

NSW FOREST AGREEMENTS AND INTEGRATED FORESTRY
OPERATIONS APPROVALS

NSW Forest Agreements

Implementation Report

Upper North East

Lower North East

Eden

Southern regions

2009-2010



NEW SOUTH WALES GOVERNMENT

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Upper North East
Lower North East
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Southern regions



A report prepared by the Minister for the Environment as part of the implementation of the NSW forest agreements and integrated forestry operations approvals

NEW SOUTH WALES GOVERNMENT

INFORMATION



This report has been coordinated by the Crown Forestry Section of the Office of Environment and Heritage within the Department of Premier and Cabinet.

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Foreword

The Hon. Don Harwin MP
President of Legislative Council
Parliament House
Macquarie Street
Sydney NSW 2000

The Hon. Shelly Hancock MP
Speaker of Legislative Assembly
Parliament House
Macquarie Street
Sydney NSW 2000

Dear Mr Harwin and Ms Hancock,

I have pleasure in presenting to Parliament the eleventh annual implementation report on the NSW forest agreements and integrated forestry operations approvals. There are four NSW forest agreements and four integrated forestry operations approvals in place, which cover the Upper North East, Lower North East, Eden and Southern regions of New South Wales.

In accordance with section 21(1) and 21(2) of the *Forestry and National Park Estate Act 1998*, this report provides progress on the implementation of the NSW forest agreements and integrated forestry operations approvals for 2009 to 2010.

Progress is reported by the:

- achievement of milestones defined in each of the four NSW forest agreements
- results of monitoring of ecologically sustainable forest management criteria and indicators
- compliance with integrated forestry operations approvals for each region.

The report demonstrates continuous improvement in the management of the New South Wales public forest estate and progress towards ecologically sustainable forest management.

Robyn Parker MP
Minister for the Environment

Overview

This is the eleventh annual report on the implementation of the NSW forest agreements and integrated forestry operations approvals (IFOAs), prepared under section 21 of the *Forestry and National Park Estate Act 1998*.

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

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

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

Implementation of the agreements and approvals is a cooperative undertaking between: the Parks and Wildlife Group (PWG); the Environment Protection and Regulation Group (EPRG) and the Climate Change, Policy & Programs Group (CCPP) of the Department of Environment, Climate Change and Water (DECCW); and Forests NSW and Compliance and Regional Relations (Division of Fisheries) of the Department of Primary Industries. This report gives details of the activities related to implementation of the NSW forest agreements and IFOAs for the UNE, LNE, Eden and Southern regions during 2009–2010.

This report incorporates extensive work from a draft 2010 review report, *Review of New South Wales Forest Agreements and Integrated Forestry Operations Approvals: Upper North East, Lower North East, Eden and Southern regions*. The 2010 review report focusing on NSW Forest Agreements and IFOAs contains extensive detail on milestone progress for all forest agreement areas and information on ESFM criteria and indicator reviews¹. To avoid duplication, this annual report has been streamlined to link with the review report when possible. Specifically, in previous annual reports, discussions of milestones and milestone progress have been provided in Appendix 1; however, while this annual report makes reference to these milestones in Chapter 1, the discussion in its entirety is now provided in the draft 2010 review report. For further information, the *Review of New South Wales Forest Agreements and Integrated Forestry Operations Approvals: Upper North East, Lower North East, Eden and Southern regions* can be found at www.environment.nsw.gov.au/forestagreements/reviews.htm.

¹ DECCW (2010) *Review Report on the NSW Forest Agreements and Integrated Forestry Operations Approvals*.

What is reported

This report provides information about progress on the implementation of the NSW forest agreements and integrated forestry operations approvals (IFOAs) for the 2009 to 2010 financial year.

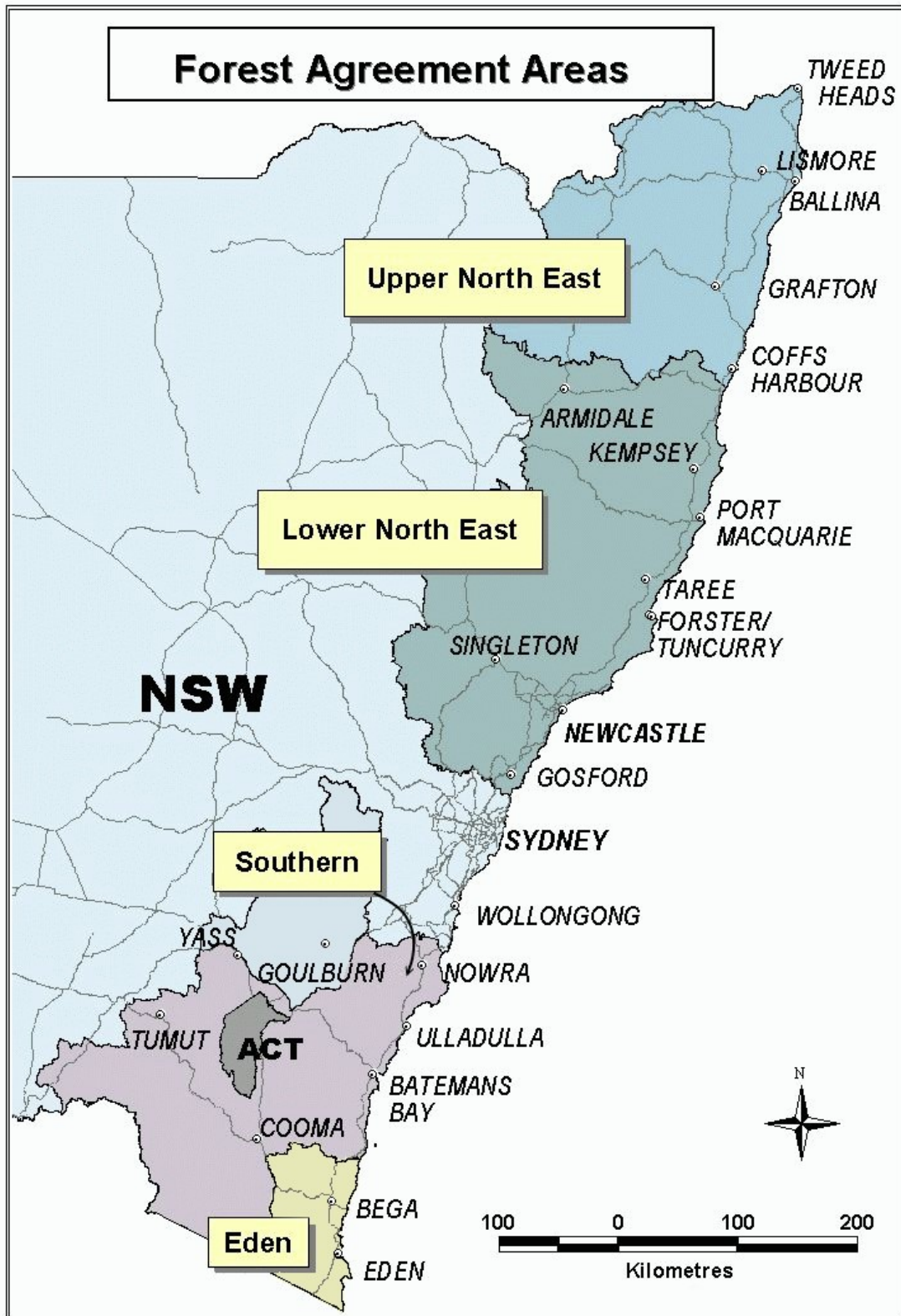
Chapter 1 summarises recommendations of progress of milestones from the draft review report.

Chapter 2 summarises the results of monitoring of the Ecologically Sustainable Forest Management (ESFM) criteria and indicators. The data have been aligned to criteria only this year as consideration of final ESFM Indicators is ongoing at this stage.

Chapter 3 outlines compliance with integrated forestry operations approvals for each region.

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Map 1A: NSW forest agreement regions showing Upper North East, Lower North East, Southern and Eden.

* The sub-region of Goulburn in the Southern region is not included in the reporting.

1 Achievement of the ‘milestones’, defined in each NSW forest agreement

This chapter summarises the proposed findings in relation to milestone progress as presented in the *Review of New South Wales Forest Agreements and Integrated Forestry Operations Approvals, Upper North East, Lower North East, Eden and Southern regions*². This annual report does not provide specific detail on the progress of individual forest agreement milestones, the reader should refer to the draft review report for further detail on specific forest agreement milestones. Within the draft review report, progress has been reported using one of three descriptors shown in Table 1.1 below.

Table 1.1: Descriptors of progress for forest agreement milestones

Descriptor	Meaning
Complete	Where a process/system or document has been completed. This will no longer be discussed in future reviews or annual reporting.
Not applicable	Where a process or document has been determined to be no longer required or is being delivered through an alternative mechanism. Reasons why milestones have been determined as such are explained in each case. These milestones will no longer be discussed in future reviews or annual reporting.
Ongoing	This relates to processes or documents that have commenced but are yet to be completed. This descriptor may also be applied to requirements that are to be produced on an annual or ongoing basis. Further progress on these milestones will be discussed in future reviews or annual reporting.

The draft review report has recommended that out of 115 key milestones required to be completed, 77 of these (or 67%) are either complete (60 milestones) or successfully delivered through alternative mechanisms (17 milestones).

The remaining 38 milestones (33%) are deemed to be ongoing. Many of these relate to processes or documents that are produced on an annual or systematic basis. They include: completion of management plans for areas dedicated under the *National Park and Wildlife Act 1974* (NPW Act); working plans for flora reserves which are being progressively incorporated into ESFM plans by FNSW; and identification of private land of conservation priority.

Some of the ongoing milestones relate to processes that have progressed but are not completed. They include: review of CERRA (Central Eastern Rainforest Reserves of Australia) World Heritage Areas to identify any additional rainforest to be included; studies of the dedicated reserve system to identify World Heritage values, including eucalypt dominant vegetation and religious beliefs embedded in the landscape; and monitoring timber supply through better modelling and comparison of actual versus predicted volumes. Only ongoing milestones will continue to be reported in future annual reports. Completed milestones and those no longer applicable will no longer need to be reported in future annual reports.

² The report can be found at: www.environment.nsw.gov.au/forestagreements/reviews.htm

2 Ecologically sustainable forest management – achievements and outcomes

INTRODUCTION

The monitoring of indicators is an integral component of ESFM. ESFM criteria and indicators were established to track changes in key social, economic and environmental values over time.

ESFM is defined in the NSW Forest Agreements as the guiding philosophy of forest conservation and management, and is based on the recognition that forests hold social, economic and environmental values in society. ESFM is founded on a framework that sets out performance indicators that reflect these key values.

Information against ESFM criteria and indicators has been regularly monitored in annual implementation reports for the NSW Forest Agreements and Integrated Forestry Operations Approvals.

REVIEW OF ESFM CRITERIA AND INDICATORS

The NSW Forest Agreements require current review of the ESFM criteria and indicators 'to ensure they are practical, measurable, cost effective and capable of being implemented at the regional level'.

From 2005, the Australian Montreal Implementation Group (MIG), which includes representatives from the State and Commonwealth Governments, as well as other jurisdictions, worked extensively to assess whether existing national Montreal Process criteria and indicators could be refined. Further information on the National MIG criteria and indicators can be found at: <http://adl.brs.gov.au/forestsaustralia/framework/indicator.html>.

Since the inception of ESFM criteria and indicators, a number of other state-based monitoring and reporting mechanisms have been developed. The review of ESFM criteria and indicators led to proposals such as aligning reporting timeframes with other natural resource management programs and associated reporting, such as those required under the NSW State Plan, the NSW State of Environment Report, the State of the Parks Report, and the Forests NSW seeing report. As a result, final recommendations from the draft report suggest that ESFM reporting should be extended to a five-yearly timeframe to accommodate the above-mentioned recommendations. This change will allow ESFM analysis and reporting to incorporate the other natural resource management programs and reports, and the wealth of information they present, as well as allow for forest changes over time to be reported on more meaningfully.

Review findings also recommend using a separate report to more directly and specifically address ESFM criteria and indicators. As a result, a report entitled *ESFM Criteria and Indicators for the Upper North East, Lower North East, Southern and Eden regions of NSW* will be produced that will encompass the above considerations and be available as a separate report.

This separate report will specify the revised ESFM criteria and indicators that are to be monitored and reported on across NSW Forest Agreement regions in the future. The report will also include information on the rationale, potential data sources and potential interpretation of data for each ESFM indicator.

AGENCY DATA

DECCW

The data presented in this section of the report by the Parks and Wildlife Group (PWG) of the Department of Environment, Climate Change and Water (DECCW) are for all parks within the Forest Agreement (FA) regions. The term 'park' is used in this report to refer to all areas of national park (NP), nature reserve (NR), State conservation area (SCA), regional park (RP), Aboriginal area, historic site and karst conservation reserve (KCR) managed by the PWG of DECCW.

In 2004 and 2007, the State of the Parks (SoP) survey provided extra information on some indicators. As the SoP survey is only run every third year, this level of information cannot be reported annually. There was no survey in 2008–2009 and, as a result, the level of information provided for some indicators may differ from the previous year's report. The next survey was in September/October 2010 and, after it is audited in 2011, will provide information for future reports.

Industry and Investment NSW (Forests NSW)

Data from within the Industry and Investment NSW (I&I NSW) have mainly been provided through Forests NSW. Forests NSW data have consisted of information sourced from corporate reports (such as the Forests NSW annual report) as well as a number of Forests NSW databases (such as the Social, Economic and Environmental database). Forests NSW SEEing reporting was incorporated into the Forests NSW Annual Report for the first time in this 2008–2009 report. Where possible, information has been provided by FA region; however, the majority of Forests NSW databases have been designed to provide reports on Forests NSW regional (operational) boundaries. Information has also been sourced from the Plantations Assessment Unit with I&I NSW.

Section 1: Biodiversity

Native vegetation clearing

The annual NSW Annual Report on Native Vegetation is DECCW's comprehensive summary of actions by private and public land managers to conserve and manage native vegetation. The annual report card combines three components: the Native Vegetation Report Card, the Woody Vegetation Change Report and the Compliance and Enforcement Report Card.

During 2009–10, more than 456 000 hectares (ha) of native vegetation were conserved or improved across NSW. Around 1 900 ha were approved to be cleared where environmental values were maintained or improved through mechanisms such as the use of offsets.

Changes in woody vegetation across NSW are identified by a comparison of satellite imagery. The Woody Vegetation Change Report shows a total reduction in the area of woody vegetation in NSW from 2008 to 2009 of 64 000 ha (or 0.08% of the area of the state). Changes occurred as a result of fire, cropping, and thinning or clearing for pasture, forestry, and rural and major infrastructure.

The Compliance and Enforcement Report Card shows that 533 reports of clearing were received by DECCW in 2009, all of which were assessed to determine an appropriate regulatory response. Many were identified as being lawful activities, such as routine agricultural management or clearing regrowth. During 2009, DECCW commenced 11 prosecutions under native vegetation legislation and eight convictions resulted.

Additions to the DECCW estate

New gazettals across all regions in 2009–2010 led to increases in the area of forest ecosystems. There were increases in area (hectares) of old-growth-stage categories within the DECCW estate for the FA areas in 2009–2010 (Table 2.1A) and increases in the area (ha) of growth-stage categories within the DECCW estate for Forest Agreement (FA) areas in 2009–2010 (Table 2.1B).

Additions to the Southern FA area in the reporting period amounted to 632.6 ha. These include 611 ha added to Monga NP, 17 ha added to Barren Grounds Nature Reserve (NR), 4 ha added to Jervis Bay NP and 0.4 ha added to Monga SCA. Of these additions, 107 ha are categorised as candidate old growth forest (Monga NP and Barren Grounds NR) and 216 ha as disturbed old growth forest (Monga NP and Jervis Bay NP).

Total additions for the reporting period in Eden FA area are 161 hectares added to South East Forest NP. While none of this addition contained mapped old growth, they do consolidate an important corridor north of Nungatta Station and adjacent to the long-footed potoroo (*Potorus longipes*) special protection zone.

Additions in the reporting period in Upper North East FA area are 2 297 ha. These include 1 515 ha added to Guy Fawkes River NP, 340 ha added to Nymboi-Binderay NP, 243 ha added to Yarrungully SCA, 69 ha added to Torrington SCA, 51 ha added to Cumbebin Swamp NR, 38 ha added to Broadwater NP, 19 ha added to Yuraygir NP, 14 ha added to Arakwal NP, and 8 ha added to Broken Head NR. Of these additions 1 662 ha are mapped as candidate old growth forest in Guy Fawkes River NP, Nymboi-Binderay NP and Torrington SCA.

Total additions for the reporting period in Lower North East FA area amount to 6 107 ha. These include 3 742 ha added to Curracabundi NP, 896 ha for the newly created Clybucca AA, 636 ha for the newly created Gaagal Wanggaan (South Beach) NP, 534 ha to the newly created Goolawah NP, 64 ha added to New England NP, and 57 ha to create Goolawah RP. It also includes 49 ha added to Crowdy Bay NP, 45 ha added to Cathedral Rock NP, 28 ha added to Barakee NP, 27 ha added to Cockle Bay NR, 21 ha added to Yarrhapinni Wetlands NP, 5 ha added to Myall Lakes NP and 3 ha added to Boondelbah NR. Of these additions, 275 ha were mapped as Rainforest in Curracabundi NP and they also include important habitat for the spotted-tailed quoll. The newly created Clybucca Aboriginal Area (AA) and additions to Yarrhapinni Wetlands NP add important areas of estuarine wetlands to the coastal reserve system.

These new protected forest areas are important because a number of threatened species, endangered populations and endangered ecological communities are known to exist in these parks.

In the Southern FA area the spotted-tailed quoll (*Dasyurus maculatus*) has been recorded in the Monga NP addition. Habitat for a number of other threatened species is added such as olive whistler (*Pachycephala olivacea*), pink robin (Monga NP and Barren Grounds NR) and eastern bristlebird (Jervis Bay NP). In UNE and LNE the newly reserved Goolawah NP and Goolawah RP contains two threatened flora species, the vulnerable Austral toadflax (*Thesium australe*) and the endangered sand spurge (*Chamaesyce psammogeton*) as well as two ROTAP species, narrow-leaved milk vine (*Marsdenia fraseri*) and large-flowered milk vine (*Marsdenia liisae*).

The new reserves are also known habitat for threatened fauna species such as wallum froglet (*Crinia tinnula*), wompoo fruit-dove (*Ptilinopus magnificus*), rose-crowned fruit-dove (*Ptilinopus regina*), osprey (*Pandion haliaetus*), sooty oystercatcher (*Haematopus fuliginosus*), Comb-crested Jacana (*Irediparra gallinacea*), glossy black cockatoo (*Calyptorhynchus lathami*), koala (*Phascolarctos cinereus*), grey-headed flying-fox (*Pteropus poliocephalus*), common blossom bat (*Syconycteris australis*), little bent-wing bat (*Miniopterus australis*), eastern bent-wing bat (*Miniopterus schreibersii oceanensis*) and eastern long-eared bat (*Nyctophilus bifax*), all of which are vulnerable under the TSC Act and have been recorded on site. The endangered black-necked stork (*Ephippiorhynchus asiaticus*) has been recorded in the addition to Clybucca AA.

