

2000/2001 NSW FOREST AGREEMENT ANNUAL REPORT

UPPER NORTH EAST,
LOWER NORTH EAST
EDEN REGIONS
OF NEW SOUTH WALES

A report prepared by the Minister
administering the
Environmental Planning and Assessment Act 1979



2000/2001 NSW FOREST AGREEMENTS ANNUAL REPORT

PROGRESS ON THE IMPLEMENTATION OF THE
NSW FOREST AGREEMENTS
AND
COMPLIANCE WITH THE INTEGRATED FORESTRY OPERATIONS APPROVALS

UPPER NORTH EAST
LOWER NORTH EAST
EDEN REGIONS
OF NEW SOUTH WALES



A report prepared by the
Minister administering the
Environmental Planning and Assessment Act 1979

INFORMATION

© Crown May 2004

NSW Government

ISBN 1 74029 169 7



This project has been funded and coordinated by the Resource and Conservation Division (RACD) of the NSW Department of Infrastructure, Planning and Natural Resources, for the Resource and Conservation Assessment Council (RACAC)

Preferred way to cite this publication:

NSW Resource and Conservation Division, 2004. *NSW Forests Agreement Annual Report: Progress on the implementation of the NSW Forests Agreements and compliance with the Integrated Forestry Operations Approvals. Upper North East, Lower North East and Eden Regions of NSW.*, Department of Infrastructure, Planning and Natural Resources. Sydney, Australia.

For more information and for information on access to data, contact:

Resource and Conservation Division, Office of Sustainable Development Assessments and Approvals,
Department of Infrastructure, Planning and Natural Resources

P.O. Box 39

SYDNEY NSW 2001

Phone: 02 9228 6129

Fax: 02 9228 6677

Email: info.racd@dipnr.nsw.gov.au

Cover photo and title page photo: Resource and Conservation Division, Office of Sustainable Development Assessments and Approvals, Department of Infrastructure Planning and Natural Resources

Disclaimer

While every reasonable effort has been made to ensure that this document is correct at the time of printing, the State of New South Wales, its agents and employees, do not assume any responsibility and shall have no liability, consequential or otherwise, of any kind, arising from the use of or reliance on any of the information contained in this document.



MINISTER FOR INFRASTRUCTURE
AND PLANNING
MINISTER FOR NATURAL RESOURCES

THE HON. MR CRAIG KNOWLES MP

The Hon. Dr Meredith Burgmann MLC
President of the Legislative Council
Parliament House
Macquarie Street
Sydney NSW 2000

The Hon. Mr John Aquilina MP
Speaker of the Legislative Assembly
Parliament House
Macquarie Street
Sydney NSW 2000

Dear Dr Burgmann and Mr Aquilina

As required by section 21 (1) and (2) of the *Forestry and National Park Estate Act 1998*, I have pleasure in presenting to Parliament this document as the second annual report on the NSW forest agreements for the Upper North East, Lower North East and Eden regions. The annual report discusses continuing progress towards the achievement of ecologically sustainable forest management in the regions.

The report covers progress over the period 1 July 2000 to 30 June 2001 on:

- the achievement of milestones in the Upper North East region, Lower North East region and Eden region forest agreements;
- the monitoring of criteria and indicators by State Forests of NSW and the NSW National Parks and Wildlife Service; and
- compliance with the Integrated Forestry Operations Approvals.

The report demonstrates that this Government is making strong progress toward the achievement of ecologically sustainable management of our forests.

EXECUTIVE SUMMARY

The NSW forest agreements and integrated forestry operations approvals (IFOA) for the Upper North East (UNE), Lower North East (LNE) and Eden regions were signed in 1999, establishing a strategic and operational framework for the management of public forests. These agreements and approvals aim to achieve an ecologically sustainable forest management (ESFM) system.

To achieve this, State agencies¹ have focused considerable efforts on the successful implementation of the forest agreements and IFOAs. The implementation of the agreements has been a complex process. Many of the tasks identified by the agreements had not been done before, so a great deal of ground work was necessary before the task could be completed. This included significant adjustments to current practices, the development of new systems and reallocation of staff.

The efforts made by those involved in the forest agreement process during 2000/2001 have enabled many of the difficulties evident in 1999/2000 to be overcome. Progress by agencies to successfully implement the agreements and approvals has been positive, and demonstrate progress towards ESFM.

Progress made during 2000/2001 is reflected by numerous achievements. Significantly, 58 plans of management for lands dedicated under the *National Parks and Wildlife Act 1974* specific to the UNE, LNE and Eden regions were adopted by the Minister for the Environment. These included management plans for the Wollemi National Park and Bournda National Park and Nature Reserve.

In June 2001, the Minister also approved two recovery plans for the threatened species the Yellow-Spotted Bell Frog (*Litoria castanea*) and the Peppered Frog (*Litoria piperata*). These plans were developed by the National Parks and Wildlife Service (NPWS) to assist with the recovery of these threatened species. More plans are being progressively developed for other species listed on

the *Threatened Species Conservation Act 1995* schedules.

To complement the recovery plans, threat abatement plans are also prepared. During 2000/2001 the draft plan for the European Red Fox (*Vulpes vulpes*) was completed. The plan was prepared by NPWS in consultation with State Forests of New South Wales (SFNSW) and six other agencies. The plan identifies the species most at risk from fox predation and the locations where the benefit of fox control will be the greatest. The implementation of the plan will result in fundamental changes in fox control practices for conservation of native fauna in NSW.

The forest agreements also identify a range of activities and initiatives that ensure Aboriginal cultural values are recognised and encourage Aboriginal community involvement in the management of forest areas. SFNSW's North East, Eden and Hunter regions have been actively working with Aboriginal groups throughout 2000/2001. SFNSW's Mid North Coast Region (located near Port Macquarie) entered into a joint venture with the Mingaletta Corporation in finding and extracting essential oils from stump coppice and possible contract arrangements with the Booroongen Djugen people for prescribed burning, weed control, silvicultural gap plantings and riparian buffer zone marking.

In the Eden region, NPWS appointed a Joint Management Coordinator to work with the Aboriginal community towards Aboriginal ownership of Biamanga and Gulaga national parks. The coordinator appointed has been working almost exclusively on Biamanga, and informal negotiations have commenced. These have involved meetings with relevant Aboriginal communities to provide briefings on the process and seeking the communities' views on management.

Also in the Eden region, the Forest Industry Structural Adjustment Package (FISAP) provided financial assistance for the establishment of the

¹ All references to State Government agencies are as they existed in 2000/2001.

Eden Recovery Mill. The Mill became fully operational during 2000/2001 and has created 44 new jobs in the region.

To ensure a sustainable timber industry, the forest agreements and IFOAs set out volumes of timber that may be harvested each year. All volumes harvested from State forests were within the volumes permitted under the IFOAs.

Additionally, opportunities to create carbon sinks have been actively pursued to assist in reducing carbon dioxide (CO₂) levels in the atmosphere. A significant achievement during 2000/2001 was the establishment of a joint agreement between SFNSW and the Japanese power company, Tokyo Electric Power Company (TEPCO), to establish 10 000 hectares of carbon sinks in eastern NSW. These plantings, and potential future plantings, will help reduce gas emissions in the atmosphere and in turn fund over 200 jobs in regional NSW over the next 10 years.

In response to this initiative, NPWS and SFNSW entered into a memorandum of understanding that established a cooperative approach in site assessment, project management and marketing for plantations located on NPWS-managed lands.

The implementation of these and other actions initiated by the forest agreements is complemented by NPWS and SFNSW's public education and awareness programs and ongoing staff education and training to enhance people's awareness and understanding of sustainable forest management.

SFNSW has established two forest studies centres, providing educational opportunities for schools in Sydney and Newcastle. These centres provide students and teachers with an opportunity to learn about forest management and ecology. SFNSW's education programs are attracting over 6 000 students and teachers each year.

The NPWS *Discovery* Program provided educational opportunities for 62 000 people across the State during 2000/2001. These opportunities were provided by local people employed as coordinators and rangers to deliver education programs in national parks and other reserve areas.

Opportunities for field-based staff training are being enhanced by SFNSW with the establishment

of two silvicultural demonstration areas at Wauchope and Taree. These sites have already provided approximately 150 days of practical field-based training for forestry operators.

ACHIEVEMENT OF MILESTONES

Many of the achievements discussed above are 'milestones', or tasks, defined in each forest agreement. Milestones are required to be completed by the relevant agency/ies to assist in achieving ESFM.

There are 379 milestones required to be completed over the life of the forest agreements for the three regions. These include milestones which must be completed either once only, on an annual basis, or those which require the establishment of continuing systems, processes or monitoring.

Since the signing of the agreements in March 1999, 56% of milestones due to the end of this reporting period or as an annual requirement were completed for the three forest agreements.

Of the milestones due to 30 June 2001, or required annually:

- 53% have been completed for the UNE region;
- 53% have been completed for the LNE region;
- 61% have been completed for the Eden region.

This is an improvement over 1999/2000, where 43% of the required milestones were achieved for the UNE region, 44% for the LNE region and 36% for the Eden region.

A further 39% of milestones required to be implemented on an ongoing basis were also completed across the three regions. These milestones involve the development and implementation of monitoring processes and programs to assist in the achievement of ESFM and do not have a specified due date.

Not all milestones due to the end of this period have been completed. Many of the requirements of the agreements are new undertakings that required significant adjustments to existing staffing and resources to allow tasks to be completed. In some

instances this development has led to delays in the completion of tasks.

It should also be noted that a number of forest agreement milestones have been deferred following the release of the NSW Government's *Action for the Environment Statement 2001* in June 2001. The completion of these milestones is to occur as part of a process outlined in the *Statement*.

MONITORING OF ECOLOGICALLY SUSTAINABLE FOREST MANAGEMENT

To monitor progress towards ESFM, a set of criteria and indicators (ESFM Criteria and Indicators), developed for each forest agreement region, are applied. The criteria and indicators are a mechanism by which any change in forest values can be identified.

2000/2001 was only the second year in which the indicators had been applied to the regions. It is therefore too early to determine progress towards ESFM. The nature of forests is such that short term analysis of the results of monitoring will not accurately reveal whether current practices, or the criteria and indicators themselves, are useful. As more data is collected over time, a better assessment of progress towards ESFM can be made.

However, to accurately assess progress towards achieving ESFM over time, agencies are focusing on establishing compatible monitoring and reporting structures which will allow consistent, accurate data to be collected.

Efforts to establish an appropriate monitoring and reporting structure are reflected by a significant improvement to the amount of data collected for each indicator. Of the combined 40 indicators listed in the three forest agreements, 33 have been reported adequately during this period. This compares to only 16 that were adequately reported in 1999/2000.

This report contains a summary of the results of monitoring over 2000/2001. A separate report, entitled the *ESFM Criteria and Indicators Annual Report*, is prepared each year. This provides full details of monitoring of each indicator for each region.

COMPLIANCE WITH THE INTEGRATED FORESTRY OPERATIONS APPROVAL

An IFOA provides the operational framework for the carrying out of forestry operations on State forests or other Crown timber-lands. An IFOA can only be made where a forest agreement has been put in place. As at 30 June 2001, three IFOAs were operating, covering the UNE, LNE and Eden regions.

Each IFOA contains conditions and three licences under which forestry operations undertaken in State forests must comply to ensure a level of environmental protection is maintained. The licences are administered by the NPWS, NSW Fisheries and the Environment Protection Authority (EPA).

Regular compliance audits are conducted and any complaints received from the public are investigated.

During 2000/2001 PlanningNSW investigated one complaint from the public regarding silviculture practice.

During this reporting period, NPWS did not issue any infringement notices under the Threatened Species Licence, nor did NSW Fisheries identify any known contraventions of the Fisheries Management Licence.

The EPA conducted 10 audits of compliance with the Environment Protection Licence across the UNE, LNE and Eden regions. These audits identified 60 incidents of non-compliance with the requirements of the licence. Remedial work was required to be undertaken by SFNSW in 29 locations across the three regions as a result of these audits.

ACTION FOR THE ENVIRONMENT STATEMENT

In June 2001, the NSW Government released the *Action for the Environment: New South Wales Government Environment Statement 2001*. This document outlines numerous mechanisms for enhancing the natural environment and protecting it for the future.

The release of this document has direct relevance to the implementation of the forest agreements, particularly those concerned with biodiversity and vegetation management. Progress of tasks required by the forest agreements that have been adopted by the *Statement* will be discussed in future reports.

CONCLUSION

Since the signing of the UNE, LNE and Eden region forest agreements in 1999, agencies involved in the management of public forests have had to make significant changes to existing processes and structures. This has taken considerable time and effort. The achievements noted here provide only an indication of work that has been done by agencies over this period.

Due to the continued efforts by State agencies, the initial difficulties faced in implementing the agreements have been overcome, and positive progress is being made towards the objectives of the NSW forest agreements and IFOAs.

CONTENTS

EXECUTIVE SUMMARY	1
ACRONYMS	3
INTRODUCTION	5
SIGNIFICANT ACHIEVEMENTS	7
IMPLEMENTING THE FOREST AGREEMENTS	13
Overview on the Achievement of Milestones.....	13
Managing the Forests.....	14
Managing Timber Supply	27
Implementation, Review and Community Awareness	29
MONITORING ECOLOGICALLY SUSTAINABLE FOREST MANAGEMENT.....	35
Introduction	35
Criterion 1 - Biodiversity	36
Criterion 2 - Productive Capacity of forest ecosystems.....	39
Criterion 3 - Maintenance of ecosystem health and vitality.....	42
Criterion 4 - Conservation and maintenance of soil and water resources	44
Criterion 5 - Contribution of forests to global carbon cycles	45
Criterion 6 - Maintenance and enhancement of long-term multiple socio-economic benefits to the needs of society	46
Criterion 7 - Legal, institutional and economic frameworks	48
COMPLIANCE WITH THE INTEGRATED FORESTRY OPERATIONS APPROVALS	51
Overview	51
Threatened Species Licence	51
Fisheries Licence.....	52
Environment Protection Licence	53
Non-Licence Terms.....	54
DEFINITIONS.....	57
REFERENCES.....	59
APPENDIX A.....	
FIGURES AND TABLES	
Figure 1: Forest agreement areas.....	1
Figure 2: Native forest Area available for harvest on State forests by forest management zone	40
Figure 3: SFNSW internal compliance monitoring 1999/2000 – 2000/2001	49
Table 1: Status of forest agreement milestones as at 30 June 2001	14
Table 2: Proposed SFNSW joint-venture programs with Aboriginal People – UNE and INE regions.....	25
Table 3: Volumes of timber products other than quota sawlogs extracted from State forests 2000/2001.....	28
Table 4: Forest dwelling species identified in national parks	37
Table 5: NPWS Compliance Audit Process: Audit–Analysis–Action.....	52

2000/2001 NSW FOREST AGREEMENT ANNUAL REPORT

FIGURE 1: FOREST AGREEMENT AREAS

ACRONYMS

CAR reserve system	Comprehensive, Adequate and Representative reserve system
CERRA	Central Eastern Rainforest Reserves, Australia
CRA	Comprehensive Regional Assessment
CRAFTI	Comprehensive Regional Assessment Aerial Photographic Interpretation
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EFT	Equivalent full time
EMS	Environmental Management System
EPA	Environment Protection Authority
ESFM	ecologically sustainable forest management
FISAP	Forestry Industry Structural Adjustment Package
FMZ	forest management zone
FRAMES	Forest Resource and Management Evaluation System
IFOA	Integrated Forestry Operations Approval
LNE region	Lower North East region
ISO	International Standards Organisation
NFMS	Native Forest Management System
NPWS	National Parks and Wildlife Service
SFNSW	State Forests of New South Wales
TEPCO	Tokyo Electric Power Company
UNE region	Upper North East region
VCA	Voluntary Conservation Agreement

INTRODUCTION

This is the second annual report on the implementation of the NSW forest agreements and compliance with the integrated forestry operations approvals (IFOAs) for the Upper North East (UNE), Lower North East (LNE) and Eden regions (Figure 1). These documents set out a strategic and operational framework for the management of public forests within each region. A key objective of the agreements and approvals is to achieve ecologically sustainable forest management (ESFM).

Annual reporting on progress towards ESFM and compliance with the IFOAs is required under section 21 of the *Forestry and National Park Estate Act 1998*. This report covers the UNE, LNE and Eden regions of NSW which currently have a forest agreement and IFOA in place.

Progress is provided on:

- the achievement of milestones identified in each of the forest agreements;
- the monitoring of ESFM criteria and indicators;
- compliance with the IFOAs.

REPORT STRUCTURE

To provide better information on the progress of the above, a review of the format and content of the *1999/2000 NSW Forest Agreement Annual Report* was undertaken during 2000/2001. The result of this review has been the development of a new report structure. The new format provides a document which is more concise and more clearly details the overall progress of the implementation of the forest agreements and compliance with the IFOAs.

The new structure provides progress on milestones by subject area instead of by due date. The milestones are described and progress to date is outlined. Appendix A provides progress details on all milestones listed in each forest agreement by subject area and due date.

The chapter on the monitoring of ESFM (criteria and indicators) has been restructured, following a review of that report. The results of monitoring carried out by the National Parks and Wildlife Service (NPWS) and State Forests of New South Wales (SFNSW) are summarised in this report. Full details are contained in the *2000/2001 ESFM Criteria and Indicators Annual Report*.

The chapters on significant achievements and compliance with the IFOAs have been retained in their original form.

Review and improvement of the reporting process is ongoing.

ACHIEVEMENT OF MILESTONES

Agencies involved in the implementation of the agreements and approvals have made considerable progress in ensuring the goals of the agreements are nearing achievement and in developing systems and processes to accurately monitor these requirements.

As at 30 June 2001, 56% of milestones due to the end of the reporting period or required to be completed annually, had been achieved across the three regions. This demonstrates an improvement on 1999/2000, where an average of 40% of milestones were achieved across the three regions.

A further 39% of milestones due to be completed or implemented on an ongoing basis were also achieved across the three regions.

The delays in completing milestones are attributable to the time taken to adapt current practices, develop new systems and processes and the reallocation of staff resources to complete tasks. Agencies are progressively overcoming the initial difficulties in implementing such a new process. Some of the highlights are discussed in the 'Significant Achievements' chapter of this report.

SIGNIFICANT ACHIEVEMENTS

The Government is continuing to develop and implement strategies to improve forest management across NSW. Cooperation between agencies and with stakeholder and community groups has increased and has included:

- the enhancement of partnerships with Aboriginal people to ensure they are actively involved in managing public forests;
- exploration of carbon trading opportunities;
- continued staff training opportunities;
- the progressive development and implementation of management plans for national parks and nature reserves.

The following chapter provides highlights of activities being undertaken by the NPWS and SFNSW to improve land management across the State. Some of the activities detailed below are direct requirements of the forest agreements. Others are statewide activities that are complementing those carried out as part of the forest agreements to provide a more holistic picture of forest management.

CONSERVATION MANAGEMENT AND PLANNING

THREATENED SPECIES

The conservation of threatened species, populations and ecological communities is crucial for the maintenance of the State's unique biodiversity.

In NSW, the *Threatened Species Conservation Act 1995* provides the framework for recovery plans for the conservation and recovery of threatened species, populations and ecological communities. The purpose of a recovery plan is to set out management actions necessary to encourage the recovery of a threatened species, population or ecological community and then to ensure its ongoing viability in nature.

The importance of recovery planning for listed threatened species is recognised in Section 2.4 of the UNE, LNE and Eden region forest agreements.

The NPWS have made substantial progress during 2000/2001, with seven plans approved across all regions for species including; the Yellow-Spotted Bell Frog (*Litoria castanea*), Peppered Frog (*Litoria piperata*) and the Hidden Violet (*Voila cleistogamoides*). A further 19 plans were drafted.

To ensure the protection of threatened species on State forests, ecologists employed by SFNSW undertake extensive pre-harvest surveys to locate and protect rare and endangered species. The data collected during these surveys focus on the forest types identified for harvesting and results used to assist SFNSW to measure any impacts its activities are having on threatened species. The species found are subject to special protective measures, which are negotiated and agreed between SFNSW and NPWS. These measures enable a consistent and uniform approach to be taken in meeting obligations under the *Threatened Species Conservation Act 1995*, the *National Parks and Wildlife Act 1974*, the *Environmental Planning and Assessment Act 1979*, and the *Forestry and National Park Estate Act 1998*. During 2000/2001, over 8 700 pre-harvest surveys were completed across the three regions, resulting in nearly 2 000 individual sightings of 47 threatened fauna species.

SFNSW is continuing its ongoing research into home range and habitat requirements for a number of threatened species, including the Hastings River Mouse (*Pseudomys oralis*) and the Brush-tailed Phascogale (*Phascogale tapoatafa*) in the north east regions and the Smokey Mouse (*Pseudomys fumeus*) in the Eden region.

Several 'species monitoring programs' are being developed and implemented by SFNSW for threatened flora species, including *Amorphospermum*

whitei, *Parsonia dorrigoensis* and *Eucalyptus glaucina* in the north east regions. These programs will assist in assessing the response of these species to disturbance.

