

NSW Forestry Snapshot Report 2015–2016



**Implementation of the NSW Forest Agreements
and Integrated Forestry Operations Approvals**



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This report was coordinated by the EPA with assistance from the Office of Environment & Heritage, including the National Parks and Wildlife Service, the Forestry Corporation of NSW and the Department of Primary Industries including Fisheries NSW.

Recommended citation: EPA 2017, *NSW Forestry Snapshot Report 2015–2016: Implementation of the NSW Forest Agreements and Integrated Forestry Operations Approvals*, a report prepared by the Minister for the Environment as part of the implementation of the NSW Forest Agreements and integrated forestry operations approvals, NSW Environment Protection Authority, Sydney.

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Cover and section divider photos: Forestry locations in the Port Macquarie area. B Mails/EPA

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ISBN 978 1 925688 46 7
EPA 2017P0361
May 2018

www.epa.nsw.com.au

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Overview

This seventeenth annual report on the implementation of the NSW Forest Agreements and Integrated Forestry Operations Approvals (IFOAs) provides a snapshot of compliance with ecologically sustainable forest management (ESFM) conditions, and achievement of important milestones and undertakings in NSW forests.

At June 2016, most milestones and undertakings had been completed or were no longer applicable. Of those which were not completed:

- ten were related to management or monitoring plans in preparation by Forestry Corporation or under review by the EPA.
- six are awaiting finalisation of the coastal IFOA remake.
- 53 relate to ongoing work (and will not be marked as 'complete'). These include community consultations, reviews, and Aboriginal employment and training.

This report finds significant steps toward improved biodiversity conservation, harvesting being maintained within approved allocations, and credible regulation of the forestry industry. Progress toward implementing ESFM has continued although there remains room for improvement. Other measures such as rates of sustainable harvesting will need to be carefully monitored.

Biodiversity conservation highlights this year included:

- establishment of 11,811 hectares of flora reserves in Tanja, Murrah, Mumbulla and Bermagui State Forests
- completion of the EPA's koala and threatened ecological communities mapping programs
- progress in controlling orange hawkweed, with National Parks and Wildlife Service (NPWS) rolling out a comprehensive program which could lead to the complete eradication of this aggressive weed in NSW
- further successful delivery of environmental water to the Koondrook State Forest.

These initiatives will help inform ecologically sustainable management of state forests.

Two new agreements with traditional custodians in the Brigalow–Nandewar and South Snowy Mountains regions expanded the area of the state where Aboriginal tenure is formally recognised, and a wide range of partnerships and joint ventures continued to enhance Aboriginal involvement in forestry management and protect Aboriginal cultural values.

Native forest timber products were harvested from coastal and western regions at permissible volumes and quantities. Apart from a reduction in grazing permits, there were no significant changes in the harvesting of non-wood forest products.

Ecological monitoring indicates generally good levels of hardwood and softwood plantation forest health, although Bell Miner Associated Dieback (BMAD) remains a concern. Regeneration rates for hardwood and cypress forest native forests continue to increase, reaching 91% in 2015–16.

The EPA's regulatory work during this period focused on identified compliance priorities, including the selection and protection of hollow-bearing and recruitment trees, koala habitat, stream protection, water pollution and road drainage, forest structure and health, and threatened species exclusion zones. Audits and investigations of forestry operations found comparative levels of non-compliance with Environment Protection Licence (EPL) conditions, Threatened Species License (TSL) conditions and legislative requirements to that of previous years.

Introduction

This is the seventeenth annual report on the implementation of the NSW Forest Agreements and integrated forestry operations approvals (IFOAs), prepared under Section 69H of the *Forestry Act 2012*. It reports on compliance with ecologically sustainable forest management (ESFM) conditions, and achievement of important milestones and undertakings in NSW coastal forest regions (eastern NSW IFOAs). It also reports on timber harvesting, compliance, and the achievement of milestones and undertakings for the Riverina Red Gum, Brigalow–Nandewar, and South Western Cypress regions (western NSW IFOAs).

NSW Forest Agreements and IFOAs provide a strategic and operational framework to manage public forests in NSW, with the overall objective of achieving forest conservation and ESFM.

Implementation of the agreements and approvals is a cooperative undertaking between the following NSW Government agencies, who have also contributed to this report:

- NSW Environment Protection Authority (EPA)
- Office of Environment and Heritage (OEH), including the National Parks and Wildlife Service (NPWS) that manages, conserves and cares for more than seven million hectares of land in national parks and reserves
- Department of Primary Industries (DPI), including Fisheries.

The State-owned Forestry Corporation of NSW (referred to in this report as Forestry Corporation, and as FCNSW in the Appendices) has made a major contribution to this report.

This report provides a snapshot of progress for the period 1 July 2015 to 30 June 2016.

Chapter 1 provides a summary of results of monitoring important ESFM criteria and indicators for forestry areas in NSW coastal regions (and timber supply in coastal and western IFOA regions). This document adopts the *Ecologically Sustainable Forest Management Criteria and Indicators for the NSW Forest Agreement regions 2016* (EPA 2017a).

Chapter 2 outlines compliance with licence conditions and other IFOA requirements in all regions.

Chapter 3 and **Appendices 1 to 4** provide information on progress of key milestones and undertakings within the Forest Agreements and IFOAs for all regions.

Links to other reporting

This report has been streamlined to link with, and not duplicate, other data collection and reporting compiled over the same period, including:

- the *New South Wales State of the Environment 2015* (SoE) report (EPA 2015)
- the *Forestry Corporation Sustainability Snapshot 2015–16* (FCNSW 2016b)
- 2015–16 annual reports of relevant agencies.

The snapshot also refers to other key reports for context, including:

- the *Commonwealth State of the Forests Report 2013* (ABARES 2014)
- the *NSW Report on Native Vegetation 2013–14* (OEH 2014).

At the time of compiling this report, a ten and fifteen-year review of the implementation of the NSW Regional Forest Agreements (RFAs), which cover the Eden, North East and Southern regions of NSW was published (November 2017). The review assessed the achievement of the RFA milestones and commitments between 2004 and 2014.

What regions are reported

The four coastal forestry regions have both Forest Agreements and IFOAs in place:

- Upper North East (UNE)
- Lower North East (LNE)
- Eden
- Southern (including the Tumut sub-region).

The three inland forestry regions have IFOAs but not Forest Agreements:

- Brigalow–Nandewar, including an area under a community conservation area (CCA) agreement
- Riverina Red Gum
- South Western Cypress.

The Riverina Red Gum region overlaps with the South Western Cypress region but they have separate IFOAs in place for their operations.

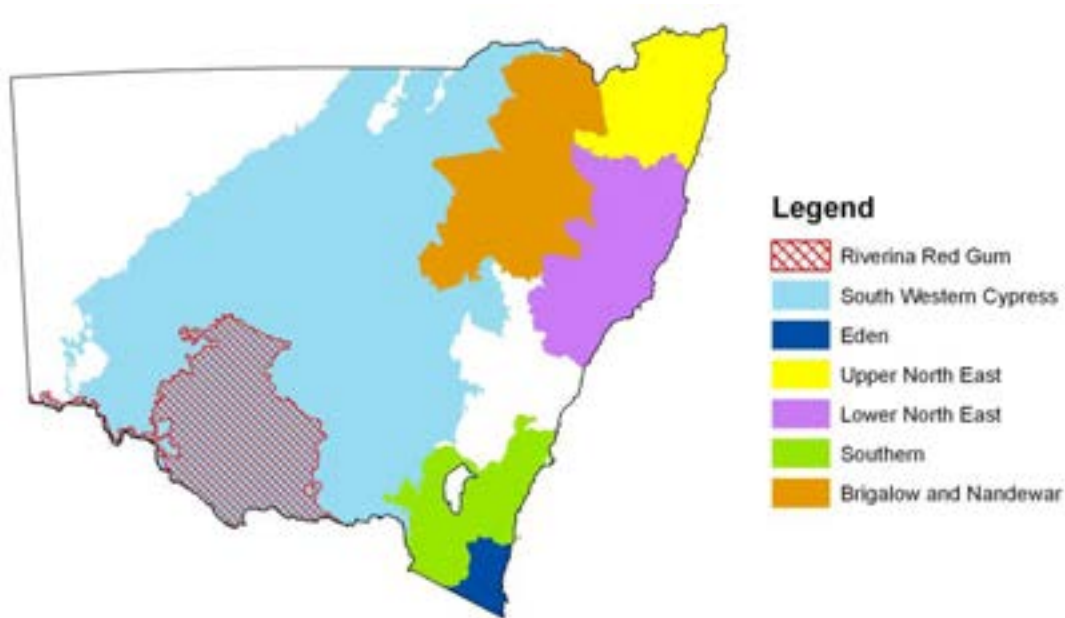


Figure 1: Integrated Forestry Operations Approval (IFOA) regions

More information about the regions is available on the EPA website.