Table 2.1A – Change in area (ha) of old-growth-stage categories within the DECCW estate FA areas 2009–2010

Eucalypt forest old growth stage	Total change since last reporting period (ha)			
	UNE region	LNE region	Eden region	Southern South Coast sub-region
Candidate old growth forest (COG)*	+1,662	+36	0	+107
Disturbed old growth forest (DOG)	+188	0	0	+216
Total old growth stage forest	+1,850	+36	0	+323

* Includes any HCVOG

Source: PWG of DECCW

Table 2.1B – Change in area (ha) of growth stage categories within the DECCW estate FA areas 2009–2010

Eucalypt forest growth stage	Total change since last reporting period (ha)			
	UNE region	LNE region	Eden region	Southern South Coast sub-region
Rainforest	+36	+281	0	+10
Mature forest	+23	+28	+21	+75
Disturbed mature forest	+206	+0	0	+120
Young forest	+1	+8	+58	+93
Recently disturbed forest	+1	+1	+40	0
Not growth staged	+181	+5,753	+42	0
Total change in area of eucalyptus forest growth stage categories	+2,297	+6,107	+161	+298

Source: PWG of DECCW

Maintaining the range of growth stages in State forests

State forests, including timber production areas, contain a mosaic of disturbance and regeneration that provide a range of successional stages. A variety of successional stages can provide for ecological niches and diversity.

Forested corridors, which remain undisturbed, are retained through State forest linking successional growth stages and elements of the CAR reserve system. Permanently forested areas across State forests and the CAR reserve system cover a wide range of altitudinal and geographic variation that serve to assist in the amelioration of possible impacts of climate change. During 2009–10, Forests NSW continued to implement silvicultural prescriptions and harvest exclusion prescriptions, which maintain the full range of successional stages. This is illustrated through the FRAMES modelling, which shows wood flow estimates for up to hundred years into the future. Regional yield estimates are published in *Review of yield estimates for native forest regions*, which is available online at: www.dpi.nsw.gov.au/_data/assets/pdf_file/0004/369850/Forests-NSW-yield-estimates-for-native-forest-regions.pdf

Listings under the Threatened Species Conservation Act 1995.

In 2009–2010, the DECCW NSW Scientific Committee (The Committee) made 34 determinations under the *Threatened Species Conservation Act 1995* relating to threatened species, endangered populations and endangered ecology communities in the FA areas.

There were four new endangered ecological community determinations listed in Part 3 of Schedule 1 of the Act. Part 2 of the Act lists Endangered Ecological Communities. In the LNE they were the Hunter

Floodplain Red Gum Woodland and the Central Hunter Ironbark–Spotted Gum–Grey Box Forest. In the UNE they were the Hunter Valley Vine Thicket, and Grey Box–Grey Gum Wet Sclerophyll Forest.

The committee made determinations for 11 new listings of threatened species and endangered populations in the FA areas. Six of these were vertebrate fauna that were listed as vulnerable species in Part 1 of Schedule 2 of the Act. Examples include the flame robin *Petroica phoenicea* (Gould 1837), which breeds in upland moist eucalypt forests and woodlands, often on ridges and slopes, in areas of open understorey in all FA areas; and the white-fronted chat *Epthianura albifrons* (Jardine & Selby 1828), which is found in the Southern and Eden FA Areas. Five of the new determinations were flora species, of which three were listed as vulnerable species in Part 1 of Schedule 2 of the Act, one as an endangered species in Part 1 of Schedule 1 of the Act, and one as a critically endangered species in Part 1 of Schedule 1A of the Act. An example is the sub-shrub *Tephrosia filipes* Benth, which was listed as a vulnerable species and is found between Guy Fawkes River National Park in the south to Gilgurry State Forest in the north.

The Committee reclassified 19 threatened species and endangered populations in FA areas in the reporting period. Of these, eight were vertebrate fauna that were listed as critically endangered species in Part 1 of Schedule 1A of the Act. An example is the black-breasted button-quail *Turnix melanogaster* (Gould, 1837) of which two sub-populations can be found in NSW in the UNE FA area (western Border Ranges area and in the Tweed Range/Mt Warning/Nightcap Range). Eleven of the reclassifications were flora, of which two were listed as endangered species in Part 1 of Schedule 1 of the Act and nine were critically endangered species in Part 1 of Schedule 1A of the Act. An example is the mallee *Eucalyptus imlayensis* (Crisp & Brooker), which was relisted as a critically endangered species and is found in the Eden FA area.

Initiatives to improve forest connectivity

The Great Eastern Ranges Initiative (GERI) is bringing together people and organisations to focus efforts on establishing a conservation corridor along the 1 200 km New South Wales section of the Great Eastern Ranges. GERI is improving the connectivity of the forests and woodlands that extend along the ranges in NSW through voluntary conservation programs on private and public lands.

The project began in July 2007 with \$7m in funding from the NSW Environmental Trust. In three years, it has created widespread regional community awareness of the Great Eastern Ranges vision. It has also helped align the efforts of the main delivery partners and the collaborative activities of over 100 organisations so as to achieve the vision for establishing a conservation corridor along the NSW section of the great eastern ranges. Partners include landholders, catchment management authorities, local councils, conservation groups, industry groups, state agencies and researchers. Priority areas operating in NSW are Border Ranges, Hunter Valley, Southern Highlands, Kosciusko to Coast, and Slopes to Summit (Albury region). Connectivity of habitats is an important factor in biodiversity conservation, and is particularly critical in light of the projected impacts of climate change on many habitats.

Signing a memorandum of understanding (MoU) between the leading partners in May 2010 was an important step in this work progressing. The leading partners along with DECCW are Greening Australia, OzGreen, the NSW Nature Conservation Trust and the National Parks Association (NSW).

This MoU has enabled a transition to new leadership and governance arrangements. The Great Eastern Ranges Initiative began with a small team within DECCW and seed funding from the Environmental Trust. The program quickly forged strong partnerships with a wide variety of organisations. The commitment that the leading partners have made in taking over long-term leadership and governance is an important next step.

GERI Highlights in 2009–10 included:

- the launch in November 2009 of a new partnership website (see www.greateasterranges.org.au/), including video and interactive functionality
- key research into spatial analysis and developing tools for adaptive conservation planning and management of climate change impacts
- delivery of an integrated mix of conservation agreements, wildlife refuges, conservation covenants, paddock restoration incentives and property vegetation plans on private lands in targeted conservation areas
- the first National Linking Landscapes Summit, including a keynote address by Harvey Locke, founder of the North American Yellowstone to Yukon Initiative
- the 'Connect Kids' DVD on Aboriginal culture and connection to Country, for use in NSW schools
- achieving \$13.65 million of co-investment from partner organisations and landholders, from initial Environmental Trust seed funding of \$3.25 million
- delivery of a multi-media interpretative display for use in national park visitor centres.

Highlights involving National Parks during 2009–2010 include:

- The Hunter Valley GER Partnership involves more than 40 organisations working in partnership with NPWS to link Manobalai Nature Reserve with Wollemi and Goulburn River National Parks to the south, and Towarri National Park and Burning Mountain Nature Reserve to the north. Manobalai Nature Reserve is located near the junction of five bioregions; the reserve is rich in species found at the edge of their range. Its strategic location makes Manobalai a vital link for a number of forest species that move across the valley following the ridgelines at the head of the valley.
- Partners in the Border Ranges have agreed to work in 20 high priority locations. Guided by the Border Ranges Rainforest Biodiversity Management Plan, partners are working together to link protected areas using a combination of vegetation management incentives (delivered by Northern Rivers CMA), in perpetuity covenant agreements (Nature Conservation Trust), weed and pest management (EnVITE), and raising landholder awareness. The Nature Conservation Trust has, since 2008, negotiated nine in perpetuity covenant agreements adding 200 ha of vital habitat to the network of linked protected habitat in the region.

Since late 2009, PWG has helped to facilitate partnership projects targeting five key habitat linkages in the area (map attached). In the Holydean district, Hunter Central Rivers CMA has

negotiated six agreements with landholders for works that strengthen the physical connectedness of Manobalai Nature Reserve to Wollemi National Park. In addition, 12 'in-perpetuity' conservation agreements are nearing completion, and protect over 880 ha of high quality native vegetation near to the reserve.

Forest dwelling species – monitoring and survey

DECCW Estate

Forest dwelling species are the subject of monitoring programs that operate at a range of spatial scales across the reserve network. Some of this work, such as Species Management Plans under the IFOAs, Threatened Species Recovery Programs and monitoring that is part of the Fox Threat Abatement Plan (TAP), takes place as part of cross-tenure initiatives aimed at threatened species conservation.

Elsewhere in forest habitat, monitoring is taking place, for example, to track the response of threatened flora to bushfire; to measure the impact of Key Threatening Processes (e.g. eucalypt dieback associated with overabundant psyllids and bell miners); to address requirements of NSW Priorities Action Statements (PAS); and to evaluate the effectiveness of local management actions, such as weed control.

DECCW case study

LNE region – Small mammal survey Richmond Gap, Border Ranges National Park

In May 2010, the tenth annual small mammal survey in the Border Ranges NP identified four Hastings River mice (*Pseudomys oralis*). The study confirmed the persistence of a breeding population of the Hastings River mouse in the Richmond Gap area. The survey again confirmed the area supported a large and diverse small mammal fauna with seven species recorded during the trapping program. This is consistent with previous surveys. Overall, there were 108 captures of 78 individuals from a total of 900 trap-nights. This compares with 130 captures of 62 individuals in 2001 and 213 captures of 171 individuals in 2003. It is hoped this data will contribute to the long-term monitoring of these small mammal populations and help in developing detailed fire and vegetation management strategies for the area. These data confirm the Richmond Gap area as a significant location for the conservation of the Hastings River mouse.

DECCW case study

Eden – Monitoring the smoky mouse, Nullica State Forest and South East Forest National Park

The Eden IFOA contains a requirement to develop a species management plan (SMP) for the endangered smoky mouse (*Pseudomys fumeus*). The overall objective of the smoky mouse SMP is to provide a framework to manage the smoky mouse and its known habitat in Nullica State Forests within the Eden IFOA Region that complements the management of the species across other public land tenures and will maintain and improve its conservation status within south-eastern NSW.

The smoky mouse is monitored within Nullica State Forest and the adjoining South East Forest National Park. A central component of the joint plan is to monitor smoky mouse presence and persistence at individual sites across tenure.

Central to the SMP is joint FNSW and DECC tenure protection of the Nullica population of smoky mice. The 2006 exclusion zones in FNSW tenure will be maintained into the foreseeable future to complement the nearby reserve system. The Eden IFOA will be modified to reflect the requirements of this SMP on State forest tenure.

State forest estate

Forests NSW has not made significant changes to the processes and systems in place to protect biodiversity in State forests during 2009–10. That is, threatened species surveys are required under current terms of licensing under the *Threatened Species Conservation Act 1995*³. If threatened species are detected during surveys, Forests NSW applies protective measures (as for the conditions of the IFOAs).

Current Forests NSW processes and systems to protect biodiversity

In accordance with the IFOAs, Forests NSW assesses existing forest-dwelling threatened species data before commencement of forest harvest operations to identify whether or not additional surveys are needed to meet licensing requirements.

Forests NSW maintains a spatial information database to help with this. The database is centred on an extensive geographic information system (GIS) to collect, process, store, analyse and report forest information for the use of forest managers in their planning. Forests NSW GIS libraries contain a suite of baseline information (such as cadastre, mapping context, topography, the environment, forest disturbances and forest management). The GIS is linked to a database containing information on flora and fauna survey and species detection location.

Other databases linked to the GIS, which can be given a spatial representation, include timber inventory, Aboriginal cultural heritage sites (under the custody of an Aboriginal officer) and non-Aboriginal cultural heritage items.

³ Threatened Species Licence contained in the IFOA for each region.

Where the current information is inadequate, additional pre-operational flora, fauna, soil, water, aquatic habitat and heritage surveys may be required. All additional data collected are regularly incorporated into Forests NSW databases. This allows strategic and operational planning to be based on the most up-to-date information base.

This information is then used to prepare all operational plans, such as harvesting, roading and fire management, which provide clear guidance to staff and contractors to maintain biodiversity values.

Forests NSW case study – Monitoring biodiversity at a landscape level

In State forests, pre-operational flora and fauna surveys are made to meet IFOA licence conditions. The primary outcome of these surveys is typically the setting of harvesting exclusion zones or modifying harvesting prescriptions to minimise impacts on threatened species or habitats. These surveys are focused on individuals of selected threatened species (under the *Threatened Species Conservation Act 1995*) in proposed harvest areas and the results of surveys are reported on in the Forests NSW Annual Report 2009–10. Table 2-1C shows the number of sightings of threatened and vulnerable species within the Forests NSW native forest operational regions.

Table 2.1C Sightings of Threatened Species by Forests NSW

	Forests NSW regions		
	Central region	North East region	Southern region
Fauna			
Arboreal mammals	560	525	418
Bats	224	683	179
Frogs	582	979	269
Ground mammals	220	780	604
Non-raptor birds	4 585	1 266	768
Raptors	2		12
Reptiles	72	33	2
Flora	81	10 200	2 715

It is recognised this method of collecting information on flora and fauna species does not provide the capacity to monitor population changes across the landscape or to investigate the role of forest management in any changes observed. Hence, regional species monitoring programs that include repeated measures of biodiversity at the same locations are required to report on the changes occurring and, potentially, to inform management about appropriate responses. Targeted research is a necessary adjunct to monitoring when the reasons for species declines are uncertain.

In 2003, Forests NSW Western Region implemented a wildlife monitoring model consisting of a blend of 'Threatened' species surveys, targeted research and, importantly, 81 two-hectare permanent plots located in harvestable forest types. Monitoring these plots was much less expensive than previous methods used and generated thousands of records covering a wide variety species.

(Continued)

During 2009–10, Industry & Investment NSW began the trial program of monitoring plots in forests of the LNE region. The objective is to determine the ideal sampling effort for a landscape monitoring program involving multiple species of plants and animals. Sampling to date comprises surveys for vascular plants, diurnal birds and microchiropteran bats. The goal of this monitoring strategy is to measure species population increase/decreases over time across a forestry-affected landscape.

The monitoring program will collect empirical data to serve as a baseline for ongoing assessments of species populations. Biodiversity data will be analysed as it comes in and, in cooperation with others, sound reporting frameworks will be developed. Strong feedback loops to managers will be established so that appropriate management changes, such as tailoring exclusion zones, can be made and so management continues to respond to environmental needs.

Forests NSW case study – Microchiropteran survey ¹

Small bats (microchiropteran) are a diverse and threatened component of forest fauna. Forest NSW's surveys use bat detectors to record their ultrasonic echolocation calls as they fly and go about their nightly business.

The success of bat call surveys depends on the ability of surveyors to detect and recognise all target species resident in the study area. The automation of bat call identification is an essential development in the efficiency of this survey method and should ultimately improve the ability to distinguish between species and increase the speed of call identification.

Research published during the year by the Forest Science Centre, Industry & Investment NSW, describes bat call identification keys to link with new software to automate this process. The system will help Forests NSW save time and money in proposed biodiversity monitoring.

Just as people who live in different regions such as Sydney and Melbourne have different speech patterns, so to do bats living in the forests along the east coast of New South Wales. This regional difference in dialects was just one aspect taken into consideration in developing a system to better identify bat calls in NSW.

New technology, like memory cards, now allows thousands of calls to be recorded in a survey. In the past individual displays of each call have been compared with known call patterns to help identify the species, making identification extremely time consuming and subjective.

The new research used a reference library of more than 4 000 bat calls and AnaScheme, a software program devised to develop identification keys for bat calls in different parts of NSW. The software relies on field recordings of bat calls made using a bat detector. The recorder can be left in the field for long periods automatically recording echolocation calls of bats as they fly by.

Automating the identification process will save time and money during the field surveys, increase the accuracy rate and make long-term monitoring of forest bats cost-effective.

Section 2: Maintaining productive capacity of forests

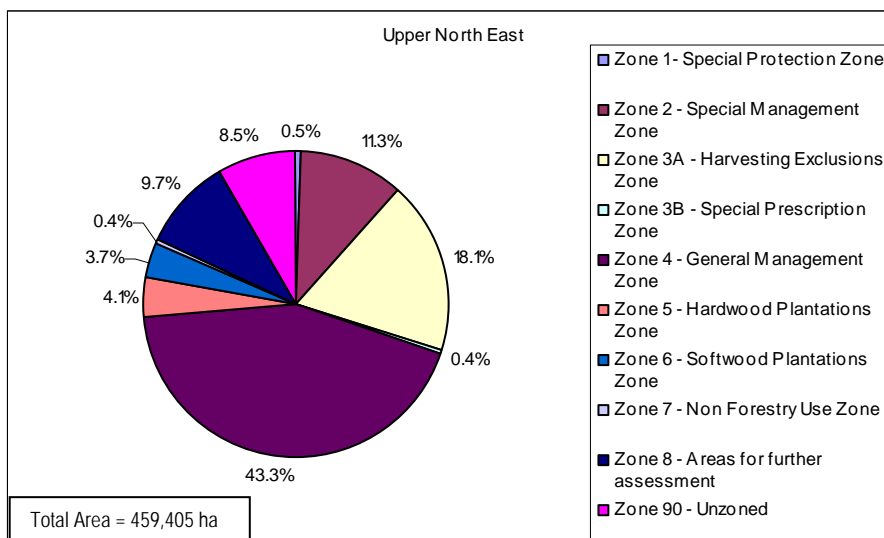
Land available for timber production

State forest estate

The largest areas of forest in NSW are concentrated on the coast and coastal escarpment. Forest types range from moist subtropical rainforest on the far north coast to the alpine forests of the Snowy Mountains. Forests NSW estimates that around 7.9% of the forested area in NSW falls within State forests. Forests NSW manages these forests for multiple uses with a focus on ecological sustainability.

In forest agreement areas, Forests NSW have implemented a land classification system called Forest Management Zoning (FMZ). The FMZ system is detailed in *Managing Our Forests Sustainably: Forest Management Zoning in NSW State Forests* (SFNSW 1999)⁴. The various FMZs are mapped and can be found appended to Forests NSW ESFM Plans⁵. Figure 2.2A below shows the percentage break up of FMZs in each forest agreement region. Land for conservation purposes is classified as FMZ 1, 2 or 3A under the FMZ system. Modified harvesting is permitted in FMZ 3B areas, while FMZ 4 areas are native forest areas available for timber production⁶. Other zones (e.g. 5, 6, 7 and 8) correlate with hardwood plantations, softwood plantations, non-forestry use zones (i.e. infrastructure, such as power lines and transmission towers) and land for further assessment respectively.