PEST MANAGEMENT

The NPWS, in consultation with SFNSW and six other agencies, have prepared a draft Fox Threat Abatement Plan, which details a strategy to minimise the impact of foxes (*Vulpes vulpes*) on threatened and other native fauna such as the Yellow-footed Rock Wallaby (*Petrogale xanthopus*), Southern Brown Bandicoot (*Isodon obesulus*) and the Little Tern (*Sterna albifrons*) across NSW. The implementation of the plan will result in a fundamental change in fox control practices for nature conservation in NSW as it lists priorities for management across all public land tenures.

In particular, the draft plan identifies those species most at risk from fox predation and the localities where the benefits of fox control will be greatest. There have been 81 priority sites for fox control identified across NSW, providing recovery actions for 34 threatened species.

Applying collaborative fox control programs across all land tenures at these localities is the core action of the plan. In addition, the draft plan:

- identifies methods to maximise the effectiveness of individual programs;
- identifies research actions to improve the methods;
- provides specific guidelines to measure the success of individual programs.

Such monitoring programs are fundamental to improving the effectiveness of the management of threatened species.

The draft plan was prepared in consultation with SFNSW, Department of Land and Water Conservation, NSW Agriculture, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Sustainable Ecosystems, the University of Sydney Institute of Wildlife Research and the NSW Pest Animal Council.

WEED MANAGEMENT

Bitou Bush (*Chrysanthemoides monilifera*) is a noxious weed in NSW. It was planted widely along the coast between 1946 and 1968 to reduce dune erosion, but spread rapidly. It is now found along

80% of the State's coastline. Bitou Bush is fast-growing, forming dense stands, replacing native plants and destroying the habitat of native animals.

Many threatened species and plant communities have been affected.

To manage the impact of this weed species, the NSW *Bitou Bush Strategy* was launched by the Minister for the Environment in June 2001. It aims at long term management of this weed across the State, by:

- identifying priority control areas;
- preventing further spread;
- increasing resources to tackle the problem;
- improving management strategies;
- maintaining and increasing community support for its eradication.

The NSW *Bitou Bush Strategy* and the mapping of the occurrence of Bitou Bush along the entire coastline are two important initiatives for managing this weed. This is the most accurate statewide mapping of Bitou Bush done in NSW.

PRIVATE LAND

NATURE CONSERVATION TRUST

In May 2000, a group of non-government organisations including the World Wide Fund for Nature and the NSW Farmers' Association submitted a model bill for the establishment of a nature conservation trust with community membership to promote and encourage conservation on private land in NSW. The Minister for the Environment and the Minister for Land and Water Conservation and Agriculture have supported the action of these organisations to establish the Nature Conservation Trust.

In the 2001 Budget Session of Parliament, legislation was passed to establish the Nature Conservation Trust.

The Trust's first major program will be to establish and administer a 'revolving fund'. This fund will be used to purchase land with conservation value to ensure its protection before future sale. All proceeds of any sale of land bought in this way will return to the fund for further purchases of land.

The *Action for the Environment: New South Wales Government Environment Statement 2001* states that the Government has committed \$1 million to fund this work, to be matched by the Commonwealth Government. The Trust will also be responsible for raising funds from the private sector to support its activities.

VOLUNTARY CONSERVATION AGREEMENTS

NPWS continued to improve the level of connectivity of forest types across the broader landscape by establishing Voluntary Conservation Agreements (VCA) on private property. VCAs are a negotiated agreement between the landowner and the Minister for the Environment outlining how the land will be managed into the future. The agreements provide a means by which land holders can permanently protect the natural and cultural values of their properties.

Typically the lands covered by VCAs have at least one of the following features:

- habitat for species listed as nationally endangered;
- species listed as threatened within NSW;
- declared wilderness;
- high quality remnant vegetation;
- sites of Aboriginal significance.

Land holders with VCAs receive assistance with on-ground works, including fencing, weed control and surveys to help implement their agreements.

During 2000/2001, 10 VCAs were entered into in the UNE, LNE and Eden regions. One agreement was signed in the UNE region, covering an area of 746 hectares; three agreements were signed in the LNE region, covering 1 296 hectares; and a further six agreements were entered into in the Eden region, covering 672 hectares. Of particular significance was one land holder who signed four VCAs during the reporting period, protecting four properties on the far south coast of NSW.

These land holders, and many others who have previously entered into VCAs, have significantly contributed to:

- the conservation of priority forest ecosystems under-represented in the public reserve system;
- the establishment of vegetation corridors in the landscape;

- the protection of significant threatened species habitat.

Active promotion within the community continues to attract interest from new land holders. NPWS, in conjunction with the South-East Catchment Management Board, is developing agreed assessment criteria for determining priorities and resource allocation for outstanding VCA applications.

LOCAL GOVERNMENT – BIODIVERSITY PLANNING GUIDE

In June 2001, the NPWS and the Local Government and Shire Association released the *Biodiversity Planning Guide for NSW Local Government*. The guidelines assist local councils to prepare land-use plans to protect biodiversity.

These guidelines provide a step by step process for planning, from the initial phases of objectives-setting and information-gathering to the writing and implementing of the plans. It also highlights ways to use some of the more innovative ideas in land-use planning to conserve biodiversity. Preparation of the guidelines was a priority action of the NSW *Biodiversity Strategy* and was funded through it. These guidelines were piloted with a number of local councils in 2001/2002.

FIRE MANAGEMENT PLANS

A multi-agency working group made up of SFNSW, NPWS, the Department of Land and Water Conservation and the NSW Rural Fire Service has been developing bush fire risk management plans across the State. These plans provide a cooperative framework for fire management and reinforce conservation objectives for fire management across the landscape.

As part of this planning work in the UNE, LNE and Eden regions during 2000/2001:

- the draft Reserve Fire Management Plan for the South East Forest National Park has been prepared;
- the draft Billinudgel Nature Reserve Fire Management Plan has been put on exhibition;
- the draft Border Ranges National Park and Limpinwood Nature Reserve Fire

- Management Plan is now ready for exhibition;
- the Cape Byron Fire Management plan is being prepared;
 - community workshops to help in the preparation of a draft fire management plan for the proposed Arakwal National Park have been conducted.

SFNSW are working with various statutory District Bush Fire Management Committees at the local level throughout the regions in developing bush fire risk management plans.

REGIONAL ESFM PLANS

The forest agreements for the UNE, LNE and Eden regions require SFNSW to develop Regional ESFM Plans for each region. Draft plans for the three regions were completed in 1999/2000, and placed on public exhibition in September 2000.

The plans have been created under a guiding philosophy for forest conservation and management evolved from the Regional Forest Agreement process, the *National Forest Policy Statement* (Commonwealth of Australia, 1992), State Government policies, and the concerns and interests of stakeholders. These drafts contained a strategic framework for the implementation of the plans. Comments received through the public exhibition period are currently being considered before their finalisation and implementation.

A set of draft supplementary plans was attached to the draft Regional ESFM Plans which also went on public exhibition in September 2000. These plans focus on specific areas of State forest management: weeds, feral and introduced animals and the road and fire trail network. The plans target programs using best practices to obtain the best possible social and economic outcomes. These plans are being finalised in conjunction with the Regional ESFM Plans.

CONSERVATION ASSESSMENTS

The forest agreements for the UNE and LNE regions require NPWS to assess the conservation values of remaining vacant Crown land and negotiate the establishment of reserves over areas found to contain high conservation values.

NPWS has assessed, with the Department of Land and Water Conservation and the Department of Mineral Resources, remaining vacant Crown land and areas of high conservation value. Negotiations will be held to add these lands to the reserve system.

PARTNERSHIPS WITH ABORIGINAL PEOPLE

A new Aboriginal Employment and Training Strategy has been developed by the NPWS, and its implementation has commenced. As part of this strategy, cross-agency approaches to training are being examined.

In the UNE region, the establishment of the proposed Arakwal National Park is subject to an Indigenous Land Use Agreement between the Arakwal people and NPWS. The Agreement was signed in December 2000 and is to be registered with the Native Title Tribunal.

In the LNE region, negotiations are continuing at Warrell Creek between NPWS and the Nambucca and Unkya Local Aboriginal Land Councils to develop an agreement to give the claimed land back to the Land Councils and to establish part of the area as a nature reserve, which in turn will be leased back to NPWS.

In the Eden region, NPWS appointed a Joint Management Coordinator to work almost exclusively with the Aboriginal community towards Aboriginal ownership of Biamanga and Gulaga national parks. Informal negotiations and preparations have commenced. These have involved meetings with relevant Aboriginal communities and groups to provide briefings on the process and seek views on how best to manage the land.

Also in the Eden region, the NPWS held negotiations with a number of Aboriginal communities regarding communities holding cultural camps within a number of different parks, to increase access for traditional activities. Other outcomes from the Eden Region Forest Agreement in 2000/2001 included:

- NPWS assisted Aboriginal cultural tourism providers as part of its *Discovery* program;
- Aboriginal community representation in planning, in particular, in the preparation of

plans of management. NPWS will enter into memoranda of understanding on key local issues where this is appropriate;

- A new monthly newsletter called 'Coastal Custodians' was published. This is a specialist Aboriginal newsletter published to increase the awareness and participation of Aboriginal people in the NPWS estate.

SFNSW Mid North Coast Region, located in the LNE region, has consulted local Aboriginal communities on the Regional ESFM Plans, and continues to explore a number of joint projects and co-management opportunities within State forests. These include:

- a joint venture with the Mingaletta corporation to find and extract essential oils from stump coppice (produced in some logging operations). This venture may be expanded to include other plant oil extracts;
- occupation permits at Elands are currently being developed. It is hoped the area will have a small pine salvage logging operation soon to prepare the site for a youth refuge.

TIMBER SUPPLY AND INDUSTRY INITIATIVES

LOG MERCHANDISING

In the UNE and LNE regions, there has been an expansion of log merchandising to all North Coast forests and hardwood plantations. Log merchandising logically segregates a log into its highest value components before it is taken to a mill.

SFNSW's move to 'Log Merchandising' (also known as delivered sales) began in the north east regions in 1998/1999. Harvesting and haulage contractors were previously engaged by customers, but are now engaged by SFNSW, with logs delivered to the customer's 'mill door'. As a result, SFNSW has more comprehensive control over harvesting operations, logging equipment, safety standards and supply to customers. Log merchandising has brought many benefits, including upgrades in logging equipment and a safer working environment in the bush.

The expansion of log merchandising to all North Coast forests ensures harvesting contractors get the highest value products from their operations.

ELECTRONIC DELIVERY DOCKET SYSTEM

During 2000/2001 a trial of electronic delivery docket systems was conducted on native and plantation State forests in the Grafton area. The trial used electronic information recoded by hand held-field computers as the basis for accounting, as opposed to traditional paper recoding systems. The electronic delivery docket system promises the following future benefits for sawmill customers, logging contractors and government:

- major improvements in the timeliness and accuracy of log sales and stock data, reducing administration with manual entry and handling of paper delivery dockets;
- improved immediacy of information on contractor production, assisting monitoring and management of contractors;
- reduced 'guesswork' in responding to customer orders;
- improved resource data in medium to long term through collection of sales data to dump level;
- reduced delivery costs for delivered sales through better scheduling;
- deliver of products to best end use, improving revenue.

Based on the success of the trial, Statewide implementation is anticipated during 2003.

VISY PULP AND PAPER MILL

In the Hume Region, at Tumut, a new Visy Pulp and Paper Mill has been established. This mill has been built by a private consortium to manufacture cardboard and packaging from thinnings harvested from local pine plantations. The mill opened in May 2001 and is currently running at 60-75% capacity. The mill brought a gas pipeline to the area and employs mainly local people.

ACTION FOR THE ENVIRONMENT: NSW GOVERNMENT ENVIRONMENT STATEMENT 2001

In June 2001, the NSW Government released the *Action for the Environment: New South Wales Government Environment Statement 2001*. The *Statement* summarises some of the Government's key achievements in, and its future plans for, the State's most important environmental issues. It includes a number of commitments relevant to

implementation of the forest agreements for the UNE, LNE and Eden regions. The Statement commits the Government to:

complete its assessment of public lands in consultation with stakeholders, and decide which areas should be added to the formal reserve system. This is consistent with the forest agreements for the UNE and LNE regions. These areas include those set aside for further consideration in 1998, Crown land, rainforest and other high conservation value old growth forests, which would qualify for addition to the reserve system due to their size (greater than 500 hectares) and location (adjacent to existing reserves);

- *prepare a voluntary biological diversity conservation strategy for private lands in south-eastern NSW;*
- *finalise the NSW Fox Threat Abatement Plan in 2001 and provide more than \$3.25 million over the next five years for its implementation;*
- *set aside \$6.4 million over the next four years to increase Aboriginal involvement in managing national parks and reserves. This will include funds for training, for negotiation of formal handback and leaseback systems and for informal agreements.*

These and other actions are discussed throughout this report.

IMPLEMENTING THE FOREST AGREEMENTS

OVERVIEW ON THE ACHIEVEMENT OF MILESTONES

Each of the forest agreements require a number of tasks or 'milestones' to be completed to assist in the progress towards achieving ESFM. These tasks include activities such as the development of introduced predator control plans, harvest monitoring and the undertaking of public consultative processes to address various issues relating to forests.

There are 379 milestones required to be completed over the life of the forest agreements. Of these, 134 are directly applicable to the UNE region, 133 to the LNE region and 112 to the Eden region.

Some milestones must be completed within a particular year (i.e. have a specified due date or must be completed annually), while others are required on an ongoing basis. This latter group includes those which involve the establishment of continuing systems, processes or monitoring.

Since the signing of the agreements in 1999, 56% of milestones due to the end of this reporting period or as an annual requirement were completed for the three forest agreements. By region, 53% have been achieved for the UNE region, 53% for the LNE region, and 61% for the Eden region. Progress towards the achievement of milestones to the 30 June 2001 shows an improvement to 1999/2000, where 43% were achieved for the UNE region, 44% for the LNE region and 36% for the Eden region.

A further 39% of milestones that must be completed or implemented on an ongoing basis were also achieved across the three regions.

These statistics do not accurately reflect the actual efforts by agencies involved in the implementation of the agreements. Significant adjustments to staff

and resources have been required, which has led to delays in the completion of some milestones.

Importantly, a number of milestones have been deferred as they are now to be completed as part of a process outlined in the NSW Government's *Action for the Environment Statement, 2001*.

Progress information provided in this report focuses on the milestones that were due within the 2000/2001 period. Additional progress information is provided for milestones due outside of the 2000/2001 period, including those which were due in 1999/2000 period but not completed.

Table 1 provides a statistical summary of progress by agencies towards the completion of milestones defined in each of the forest agreements. The following terms are used to describe the status of progress on the milestones contained in Table 1 and Appendix A:

- **Complete:** indicates that the milestone required the production of a document or plan and that plan or document has been produced;
- **Implemented:** indicates that the milestone required a process or system to be put in place and it has been put in place;
- **Draft:** indicates either a product or process that has been developed to draft stage, but not yet finished;
- **In progress:** indicates a product or process is still being developed;
- **Deferred:** indicates that the action required by the milestone has been postponed;
- **No reporting required:** indicates an action which is to be reported on another way, for example in a five year review or on an 'as needed' basis.

TABLE 1: STATUS OF FOREST AGREEMENT MILESTONES AS AT 30 JUNE 2001

REPORTING REQUIRED	STATUS	REGION			REPORTING REQUIRED	REGION		
		UNE	LNE	EDEN		UNE	LNE	EDEN
TO BE COMPLETED BY 30 JUNE 2001	Complete/Implemented	48%	48%	55%	TO BE COMPLETED AFTER 1 JULY 2001	8%	8%	11%
	Draft	11%	11%	17%		8%	8%	11%
	In progress	24%	24%	13%		61%	59%	56%
	Deferred	16%	16%	13%		8%	8%	11%
	No reporting required	2%	1%	2%		15%	17%	11%
	TOTAL	100%	100%	100%		100%	100%	100%
ANNUALLY	Complete/Implemented	90%	90%	90%	ONGOING	39%	39%	40%
	Draft	-	-	-		-	-	-
	In progress	10%	10%	10%		37%	37%	42%
	Deferred	-	-	-		4%	4%	-
	No reporting required	-	-	-		20%	20%	18%
	TOTAL	100%	100%	100%		100%	100%	100%

MANAGING THE FORESTS

ENVIRONMENTAL MANAGEMENT SYSTEMS

To provide a comprehensive approach to the management of State forests and the national park estate, SFNSW and NPWS are each developing an environmental management system (EMS). The EMS is to assist in the continuous improvement of environmental management across the forest estate.

Part of SFNSW's EMS is the Native Forest Management System (NFMS). The system is a comprehensive planning, assessment, implementation, monitoring and auditing system. It details how SFNSW is implementing ESFM on its native forest estate.

Details of what is required to form the NFMS-EMS are outlined in Attachment 4 of the UNE, LNE and Eden forest agreements. Attachment 4 states that the NFMS must consist of three parts:

- ESFM policy;
- Native Forest Management Strategy;
- Native Forest Management Operations Manual.

The draft 'Native Forest Management System Strategic Framework' of SFNSW's EMS for Native

Forests has been completed and was placed on public display in September 2000.

The 'NFMS Support Systems and Documents' (operations manual) provides greater detail on the system and procedures for use by SFNSW staff during implementation of the NFMS. This part of the NFMS is being progressively refined and integrated into day-to-day management.

The NFMS is now being implemented with staff training and development. A series of 'training' audits were undertaken in 2001 to assess the implementation of the system, identify areas for improvement and how well it complies with the International Standards Organisation's EMS standard contained in the ISO 14000 series.

SFNSW have also commenced the development of an EMS for its planted forest estate.

NPWS are progressively developing an EMS for its estate for completion by 2004.

PLANS OF MANAGEMENT

Over 2000/2001, State agencies have made progress in developing and implementing a range of management plans and programs required by the forest agreements that will assist to maintain a healthy, productive and biologically diverse forest estate.

- HIGHLIGHTS -

- The Minister for the Environment adopted 58 Plans of Management for lands dedicated under the *National Parks and Wildlife Act 1974* specific to the UNE, LNE and Eden regions during 2000/2001. These included management plans for the Wollemi National Park and Bournda National Park and Nature Reserve.
- The Pine Creek Koala Management Plan was implemented by SFNSW in the UNE region. The Plan sets out strategies that will allow for a range of forest uses.
- Recovery plans for the Peppered Frog and the Yellow Spotted Bell Frog in the UNE and LNE regions and the Hidden Violet in the Eden region were approved by the Minister for the Environment in June 2001.
- The draft Fox Threat Abatement Plan was completed by the NPWS, in consultation with SFNSW, the Department of Land and Water Conservation, NSW Agriculture, CSIRO, University of Sydney Institute of Wildlife Research and the NSW Pest Animal Council.
- A memorandum of understanding on carbon sequestration opportunities was signed between the Minister for Forestry and the Minister for the Environment in July 2000. It provides for the sharing of information to expand carbon sequestration rights and environmental markets.
- SFNSW entered into a joint agreement with the Japanese power company, Tokyo Electric Power Company (TEPCO), to establish 10 000 hectares of carbon sinks in eastern NSW.
- The Government's *Action for the Environment: New South Wales Government Environment Statement 2001* was released in June 2001. As a result, various milestones contained within the forest agreements were adopted by this document, specifically those regarding outstanding CAR (Comprehensive, Adequate, Representative) reserve issues.
- In the UNE and LNE regions, SFNSW engaged local Aboriginal people to consult on the development of its Regional ESFM Plans and are continuing to explore further joint venture arrangements.

The NPWS is progressively developing plans of management for the all national parks and reserves dedicated under the *National Parks and Wildlife Act 1974*. These plans, that outline management actions to preserve and enhance natural and cultural values contained within the reserve, are to be complete by January 2005.

As at 30 June 2001, of the 274 national parks, nature reserves, state recreation areas, historic sites and Aboriginal areas located within the UNE and LNE regions, the Minister for the Environment had adopted 50 plans of management, including 11 which were being revised. A further 62 plans were being prepared.

Of the 20 national parks, nature reserves and historic sites within the Eden region, eight plans of management had been adopted by the Minister for the Environment, including one which was being revised. A further three plans were in preparation, including one which had already been publicly displayed.

Management plans for national parks and nature reserves approved during 2000/2001 included: Wollemi National Park in the LNE region, and Bournda National Park and Bournda Nature Reserve in the Eden region.

Other plans which were publicly exhibited include; the Wolli Creek Regional Park and Ballina Nature Reserve in the UNE region, and the Nadgee Nature Reserve in the Eden region.

These plans can be viewed on the NPWS website (www.nationalparks.nsw.gov.au).

FOREST MANAGEMENT ZONING SYSTEM

SFNSW is progressively developing and implementing management measures to achieve a balance between the environmental and economic values of its estate. An important tool for managing these values is the forest management zoning system (FMZ). The system was developed in consultation with the NPWS, PlanningNSW, the Department of Mineral Resources and community groups. The system provides a means by which areas of forest can be classified for timber production and for conservation purposes, and managed accordingly.

The FMZ system is documented in the publication *Managing Our Forests Sustainably: Forest Management Zoning in NSW State Forests* (SFNSW, 1999).