See Appendix 5 for the start and end dates of each Agreement and IFOA.

Remaking the coastal IFOAs

The NSW Government is currently remaking the four coastal IFOAs for the Eden, Southern, Upper and Lower North East regions of NSW into a single IFOA. The remake's objectives are to reduce the costs associated with implementation and compliance and improve the clarity and enforceability of the IFOAs. The NSW Government is committed to delivering these objectives with no change to wood supply and no erosion of environmental values. The coastal IFOA remake does not include the western IFOAs.



Performance indicators



1. Snapshot of ecologically sustainable forest management

ESFM is an internationally recognised approach that aims to maintain forests' broad range of environmental, economic, and social values for current and future generations. The NSW Forest Agreements include ESFM criteria and performance indicators that reflect these key values.

This report provides a snapshot of progress in achieving ESFM in Forest Agreement areas, including details of sustainable timber harvesting volumes and wood products.

Forest Agreements are not in place for the western regions but the report summarises delivery of timber commitments under western IFOAs.

More information on ESFM and the indicators is available in *Ecologically Sustainable Forest Management Criteria and Indicators for the NSW Forest Agreement regions 2016* (EPA 2017a).

Comprehensive reporting against ESFM criteria and indicators at a national level occurs every five years as part of the Australian Government's State of the Forests reporting. The next report will be released in 2018.

Biodiversity conservation

Protecting forest habitat

In NSW 6.1 million hectares of public native forest is protected in formal reserves such as national parks or informal reserves such as scenic protection areas or other areas where timber harvesting is excluded. This represents 27% of the total forest area of NSW (ABARES 2014) and 74% of forest on public land (ABARES 2017).

Transfer of management of state forests

In March 2016, the NSW Government declared 11,811 hectares of flora reserves in Tanja, Murrah, Mumbulla and Bermagui state forests. The first of their kind in NSW, the Murrah Flora Reserves will be managed by NPWS. The creation of these reserves is intended to:

- ensure the long-term conservation of native flora
- manage the recovery of the koala population
- protect Aboriginal cultural values.

Table 1: Composition of the Murrah Flora Reserves

Reserve	Approximate size (hectares)
Mumbulla Flora Reserve no.187	6,146
Tanja Flora Reserve no.188	868
Murrah Flora Reserve no.189	4,223
Bermagui Flora Reserve no.190	574

Source: Murrah Flora Reserves Numbers 187, 188, 189, 190, Interim Working Plan, Mumbulla, Tanja, Murrah and Bermagui State Forests.

Protecting forest dwelling species

Monitoring forest dwelling species helps inform conservation and forest management strategies. Monitoring is particularly important for species at risk of not maintaining viable breeding populations. The OEH, NPWS and Forestry Corporation undertake a range of monitoring programs in NSW forests, both independently and in collaboration. In addition, during 2015–16 the EPA completed two significant mapping programs that will assist the identification and protection of some important forest values.

EPA mapping programs

Koala habitat

In June 2016, the EPA completed a three-year, \$373,000 koala mapping program. The program aimed to improve how koala habitat is identified and managed in areas subject to native forestry. The program has produced:

- a baseline map of koala occupancy, which provides an indication of where koalas are likely to occur across the state
- a pilot mapping assessment, which trialed three different approaches to koala habitat mapping in four state forests in north eastern NSW
- a predictive koala habitat model for the north coast, prepared in partnership with DPI (Forestry).



Figure 2: EPA mapping will contribute to better habitat management in forestry areas. Photo: D Lunney/OEH

Threatened ecological community (TEC) mapping

The EPA has mapped 18 priority TECs across NSW state forests. While TECs are already protected under legislation, they are difficult to identify in the field. The mapping will make it easier to identify, manage and protect these sensitive ecosystems during logging operations on public land. The mapping brings a much higher degree of transparency and reliability to forestry management in areas where these communities occur.

OEH and NPWS monitoring programs

OEH maintains a comprehensive threatened species profile search facility for the public to view and contribute sighting records and profiles of species, populations and communities, including those that are forest dwelling. Forestry Corporation also uses and contributes to this database.

Case study: Protecting the smoky mouse



Figure 3: A range of conservation programs are in place to protect the smoky mouse and its forest habitat.
Photo: L Broome/OEH

Smoky mouse (*Pseudomys fumeus*) is a critically endangered threatened species currently limited to a small number of sites in Victoria, south east NSW and the ACT. OEH has conducted long-term monitoring of a population of smoky mice in South East Forests National Park and the adjoining Nullica State Forest and is working with NPWS to conserve this species from predation and habitat loss. Conservation actions include:

- control programs to protect smoky mice from feral predators such as foxes and cats. These include baiting, trapping and the use of specially trained detection dogs to track cats
- monitoring smoky mouse populations, feral predator numbers and Phytophthora-affected habitat
- measures to protect habitat from Phytophthora dieback, including hygiene protocols and treating vegetation in infected areas with phosphonate.

On 30 November 2015, OEH announced that a small population of smoky mice had been found alive in Kosciuszko National Park for the first time. The population was located in a rehabilitation area, reflecting the success of NPWS habitat revegetation efforts.

Forestry Corporation monitoring programs

Forestry Corporation has long-term monitoring programs in place to gather data on targeted species in forestry areas. These include specially-trained sniffer dogs, digital recorders, thermal image cameras and seasonal trapping programs, in addition to routine pre-harvest surveys. Species are tracked over more than 100,000 hectares of state forests in the Eden area alone. Refer to the *NSW Forest Report 2014–15* (EPA 2017b) for a full list of programs.

Case study: Thriving populations help repopulate other forests



Figure 4: Monitoring indicates that small marsupials such as long-nosed potoroos (*Potorous tridactylus*) are doing well in some southern forests. Photo: M Todd/OEH

Monitoring programs have confirmed that small marsupials, including the vulnerable long-nosed potoroo, the endangered southern brown bandicoot and the critically endangered smoky mouse are persisting and thriving in the timber-producing state forests around Eden, on the NSW south coast. This is likely due to the implementation of large-scale predator control programs.

Due to the robust populations in these production forests, Forestry Corporation has teamed up with Parks Australia to re-introduce some small marsupials to Booderee National Park near Jervis Bay. Over 30 long-nosed potoroos and 11 southern brown bandicoots were relocated to Booderee over a three-year period. Ongoing monitoring is in place to ensure the source populations continue to thrive.

Maintaining the productive capacity of forests

Land available for timber production

Monitoring the productive capacity of native forests helps ensure that demand for forest timber and other wood products can be met sustainably.

Land available in state forests

Forestry Corporation uses 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) and FMZ maps are appended to Forestry Corporation ESFM plans.

Table 2 provides a description of each zone type and the number of hectares classified under each zone across all IFOAs. Table 3 shows the area of state forest in each IFOA region.

Table 2: Forestry Corporation of NSW Defined Forest Area under the Australian Forestry Standard by Zone classifications across all IFOAs

Zone and description	Area (hectares)
Zone 1 – Formal reserves (flora reserves)*	28,294
Zone 2 – Informal reserves	299,218
Zone 3 – Protected by prescription	200,920
Zone 4 – General Management Zone (native forest available for timber production)	1,229,136
Zone 5 – Hardwood Plantations Zone	51,944
Zone 6 – Softwood Plantations Zone	181,936
Zone 7 – Non-Forestry Use Zone	6,559
Zone 8 – Areas for further assessment	986
Zone 90 - Unzoned	20,237
Total	2,019,231

* Murrumbidgee Flora Reserves are not managed by Forestry Corporation and are reported separately in Table 1

Table 3: Forestry Corporation of NSW Defined Forest Area under the Australian Forestry Standard within the IFOA areas and additional areas

State forests	Softwood plantation division (hectares)	Hardwood forest division (hectares)	Total (hectares)
Eden	43,037	152,362	195,399
Lower North East	15,045	481,979	497,024
Upper North East	24,137	416,817	440,954
Southern	154,840	268,356	423,196
Brigalow–Nandewar	1,600	275,697	277,298
Riverina Red Gum	0	36,775	36,775
South Western Cypress	0	148,585	148,585
Total for IFOA areas	238,659	1,780,571	2,019,231
Goulburn sub-region	44,695	0	44,695
Total for state forests	283,354	1,780,571	2,063,926
Timber reserves			
Upper North East	0	823	823
Southern	0	430	430
Brigalow–Nandewar	0	2,669	2,669
South Western Cypress	0	106,597	106,597
Total for timber reserves	0	110,519	110,519
Grand total	283,354	1,891,090	2,174,445

Note: * Timber reserves are Crown land where Forestry Corporation has the right to harvest timber. They are included in the Western IFOAs.