Figure 2.2.A Proportional area of Forest Management Zones in the UNE, LNE, Southern and Eden regions

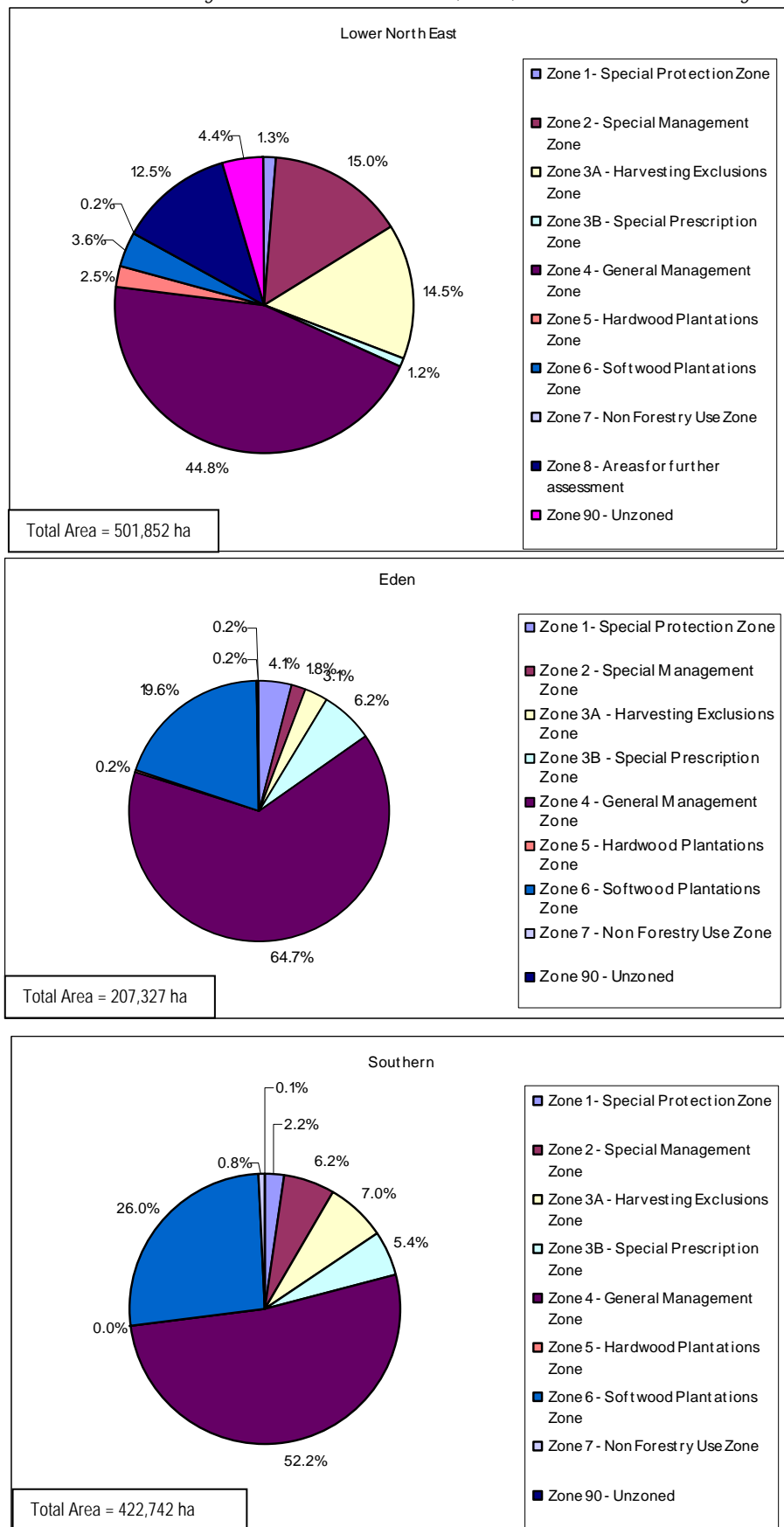


⁴ *Managing Our Forests Sustainably: Forest Management Zoning in NSW State Forests* can be found at: www.dpi.nsw.gov.au/data/assets/pdf_file/0007/268063/managing-our-forests-sustainably-forest-mgt-zoning-in-nsw-state-forests.pdf

⁵ Forests NSW ESFM plans can be found at: www.dpi.nsw.gov.au/forests/management/esfm

⁶ The area of State forest identified as available for harvest (FMZ4) is not representative of the actual 'on ground' area available for harvest. Harvestable areas may be subject to the conditions of the IFOAs, which protect various forest values, such as riparian filter strips and threatened species habitat exclusions. Further operational exclusions may arise due to 'on ground findings', such as unmerchantable forest types, accessibility, rock, and low volume areas and these are termed 'operational exclusions'.

Figure 2.2.A Proportional area of Forest Management Zones in the UNE, LNE, Southern and Eden regions



Source: Forests NSW data

Native forest estate

The native forest area within the FA areas for the 2009–2010 reporting period is about 1.3 million ha, which is nearly unchanged from the previous reporting period. During the reporting period, only 2.6 ha were dedicated (added) and 45 ha of state forests were revoked (removed) within the FA area.

Planted forest estate

The plantation estate Forests NSW manages consists of a combination of Crown-owned softwood and hardwood plantations and also a number of joint venture plantations. In recent years, Forests NSW also established plantations on State forests funded by private investment.

The planted softwood plantations within the FA areas comprise about 140 000 ha centred on townships such as Tumut, Bombala, and Walcha. All softwood plantations are authorised under *the Plantation and Reafforestation Act 1999* (PR Act).

The planted hardwood plantations within FA areas occur over about 25 400 ha, largely in the north-east portion of NSW. There are small areas of hardwood plantation managed by native forests operations regions and are progressively authorised under the PR Act as they are re-established.

The hardwood joint venture plantations were mainly planted between 1994 and 2004 and cover an estimated planted area of 12 000 ha in Upper and Lower North East. The plantations are incorporated into figures below.

In addition to these plantations, Forests NSW bought 7000 ha of plantation forests. The sustainability of Forests NSW productive capacity for hardwood forests is projected in the FRAMES wood flow estimates (available from the Forests NSW website).

Table 2.2A shows the area of plantation by species or species group.

Table 2.2A Forests NSW hardwood and softwood plantation estates by species/species group

Categories	Southern	Eden	Lower North East	Upper North East
<i>Corymbia maculata</i> (spotted gum)			37	3 097
<i>Eucalyptus grandis</i> (flooded gum)			383	850
<i>Eucalyptus pilularis</i> (blackbutt)			1 084	1 957
Other hardwood	20	203	1 138	5,778
Other softwood	1 886	29	122	12 844
<i>Pinus radiata</i>	80 829	27 936	10 507	1,104

Private native forests

Amendments to the Native Vegetation Regulation 2005 first commenced in August 2007 to bring native forestry operations under the Native Vegetation Act 2003. A Private Native Forestry Code of Practice (the PNF Code) came into force at that time to support the legal changes. The PNF Code covers four areas in the State: Northern NSW, Southern NSW, River Red Gum Forests and Cypress & Western Hardwood Forests.

Table 2.2B provides detail on the number and area of PVPs approved under the Northern and Southern NSW parts of the Code⁷. A public register of approved PNF PVPs can be found at: www.environment.nsw.gov.au/pnf/approvedpnfpvps.htm.

Table 2.2B Private native forestry PVPs by forest area as at 30 June 2010

<i>Forest Areas</i>	<i>No of PVPs</i>	<i>Area of PVPs (ha)</i>
Northern NSW	1 111	206 561
Southern NSW	59	13 172

Source: PNF DECCW data

Plantations authorised under the Plantations and Reafforestation Act

The *Plantations and Reafforestation Act 1999* (PR Act) came into effect in 2001 with the intention of streamlining the approval process required to invest in plantations while maintaining existing environmental standards⁸.

Industry & Investment NSW (I&I NSW) is the consent authority for plantations under the PR Act. The Plantations and Reafforestation (Code) Regulation 2001 (the Plantations Code) sets clear guidelines for plantation establishment and seeks to prevent land degradation and other environmental problems, while also providing sustainable timber resources and a diversified source of income for rural producers. A statutory review began in 2005 and recommended a number of amendments to the PR Act and Plantations Code. These amendments will include the introduction of fire standards and improved environmental protection provisions. The amendments will be introduced to Parliament in 2010–11.

I&I NSW has not supplied PR Act plantation figures by FA regions, but has provided data for the North Coast, Hunter and South Coast. Table 2.2C shows the area of existing, new and environmental plantations authorised each year under the PR Act for these regions.

⁷ Northern and Southern NSW PNF PVPs are reported only as these are the most likely to occur within Forest Agreement Areas.

⁸ Reference: www.dpi.nsw.gov.au/agriculture/resources/private-forestry/plantation-authorisations/guidelines-for-applicants#Existing-plantations

Table 2.2C: Area of plantations authorised under the PR Act for the North Coast, Hunter and South Coast; authorised plantations include existing plantations, newly established plantations and environmental plantations

Year	North Coast	Hunter	South Coast
	Area (hectares) of plantations approved under the PR Act		
2001–2002	919	134	1 038
2002–2003	3 425	118	322
2003–2004	2 915	200	1 523
2004–2005	8 060	2 233	4 397
2005–2006	123 457	1 664	2 033
2006–2007	14 038	438	1 826
2007–2008	14 567	2 506	584
2008–2009	10 283	2 434	809
2009–2010	1 833	538	36

Timber products compared with sustainable volume

State forest estate – committed volumes

Timber from State forests is used in home construction for framing, flooring and weather boards; furniture, tools and toys; railway sleepers; bridge girders; wharf piles; telephone and electricity poles; fence posts; props for underground mining; pulpwood for paper and building boards and other uses.

Timber volumes Forests NSW is permitted to harvest are specified in the NSW forest agreements, RFAs and IFOAs. An annual variation from the designated volume is permissible to accommodate changes in environmental and economic circumstances. This provision, as identified in the IFOAs, allows for harvest volumes in any one year to vary from the committed volume⁹ by 25%, but not to exceed 5% over a five-year-period.

Quota sawlogs defined

In reports before 2006–2007, Forests NSW reported 'quota sawlogs' as veneer logs and high quality large sawlogs only¹⁰. High quality large logs are defined in the UNE, LNE and Southern IFOAs as having a diameter under bark of at least 40 cm. In Eden IFOA the definition of high quality large logs are 40 cm under bark butt diameter or 36 cm under bark butt diameter for logs over 4 m long. Large veneer logs are defined in the UNE and LNE IFOAs as having a centre diameter under bark of at least 40 cm.

⁹ The volume of timber that may be harvested each year under the terms of the NSW forest agreements and IFOAs.

¹⁰ Forests NSW had not included poles or girders as quota logs although in some cases they would qualify as high quality large sawlogs (and would need to be reported). For comparisons with previous years before 2006–2007, Figure 2.2B below does not include poles and girders in the quota figures. However, poles and girders have been reported in the text and in Tables 2.2B and 2.2C.

Committed volumes harvested

In the UNE during 2009–2010, 54 000 m³ of quota sawlogs (62 750 m³ when including poles and girders) was harvested from Forests NSW native forests and hardwood plantations. This represents 49.5% of the committed volume (109 000 m³ a year, as specified in the UNE IFOA) and is a reduction from the previous year.

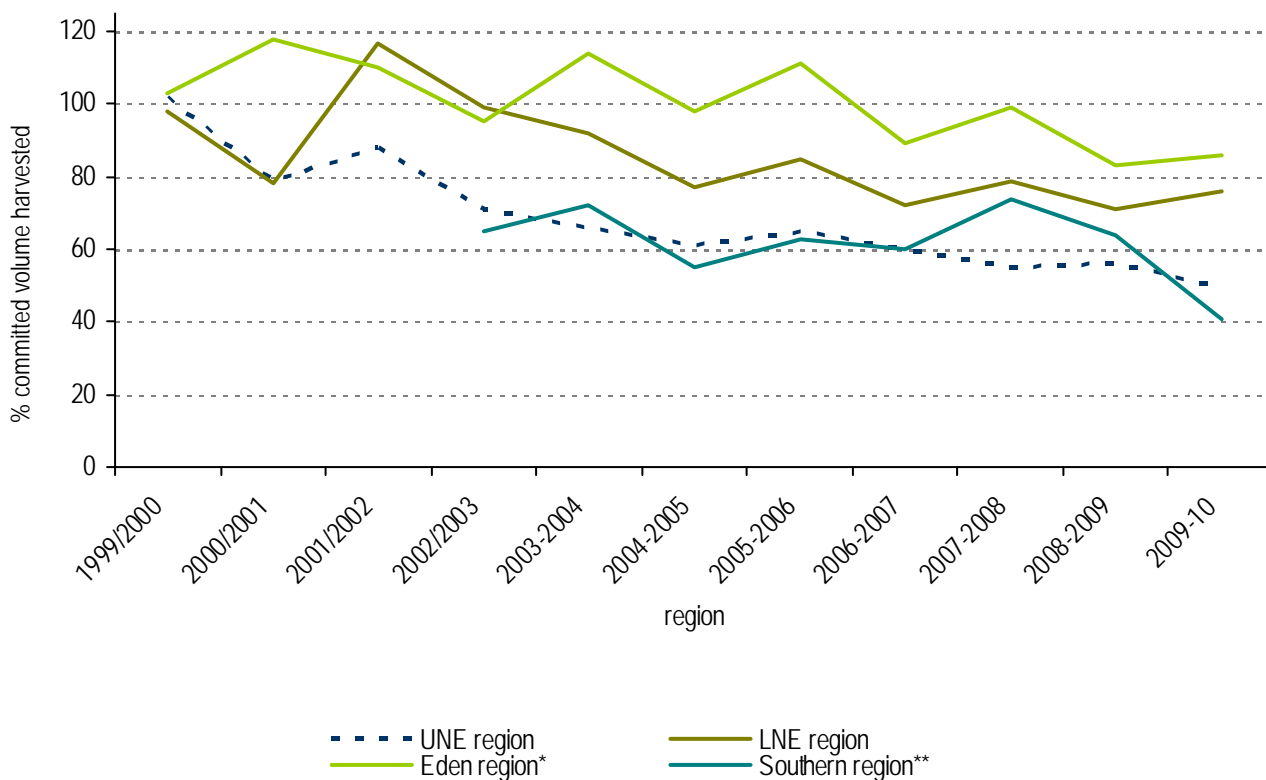
For the LNE region, quota sawlogs harvested from the region during 2009–2010 totalled 121 381 m³ (147 250 m³ when including poles and girders) representing 76% committed volume of 160 000 m³ per annum as specified within the LNE IFOA. This is an increase on what was harvested last year.

Quota sawlogs harvested from the Eden region are wholly obtained from Forest NSW native forests. Quota sawlog volumes in 2009–2010 totalled 19 696 m³ (19 775 m³ when including poles and girders), which represented 86% of the committed volume (of 23 000m³ in accordance with the Eden IFOA). This is a slight increase on what was harvested last year

Quota sawlogs harvested in Southern Region totalled 39 838 m³ (40 636 m³ when including poles and girders). This volume represents 41% of the committed volume, which was a decrease of 23% from the previous year, based on a committed volume of 96 500 m³ a year (48 500 m³ South Coast and 48 000 m³ Tumut). The substantial decline is due to a number of factors, including a drop in market demands, and logistical constraints such as the poor availability of haulage contractors.

Pulp grade sawlogs also form part of quota sawlog volumes for the Eden region. In 2009–2010, 238 958 tonnes of quota pulp grade sawlogs were harvested in Eden, or 76% of the committed volume based on a committed volume of 345 000 tonnes (t) a year. Committed volume percentages of pulp grade sawlogs since 1999–2000 are shown in Figure 2.2B.

Figure 2.2B: Percentages of committed quota sawlog volumes harvested – all regions (excluding poles and girders)

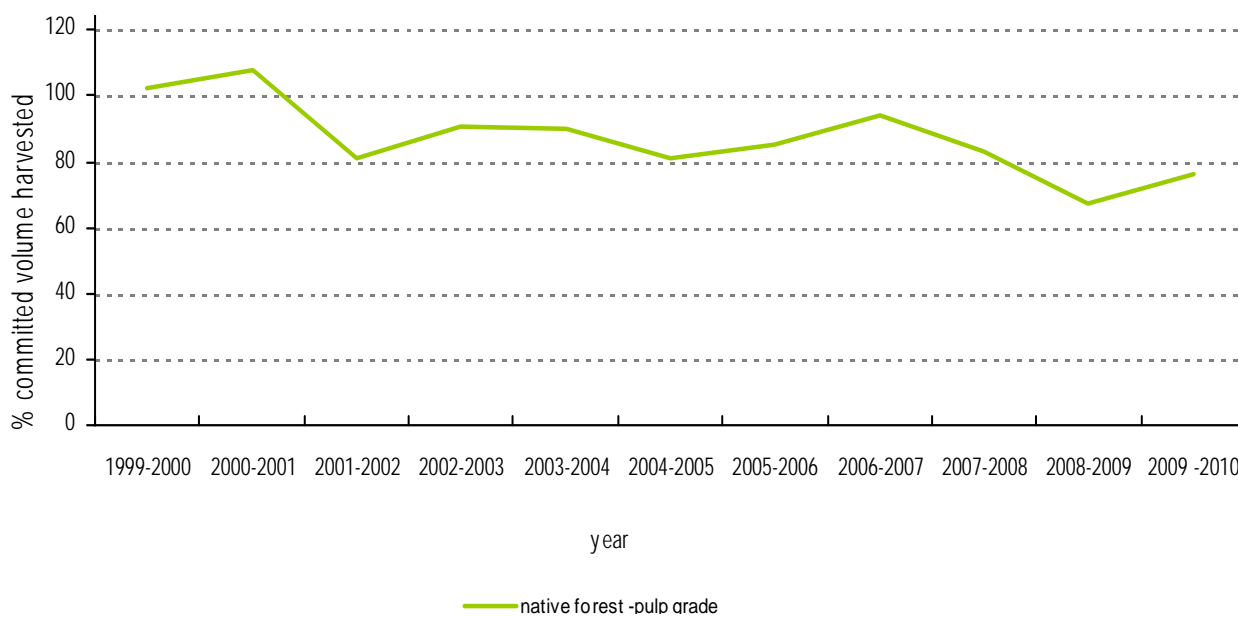


* All quota sawlogs harvested from native forest.

** Timber harvesting under the terms of NSW forest agreements and IFOA began in 2002.

Source: Forests NSW data

Figure 2.2C: Committed volumes harvested – pulp grade sawlogs (Eden region only)



Source: Forests NSW data

Non-quota sawlogs and pulp grade timbers

Timber produced from softwood plantation operations and certain quality logs produced from native forest and hardwood plantations are classified as non-quota sawlogs and pulp grade timbers for the purposes of forest agreement annual reporting.¹¹

In 2009–2010, around 1.9 million m³ of non-quota logs were harvested from Forests NSW native forests and hardwood plantations across all regions. Additionally around 1.1 million tonnes of non-quota pulp grade timber was produced across all regions (see Table 2.2D for further detail).

¹¹ Non-quota timber is timber that is produced from forestry operations but does not contribute to the committed volumes outlined in NSW Forest Agreements and IFOAs.