The proposed classification of State forests into these zones in the UNE, LNE and Eden regions has been attached to the draft Regional ESFM Plans (discussed below).

The FMZ system for the UNE, LNE and Eden regions is being progressively implemented across State forests. However, the final requirements of FMZ 2 and FMZ 3a areas in the UNE and LNE regions will be considered as part of the FMZ Assessment, to be undertaken during 2002/2003 as part of the *Action for the Environment Statement 2001*. Further details on the Assessment are discussed in the 'CAR Reserve System' section of this report.

REGIONAL ESFM PLANS

SFNSW's draft Regional ESFM Plans provide a framework for the management of a range of forest values on State forests in the UNE, LNE and Eden regions, including:

- the maintenance of biodiversity;
- harvest planning and implementation;
- tourism and recreation;
- indigenous and non-indigenous cultural heritage;
- timber supply.

The draft Regional ESFM Plans went on public exhibition in September 2000 for a period of six weeks, and incorporated the following requirements of the forest agreements:

- identification of informal reserves, under the amended *Forestry Act 1916*, created by the Minister for Forestry, and called 'special management zones';
- timetable for the preparation of working plans for all flora reserves;
- strategic management plans for informal reserves and areas managed by prescription on State forests;
- management plan for large areas of rainforest, high conservation value old growth and other areas excluded by prescription;
- policy on Aboriginal input into forest management (discussed in the Aboriginal Interests section of this report).

The consultation period sought input from the public and other State agencies. The comments received through this process are currently being

reviewed and incorporated into the final Regional ESFM Plans.

Special Management Zones

Each forest agreement requires the creation of informal reserves or 'special management zones' by the Minister for Forestry, under the amended *Forestry Act 1916*. Preliminary identification of these areas has been completed and placed on public exhibition in September 2000 with the draft Regional ESFM Plans for the UNE, LNE and Eden regions.

Completion of this milestone (due October 1999) has been delayed because further development of the Comprehensive Regional Assessment Aerial Photographic Interpretation² (CRAFTI) layer for LNE region and the subsequent finalisation of the FMZ layer was required. Further development of the CRAFTI layer was completed in May 2001.

The completion of this milestone will now be carried out as part of the FMZ Assessment undertaken as part of the *Action for the Environment Statement 2001* (see 'CAR Reserve System' section of this chapter for further details).

Flora Reserves

Preparation of working plans for flora reserves (FMZ 1³) has commenced, based on the timetable contained in the draft Regional ESFM Plans. These are dedicated reserve areas that must be managed in a way that adequately protects natural and cultural values, much like national parks and nature reserves.

There are 19 flora reserves situated within SFNSW's North East Region. The region covers the UNE region and part of the LNE region. Of the 19 plans to be completed, 18 have been ministerially approved and implemented. These plans will be progressively reviewed and updated as required.

When finalised, these plans will be incorporated into the Regional ESFM Plan for each region.

² CRAFTI - 'Comprehensive Regional Assessment Aerial Photographic Interpretation'. A project undertaken as part of the CRA process where forested areas were mapped using raw data and aerial photography.

³ FMZ 1 - Special Prescription - areas protected within State forests as they contain very high natural and cultural values. No logging is permitted in these areas and provides the highest level of protection within the FMZ system.

Informal Reserves and Areas Managed by Prescription

A draft strategy for the management of informal reserves and areas managed by prescription was included in the supplementary plans attached to the draft Regional ESFM Plans. This strategy provides a framework for the management of these areas to protect a number of values, which include:

- protection of areas of rainforest, high conservation old growth forest and other rare forest types;
- protection of areas where rare species, populations and habitat areas;
- protection of areas containing sites of cultural significance;
- protection of areas for research and educational purposes.

Finalisation of the plans will occur with the Regional ESFM Plans.

Reporting

Following the implementation of the Plans, annual reporting on the progress of the plans for each region will begin. Initial work has begun in developing the report.

CAR RESERVE SYSTEM

Additions to the National Park Estate

The forest agreements contain provisions which enable the NPWS to add areas of land to its estate by voluntary acquisition or purchase of leases in accordance with its purchase strategy.

Funds allocated for the purchase of lands where land holders were significantly affected by the loss of grazing land previously held under occupational permits, allowed the acquisition of four leases within the UNE and LNE regions during 2000/2001. These leases were voluntarily offered for sale to the NPWS by the land holders. Offers were prioritised for purchase, taking into account hardship suffered, biodiversity values, management issues and availability of funds. The gazettal process for the land to become national park will occur following the cessation of grazing rights on one property and the revocation of other areas still dedicated as State forest.

Four leases on leasehold public land were voluntarily acquired by the NPWS for addition to

the national park estate in the UNE and LNE regions during 2000/2001. These acquisitions provided an additional 11 317 hectares to the estate at a cost of \$1.4 million. The addition of these properties added approximately 5 386 hectares of land to the Chaelundi National Park, 5 453 hectares to the Nymboida National Park, with most of the area falling within the Bindery-Mann Identified Wilderness.

The acquisition of these lands provides protection of values including wilderness, old growth, under target ecosystems and threatened species habitat. Notably these areas include a number of below target forest ecosystems including New England Blackbutt, dry foothills spotted gum, and high elevation old growth spotted gum. Threatened species protected through the acquisition of these lands include the Glossy Black Cockatoo (*Calyptorhynchus lathami*), the Powerful Owl (*Ninox strenua*) and the Hastings River Mouse.

FMZ Assessment

Following the signing of the forest agreements for the UNE and LNE regions in 1999, there were some outstanding aspects of the Comprehensive, Adequate and Representative (CAR) reserve system which were to be finalised. These aspects are identified in each of the forest agreements as milestones. Following the release of the Government's *Action for the Environment Statement 2001* in June 2001, a process was outlined by which the Government will:

complete its assessment of public lands in consultation with stakeholders, and decide which areas should be added to the formal reserve system. These areas include those set aside for further consideration in 1998, Crown land, rainforest and other high conservation value old growth forests, which would qualify for addition to the reserve system due to their size (greater than 500 hectares) and location (adjacent to existing reserves).

This process, referred to in this report as the 'FMZ Assessment', covers a number of forest agreement commitments which deal with these outstanding CAR reserve system issues (refer to Appendix A).

Progress on the completion of milestones through this process will be presented in future reports.

CROWN RESERVES

A memorandum of understanding regarding the management of Crown reserves was signed in March 2001 between the Directors-General of NPWS and the Department of Mineral Resources. This memorandum is an agreement on the management of Crown reserves dedicated for the purposes of public recreation, conservation and mineral and petroleum exploration.

Following the signing of the memorandum of understanding, a Crown Reserve Management Committee must be formed. NPWS sought to have this committee established during 2000/2001. However, due to new negotiations regarding state conservation areas (part of the FMZ Assessment described above), and the possibility that some Crown reserves would be put into them, the Department of Mineral Resources did not wish the formation of the committee to proceed at that stage. Formation of the committee has therefore been deferred pending the completion of the FMZ Assessment.

However, NPWS finalised the assessment of forest conservation values on all remaining vacant Crown land. The assessment identified approximately 38 000 hectares of land. The Department of Mineral Resources and the Department of Land and Water Conservation are currently preparing detailed responses to NPWS.

The development of plans of management for Crown reserves is currently on hold pending the resolution of legal issues.

COOPERATIVE APPROACHES TO THREATENED SPECIES MANAGEMENT

To ensure a balanced and consistent approach is taken in the management of the public forest estate, the forest agreements require continued cooperation between NPWS, SFNSW, other State agencies and interest groups.

Such cooperation has included the development and implementation of the Pine Creek Koala Management Plan and the refinement of the models identifying the Hastings River Mouse habitat.

The Pine Creek Koala Management Plan was completed in 1999/2000 with input from SFNSW,

NPWS, conservation groups and the timber industry. This plan has now been implemented.

Pine Creek State Forest, located near Coffs Harbour in the UNE region, is a multi-use forest containing a range of conservation values, recreation facilities and timber resources. Management strategies defined in the plan allow the variety of uses of the forest to continue, while ensuring Koala (*Phascolarctos cinereus*) populations remain at viable levels.

Although logging operations are to continue in the forest, areas of Koala habitat will be monitored and protected through management strategies defined within the plan. Important habitat areas are to be retained and regeneration activities in other parts are to be carried out to enhance habitat areas. Ongoing research will monitor the impact of harvesting on Koala populations.

The refinement of micro-habitat models for the Hastings River Mouse was completed prior to the signing of the IFOAs for the UNE and LNE regions in 1999. However, further refinement of these models has been undertaken by SFNSW to increase the scientific knowledge of the species. Over 2000/2001 refinement focused on:

- identifying the dispersal of the animal around a detection point and examining the effectiveness of harvesting prescriptions in relation to this dispersal;
- studying micro-habitat qualities for the species and learning how it uses this micro-habitat.

Refinement of the habitat model can be achieved in stages with agreement from NPWS on requirements for the Threatened Species Licence (contained within the IFOA). SFNSW has published and presented information on the Hastings River Mouse at the Australian Wildlife Management Society Conference and in the *Australian Journal of Mammology*. The information is now available to reach a new stage of development for the Hastings River Mouse habitat model.

PEST, WEED AND FERAL ANIMAL CONTROL

Feral animals, weeds, pests and diseases can have a detrimental effect on the health and productivity of forest areas. To help manage the impacts of these agents, the forest agreements for the UNE, LNE and Eden regions require a continued cooperative

approach to be taken by the NPWS and SFNSW to manage for weeds, feral animals and threatened species.

Approaches being taken by the agencies include:

- the development of management plans which outline a strategic direction for the management and control of weeds, feral animals and the recovery of threatened species;
- the pursuit of cooperative programs involving cooperation with other State agencies, non-government organisations, local government and community groups.

Management plan actions include the progressive development of threat abatement plans and recovery plans under the *Threatened Species Conservation Act 1995*. The object of threat abatement planning is to manage the impact of feral animals on native wildlife. These actions are complemented by recovery planning which defines management actions to promote the recovery of a threatened species, population or ecological community and to ensure its ongoing viability in nature.

As at the 30 June 2001, a draft threat abatement plan for the European Red Fox was completed.

The development of the draft plan involved consultation between NPWS, SFNSW, the Department of Land and Water Conservation, CSIRO, Sydney University and the NSW Pest Animal Council. The plan details strategies which will reduce the impact of fox predation on threatened fauna species such as the Southern Brown Bandicoot. Collaborative activities are highlighted in the plan and will provide for a coordinated cross-tenure approach to control.

During 2000/2001, 24 recovery plans were approved by the Minister for the Environment. Of the plans approved, eight plans were relevant to the UNE, LNE and Eden regions. Species covered by these plans included the Bellinger River Emydura (*Emydura macquarii*), the Peppered Frog and the Yellow Spotted Bell Frog in the UNE and LNE regions, and the Hidden Violet and *Westringia davidii* in the Eden region. Approved and draft recovery plans can be viewed on the NPWS website at www.nationalparks.nsw.gov.au.

Draft Feral and Introduced Predator Control Plans and Noxious Weed Plans have been completed by SFNSW which set out the overall management strategies to be adopted on State forests for the management of these agents. The plans were attached to the draft Regional ESFM Plans which went on public display in September 2000. Public comments are now being considered, along with discussions between the NPWS, PlanningNSW, NSW Fisheries and the EPA to further refine the plans.

The cooperative approach to forest management has been strengthened by the establishment of the State Forest Health Advisory Committee. This Committee has been formed under the terms of joint State and Federal Ministerial Councils' Generic Incursion Management Plan to deal with forest pests and diseases. The Committee has representatives from SFNSW, NPWS, the NSW Forest Products Association and the Royal Botanic Gardens in Sydney.

The Terms of Reference for the Committee cover advising the Minister responsible for forestry on matters regarding forest health, in particular those regarding invertebrate pests and pathogens of forests and forest products. The Terms of Reference also cover:

- liaison with interest groups;
- the exchange of information on forest health matters;
- the development of arrangements for the funding of forest health protection measures such as pest detection surveys and the eradication of new pests.

Additionally, cooperative approaches are being progressively incorporated into NPWS's pest and weed strategies to manage efficiencies and ensure consistency of approach. The NPWS is committed to a regional/catchment approach to pest management whereby programs are developed and undertaken in collaboration with neighbours, other government agencies, rural lands protection boards, local government, regional pest committees, catchment management boards, CSIRO, universities and community groups such as Landcare, Dunecare and Bushcare.

In 2000/2001, NPWS conducted more than 800 pest animal control programs across the State, of which 70% were conducted in collaboration with neighbours and other stakeholders. Bush regeneration programs have continued, with activities undertaken in areas including; Hat Head, Booti Booti, Myall Lakes and Eurobodalla national parks.

SFNSW is also incorporating a coordinated approach into its new management planning. SFNSW's Regional ESFM Plans included the Strategic Feral and Introduced Animal Management Plans which specify that annual operational plans are to be prepared for feral animal control in cooperation with neighbours and other State agencies.

The development of the plans was discussed at a SFNSW Predator Management Workshop in 1999, attended by SFNSW, NPWS and the University of Sydney. The proceedings from the workshop were published as an official transcript in 2002

Both SFNSW and NPWS are represented on the Northern Feral Animal Advisory Council (UNE and LNE regions) and the NSW Noxious Weeds Committee.

SFNSW also coordinates the regional North Coast Vertebrate Pests Advisory Group. It is also involved with cooperative pest management programs with wild dog associations, rural lands protection boards and the NPWS. SFNSW is also represented on the North Coast Weeds Advisory Committee and contributes to joint Queensland/NSW biological control programs for Lantana (*Lantana camera*) as well as undertaking local control programs.

Further collaboration between the NPWS and SFNSW with the Victorian Department of Natural Resources and Environment and various local rural land protection boards is occurring with the development of a vertebrate pest control program.

MANAGING FOR OTHER FOREST VALUES AND USES

Recreation and Tourism

Forests are a valuable source of recreation and tourism opportunities but these opportunities put pressure on forested areas. In order to manage this

pressure, the forest agreements require tourism and recreation management plans to be jointly prepared by NPWS and SFNSW. NPWS is the lead agency for this project.

During 2000/2001, a reference group was established, with representation from both agencies. Discussions commenced on how to undertake the completion of the plans for the UNE and LNE regions. The project will probably build on the existing draft Recreation Management Strategy for the NPWS Northern Directorate.

The development of the management plan for the Eden region was deferred pending the signing of the Regional Forest Agreement for the Southern Region. This occurred as some areas of the Southern region are to be included in the plan for the Eden region. The Regional Forest Agreement for the Southern Region was signed in April 2001, and discussions have commenced.

Both agencies are continuing individual recreation and tourism planning.

Carbon Sequestration Opportunities

Global increases in the amount of carbon emitted into the atmosphere are a major environmental issue, and a key element in predicted climatic changes. Revegetation activities are one way to lower atmospheric carbon levels. To assist in addressing this issue, carbon sequestration opportunities are being explored in the UNE region.

In July 2000, the Minister for Forestry and the Minister for the Environment signed a memorandum of understanding on carbon sequestration. In the memorandum the Ministers agree to share expertise and information in order to develop and expand carbon sequestration rights and environmental markets. The signing of the memorandum allows for a uniform approach to carbon accounting across NSW.

Negotiations have been entered into between SFNSW and the Tokyo Electric Power Company (TEPCO) to develop carbon sequestration opportunities. Details on these negotiations are provided in the 'Monitoring Ecologically Sustainable Forest Management' chapter of this report.

Occupation Permits on State forests

A taskforce was formed in 1999/2000 to oversee the phasing out of those occupation permits which exist in areas identified as FMZ 2⁴ or new FMZ 1⁵ within the UNE and LNE regions. The function of the taskforce was extended to also address issues specific to the Eden region. Represented on this taskforce are NPWS, SFNSW and NSW Farmers.

During 2000/2001, two meetings of the taskforce were held. These meetings covered issues such as fencing, the viability of private land holders, and the impact on local governments and rural lands protection boards.

The phasing out of occupation permits has been deferred until discussions regarding FMZ Assessment (to be undertaken as part of the *Action for the Environment Statement 2001*) are complete. Once these discussions are completed all remaining occupation permit arrangements will be resolved.

Plantation Areas within National Parks

As a result of the UNE and LNE region CRAs, areas of State forest have been transferred to the NPWS for reservation. Some of these areas contained hardwood plantation areas and are to be harvested as part of the rehabilitation works.

Prior to harvesting activities being undertaken, rehabilitation plans must be prepared for each identified area. During 2000/2001, a draft review of environmental factors and a rehabilitation plan was prepared for plantation situated in additions to the Knappinghat Nature Reserve (50 hectares).

A review of environmental factors and a rehabilitation plan have also been completed for the proposed logging operation for the plantation situated in the Myall Lakes National Park (7 hectares).

Funding for future rehabilitation works on these areas is to be provided through the sale of royalties.

⁴ FMZ 2 Special management – Protection of significant areas, such as wildlife corridors, rainforest, threatened species habitat, high conservation values old growth, and areas of scenic attraction.

⁵ FMZ 1 Special prescription – Protection of areas which contain very high natural and cultural values. No logging is permitted. This zone provides the highest level of protection within the FMZ system.

As at 30 June 2001, no logging had yet commenced on these areas.

Roads and Trails

Following the signing of a memorandum of understanding in 2000 between NPWS and SFNSW on access and maintenance arrangements for joint roads and trails, implementation guidelines have now been finalised. These guidelines are being field tested through management actions on joint responsibility roads. NPWS is now assessing which Ministerial roads should remain vested with the Minister for the Environment and which may be gazetted as NPWS-managed land.

The memorandum of understanding applicable to the Eden region has also been prepared and is awaiting final approval by the Director-General of NPWS and the Chief Executive Officer of SFNSW. Completion of the memorandum of understanding for the Eden region was postponed until after the completion of that for the UNE and LNE regions, to avoid inconsistencies between the regions.

PRIVATE LAND

The primary goal of the forest agreements is to progress towards sustainable forest management. Although the agreements specifically address public land, there are provisions that promote extension of the agreements into private land on a voluntary basis⁶. This includes the identification of priority forest ecosystems situated on private land, voluntary conservation agreements, management contracts and other conservation mechanisms available to private land holders. A list of priority forest ecosystems is contained in Attachment 2 of the North East Regional Forest Agreement.

As stated in the forest agreements, identification of high conservation values on private land will require completion and incorporation of the CRAFTI data into regional databases. The revision of CRAFTI linework for the UNE region was completed in August 2000 and for LNE region in December 2000. Refining the CRAFTI data will provide information about forest growth stage,

⁶ A forest agreement may cover any aspect of forest management that is within the portfolios of the Ministers for Forestry, Fisheries, Planning or the Environment.

ecosystem modelling and predictive modelling of species habitat across all tenures. The information will provide spatially accurate data for private land and will assist the completion of a range of government programs, including regional vegetation management plans and the NSW *Biodiversity Strategy*.

Regional Native Vegetation Committee

To assist the Government to promote forest conservation on private land, particularly of rare ecosystems or those not represented in the reserve system, a Regional Native Vegetation Committee was formed in 1999/2000.

The first meeting of this Committee was held in October 2000 with representatives from NPWS, SFNSW, PlanningNSW and the Department of Land and Water Conservation. The outcome of the meeting was for agencies to identify current voluntary mechanisms and financial incentives being used by each agency to promote conservation on private land. Following the identification of such mechanisms, ways in which these mechanisms can be used to further the objectives of the forest agreements will be discussed. It is foreseen that this work will tie into that which will be conducted on incentives as part of the Brigalow Belt South Bioregion Assessment, coordinated by the Resource and Conservation Division of PlanningNSW.

WORLD HERITAGE AND WILDERNESS

During the CRAs an assessment of wilderness areas was carried out by the NPWS in the UNE and LNE regions, which provisionally identified 475 876 hectares of wilderness. Further consideration of these areas following the CRA resulted in a two stage assessment. Stage 1 of the assessment was completed in March 2000 and Stage 2 in May 2001. As a result of the assessment, 10 areas were identified as wilderness, covering an area of 226 374 hectares (NPWS, 2001).

The declaration of wilderness areas will occur following the public exhibition period of the Wilderness Assessment Report for the UNE and LNE regions.

Possible additions to the World Heritage Register were presented to the Central Eastern Rainforest Reserves, Australia (CERRA) Steering Committee meeting in September 2000. The Committee

decided not to pursue the matter, pending the establishment of a CERRA Technical and Scientific Advisory Committee. Relevant Ministers approved the Terms of Reference for the Advisory Committee in November 2000, and the appointment of members is underway.

The UNE and LNE region forest agreements required this task to have been completed by April 2000, but the Commonwealth indicated that the CERRA additions were a low priority due to consideration of World Heritage operational guidelines.

However, during 2000/2001, the CERRA Ministerial Council, which represents the NSW, Queensland and Commonwealth governments, endorsed the Strategic Overview for Management of the World Heritage CERRA. Management responses include assessment of existing reserves, close collaboration with local Aboriginal people and consideration of possible additions as appropriate in the UNE and LNE regions. The actions have not yet been implemented.

There are no further studies on world heritage values planned for the Eden region at present.