Private native forestry

Private native forestry (PNF) is the management of native forest on privately owned land or public land that is not Crown-timber land within the meaning of the Forestry Act, for the purpose of obtaining forest products on a sustainable basis. There is an estimated 8.5 million hectares of native forests on private land across NSW, of which around half a million hectares is currently authorised to be logged under approval.

The EPA regulates private native forestry under the *Native Vegetation Act 2003* and the [PNF Code of Practice](#). The PNF Code ensures that forest operations improve or maintain environmental outcomes and encourages sustainable management. Approval through a PNF property vegetation plan (PVP) is required to carry out forestry operations on private land. This is a legally binding agreement between a landholder and the EPA which is valid for up to 15 years, giving landowners the security they need to make long-term forest management decisions.

Private native forestry approvals

Forestry operations within approved areas may occur on a cyclical basis at any time during the term of the approval. Only a small percentage of the total approved area will have active forestry operations occurring in the reporting period.

Between 1 August 2007 and 30 June 2016, 3484 PVPs were approved for PNF, covering over 630,000 hectares of private forest. In 2015–16, 51,661 hectares were approved under 339 new PNF PVPs. Environmentally important ecosystems such as rainforest, old growth forest, wetlands and heathlands must be protected under the PNF Code.

Table 4: Area (hectares) of private native forestry property vegetation plans approved July 2012–June 2016

Forest region	2012–13	2013–14	2014–15	2015–16
Northern NSW	43,200	35,190	24,671	41,464
Southern NSW	4,243	494	577	756
Riverina Red Gum	10,047	1,694	871	7,286
Cypress and Western Hardwood	3,698	3,521	1,837	2,155
Totals	61,188	40,899	27,956	51,661

Sources: EPA Forestry Section database; *NSW Report on Native Vegetation 2013–14* (OEH 2014).

Table 5: Total number of property vegetation plans approved July 2012–June 2016

Forest region	2012–13	2013–14	2014–15	2015–16
Northern NSW	285	248	202	306
Southern NSW	28	6	7	13
River Red Gum	26	16	11	18
Cypress and Western Hardwood	9	11	2	2
Totals	348	281	222	339

Source: EPA Forestry Section database.

Additional PNF trends are reported in the OEH *NSW Report on Native Vegetation* (OEH 2014).

Department of Primary Industries – reporting on plantations

Plantations approved under the *Plantations and Reafforestation Act 1999* in coastal IFOA areas since 2011 are listed in Table 6. For earlier data, please refer to the *NSW Forest Report 2014–15* (EPA 2017b). Figures for timber volumes and other products supplied from these plantations are not routinely collected.

Table 6: Area (hectares) of plantations approved under the Plantations and Reafforestation Act (includes state forests and private plantations)

Year	North Coast	Hunter	South Coast
2011–12	1,998	1	18
2012–13	3,364	0	2,226
2013–14	55	73	0
2014–15	69	13	21
2015–16	423	0	604

In addition to the coastal areas, 435 hectares of new plantations were authorised in the Murrumbidgee Catchment Management Authority (CMA) region, bringing the total for this region to 1052 hectares. No new plantations were authorised in the central west.

Sustainable timber harvesting

Monitoring helps ensure that wood and wood products are removed from forests at sustainable levels.

The coastal and western IFOAs specify the types, volumes and quantities of native forest timber products that Forestry Corporation is permitted to harvest. Actual versus specified volumes (or tonnage) harvested are reported here.

The IFOAs permit annual variations to the specified volumes to accommodate changes in environmental and economic circumstances. For example, some timber products may be harvested at levels above average annual quantities, provided specified 20-year limits are not exceeded over the life of the IFOA. During 2015–16, harvested amounts for all regions were either below the annual allocation, or were above but still allowable within the terms of the IFOA.

Compliance with sustainable forestry certifications

The Forestry Corporation produces timber which is certified sustainable under the internationally recognised Australian Standard® (Sustainable Forest Management) otherwise known as the Australian Forestry Standard with the standard name AS4708:2013. Forestry Corporation is also certified to the Environmental Management Standard ISO14001:2004.

To maintain certification, the Forestry Corporation must demonstrate that its forestry activities are undertaken in a systematic manner consistent with these standards and that they meet a range of forest management criteria set out in AS4708:2013.

Forestry Corporation again received independent forest management certification during 2015–16. After a decade of joint certification, Forestry Corporation underwent two rigorous independent audits to certify the Softwood Plantations Division and Hardwood Forests Division separately for the first time.

Audit report summaries are available from the Forestry Corporation website.

Timber harvested in coastal IFOA areas

Figure 5 depicts volumes of logs harvested as a percentage of the volumes specified in the IFOAs. For consistency with earlier reports, Figure 5 excludes poles, piles and girders (which are also specified in the IFOAs). Detailed data for the volumes and quantities of timber extracted from the coastal regions are shown in Table 7. The coastal IFOAs do not cover operations conducted in softwood plantations.

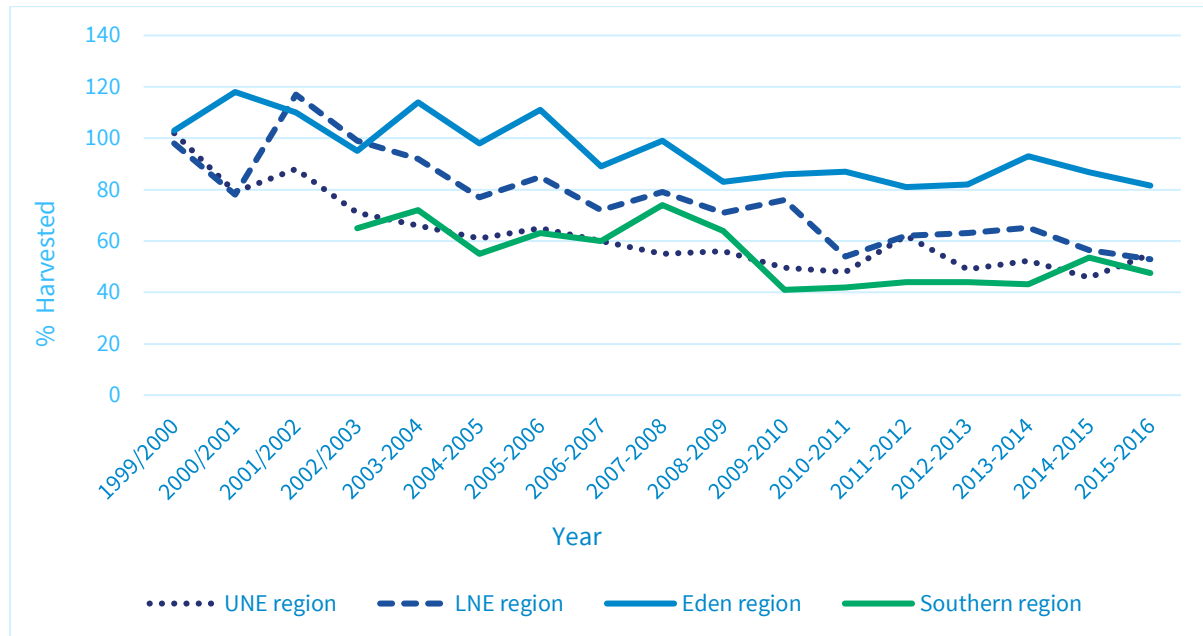


Figure 5: Log volumes harvested as a percentage of volumes specified in IFOAs – all coastal regions

Notes: Quota sawlogs harvested are from native forest and hardwood plantations as permitted under the Forest Agreements.