Table 2.2D: Volumes of timber products other than quota sawlogs from State forests – all regions (2009–2010)

Log type	Unit	UNE region			LNE region			Southern region			Eden region		
		Native forest	Hardwood plantation	Softwood plantation	Native forest	Hardwood plantation	Softwood plantation	Native forest	Hardwood plantation	Softwood plantation	Native forest	Hardwood plantation	Softwood plantation
Veneer*	m ³	n/a	n/a	20 830	n/a	n/a	5 687	n/a	0	800	n/a	n/a	0
High quality large*	m ³	n/a	n/a	68 732	n/a	n/a	47 677	n/a	0	997 670	n/a	n/a	223 536
High quality small sawlogs	m ³	1 378	87		475	0		0	0				
Low quality sawlogs	m ³	77 600	9 239	22 798	132 402	77 243	35 476	30 057	0	1 092	4 700	0	40 548
Poles/piles and girders**	m ³	8 294	456	0	19 354	6 515	0	798	0	0	79	0	0
Preservation logs	m ³	0	0	0	0	0	0	0	0	5 329	0	0	19 754
Fencing/ landscape/ sleepers (sawn)	m ³	0	0	0	6 946	0	0	11 496	0	1 195	0	0	0
Non-quota logs total	m³	87 272	9 782	112 360	159 177	83 758	88 840	42 351	0	1 006 086	4 779	0	283 838
***Pulp grade and chipwood	tonnes	21 332	7 194	13 654	104 082	76 359	10 128	98 050	0	573 965	n/a	0	224 616

* Veneer and high quality large sawlogs harvested from Forests NSW native forests and hardwood plantations comprise quota log volumes. Quota sawlog volumes are reported under Criterion 2 in Chapter 2.

** Poles and girders have been reported as non-quota in this table, but see discussion above under the heading 'Quota sawlogs defined'.

*** Non-quota pulp grade timber. Eden Pulp figures form part of quota requirements under the Eden Forest Agreement and IFOA and are therefore not reported in this table.

Source: Forests NSW data

Private Native Forestry – annual volumes removed

Each year, holders of PNF PVPs are required to submit a report of annual forestry operations to DECCW by 31 March if they have carried out forestry operations in the previous calendar year or if they intend to carry out forestry operations in the current year. In 2009, across the State, PNF PVP holders informed DECCW that 286 forestry operations were carried out over an estimated 27 013 ha. The estimated volume of timber harvested during these operations is contained in Table 2.2E. Landholders propose that 342 forestry operations will take place in the 2010 calendar year.

Table 2.2E: Reported volumes of timber harvested from private native forests covered by PNF PVPs for the 2009 calendar year.

Estimated volume	Number of operations
< 500 m ³	217
500–2000 m ³	65
> 2000 m ³	16

Plantations authorised under the PR Act – annual volumes removed

I&I NSW does not collect overall figures for timber volumes and other products supplied from plantations.

Non-timber products

DECCW estate

In Southern FA–South Coast sub-region (SCR) there are 26 apiary companies operating across 440 sites. Beekeeper numbers have declined due to some apiary companies selling their sites to other existing companies. The number of set-down sites with NPWS consent has increased as new sites are agreed and licensed with NPWS. In some instances more than one set-down site has been agreed within a notional 2.25 km² (225 ha) bee forage range. No sites are permitted within declared Wilderness areas. In Far South Coast Subregion (FSCR) there are also 26 registered companies operating.

Other non-forest products licensed in the Southern region during 2009–2010 included intangible products such as film documentary permits (6), communication site permits (13), transmission lines, cables and pipelines (313.1 km), and permits for other structures (10).

In the Eden region, there were six licensed apiarists. Some may be the same as those operating in the Southern FA region to the north. There are 25 sites, with an unknown number of hives (Table 2.2F). Data are limited for other non-timber products although two permits were issued for communication sites and one permit for other structures.

Table 2.2F: Non-timber products obtained from DECC Southern and Eden regions (2009–2010)

2009–2010	Southern region	Eden region
No. of beekeepers ¹	26 FSC and 26 SC	6
No. of sites ²	440	25
No. of hives	Unknown (SC)	Unknown
Film/documentary (permits) ³	6	0
Communication sites (permits) ³	13	2
Other structures (permits) ³	10	1
Transmission lines/cables/pipelines (km) ⁴	313.1	37.3

Source: PWG

1 Data review indicates some apiary companies have left region and their sites have transferred to other existing companies

2 Number of consented set-down sites.

3 Data from leases and concessions officer.

4 Revised estimate from DECCW Corporate GIS Infrastructure layers and NPWS SCR regional data where available, and that is not captured in corporate infrastructure datasets.

Forests NSW

State forests are a source of numerous non-timber forest products.

State forests are an important resource, providing a number of recreational opportunities and non-timber products, such as seed, rock, and gravel.

For the purpose of measurement against this indicator, non-timber products in State forests have been determined to be those products that are not supplied to sawmills or processing plants. In addition to non-timber products, Forests NSW also continues to provide details on commercial activities that occur in State forests (such as beekeeping and grazing).

For further details on non-timber forest products reported in 2009–10 see the *Forests NSW Annual Report 2009–10 Social, Environmental and Economic Performance*.

Forests NSW – regeneration of native forest and plantation establishment

During 2009–2010, Forests NSW aimed to maintain its productive capacity through establishing plantations and ensuring effective regeneration of native forests.¹²

In May 2010, the *Forest Practices Circular 2010/04 Regeneration Assessment in Native Forests* was released providing clear and consistent guidelines. This document is available to the public by request from FNSW.

Regeneration assessments are essential to sustainable forest management, and it is a requirement of the Integrated Forestry Operations Approvals (IFOAs) that regular and periodic assessments of regeneration are carried out. Regeneration assessment in Australian native forests was comprehensively reviewed by Lutz (2003). Based on this review, Forests NSW reviewed assessment methods in 2005 and 2007, followed by consultation with DECC. This framework is designed to provide precise, unbiased estimates of regeneration success.

Assessment objectives and types may vary amongst forest types and regions but, in general, include:

- operational assessment – identifying problems so that corrective actions may be undertaken
- strategic assessment – ‘demonstrating’ sustainability and compiling reports fulfilling regulatory obligations

More region-specific objectives will be covered in regional documents, with specific methods that may exceed minimum corporate requirements.

In 2009–10, 855 ha of land in Forests NSW Central operational region were surveyed to assess the success of regeneration. It was determined that approximately 92% of plots contained adequate regeneration of commercial timber species. No regeneration surveys took place in Forests NSW North East or Southern operational regions.

¹² For further details on afforestation and reforestation, such as total areas for this year’s established plantations and replanted plantations, please see the *Forests NSW Annual Report 2009–10 Social, Environmental and Economic Performance*.

Section 3: Maintaining ecosystem health and vitality

In 2008, NSW DPI and DECCW jointly published the 'NSW Invasive Species Plan 2008–2015'. This plan provides actions to minimise the threat of invasive species via prevention and effective management and relies on collaboration and action by other government organisations, industry and the wider community (www.dpi.nsw.gov.au/agriculture/pests-weeds/nsw-invasive-species-plan).

Pest and weed management

DECCW pest and weed management

Pest and weed management is an important focus within NSW parks. Regional Pest Management Strategies, which are publicly available through the DECCW website (www.environment.nsw.gov.au/pestsweeds/RegionPestManagement.htm), clearly identify how management is progressing around the state.

Species-specific support tools are also available through the public webpage (e.g. on bitou bush management). The success of pest and weed management actions have previously been identified through the 2004 State of the Parks report as well as the 'Protecting our national parks from pests and weeds' report, which was released in late 2006. DECCW is finalising a new State of the Parks style report that includes analyses of progress in managing and protecting the park system against negative impacts from pest and weeds.

The PWG of DECCW continued to use weed and pest control programs in 2009–2010 in parks, targeted catchment areas, areas where threatened species are vulnerable to pests and weeds, along roads, and in high visitation recreation areas. Programs and planning were developed and implemented in partnership with the NSW Department of Primary Industries, catchment management authorities (CMAs) and other organisation and landholders. PWG's pest and weed programs include: fox and bitou bush Threat Abatement Plans (TAPs); feral goat and pig control; wild dog and deer control; control of broom and willow trees; long-term control of St John's wort, vipers bugloss and serrated tussock; and control of asparagus, cape ivy and lantana. PWG has provided the following case studies to highlight some control programs in NSW FA regions this year

DECCW case study

Deer Control – Southern FA area

Feral red, rusa, fallow and chital deer are emerging as significant forest pests. They cause heavy browsing and structural forest damage, particularly in steep tall moist forests along the southern Illawarra escarpment and Kangaroo Valley. The 'Feral Goats and Deer in South Coast Region. Ground-based Control Plan 2011–2015' has been prepared for goats and feral deer research and management in SCR. The plan's aim is to improve the efficiency of control operations and understand the impacts of deer on rainforest and seasonal dispersal patterns. Capital works funding has been made available to help joint NPWS/LHPA research and a working group has been established to guide this research component. Control work often involves cooperation with park neighbours. Pest database records trap and kill of 41 feral deer over the past 18 months, principally red deer but also chital deer.

DECCW case study

Pest control – Eden FA area

In the Eden FA area PWG allocated 606 person days of pest control to South East Livestock Health and Pest Authority in 2009–10. This was in addition to 230 person days by PWG staff. Most of this work targeted fox and dog control for the benefit of threatened ground mammals (bandicoots and potoroos), protecting threatened shorebird fledgling sites (little tern and hooded plover) and mitigating livestock predation. An analysis of results, compiled in FeralBASE a pest management database held in Merimbula, demonstrated the long-term positive benefit of fox, dog and cat control over ten years in the southern part of Eden FA area. Towards the end of this period populations of southern brown bandicoot (endangered) appear to be increasing slightly. This is supported by research that highlighted: (i) the importance of long-term monitoring to establish trends in activity of forest fauna, (ii) that we are being effective in reducing fox activity at control sites, relative to using no control at all, and (iii) that we are observing positive responses from some native marsupials, but that these responses are likely tempered by prevailing climate and/or forest condition (Claridge, Cunningham, Catling, Reid, 2010, 'Trends in the activity levels of forest-dwelling vertebrate fauna against a background of intensive baiting for foxes', *Forest Ecology and Management* 260 (2010) 822–832).

DECCW case study

Horse control – UNE FA area

Horse management continues in the Guy Fawkes River National Park (GFRNP) with traps running in Boban, Ballards and Housewater Creek areas. Since the program began in March 2010, 472 horses have been removed. The remaining population is estimated at 510 horses. The RSPCA *Animal Rescue* story about the GFRNP horse program and re-homing of horses that went to air in September 2009 was the highest rating *Animal Rescue* story ever with millions of viewers. The program has now expanded into the Guy Fawkes River valley and plans are being assessed for further programs in remote intractable areas.

On the coast, a multi-agency working group continues to address feral horse control on various tenures along the Pacific Highway in the Halfway Creek, Yuraygir NP and Barcoongere State Forest area. Cooperative trapping programs between NPWS, Forests NSW, Coffs Harbour Council staff and the general public have been used, with 78 horses captured in this area to date.

DECCW case study

Wild dog management – UNE and LNE FA areas

PWG works on cooperative wild dog management throughout the region as outlined in local Wild Dog Management Plans and regional pest management strategies. Our annual winter strategic wild dog control program was implemented with ground baiting in Coffs coast area and Dorrigo plateau area, and strategic wild dog trapping in Guy Fawkes River and Yarrabini National Parks and in the Macleay area. Mound baiting and contract trapping has been undertaken in the Upper Hastings this year after aerial baiting was cancelled. Research into the behaviour of wild dogs using telemetry collars is providing information on the effectiveness of control regimes in this area. NPWS has also responded to attacks on sheep in the Wongwibinda area and west of the Guy Fawkes River National Park in the Dorrigo plateau area. Strategic wild dog exclusion fencing funded by NPWS (via fencing agreements and offers of materials) is being upgraded and extended in this area to help affected sheep farmers. A contract trapper was also employed by NPWS and the Livestock, Health and Pest Authority to work on affected properties.

Wild dog baiting programs were used in Myall Lakes, Wallingat and Booti Booti national parks. Some wild dog control occurred near Hawks Nest and Seal Rocks in cooperation with Great Lakes Council. The Great Lakes Area contributed to preparing a cross-tenure, multi-agency Great Lakes local government wild dog management plan.

DECCW case study

Weed control – UNE and LNE FA areas

DECCW-PWG's ongoing bitou bush control program covered 600 ha of aerial spraying along the coast in Myall Lakes and Booti Booti National Parks in 2009–10. Other weeds treated were lantana, asparagus and cape ivy. Littoral rainforest, coastal dune and lakeshore vegetation has been treated to protect endangered ecological communities. PWG works closely with partners such as Great Lakes Council, Forster and Karuah Aboriginal Land Councils, and Taree Indigenous Development Employment.

Weed control programs in Myall Lakes National Park (and the Ramsar wetlands site – which covers most of the Myall Lakes National Park, and also extends into neighbouring National Parks and Reserves), and Booti Booti, encourage biodiversity and allow threatened species to recover. Funding was provided by Hunter/Central Rivers CMA, the Commonwealth Envirofund, and Caring for our Country Community Coastcare. The Aboriginal Partnerships program uses Aboriginal teams for on-ground work, supported by professional weed contractors for on-the-job training and can lead to TAFE qualifications.

At Maryland NP, in the north of the UNE region, PWG staff and Githabul Working on Country Rangers ran a lantana control project. Five, four-day camps treated 544 ha. This will be followed up in future years, and it is envisaged all major infestations will be treated by June 2011.

DECCW case study

Cane toads control – UNE FA area

Local implementation of the Northern Branch Cane Toad Management Strategy involves control at priority sites, investigation of reports outside current distribution, and community education and involvement. New initiatives this year to address the isolated toad population in the Clarence included helping the Clarence Valley Conservation in Action Landcare group to collect cane toads off-park. Their efforts, combined with another successful Yamba round-up, resulted in more than 11 500 toads being collected this year, up from 4 000 last year. 'Trap that Toad!' was presented to seven schools and featured at two big community events, teaching more than 750 children about cane toads and their impacts on native frogs and other wildlife.

Further north, the 12th annual community cane toad round up was held at Yamba in March 2010, with 2 271 toads collected. The roundup aims to reduce cane toad numbers to control their spread south, including to the wetlands of Yuraygir NP. A further six 'Trap that Toad' workshops were held in the far north of the state.

DECCW case study

Bell miner associated dieback – UNE and LNE FA areas

Bell miner associated dieback (BMAD) continues to affect forests in both the UNE and LNE regions. The BMAD working group, which includes representation from DECCW and Forest NSW, continues to distribute a DVD highlighting the problem. Within UNE, field trials continued at Toonumbar, Donaldson and Mount Lindsay, and further multi-tenure trials are being prepared for the Toonumbar area. The Working Group has gas-powered splatter guns to promote this technique to landholders wishing to control lantana, which is known to be directly associated with BMAD, on their properties. DECCW has prepared a draft statement of intent as a result of BMAD being listed as a Key Threatening Process in NSW. DECCW has submitted a major bid to Caring for our Country to map and treat BMAD in the Gondwana Rainforests of Australia and the Greater Blue Mountains World Heritage Areas.

Forests NSW pest and weed management

Forests NSW works to maintain or enhance the health and productivity of forests to support nature conservation, timber production and other ecologically sustainable uses.

Forests NSW applies the silviculture strategies outlined in the Native Forest Silvicultural Manual. Silviculture is useful in the management of pests and weeds, particularly in areas of forest where weeds (e.g. the exotic weed lantana) may suppress forest regeneration or where pests are contributors (primary or secondary) to signs of stress on native forests (e.g. BMAD)¹³.

The Native Forest Silvicultural Manual is available from the Forests NSW/ I&I NSW website at: [www.dpi.nsw.gov.au/ data/assets/pdf file/0008/268055/forests-nsw-native-forest-silviculture-manual.pdf](http://www.dpi.nsw.gov.au/data/assets/pdf_file/0008/268055/forests-nsw-native-forest-silviculture-manual.pdf)

Forests NSW also implements regional management plans, including annual operational programs for pest animals, weeds and fire, and focuses research and development programs to deliver improvements in ESFM, for example through research into BMAD.

In 2009–10, Forests NSW spent over \$1.7 million on pest and weed control across the state. All Forests NSW operation regions have weed and pest animal management plans in place. These plans are referred to as supplementary plans under the ESFM plans and provide context and direction for weed and pest animal management operations. The plans are available from the Forests NSW website or by contacting Forests NSW.

Forests NSW is a major contributor to a range of control programs in association with Livestock Health and Pest Authorities (LHPA) and landholders, including those targeting foxes, wild dogs, feral goats, feral pigs, blackberries, willow, serrated tussock, horehound, lantana and Paterson's curse. Additional money was spent in efforts to capture and remove feral cattle and horses from coastal forests next to national park for forest conservation and regeneration purposes and to reduce potential risks to public safety.

In addition to pest control operations by Forests NSW, the Game Council of NSW licences hunters to remove a range of species from declared State forests. For more information on the numbers removed see the *Forests NSW Annual Report Social Environmental and Economic Performance 2009–10*.

¹³ Forests NSW (2007) *Social, Environmental, and Economic Report 2006-2007* (SEeing Report), I&I NSW, p. 20. Available at: [www.dpi.nsw.gov.au/ data/assets/pdf file/0020/101558/SeeingReport2006-07.pdf](http://www.dpi.nsw.gov.au/data/assets/pdf_file/0020/101558/SeeingReport2006-07.pdf)

Forests NSW case study

Controlling wild dogs and foxes

Wild dogs and foxes are pests found widely throughout NSW. They threaten the survival of native fauna, and have contributed to the decline of many species of reptiles, mammals and birds. They also cause considerable losses to livestock. Forests NSW works closely with other public land management agencies, as well as private landowners, in developing and implementing effective control programs to reduce the environmental and economic cost of these pests.

An example of one such program is the Kempsey Cooperative Wild Dog Management Plan in LNE, which was signed off in November 2008. This plan sees the Mid Coast LHPA working closely with stakeholders, including Forests NSW, to plan and carry out wild dog baiting programs.

The LHPA has been coordinating several large-scale programs with the cooperation of Forests NSW, private landholders and PWG (within DECCW). Neighbouring landholders identify areas within State forests that are used by wild dogs and these areas are then included by Forests NSW staff for ground-baiting control programs. Strategic aerial baiting programs are also taking place.

Ground-baiting using buried sodium fluoroacetate ('1080') meat baits is the most effective control option and the most widely used by all public land managers. It allows baits to be placed where they are most likely to be found by wild dogs or foxes and reduces their uptake by native animals.

The work completed within State forests complements the existing Threat Abatement Programs occurring throughout the year. In the 2009–2010 reporting year, a Threat Abatement Program took place within the Tambar State Forest to control foxes and wild dogs in the immediate area. Forests NSW staff also run reactive wild dog control programs as required by adjoining neighbours, who have experienced intermittent livestock attacks during the year. Forests NSW has provided representatives at numerous local meetings to discuss issues relating to wild dog control programs.

Forests NSW case study

Volunteers attack camphor pest:

In 2009–10, young people from Great Britain and the Netherlands, through Conservation Volunteers Australia (CVA), have come together in the UNE region near Coffs Harbour to combat the camphor laurels invading eucalypt plantations in Tuckers Nob State Forest.

