Improved cooperation and coordination between government agencies has occurred with the Dorrigo daisy bush (<i>Olearia flocktonaie</i>). It is the subject of a trial by SFNSW, the NPWS and the University of New England, which aims to determine if roadside disturbance stimulates seed germination. The Dorrigo daisy bush is found in a small area of State forests and reserves near Dorrigo. Its decline in abundance is thought to be due to the lessening of disturbance at these sites. Areas where the daisy has been found were previously protected to halt its decline. However, it has since been observed that this lack of disturbance may be leading to the plant's failure to germinate. A monitoring plan has been put in place, which will manage for disturbance through regular road maintenance which will assist germination and therefore reproduction of the daisy. Control areas will be maintained to ensure undisturbed sites. <i>Source: Spencer H (2003) 'Disturbing the Dorrigo Daisy Bush', Bush Telegraph, Spring 2003.</i>
Ongoing 361	Sthn	Att 6(2f)	Improving the coordination and effective use of resources allocated to research for ESFM in New South Wales.	Continuing Refer to milestone above.

INFORMING THE PUBLIC

Access to information

1999 1	As soon as possible	UNE, LNE, Eden	1.6	Granting of an IFOA on, or as soon as possible after, the making of the agreement.	Complete IFOAs for the UNE, LNE and Eden regions were signed 21 December 1999, and commenced 1 January 2000. Subsequent amendments were made to the IFOAs; Amendment 1 for the UNE, LNE and Eden regions commenced 1 December 2001 and Amendment 2 for the UNE, LNE and Eden regions commenced 3 May 2003. Amendment No 3 commenced on the 31 May 2004 (Refer to Chapter 3 of this report for more details).
2002 233	ASAP	Sthn	1.6.1 Att 6(1) & (2a)	Granting of an IFOA for the Southern region.	Complete An IFOA for the Southern Region was signed by the NSW Ministers for Planning, Environment, Forestry and Fisheries 3 May 2002, and commenced 13 May 2002. Amendment No 1 to the IFOA for the Southern Region commenced on the 31 May 2004 (Refer to Chapter 3 of this report for more details).
1999 2	Within 7 days of signing	UNE, LNE, Eden	6.10	Furnishing of the Agreement (and IFOA) to the Presiding Officer of each House of Parliament and to be laid before Parliament within 15 sitting days of receipt.	Complete Furnishing of the forest agreement for the UNE, LNE and Eden regions to the Presiding Officer of each House of Parliament occurred on 9 March 1999. Furnishing of the IFOAs to the Presiding Officer of each House of Parliament occurred on 24 December 1999.
2002 352	Within 7 days of signing	Sthn	6.10 6.1	A copy of the forest agreement including any amendment or termination of the agreement must be furnished to the Presiding Officer, so it can be laid before that House within 15 sitting days of that House after it is received by the Presiding Officer.	Complete Furnishing of the forest agreement and IFOA for the Southern region to the Presiding Officer of each House of Parliament occurred in May 2002.

Due date		Region	FA section*	Milestone	Progress
Ongoing 346	When making or amending	Sthn	6.2	Public participation is required when making a forest agreement or when an amendment or revocation occurs.	Continuing Public consultation occurred during the making of the forest agreements. No amendments to the agreements have been made to date.
1999 6	1 April	UNE, LNE, Eden	6.11	Public notice in newspaper circulating throughout the State and also in a newspaper circulating the region, about the Agreement and IFOA.	Complete Public notice of the making of the forest agreements was made in March 1999, and for the IFOA in December 1999.
2002 358	Within 7 days after signing	Sthn	6.11	Public notice in a newspaper circulating throughout the State and also in a newspaper circulating in the region, about the making of the forest agreement and IFOA or amendment.	Complete Public notice of the making of the forest agreement and IFOA has been made.