South Coast sub-region and Tumut sub-region figures have been combined in Southern region since 2002. The percentages of permitted volumes are 68% in the South Coast sub-region and 26% in Tumut sub-region.

Source: Forestry Corporation data

In the **UNE region**, 59,761 cubic metres of high quality large sawlogs and large veneer logs were harvested from native and hardwood plantation forests during 2015–16. This represents 54.8% of the permitted annual volume (109,000 cubic metres) and is an increase from the amount harvested in the previous year (49,975 cubic metres). Forestry Corporation also supplied 7326 cubic metres of poles, piles and girders.

In the **LNE region**, 84,682 cubic metres of high quality large sawlogs and large veneer logs were harvested from native and hardwood plantation forests, representing 52.9% of the permitted annual volume (160,000 cubic metres). This is a decrease from the amount harvested in the previous year (90,242 cubic metres). Forestry Corporation also supplied 8898 cubic metres of poles, piles and girders.

In the **Eden region**, 18,743 cubic metres of high quality large sawlogs were harvested from native forests, representing 81.5% of the permitted annual volume (23,000 cubic metres). This is a decrease from the amount harvested in the previous year (19,967 cubic metres). No piles, poles or girders were supplied from the Eden region.

In 2015–16, 237,478 tonnes of pulp grade timber were harvested in this region, representing 68.8% of the permitted annual volume (345,000 tonnes). This was a decrease from the previous year

(270,532 tonnes). The volume of pulp grade timber harvested from Eden region since 1999–2000 remains below the specified annual volume, as shown in Figure 6.

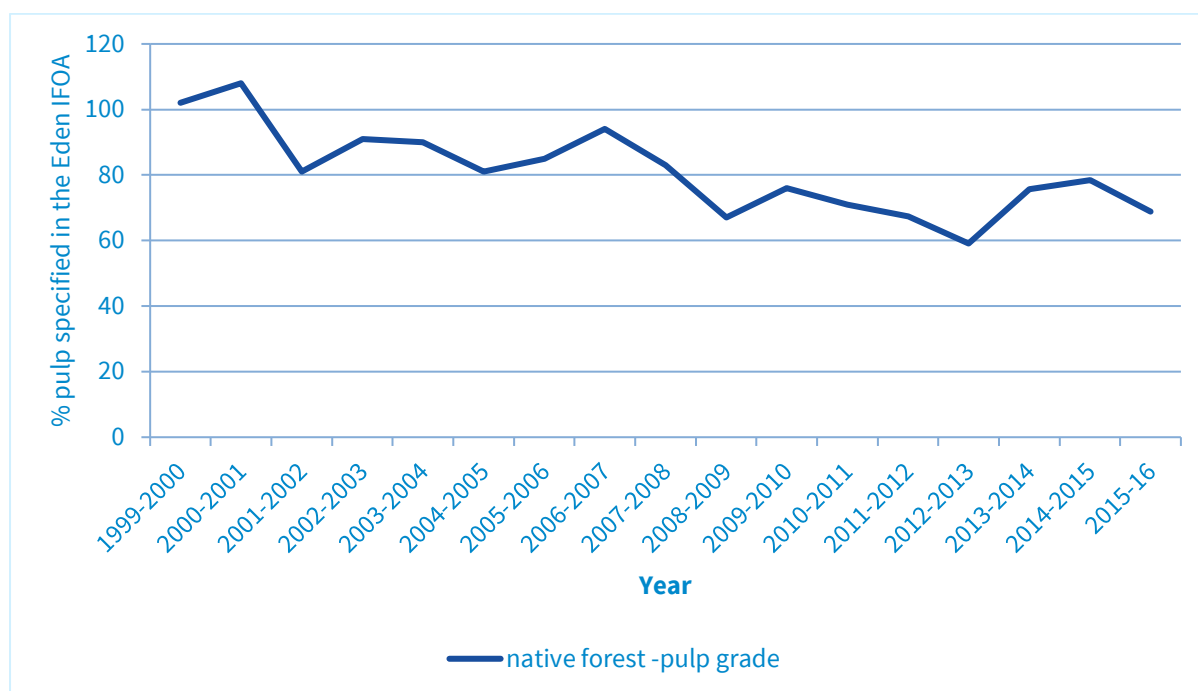


Figure 6: Pulp grade timber harvested as a percentage of volume specified in the Eden IFOA

Note: Pulp quotas are not specified in other IFOAs.

Source: Forestry Corporation data

In **Southern region** 45,838 cubic metres of high quality large sawlogs and veneer logs were harvested. This represents 47.5% of the annual permitted volume, (96,500 cubic metres; comprising 48,500 cubic metres from the South Coast sub-region and 48,000 cubic metres from the Tumut sub-region). The quantities by sub-region are:

- South Coast sub-region: 33,135 cubic metres (68% of permitted volume) plus 3 cubic metres of poles, piles and girders. This was a decrease from the previous year (40,504 cubic metres).
- Tumut sub-region: 12,703 cubic metres (26% of permitted volume). This was an increase from the previous year (9267 cubic metres).

Volumes and quantities not specified in the Forest Agreements and IFOAs

The coastal approvals do not set volume limits for certain timber products which form part of integrated harvesting operations, including low quality sawlogs, firewood and landscape timbers.

Around 364,000 cubic metres of non-specified logs were harvested from Forestry Corporation native forests and hardwood plantations across all coastal Forest Agreement and IFOA regions in 2015–16. This is slightly more than in 2014–15. Around 48,000 tonnes of non-specified pulp grade timber were produced (see Table 7 for further detail). This is slightly less than the previous year.

Table 7: Quantities of native forest and hardwood plantation timber products – coastal regions (2015–16)

Log type	Unit	Southern region		Eden region		LNE region		UNE region	
		South Coast sub-region	Tumut sub-region	Native forest	Hardwood plantation	Native forest	Hardwood plantation	Native forest	Hardwood plantation
Large veneer*	m ³	212	0	0	0	4,715	0	3,341	523
High quality large sawlogs*	m ³	32,922	12,703	18,743	0	79,916	50	52,223	3,674
Small veneer	m ³	0	0	0	0	5,171	0	667	520
High quality small sawlogs	m ³	5,602	194	3,169	0	28,757	117	23,557	1,972
Low quality sawlogs	m ³	16,277	12,640	1,130	0	98,710	323	61,687	27,121
Large poles/piles and girders	m ³	3	0	0	0	8,882	16	7,326	586
Small poles/piles and girders	m ³	254	0	0	0	10,290	162	4,264	252
Fencing/ landscape/ sleepers (sawn)	m ³	29,625	450	1,326	0	10,293	0	2,741	0
Sub-total	m ³	84,895	25,987	24,368	0	246,734	668	155,806	34,648
Pulp grade and chipwood**	t	36,107	2,507	237,478	23,754	137	28	5,111	4,444

Notes: * The IFOAs specify quotas for these products.

** The Eden Forest Agreement and IFOA set pulp grade timber quota requirements. Pulp timber in other regions is not subject to quotas and is reported as 'non-specified'.

Source: Forestry Corporation data. Figures are derived from an operational database and there may have been minor reconciliations since the end of the reporting period.

Timber volumes harvested in western IFOA regions

Riverina Red Gum region

The Riverina Red Gum IFOA identifies average yearly allocations and 20-year limits for high quality large logs and residue logs, and sets maximum annual allocations for early thinning. Figure 7 compares the volume of sawlogs and quantity of early thinning obtained from the Riverina Red Gum region in 2015–16 with previous reporting periods.

During 2015–16, 4769 cubic metres of high quality large sawlogs were harvested from state forests and western lands lease areas. This was above the annual average volume (4413 cubic metres), but allowable provided the 20-year limit (90,253 cubic metres) is not exceeded over the life of the IFOA.

A total of 5039 cubic metres of low quality sawlogs and 28,166 tonnes of residue grade log were obtained. A further 32,298 tonnes of residue were harvested from western lands lease areas.

A total of 45,107 tonnes of residue grade logs were harvested during early thinning operations in Riverina state forests. This is above the annual average (35,370 tonnes), but allowable under the IFOA as long as no more than 212,220 tonnes of residue grade logs are harvested in the region from 1 July 2013 to 30 June 2019.