Camphor laurel has been declared a noxious weed in many parts of Queensland and New South Wales. Its leaves have a very high carbon content, which damages water quality and freshwater fish habitats when they fall into streams and rivers. The biochemical compounds, referred to as allelochemicals, in the leaf litter help prevent other plants from germinating successfully, resulting in camphor laurel suppressing native vegetation. This exotic tree's seed is attractive to birds and passes intact through the digestive system, ensuring rapid distribution. Camphor laurel invades rainforests and also competes against eucalyptus trees destroying valuable habitat for native flora and fauna.

CVA teams, through injecting weedicides into the stem of young camphor trees, aimed to reduce or eliminate camphor laurel re-establishment after timber harvesting in plantation and native forest. Previous methods of cutting down trees failed to prevent the trees from coppicing, or creating new stems from the roots, leading to even greater infestations. The new injecting system improves mortality rates for camphor infestations. Forests NSW has also treated a number of plantation areas in the Bellinger valley on the mid-north coast south-west of Coffs Harbour that will be felled in 2010–11, and is confident in making a major inroad into controlling any new camphor growth in those areas.

The work of the conservation volunteers also involved erecting bollards to reduce further impacts in a number of scenic bushland areas that have been degraded by inappropriate vehicle use.

CVA is a national, not-for-profit, community-based organisation that is dedicated to involving local and overseas volunteers in conservation projects for the betterment of the Australian and New Zealand environment. Each year about 10 000 volunteers, including around 2 500 from overseas, are engaged on more than 2 000 projects.

Fire management

DECCW fire management

In 2009–10, DECCW estate in the FA regions experienced a large increase in the total area of land burnt by wildfire (110 600 ha, compared with 24 190 ha in 2008–09), see Table 2.3A below. In the Eden FA area, Gulaga National Park had a Class 3 bushfire impact (see Appendix A for bushfire class definitions) in August 2009, burning 2 510 ha. Most wildfires in the LNE FA area occurred in Oxley Wild Rivers NP, where six separate wildfires burnt more than 10 000 ha. In the Southern FA area, a large wildfire burnt nearly 2 000 ha in Romney Park in the Barnunj SCA. In the Torrington State Conservation Area, UNE FA area, 23 000 ha was burnt by five fires that were started by lightning strikes.

Table 2.3A – Areas of park system burned in bushfires in 2009–2010 (excluding prescribed burns by PWG and without origin of ignition)

Region	Area of parks system burned in bushfires (ha)
UNE	63 480
LNE	36 410
Southern	6 743
Eden	3 967
Total FA area (hectares) burned in bushfires	110 600

In 2009–10, prescribed burning on DECCW estate took place on 81 346 ha across all regions, which was a significant increase on 2008–09 (43 611 ha). Of the FA areas, prescribed burning was most extensive in the LNE region, covering an estimated 34 517 ha. In the Southern, UNE and Eden regions an estimated 28 038 ha, 12 466 ha and 6 325 ha prescribed burns took place respectively. Additionally, 1 705 ha of the PWG estate was mechanically treated (e.g. slashed), mainly in the LNE region where 990 ha were treated, followed by 557 ha in UNE region, 156 ha in the Southern Region and less than 3 ha in the Eden region.

Data on prescribed burns and mechanical treatment are collected for each park. Wadbilliga NP falls within both Southern & Eden FA regions. The 3 009 ha of prescribed burns in this park is accounted for in the Southern region of the park only.

In the LNE FA area, in Oxley Wild Rivers National Park, Barrington Tops State Conservation Area and Wollemi National Park, a large number of strategic hazard reduction burns took place during the 2009–10 season. A total of 16 individual, strategic burns were made throughout Oxley Wild Rivers National Park and six burns in Wollemi NP during September 2009 and March, April and May 2010. In the UNE FA area, Banyabba Nature Reserve and Washpool National Park had the largest hazard reduction burns, both of nearly 3 000 ha total. In Southern FA area, Kosciuszko National Park had the largest area treated by prescribed burning, nearly 19 000 ha over eight separate burns.

Forests NSW – fire management

During 2009–10, 35 069 ha of prescribed burning occurred and 37 610 ha was the result of wildfire.

Some areas showing chronic decline in forest health in UNE were treated with fire under the auspices of the BMAD working group.

The Forests NSW corporate target of restricting damaging wildfire to less than 0.3% of planted forests was achieved, as damage to planted forests was limited. There were some 15 fires spread over 690 ha of plantation areas, half of which had no significant damage due to mature age class and/or level of severity.

Forestry staff were also involved in multi-agency fires off State forest tenure, with many hundreds of thousands of hectares of wildfires across the landscape.

There were no significant damaging wildfires on State forests, but, of the 201 fires occurring on State forest, 71 were declared as Section 44 emergencies under the *NSW Rural Fires Act 1997*.

Section 4: Soil and water resources

DECCW

Only activities associated with roads, park management infrastructure and visitor facilities are likely to result in soil erosion on DECCW estates. As a result, DECCW does not make broad area assessments of soil erosion potential. However, when engaging in activities on parks, the PWG carries out a review of environmental factors under the provisions of the *Environmental Planning and Assessment Act 1979*, which considers the protection of soil and water values.

Target ten of the NSW Natural Resources Monitoring, Evaluation and Reporting Strategy (MER) 2010–2015, is that by 2015 there will be an improvement in soil condition¹⁴. As part of this work, a number of sites on DECCW estate within FA regions will be subject to soil profile and soil structure sampling/description.

State forest estate

Forests NSW has nine regional road management plans that cover the four forest agreement areas. The plans are applicable to each Forests NSW softwood and native forests region¹⁵. Road management plans are internal Forests NSW documents, but may be used in the future as a basis for preparing a regional ESFM supplementary plan for road management. The plans cover all of the State forests within the FA areas.

Forests NSW plans and classifies its road network according to the *Forest Practices Code – Part 4 Forest Roads and Fire Trails* (SFNSW 1999). In accordance with the Code of Practice, all forest road systems in public forests and plantations should be based on the economic principle of minimising the combined cost of snigging and roading; and on the principles of environmental care — soil, water catchment, cultural and landscape values are to be protected by the careful planning, location, construction and maintenance of roads and tracks and regulation of their use. The total length of the road network within State forests across the forest agreement regions is about 56 234 km. This represents an increase from the previously reported 28 755 km in 2008–2009. Please see Table 2.4A below for total road length (by classification) in FA State forests.

¹⁴ Department of Environment, Climate Change and Water NSW, 2010, 'New South Wales Natural Resources Monitoring, Evaluation and Reporting Strategy 2010–2015', State of New South Wales and Department of Environment, Climate Change and Water, Sydney.

¹⁵ Forests NSW operational regional boundaries do not correspond with forest agreement area boundaries. As a result, a number of Forests NSW road management plans may be applicable to each forest agreement region (for example, the UNE region is covered by road management plans for the North East Native Forest Operations Branch, Western Native Forest Operations Branch and Northern Planted Forest Operations Branch).

Table 2.4A: Length of road by classification on State forests – all regions 2009–2010

Length of road by classification (km) *	UNE	LNE	Eden	South Coast
Primary access	87	136	684	954
Secondary access	723	853	957	1,060
Feeder	711	852	447	8,826
Harvesting, link and boundary	3,971	3,550	481	3,481
Fire trail and service trail	3,451	2,726	5,632	3,343
To be assessed	2,720	5,306	226	5,057
Total road length	11663	13423	8427	22721

Source: Forests NSW data

*FNSW now sources length of road classifications information from the operational layer of the GIS. This layer is maintained by the various regions, with changes and updates being entered into the layer on a continual basis. This table is not comparable to previous annual reporting of road lengths within State forest estate, which employed a range of methods (such as taking the figures from the regional road and fire trail plan) and tended to be inconsistent across the organisation.

Forests NSW makes soil erosion and water pollution hazard assessments before logging starts. Prescriptions are then required to be implemented in accordance with the environment protection licence contained in integrated forestry operations approvals. Internal and external audits check on compliance against the requirements within licences, codes and guidelines for soil and water quality.

To mitigate soil erosion and prevent water pollution during forestry operations, Forests NSW aims to minimise ground disturbance and limit the distance of overland flows over disturbed areas by using measures such as riparian and drainage depression buffer zones and strict road construction guidelines.

Case study – Australian Research Council Road Drainage Project

In 2009–10, DECCW and Forests NSW provided continuing support for an Australian National University (ANU) project to develop a computer model for predicting sediment delivery from natural surface roads. Road planners and regulators will use the model to improve road drainage design and help reduce stream water pollution in forested catchments.

This is a three-year project funded under the Australian Research Council Linkage scheme. The scheme, administered by the Australian Government, supports collaborative research and development projects between higher education organisations and industry. This was the second year that DECCW and Forests NSW will provide grant funding, and they will also be helping with field trials in 2011.

A major output of the project will be a decision support system for understanding road to stream connectivity. The decision support system, also known as the 'Road Connectivity Assessment Tool' (or ROADCAT), will be delivered in 2011. It will run on ArcGIS and users will be able to enter variables, such as locations of drainage structures, distance of road to stream, and ground slope at discharge point, to test various road management scenarios.

Other partner organisations include the Department of Sustainability and Environment, Victoria; Territory and Municipal Services, ACT; Southern Rivers Catchment Management Authority, NSW; Eurobodalla Shire Council, NSW; and the University of Melbourne, Victoria.

More information about the drainage project can be found at: http://fennergchool-research.anu.edu.au/roads_dss/

More about the Australian Research Council Linkage scheme can be found at: www.arc.gov.au/ncgp/lp/lp_default.htm

Section 5: Maintenance of forest contribution towards global carbon cycle

Australian forests are vulnerable to the impacts of climate change, and the potential impact of the changing climate on our forests is largely unknown (Battaglia et al. 2009; Stokes & Howden 2010).

Over the next 40–80 years (equivalent to one or two plantation rotations), climate change is predicted to increase average temperatures in NSW by 0.7–6.4°C, with the greatest increase in the west of the state (DECCW 2010b). Rainfall is likely to decrease, apart from in the north-east of the state.

Projections suggest an increased incidence of hot days, bushfire and intense storms. These changes will affect the forests of NSW and how they will be managed.

Forests NSW carbon accounting system:

Forests NSW has been at the forefront of innovation in carbon accounting, developing a rigorous carbon accounting system for plantation forests. Forests NSW has also played an important role in developing state, national and international guidelines to enable carbon accounting and trading. Since the scheme's launch in 2005, Forests NSW has registered nearly two million carbon credits (certificates) under the NSW Greenhouse Gas Reduction Scheme (GGAS).

The GGAS Rule for Carbon Sequestration outlines the eligibility criteria for carbon sequestration activities under GGAS, and is intentionally aligned with the Australian Standard for Carbon Accounting and the approaches prescribed by the Kyoto Protocol and the United Nations Framework Convention for Climate Change.

GGAS requires the carbon to be stored for 100 years from the date of abatement certificate creation. For example, if a Sequestration Pool Manager registers an abatement certificate in August 2006, it must ensure that it retains the carbon storage to the equivalent of the abatement certificate (1 tonne of CO₂-e) until July 2107.

For reporting purposes, Forests NSW also calculates estimated annual carbon sequestration, calculated as tonnes of carbon dioxide equivalents (CO₂-e (t)), in planted and native forests (see Table 2.5A). For native forests, this model takes fires and harvested timber into account and State wide figures are available in the *Forests NSW Annual Report Social Environmental and Economic Performance 2009–10* (see Table 2.5B). Note that this model is based on the best available data and uses the same model published in the *Forests NSW Annual Report Social Environmental and Economic Performance 2009–10*. In contrast with the planted forests model, this model takes timber use and forest fires into account.

Table 2.5A: Estimated tonnes CO₂-e sequestered – planted forests – all regions (2009–2010)

Planted forests – sequestered CO ₂ -e (t)	UNE	LNE	Eden	Southern
Hardwood joint venture	20 153	5 413	nil	nil
Softwood joint venture	48 893	nil	nil	15 021
Planted forest hardwood	206 830	44 628	3 891	67
Planted forest softwood	201 767	195 283	513 774	1 505 043
Total – sequestered CO₂-e (tonnes)	477 643	245 324	517 665	1 520 131

Table 2.5B: Estimated CO₂-e sequestered – native forests – all regions (2009–2010)

Native forests – sequestered CO ₂ -e (t)	Combined forest agreement regions
Total standing volume CO ₂ (Mt)	974
Annual CO ₂ -e sequestered forest growth (Mt)	5.13
Annual CO ₂ -e harvest storage in hardwood products (Mt)	0.29
Annual CO ₂ -e harvest emissions (Mt)	0.91
Annual CO ₂ -e fire emissions (Mt)	2.00
Annual non-CO ₂ fire emissions (Mt)	0.09
Annual sequestration	Combined forest agreement regions
Net CO ₂ (Mt)	1.93
Net CO ₂ (t)	1 929,669

DECCW case study

Greenfleet and reforestation

The NSW State Plan – Investing in a Better Future, includes a commitment to continue to build a comprehensive, adequate and representative reserve system based in national parks and reserves as the core biodiversity conservation mechanism. NSW has 6.76 million ha protected in the national parks system. While the system protects a wide variety of habitats and ecosystems, there is some land in the national parks system that requires revegetation as a result of previous land use practices. Reforestation has multiple benefits. Not only does it remove carbon from the atmosphere, it also creates habitat for native species and builds resilience in natural systems to the inevitable impacts of climate change.

In a new initiative DECCW and Greenfleet, the non-profit voluntary carbon offset provider, have planted in hundreds of hectares of degraded land in Kosciusko National Park under a partnership agreement and with the help of TransGrid. This land along the Blowering Dam Foreshore, south of Tumut, has been cleared and degraded after decades of agricultural use. New trees are establishing and there will soon be a forest canopy there that will shade out some of the weeds and allow native understorey species to re-establish themselves.

Forests NSW case study – The greenhouse footprint of wood products in NSW

Industry and Investment NSW has completed a three-year Climate Action Grant project 'The greenhouse footprint of wood products in NSW', 2010. The project had four main components:

1. energy and greenhouse footprint of wood-processing facilities and a truss and frame manufacturer
2. landfill studies
3. life cycle assessment of wood waste disposal options, including landfilling, recycling, mulching and energy generation
4. inclusion of carbon in wood products in emissions trading schemes.

Energy and greenhouse footprint studies were made on a number of wood-processing facilities. The data obtained were divided into three main modules (harvest and log transport, manufacture and transport to the market). All greenhouse emissions were allocated to the main finished product when the finished product was obvious.

Based on the annual volume of production of wood products in NSW, ABARE (2010) shows the total greenhouse emissions (tonnes of carbon dioxide equivalents (CO₂-e (t)) for the production of all wood products (excluding paper products) in NSW. An estimated 845 000 tonnes of carbon dioxide equivalents were emitted due to the annual production of wood products in NSW.

Greenhouse emissions (tonnes carbon dioxide equivalents) estimated for the annual production of wood products in NSW, considering harvest, log transport, manufacture and transport of products and residues.

It is estimated that approximately 1.5 million tonnes of paper are annually disposed in landfills in Australia (Ximenes 2010). The decomposition of organic materials under anaerobic conditions in landfills generates CO₂ and methane (a powerful greenhouse gas), in about equal proportions (Barlaz 2006). The Commonwealth Department of Climate Change and Energy Efficiency has adopted a default decomposition factor of 0.5 for all organic materials placed in landfills. This factor is designed to be applied to the total volume of organic waste, and therefore may not be applicable to individual organic fractions in the waste stream.

Two major landfill excavations took place as part of the Climate Action Grant project. One of them was at the Eastern Creek landfill site, one of the largest landfills in New South Wales, which receives close to 5 000 tonnes of waste/day. Four trenches at different areas of the landfill were excavated to about 10 m deep. Large volumes of paper and wood products were recovered. Initial visual observations suggested most samples were remarkably sound, although extremely wet (typically the moisture content of samples was above fibre saturation point) and physically damaged by the use of heavy machinery and high compaction in landfill operations.

One hundred samples of paper were analysed for their chemical composition (e.g. extractives, ash composition, acid-soluble and Klason lignin). Similar to the wood samples from Meadowbank, the mean lignin concentrations of the excavated paper samples were not significantly different from that of control samples. However, some individual samples that were assessed visually as being degraded did show significantly elevated lignin concentrations. None of the newspaper samples analysed had a lignin concentration significantly higher than that of controls. Lignin is one of the main components of wood, and is resistant to decomposition under anaerobic conditions, such as those found in landfills. An elevated lignin concentration suggests the sample has decomposed in landfill.

The research strongly suggests that much of the carbon in a range of paper products can be considered stored for the long-term. These results indicate that paper products may play an important role in emissions trading, and also highlight the importance of using less generic decomposition factors when estimating avoided emissions from diverting paper from landfills.

Section 6: Socio-economic benefits

Employment

PWG direct employment

Table 2.6A outlines employment figures for DECCW in each FA region. The PAID FTE figure reflects hours paid during the month and takes into account such things as: casual employee hours, staff on leave without pay, any salary adjustments, and cadet hours amongst others. The proportion of each PWG field-based area that fell within a FA region was calculated and the proportion applied to the employment figures for that area. These figures were added to give a total employment figure for each FA region.

Table 2.6A: Employment (PAID FTE) for each of the FA areas

FA area	UNE	LNE	Eden	Southern
PAID FTE	170	270	57	263

As of 30 June 2010, DECCW's Human Resources database listed 263 staff (including 56 casuals) attached to PWG who identified as Aboriginal or Torres Strait Islander. This figure includes full-time, part-time and casual staff, and covers all of NSW.

State forests direct employment

Employment within Forests NSW has remained stable with little change in direct employment. Direct employment is understood as employment that depends on State forests. Various types of employees throughout the timber industry depend on State forests, including timber harvest and haulage contractors, timber processors, as well as other stakeholders such as apiarists, recreation groups/providers and farmers. There has been little change in market structure although there has been a small increase in low quality log sales for hardboard manufacture in UNE. Forest management and administration employment has marginally declined during the period as a result of administrative and business refocus.

Forests NSW Central Region reported that employment in primary processing and tourism had increased in comparison to previous years, while North East and Southern regions reported decreases in employment in forest management, relating mainly to Forests NSW staff.

Details on Forests NSW estimated statewide employment figures can be found in *Forests NSW Annual Report Social Environmental and Economic Performance 2009–10*.

Recreation and tourism

DECCW estate

NSW national parks and reserves provide a diverse range of recreation opportunities that allow NSW residents and visitors to enjoy and learn more about natural and cultural heritage. More than half the visitors go on bushwalks. Other common recreation activities in national parks and reserves include picnics and barbeques, swimming, scenic driving, camping or lodging within on-site accommodation facilities, cycling, fishing, exercising, snow sports, surfing, dining, visiting lookouts, visiting playgrounds

and climbing, caving and canyoning. DECCW licenses recreational and tour operators to conduct a large range of activities, including sightseeing, bushwalking, horse riding, mountaineering, surfing and kayaking, and cultural, educational and eco tours.