Access to information

1999 25	1 December	UNE, LNE, Eden	2.11.3 2.10.3 (E)	Determining a method to provide all research reports to the public.	Completed All CRA/RFA project reports can be obtained by request through e-mailing requests to: info_racu@premiers.nsw.gov.au . Some project reports can also be viewed through a link on the RACAC website (http://www.racac.nsw.gov.au) and the Australian Government's RFA website (http://www.rfa.gov.au).
1999 7	1 April	UNE, LNE, Eden	6.11	Copies of documents to be made available for public inspection at the head office and other regional offices of PlanningNSW.	Completed Forest agreements were signed on 5 March 1999 – deposited at PlanningNSW (now DIPNR) Head Office Sydney, regional offices at Newcastle, Queanbeyan and Grafton; SFNSW regional offices at Casino, Glen Innes, Grafton, Coffs Harbour, and Eden; NPWS regional offices at Port Macquarie, Armidale, Grafton, Glen Innes, Alstonville and Merimbula. IFOAs were signed on 21 December 1999 – deposited at PlanningNSW (now DIPNR) Head Office Sydney, regional offices at Newcastle, Grafton and Queanbeyan; SFNSW regional offices at Walcha, Taree, Casino, Eden and Coffs Harbour; NPWS regional offices at Glen Innes, Alstonville, Merimbula, Armidale and Port Macquarie.
2002 354	Within 7 days after signing	Sthn	6.11	Copies of documents to be made available for public inspection at the head office and other regional offices of the Department of Planning.	Continuing Refer milestone above.
1999 8	1 May	UNE, LNE, Eden	6.11	Copies of documents made available on the Internet by means of the website of the PlanningNSW.	Complete Access to the NSW forest agreements and IFOAs was made available on the RACAC website (http://www.racac.nsw.gov.au) in March 1999 and April 2000 respectively. The site also contains links to the Australian Government RFA website (http://www.rfa.gov.au) that contains project reports carried out as part of the CRA/RFAs for the UNE, LNE and Eden regions.

Due date		Region	FA section*	Milestone	Progress
2002 355	As soon as practical after documents made public	Sthn	6.11	Copies of documents made available on the Internet by means of the website of the Department of Planning.	Complete Access to the NSW forest agreement and IFOA was made available on the RACAC website (http://www.racac.nsw.gov.au) in 2003. The site also contains links to the Australian Government RFA website (http://www.rfa.gov.au) that contains project reports carried out as part of the CRA/RFAs for the Southern region.
2002 296	30 June	Sthn	2.11.3	All project reports relevant to the regional forest assessment must be made public.	Complete All CRA/RFA project reports have been published, and are publicly available via the Australian Government RFA website and on request from DIPNR.
2002 377	Within 6 months of signing	Sthn	Att 6(5)	Publish all FRAMES CRA reports for Southern.	Complete All FRAMES CRA reports for the Southern region have been completed and are publicly available.

Additional reporting mechanisms

2000 53	1 April	UNE, LNE, Eden	4.2	Additional reporting and consultative mechanisms for NPWS (e.g. <i>State of the Parks</i> report, NPWS Advisory Council, District Advisory Committee).	In progress The first <i>State of the Parks</i> report was released in November 2001. The report provided an overview of the conservation values of NSW and their management within the parks system and was supported by a series of 'case studies' for parks around the State. The ongoing <i>State of the Parks</i> program is continuing, with the trial and implementation of quantitative indicators of management effectiveness on a sample of parks throughout the State in 2002/2003. This was repeated in 2003/04 along with a broader qualitative survey across all parks. The next <i>State of the Parks</i> report is scheduled for release in early 2005. Corporate level annual reporting is continuing. NPWS' District Advisory Committees are continuing to provide advice to the National Parks Advisory Council and NPWS on a range of natural and cultural heritage conservation matters both on and off reserve. Membership of these committees includes Aboriginal communities, women, local government and farmer groups. Committees were active in providing the NPWS with expert advice on technical and specialist matters, feedback on the views of the community, encouragement of community support and involvement in conservation of nature and cultural heritage, suggestions on improvements in the management of NPWS national parks and other reserves, and input to plans of management.
2002 319	31 August	Sthn	4.2	Additional reporting and consultative mechanisms for NPWS such as State of the Parks report.	In progress Refer to milestone above.
2000 54	1 April	UNE, LNE, Eden	4.3	Additional reporting mechanisms for SFNSW (e.g. Plan of Operations, Regional ESFM Plans).	In progress SFNSW have regional/corporate reporting and consultative mechanisms for considering forest management including the annual plan of operations (supplied to regulators), public exhibited documents like the ESFM model/regional plans that have incorporated public comments. Other reporting mechanisms such as the <i>Bush Telegraph</i> also continued to be published every two months by SFNSW, as well as its Research Division's annual report prepared each financial year. SFNSW is represented on a range of international, national, state and local groups related to forests and forest management, including the Australasian Fire Authorities Council, NSW Bushfires Coordinating Committee and Greening Australia (among others).