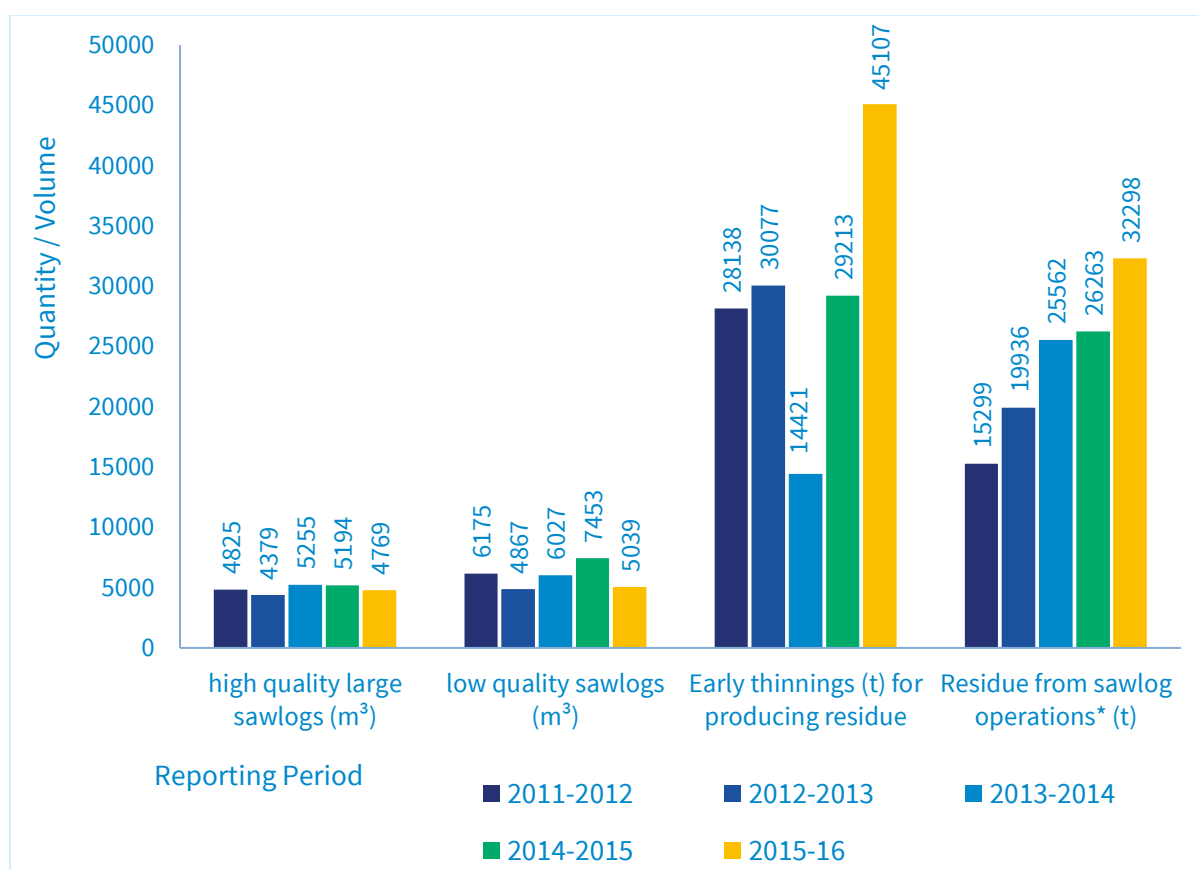


Figure 7: Volume (m³) of high quality large sawlogs and low quality sawlogs, and quantity (t) of early thinnings obtained from the Riverina Red Gum region since the IFOA commenced

Note: Figures do not include residue grade logs harvested from western lands lease areas.

Brigalow–Nandewar region

The Brigalow–Nandewar IFOA identifies average yearly allocations and specifies maximum annual limits for white cypress logs, western ironbark logs, and firewood. The IFOA also specifies maximum annual limits for small quantities of other logs and products. The IFOA allows the harvesting of vegetation products other than timber that are of economic value, such as broombush.

Figure 8 compares the volumes of cypress sawlogs and ironbark sawlogs, and quantity of firewood and fencing obtained from this region in 2015–16 with previous years.

In 2015–16, 19,207 cubic metres of cypress logs were harvested in the region, representing 47% of the annual average permitted volume (41,000 cubic metres). A total of 1310 cubic metres of ironbark sawlog and fencing timber were harvested, representing 64% of the specified annual limit (2050 cubic metres), and 5891 tonnes of firewood were harvested, representing 60% of the average yearly allocation (9800 tonnes).

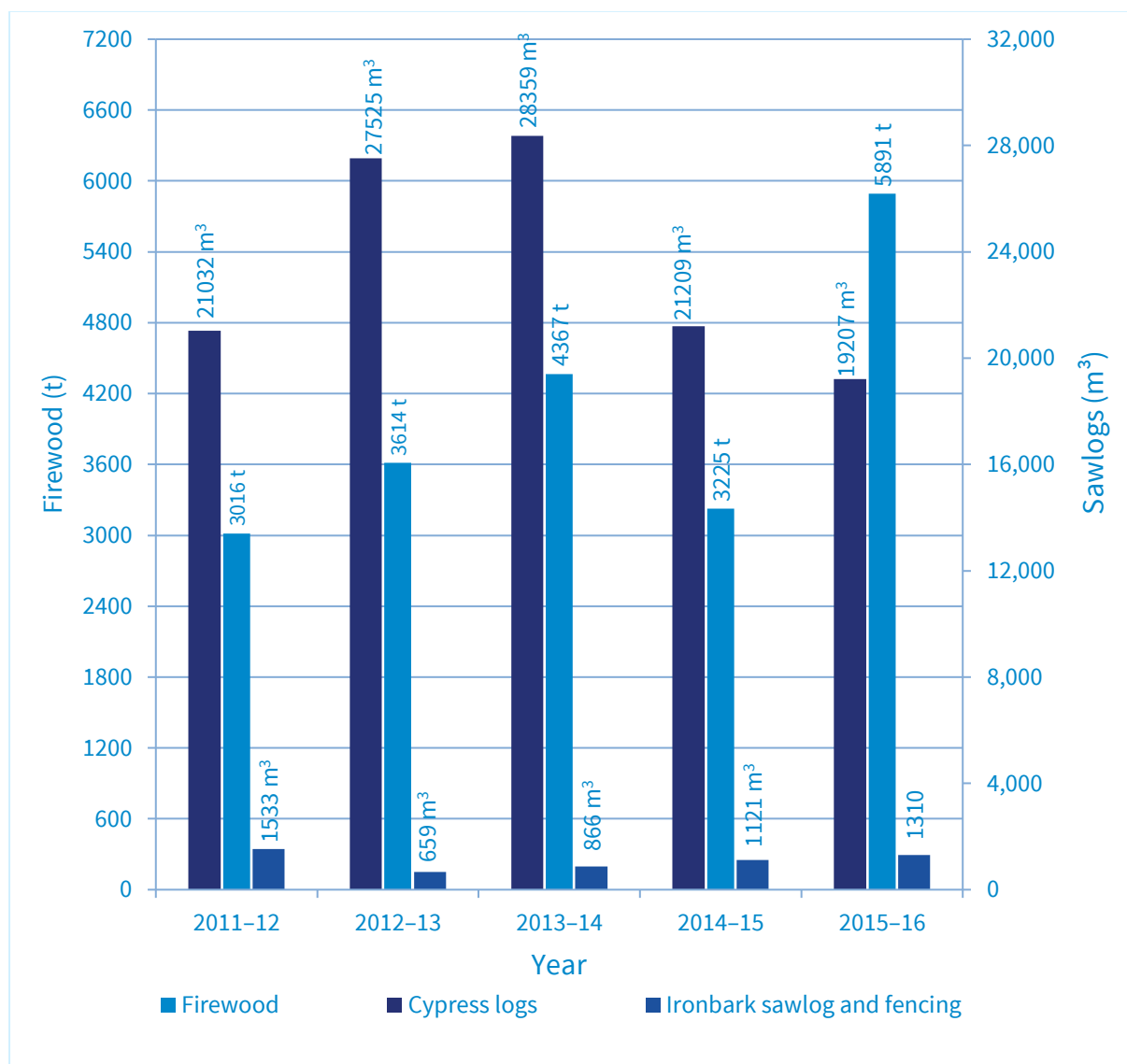


Figure 8: Volumes (m³) of cypress sawlogs and ironbark sawlogs, and quantity (t) of firewood and fencing obtained from the Brigalow and Nandewar region since the IFOA commenced