PWG is also developing a Sustainable Tourism Action Plan that will provide a statewide approach to prioritising efforts to increase visits and establish NSW as a renowned nature and cultural tourism destination.

State forests

The *Forestry Act 1916* states that an objective of Forests NSW, in addition to timber supply generation, flora and fauna conservation and land management, is to promote and encourage the use of State forests for recreation.

Forests NSW achieves this objective through:

- The provision of Forests NSW-owned recreation facilities and amenities provided for in State forests to individual members of the NSW community free of charge (see Table 6.6B).
- The provision of Special Purpose Permits for activities within the forest by a vast array of organisations and recreational user groups, ranging from fossicking, through to sports and scouting events.
- The provision of Occupation Permits to community and commercial organisations for occupying the land within State forests for a variety of purposes, including recreation. These permits provide sites for activities such as archery and mountain bike tracks. As an example Avon Valley Archers have held an occupation permit with Central operational region since 1987.
- The creation of partnerships, both formal and informal, with recreation user groups to get the best use of the land. These partnerships might be site-specific or more broadly spread like the memorandum of understanding Forests NSW holds with the NSW & ACT 4WD Association.
- The use of strategically applied Community Service Obligation funding to help achieve the government's social objectives, including an increase in community use of forests. A focal point of this strategy is Cumberland State Forest in West Pennant Hills within the Sydney metropolitan area, where visitors can enjoy a range of facilities from an amenity nursery, café, several well equipped picnic areas, an information centre, as well as a number of activities designed for children and schools.

Forests NSW is a government trading enterprise and aims to deliver services and/or products that generate income or at least are cost neutral to the organisation. Some costs are covered by Community Service Funding, which is provided to Forests NSW from public funds to cover the cost of a range of educational and recreational facilities and services.

Table 2-6B: Forests NSW facilities and amenities provided at recreational sites – all regions

Facilities and amenities provided for at recreational sites	Eden	LNE	Southern	UNE	Total
Camping area	5	19	18	3	45
Cabin/hut	2	1	0	1	4
Camping fee	0	1	0	0	1
Lookout	1	12	4	0	17
Picnic area	11	32	11	3	57
Fireplace/BBQ	9	29	10	3	51
Firewood provided	0	1	0	0	1
Toilets	9	31	11	3	54
Wheelchair accessible toilets	1	1	3	1	6
Water (not for drinking)	6	20	11	2	39
Rubbish collection	1	21	3	2	27
Caravan site	6	5	2	3	16

Forests NSW case study

Recreation upgrades – Swans crossing

The recreational site facilities in State forests are free for the public who can also enjoy a range of outdoor pursuits ranging from mushrooming and fishing to hiking and mountain bike riding. People may also ride horses and registered trail bikes, four-wheel drive and take their dog with them in a State forest as long as they control it.

Over the past year, Forests NSW has been upgrading a number of its recreation areas, including Swans Crossing on the mid-north coast in LNE area, which are increasingly popular with the public.

Forests NSW began a major upgrade of Swan's Crossing, a large recreation reserve offering two picnic and six camping spots in Kerewong State Forest West of Kew.

Following a review of existing facilities, the old pit toilets have been replaced with environmentally friendly, safe and attractive new toilets. Old barbecues have been removed; new fireplaces with rock borders installed; and new signs are also planned.

The new design will improve the recreation area and provide day visitors and campers with more modern amenities.

Aboriginal joint management and participation in forest management

DECCW estate – joint management

Aboriginal joint management of parks recognises Aboriginal people's connection to their country. It involves the government and Aboriginal people working together to manage parks for the benefit and

use of the NSW public. Aboriginal joint management contributes to employment for Aboriginal people. For example, across the State in 2009–2010, 123 Aboriginal people were employed on joint managed parks, with 165 Aboriginal people trained in park management, cultural heritage management or corporate governance, and 28 contracts let to Aboriginal businesses. Aboriginal joint management supports the maintenance and promotion of Aboriginal culture. At least 2 100 Aboriginal people participated in Aboriginal community cultural events or activities on joint managed parks in 2009–2010 and another 1 000 non-Aboriginal people participated. At least 1 500 park visitors participated in Aboriginal cultural tours delivered by Aboriginal people on joint managed parks. There are eighteen Aboriginal joint management arrangements for national parks and other protected areas around the State. See the following case studies for examples from within the Forest Agreement areas.

DECCW case study – Yarriabini National Park

On 26 March 2010, DECCW and the Dhungutti and Gumbaynggirr people signed a memorandum of understanding for Yarriabini National Park near Scotts Head. The MOU allows for greater involvement of both peoples in managing Yarriabini National Park, which incorporates Mt Yarrahapinni. This recognises the relationship that has been built since the park was created in 2003. Both peoples have already had significant involvement in managing the park, including creation of the sculpture at the Pines Picnic Area and advice when the Pines Picnic Area and Yarriabini Lookout were redeveloped, as well as on bush foods and Aboriginal heritage management in the park.

DECCW case study – Gaagal Wanggan National Park

On 23 April 2010, the new Gaagal Wanggan (South Beach) National Park near Nambucca Heads was created. This park is owned by the Unkya and Nambucca Local Aboriginal Land Councils and jointly managed with the Gumbaynggirr people.

The new Gaagal Wanggan (South Beach) National Park is the result of the NSW Government and the Nambucca Heads and Unkya Local Aboriginal Land Councils negotiating a resolution to land claims under the *Aboriginal Land Rights Act 1983*. The NSW Government recognised the importance of these lands and waters to the Gumbaynggirr Aboriginal Community and also had a desire to protect the significant coastal and estuarine values of the area and maintain public access and enjoyment. The Aboriginal community represented by the two land councils and a panel of respected Aboriginal community members, known as the Aboriginal Negotiation Panel, also had a desire to see the land conserved and available for use by the public. The Aboriginal community and the NSW Government agreed to settle the land claims by creating an Aboriginal owned and leased back National Park under the *National Parks and Wildlife Act*.

The new Gaagal Wanggan (South Beach) National Park is Aboriginal land the Aboriginal people of the Nambucca Valley want to share with the rest of community. It contains significant Aboriginal cultural values, including cultural sites demonstrating the continuous use of the area by Aboriginal people for many thousands of years. The national park also protects an undisturbed coastal dune system, patches of rainforests, palm forests, coastal shrubland, and heath, and the estuarine communities of mangroves, salt marsh and seagrass beds along Warrell Creek.

DECCW estate – Aboriginal involvement in tourism

In 2009–2010, 13 Aboriginal people in the Tumut Brungle area (Southern FA) have received training and employment in tour guiding with DECCW while building their capacity to manage future business enterprises. They are also recording and preserving local Aboriginal cultural knowledge. Discovery Photographers and local Aboriginal community members worked in partnership to present a 'Discovering Country Photographic Exhibition', which was held at the Rocks Discovery Museum in Sydney. The exhibition is showing at Fort Denison and has been invited to exhibit in China.

Twenty one Aboriginal people from the Macleay/Hastings area (LNE) have received training in Certification II in Tourism. They have also received casual employment as DECCW Aboriginal Discovery guides through this project. The training and employment opportunities are building on their capacity to develop businesses in Aboriginal Interpretive Guiding Tourism. A cultural tourism program, in partnership with the Yaegl community in Southern Bundjalung and northern Yuraygir National Parks, has seen an increase in the number of people attending Discovery Tours and cultural activities in the Macleay and Yamba areas.

DECCW and the Worimi Local Aboriginal Land Council worked together to train 36 local Aboriginal people in tour guiding. This will help the Worimi Local Aboriginal Land Council with their tour guiding operations on Worimi Conservation Lands (LNE). The Worimi Council Lands have a high profile and many existing businesses operate on these lands. All participants in the training received Certificate III in Aboriginal Tour Guiding, with two Aboriginal people being employed as NPWS Aboriginal Discovery Rangers.

DECCW case study

Track maintenance – UNE FA area

Major track maintenance in three World Heritage National Parks took place in partnership with the Bundjalung and Githabul people. Work focused on the Wollumbin Mount Warning Summit Track, the Mt Nardi track system, including the Historic Nightcap Track in Nightcap National Park and the Forest Tops to Sheepstation Creek Walk in The Border Ranges National Park. The crews were made up of a mix of highly experienced staff and local Aboriginal people, which created a tremendous opportunity to transfer knowledge and skills.

Aboriginal cultural heritage in the DECCW estate

The number of Aboriginal cultural heritage recorded places, artefacts, sites or other structures has been reported for all of the Forest Agreement regions annually from the first year of reporting.

Aboriginal Heritage Information Management System (AHIMS) is a database which contains detailed archaeological information on more than 55 000 Aboriginal sites in NSW and more than 9 000 Aboriginal heritage reports. It is used by government, industry and heritage professionals for land use planning, regulation and conservation management, and by local Aboriginal communities to help them manage, conserve and protect local sites and heritage. It is essential to note that a report from AHIMS does not represent a comprehensive list of all Aboriginal objects or Aboriginal places in a specified

area. A report lists recorded sites only. In any given area there may be undiscovered and/or unrecorded Aboriginal objects.

As at July 2010, a total of 6 092 Aboriginal objects have been recorded on-park, with a further 21 922 Aboriginal objects recorded off-park, across all regions (Table 6.6C). Overall, compared with the 2009 figures, there was an increase in the total number of Aboriginal objects, places and values recorded both on and off-park.

Table 2.6C: Total numbers of Aboriginal objects recorded within the regions (current to July 2010)

Region	UNE	LNE	Eden	Southern	Total
Aboriginal objects recorded in region off-park*	2 016	12 122	1 048	6 736	21 922
Aboriginal objects recorded in region on-park	488	2 659	554	2 391	6 092

Note: *Number of sites off-park includes those on private land and non-DECCW public tenure including State forests.

Source: DECCW AHIMS

Aboriginal cultural heritage in State forests

Aboriginal cultural heritage includes physical and spiritual sites, places, objects, stories, oral histories, flora, fauna and documents relating to Aboriginal occupation before and after European contact.

Evidence of the long history of occupation by Aboriginal people, and their use of naturally occurring resources, can be seen in items in the landscape. The identification and management of these items within forests is important to protect Aboriginal cultural heritage in NSW. Forests may contain plants used as food and medicine or animals that are totems or sought for food. The habitats that support this flora and fauna are important to Aboriginal people.

Aboriginal communities place spiritual and cultural value on some locations because they feature in dreaming stories or because of historic events or traditions linked to the land, such as initiation or birthing sites. Consideration of matters arising from Aboriginal association with particular areas, and issues relating to cultural and spiritual beliefs requires close involvement with Aboriginal communities during operational planning.

Forests NSW acknowledges that Aboriginal people should determine the significance of their heritage. The involvement of Aboriginal people is integral to understanding Aboriginal heritage and formulating management responses to culturally important objects and places. Further information on the involvement of Aboriginal people in Forests NSW can be found in the *Forests NSW Operational Guidelines for Aboriginal Cultural Heritage Management*. This is available online on the Forests NSW website at: www.dpi.nsw.gov.au/_data/assets/pdf_file/0011/296615/006-Operational-guidelines-for-ACH-managemen.pdf

As part of pre-harvest planning, Forests NSW uses the DECCW AHIMS system to check the Forests NSW system has not missed any detected sites. In addition, previously detected sites are protected from the impact of harvesting operations.

This is followed by a pre-harvest survey normally in consultation with the local Aboriginal community. If a site is detected, the long-term management of the site is determined in consultation with the local Aboriginal land council or indigenous representatives.

Forests NSW reported the number of Aboriginal sites identified in State forests in the *Forests NSW Annual Report Social Environmental and Economic Performance 2009–10* and contributes to the records in the AHIMS Register. No sites of Aboriginal significance were reported as destroyed during 2009–10.

To meet new requirements brought about by the *National Parks and Wildlife Amendment Act 2010*, Forests NSW has revised the Operational Guidelines for Aboriginal Cultural Heritage Management. The revised guidelines will help Forests NSW to exercise due diligence when carrying out activities that may harm Aboriginal objects and to either ensure the protection of Aboriginal cultural heritage objects or sites or determine whether it should apply for consent to harm in the form of an Aboriginal Heritage Impact Permit.

Forests NSW case study

Aboriginal traineeships

Recently, two Grafton men were selected under the Forests NSW Indigenous Recruitment Strategy to take a two-year Certificate III Traineeship in Forest Growing and Management.

The two men were recognised for their talent and potential to gain new and invaluable skills over the next two years. The traineeship is based in Grafton in the UNE FA area and provides experience working in native and plantation forests on a 12-month rotational basis supplemented by Technical and Further Education (TAFE) study for the next two years.

The traineeship includes opportunities to engage in a variety of field-based and manual works, including slashing, spraying, firefighting, clearing tracks, pruning, maintaining facilities and equipment, road construction, fire protection works such as hazard reduction burning, measurement and assessment of trees and general fieldwork in plantations and/or native forest areas.

Forests NSW has partnered with the Aboriginal Employment Service (AES) on this project, which has helped with recruitment and promotion and will be involved as the employer of the trainees, while Forests NSW will be the host employer to provide ongoing mentoring.

Historic (non-Indigenous) cultural heritage

The number of historic heritage features, including recorded places, artefacts, sites, buildings or other structures, has been reported for all of the FA regions annually from the first year of reporting. Data are sourced from the Historic Heritage Information Management System (HHIMS). HHIMS contains information on over 9 000 historic heritage sites (with around two-thirds of these located in FA regions), moveable heritage collections, reports and DECCW statutory permit delegations under the *Heritage Act 1977*. A total of 5 341 historic items and places was recorded on-park across all of the regions (Table 2.6D).

Table 2.6D: Total numbers of historic places recorded in national parks and reserves within the regions (current to June 2010)

No. of historic places recorded on-park	Region				
	UNE	LNE	Eden	Southern	Total
	771	1950	276	2344	5341

Source: DECCW Cultural Heritage Division

Section 7: Legal, institutional and economic frameworks

Legislative update

In 2009–2010 the following new and amended Acts and Regulations were passed in the Forest Agreement areas and are relevant to forest management were as follows:

All regions

National Parks and Wildlife Amendment Act 2010 – this act made changes to the *National Parks and Wildlife Act 1974* (NPW Act), the *Threatened Species Conservation Act 1995* (TSC Act) and other miscellaneous legislation. These included changes to a number of areas that have an affect on FA areas, such as Aboriginal cultural heritage regulation, park management, wildlife enforcement and threatened species.

National Parks and Wildlife Amendment (Visitors and Tourists) Act 2010 – this amends the *National Parks and Wildlife Act 1974* (NPW Act) and the *Wilderness Act 1987* (Wilderness Act) to facilitate the sustainable use and enjoyment by visitors and tourists of lands reserved under the NPW Act.

National Parks and Wildlife Regulation 2009 – this was a new major instrument delegating the functions of the Minister for Climate Change and the Environment. It consolidates the current instruments delegating Ministerial functions; and delegates additional Ministerial functions to appropriate DECCW officers.

Southern FA area

Historic Houses Amendment (Throsby Park Historic Site) Act 2010 – this revokes the reservation of the Throsby Park Historic Site as an historic site under the *National Parks and Wildlife Act*. The Throsby Park Act instead vests the site, which is located in the Southern Highlands, in the Historic Houses Trust NSW.

UNE FA Area

National Parks and Wildlife (Broken Head Nature Reserve) Act 2010 – this revokes the reservation under the *National Parks and Wildlife Act* of a small area of the Broken Head Nature Reserve. The land is to be transferred to the Arakwal Aboriginal Corporation in accordance with an Indigenous Land Use Agreement. The Broken Head Act does not operate to extinguish any native title rights and interests existing in relation to the land.

Environmental management systems (EMS)

DECCW park management framework

The concept of an environmental management system (EMS) for park management is being delivered through the Park Management Program (PMP). The PMP covers all areas of Parks and Wildlife Group (PWG) operations on park. The PMP is founded on a best practice framework adapted from the IUCN for assessing the effectiveness of management in protected areas.

How the PMP relates to Australian Standard ISO 14001:2004 for Environmental Management Systems is being examined. Initial analysis against the Australian Standard shows key components of an EMS are in place within PWG, including the plan of management manual and fire management manual, which are regularly updated.

Other components include rigorous and standardised processes for assessing the likely environmental impacts of proposed works in parks in accordance with the *Environmental Planning and Assessment Act 1979*. This includes training and guidelines in making reviews of environmental factors (REFs) and conservation risk assessments (CRAs). Systematic regional operations planning also occurs that requires incorporating strategic objectives and key data sets into decision making.

The State of the Parks program, which evaluates values, condition, threats and management effectiveness across all reserves, continues to advance and inform decision making and environmental practices at operational and strategic levels.

PWG also has a range of resources in place to help achieve the objectives of an environmental management system and these include an increasingly sophisticated approach to asset maintenance supported by an asset maintenance system, PWG's Protected Areas Climate Change Statement and Action Plan; DECCW's Climate Change Statement of Intent; DECCW's Sustainability Action Plan; a comprehensive park management policy manual; and the Parks Management Monitoring and Evaluation Guide.

DECCW-PWG will not pursue certification against the Australian Standard but will try to more clearly describe how current PMP resources and practices can be benchmarked against the standard. The PMP is not static and will continually evolve as new information from monitoring and evaluation is fed back into planning and decision making.

Forests NSW EMS

Forests NSW maintained certification to the internationally recognised EMS standard ISO 14001:2004.

Two external audits took place during 2009–2010. The first was a recertification audit in September, which applied to the Australian Forestry Standard (AS 4708:2007) and the Environmental Management Systems Standard (ISO 14001:2004). During this audit the external auditors visited Western, Northern, North East, Southern and Hume Regions.

The auditor reported that Forests NSW was continuing to comply with both standards, while systematically implementing recommendations of previous audits.

In March 2010 a surveillance audit to both standards took place in Native Forests Branch Central & Planted Forests Branch Monaro Regions. Forests NSW also passed this audit and continues to act on recommendations included in the audit reports.

During the year Forests NSW published details of the Forests NSW defined forest area for AFS on the organisation's website (www.industry.nsw.gov.au).

PWG's plans of management

Under the *National Parks and Wildlife Act 1974*, a plan of management must be prepared for each terrestrial park and reserve. These plans are statutory documents that set out conservation values; management goals; priorities for managing weeds, pests and fire; access arrangements; recreational opportunities; visitor facilities; neighbour relations; and priority works for the years ahead.

In 2009–10, 14 plans of management were adopted within the FA areas. These included plans for Gibraltar Nature Reserve (UNE), Jerrawangala National Park (Southern) and Wallingat National Park (LNE). A further 27 draft plans were placed on exhibition for public comment during the year. These include Dangelong Nature Reserve (Eden), Tallaganda National Park (Southern), Belford National Park (LNE) and the Yarrungully Nature Reserve and State Conservation Area (UNE). Regional operations plans are prepared each year to implement the actions and strategies in plans of management in a systematic and prioritised way.