CULTURAL HERITAGE

The achievement of ESFM is not only concerned with the natural and economic values of forest areas, but also about the social and cultural values that are placed on them. Forests contain many significant social, cultural, spiritual and aesthetic values that must be preserved and/or enhanced to ensure a balanced forest system. As such, the forest agreements set out numerous requirements and initiatives that aim to ensure both indigenous and non-indigenous cultural values are correctly managed. One means by which cultural heritage may be managed is through the implementation of guidelines.

Cultural heritage guidelines for State forests have been developed with reference to the CRA report *Protection of Cultural Heritage Values and Places in the NSW Forest Estate* (Kinhill, 1999). The guidelines describe planning, operational, monitoring and review processes for managing cultural heritage. As reported in the 1999/2000 *Forest Agreement Annual Report*, SFNSW completed the guidelines before the signing of the IFOA for each region and were

attached accordingly. These have been implemented since that time.

The NPWS is currently reviewing its cultural heritage policies and guidelines with reference to the CRA reports entitled *Protective Mechanisms for Cultural Heritage - Generic Version* and *Protective Mechanisms for Cultural Heritage - Lower North East Region* (Cultural Heritage Working Group, 2000 a and b).

New policies have also been developed by NPWS that include its 'Cultural Heritage Strategic Policy', 'Consultation Policy', 'Cultural Heritage Information Policy' and 'Guidelines for the Assessment of Impact on Heritage Places'. NPWS's field policies are also being reviewed. More detailed cultural heritage performance indicators are also being developed.

SFNSW's policy on indigenous and non-indigenous cultural heritage outlines strategies for the protection and management of these values. Community stakeholders were consulted during the preparation of the policy. This policy has been incorporated into the draft Regional ESFM Plans that were placed on exhibition in September 2000.

In the UNE and LNE regions, comment on the draft Regional ESFM Plans was actively sought through the involvement of the SFNSW Aboriginal policy officer and regional Aboriginal cultural heritage officer. Meetings and visits with local Aboriginal land councils were arranged and discussions held. This resulted in submissions that assisted the review of sections of the draft plans dealing with Aboriginal interests.

Part of the NFMS also includes policies on 'Cultural Heritage', 'Protection of Indigenous Interests and Values' and 'Protection of Non-Indigenous Cultural Heritage'. Finalisation of these policies is currently subject to a period of public comment, presentation and discussion with key stakeholders.

Both NPWS and SFNSW also report annually on cultural heritage performance. NPWS is currently satisfying this requirement at a statewide level through its corporate annual report. In addition, the agency is developing more detailed

performance indicators on cultural heritage for its *State of the Parks* reporting which will provide access to the outcomes of performance reviews for individual parks.

SFNSW is continuing to report annually on a statewide level on cultural heritage through its *Social Environmental Economic*⁷ (SEEing) report. Further cultural heritage reporting will occur as part of the Regional ESFM Plans annual reporting, to commence following finalisation and implementation of the plans.

In addition to corporate level reporting, SFNSW and NPWS contribute important cultural heritage information to the *ESFM Criteria and Indicators Annual Report*, which reports the results of monitoring of the set of ESFM criteria and indicators identified in Table 1 and Attachment 9 of each forest agreement. A summary of this information for the 2000/2001 period is contained under Criterion 6 in the 'Monitoring of Ecologically Sustainable Forest Management' chapter of this report.

Places of Cultural Heritage Significance

Section 170 of the *Heritage Act 1977* requires the listing of all known places of heritage significance. Within the forest agreements for the UNE, LNE and Eden regions it is required that the section 170 register be continually updated. Funding has been secured by the NPWS for the development of a new Historic Place Register which will improve section 170 register reporting. Additional funding for completion of the system is currently being sought.

Places of Aboriginal Cultural Heritage Significance

NPWS is currently finalising the new Aboriginal Heritage Information Management System (AHIMS). The new system will improve the quality of information on Aboriginal sites. Consultation will also occur with key Aboriginal heritage stakeholders to establish a new methodology for classifying Aboriginal sites by recorded site features.

Further to this, a legislative review of the *National Parks and Wildlife Act 1974* is to incorporate some limited changes to Aboriginal cultural heritage

⁷ Previously called the *Environmental and Social Values* report

management. Additionally, NPWS's processes for the issue of consents and permits are also being reviewed. Generally, NPWS management processes for both natural and cultural heritage (management planning and impact assessment) are taking a landscape approach as recommended in the *Visions for the New Millennium* report (NPWS, 1998).

Guidelines are also being developed by the NPWS for the assessment of all parks to determine inclusion in Schedule 14 - 'Lands of Cultural Significance to Aboriginals' of the *National Parks and Wildlife Act 1974*.

ABORIGINAL INTERESTS

The forest agreements recognise the importance of forested areas to Aboriginal people, their culture and traditional way of life. The agreements contain a number of milestones which must be completed and/or implemented by NPWS and SFNSW to ensure that Aboriginal peoples' traditional culture is recognised and they are provided with opportunities to contribute to the management of public forests.

Strategies for Aboriginal Involvement

SFNSW's strategy for Aboriginal involvement in forest management has been incorporated into the draft Regional ESFM Plans for the UNE, LNE and Eden regions. The strategy is to be presented to key Aboriginal stakeholders for their input prior to finalisation.

A draft memorandum of understanding between the Eden Local Aboriginal Land Council and SFNSW has also been prepared which affirms a shared understanding of arrangements for Aboriginal involvement in forest management, protection of cultural heritage, and access to resources of State forests. Although the community chose not to sign the memorandum as a final document, it has provided impetus for closer working arrangements with the Eden Aboriginal community.

The Aboriginal communities have been actively involved in the management and protection of cultural heritage in State forests in the Eden region. In terms of formal agreements, these communities have focussed on consultation and negotiation surrounding the naval armaments depot and multi-purpose wharf at Twofold Bay and

the PlanningNSW South East Living Centre Program, as well as arrangements with Bega Valley Shire Council.

SFNSW has also assisted Aboriginal communities with special arrangements to manage three larger sites within State forests and has agreed to hold further discussions with the Eden Local Aboriginal Land Council on joint management of other areas.

A draft policy regarding Aboriginal involvement in forest management which is required to form part of the NFMS has also been developed by SFNSW. This draft policy was publicly exhibited in September 2000 with the NFMS Overview. The policy is being finalised as part of the NFMS, which has involved consultation with local Aboriginal land councils and other Aboriginal communities to further develop and involve the Aboriginal community. Contributions received from these groups are being incorporated into the System.

The NPWS has completed a draft strategy to increase Aboriginal involvement in forest management in the Eden region. The strategy is to be completed following consultation with the Aboriginal community.

Co-management arrangements

Aboriginal interests are incorporated into management processes and systems developed under the forest agreements, and their active participation is encouraged. One aspect of this is the investigation of potential joint venture and co-management arrangements with Aboriginal people within State forests in the UNE and LNE regions.

SFNSW's Mid North Coast region (UNE region) is investigating a range of joint venture possibilities with respective local Aboriginal land councils and other Aboriginal enterprises, such as the Purfleet-Taree Local Aboriginal Land Council, Purfleet-Taree Elders, Booroongen Djugun Aboriginal Corporation and the Mingaletta Corporation.

Progress over 2000/2001 includes the development of occupation permits at Elands. It is hoped that the area will have a small pine salvage logging operation underway soon to prepare the site for a youth refuge.

The Booroongen Djugun contractual arrangements have progressed with the project scope, timelines

and parameters being developed with the Booroongen Djugen Corporation. The Corporation is now investigating funding sources in order to obtain the required equipment. Possible contract arrangements for prescribed burning, weed control, silvicultural gap plantings and riparian buffer zone marking have all been identified as potential tasks suited for this project.

SFNSW's joint venture with the Mingaletta Corporation in the sourcing and extraction of essential oils from stump coppice (produced in some logging operations) may be expanded to include other plant oil extracts. SFNSW will be helping the Corporation by supplying limited plant samples for subsequent testing of oil compounds. However, this project is dependant on other third party funding.

Additional details of SFNSW's joint venture programs are summarised in Table 2.

TABLE 2: PROPOSED SFNSW JOINT-VENTURE PROGRAMS WITH ABORIGINAL PEOPLE - UNE AND LNE REGIONS

ABORIGINAL GROUP	PROJECT NAME
Purfleet-Taree Local Aboriginal Land Council	Elands Occupation Permit proposal Pines Picnic Area maintenance - Kiwarrak State forest
Purfleet-Taree Elders	Traditional hunting rights in Walcha forests
Booroongen Djugen Aboriginal Corporation	Hancocks joint venture proposal Kalateenee State forest joint management proposal Contractual land management tasks Cross Cultural Awareness Training
Tablelands	Nowendoc State forest joint management proposal
Mingalletta Corporation	Training opportunities Eucalypt leaf extract recovery Seed collection Possible Information and Cultural Heritage Centre Bollards for Christmas Bells trust land

Source: SFNSW

In November 2000, the Premier's Department North Coast Regional Coordination Program conducted a workshop with regional managers of both natural resource management and other agencies (SFNSW and NPWS) and the Aboriginal community. This workshop was to encourage positive working relationships with Aboriginal organisations, and to raise awareness of the

policies, programs and strategies of the Government agencies.

The workshop raised awareness of the potential for development of a range of projects with the Aboriginal community. This was followed in March 2001 with a Cultural Heritage Awareness Training forum where programs from various Government agencies were presented, including the forest harvesting courses on cultural heritage requirements.

NPWS has been progressively developing co-management arrangements and development opportunities with Aboriginal people. Some of these actions have been identified in the Government's Action for the Environment Statement 2001:

The Government will commit \$6.4 million over the next four years to increase Aboriginal involvement in managing national parks and reserves. This will include funds for training, for negotiation of formal handback and leaseback systems and informal agreements. Our priorities are to;

- work with the Worimi Aboriginal Land Council to negotiate leasing and joint management arrangements for proposed new reserves at Stockton Bight;
- negotiate with local Aboriginal Communities over joint management for proposed reserves near Seal Rocks and Worrell Creek, with further negotiations planned for Mt Grenfell Historic Site, Gulaga National Park, Jervis Bay National Park and Biamanga National Park;
- adopt NSW's first Indigenous Land Use Agreement with Arakwal people and declared the new Arakwal National Park near Cape Byron.

Progress made by the NPWS during 2000/2001 to complete these tasks was as follows:

- To further progress joint management arrangements with Aboriginal people, NPWS appointed a Joint Management Coordinator to work with the Aboriginal community towards Aboriginal ownership of Biamanga and Gulaga national parks. Informal negotiations and preparations have commenced primarily for Biamanga at this stage. This has involved meetings with relevant Aboriginal communities and groups to provide

briefings on the process and seek their views on park management;

- In the UNE region, the establishment of the proposed Arakwal National Park is subject to an Indigenous Land Use Agreement between the Arakwal people and NPWS. The Agreement was signed in December 2000, and is to be registered with the Native Title Tribunal;
- In the LNE region, NPWS negotiated with the Worimi Aboriginal Land Council regarding Aboriginal ownership, lease back and joint management of proposed new reserves at Stockton Bight;
- Negotiations are also continuing at Warrell Creek, in the LNE region, between NPWS and the Nambucca and Unkya Local Aboriginal Land Councils. These negotiations aim to develop an agreement to give the claimed land back to the Land Councils and to establish part of the area as a nature reserve to be leased back to NPWS.

Access for traditional and cultural purposes

To enable Aboriginal people to preserve their cultural traditions, a draft joint strategy, applicable to the Eden region, has been prepared by the NPWS and SFNSW. The strategy sets out to provide Aboriginal people access to public forest areas to obtain materials for traditional/cultural purposes. The draft strategy will be finalised following consultation with local Aboriginal communities.

As at 30 June 2001, no progress on the strategy in UNE and LNE region had been made due to NPWS's commitment to other Aboriginal management issues discussed above. However, it is foreseen that a similar approach to that taken for the Eden region will be applied to the UNE and LNE regions.

Access is continuing to be provided on State forests and national parks to Aboriginal people in the UNE and LNE regions to obtain materials for art and craft purposes, traditional medicine and food sources, and therefore allow them to actively retain their traditional cultural practices.

Section 30I permits (under the *Forestry Act 1916*) for the non-commercial collection of forest materials are continuing to be issued by SFNSW.

The draft Regional ESFM Plans also provide for Aboriginal people to have access to forest resources for cultural purposes.

Licences and permits for hunting native animals are to be reviewed and issued in accordance with broader legal responsibilities. SFNSW is ensuring recent changes to hunting legislation do not affect Aboriginal people's ability to hunt.

In the Eden region, the NPWS held negotiations with a number of Aboriginal communities regarding communities holding cultural camps within a number of different parks, to make access for traditional activities easier.

Employment Opportunities

Preparation of a joint strategy by NPWS and SFNSW to facilitate Aboriginal employment and development opportunities has yet to commence. However, the NPWS has developed an internal position which could be used as the basis of future negotiations with SFNSW. Until the joint strategy is complete, both agencies are continuing to develop and implement their own internal initiatives.

Such initiatives include SFNSW's Aboriginal employment and industry program for the recruitment of Aboriginal people. To date, two cultural heritage officers and four traineeships have been appointed through the program. This is in addition to numerous other Aboriginal people employed in other areas of SFNSW activities. Consideration is also being given to ways these employees may be assisted through training and opportunities to enhance their career development.

A new Aboriginal Employment and Training Strategy was developed by the NPWS during the year, and implementation has commenced. As part of this strategy cross-agency approaches to training are being examined.

Additionally, funding received by NPWS to provide for the management of additions to the reserve system has resulted in the appointment of four Aboriginal staff in the Eden region. These positions were a trainee field officer, two Aboriginal sites officers (one male and one female), and one project officer managing Biamanga and Gulaga hand-back issues. Employment options are currently being explored for the UNE and LNE regions.

Also in the Eden region, the NPWS is continuing to involve local Aboriginal land councils to provide cultural heritage interpretation as part of the *Discovery* program. A joint program for biodiversity and cultural heritage survey on Aboriginal lands will be implemented in 2001/2002. This program is being jointly funded by the Natural Heritage Trust and NPWS. No ventures have been identified in UNE and LNE regions at this stage.

MANAGING TIMBER SUPPLY

TIMBER VOLUMES HARVESTED

ESFM is about a balance in forest uses. The forest agreements provide a strategic framework for meeting the demand for timber from public native forests and plantations in a sustainable manner.

It is a requirement of the agreements that SFNSW report annually on the volumes of logs harvested from its estate, and to monitor compliance with the requirements set out in the forest agreements and IFOAs on log volumes.

Provisions within the IFOA for each region permit the annual harvest volume to vary from the committed volume⁸ by 25% within any one year, but not exceed 5% over the five year period.

Volumes harvested by SFNSW during 2000/2001 did not exceed the allowable volumes in any region. The volume of High Quality Large sawlogs and veneer logs harvested in the UNE and LNE regions from native forests and hardwood plantations were lower this period, compared to 1999/2000. The total volume harvested during 2000/2001 was 79% of the committed volume harvested in the UNE region and 79% of the committed volume harvested from the LNE region.

The total volume of native forest timber harvested from State forests in the Eden region increased to 118% of the committed volume and 108% of the committed volume of pulp grade logs compared to 1999/2000.

Details on the actual volumes harvested and permitted harvest rates are contained under

⁸ Committed volume – the volume of timber that may be harvested under the terms of the forest agreements and IFOAs.

- HIGHLIGHTS -

- In the UNE region, 79% of the allowable volumes of high quality large and veneer logs were harvested during 2000/2001, with 79% of the allowable volume harvested from the LNE region and 118% within the Eden region. All volumes harvested were within the allowable volumes permitted under the IFOAs.
- An initial review of actual versus predicted volumes has been undertaken by SFNSW during 2000/2001. This analysis revealed no significant variation from FRAMES estimates to date.
- Eco-field Guides are being prepared to assist staff in the field to identify forest types, threatened flora and fauna species, heritage sites and soil types. Use of the Guides will also be applied to staff training programs.
- Silvicultural demonstration areas have been established in State forest around Wauchope and Taree. These sites have provided approximately 150 days of practical field-based training opportunities to forestry operators.

Criterion 2 in the 'Monitoring of Ecologically Sustainable Forest Management' chapter of this report.

Further to reporting actual versus predicted volumes of logs harvested from State forests, the forest agreements require the ongoing monitoring of the Forest Resource and Monitoring Evaluation System⁹ (FRAMES) performance to include an assessment of the progressive 20 year supply. This is completed each financial year.

An initial review of actual versus predicted harvest volumes has been undertaken and did not reveal any results that significantly question FRAMES estimates. However, it is acknowledged that trends revealed over a number of such analyses will better determine their accuracy. This analysis will continue to be undertaken by SFNSW on an annual basis.

⁹ FRAMES – a computer modelling system for strategic level wood supply forecasting. It helps SFNSW to determine forest management schedules for native hardwood forests.

Timber Products Harvested

Timber products, other than quota sawlogs harvested from State forests in 2000/2001 are shown in Table 3.

Volumes of non-timber forest products harvested from State forests over this reporting period are contained under Criterion 2 in the 'Monitoring of Ecologically Sustainable Forest Management' chapter of this report.

TABLE 3: VOLUMES OF TIMBER PRODUCTS OTHER THAN QUOTA SAWLOGS EXTRACTED FROM STATE FORESTS 2000/2001

LOG TYPE	UNIT	UNE REGION			LNE REGION			EDEN REGION	
		NATIVE FOREST	HWD PLTN	SWD PLTN*	NATIVE FOREST	HWD PLTN	SWD PLTN*	NATIVE FOREST	SWD PLTN*
High Quality Small sawlogs	m ³	33 997	24 473	0	19 367	7 655	0	2 067	0
Low quality sawlogs	m ³	77 396	146	12 749	112 328	10 257	12 749	9 303	0
Poles/piles & girders	m ³	19 180	1 239	0	14 642	3 686	0	0	0
Preservation logs	m ³	0	0	0	0	0	0	0	36 392
Mining timber (round)	m ³	0	0	0	88	0	0	0	0
Fencing/landscape/sleepers (sawn)	m ³	2 516	0	105	764	0	105	221	0
TOTAL	m³	133 089	25 858	12 854	147 187	21 598	147 187	11 591	36 392
Pulp grade & chipwood	tonnes	3 536	24 663	23 746	199 930	43 997	23 746	337 434	11 825

* combined volume for softwood harvested from SFNSW plantations in the UNE and LNE regions

Source: SFNSW

FRAMES IMPROVEMENT

The FRAMES Improvement Strategy is a formalised strategy for progressively refining/improving the underlying algorithms, databases, modelling approaches, and commercial software of the system.

Since the signing of the UNE and LNE region forest agreements, significant effort has been expended on measuring additional inventory plots and gathering additional data to underpin net harvest area estimates. This information is currently being incorporated into the databases that underpin FRAMES and being written up in technical reports.

The forest agreements for the UNE, LNE and Eden regions each identify a number of specific areas that should be the subject of the FRAMES improvement. SFNSW has carried out an internal assessment of objectives and outcomes of the FRAMES review process. However, further inter-agency discussions are to be held on how this process is to be undertaken

In addition, SFNSW is to commence discussions with stakeholders and agencies to determine priorities for the future development of FRAMES. Information from these sources will be used to develop a FRAMES Improvement Strategy to direct future work and provide the basis for future reporting of progress.

SUPPLEMENTING TIMBER SUPPLY

SFNSW's private property supplementation program began in 1999/2000. The program involves the purchase of timber rights or private land to assist in supply arrangements. As at 30 June 2001, six properties had been purchased across the UNE and LNE regions, covering an area of 7 226 hectares of native forest, with an estimated 47 800m³ of quota sawlogs purchased.

Discussions have occurred between SFNSW, NPWS and PlanningNSW on the development of a process for considering unmet CAR conservation targets without hindering the overall purpose of the private property supplementation program. This process has considered protective mechanisms for flora and fauna by application of the IFOA,

and by the development of a protocol for the identification and protection of high conservation value old growth forest.

SILVICULTURE PRACTICES

Eco-field Guides for the UNE and LNE regions are being prepared by SFNSW to assist staff in the field to identify forest types, threatened flora and fauna species, heritage sites and soil types. The guide, covering both the UNE and LNE regions, is being prepared in two parts.

Part 2, 'A Field Guide to Forest Management in North East NSW' (the diagnostic component) was completed in 1999/2000 and placed on public exhibition in September 2000. It is currently being used in the field. Updating requirements will be included in the next edition of the Guide. The Guides will also be applied to staff training programs.

Part 1 of the Guide, 'Overview of Forest Management in North East NSW' is still being finalised.

SFNSW has also completed a silvicultural manual for forest operations in native forests which was placed on public display in September 2000. The manual describes silvicultural regimes that have traditionally been practised on State forests with proven success. As part of the IFOAs, certain silvicultural regimes are to be put into practice in native forests. These practices have also been incorporated into the manual which is currently being used in the field.

The use of this manual has been complemented by the establishment of silvicultural demonstration areas in the UNE and LNE regions. These areas provide field-based training opportunities to forestry operators on a range of forest types and silvicultural regimes permissible under the IFOA.