Due date		Region	FA section*	Milestone	Progress
2002 320	31 August	Sthn	4.3 Att 2p Att 6(7c)	Additional reporting and consultative mechanisms for SFNSW such as Plan of Operations, NFMS and any committee established to implement forest management at the landscape level. Document basis for silvicultural practices and publish Native Forest Silvicultural Manual.	In progress Refer to milestone above. SFNSW has published a Native Forests Silvicultural Manual that complements its Field Guides and training programs. The Manual documents the basis for SFNSW' silvicultural practices and contains the silvicultural specifications and guidelines required by the forest agreements and IFOAs. Although the Coastal and Tableland areas north of Sydney are divided into two regions for the purposes of the IFOAs, the specifications for silvicultural purposes are identical.
Annually 144 Sthn 250		UNE, LNE, Eden Sthn	2.2.6	SFNSW reporting at state-wide level through Environmental and Social Values Report.	Continuing SFNSW' <i>SEEing</i> Report has been published for 2003/2004.
2000 88	1 April	UNE, LNE, Eden	4.5	Additional reporting mechanisms, such as committees, by other agencies.	In progress Refer to milestones above.

ESFM CRITERIA AND INDICATORS

Monitoring

Ongoing 174 Sthn 290		UNE, LNE, Eden, Sthn	2.11.2 2.10.2 (E) Att 7 (S)	Monitoring of ESFM criteria and indicators.	Continuing Monitoring of the ESFM criteria and indicators for the UNE, LNE and Eden regions commenced in 1999/2000, and for the Southern region in 2002/2003. ESFM Criteria and Indicators monitoring details are contained within Chapter 2 of this report. The NPWS has a central coordinating group to administer the implementation and monitoring of the ESFM criteria and indicators, in conjunction with its own <i>State of the Parks</i> monitoring stream. The NPWS continue to concentrate on improving internal systems for managing the data in order to improve the usefulness of the data for use within the agency, and to improve efficiency by enabling data collected to meet multiple reporting needs. SFNSW improved its ability to monitor the ESFM criteria and indicators following the implementation of its SEEDs computer application in 2001/2002. The system allows for improved management of data, its storage, and retrieval in order to meet various data requirements; including the ESFM criteria and indicators, MIG and SFNSW' <i>SEEing</i> reporting. The SEEDs application provides a set structure and definitions to standardise the provision of regional data thereby increasing its consistency and accuracy.
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Reporting

Annually 146 Sthn 293		UNE, LNE, Eden Sthn	2.11.2 2.10.2 (E) Att 9	Reporting on indicators to contribute to annual report to Parliament.	Continuing Reporting of the ESFM criteria and indicators has been incorporated into the NSW agreement reporting process for the UNE, LNE and Eden regions since 1999/2000, and from 2002/2003 for the Southern region. Information on the results of monitoring are provided in Chapter 2 of this report.
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Due date		Region	FA section*	Milestone	Progress
Trial and assessment					
2000 50	1 April	UNE, LNE, Eden	2.11.2 2.10.2 (E)	Preparation of evaluation framework for the criteria and indicators, to provide basis for five-year review.	<p>Complete</p> <p>A draft evaluation framework was devised by PlanningNSW (now DIPNR) in 2000/2001. The draft was accepted, in principle, as a final document by agencies involved in the collection of ESFM criteria and indicators monitoring data. The framework has since been applied.</p> <p>The purpose of the framework is to collect information on the appropriateness of each indicator, such as cost-effectiveness, appropriateness of the indicators, ability to obtain data, ability to obtain data in specified format. The information obtained from the framework will be used to assist with the review of the criteria and indicators, as part of the first five year review of the forest agreements.</p> <p>An assessment of the ESFM criteria and indicators will be part of the first five year review of the forest agreements and IFOAs. The review will incorporate those for the Southern region to ensure consistency and compatibility between the forest agreement regions. However, the improvement and development of monitoring and reporting processes for the criteria and indicators by all participating agencies has been ongoing since 1999/2000.</p>
2002 291	30 September	Sthn	2.11.2	Preparation of an evaluation framework for the criteria and indicators.	<p>Complete</p> <p>Refer to milestone above.</p>
2004 120	1 April	UNE, LNE, Eden	2.11.2 2.10.2 (E)	Trial and assessment of indicators to ensure they are practical, measurable, cost-effective and capable of being implemented at the regional level.	<p>In progress</p> <p>An assessment of the ESFM criteria and indicators is to be undertaken as part of the first five year review.</p>
2007 292	30 April	Sthn	2.11.2	Review of indicators.	<p>In progress</p> <p>Refer to milestone above.</p>
Data management					
1999 21	1 October	UNE, LNE, Eden	6.13	Lodgement of all archival copies of data.	<p>Complete</p> <p>All archival copies of data for the UNE, LNE and Eden regions have been lodged. Archive set finalised in July 2001.</p>
2002 357	30 June	Sthn	6.13	Lodgement of all archival copies of data.	<p>Complete</p> <p>Data archive in progress.</p> <p>Completion of this milestone was delayed due to technical difficulties. Archive is expected to be complete by the end of 2004.</p>
2000 59	1 April	UNE, LNE, Eden	6.13	Data Management Agreement.	<p>Complete</p> <p>Data management agreement finalised by State members of the CRA Data Management Group and endorsed by RACD of PlanningNSW (now DIPNR) in March 2000, applicable to the North East and Eden regions. Agreement attached to North East RFA (Attachment 13), Eden RFA (Attachment 13).</p>