Forests NSW ESFM plans

Forests published ESFM plans for each of the Forest Agreement areas during 2005–2006. The plans run until 2011. The plans contain objectives and targeted outcomes in each of the following strategy areas: natural heritage, Aboriginal cultural heritage, non-Aboriginal cultural heritage, nature conservation, forest health, sustainable timber supply, economic development, social development, forestry operations, and consultation, monitoring and reporting.

ESFM plans also specify that a number of supplementary plans will be produced covering the main land management activities. Current progress on these supplementary plans is provided in Table 2.7A below. A number of these supplementary plans are also required to be prepared under the non-licence terms of the UNE, LNE, Southern and Eden IFOAs. Of the plans listed below, model plans for weed and pest management have been approved by regulators

Table 2.7A: Forests NSW implementation of ESFM supplementary plans as at 30 June 2010

Supplementary plan name	Planted Forests Operations Branch			Native Forests Operations Branch		
	Northern region	Hume region	Monaro region	Central region	North East region	Southern region
Road management plan	Up to date	Up to date	Up to date	Up to date	Up to date	Up to date
Fire suppression plan	Under review	Up to date	Up to date	Up to date	Up to date	Up to date
Fuel management plan	Under review	Under review	Up to date	Up to date	Under review	Under review
Weed management plan*	Up to date	Up to date	Under review	Up to date	Up to date	Up to date
Pest animal management plan*	Up to date	Up to date	Under review	Up to date	Up to date	Under review
Grazing management plan	Under review	Under review	Under review	Under review	Under review	Under review
Dedicated reserve management plan	Under review	Up to date	Under review	Under review	Under review	Under review
Informal reserve management plan	Under review	Under review	Under review	Under review	Under review	Under review
Forest health plan, including regeneration procedures	Up to date	Under review	Under review	Under review	Under review	Under review
Apiculture management procedures	Up to date	Up to date	Up to date	Up to date	Under review	Under review

* note – Denotes that model plans required under the UNE, LNE, Southern and Eden IFOAs have been approved by regulators. Regional plans must be consistent with approved model plans. This applies to areas covered under IFOAs only.

Source Forests NSW data

In 2009–10 some specific developments in relation to ESFM supplementary plans were:

- Ministerially approved plans are current for 66 flora reserves within the FA area.
- Corporate Pest Animal, Dedicated Reserve and Grazing Management Model Plan templates approved late in 2009–10 by the Forests NSW CEO and awaiting Ministerial approval (Minister for Primary Industries). The joint North East Region and Northern Region Fire Suppression Plan from 2005 will be updated from July 2010.
- Regeneration procedures have been implemented for all native forest operational regions, while the corporate model forest health plan is still at draft stage.

A draft fuel management plan for each region is scheduled to be completed by January 2011.

State of the Parks

The NSW State of the Parks program provides an ongoing systematic approach to monitoring and reviewing park management strategies and actions. It does this for every park in the state and supports:

- an improved understanding of the condition of and pressures on the park system

- evaluating the effectiveness of management activities against objectives and planned outcomes
- informing planning and decision-making at all levels of management, from state-wide to individual parks
- measuring the establishment of the NSW park system
- promoting effective communication of our management performance to communities.

All parks within the system have been extensively evaluated most recently in 2007 and 2010. These evaluations cover all elements of park management, including natural and cultural heritage management, management of visitor opportunities, asset management and threat abatement.

As part of describing the attributes of each park, relevant Forestry Agreements areas are identified. Though this, all park evaluations can be 'cut' to examine their responses for each FA. Where possible, changes have been made to the State of the Parks survey evaluation to ensure that specific reporting requirements for the FA process can be met in a comprehensive manner.

Forests NSW SEEing report

Forests NSW first annual sustainability report 12 years ago improved public and stakeholder accountability. In 2005, following an inquiry into sustainability reporting in the NSW Public Sector, the NSW Legislative Assembly Public Accounts Committee recognised the Forests NSW SEEing Report as best practice.

Go to:

www.parliament.nsw.gov.au/Prod/parliament/committee.nsf/0/C25E8E08F367896ECA2570BC000D8705

The SEEing Report indicators are now incorporated into the Forests NSW Annual Report Social Environmental and Economic Performance report.

The relevance of indicators to social, environmental and economic performance has changed over time as part of the process of continual improvement. Forests NSW reviews and amends the suite of indicators to more closely fit with the International Montreal Process Criteria, Global Reporting Initiative Sustainability Reporting Guidelines, Forest Agreement Criteria and Indicators and business information requirements.

The indicators are designed provide a better understanding of how Forests NSW is performing in delivering ecologically sustainable forest management. While environmental sustainability is explicit in this, economic and social sustainability are integral parts of successfully managing NSW State forests into the future.

Each FA area has its own ESFM plan and there is a close relationship between the goals and objectives of these plans and the indicators used in this report and the Forests NSW Annual Report Social Environmental and Economic Performance.

Forests NSW internal audit and compliance

All forestry operations are audited consistent with Forests NSW four-tier system, which is defined in Circular 2003/01 Monitoring and Measuring Compliance of Operations, is available at: www.dpi.nsw.gov.au/data/assets/pdf_file/0003/268050/050-Forest-Practices-Circular-2003_01.pdf.

The four tiers comprise the following:

- Tier 1 (T1) – Regular inspection, supervision, control and fortnightly reporting by field supervisors recording those facets of the operation where compliance with specifications is achieved and those facets where compliance is not achieved. In cases where compliance is not achieved, any remedial action required is to be recorded and followed up.
- Tier 2 (T2) – Regular checks and documentation by Foresters and Forest Assistants, firstly to confirm field supervisors are implementing T1, and secondly to assess the supervisors' application of specifications. Non-compliance is followed up and remedial action taken as required.
- Tier 3 (T3) – Audits by appropriately qualified regional and divisional (including Head Office branches such as the Forest Practices Directorate) staff to confirm T2 supervision, monitoring and non-compliance follow up are in place and planning and operational systems are working consistently and effectively. This includes checks on the application of Forests NSW systems, specifications and standards.
- Tier 4 (T4) – Random audits of operations by the Management Audit and Review Branch. These audits assess the implementation of systems and application of specifications or prescriptions. Other matters assessed include standards of planning and compliance with regulatory approvals, codes of practice, Australian standards, and statutory requirements such as *Occupational Health and Safety Act 2000*, *Pesticides Act 1999* and *OHS Amendment (Dangerous Goods) Act 2003*.

One of the cornerstones of the Forests NSW EMS is this four-tiered audit system. The EMS monitors and assesses trends in non-conformances through the Non Conformance Improvement Request System (NCIR). The incidents are recorded throughout all tiers. NCIRs are monitored at regional and corporate levels to resolve each issue and build it into a continuous improvement cycle, and deal with any emerging trends through appropriate means, such as inclusion in the relevant environmental management program.

In addition to internal audits, external EMS/Australian Forestry Standard (AFS) requirements are audited every nine months. Regulating authorities also carry out regular audits to check on compliance associated with the IFOA in milestone 18.1.

Non-compliance issues that are identified in audit processes are rectified as appropriate and management systems improved to minimise future occurrences. Auditors guide Forests NSW as to whether non-compliance is at acceptable levels.

Penalties may be applied to contractors for breaches found during audits. Appropriate action is determined with consideration of factors such as the type, frequency and severity. Penalties range from

warning letters, penalty infringement notices and suspension to termination. Contractors and operators are trained in all aspects of the operations to minimise compliance issues.

Results of internal and external regulators audits are reported annually in Forests NSW SEEing Report, see: www.dpi.nsw.gov.au/aboutus/resources/corporate-publications. Results from the AFS and external audits from checking the EMS (ISO 14001:2004) within Forests NSW are also available on request from the EMS Manager of Forest NSW.

Private native forestry audit and compliance

Harvesting timber for the purposes of native forestry on private lands requires approval through development consent or the preparation of a private native forestry property vegetation plan. As at end June 2010, DECCW had issued 1,281 property vegetation plans for private native forestry activities.

DECCW has also established an auditing and compliance program to ensure compliance with the new private forestry arrangements. This program includes operational inspections of PNF activities, investigations of public reports of potential unauthorised logging operations and audits to identify non-compliance with the PNF Code. As at end June 2010, DECCW had carried out 162 site inspections and audits. In most cases, forestry operations are complying with the Code of Practice. Four penalty infringement notices have been issued and nine operations had to undertake corrective action.

The private native forestry reforms are being supported by information publications, as well as training programs delivered by TAFE NSW and Industry and Investment NSW.

Conservation initiatives

BioBanking

BioBanking is a market-based scheme that provides a streamlined biodiversity assessment process as part of development processes, including a rigorous and credible offsetting scheme and opportunities for rural landowners to generate income by managing land for conservation.

The first BioBanking agreement was signed in May 2010 to protect 80 ha of native vegetation on a property owned by the Missionaries of the Sacred Heart south of Camden, on Sydney's outskirts. The protected land includes 35 ha of critically endangered Cumberland Plain woodland and 30 ha of endangered shale sandstone transition forest. The site falls within DECCW's priority conservation lands for the Cumberland Plain. Although this area is not within forest agreement regions, this is the first of several BioBanking sites under negotiation in NSW.

Establishing the BioBanking Scheme has included preparing guidance materials, setting up the BioBanking Trust Fund and facilitating the first trades. Over 80 private consultants have been accredited as BioBanking Assessors and over 40 site owners have registered their interest in setting up a biobank site.

Biodiversity certification

In June 2010, changes were made to the *Threatened Species Conservation Act 1995* to strengthen provisions relating to biodiversity certification. Biodiversity certification is a process designed to help councils and the NSW Department of Planning to strategically plan for biodiversity conservation at

landscape scales, rather than site by site, at the same time as they plan for new suburbs and associated infrastructure.

The biodiversity certification process involves assessing the type and condition of native vegetation present, surveying and evaluating habitat for threatened species, ensuring protection for habitats of particular importance and delivering offsets where clearing of habitat is unavoidable.

The specific changes introduced in 2009–10 include:

- applying certification to land, instead of environmental planning instruments, to cut administrative processes and provide clarity to the legal controls applying to particular parcels of land
- establishing a scientifically sound assessment methodology to ensure decisions are repeatable, transparent and meet high environmental standards
- expanding the range of conservation measures that can be taken to conserve or enhance the natural environment
- setting stronger enforcement mechanisms to allow a more targeted response.

A methodology will soon become available to assist planning authorities to implement the new provisions.

Property vegetation plans

The *Native Vegetation Act 2003* established the use of property vegetation plans as a way of setting areas for clearing, using offsets and providing incentives. The plans are negotiated agreements between land holders and catchment management authorities. By 30 June 2010, 1 824 property vegetation plans had been approved, including 1 260 that include incentive payments to farmers to improve or protect native vegetation.

This system has reduced clearing approvals from more than 12 000 ha in 2005–06 to around 2 640 ha in 2009–10.

As from April 2009, property vegetation plans that propose broad-scale clearing must register a summary of the plan on the land title. This ensures that agreed conservation benefits and clearing approvals continue to apply to the land, regardless of future changes in ownership.

Conservation agreements and wildlife refuges

Conservation Agreements are established on an in-perpetuity basis under section 69A-KA of the *National Parks and Wildlife Act 1974* protecting private and other public lands with significant natural and/or cultural heritage conservation values. As at 30 June 2010, 268 conservation agreement covenants covering 127 500 ha were in place across NSW. Conservation agreements complement the public land reserve system as part of the protected area system in NSW.

Wildlife refuges are proclaimed on a long-term basis under s68 of the *National Parks and Wildlife Act 1974* protecting private and other public lands with important wildlife and habitats. At 30 June 2010, a

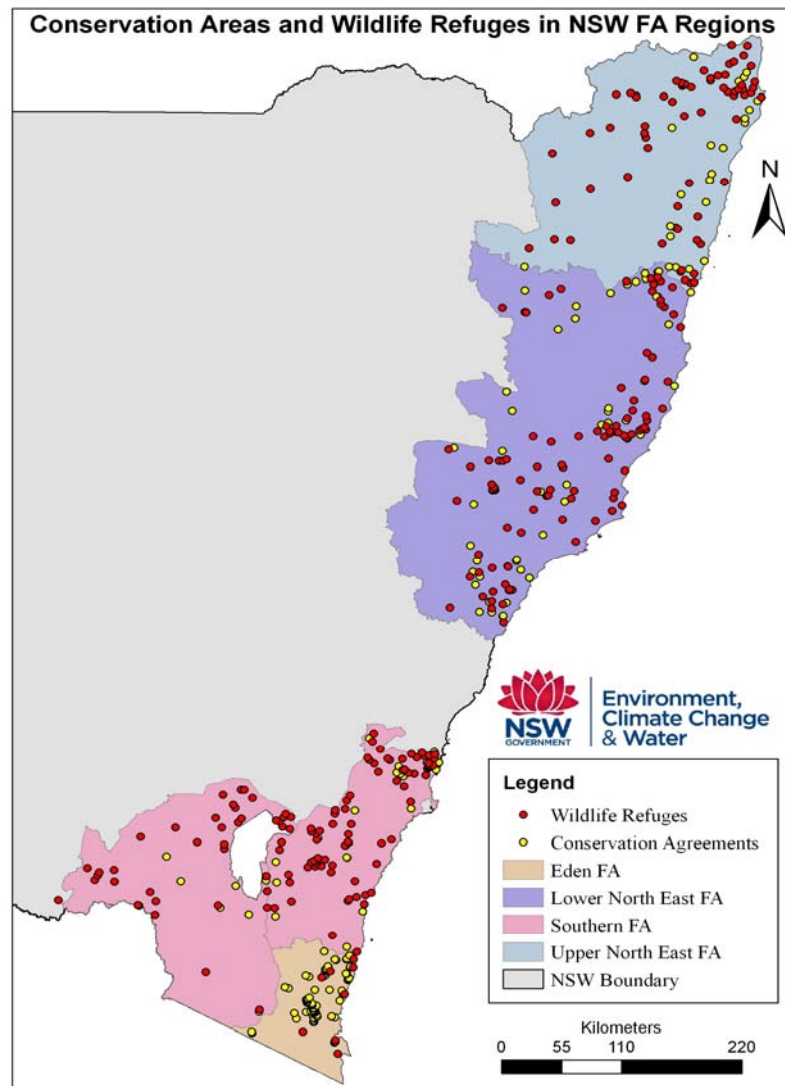
total of 659 wildlife refuges were in place covering approximately 1.93 million ha of land. Wildlife refuges may provide for other land uses compatible with wildlife conservation if deemed appropriate.

Table 2.7B and Figure 2.7A below highlight the number, area and approximate spatial location of conservation areas and wildlife refuges in Forest Agreement regions.

Table 2-7B: Number and area of conservation agreements and wildlife refuges in forest agreement regions as at 30 June 2010

Name of FA	Conservation agreements (number)	Area protected (hectares)	Wildlife refuges	Area protected (hectares)
Eden FA	88	2,683	8	638
Upper North East and Lower North East FA	85	8,793	167	67,414
Southern FA	37	5,121	117	57,104

Figure 2.7A: Approximate locations of conservation agreements and wildlife refuges in forest agreement regions as at 30 June 2010



Community involvement in forest management

Volunteering on the DECCW estate

In 2009–10, volunteers contributed significantly to conservation efforts in, and public appreciation of, national parks. It is estimated that each year at least 3 800 volunteers contribute more than 172 000 volunteer hours to activities that include weed and fire control, ecological conservation in and outside parks, threatened species programs, and community education.

DECCW recognises the valuable contribution of volunteers and the importance of community involvement in protecting and conserving nature and cultural heritage in the New South Wales. In 2009, DECCW invested additional resources in volunteering, developing a volunteering policy and establishing a DECCW Volunteer Coordination Network to support and encourage volunteering across the State.

In 2009–10, NPWS implemented its strategy for volunteering and achievements, which included 122 staff trained across 12 locations in Volunteer Operational Policy and Procedures; four two-day training courses in volunteer management reaching more than 50 staff; induction materials for volunteers and volunteer supervisors distributed; and more than 10 new volunteer projects started.

Volunteer activities in national parks include: supporting conservation management; participating in the recovery of threatened species; restoring bushland; helping to protect Aboriginal heritage; helping conserve historic sites; wildlife rescue and rehabilitation; and furthering community education initiatives. The 'Skinks, Sandplots and Students Initiative' is an example in the Southern FA that allows secondary school students to participate in a long-term fauna monitoring program investigating the effects of different fire histories at Bournda National Park.

DECCW Discovery Program

The Discovery Program builds on NSW Government's State Plan, the DECCW's Living Parks: a sustainable visitation strategy, the PWG Strategic Plan and Discovery Program goals for providing interpretation and community education.

Discovery guided experiences can be grouped broadly into four service areas:

1. interpretive walks, talks and tours
2. seasonal school holiday programs
3. curriculum-based school education; and
4. sub-contracted services for the private sector e.g. tourism industry.

During 2009–10, the Discovery Program helped achieve such corporate outcomes as:

Increased visitors to national parks

With 218 000 people who participated in the Discovery Program, there was a 12% increase in participation. In particular the Blue Mountains region experienced a good increase in participation from providing specialist tours focusing on biodiversity, Aboriginal culture and iconic locations plus a new Discovery for Kids Club during the school holidays.

Conveying key conservation messages relating to environmental, historic site and cultural heritage locations and topics through a wide variety of guided experiences

Over 9 400 guided experiences were conducted. The year included regular programmed experiences, such as canoeing, tag-a-long vehicle tours, wildflower walks, bird watching, spotlighting and bike riding, plus special themed experiences for students and other community groups.

Building a more diverse constituency for the value of parks and the role of the NPWS in their protection and conservation

A high range of community engagement where the main growth areas are school students (a total of 94 880 attended, which is 8% of the entire enrolled school aged children in NSW) and NSW family groups (72% of school holiday program total).

Forests NSW community education program

Forests NSW offers a range of community education initiatives to contribute towards the NSW Government's State Plan and Forests NSW Communications Strategy. These include:

- interpretive walks and talks at Cumberland State forest
- curriculum-based school education programs at Cumberland and Strickland State forests
- curriculum-based education resources delivered via Forests NSW website and LandLearn website — an initiative of I&I NSW, NSW Farmers, and Royal Agricultural Society of NSW
- school holiday programs at Cumberland State forest.

During 2009–10 the following outcomes were achieved:

- 3 907 school students participating in curriculum-based school education programs
- public programs resulted in indirect education (via stalls at events and education expos) with another 8 500 people.
- 1 039 people participated in school holiday activities and a weekly program of community education activities was offered at Cumberland State forest
- new content available on LandLearn website focusing on climate change and forestry.

Forests NSW case study – Hosted tours offer insight into forest management

Forestry can be a contentious topic in Australia, and Forests NSW business attracts interest from local communities and interest groups across NSW.

In response to this interest, Forests NSW continues to extend its offer to local communities to visit State forests and learn more about forestry and forest management. During 2009–10 staff hosted two tours of State forests near Eden. The trips focused on issues and operations specific to the NSW south coast, with staff presenting information about the local industry, various types of timber and forest products, and the strategies employed in sustainable forest management.

The feedback received was positive with attendees appreciating the opportunity to talk one-on-one with staff about the issues and get an up-close look at the processes Forests NSW employs.