Two sites have been established at Wauchope and Taree over 2000/2001. During this reporting period demonstration sites within SFNSW Mid North Coast Region (LNE region) have been used to provide 150 days of training to staff and contractors.

Further arrangements for silvicultural practices by SFNSW have included the development of an audit process for native forests. This audit process

has been endorsed and has been in use throughout 2000/2001.

IMPLEMENTATION, REVIEW AND COMMUNITY AWARENESS

STAFF TRAINING, EMPLOYMENT AND INDUSTRY INITIATIVES

To enable ESFM to be achieved, the forest agreements require agencies to continue staff training programs to enhance staff knowledge of sustainable forest management and to provide opportunities for industry development.

Staff Training

In 2000, SFNSW introduced a new Staff Development and Training Policy and Staff Development Program. The Policy aims to develop a highly skilled and efficient workforce. The Staff Development Program has been introduced in response to an employee attitude survey conducted in 1998.

SFNSW currently provides 44 in-service training programs to staff on a regular basis. Many of these are available to external individuals and organisations. These courses include training in cultural heritage, wildlife identification and management, systems management, fire management and suppression, and a range of human resource areas.

During 2000/2001, courses for operators in forest harvesting operations continued to be rolled out, with 69 personnel attending courses. In addition, the Supervisor course in Forest Harvesting Operations commenced, with 819 personnel attending throughout 2000/2002.

NPWS is also continuing its staff training programs. Documents on professional and ethical conduct are made available to all new and current NPWS staff.

During 2000/2001, workshops in managing Aboriginal cultural heritage were conducted for NPWS staff and Aboriginal communities on the north coast. The aims of the course, 'Introduction to Aboriginal Cultural Heritage Management' was to:

- develop an awareness of Aboriginal cultural heritage and its management by the NPWS in conjunction with local Aboriginal custodians;

- promote understanding of the functions of NPWS staff in managing Aboriginal cultural heritage;
- provide an opportunity for local Aboriginal people to present and discuss their roles in contemporary cultural heritage management;
- provide information on protocols for consultation with Aboriginal communities in relation to cultural heritage management;
- provide an overview of basic site identification and recording techniques.

Employment

In the 2000/2001 period, the NPWS employed an additional three people in the Eden region. This is a total of 38 new permanent appointments made since the South East Forest Reform program began in 1994. This does not include temporary, casual or seasonal positions, such as the 10 people employed as part of the *Discovery* Ranger program.

Capital works outsourced by NPWS since the Eden Region Forest Agreement was signed in 1999 include:

- bridge construction;
- road maintenance;
- research and monitoring of fauna and vegetation;
- construction of signs, a campsite, walkways and a day use area.

As at 30 June 2001, SFNSW's direct and indirect employment totalled 3 490 equivalent full time (EFT) employees across the UNE, LNE and Eden regions.

Further details on employment and the forest sector are contained under Criterion 6 in the 'Monitoring of Ecologically Sustainable Forest Management' chapter of this report.

INDUSTRY INITIATIVES

Funding from the Forest Industry Structural Adjustment Package (FISAP) has been allocated for two initiatives in the UNE and LNE regions and two in the Eden region.

Financial assistance was provided through FISAP for the establishment of the Eden Recovery Mill by Blue Ridge Hardwoods Pty Ltd. The mill has met all FISAP requirements and is now fully

- HIGHLIGHTS -

- Data and information collected through monitoring of the ESFM Criteria and Indicators, listed in each of the forest agreements, has been provided for 33 of the 40 combined indicators required to be monitored across the three regions.
- The Forest Research and Liaison Committee was formed during 2000/2001, and is represented by the NPWS, the Department of Land and Water Conservation, PlanningNSW and SFNSW. The Committee is currently identifying current research being undertaken by their agency or other organisations, such as universities and private research corporations.
- The Eden Recovery Mill was established with financial assistance from the Forest Industry Structural Adjustment Program. The mill is now fully operational, and has created 44 new jobs in the region.
- NPWS has actively involved the community in raising public awareness of cane toads in the north east regions. These activities included a 'cane toad muster' at Angourie, where 900 cane toads were collected and destroyed.
- All CRA reports are to be made available for public access on the updated Commonwealth Regional Forest Agreement website (www.rfa.gov.au) and through links contained on the NSW Resource and Conservation Assessment Council website (www.racac.nsw.gov.au).
- SFNSW has established two forest studies centres in Sydney and Newcastle. These centres provide educational opportunities for schools and teachers on forest management and forest ecology.

operational, creating 44 new jobs within the region.

As at 30 June 2001, a second initiative in the Eden region, the Commercial Regrowth Thinning program, had yet to commence.

In the north east (UNE and LNE regions), the FISAP-funded Private Property Supplementation Program and Log Haulage Assistance initiatives are progressing well. Under the Private Property Timber Supplementation Program, \$7.5 million of

FISAP funds were allocated to assist SFNSW to purchase timbered property as a means of providing additional resources to the native timber industry. These funds were received as a result of the reduction in resource following the establishment of the CAR reserve system in the UNE and LNE region.

Under the Log Haulage Assistance program, \$1 million per year over five years has been allocated from FISAP funds to help native forest quota sawmilling companies meet additional log haulage costs. These extra costs were incurred when companies had to obtain their quota sawlog supplies from outside their usual areas of supply as a result of the CAR reserve system.

COMMUNITY INVOLVEMENT AND EDUCATION

The forest agreements recognise the importance of ongoing community education and awareness of ESFM and what is collectively needed to achieve it. Opportunities for public participation and education are being actively pursued by agencies.

For example, public participation and awareness is being promoted by NPWS on cane toads (*Bufo marinus*). Cane toads are now established on the north coast of NSW and extend south to the Clarence River. The only confirmed breeding colonies south of this area are two isolated colonies at Angourie near Yamba (adjacent to the Clarence River) and one around Lake Innes near Port Macquarie.

To improve public awareness and reduce potential adverse impacts of cane toads in NSW, NPWS regional officers are continuing an education and awareness campaign to:

- prevent cane toads establishing outside their existing range (north of Grafton);
- raise community awareness of cane toads, including impacts on biodiversity;
- increase community ownership of the cane toad issue and involvement in their control;
- raise community awareness of native frogs and their conservation requirements.

Part of this work carried out during 2000/2001 included the NPWS working with the local Dunecare Group to hold a cane toad muster targeting an established breeding colony at the

village of Angourie in the UNE region. More than 100 people participated and 900 cane toads were collected and destroyed.

Further opportunities for public participation were provided in the UNE region where a public meeting was held for any person interested in the management of feral pigs in the Newrybar Swamp area, which includes Ballina Nature Reserve. A management committee was formed to coordinate a cooperative control program for feral pigs (*Sus scrofa*) within the local area. Feral pigs were removed from Ballina Nature Reserve and Bundjalung National Park as a result of this action.

NPWS continued to contribute to various volunteer and educational programs and activities, such as Landcare and Bushcare, and its own education program *Discovery*.

The *Discovery* program employs local people with local knowledge as rangers and coordinators. It also provides information and education programs for schools. During 2000/2001, 127 special events were held involving NPWS *Discovery* personnel across the State to provide education and awareness of natural and cultural heritage. These activities attracted nearly 62 000 participants statewide.

SFNSW also has an ongoing program of public education and awareness activities relating to forest management. The majority of activities are developed through SFNSW's Corporate Public Affairs Branch, however, all regional staff are involved in communication and public consultation through attendance at meetings and forums.

Other public involvement activities conducted by SFNSW included participation and presentation at regional shows (e.g. the Newcastle Regional Show and the Eden Whale Festival), and development and sponsorship of competitions promoting timber and timber-use (e.g. the Coffs Harbour Pallet Competition, the Mid North Coast and Walcha timber expos).

SFNSW has also established two forest studies centres that provide educational opportunities for schools in Sydney and Newcastle (LNE region). The programs offered by these centres provide an

overview of forest management and forest ecology in an interesting and entertaining way. All programs have been related to the NSW Board of Studies syllabus documents and are designed and run by qualified teachers and rangers. SFNSW's education programs are well attended, and attract over 6 000 students and teachers each year.

INFORMING THE PUBLIC

The public needs to be continually informed on the progress of the forest agreements. By doing this the public will better understand ESFM and the successes and difficulties in implementing the forest agreements.

Access to Information

All documents related to the forest agreements (as listed in Attachment 1 of each forest agreement) are available for inspection on request through the PlanningNSW Information Centre in Sydney. A CD containing all project reports completed as part of the CRAs for the UNE, LNE and Eden regions is also available for purchase on request. Copies of these reports have been distributed to the National Library, NSW State Library and the Parliamentary Libraries for public access. Additional copies of the reports have been distributed to various regional offices of SFNSW, NPWS and PlanningNSW.

Information on all forest agreement and IFOA matters may be accessed by visiting the Resource and Conservation Assessment Council website (www.racac.nsw.gov.au). All forest agreements, IFOAs, amendments and annual reporting may be viewed on the site. The site also contains links to the Commonwealth's Regional Forest Agreement website (www.rfa.gov.au).

Additional Reporting Mechanisms

The NPWS, SFNSW, the EPA, NSW Fisheries and Planning NSW are all continuing to report annually through their corporate annual reports. These reports provide information on each agency's statewide activities.

Other agency-based initiatives include NPWS's new *State of the Parks* report, which is to provide an overview of how individual parks and reserves are being managed.

NPWS's district advisory committees are continuing to provide advice to the National Parks and Wildlife Advisory Council to improve the care,

control and management of public lands, and to provide advice to NPWS on nature and conservation matters off-reserve. Representatives on these committees include Aboriginal groups, women, local government and farmers.

SFNSW is continuing to publish the *Bush Telegraph* every two months and the annual *SEEing - Social, Environmental and Economic Report* (formerly the *Environmental and Social Values Report*).

During 2000/2001, the *Environmental and Social Values Report* changed considerably, following the development of a Triple Bottom Line framework for corporate accounting and reporting. This framework has three key performance areas:

- social;
- environmental;
- economic.

The report, now called the *SEEing* report, provides information on how SFNSW are managing its estate by measuring against a range of forest values including biodiversity, cultural heritage, forest health, and staff and compliance. The report provides performance information on 10 forest values and 32 indicators. These values and indicators are similar to the ESFM criteria and indicators reported as part of the forest agreements, but at a state level.

The *Bush Telegraph* contains articles on current SFNSW's initiatives, community activities and research on how to better manage forest areas.

SFNSW will also commence public reporting on the implementation its Regional ESFM Plans in the UNE, LNE and Eden regions, following their completion and implementation.

The EPA is continuing to release the *State of the Environment Report* every two years. This report continues to provide important information to the public on the state of many aspects of the environment, including air and water.

All agencies involved in the implementation of the forest agreements have websites which contain a range of information relating to each agency's activities across the State.

ESFM CRITERIA AND INDICATORS

The forest agreements for the UNE, LNE and Eden regions each contain a list of criteria and indicators (known as ESFM Criteria and Indicators) which are applied as a monitoring tool to help to determine if ESFM is being achieved.

Monitoring

The monitoring of ESFM criteria and indicators began in 1999 by State agencies (NPWS and SFNSW). The development and implementation of monitoring processes is overseen by the State Criteria and Indicator Implementation Group, which is an inter-agency group represented by NPWS, SFNSW, and PlanningNSW.

Significant improvement over 2000/2001 has occurred in the accuracy and efficiency of monitoring the criteria and indicators. The focus has been on sorting out difficulties identified in 1999/2000 to meet these new requirements.

Such actions include the progressive development and refinement of monitoring systems by NPWS and SFNSW, in consultation with PlanningNSW. This work aims to establish compatible data collection systems between agencies. This will allow for the evaluation of progress towards ESFM, across tenure, to be made over time.

Improvements in monitoring and reporting made during 2000/2001 have been assisted by the appointment of two extra staff by NPWS to coordinate the reporting of NPWS performance in ecologically sustainable management. This has arisen from the need to monitor ESFM under the forest agreements. It also allows NPWS to expand the ESFM approach across non-forest ecosystems.

SFNSW is continuing to use its current data collection methods specifically designed to meet both forest agreement and corporate reporting requirements.

Consultation between agencies and internal initiatives are continuing in order to provide the best possible data and information.

Reporting

PlanningNSW, in consultation with NPWS, SFNSW and specialist personnel, have undertaken a review of the first report of the ESFM criteria and indicators. The preliminary outcomes of the review

have been incorporated into the *2000/2001 ESFM Criteria and Indicator Annual Report*.

Inter-agency consultation is to continue to further improve the quality of reporting. Together with the reviewed report, procedures for the completion of the report have been drafted to ensure that a consistent level of reporting is provided each year.

A summary of the results of monitoring carried out on the ESFM criteria and indicators during 2000/2001 is contained in the following chapter of this report 'Monitoring of Ecologically Sustainable Forest Management'. A full report of the results of monitoring is contained in the *2000/2001 ESFM Criteria and Indicators Annual Report*.

Trial and Assessment

The trial and assessment of indicators for the UNE, LNE and Eden regions has begun. As part of the five yearly review, the indicators will be assessed to ensure they are:

- practical;
- measurable;
- cost effective;
- capable of being implemented at the regional level.

As part of the trial and assessment of the indicators, a draft evaluation framework was completed in 1999/2000. The draft framework sets out measurement categories for the effectiveness of each indicator in monitoring ESFM.

Agencies are completing the framework each year, following the submission of data. The information collected through the framework will provide a basis for evaluating the indicators at the time of the five year review.

RESEARCH

Continuing research is necessary so that the best available information is used in developing effective management systems to build a sustainable forest system.

During the CRAs, areas of State forests were transferred to national park tenure. As a result, a number of SFNSW research projects are now within the national park estate. To deal with this, the forest agreements require that all research projects in what were State forests but which are

now in national parks and nature reserves be identified. Details of the project, location and access requirements of these studies are to be provided to NPWS. SFNSW have identified these sites and access is being provided by the NPWS.

Sites identified include the former Lorne Flora Reserve (now national park) and Yabbra State forest (now Toonumbar National Park) in the north east regions, and Coolangubra State forests (now part of the South East Forest National Park) in the Eden region.

An inter-agency Forest Research and Liaison Committee has been formed and held its first meeting in November 2000. The purpose of the Committee is to identify research priorities relating to forest management. Representatives include NPWS, the Department of Land and Water Conservation, PlanningNSW and SFNSW.

The main outcome from the first meeting was for representatives to identify current research by their agency or other organisations, such as universities and private research organisations. The collection of this information is to identify any gaps in current research related to conservation and forest management.

The Committee is also supervising the compilation of a compendium of forest research in NSW. Preliminary work has begun by members, who are providing details on forest research prepared by their agency, including all published and unpublished work. PlanningNSW is compiling this information into the compendium.

Other actions in regard to research include:

- a draft consultation, monitoring and reporting strategy is being by SFNSW prepared as part of the draft Regional ESFM Plans and was placed on public exhibition in September 2000. After public comment has been considered the strategy will be finalised as part of the plans;
- the strategic plan for SFNSW's research division is being revised;

- a biodiversity research strategy is being developed under the NSW Biodiversity Strategy. An inter-agency working group, co-ordinated by the Royal Botanic Gardens, has been established to carry out this task;
- SFNSW research is structured around five scientific programs; tree improvement, new forests, silvicultural systems, forest health management and forest biodiversity.

Details on work within these programs are contained in the *2000/2001 ESFM Criteria and Indicators Annual Report*.

REPORTING AND REVIEW OF THE FOREST AGREEMENTS

Reporting

This is the second annual report.

The first annual report for 1999/2000 was made public in January 2002. The Minister for Planning tabled the report in Parliament during the first sitting of 2002 that commenced in February 2002.

Review

The forest agreements and IFOAs are in place for a period of 20 years.

In order to assess if the agreements and approvals are constructive in achieving ESFM, regular five yearly reviews are undertaken to assess the implementation of provisions of the agreements and the effectiveness of the IFOAs to achieve its purpose.

In preparation for the first five year review, agencies are collecting information regarding the implementation of the agreements and approvals. Progress information contained in the annual reports on the completion of milestones, compliance with the IFOAs and ESFM criteria and indicators will also contribute to the five year review of the agreements and IFOAs.

MONITORING ECOLOGICALLY SUSTAINABLE FOREST MANAGEMENT

INTRODUCTION

A key objective of the forest agreements is the achievement of ecologically sustainable forest management (ESFM). ESFM is defined as the management of forests so that 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 (ESFM Group, 1998a).

In order to monitor progress towards achieving ESFM, a set of criteria and indicators were developed specific to each region. These are listed in Table 1 of the UNE, LNE and Eden forest agreements. There are six criteria and one supportive criterion that represent a range of forest values:

- biodiversity;
- productive capacity of forest systems;
- ecosystem health and vitality;
- conservation of soil and water resources;
- forest contribution to global carbon cycles;
- long term socio-economic benefits to meet the needs of societies;
- legal, institutional and economic frameworks available to support EFSM.

Below each criterion are a set of related indicators that are monitored over time to assess change. As data and information is collected for each indicator trends may be identified, and when looked at in association with other indicators, the effectiveness of current forest practices can be measured. It will also provide the basis for further improvement to management practices to maintain or improve the condition of forested areas.

MONITORING THE CRITERIA AND INDICATORS

Criteria and indicator monitoring is a relatively new endeavour in NSW. Before the forest

agreements were implemented many of the systems and processes necessary to monitor EFSM did not exist. Often there were no uniform data collection systems across agencies to collect data in the required format. Sometimes even local offices of the same agency had their own system. All this has made it difficult to produce a regional or cross-regional perspective on progress towards ESFM.

As a result of these inconsistencies, the principal agencies involved in collecting monitoring information on the criteria and indicators (NPWS and SFNSW) focussed efforts throughout 2000/2001 to resolve the difficulties associated with meeting these new monitoring and reporting requirements.

Although the development of compatible monitoring systems and processes is not fully complete, some of the inconsistencies within and between agencies that were evident in 1999/2000 have been removed. Of the combined 40 indicators, which apply to the UNE, LNE and Eden regions, 33 are reported for the 2000/2001 period. This is an improvement on the 16 that were reported in 1999/2000.

While gaps in monitoring still remain, these tend to be for the more complex indicators for which current systems cannot be easily adapted to provide the required information. Agencies have appointed specialist personnel to carry out monitoring work to ensure that these problems are resolved and, on the whole, that more information is provided on the work being done to achieve EFSM.

The way in which the criteria and indicators are reported has also been reviewed to provide clearer and more meaningful information about EFSM monitoring.

ACHIEVING EFSM

The achievement of ESFM can only be adequately determined over time. At this early stage, reporting

can only present the data collected. Minor year-to-year comparisons can be made, but these do not provide an accurate long-term perspective.

This chapter provides a summary of the results of the monitoring carried out for the period 1 July 2000 to 30 June 2001. Full details are found in the *2000/2001 ESFM Criteria and Indicators Annual Report*.

CRITERION 1 - BIODIVERSITY

FOREST TYPE

Extent of area by forest type and tenure (UNE, LNE regions)
Extent of forest ecosystem types and vegetation types by growth stage (Eden region)

No significant change to the extent of forest ecosystems was recorded across the national park estate or State forests within the UNE, LNE and Eden regions.

During 2000/2001 there were only small gains in the reservation of forest types on the national park estate in the UNE and LNE regions. No change to the extent of forest ecosystems was recorded in the Eden region.

On State forests within the UNE region, an increase of 1 500 hectares in the area of Forest Management Zone (FMZ) 1 and a decrease of 500 hectares in the areas of land for further assessment were recorded. These followed assessment of newly acquired land and the refinement of the operational FMZ classification.

In State forests in the LNE region an increase of almost 400 hectares was identified within the area of land for further assessment. This followed the acquisition of new areas that were previously privately owned and for which the ecosystem data had not yet been digitally captured.

Data provided for this indicator will be improved by the completion of final geographic information system (GIS) editing of the CRAFTI UNE region floristic and LNE region structural and floristic data layers. Project reports describing the CRAFTI GIS editing process were completed in May 2001.

GROWTH STAGE

Area of forest type by growth stage distribution by tenure (UNE, LNE regions)
Extent of forest ecosystem types and vegetation types by growth stage (Eden region)

The extent of growth stages across public lands remained relatively stable across all regions. The minor variations recorded across the national park estate and State forests have been due to recent land additions and timber harvesting activities in State forests.

The dominant growth stages identified on the national park estate and State forests in the UNE and LNE regions reflect the main activities that take place within them. The national park estate is dominated by high conservation value old growth and mature forest as the land is managed primarily for conservation purposes. Approximately 50% of State forest tenure is excluded from timber harvesting. The remaining 50% is available for harvest and the growth stages will change to mature forest that has been recently disturbed, mature forest and young forest as operations proceed.

The mature forest component of State forests in the UNE region showed the only notable change in area. This forest structure class made up the majority of the harvestable proportion of the native forest estate, and is therefore most likely to show variation from year to year and to be re-classified as a result of ongoing assessment.

Presently, there are some shortcomings with reporting for this indicator. These are being progressively addressed by applying new data as it becomes available.

The value of this indicator will be determined over time as the volume of data increases and trends can be identified. At this early stage, any changes recorded from year to year will be primarily due to changes in land tenure and timber harvesting activities.