Due date		Region	FA section*	Milestone	Progress
2002 356	30 June	Sthn	6.13 Att 6(2h)	Preparation of Data Management Agreement.	Complete Refer milestone above. Data management agreement attached to Southern RFA (Attachment 12).
Ongoing 203 Sthn 363		UNE, LNE, Eden, Sthn	Att 8 Att 6(2h)	Developing and implementing an information system to facilitate the sharing of data for the use by all agencies, including local government, involved in the management of forested land.	Continuing In March 2001 the NSW Government launched the CANRI website (http://www.canri.nsw.gov.au). The site was developed to improve the integration and coordination of data between government and increase public awareness of natural resource management. The site aims to adopt a cooperative approach to integrate existing data and information systems and provide the community with access to a range of natural resource information. Of use to community groups, industry groups, landholders, government agencies and students, it provides easy access to maps and other natural resource information. It also allows stakeholders to contribute information to the site and as a source for data sharing (NSW Government, 2003). The CANRI framework provides a central access point to various natural resources data, such as vegetation mapping and data, soil profile information and water quality, storage and river flow. Further developments are continuing to allow access to information on minerals and aquatic and terrestrial wildlife. For example, in 2002 the development of a biodiversity information system (BioNet) commenced that aims to allow users to search for records of specific species, or for all species across a specific area of the State. Information on the CANRI program, projects and activities and new internet products can be found in the monthly newsletter CANRI News (http://www.canri.nsw.gov.au/newsletter/index.html).
Research					
1999 26	1 December	UNE, LNE, Eden	2.11.3 2.10.3 (E)	Research projects that are in areas formerly on State forests and are now in national parks and nature reserves, SFNSW to provide NPWS with details of affected studies, location of sites and access requirements.	Complete During the CRA/RFAs, areas of State forests were transferred to NPWS tenure, resulting in some SFNSW research projects being located in the NPWS estate. In accordance with requirements of the NSW forest agreements, details of all research projects in former State forests in the UNE, LNE and Eden regions have been identified and details (including location and access requirements) of these studies were provided to the NPWS in 2000/2001. The NPWS is providing access to these sites where required. Sites identified in the north east regions included the former Lorne Flora Reserve (now national park) and Yabba State forest (now Toonumbar National Park), and Coolangubra State forest (now part of the South East Forest National Park) in the Eden region.
2002 297	30 June	Sthn	2.11.3	Continuing projects in former State forest areas to be documented and details provided to NPWS on affected studies, location of sites and access requirements.	Complete Refer to milestone above.
2000 56	1 January	UNE, LNE, Eden	2.11.3 2.10.3 (E)	Preparation of strategy to outline all monitoring and research to be undertaken.	In progress No further progress to report.
2003	30 June	Sthn	2.11.3	A strategy for important research and monitoring (including ESFM indicators) must be prepared jointly	In progress