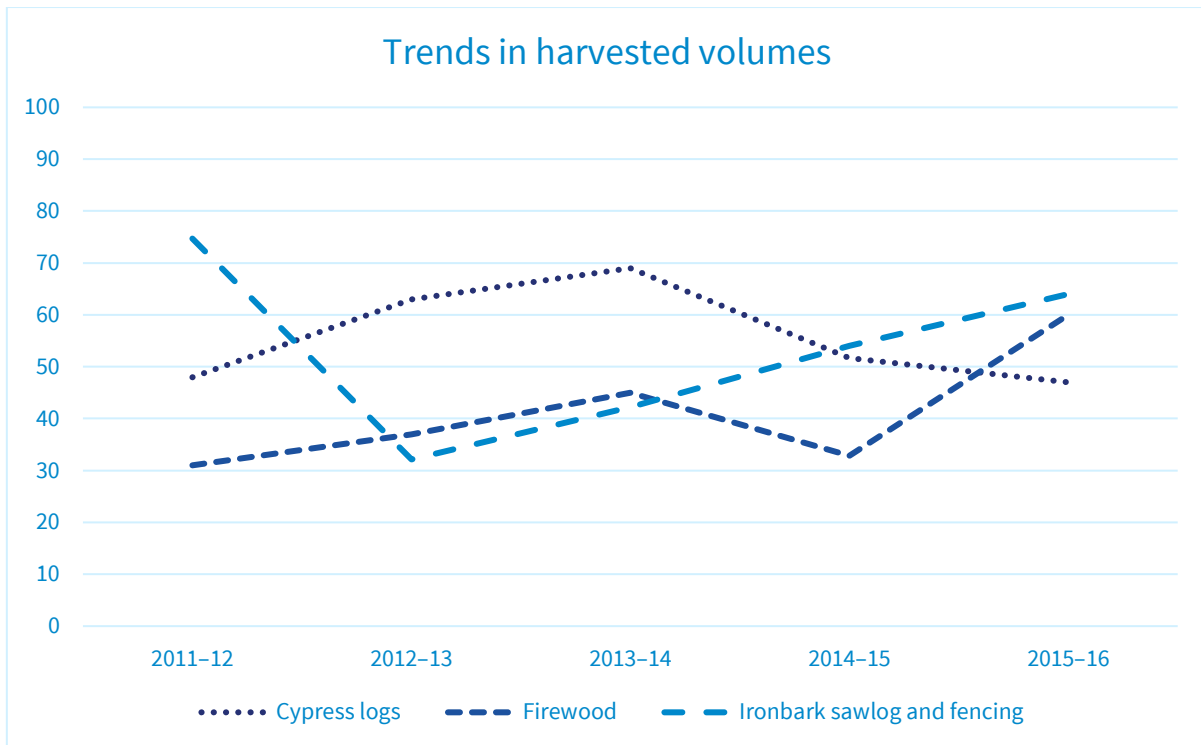


Figure 9: Trends in the percentage of allowable volume over time in the Brigalow –Nandewar region

South Western Cypress region

The South Western Cypress IFOA identifies average yearly allocations and specifies maximum annual limits for white cypress logs. The IFOA also specifies maximum annual limits for timber products other than logs and residue (such as craft wood and vine posts).

Figure 10 compares the volumes and quantities of timber, residue and other products obtained from the South Western Cypress region in 2015–16 with previous years.

The allowable volume of cypress logs from south of the Mitchell Highway is no more than 328,895 cubic metres for the 14.5 year period that commenced 1 July 2011, which averages out to a maximum 31,346 cubic metres of logs in any one financial year.

During 2015–16, 17,569 cubic metres of cypress logs were harvested from **south** of the Mitchell Highway, representing 56% of the maximum permitted annual volume (31,346 cubic metres). No areas were harvested **north** of the Mitchell Highway.

No sawlog harvesting was undertaken on NSW **western lands lease areas**.

Logging operations for the purpose of producing residue timber from white cypress or bull oak trees may be carried out in accordance with clause 32G of the IFOA. A total of 3163 tonnes of residue timber from early thinning were harvested. No timber products other than logs and residue were produced.

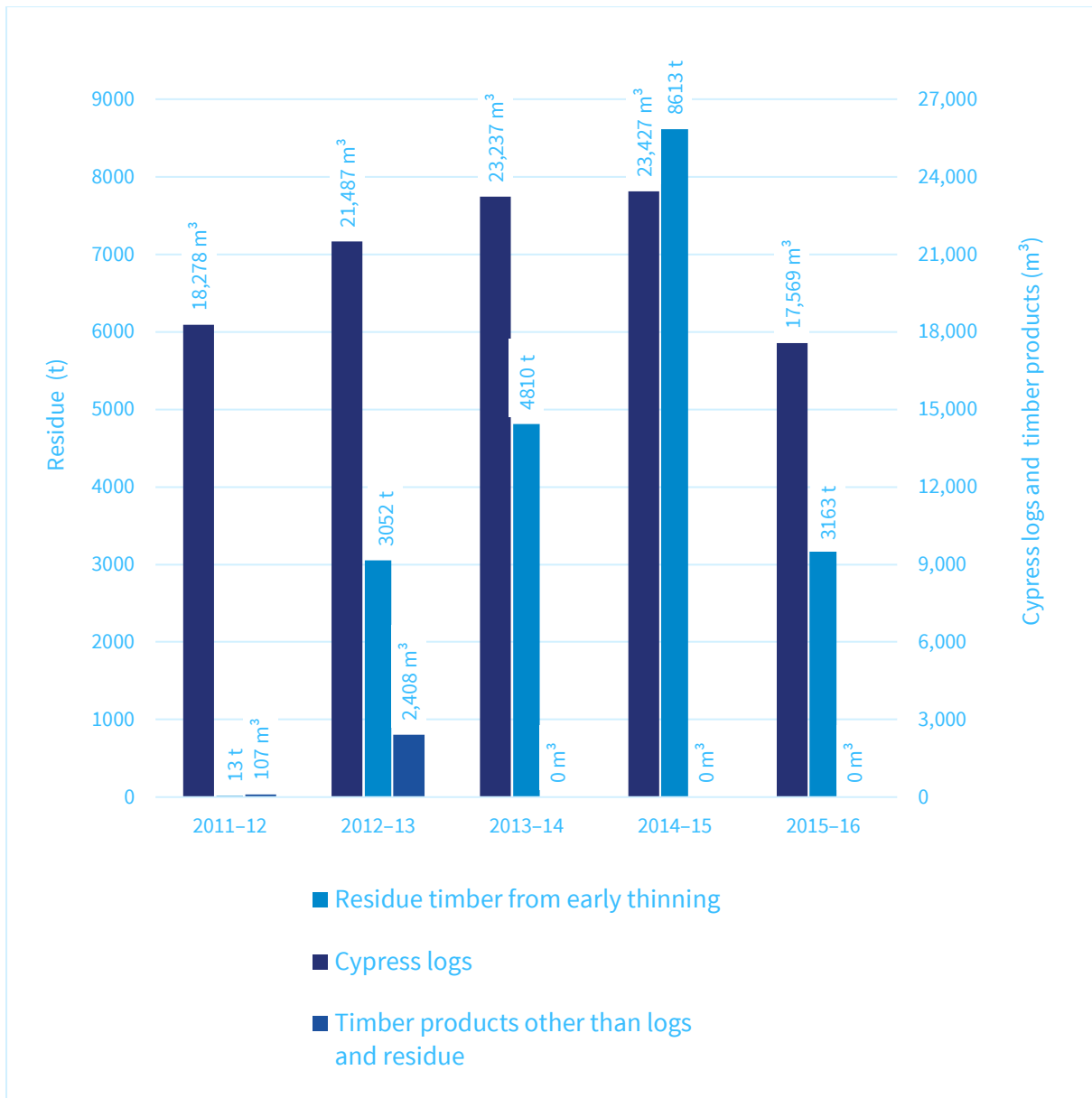


Figure 10: Volume (m³) of cypress sawlogs, timber products other than logs and residue (m³), and quantity of residue timber from early thinning (t) obtained from the South Western Cypress region

Note that zero (0) quantities of timber products and residue were harvested from 2013-14 to 2015-16.