Additionally, for ten years, Forests NSW has also been running teacher education trips to forests. These educational trips occurred within State forests near Bathurst and the Southern Highlands. The focus was pine plantations and examining the cycle from establishment through to harvest. The groups were able to see the variety of harvesting methods used in plantations associated with thinning and clearfall, as well as discuss forest management issues like fire and recreation management.

Research

Forests NSW

Forests NSW research and development aimed at improving forest management and delivery of forest goods and services can be found in the *Science and Research and Forests NSW Research and Development Annual Report 2008–09*:

www.dpi.nsw.gov.au/aboutus/resources/corporate-publications%20.

While the 2009–2010 *Forests NSW Research and Development Report* has not been published to date, it is in the final stages of drafting and is expected to be published shortly.

Of particular interest is continuing research into the application of biodiversity monitoring programs and LiDAR (Light Detection And Ranging) to improve mapping and inventory processes.

DECCW

Although not necessarily specific to forest agreement areas, the *Department of Environment, Climate Change and Water NSW Annual Report 2009–10* details research projects that are being done or have DECCW staff involved. DECCW papers that were published and presented in 2009–2010 are listed in Appendix 14: Papers published and presented.

DECCW case study

Detecting small to medium mammals in Ben Boyd National Park and Nadgee Nature Reserve

Ben Boyd National Park and Nadgee Nature Reserve, in the Eden FA, are priority areas for the conservation of the threatened southern brown bandicoot (*Isodon obesulus*). Since 1999, PWG has investigated the effects of fox baiting on the health of small- to medium-sized mammal populations, in particular the southern brown bandicoot. While fox baiting has been effective at reducing the abundance of foxes in Ben Boyd NP, detecting statistically significant changes in the abundance of bandicoots has remained difficult due to inherent natural fluctuations in populations and the practical limitations of traditional sampling methods like live-trapping, which is logistically demanding. Recent work investigating alternative methods has taken place in these reserves, and a more feasible method for detecting bandicoots and other small to medium mammals, infra-red remote cameras, is now available. Infra-red cameras are now being used to monitor species in this area, and also in various other reserves across NSW.

DECCW case study**Eastern bristlebird northern population decline – UNE FA area**

In the last 30 years the northern population of the eastern bristlebird has declined dramatically by an estimated 80% and contracted in range. Several populations in the northern range have recently become extinct in Queensland and New South Wales. The most recent population census suggests there are perhaps less than 35 birds remaining in the northern population scattered across various tenures (Rohweder 2010).

The northern population of the eastern bristlebird meets the criteria for 'critically endangered' under IUCN categories of threat.

The species, which is highly territorial, rarely flies and relies on strong grass tussocks for nesting. It is highly vulnerable to continued habitat loss, inappropriate fire regimes and predation by introduced species.

The eastern bristlebird recovery team has established a number of important conservation measures, including a successful captive breeding and release program, annual population census and habitat restoration works on public and private lands, including applying more appropriate fire regimes and controlling invasive pest plants and feral predators.

3 Compliance with integrated forestry operations approvals

INTRODUCTION

Integrated Forestry Operations Approvals (IFOAs) provide the operational framework for the conduct of forestry operations in State forests and on Crown timber land. The approvals, made under the *Forestry and National Park Estate Act 1998*, contain non-licence terms and terms of licences under the *Protection of the Environment Operation Act 1997* [Environment Protection Licences (EPLs)], *Threatened Species Conservation Act 1995* [Threatened Species Licences (TSLs)] and the *Fisheries Management Act 1994* (Fisheries Licences). Threatened Species Licences and Environment Protection Licences are administered by EPRG (part of DECCW), and Fisheries Licences are administered by DPI–Fisheries. An IFOA enables authoritative, unambiguous and consistent environmental regulation of native forest harvesting operations. There are four IFOAs in place; they cover each forest agreement region.

IFOA AMENDMENTS

- Amendment Number 5 to the IFOA for the Upper North East (UNE) region was granted on 19 April 2010. The amendment extends, for an additional two years, the applicability of conditions granted under Amendment Number 4 for the UNE IFOA. Detail on Amendment 4 for the UNE IFOA was provided in the forest Agreement Implementation Report for 2007–2008.

ENVIRONMENT PROTECTION LICENCE AND THREATENED SPECIES LICENCE

Introduction

The Department of Environment, Climate Change and Water's (DECCW) role in managing Forests NSW forestry operations is to protect the aquatic environment from water pollution and protect threatened species and their habitats. Compliance with the conditions set out in the Environment Protection Licences (EPL) and Threatened Species Licences (TSL), which are issued to Forests NSW, are the specific means by which this is achieved. These licences are contained within the Integrated Forestry Operations Approvals (IFOA) for the Upper North East, Lower North East, Southern and Eden regions.

TSL coverage is mandatory in all active native forestry operations. Forests NSW may exercise its right not to seek EPL coverage for certain operations; however, these operations are still subject to section 120 of the *Protection of the Environment Operations Act 1997*, which prohibits the pollution of waters.

Summary of auditing program

To determine Forests NSW compliance with licence conditions and other relevant legislative requirements, DECCW has developed an active audit program of Forests NSW forestry operations. The audit program ensures Forests NSW is taking the required measures to protect the environment through planning and operational activities.

Non-compliance with conditions of the licences are dealt with through meetings with senior Forests NSW officers, issuing feedback or warning letters, clean-up notices, penalty notices or prosecution action as appropriate to the circumstances.

Between 1 July 2009 and 30 June 2010, DECCW made 25 audits of Forests NSW pre-operational planning and operations in forest regions covered by an IFOA. These audits identified a total of 147 non-compliances with the EPL and 192 non-compliances with the TSL. As a result of these audits Forests NSW was issued with five penalty notices, ten warning letters, three advisory letters and was required to seek expert soil conservation advice for one site and make remedial works in six instances.

The outcomes of DECCW's audit program in each forestry region are detailed below.

Upper North East region (UNE)

In the UNE region, EPL coverage applied to 11 separate forestry operations, with 142 operations where harvesting occurred without EPL coverage and TSL applied to 153 forestry operations. DECCW made one proactive audit, two proactive compliance campaigns and five reactive audits as a result of community complaints.

The audits identified a total of 143 non-compliances with licence conditions in the UNE IFOA region, 64 of these non-compliances related to the EPL requirements and included:

- failure to exclude harvesting from wetlands
- incorrect or insufficient drainage structures on roads and snig tracks
- incorrect or insufficient drainage structures at drainage feature crossings
- administrative errors, including failure to complete planning requirements and/or the inclusion of incorrect information in planning documents
- incomplete or insufficient recording of EPL breaches
- waste left at logging sites.

DECCW identified 79 non-compliances with TSL conditions, including:

- failure to protect wetlands
- lack of or inadequate marking of exclusions zone and habitat features

- incomplete or insufficient pre-logging and pre-roading surveys for threatened species
- inadequate selection of habitat and recruitment trees
- failure to protect retained habitat and recruitment trees
- failure to exclude forestry operations from rainforest areas
- incomplete or insufficient recording of TSL breaches

As a result of the audits, DECCW provided verbal feedback, requested remedial work in two instances and issued three warning letters to Forests NSW outlining the issues of non-compliance identified. Forests NSW were also issued with five penalty notices for the Upper North East region.

Lower North East region (LNE)

In the LNE region, EPL applied to 9 forestry operations, with 222 operations where harvesting occurred without EPL coverage and TSL applied to 231 forestry operations.

In the LNE region, DECCW made three proactive compliance campaigns and one proactive audit. These audits identified 63 non-compliances of EPL best practice conditions, including:

- incorrect or insufficient drainage structures on roads and snig tracks
- incorrect or insufficient drainage structures at drainage feature crossings
- administrative errors, including failure to complete planning requirements and/or the inclusion of incorrect information in planning documents
- incomplete or insufficient recording of EPL breaches.

DECCW identified 27 non-compliances against TSL, including:

- incomplete or insufficient pre-logging and pre-roading surveys for threatened species
- failure to protect retained habitat and recruitment trees
- incomplete or insufficient recording of TSL breaches.

As a result of these auditing activities in the LNE forest region, DECCW provided feedback, sent one advisory letter, issued two warning letters and requested remedial works in one instance.

DECCW also identified 28 offences under the *Protection of the Environment Operations Act 1997* in the LNE region, for which regulatory work is ongoing.

Southern region

EPL coverage applied to 8 Forests NSW operations in the Southern region, there were 44 operations where harvesting occurred without EPL coverage and TSL applied to 52 forestry operations.

DECCW ran three proactive compliance campaigns and two proactive audits of Forests NSW operational and planning activities , and one reactive audit as a result of community complaints. These audits identified 20 non-compliances with the EPL, including:

- administrative errors, including failure to complete planning requirements and/or the inclusion of incorrect information in planning documents
- incomplete or insufficient recording of EPL breaches.

DECCW identified 34 non-compliances with TSL:

- incomplete or insufficient pre-logging and pre-roading surveys for threatened species
- failure to protect retained habitat and recruitment trees
- inadequate selection of habitat and recruitment trees
- failure to exclude forestry operations from rainforest areas
- incomplete or insufficient recording of TSL breaches

As a result of these audits, DECCW provided feedback, issued three warning letters to Forests NSW for non-compliance with licence conditions, requested remedial works in two instances and requested soil conservationist advice on one occasion.

DECCW officers identified 10 breaches of the *Protection of the Environment Operations Act 1997* for which regulatory work is ongoing.

Tumut subregion

EPL applied to 18 forestry operations and TSL applied to 20 forestry operations in the Tumut subregion. DECCW ran one proactive compliance campaign for which regulatory work is ongoing.

Eden region

EPL applied to 62 forestry operations and TSL applied to 62 forestry operations in the Eden region. There were no operations where harvesting occurred without EPL coverage.

DECCW ran one proactive compliance campaign within the region and five reactive audits. These audits identified a total of 52 non-compliances with the TSL, which included:

- lack of or inadequate marking of exclusions zone and habitat features
- inadequate koala surveys
- incomplete or insufficient pre-logging and pre-roading surveys for threatened species
- failure to protect retained habitat and recruitment trees
- incomplete or insufficient recording of Threatened Species Licence breaches.

No non-compliance with the EPL was identified.

As a result of these audits, DECCW provided feedback to Forests NSW, sent two advisory letters, issued two warning letters for non-compliance with the TSL and requested remedial works in one instance.

FISHERIES LICENCES

Non compliance with the Fisheries Threatened Species Licence (FL) contained in the Upper North East Integrated Forestry Operations Approval (IFOA) are audited by DPI–Fisheries. Offences and issues under investigation for the 2009–2010 reporting period are as follows:

Yabbra SF

Breaches related to marking exclusion/buffer zones, logging trees and using machinery within the 10 metre exclusion zone around wetlands and the marking of exclusion zones and logging of trees within the 10 metre exclusion/buffer zone of unmapped drainage lines.

Action taken:

- Two (2) penalty notices were issued to Forest NSW
- Two (2) formal cautions were issued to Forest NSW

Grange SF

Currently under investigation.

Girard SF

Currently under investigation.

There were no identified breaches of the FL in the other relevant IFOA regions during the reporting period.

NON-LICENCE TERMS

DECCW oversees the implementation of, and investigates complaints in relation to, non-licence terms¹⁶ in the UNE, LNE, Eden and Southern IFOAs. DECCW also coordinates discussions about various IFOA implementation issues with I&I NSW as they arise. They include requirements to draft or complete a number of plans required under the non-licence terms, such as regional weed and feral animal management plans. Complaints about non-licence terms received from the public during 2009–2010 included one made in relation to annual logging reports.

¹⁶ The non-licence terms are the conditions in the IFOA in addition to the terms of the licences. They include description of forestry operations, duration, and area that the IFOA applies.

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Appendices

Appendix A: Bushfire classes

Bushfires are defined into three classes relating to the control and coordination of the fire:

For Class 1 fires, control and coordination will be maintained by the first response fire authority until such time as it can be handed over to the relevant land manager where appropriate.

For Class 2 fires, control and coordination will be in accordance with the provisions of a plan of operations for the affected rural fire district.

For Class 3 fires, control and coordination will be by a person appointed by the Commissioner of the RFS.

Acronyms and abbreviations

AHIMS	Aboriginal Heritage Information Management System
BMAD	Bell miner associated dieback
CMA	Catchment management authority
COG	Candidate old growth
CRA	Comprehensive regional assessment
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DECCW	Department of Environment, Climate Change and Water
DOG	Disturbed old growth
EMS	Environmental management system
EPRG	Environment Protection and Regulation Group (part of the Department of Environment, Climate Change and Water)
EPL	Environment Protection Licence
ESFM	Ecologically sustainable forest management
FA	Forest Agreement
FTE	Full-time equivalent (employees)
FMZ	Forest management zoning system
FRAMES	Forest Resource and Management Evaluation System
GERI	Great Eastern Ranges (Alps to Atherton) Initiative
GIS	Geographic Information System
HCVOG	High conservation value old growth
HHIMS	Historic Heritage Information Management System
IFOA	Integrated Forestry Operations Approval

IUCN	International Union for Conservation of Nature
LNE	Lower North East
MIG	Montreal Process Implementation Group
NCIR	Non Conformance Improvement Request System
NFPS	Joint State Commonwealth National Forest Policy Statement
NPWS	National Parks and Wildlife Service (now encompassed within PWG of DECC)
PAS	Priorities Action Statement
PMP	Park Management Program
RFA	Regional Forest Agreement
PR Act	<i>Plantations and Reafforestation Act 1999</i>
PIN	Penalty infringement notices
PWG	Parks and Wildlife Group (part of the Department of Environment and Climate Change)
SEEing Report	Social, Environmental and Economic Report
SoP	State of the Parks (a survey, report and database managed by the PWG of DECC)
TSL	Threatened Species Licence
UNE	Upper North East

Glossary

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

CAR reserve system – The national reserve system, or CAR reserve system, aims to ensure the protection of a range of forest values. The acronym ‘CAR’ defines the goals of the reserve system: *comprehensive* – full range of forest communities recognised by an agreed national scientific classification at appropriate hierarchical levels; *adequate* – the maintenance of ecological viability and integrity of populations, species and communities; *representative* – those sample areas of the forest that are selected for inclusion in reserves should reasonably reflect the biotic diversity of the communities.

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 *National Forest Policy Statement* (NFPS) (Commonwealth, 1992). All Australian governments, as signatories to both the National Strategy for Conservation of Australia’s Biological Diversity (1996) and the NFPS, endorsed the goal of a CAR system of reserves for Australia. The CAR system is activated within the *Directions for the National Reserve System — A Partnership Approach* (Natural Resource Management Ministerial Council 2005). Priorities for building the DECC reserve system in each biogeographic region of NSW are identified in the *New South Wales National Parks Establishment Plan 2008*.

carbon sequestration – Carbon sequestration in terrestrial ecosystems can be defined as the net removal of carbon dioxide from the atmosphere into long-lived pools of carbon, such that the carbon dioxide originally in the atmosphere effectively can no longer physically or chemically act as atmospheric carbon dioxide. The pools can be living, above-ground biomass (e.g. trees); products with a long, useful life created from biomass (e.g. timber); living biomass in soils (e.g. roots and microorganisms); or deeper subsurface environments, such as depleted oil and gas reservoirs, unmineable coal seams, deep saline formations or deep ocean.

Comprehensive Regional Assessment (CRA)/ Regional Forest Assessment (RFA) – Assessments made by NSW Government and Australian Government agencies and community stakeholders that looked closely at the impacts of changes to forest use and management on the environment, economy and community. The CRAs and RFAs included assessments of natural, cultural, social and economic values.

DECC estate – land acquired, reserved or dedicated under the *National Parks and Wildlife Act 1974*. ‘DECC estate’ may also refer to land declared as aquatic reserve under the *Fisheries Management Act 1994*, or marine park under the *Marine Parks Act 1997*, when managed by DECCW. DECC estate was called ‘NPWS estate’ in the RFAs.

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

dieback – Where trees respond to acute stress by reducing their crown.

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

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

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

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

Environment Protection and Regulation Group (EPRG) of DECCW – Leads the State's response to regulating a diverse range of activities that can affect the health of the NSW environment and its people. 'Regulation' is delivered by using a mix of tools, including education, partnerships, licensing and approvals, audit, enforcement and economic mechanisms. The group generally works outside the protected conservation areas and focuses on the areas where populations and economic activity interact with the environment.

filter strip – A strip of vegetation or groundcover along each side of a watercourse/drainage line, retained for the purposes of retarding or reducing lateral flow of runoff and sediment movement into the watercourse/drainage line and reducing the risk of channel and streambank erosion.

forest – A vegetation type dominated by woody vegetation having a mature, or potentially mature, stand height exceeding 6 m, with an overstory canopy cover greater than 20%.

forest ecosystem – Native vegetation overstory of trees with greater than 20% canopy cover. Forest ecosystems were mapped and defined during the CRAs in terms of floristic composition in combination with substrate and position within the landscape. The **JANIS report** identified forest ecosystems as the primary surrogate for biodiversity in CRAs.

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

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

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

gazettal – The formal process by which land becomes part of the NSW parks system, announced by a notice published in the NSW Government Gazette.

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

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

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

Microchiropteran bats – Microbats that constitute the suborder Microchiroptera within the order Chiroptera (bats).

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 overstory is in the late-mature to over-mature growth phases.

park – In this report, this refers to any area, within the Forest Agreement regions, of national park (NP), nature reserve (NR), State conservation area (SCA), regional park (RP), Aboriginal area, historic site or karst conservation reserve (KCR) managed by the Parks and Wildlife Group of DECCW. See also **reserve**.

Parks and Wildlife Group (DECCW) – Manages NSW protected areas, including national parks, wilderness areas and marine parks for conservation, education and public enjoyment. The group also forms partnerships with communities to protect biodiversity and cultural heritage on private and other public lands.

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.

regions – Relates to NSW forest agreement regions (UNE, LNE, Southern and Eden regions).

reserve – Land identified for conservation or related purposes on a range of tenures, including Crown land, State forest and national park. See also **park**. Includes informal reserves and **dedicated reserves**.

snig track – A track along which snigging equipment (i.e. wheeled or tracked vehicles) travels.

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

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

State Protected Land – Mapped areas of steep land (generally over 18 degrees), mapped environmentally sensitive land, and riparian land along prescribed streams.

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

taxa – Categories in the biological classification system for all living organisms. Taxa (singular: taxon) are used to organise information about the natural world.

tenure – Title to land as controlled by legislation.

threatened species – Any species of plant or animal listed under Schedule 1 (endangered species), Schedule 1A (critically endangered species) or Schedule 2 (vulnerable species) of the *Threatened Species Conservation Act 1995*, or Schedule 4 (endangered species), Schedule 4A (critically endangered species) or Schedule 5 (vulnerable species) of the *Fisheries Management Act 1994*.

Threatened species, threatened populations, and threatened ecological communities profiles are available at www.threatenedspecies.environment.nsw.gov.au/index.aspx.

threatening process – A process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities. These include processes listed as key threatening processes under Schedule 3 of the *Threatened Species Conservation Act 1995* and Schedule 6 of the *Fisheries Management Act 1994*.