Due date		Region	FA section*	Milestone	Progress
295			Att 7	by SFNSW and NPWS.	No further progress to report.
Ongoing 361		Sthn	Att 6(2f)	Improving the coordination and effective use of resources allocated to research for ESFM in New South Wales.	Continuing
2004 117	1 March	UNE, LNE, Eden	2.11.3 2.10.3 (E)	Preparation of a compendium of forest research.	In progress RACD, DIPNR has collated contributions from a range of land management agencies, research organisations and universities on current and published research related to forests. This information has been included in a draft compendium of forest research. At the end of 2003/2004 refinement of the document was continuing. Further refinement was also being undertaken on the database specifically set up to manage the large amount of information collected through this process and enable further information to be added on an ongoing basis.
2007 294	30 April	Sthn	2.11.3	A compendium of New South Wales forest research must be prepared.	In progress Refer to milestone above.
Ongoing 176		Eden	3.1	An operational research trial within the Eden region is proposed to be conducted by SFNSW and EPA associated with selective harvesting from some filter strips.	Continuing No progress to report.
2010 378	31 December	Sthn	Att 6(6a)	Continue to develop a suite of computational tools to help manage NSW forests at operational scales for a range of values including wood yield, growth stage, water quality and quantity, natural and cultural heritage and wildlife habitat.	No reporting required Milestone is not due until December 2010. SFNSW' has developed a computer tool - electronic log delivery docketing system, 'LogTrak', is to be progressively implemented across State forests from 2004. Developed by SFNSW in collaboration with New Zealand Forest Research, the system has been trialled in both native forests and softwood plantation in north east New South Wales, proving successful. The system will increase efficiency and accuracy of log merchandising through electronic receipts transferred directly to SFNSW offices. This will allow up-to-date log sales and delivery data to be available daily.: <i>McMahon E (2003) 'Innovative technology streamlines log delivery', Bush Telegraph, Summer 2003, November 2003-February 2004</i>
2007 380	30 April	Sthn	Att 6 (6c)	Determine, based on review, field based sampling and principles of sustainability to determine the range of silvicultural regimes and prescriptions that can be appropriately applied to each strata of forest type.	In progress No progress to report

Due date	Region	FA section*	Milestone	Progress
REPORTING AND REVIEW				
Reporting on the forest agreements				
Annually 152	UNE, LNE, Eden	6.9	Preparation of an annual report on the forest agreement, which will include a discussion on the achievement of milestones for ESFM and compliance with any IFOA.	Continuing 2003/2004 is the fifth year that progress reports have been prepared for the NSW forest agreements and IFOAs for the UNE, LNE and Eden regions. Progress reporting is provided for each financial year on; the achievement of milestones in the forest agreements, monitoring data collected for the ESFM criteria and indicators and compliance with the IFOAs.
Annually 350	Sthn	6.9	The Minister administering the <i>Environmental Planning and Assessment Act 1979</i> must prepare an annual report on this agreement which will include ESFM and compliance with any IFOA for the region.	Continuing This is the second annual report, covering implementation of the forest agreements for the Southern region. Progress reporting is provided on; the achievement of milestones in the forest agreement, monitoring data collected for the ESFM criteria and indicators and compliance with the IFOA.
Annually 153 Sthn 351	UNE, LNE, Eden, Sthn	6.9	Each annual report on the agreements is to be tabled in each House of Parliament by the Minister for Urban Affairs and Planning as soon as practical after its is prepared.	Continuing 1999/2000 Forest Agreement Annual Report - UNE, LNE and Eden regions was tabled in Parliament in February 2002. 2000/2001 Forest Agreement Annual Report - UNE, LNE and Eden regions was tabled in Parliament in November 2006 Forest Agreement Implementation Report 2001/2002 - UNE, LNE and Eden regions was tabled in Parliament in November 2006 Forest Agreement Implementation Report 2002/2003 - UNE, LNE, Eden and Southern regions submitted for tabling (date of tabling to be advised). Forest Agreement Implementation Report 2003/2004 - UNE, LNE, Eden and Southern regions submitted for tabling (date of tabling to be advised).
Review				
Ongoing 191	UNE, LNE, Eden	6.8	Ministers to review the performance of the forest agreements and IFOAs including their effectiveness and efficiency in meeting Government goals and policies.	Continuing Part of first five year review.
2007 347	Sthn	6.8	Every five years after the agreement is signed, a review of the performance of the agreement must be undertaken by the Ministers to assess the effectiveness and efficiency of the agreement (and approval) in meeting the Government goals and policies.	Continuing Refer to milestone above.
Ongoing 192	UNE, LNE, Eden	6.8	Parties to ensure the public are given an opportunity to participate in the review (public notification and inspection).	No reporting required Refer to milestone above.

Due date		Region	FA section*	Milestone	Progress
2005 348	31 December and every 5 years	Sthn	6.8	The public is to be given an opportunity to participate in the review of the agreement.	No reporting required Refer to milestone above.
Ongoing 193	12 months after each 5 year review	UNE, LNE, Eden	6.8	Report on the outcome of the Ministers' performance review to be tabled in each House of Parliament twelve months after the review.	No reporting required Not required until 12 months after the completion of the review.
2007 349	31 July and every 5 years	Sthn	6.8	A report on the outcome of each review must be tabled in each House of Parliament within 12 months after the end of the relevant reporting period.	No reporting required Refer to milestone above.

* (E) – Reference in Eden Region Forest Agreement

(S) – Reference in Southern Region Forest Agreement