Table 8 summarises timber products obtained from state forests and western lands leases covered by the three western IFOAs in 2015-16.

Table 8: Timber and forest products harvested from western IFOA regions in 2015–16

Product	Volume (m ³) or quantity (t)		Estimated net harvest area (ha)
Riverina Red Gum region			
High quality sawlog	4,769 m ³		240
Low quality sawlog	5,039 m ³		
Residue	28,166 t		
Early thinning	45,107 t		643
Residue (western lands leases)	32,298 t		908
Firewood permits issued	Number	Quantity	n/a*
	531	538 t	
Brigalow–Nandewar region			
Cypress log	19,207 m ³		3,004
Ironbark log	1,310 m ³		Undertaken in conjunction with cypress sawlog and integrated residue operations
Timber products (including ironbark and cypress fencing)	nil		nil
Firewood (not including permits under the <i>Forestry Act 1916</i> (<i>Forestry Act 2012</i> as of January 2013))	5,891 t		Undertaken in conjunction with cypress sawlog and integrated residue operations
Firewood permits issued – see IFOA cl. 82	Number	Quantity	n/a
	429	426 t	
Didgeridoo	0		0
Broombush	362 t		n/a
South Western Cypress region			
Cypress log – south of Mitchell Highway	17,569 m ³		1,531
Cypress log – north of Mitchell Highway	nil		nil
Cypress log (western lands leases)	nil		nil
Residue	3,163 t		935
Timber products	nil		n/a
Didgeridoo	100 pieces		n/a
Firewood permits issued – see IFOA cl. 82	Number	Quantity	n/a
	235	293 t	

Source: Forestry Corporation

* n/a – not available

Sustainable harvesting – non-wood forest products

Monitoring the extraction of non-wood forest products and services helps assess the sustainability of these industries, which can make significant contributions to the livelihoods of NSW communities.

Table 9 shows recent trends in selected non-wood forest products and services in state forests across all forestry regions, compared to a baseline volume in 1999–2000 (the first year in which this data was collected).

The reported amounts of gravel, sand and rock are small and well dispersed across the estate. Most of this material is used in road maintenance and fluctuations in the amounts reported reflect changes in demand.

The 2015–16 drop in grazing is related to non-renewal of permits. Forestry Corporation is not aware of the reasons for non-renewal.

Table 9: Selected non-wood forest products obtained from state forests in NSW – recent trends compared to baseline

Selected forest products	1999–2000	2012–13	2013–14	2014–15	2015–16
Apiculture (sites)	1,413	3,705	3,919	4,015	3,937
Broombush (tonnes)	n/a	1,955	2,396	4,582	2,032
Charcoal (tonnes)	n/a	1,690	1,763	1,124	1,664
Telecommunications (sites)	n/a	131	131	138	141
Firewood – non-commercial (tonnes)*	5,930	3,873	9,053	10,150	10,101
Gravel/sand/rock (tonnes)	44,141	70,051	66,232	37,696	67,167
Grazing (hectares)	354,938	290,817	288,176	284,748	219,702

* Some values have been derived using conversion factors due to multiple units of measure used.

Sources: *Forestry Corporation Sustainability Snapshot 2015–16* (FCNSW 2016b) and *A Draft Report on Progress with Implementation of the NSW Regional Forest Agreements (RFAs)* (EPA 2009)

Table 10 shows trends in the total area Forestry Corporation has authorised for grazing in state forests in western IFOA regions over the past three years. This includes both new and existing grazing permits or forest leases.

Table 10: Information about grazing operations in western IFOA regions 2015–16

IFOA area	Grazing area (ha) 2013–14	Grazing area (ha) 2014–15	Grazing area (ha) 2015–16
Brigalow–Nandewar	6,707	4,660	4,204
South Western Cypress	55,501	43,181	55,935
Riverina Red Gum	11,199	2,569	3,386

Source: Forestry Corporation

Forest regeneration

Re-establishment of forests after harvesting is essential for maintaining productive capacity. The Forestry Corporation reports planting seasons by calendar year. No new (first rotation)

plantations were established on previously cleared land during the 2015–16 planting season. A total of 7991 hectares of the softwood plantation forests age class were re-established, representing a decrease on the previous year’s age class, and 224 hectares of hardwood plantations were re-established.

During this period, 91% of survey plots were effectively regenerated with commercial species; an increase from 81% in 2014–15.

Table 11: Hardwood and cypress forest harvest and regeneration

Year	Estimated area harvest (ha)	Percentage regenerated
2012–13	31,221	69
2013–14	23,807	67
2014–15	23,354	81
2015–16	17,956	91

Source: Forestry Corporation Sustainability Snapshot 2015–16 (FCNSW 2016b)

Maintaining ecosystem health and vitality

Measuring the scale and impact of pests, weeds, disease and insect infestations in forests helps inform the development of adequate management responses. *The NSW State of the Environment 2015* (SoE) report (EPA 2015) provides the most recent overview of pest threats, monitoring and control strategies in NSW.

Monitoring and control

Forestry Corporation conducts annual surveys to determine the impacts of disease and pests on the health of timber plantations it manages. Compared with the previous year, the 2015–16 survey found:

- generally good levels of hardwood and softwood plantation forest health
- a slight increase in damage from Bell Miner Associated Dieback (BMAD), with BMAD identified in several new hardwood plantations
- very low levels of psyllid damage
- an increase in damage from herbivorous insects, with severe damage from Christmas beetles in many *Eucalyptus dunnii* plantations
- although leaf and shoot fungi were identified in many plantations, levels of damage were below the reporting threshold (25% severity)
- the area of damage from stem borers was 3.4%. This was mainly associated with younger *Eucalyptus grandis*, with many of the older *E. grandis* having levels below the reporting threshold (5% incidence)
- myrtle rust was not a significant issue.

Further details are available in *Forestry Corporation Sustainability Snapshot 2015–16* (FCNSW 2016b). Forestry Corporation spent around \$2.1 million on pest animal and weed control under its management in 2015–16, including \$60,000 on research to identify the extent of BMAD across the native forest estate.

Case study: Controlling orange hawkweed (*Hieracium aurantiacum*)



Figure 11: Weed eradication detection dogs Sally and Connor, with (left) Hillary Cherry (handler) and Gen Wright (Flora Ecologist). Photo: J Caldwell/NPWS

Orange hawkweed, a state prohibited weed under the *Biosecurity Act 2015*, is a target for eradication. It is also on the National Environmental Alert List and listed as a national agricultural sleeper weed. Although in NSW this weed is only found in relatively low abundance in and adjacent to Kosciuszko National Park, it is an extremely aggressive coloniser and a major threat to conservation and agricultural land across much of the state.

New tools such as weed eradication detection dogs (WEDDs), advanced chemical control methods, enhanced surveillance strategies and remotely controlled aerial vehicles, which were fully rolled out for the first time in 2015–16, will make it possible to completely eradicate orange hawkweed in NSW.

During 2015–16, 168 people were involved with on-ground actions, including helicopter-assisted remote surveys, WEDD trials and treatment surveys. This included NPWS staff, NSW and Victorian DPI staff, ACT park rangers, local government, Greening Australia, Murray Local Land Services (LLS), Green Army participants and volunteers. To date, over 300 volunteers have been involved, with many returning after previous seasons. They come from around the country, including from the National Parks Association, bushwalking clubs and universities.

Working under the annual operation plan, with clear roles and responsibilities set through OEH project planning procedures:

- 317 hectares of remote and rugged area were searched
- follow-up control was only required across 286 square metres, but new modelling identified an additional 328 square metres in previously unsearched locations

- flowers and bud heads were removed and plants were fully treated with herbicide to decrease their rate of re-emergence
- all personnel followed strict hygiene protocols to ensure humans would not spread hawkweed seed, other weed seeds, or pathogens.

The key to eradication is locating and removing every last plant. This provides a much higher cost-benefit than ongoing management; for example, in the USA, orange hawkweed management costs a total of \$US58M each year, yet even with this high investment, the species continues to spread by 16% annually. The NSW approach now serves as a model for future eradication attempts for other weed species, especially those in remote and rugged conservation areas.

Protecting soil and hydrological functions

The IFOAs specify conditions for protecting forest environments, including measures related to soil and water management. Australia's *State of the Forests Report 2013* (ABARES 2014) provides the most recent overview of soil and water conservation in NSW forests.