FRAGMENTATION

Fragmentation of forest types (UNE, LNE regions)
 Extent of connectivity in the forest landscape in relation to threatened species, habitat, general retained habitat on private land and conservation reserves (Eden region)

There has been no change to the level of fragmentation of national parks and reserves and State forests in the UNE, LNE or Eden regions.

Forested areas become fragmented because land is cleared to make way for urban development, roads and infrastructure, agriculture and other human uses. It is a major cause of decline in biodiversity. To prevent the long-term effects of fragmentation, it is necessary to increase the level of connectivity between these areas to assist in providing more diverse habitat and increased species movement.

Although there has been little change to the level of fragmentation of forested areas across the regions, the NPWS has continued to establish Voluntary Conservation Agreements (VCAs) with private land holders. These are one voluntary mechanism that is being used to assist in improving connectivity between forest areas. These agreements significantly contribute towards:

- the conservation of priority forest ecosystems under-represented in the public reserve system;
- the establishment of vegetation corridors in the landscape;
- the protection of significant threatened species habitat.

During 2000/2001, ten VCAs were established, protecting a further 2 714 hectares of private land within the UNE, LNE and Eden regions. Of significance, four VCAs were signed by a single land holder in the Eden region, permanently protecting over 190 hectares of forest on the far south coast of NSW.

NPWS, in conjunction with the South-East Catchment Management Board, is developing agreed assessment criteria for determining priorities and resource allocation for outstanding VCA applications in the Eden region.

VCAs assist to improve connectivity but do not provide a valid measure of connectivity across the broader landscape. To improve this situation, a

detailed scientific analysis of connectivity using the new GIS-based technique has been developed within the UNE and LNE regions and may be of direct applicability to the monitoring of the fragmentation of vegetation. This technique will be used to assist in a review of conservation priorities for private lands in the Eden region next year.

To further improve reporting for this indicator, SFNSW is investigating new sources of information. Two sources include: areas of State forest cleared for land uses other than forestry; and native hardwood plantation established to provide connectivity between areas of native forest acquired from private ownership.

FOREST DWELLING SPECIES

A list of forest dwelling species (UNE, LNE, Eden regions)
 List of representative species by abundance.
 Representative sample to include threatened species, key functional groups and indicator species (Eden region)

Lists of forest dwelling species (flora and fauna) are being progressively compiled by NPWS and SFNSW. These lists will provide a measure of the species diversity of forests.

The lists of forest dwelling species on the national park estate have been derived from the Atlas of NSW Wildlife (Wildlife Atlas). These lists, to date, have identified 549 vertebrate fauna and 2 141 vascular flora species in the UNE region; 539 vertebrate fauna and 1 869 vascular flora species in the LNE; and 340 vertebrate fauna and 1 299 vascular flora species in the Eden region. (Table 4).

TABLE 4: FOREST DWELLING SPECIES IDENTIFIED IN NATIONAL PARKS

CLASS	REGION		
	UNE region	LNE region	Eden region
VERTEBRATE FAUNA			
Amphibians	48	48	17
Birds	323	321	231
Mammals	92	88	59
Reptiles	86	82	33
TOTAL	549	539	340
VASCULAR FLORA	2 141	1 869	1 299

Source: NPWS

A complete review of all flora species found in the Eden region has been undertaken by NPWS since the Eden Regional Forest Agreement assessment (Keith, Miles and MacKenzie, 1999). This review found a minimum of 1 522 vascular flora species occurring in the region with a remaining 136 taxa¹⁰ yet to be confirmed.

Lists of forest dwelling species occurring on State forests are being progressively compiled by SFNSW from results of various fauna and flora surveys. Preliminary lists identified 28 vertebrate fauna and six vascular flora species within the UNE region, 232 fauna species and five vascular flora species in the LNE region, and seven vertebrate fauna species in the Eden region. No vascular flora species has yet been listed for the Eden region. These lists are to be progressively developed to provide a comprehensive list of forest dwelling species across State forests.

THREATENED SPECIES, ECOLOGICAL POPULATIONS AND ECOSYSTEMS

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 regions)

The status of endangered populations and ecosystems as determined by legislation or scientific assessment (UNE, LNE regions)

A number of species were added to the Threatened Species schedules during 2000/2001 applicable to the UNE and LNE regions. No new listings were made specific to the Eden region during this period.

The *Threatened Species Conservation Act 1995* provides the legislative framework for the protection of flora and fauna species in NSW.

Changes to listings under Schedules 1 and 2 of the *Threatened Species Conservation Act 1995*, specific to the national park estate during 2000/2001, include:

- In the UNE region ten vascular plants were listed as endangered and six as vulnerable, one vertebrate fauna species reclassified from vulnerable to endangered, and two vertebrate fauna listed as vulnerable;

- In the LNE region seven vascular plants were listed as endangered and three as vulnerable. Two vertebrate fauna were listed as vulnerable. No additional vertebrate fauna were listed as endangered;
- No new listings were made specific to the Eden region.

During 2000/2001, one vertebrate fauna and one flora community were listed together with five ecological communities relevant to forest dwelling species across all tenures in each region.

Key threatening processes listed during 2000/2001 were 'Anthropogenic Climate Change' and 'Loss and/or degradation of sites used for hilltopping by butterflies'. These listings are relevant across all tenures in each region.

Pre-harvest surveys, carried out by SFNSW within forest types identified for harvesting, are undertaken to establish the presence of threatened species. Results of these surveys are used to assist SFNSW to measure any impact its activities are having on threatened species. The number of threatened species sighted determines the harvesting prescriptions set in place, which in turn affects the area available for harvesting.

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.

During 2000/2001, SFNSW conducted 8 750 pre-harvest surveys across the three regions, resulting in 1 920 individual sightings of threatened fauna species. Of these sightings, 552 individuals were sighted in the UNE region, 1 153 in the LNE region and 215 in the Eden region.

The surveys targeted 127 threatened fauna species. Results of surveys recorded 47 of these species, including 10 species that were not surveyed in 1999/2000.

To improve data for this indicator, species listed under the *Threatened Species Conservation Act 1995*

¹⁰ Taxa - the named classification unit to which individual organisms or sets of individuals are assigned, such as species, genus and order.

for both the national park estate and State forests will be provided for 2001/2002.

SPECIES MANAGEMENT MEASURES

Management measures in place to maintain species extent and abundance (interim for the first 5 years of the Agreement (Eden region))

This is an Eden region indicator. For consistency of reporting all information regarding development and implementation of management measures for all regions has been reported here.

In June 2001, the Minister for the Environment approved recovery plans for the Yellow Spotted Bell Frog and the Peppered Frog, specific to the UNE and LNE regions.

To enable the recovery of species listed under the *Threatened Species Conservation Act 1995*, NPWS and SFNSW are continuing to implement measures that provide specific strategies to improve the status of a particular species, to manage threatening processes and to improve habitat and reduce threats across the tenure.

Specifically, NPWS is required to prepare recovery plans for all species listed under the *Threatened Species Conservation Act 1995* schedules. These plans set out strategies to improve the status of these species.

Plans for fauna species, the Green and Golden Bell Frog (*Litoria aurea*) and Coxen's Fig Parrot (*Cyclopsitta diophthalma coxeni*), and flora species Quassia sp Moonee Creek and Granite Boronia (*Boronia granitica*) have been completed to draft stage but are yet to be exhibited.

The remaining plans are being progressively developed.

In the Eden region, plans for four flora species which occur on the national park estate have been adopted. A further 15 plans are currently being drafted.

To complement the recovery planning actions, the *Threatened Species Conservation Act 1995* also requires 'threat abatement plans' to be developed for all key threatening processes listed under Schedule 3. These plans target a particular threat

and set out strategies to minimise and/or eradicate its impact on the environment. NPWS is progressively developing these plans in consultation with State agencies and stakeholder groups. Significantly, the draft Threat Abatement Plan for the European Red Fox was completed. For more information on this plan, refer to the 'Significant Achievements' chapter of this report.

Species management measures which are applied to State forests include Regional ESFM Plans (currently being finalised) and provisions within the IFOAs (Threatened Species Licence and Fisheries Licence). These are discussed throughout this report.

CRITERION 2 - PRODUCTIVE CAPACITY OF FOREST ECOSYSTEMS

LAND AVAILABLE FOR TIMBER PRODUCTION

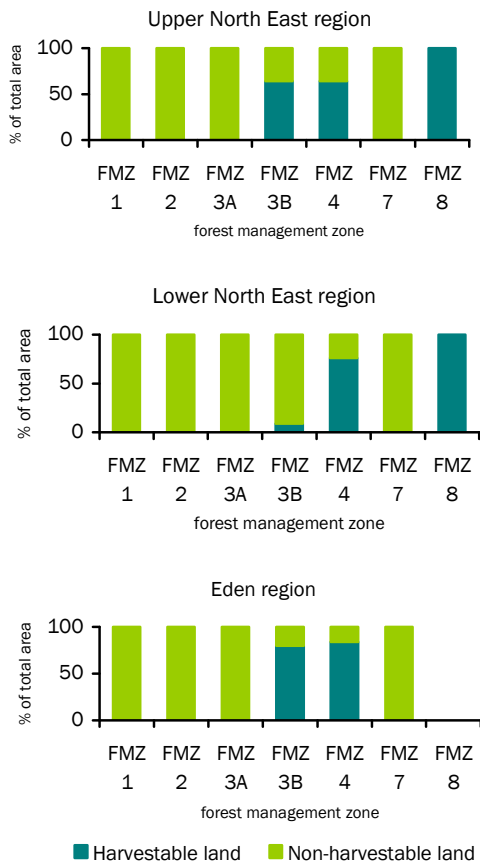
Area of forest land and net area of forest land available for timber production (UNE, LNE, Eden regions)

The areas of native forest within State forests available for harvest are: 42% in UNE region; 48% in the LNE region; and 74% in Eden region. The remaining areas are protected for conservation purposes.

The actual hectares of State forest available for harvest within each region are: 178 900 hectares in the UNE region; 249 547 hectares in the LNE region; and 121 371 hectares in the Eden region (Figure 2).

Within the zones managed for timber production some change in the area available for harvesting was recorded in the UNE and Eden regions. In the UNE region this was attributed to the variation in prescriptions contained in the IFOA that are identified and applied during harvest planning. Within the Eden region, the larger discrepancy was due to a variation in the method applied for the calculation of the area available for harvesting between the 1999/2000 and 2000/2001 reporting periods.

FIGURE 2: NATIVE FOREST AREA AVAILABLE FOR HARVEST ON STATE FORESTS BY FOREST MANAGEMENT ZONE



TOTAL GROWING STOCK

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

No data or information are available.

TIMBER PRODUCTS COMPARED TO SUSTAINABLE VOLUME

- Area of forest land and net area of forest land available for timber production (UNE, LNE, Eden regions)
- Annual removal of wood products compared to sustainable volume (UNE, LNE regions)
- Annual removal of timber and non-timber products from forest ecosystems compared to those estimated to be ecologically sustainable by tenure (Eden region)
- Annual removal of timber products and non-timber products from forest ecosystems by volume (Eden region)

Total harvest volumes extracted from each region during 2000/2001 did not exceed the allowable volumes permitted.

Provisions contained in the IFOA for each region allow the annual harvest volume to vary from the committed volume by 25% within a year, but not exceed 5% over the five year period.

The volume of High Quality Large sawlogs and veneer logs harvested from SFNSW native forests in 2000/2001 was lower across the UNE and LNE regions compared with those harvested in 1999/2000. Volumes of High Quality Large sawlogs and veneer logs harvested in the Eden region increased.

The actual volume of High Quality Large sawlogs and veneer logs harvested from SFNSW native forest and hardwood plantations in the UNE region during 2000/2001 was 91 254m³. This is 79% of the annual committed volume, calculated using a sustainable volume of 115 800m³ per annum, as extrapolated from the IFOA for the UNE region [109 000 per annum + 19 770 per first five years (pro-rata is 3 954)]. This compares to 102% of the annual committed volume harvested during 1999/2000.

In the LNE region, 135 845m³ of High Quality sawlogs and veneer logs were harvested from SFNSW native forest and hardwood plantations during 2000/2001. This represents 79% of the annual committed volume for harvest from SFNSW native forests and hardwood plantations, calculated using a sustainable volume of 170 592m³ per annum, as extrapolated from the IFOA for the LNE region [160 000 per annum + 23 407 per first five years (pro-rata is 4 681)]. This compares to 98% of the annual committed volume harvested during 1999/2000.

In the Eden region 27 056m³ of High Quality Large sawlogs and veneer logs were harvested from SFNSW native forest during 2000/2001. This represents 118% of the annual committed volume, calculated using a sustainable volume of 23 000m³ per annum, as designated in the IFOA for the Eden region. This compares to 103% of the annual committed volume harvested in 1999/2000.

A further 337 434 tonnes of pulp grade logs were also harvested from SFNSW native forest in the Eden region during 2000/2001. This volume represents 108% of the committed volume, calculated on a sustainable volume of 345 000

tonnes per annum, as designated in the IFOA for the Eden region. This compares to 102% harvested in 1999/2000.

A new corporate timber sales system to administer timber sales from native forests and plantations is currently being developed that will standardise and simplify sales administration. This system, called 'SCION' will replace the current timber sales system, 'FORSALE'.

STANDING VOLUME OF SPECIES LOGGED

Standing volume of log stocks by species groups and diameters at breast height class for multi-aged and regrowth forest and available for timber production by tenure (Eden region)

No data or information are available.

Future reporting for this indicator will be based on periodic assessments with intervening estimates from growth models.

SPECIES AND ROYALTY OF LOGS HARVESTED

Standing volume of log stocks by species groups and diameters at breast height class for multi-aged and regrowth forest and available for timber production by tenure (Eden region)

No data are available.

VOLUME OF NON-TIMBER PRODUCTS

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

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

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

The largest quantity of non-timber products extracted from State forests during 2000/2001 was for gravel, sand and rock. The total quantity of firewood collected from within State forests in the UNE, LNE and Eden regions decreased.

Non-timber products include firewood, seeds, gravel, bark and seedlings, and activities such as apiary, grazing and research. The amount of non-timber products for which State forests were

utilised remained steady or increased slightly compared to 1999/2000. However, an overall decrease was experienced within the LNE region.

Across the LNE and Eden regions there was a decrease in the area of SFNSW land leased for grazing through dedication as Crown Leases, or identified as having occupation or grazing permits. This area decreased by 23 310 hectares across the two regions. The area of SFNSW available for grazing in the UNE region increased by 24 851 hectares during 2000/2001.

Revenue gained from the harvesting of non-timber products within the Eden region decreased by 4% from 1999/2000, to \$103 000. The fall in return was largely due to a reduction in revenue from forests leased for utilities including powerlines and communications sites.

PLANTATIONS

Area and percent of plantation established meeting effective stocking one year after planting (UNE, LNE, Eden region)

During 2000/2001, 3 392 hectares of hardwood plantation were established by SFNSW in the UNE and LNE regions. No hardwood plantation was established in the Eden region.

A further 640 hectares of softwood plantation were established by SFNSW across the UNE, LNE and Eden regions.

Hardwood plantation established in the UNE and LNE region reached a 95% effective stocking rate¹¹. Softwood plantation established reached a 96% effective stocking rate in the UNE region, an 83% effective stocking rate in the LNE region, and a 100% effective stocking rate in the Eden region.

Lower than expected levels of effective stocking in softwood plantations were experienced as a result of problems with stock of *Pinus pinaster* imported to NSW from Western Australia.

¹¹ Effective stocking rate - the survival of planted trees one year after planting at a level that must promote a cost-effective return upon harvest.

REGENERATION

Area and percent of harvested area of native forest effectively regenerated (UNE, LNE, Eden region)

SFNSW has developed an agency-wide method for undertaking regeneration surveys.

During 2000/2001, 16 regeneration surveys, covering an area of 689 hectares, were undertaken in the Eden region using this method. Application of this method resulted in an 83% effective regeneration rate¹².

This method has yet to be applied to the UNE and LNE regions. No other method of regeneration survey was undertaken in the UNE and LNE regions during 2000/2001.

NPWS has yet to report on this indicator. However, it is anticipated this will occur in the future because a number of areas which are now managed by the NPWS were formerly harvested as State forest. These areas will need to be identified and the need for any active regeneration works determined.

CRITERION 3 - MAINTENANCE OF ECOSYSTEM HEALTH AND VITALITY

WEEDS, FERAL ANIMALS AND DISEASE

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

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

NPWS and SFNSW take a cooperative approach to the management of pests, weeds and disease, through the development and implementation of cooperative management plans, eradication and monitoring programs, research, and public awareness and participation activities.

An indicative measure of these efforts is resource expenditure. Although total expenditure by both agencies across all regions is currently not available, information provided showed that at least \$824 344 was spent on the control of weeds and feral animals (including introduced predators) and on a number of control programs across the UNE, LNE and Eden regions.

¹² Effective regeneration rate – success of regeneration in re-establishing the pre-harvesting forest structure and species composition, specific for each forest type and locality.

Weeds

Weed control efforts by SFNSW and NPWS during 2000/2001 focussed on Blackberry (*Rubus fruticosus* sp agg), Lantana, Bitou Bush, Giant Parramatta Grass (*Sporobolus fertilis*) and Crofton weed (*Ageratina adenophora*).

In terms of expenditure, SFNSW and NPWS spent \$314 625 across the three regions on control. It must be noted that this figure underestimates the actual expenditure, as total regional expenditure by NPWS was unavailable for this period.

SFNSW's expenditure on weed control across the three regions totalled \$193 135. Almost half of the total expenditure was directed towards the LNE region. The most significant infestation of a weed species was of Lantana. SFNSW estimates approximately 162 400 hectares of State forest in the UNE and LNE regions are affected.

Over the past decade, the NPWS pest management strategy has reduced the areas of the national park estate affected by weeds. Work is continuing with ongoing control programs for significant weed species such as Scotch Broom (*Cytisus* spp.) and Bitou Bush in the UNE and LNE regions.

Much of NPWS weed management is aimed at regeneration and habitat restoration. These programs have been conducted in various national parks and nature reserves across the north east regions (UNE and LNE regions):

- Yuraygir, Bundjalung, and Hat Head national parks in the UNE region;
- Broken Head, Tucki Tucki and Wilson nature reserves in the UNE region;
- Tomaree, Booti Booti, Myall Lakes and Wyrabalong national parks in the LNE region;
- Kattang, Cockle Bay, Wambina, and Seaham Swamp nature reserves, and Lake Macquarie and Glenrock State Recreation Areas also in the LNE region.

Willows (*Salix* spp) have largely now been removed along the Genoa River in the South East Forest National Park and from most of the Brogo River catchment in Wadbilliga National Park in the

Eden region. Major programs to complete the removal of Willows in the Wadbilliga National Park will continue over the next two years.

While the NPWS remain focused on preventing the re-establishment of all weeds, species of particular concern within the Eden region are Serrated Tussock (*Nasella trichotoma*), African Lovegrass (*Eragrostis curvula*) (particularly in the Dangelong Nature Reserve) and Sea Spurge.

An important initiative in the management and control of weed species across the State has been the launch of the *NSW Bitou Bush Strategy*. This work identified 25 345 hectares of land within the UNE and LNE regions affected by the weed, with infestations ranging from heavy to light. The most widespread extent of Bitou Bush was identified outside of national parks and State forests.

Feral animals

Feral animals include: cane toads, foxes, feral cats (*Felis catus*), wild dogs (*Canis familiaris*), goats (*Capra hircus*) and rabbits (*Oryctolagus cuniculus*). Control programs and actions involve trapping, baiting and culling. The impact of these animals is not restricted to the public forest estate, so programs and initiatives implemented by SFNSW and NPWS frequently involve community involvement, education and awareness.

Across the three regions, SFNSW and NPWS spent \$561 219 on the control of feral animals during 2000/2001. However, this figure only provides a minimum estimation of the total expenditure across the three regions, as total NPWS expenditure was not available.

Both agencies have focussed on the control of predators such as foxes, feral cats, and in particular the wild dog. Active predator management is in the form of mound baiting for foxes and wild dogs in State forests. There is no method for successful landscape control of feral cats.

Within the UNE region, a public meeting was held to promote the management of feral pigs in the Newrybar Swamp area, which includes Ballina Nature Reserve. A management committee was formed to coordinate a cooperative control program for feral pigs within the local area. This program resulted in the successful removal of feral

pigs from Ballina Nature Reserve and Bundjalung National Park.

Disease

Surveys are carried out by SFNSW to identify the extent of the main diseases, insects, fungus, or 'physical agents', affecting its planted forest estate.

To help manage the impact of physical agents on State forests, regular surveys are conducted on the extent of eight selected agents occurring within plantation areas.

SFNSW surveys on hardwood plantations were carried out on post 1995 plantings for three agents, herbivorous insects, stem borers and soil pathogens.

Results of surveys indicated the extent of these insects decreased by 85%, from 3 910 hectares affected across the UNE and LNE region hardwood plantation in 1999/2000 to 560 hectares in 2000/2001. The extent of stem borers increased by 32% (19 hectares).

To reduce the impact of physical agents on the health and productivity of plantations, SFNSW select species resistant to these agents, and continue to research ways of surveying and treating them.

Results of SFNSW surveys did not identify any soil pathogens as occurring within the survey area within any region during 2000/2001.

Pytophthora cinnamomi (one cause of forest dieback) was not identified on surveyed SFNSW plantation areas. However, SFNSW have previously conducted surveys and experimental sampling in native forests in the Eden region that indicated the fungus was widespread and endemic, but was not a major threat to forest health.

The NPWS has conducted surveys to determine the area and impact of the fungal pathogen *P.cinnamomi* on the NPWS estate in the Eden region. However, the status of the disease in most reserves is difficult to determine without extensive soil sampling, as symptoms in above ground vegetation are not conclusive of the total extent of the pathogen. Targeted sampling of rocky outcrops containing threatened plant species has not

detected the pathogen, although it is assumed to be generally widespread in the region. *P. cinnamomi* is having a clear impact in *Eucalyptus sieberi* forests in the Yowaka and Mount Imlay areas of the Eden region. The susceptibility of some threatened plant species to *P. cinnamomi* in the south-east is being evaluated and controlling the fungus using the chemical phosphite is being trialled.

Eucalypt dieback, usually associated with shrub invasion, and often with bellbird invasion, is extensive on all tenures in all regions. SFNSW is investigating the nature and extent of the problem and developing management strategies to deal with it.

The SFNSW Health Advisory Committee has been established and is functioning as recommended in the Generic Incursion Management Plan.

Preliminary discussions have also been held regarding the development of a feral animal and predator database to store information about the effectiveness of the SFNSW feral animal control program.

In the Eden region, a cooperative research program between NPWS, SFNSW and the CSIRO is being undertaken in the Eden region to monitor the impact of strategic baiting on targeted threatened mammal populations.

FIRE

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

For continuity of reporting all regions are reported here.

Wildfire affected 198 052 hectares of the national park estate and State forest across all regions during 2000/2001. Sixty-six percent of the total area burnt occurred on the national park estate.

Wildfire

A wildfire can be a natural event (e.g. ignited by a lightning strike), or result from deliberate or accidental human activities. However, once ignited, these fires are uncontrolled events which vary in intensity. Damage to the environment, infrastructure and people can be severe and widespread.

Fires of this nature affected 198 052 hectares of the national park estate and State forests across the UNE, LNE and Eden regions during 2000/2001. Of the total area burnt, 66% (131 191 hectares) was within the national park estate. The remaining

34% (66 861 hectares) affected State forests native forest and plantation. In the Eden region, no wildfires affected the national park estate or SFNSW plantations. Only 247 hectares of SFNSW native forest was burnt in the Eden region.

Prescribed Burning

Prescribed burns are planned, purposely lit, and controlled fire events. These types of burns are carried out to reduce fire hazard, protect assets and life, for conservation purposes and as post-log burns.

Fires of this nature were conducted across 37 331 hectares of both national park and State forest in the UNE, LNE and Eden regions during this period. Of the area burnt by prescribed burns, 96% (35 989 hectares) was on State forests. The remaining 4% (1 342.5 hectares) burnt was within the national park estate, carried out primarily for conservation purposes.

The severity of the 2000/2001 fire season has required agencies to focus a significant amount of resources towards fire control. During 2000/2001, SFNSW alone expended over \$3.2 million to fight these fires, and a further \$5 million invested in the prevention of future wildfires and in supporting the health of forests through fire management.

Data provided for this indicator under estimates the total number and area of fires within each region, as there was not a comprehensive system for capturing data outside lands managed by SFNSW or NPWS. Both agencies are working to resolve this shortcoming in reporting.

CRITERION 4 - CONSERVATION AND MAINTENANCE OF SOIL AND WATER RESOURCES

ROADS, CROSSINGS AND SOIL EROSION HAZARD

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 region)

Road density by category and catchment, and stream crossing density by catchment, for the total forest agreement area, including forest and non-forest areas. Calculation of an ecologically sustainable road index and ecologically sustainable crossing index (Eden region)

During 2000/2001, SFNSW assessed 578 107 hectares of native forest and 1 570 kilometres of roads within native forest areas for soil erosion and

soil pollution hazard across the three regions prior to logging activities taking place.

A Strategic Road Network Model Plan is being drafted to provide a framework for region specific management plans for roads and fire trails in each SFNSW management area. To date, 61 plans have been completed and implemented. Refer to the 'Compliance with the Integrated Forestry Operations Approvals' chapter of this report.

Within the UNE and LNE regions, a major desktop and field-based assessment of the current and desired status of roads and trails was undertaken. It covered all roads and trails on lands managed by NPWS, plus those on other tenures for which it has maintenance responsibilities or agreements.

NPWS, at the end of the 2000/2001 reporting period, had upgraded nine facilities and/or sites to improve soil and water quality in the high use areas within national parks and reserves in the Eden region.

Major works have been undertaken including the establishment of a 70 kilometre long perimeter fire trail for the protection of private properties and 68 000 hectares of Guy Fawkes River National Park and wilderness. In Wallingat and Myall Lakes National Parks main access routes have been upgraded at a cost of \$200 000. The work was carried out along Thomas and Sugar Creek roads to ensure 2WD access to Whoota Whoota Lookout, Wallingat River camping area and the Grandis picnic area. Bridges and fire trails in the South East Forest National Park have been constructed and campsite facilities and the car park upgraded within the Mimosa Rocks National Park.

For the national park estate in the Eden region, the NPWS has adopted the Department of Land and Water Conservation's road and bridge maintenance and construction guidelines. Courses on soil and water quality management for the planning and maintenance of roads have been delivered to rangers, field officers and plant operators.

CRITERION 5 - CONTRIBUTION OF FORESTS TO GLOBAL CARBON CYCLES**BIOMASS AND CARBON AND THE GLOBAL CARBON BUDGET**

Total forest ecosystem biomass and carbon pool, and if appropriate, by forest type, age class, and successional stages (UNE, LNE, Eden regions)

SFNSW estimates 621 374 tonnes of carbon are sequestered in softwood plantations and 578 177 tonnes of carbon sequestered in hardwood plantations owned or managed by the agency across the three regions.

Negotiations between SFNSW and the Tokyo Electric Power Company (TEPCO) resulted in an agreement to establish 10 000 to 40 000 hectares of carbon sinks in eastern NSW over the next ten years. TEPCO will finance the plantings and receive the carbon credits. The majority of plantings will be fast-growing Eucalyptus species selected for the commercial production of timber. However, TEPCO has indicated that a small proportion of plantings (about 10%) be grown for biological conservation.

As part of the new partnership, SFNSW established over 2 000 hectares of new plantations as carbon credits in the Hunter Valley during 2000/2001.

As a result of opportunities shown by the negotiations between SFNSW and TEPCO, NPWS completed a project identifying potential reforestation areas on lands it manages throughout NSW (Wall, 2001). A major outcome of the project was that more than 400 individual parcels of previously cleared land, totalling over 9 400 hectares, were verified as suitable for reforestation. This is mostly ex-farmland acquired by NPWS as part of larger blocks of forest.

Plantations on the national park estate will be grown only for their contribution to conservation and carbon dioxide sequestration, and not for future harvest.

SFNSW are developing a full set of carbon accounts for those parts of its existing planted forest estate that are compliant with Article 3.3 of

the Kyoto Protocol to underpin its carbon trading activities.

The SFNSW Forest Research and Development Division, through the Cooperative Research Centre for Greenhouse Accounting, is continuing to research the role of native forests and forest products in the sequestration and storage of atmospheric carbon.

CRITERION 6 - MAINTENANCE AND ENHANCEMENT OF LONG-TERM MULTIPLE SOCIO-ECONOMIC BENEFITS TO MEET THE NEEDS OF SOCIETY

RECREATION AND TOURISM

Number of visits per annum (UNE, LNE, Eden regions)

During 2000/2001, an estimated 7 981 653 visits were made to public forests across the UNE, LNE and Eden regions.

Visits made to State forests in the UNE, LNE and Eden regions during 2000/2001 are estimated at 866 000.

A further 7 115 653 visits are estimated to have been made to national parks in the UNE, LNE and Eden regions.

The number of visits made to national parks and State forests are presently based on estimates only, as there is currently no standard data collection system to record the precise number of visitors to public forest areas. Therefore, these figures are likely to greatly underestimate the actual number of visits made to public forests. One reason for this is because figures are calculated using an average number of persons per vehicle. In situations where buses bring people to a park or forest, the average number of persons per vehicle is largely underestimated.

To improve the accuracy of reporting for this indicator, NPWS and SFNSW are developing better systems to record visitor numbers to each estate. Both database and traffic counters are being trialled to assess their appropriateness for use on the national park estate.

RECREATION AND TOURISM FACILITIES

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

Data was provided for all regions for State forest tenure.

There are 163 recreation facilities located on State forests. The number of facilities available has fallen by 61 since 1999/2000.

By region, 15 of the sites are situated in the UNE region, 132 in the LNE region and 16 in the Eden region.

The number of permits and the area of forest managed for recreation have remained stable or increased in all three regions. Examples of these activities are: orienteering; 4x4 wheel tours; horse trail and bushwalking.

There were 136 permits issued across all regions. This is a 16% increase from 1999/2000. The majority of the permits issued were for ecotourism and 4x4 tours (15 permits in the UNE region and 23 permits in the LNE region) and for outdoor education school and training. In the UNE region 21 permits were issued for these activities, 68 in the LNE region and 21 in the Eden region.

The NPWS are developing appropriate systems and monitoring methodology to be able to report on this indicator for the next reporting period.

EMPLOYMENT

Direct and indirect employment in the forest sector and forest sector employment as a proportion of total employment (UNE, LNE, Eden regions)

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

As at June 2001, SFNSW employment (direct and indirect) totalled 3 490 equivalent fulltime (EFT) employees; NPWS employment (direct only) totalled 448.5 EFT employees across the three regions.

The level of employment derived from forests (including conservation and forestry) is an important measure of the value of these areas to the regional economy in much the same way as tourism. At present data is only available for the NPWS and SFNSW.

In the Eden region, direct and indirect employment by SFNSW increased by 7% since 1999/2000. SFNSW employment figures for the LNE region remained steady.

An accurate yearly comparison of SFNSW employment levels for the UNE region is not available due to an accounting error in 1999/2000.

Employment activities by SFNSW across the three regions included the growing and management of forests, primary processing, harvest and haulage operations, apiary, grazing and ecotourism.

SFNSW primary processing activities remain the largest forest sector of employment. However, this sector experienced a 3% decrease in the LNE region this period, and a 28% increase in the Eden region. Employment within this sector in the Eden region rose from 170 EFT employees in 1999/2000 to 237 in 2000/2001.

In the LNE and Eden regions, the number of individuals employed in industries is directly dependent on the sustained supply of timber from State forests and has remained relatively stable over the last two years. This reflects the ongoing commitment to growing and supporting the timber industry around NSW.

Employment across the UNE, LNE and Eden regions by the NPWS totalled approximately 448.5 direct EFT. Of those employed, 174 EFT employees were in the UNE region, 216 EFT employees in the LNE region, and approximately 58.5 in the Eden region.

It is not possible to isolate forest agreement tasks from the broader range of work undertaken by the NPWS. However, recurrent funding associated with the forest agreements supported 41.4 EFT in UNE region (24% of total) and 61.6 EFT in LNE region (29% of total). Additionally, in the LNE region within the Central Directorate, one ranger position and two field officer positions were created under the funding associated with the forest agreements.

It is estimated that the 58.5 direct positions in the NPWS Eden region support a total of 21 indirect positions in the wider community. The number of indirect positions assumes an employment

multiplier of 1.25 for park management activities. This excludes any employment generated by the outsourcing of capital works and other service contracts.

Where capital works associated with park management are carried out, a much higher employment multiplier (3.5) will be likely to operate. These multipliers are based on regional economic impact assessments carried out for the NPWS for a range of protected areas in NSW.

Limitations in the data presented here in terms of providing an accurate picture of the importance of forests as a basis for employment were, in part, due to the unavailability of information on private forestry enterprises due to its confidential nature. Therefore, data so far provided for this indicator cannot be taken as a measure of employment in the forest sector as a whole.

GROSS INCOME

Gross income index related to forests (Eden region)

No data is available.

Census data provides the most accessible and comprehensive source of information for this indicator. This data is only available every four years. Trends in this measure will therefore be reviewed at this interval.

PLACES OF CULTURAL SIGNIFICANCE

Change in condition and number of recorded places, artefacts, sites, buildings or other structures (UNE, LNE and Eden regions)

There are 10 777 Aboriginal sites recorded across the UNE, LNE and Eden regions; 3 571 sites are situated in public forests (national parks and State forests).

There are 2 092 sites of historic significance situated within the UNE, LNE and Eden regions; 2 092 sites are situated in public forests (national parks and State forests).

During 2000/2001, 90 new Aboriginal sites in State forests were registered.

Data on the number of Aboriginal sites have been taken from the new Aboriginal Heritage Information Management System (AHIMS) which replaced the Aboriginal Sites Register in July 2001.

The data supplied by the NPWS have not been classified by individual site types, as each Aboriginal site may contain multiple site features.

In the AHMIS, for each Aboriginal site it is possible to record multiple site feature values (both relic and Aboriginal interpretation based). A number of significant works were undertaken in relation to Aboriginal cultural heritage relevant to the three regions. An Aboriginal Sites Survey in Myall Lakes National Park within the LNE region identified, recorded and provided management recommendations for sites along the beach dune system in the park. The Bega Traditional Aboriginal Elders Council and Eden Local Aboriginal Land Council conducted Aboriginal Cultural Heritage Surveys on private lands that have recently entered into VCAs in the Eden region. The results helped VCA land holders to manage the cultural heritage on their lands.

Significant works have been carried out in relation to historic heritage within the three regions. One study consisted of research into the background of four lighthouses under the NPWS management that included gathering the oral histories of previous lighthouse keepers. Another study evaluated the importance of the Broughton Island and Tamboy Huts in the Myall Lakes National Park (LNE region) in relation to the long-term establishment of a settlement and the local fishing industry.

NPWS is also redeveloping its Historic Places Register and Section 170 Heritage and Conservation Register. An important part of this redevelopment process will be to identify historic items to be managed to reduce threatening processes.

CRITERION 7 - LEGAL, INSTITUTIONAL AND ECONOMIC FRAMEWORKS

LEGAL FRAMEWORK

Legal, institutional and economic framework for conservation and sustainable management (UNE, LNE, Eden regions)

Key legislation relevant to forest management in NSW includes:

- **Forestry and National Park Estate Act 1998;**
- **National Parks and Wildlife Act 1974;**
- **Forestry Act 1916;**
- **Threatened Species Conservation Act 1995;**
- **Wilderness Act 1997.**

The *Forestry and National Park Estate Act 1998* was passed following the completion of the CRAs. The Act allowed the transfer of lands from State forest and other Crown land to the national park estate or to Aboriginal ownership. It also provides the legislative framework for the making of the forest agreements (Part 3) and IFOAs (Part 4).

Other acts relevant to the management of forested areas include, but are not limited to, the *National Parks and Wildlife Act 1974*, *Wilderness Act 1997* and the *Forestry Act 1916*.

The *National Parks and Wildlife Act 1974* has recently undergone a review to examine ways to increase public participation and cooperative arrangements in the conservation of biodiversity, particularly in protected areas.

Further details on acts and policies relevant to forest management are provided in the *2000/2001 ESFM Criteria and Indicators Annual Report*.

INSTITUTIONAL FRAMEWORK

Extent to which the institutional framework supports the conservation and sustainable management of forests (UNE, LNE, Eden regions)

To build an understanding of ESFM and to establish a management framework to assist the achievement of ESFM, various education, awareness, monitoring and compliance programs are being continually developed by agencies at a regional and statewide level.

NPWS has played a key role in the establishment of the NSW Council for Environmental Education under the *Protection of the Environment Administration Amendment (Environmental Education) Act 1998*, representing the Environment Portfolio.

The NPWS *Discovery* Program focuses on providing community education opportunities for the general public and interest groups, using interpretation techniques to bring natural and cultural heritage themes alive.

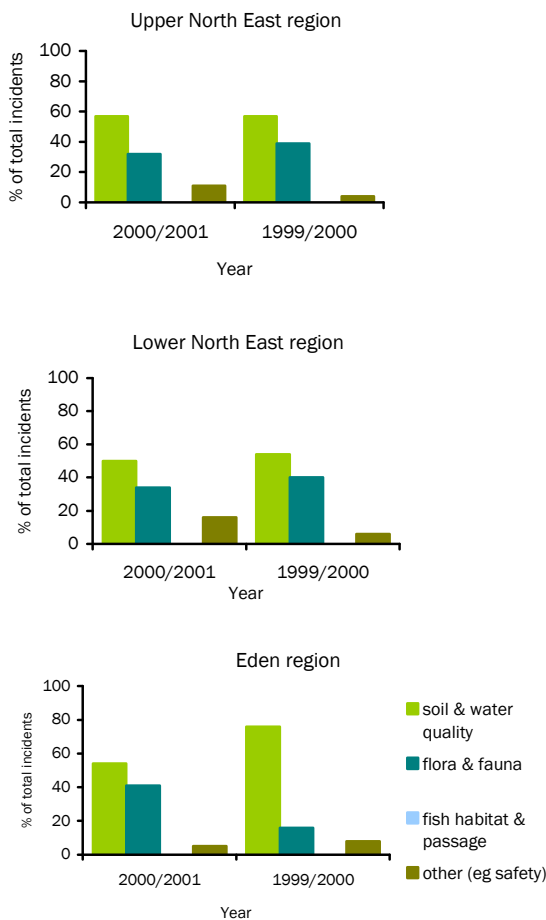
SFNSW also has a range of public education programs and activities relating to forest management. During 2000/2001 \$4.6 million was spent on education programs and activities (SFNSW, 2001).

Management actions to help achieve ESFM include the development of SFNSW's and the NPWS's EMS (discussed in the previous chapter).

All agencies involved in the implementation of ESFM ensure the ongoing training and education of staff to improve their knowledge and understanding. Both NPWS and SFNSW have many training programs for staff.

To ensure compliance with the Threatened Species Licence contained in the IFOA, NPWS recruitment action is underway to appoint three conservation compliance officers, two for the UNE and LNE regions and one for Eden and Southern regions. Auditing of SFNSW's compliance with the Licence will be the sole duty of these positions.

FIGURE 3: SFNSW INTERNAL COMPLIANCE MONITORING 1999/2000 - 2000/2001



Source: SFNSW

To complement these new appointments, NPWS is developing a Threatened Species Licence compliance investigation and auditing program. The principal aim of this program is to provide a statewide coordinated approach to auditing and enforcement of harvesting activities carried out by SFNSW under the Threatened Species Licence. Further details on this program are contained in the 'Compliance with the Integrated Forestry Operations Approval' chapter of this report.

SFNSW has continued its own internal compliance monitoring to ensure compliance with conditions set out in the IFOA. Over 2000/2001, 1 510 compliance check sheets were completed. Each compliance check sheet assessed about 60 IFOA conditions, i.e. approximately 108 000 checks of conditions.

The number of incidents related to soil and water quality and flora and fauna remain the main areas of non-compliance by SFNSW. However, the number of recorded incidents of this nature has decreased across the three regions from 1999/2000. Recorded incidents related to safety and other issues increased overall by 26%. The overall increase in the number of incidents of this nature was due to a significant rise in incidents recorded in the LNE region. (Figure 3).

CAPACITY TO MEASURE AND MONITOR CHANGE

Capacity to measure and monitor changes in the conservation and sustainable management of forests (UNE, LNE, Eden regions)

SFNSW and NPWS are progressively developing more efficient data collection systems that will satisfy the range of monitoring/reporting requirements.

Next year, additional effort will be made in system development for data capture and analysis by SFNSW. Further review of national and international reporting guidelines will be made. This will take ESFM reporting for SFNSW beyond its current framework to one which fully examines the organisation's performance with respect to social, environmental and economic forest values.

This work is complemented by NPWS's own review of various reporting streams.

RESEARCH AND DEVELOPMENT

Capacity to conduct and apply research and development aimed at improving forest management and delivery of forest goods and services (UNE, LNE Eden regions)

NPWS published 52 research papers relevant to forest management and SFNSW published 31 research papers during 2000/2001.

In January 2000 the NSW Government requested all natural resource agencies in NSW to list current research work. NPWS identified 126 NPWS research projects, relevant to sustainable forest management, that were underway at that time. No comprehensive update has been undertaken since that time. However, NPWS has drafted a *Strategic Biodiversity Research Framework* identifying the need for a process of development, approval, review, communication and documentation of research projects.

NPWS staff published 52 papers that were relevant to sustainable forest management during 2000/2001. NPWS continue to support four long-term research projects established before the Eden Regional Forest Agreement, and one new one. In addition, 12 short-term research or mapping projects have been initiated in the Eden region since the Eden Regional Forest Agreement was signed in 1999.

SFNSW's Research and Development Division continues to provide strategic research support and scientific leadership to SFNSW's operational and policy divisions. Currently, 30 scientists/professional officers and 30 technical support staff are employed within SFNSW's Research and Development Division. In the 2000/2001 reporting period approximately \$7.1 million was expended on research and development by the organisation. SFNSW published 31 research papers during 2000/2001.

SFNSW has also established a group to develop a framework and tools for the integration of social, environmental and economic information. Under a five year plan the group will investigate methods to account for a report on the full range of forest values.

COMPLIANCE WITH THE INTEGRATED FORESTRY OPERATIONS APPROVALS

OVERVIEW

An integrated forestry operations approval (IFOA) is granted under Part 4 of the *Forestry and National Park Estate Act 1998*, and regulates the carrying out of certain forestry operations in State forests and other Crown-timber lands. The approvals are granted jointly by the Ministers administering the *Environmental Planning and Assessment Act 1979*, the *Forestry Act 1916*, the *National Parks and Wildlife Act 1974*, the *Protection of the Environment Administration Act 1991*, and the *Fisheries Management Act 1994*.

An IFOA can only be granted to an area covered by a forest agreement. The approvals are in place for a period of 20 years and must be reviewed every five years.

As at 30 June 2001, three IFOAs were in place, covering the UNE, LNE and Eden regions.

Forestry operations conducted by SFNSW must comply with the terms and conditions set out in the approvals. Each approval contains:

- Conditions or 'non-licence terms' (administered by PlanningNSW);
- Threatened Species Licence (administered by the NPWS);
- Fisheries Licence (administered by NSW Fisheries);
- Environment Protection Licence (administered by the EPA).

Although the approvals have been granted jointly by the relevant Ministers under the *Forestry and National Park Estate Act 1998*, the NPWS, EPA and NSW Fisheries retain their enforcement powers. The three licences contained within the IFOAs are there to protect threatened species, soil and water quality and fish habitat values where timber harvesting takes place in State forests.

To ensure compliance with the IFOAs, the NPWS, EPA, and NSW Fisheries carry out regular audits of compliance with the terms of the relevant licences. Compliance with the terms of the non-licence terms of the IFOA is overseen by PlanningNSW.

SFNSW also carries its own internal monitoring and auditing to ensure compliance with the IFOAs. Results of SFNSW's internal monitoring are contained under Criterion 7 in the 'Monitoring of Ecologically Sustainable Forest Management' chapter of this report.

Annual reporting on compliance by SFNSW with the provisions of the approval and attached licences is required by Section 6.9 of the forest agreements for each region.

THREATENED SPECIES LICENCE

The role of NPWS in the licensing of SFNSW's timber harvesting activities is to protect threatened species and their habitats. Under the IFOAs, SFNSW must comply with the terms of the Threatened Species Licence.

PRE-OPERATIONAL PLANNING AND OPERATIONAL COMPLIANCE

The NPWS is developing a program to improve the investigation and auditing components of the Threatened Species Licence. This program provides a coordinated approach across the State to the auditing and enforcement of harvesting activities carried out by SFNSW under the Threatened Species Licence.

The objectives of the program are:

- to ensure compliance by SFNSW with the requirements of the Threatened Species Licence by investigating SFNSW's implementation of the relevant components of the licence;

- to maintain an up to date Threatened Species Licence based on best management practices and to use audit findings to review and improve the effectiveness of the licence;
- to provide specific investigations in response to allegations of non-compliance.

An audit and enforcement program carried out with these objectives will result in continual improvement in SFNSW's environmental management. This strategy is designed to assist both SFNSW and the NPWS to identify problem areas of the Threatened Species Licence and improve operations. The compliance audit process will follow a simple pathway of audit-analysis-action, as shown in Table 5.

TABLE 5: NPWS COMPLIANCE AUDIT PROCESS: AUDIT-ANALYSIS-ACTION

Audit	Desktop and field collection of data and information. This could include, but is not limited to, a desktop audit of the Survey Report and the Harvest Plan, followed by a field audit of specific areas of high risk, during which all relevant information is collected.
Analysis	Using the information gained during the audit, conduct an analysis of compliance to the conditions within the Threatened Species Licence.
Action	Using the outcomes of the analysis to decide what further action is most appropriate. There are a number of actions appropriate here. These include sending warning letters asking for the problem to be solved, issuing infringement notices, and prosecution. Prescriptive guidelines will ensure consistent actions across the state.

In the mean time, the NPWS is continuing to:

- record incidents of non-compliance reported by SFNSW under condition 4.1 of the Threatened Species Licence;
- investigate all reports and allegations of non-compliance and take appropriate action.

During this reporting period, no penalty infringement notices have been issued but some matters have been referred to the NPWS Legal Services Branch for advice on appropriate further action. As reported in 1999/2000, one prosecution

is still before the Casino Local Court in the UNE region.

FISHERIES LICENCE

The Fisheries Licence is issued under Part 4 of the *Fisheries Management Act 1994*. The licence is to ensure forestry operations do not negatively impact on threatened species or aquatic habitat.

Compliance management of the licence falls into three main areas of operation which are detailed below.

REVIEW OF PLANNING DOCUMENTATION

Desktop reviews of harvest planning documentation are carried out routinely as documents are received. These reviews concentrate on providing exclusion zones for specified aquatic habitats and on appropriate road locations. These are necessary to minimise the number of watercourse crossings.

DIGITAL SPECIES DISTRIBUTION DATA

Compliance with planning and on-ground conditions of the Fisheries Licence is dependent on three things:

- provision of detailed digital species distribution data compiled from surveys;
- expert assessment;
- community sightings reports.

Significant progress was made during the reporting period on developing the distribution data for the Eastern Cod (*Maccullochella ikei*), the species most likely to be affected by forestry operations in the UNE and LNE regions. NSW Fisheries is now able to provide the distribution data to SFNSW regularly from this reporting period. This will enable NSW Fisheries to use all appropriate licence protection mechanisms in those regions.

There are currently no threatened fish species likely to be harmed by forestry operations in the Eden region.

RANDOM INSPECTIONS AND RESPONSE TO COMPLAINTS

NSW Fisheries audits the compliance with the Fisheries Licence in conjunction with its other compliance duties. Complaints are investigated when received.

NSW Fisheries is conducting a detailed review of all its compliance operations. This review will explore ways to better target compliance in two areas:

- threatened species and aquatic habitat protection;
- a better compliance system will lead to better monitoring and more effective handling of complaints.

A specific program to train NSW Fisheries compliance officers has been devised. This will lead to more efficient and effective compliance activities relating to the Fisheries Threatened Species Licence.

NSW Fisheries reports there were no known contraventions of the Threatened Species Licence under the *Fisheries Management Act 1994* during 2000/2001.

ENVIRONMENT PROTECTION LICENCE

The EPA's role in the management of SFNSW forestry operations is primarily to protect the aquatic environment from water pollution. The environment protection licence issued to SFNSW under the *Protection of the Environment Operations Act 1997* is the main tool used to achieve this goal. Where SFNSW chooses to seek licence coverage for its forestry operations, it must comply with the site-specific planning and best management practices specified in the licence.

Where SFNSW does not seek licence coverage, its operations are subject to section 120 of the *Protection of the Environment Operations Act 1997*, which prohibits the pollution of waters.

The IFOA for the UNE, LNE and Eden regions contain the terms of environment protection licences under the *Protection of the Environment Operations Act 1997*.

PRE-OPERATIONAL PLANNING AND OPERATIONAL COMPLIANCE

To determine SFNSW's compliance with the conditions of the licences, the EPA audits SFNSW forestry operations. This ensures that SFNSW is taking the required measures to protect the aquatic environment.

Non-compliance with conditions of the licence are dealt with through meetings with senior SFNSW officers, issuing warning letters, clean up notices, penalty notices or prosecution action.

During the period 1 July 2000 and 30 June 2001, the EPA conducted ten comprehensive audits in the three regions covered by an IFOA, assessing the operational and planning requirements of the licences.

During the reporting period, the EPA issued warning letters for issues of non-compliance identified as part of the audit program. The main issues of non-compliance with the licences for each IFOA region are discussed below.

Upper North East Region

In the UNE region, environment protection licence coverage applied to 221 separate SFNSW operations during the period 1 July 2000 to 30 June 2001.

The EPA conducted five audits assessing SFNSW operational and planning requirements under the environment protection licence and detected 12 issues of non-compliance with the operational requirements of the licence.

As a result of these audits, SFNSW was sent warning letters outlining the issues of operational non-compliance identified during each audit. The non-compliance included the management of buffer strips and drainage feature crossings. The EPA also required remedial work in eight locations and requested that the region seek specialist soil conservationist advice in seven locations.

Lower North East Region

In the LNE region, the environment protection licence coverage was applied to 327 separate SFNSW operations during the period 1 July 2000 to 30 June 2001.

The EPA conducted two audits assessing SFNSW operational and planning requirements under the environment protection licence and detected 14 breaches of the operational requirements and two breaches of the planning requirements of the licence.

As a result of these audits, SFNSW was sent a warning letter outlining the issues of operational and planning non-compliance. These included the management of road and snig track drainage.

The issues of non-compliance of the planning requirements of the licence in the region included failure to notify the EPA of a variation to site-specific planning and failure to correctly submit a revised 'summary of operations'.

As a result of the issues of operational non-compliance identified in the region, the EPA required remedial work in five locations.

Eden Region

In the Eden region, environment protection licence coverage applied to 277 separate SFNSW operations during the period 1 July 2000 to 30 June 2001.

The EPA conducted three audits assessing SFNSW operational and planning requirements under the environment protection licence and detected 34 breaches of the operational requirements of the licence.

As a result of these audits, SFNSW was sent warning letters outlining the issues of operational non-compliance, that included the management of drainage feature crossings and road and snig track drainage. The EPA also required remedial work for operational issues of non-compliance in 17 locations.

NON-LICENCE TERMS

In addition to the three licences administered by the NPWS, NSW Fisheries and the EPA, the approval also contains conditions, or 'non-licence terms', under which forestry operations must be carried out.

The non-licence terms contained in each IFOA can be broken into two categories:

- rules;
- undertakings.

RULES

Each IFOA contains a set of 'rules' that must be complied with by SFNSW when carrying out forestry operations. Forestry operations are defined

under Part 1 of the *Forestry and National Park Estate Act 1998* which includes:

- logging operations (cutting and removal of timber);
- removal of forest products;
- ongoing forest management activities, such as thinning, bush fire hazard reduction, grazing and bee-keeping;
- ancillary road construction (roads and fire trails).

SFNSW ensures compliance with these rules by ongoing monitoring and reporting, and implementation of programs and initiatives.

PlanningNSW investigates any complaints received from the public on compliance with the non-licence terms of the approvals. During 2000/2001, one complaint was received which related to silvicultural practice and the interpretation of the relevant IFOA clauses. Following investigation of this complaint by PlanningNSW, SFNSW considered the preparation of 'forest practices circular' on how the rules set out in the IFOA are applied to silvicultural practice in the field.

UNDERTAKINGS

In addition to the rules defined in each IFOA, a series of tasks, or 'undertakings' are required to be completed by SFNSW. These undertakings are similar to the milestones listed in each forest agreement. Undertakings include the preparation of management plans, policies, reporting of aspects of logging operations and staff training.

During 2000/2001 SFNSW continued to progressively develop and implement numerous undertakings required by the IFOAs for the UNE, LNE and Eden regions.

Management Plans

Each IFOA requires the preparation of management plans that set out the general structure and content that is to form the basis for the development of the site-specific plans. Management plans are required to be prepared for:

- fire management;
- grazing;
- weed management;
- feral and introduced animal management;
- road and fire trail management.

Drafts of these management plans were attached to the draft Regional ESFM Plans that were publicly exhibited in September 2000. Further consultation with regulatory agencies has occurred since the public exhibition period to refine the content and structure of the plans. As at 30 June 2001, final approval had not been granted by PlanningNSW for any plans.

Details on progress by SFNSW to meet other requirements associated with these areas of management are discussed below.

Fire management

An annual plan regarding proposed hazard reduction burning operations to be carried out on State forests are required to be prepared for each region. These plans must specify the location and timing of proposed hazard reduction activities. SFNSW has prepared plans covering the 2000/2001 period and were submitted to the District Bushfire Management Committee.

Prior to burning taking place SFNSW must conduct a site-specific assessment of the area of land to be burnt. This assessment takes into account recent fire history (e.g. the area may have recently been burnt out by wildfire) and any potential environmental impacts. This information is used to prepare the 'site-specific burning plans' that detail what measures are to be taken to minimize any adverse impacts of the burning operation.

Grazing on State forests

Grazing is permissible in certain areas of State forest under occupational permits, grazing permits and/or leases. To manage how this activity is conducted, objectives of the management plan include:

- phasing out of all grazing from areas zoned as FMZ 1, FMZ 2 and FMZ 3a;
- reduce 'grass fuel' levels;
- soil erosion control measures.

The draft management plan for grazing on State forests was placed on exhibition in September 2000. The completion of the plan will occur after the current review of grazing occupation permits by the inter-departmental taskforce is complete and following the completion of the FMZ Assessment.

Weed Management

Refinement of the draft management plan attached to the draft Regional ESFM Plans is continuing in consultation with regulatory agencies and NSW Agriculture.

Once the management plan has been completed and approved, SFNSW is to prepare a plan or series of plans that cover the entire region. The plan or plans must cover:

- determination of any impacts of control techniques used on the environment;
- specify weed species to be targeted by control activities;
- detail the practices to be adopted to manage weeds in the region (including type of herbicide to be used, method of application and storage);
- ensure consistency with the *NSW Weeds Management Strategy* (NSW Agriculture, 1998).

Feral and introduced animal management

Further review and refinement is also continuing on the management plan for feral and introduced animal management. As a result no progress has been made on the site-specific plan/s. Discussions are continuing between SFNSW and regulatory agencies.

Road and fire trail management

The management plan for road and fire trail management is to provide a framework for the planning, construction, upgrading, maintenance, closure and rehabilitation of roads and fire trails in State forests. The plan covers both environmental and safety considerations related to road and fire trail management.

The management plan for road and fire trail management has yet to be finalised. SFNSW is continuing to liaise with regulatory agencies to finalise the plan for approval by PlanningNSW.

Aboriginal Involvement and Cultural Heritage

In February 2001 a discussion paper entitled 'Working with Aboriginal Communities to co-operatively manage forests and to initiate Aboriginal Community Development Projects' was prepared in consultation with SFNSW Aboriginal staff, regional offices and the Department of

Aboriginal Affairs. The paper is to contribute to SFNSW's policy on Aboriginal involvement, required under Clause 17 of the IFOA for each region.

Additionally, to ensure cultural heritage values are correctly managed when harvesting activities are being conducted, SFNSW has incorporated a 'cultural heritage' module into its training program, 'Short Course in Forest Harvesting Operations'. This course is available to all supervisors and field workers and was delivered throughout 2000/2001.

Forestry Operations

Under each IFOA, SFNSW is required to provide notice to all regulatory agencies of the location of proposed forestry operations and completion of operations. SFNSW is continuing to provide both an annual plan of logging operations for each region (based on a financial year), monthly notice of the location of harvesting activities and notice of completion.

To simplify the notification process required under Part 3 of the IFOAs, SFNSW is discussing with regulatory agencies to incorporate the five day notification requirement (Clause 23/22) into the monthly report.

To ensure the extraction of forest products (e.g. firewood and seeds) a Plan of Forest Products Operations is required to be prepared by SFNSW. The Plan must specify the types of forest products operations to be carried out and their location. SFNSW has prepared a plan for the period 2000/2001 for all regions.

DEFINITIONS

biodiversity	<p>The variety of life forms, the different plants, animals and micro organisms, the genes they contain and the ecosystems they form.</p>
carbon sequestration	<p>Carbon sequestration in terrestrial ecosystems can be defined as the net removal of carbon dioxide (CO₂) from the atmosphere into long-lived pools of carbon, such that the CO₂ originally in the atmosphere effectively can no longer physically or chemically act as atmospheric CO₂. 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, 2002).</p> <p>The establishment of a CAR reserve system is one of a number of arrangements put in place as a result of the joint State/Commonwealth <i>National Forest Policy Statement</i> (1992).</p> <p>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:</p>
Comprehensive, Adequate and Representative (CAR) reserve system	<p><i>Comprehensive</i>: full range of forest communities recognised by an agreed national scientific classification at appropriate hierarchical levels;</p> <p><i>Adequate</i>: the maintenance of ecological viability and integrity of populations, species and communities;</p> <p><i>Representative</i>: those sample areas of the forest that are selected for inclusion in reserves should reasonably reflect the biotic diversity of the communities.</p>
Comprehensive Regional Assessment (CRA)	<p>Assessments undertaken by New South Wales and Commonwealth government agencies and community stakeholders which looked closely at the impacts of changes to forest use and management on the environment, economy and community. Included an assessment of natural, cultural, social and economic values.</p>
ecological community	<p>An assemblage of species occupying a particular area.</p>
ecologically sustainable forest management (ESFM)	<p>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.</p>
ecosystem	<p>Communities of organisms and their physical environment interacting as a unit.</p>

ecosystem health	The state of an ecosystem's processes (energy, nutrient, hydrological and biological processes) which maintains the vitality of the system.
ecosystem vitality	Is equated to the ability of the ecosystem to perpetuate itself.
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 type	A class in the hierarchy of vegetation classification of forests characterised by the taxonomic and or structural composition of canopy of trees (usually by a dominant species).
habitat	The living space of a species or community, providing a particular set of environmental conditions.
national park estate	Land dedicated as a wilderness area under the <i>Wilderness Act 1987</i> or the <i>National Parks and Wildlife Act 1974</i> or Land reserved or dedicated under the <i>National Parks and Wildlife Act 1974</i> or Land dedicated or set apart as a flora reserve under the <i>Forestry Act 1916</i> , or Land dedicated or reserved for a similar purpose under the <i>Crown Lands Act 1989</i> .
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.
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 members of other species.
State forest	Land dedicated under the <i>Forestry Act 1916</i> .
tenure	Title to land as controlled by legislation.
threatening processes	Processes such as habitat disturbance or destruction or pollution that threaten the survival, abundance or evolutionary development of a species, population or ecological community.

REFERENCES

- Commonwealth of Australia (1998) *A Framework of Regional (Sub-National) Level Criteria and Indicators of Sustainable Forest Management in Australia*, Montreal Process Implementation Group, Commonwealth of Australia.
- Commonwealth of Australia (1992) *National Forest Policy Statement: A New Focus for Australia's Forests*, Commonwealth of Australia.
- Cultural Heritage Working Group (2000a) *Protective Mechanisms for Cultural Heritage - Generic Version*, Commonwealth of Australia and New South Wales Government (A project undertaken as part of the NSW Comprehensive Regional Assessment).
- Cultural Heritage Working Group (2000b) *Protective Mechanisms for Protecting Cultural Heritage - Lower North East Region*, Commonwealth of Australia and New South Wales Government (A project undertaken as part of the NSW Comprehensive Regional Assessment).
- Department of Planning (2003) *2000/2001 ESFM Criteria and Indicators Annual Report*, Resource and Conservation Division, Department of Planning.
- Ecologically Sustainable Forest Management Group (1998) *Criteria and Indicators in the Eden RFA Region*, April 1998, Commonwealth of Australia and New South Wales Government (A project undertaken as part of the NSW Comprehensive Regional Assessment).
- Ecologically Sustainable Forest Management Group (1999) *Criteria, Indicators, Targets and Monitoring Processes of Ecologically Sustainable Forest Management for the Upper North East and Lower North East RFA Regions*, Commonwealth of Australia and New South Wales Government (A project undertaken as part of the NSW Comprehensive Regional Assessment).
- Forestry Commission of NSW (1989) *Research Note 17: Forest Types in NSW*, Forestry Commission of NSW.
- Kinhill Pty Ltd (1999) *Protecting Cultural heritage Values and Places in NSW Forests*, Kinhill Pty Ltd.
- New South Wales Government (2001) *Action for the Environment: New South Wales Government Environment Statement 2001*, New South Wales Government.
- New South Wales Government (1999) *Forest Agreement for the Eden Region*, 5 March 1999, New South Wales Government.
- New South Wales Government (1999) *Forest Agreement for the Lower North East Region*, 5 March 1999, New South Wales Government.
- New South Wales Government (1999) *Forest Agreement for the Upper North East Region*, 5 March 1999, New South Wales Government.
- NSW Agriculture (1998) *NSW Weeds Strategy* NSW Department of Agriculture.
- NSW National Parks and Wildlife Service (2001) *Annual Report 2000/2001*, NSW National Parks and Wildlife Service.
- NSW National Parks and Wildlife Service (1999) *NSW Biodiversity Strategy*, NSW National Parks and Wildlife Service.
- NSW National Parks and Wildlife Service (1998) *Visions for the New Millennium: Report of the Steering Committee to the Minister for the Environment*, November 1998, NSW National Parks and Wildlife Service.

State Forests of New South Wales (2001) *Social Environmental and Economic Report*, State Forests of New South Wales.

State Forests of New South Wales (2001) *The Bush Telegraph* May - July 2001, State Forests of New South Wales.

State Forests of New South Wales (1999) *Managing Our Forests Sustainably: Forest Management Zoning in NSW State Forests*, State Forests of New South Wales.