Case study: Environmental water continues to deliver benefits

Another 1.5 billion litres of environmental water were delivered to an area within the Koondrook State Forest, in the latest round of flooding under the Koondrook-Perricoota Flood Enhancement Works. Monitoring shows that the flooding, in the spring and summer of 2015–16, has benefited river red gums, frogs and waterbirds in an area north of Barham known locally as 'the Pollack', an Aboriginal word for swamp.

The four-year project is a collaborative effort between Forestry Corporation, OEH, the Bringan Irrigation Trust and community groups. Water was provided by the OEH Adaptive Environmental Water allocation and environmental surveys were funded by the Murray–Darling Basin Authority.

Maintaining forests' contribution to global carbon cycles

Sustainably managed forests play an important role in reducing greenhouse gases by sequestering carbon through forest growth, and through carbon storage in hardwood products such as flooring and furniture.

Forestry Corporation calculates that in 2015–16, softwood forests sequestered a net 3.34 megatonnes of carbon and hardwood forests sequestered a net 5.90 megatonnes. More information is available in *Forestry Corporation Sustainability Snapshot 2015–16* (FCNSW 2016b).

Socioeconomic benefits of forests

In addition to timber, forests provide a range of socioeconomic benefits, such as non-wood forest products and services, for example, honey, cattle grazing, recreation and tourism.

In 2015–16, 4,911,000 hectares of land were available for recreation and tourism in NSW, 88% of which was forest. The next State of the Parks survey, due for completion in 2017–18, will provide a full update on NPWS recreation and tourism data and initiatives.



Figure 12: Flood underway in Koondrook State Forest. Photo: Forestry Corporation

Forestry Corporation's recreation and tourism data and initiatives for the reported period are provided in their Sustainability Snapshot (FCNSW 2016b) and Annual Report (FCNSW 2016a).

Aboriginal connections to forest

There is increasing recognition of the importance of establishing tenure and management arrangements that enable Aboriginal people to maintain cultural, spiritual and social connections to land, including forest areas. During 2015–16, two new agreements covering a total of 507,000 hectares came into effect in forestry regions.

The **Tubba-Gah Indigenous Land Use Agreement – Brigalow and Nandewar region** commenced 1 December 2016. This area of 64,000 hectares includes:

- Goonoo CCA Zone 1 National Park
- Goonoo CCA Zone 3 State Conservation Area.

The **South Snowy Mountains memorandum of understanding for joint management** commenced 25 June 2016. This area of 443,000 hectares includes 23 reserves, mostly in the Southern region with a small amount of land in the Eden region. This includes more than 60% of Kosciuszko National Park.

Employment in the forest sector

Employment in the forest sector is a direct measure of how forests contribute to the NSW economy. In 2015–16, around 22,000 people worked in NSW forestry and forest products manufacturing industries. Of these, around 8900 worked in the forestry, logging and support services sector, including 570 at Forestry Corporation. This figure comprised 308 employees primarily involved in management, administration and technical roles, and 262 employees primarily engaged in road construction and maintenance, tree planting and pruning, nursery work, forest conservation contractor supervision, mechanical trades and fire protection. 2015–16 saw the continuation of a trend towards greater gender equity at Forestry Corporation, with an increase in the number of women employed from 17.2% in the previous year to 18.1%.

NPWS employed the equivalent of 1884 full time staff during this period. This figure is based on average paid full-time equivalent staffing, including casual employees and overtime and is subject to seasonal fluctuation depending on demand for services. The agency continued to benefit from a strong representation of Aboriginal people in its workforce.

The Department of Primary Industries' Forest Research and Policy Unit employs 25.7 full time equivalent (FTE) staff, comprising 17.2 in the Lands Forests Science team, 4.5 to administer the Plantations and Reafforestation Act, and four in management or policy roles.

Legal, institutional and economic frameworks

In NSW, there is a clear delineation between the institutions responsible for operations, policy and environmental regulation of forestry management.

Forestry operations on public land are the responsibility of the Forestry Corporation of NSW.

Forestry industry policy development and implementation is the responsibility of the Department of Primary Industries.

The environmental regulation of native forestry operations is the responsibility of the EPA.

There were only minor amendments to the Forestry Act during this period and no other major amendments to other frameworks reported since the previous report.



Compliance



2. Compliance with integrated forestry operations approvals and other requirements

Integrated forestry operations approvals (IFOAs) provide the regulatory and operational framework for the conduct of forestry operations in state forests and on Crown-timber land. An IFOA enables an integrated environmental regulatory regime for native forest harvesting operations in NSW.

The approvals, made under the *Forestry Act 2012*, contain non-licence terms and terms of licences, including:

- Environment Protection Licences (EPLs) under the *Protection of the Environment Operations Act 1997* (POEO Act)
- Threatened Species Licences (TSLs) under the *Threatened Species Conservation Act 1995*
- Fisheries Licences (FLs) under the *Fisheries Management Act 1994*.

The non-licence terms, TSLs and EPLs are administered by the EPA, and fisheries licences are administered by NSW Department of Primary Industries (Fisheries).

There are seven IFOAs, covering the Upper North East, Lower North East, Southern (including Tumut), Eden, Brigalow–Nandewar, South Western Cypress and Riverina Red Gum regions.

TSLs must be applied at all times during native forestry operations. In the Upper North East, Lower North East, Southern and Eden regions, EPLs are only required for harvesting operations that meet criteria set out in clause 24 Schedule 1 of the POEO Act. For harvesting operations that do not meet these criteria, Forestry Corporation can elect not to apply an EPL, but must still comply with section 120 of the POEO Act that prohibits the pollution of waters.

Forestry operations in the Brigalow–Nandewar, South West Cypress and Riverina Red Gum regions are required to apply an EPL to all operations.

No new IFOAs were established over 2015–16, although a comprehensive remake of the four coastal IFOAs continued.

IFOA amendments

Two amendments were made to the Riverina Red Gum IFOA (EPA 2010b) during 2015–16:

Amendment No. 5 commenced on 8 January 2016. This amendment allowed residue operations to continue at pro-rata of current annual volume rates until 30 June 2016, which gave the NSW Government time to consider the appropriate volume of residue that should be harvested from western lands leases for the next period.

Amendment No. 6 commenced on 23 June 2016. This amendment provided increased residue volumes based on improved understandings of sustainable yields, and delivered new requirements for retaining dead trees with biodiversity values.

No amendments were made to other IFOAs.

EPA compliance program

The EPA is responsible for the regulation of native forestry operations on private and public (Crown) land in NSW. EPA regulation aims to ensure that impacts on soil and water, threatened species and their habitat are mitigated, and deliver ecologically sustainable forest management. The EPA's compliance program is implemented in accordance with the *Crown Forestry Compliance Strategy 2013–16* (EPA 2013a) and *Private Native Forestry Compliance Strategy 2013–16* (EPA 2013b).

To achieve the objectives of these strategies the EPA also develops an annual list of key environmental compliance priorities for Crown and private native forestry (EPA 2016).

The compliance priorities for 2015–16 are summarised in Table 12.

Table 12: The Crown and private native forestry compliance priorities for 2015–16

Crown forestry environmental compliance priorities	Private native forestry environmental compliance priorities
<p><i>Hollow-bearing and recruitment trees</i></p> <p>Identification, retention and protection of adequate and appropriate trees for maintenance and replacement of arboreal tree hollow habitat</p>	<p><i>Hollow-bearing and recruitment trees</i></p> <p>Identification, retention and protection of adequate and appropriate trees for maintenance and replacement of arboreal tree hollow habitat</p>
<p><i>Koalas</i></p> <p>Protecting koalas and their habitat</p>	<p><i>Koalas</i></p> <p>Protecting koalas and their habitat</p>
<p><i>Drainage line crossings</i></p> <p>Protection of water quality and in-stream habitat degradation resulting from inadequate road and snig track crossing location, design, construction, operation and maintenance</p>	<p><i>Drainage line crossings</i></p> <p>Protection of water quality and in-stream habitat degradation resulting from inadequate road and snig track crossing location, design, construction, operation and maintenance</p>
<p><i>Streams and drainage features</i></p> <p>Protecting vegetation adjoining streams and drainage features to maintain water quality and riparian habitat</p>	<p><i>Streams and drainage features</i></p> <p>Protecting vegetation adjoining streams and drainage features to maintain water quality and riparian habitat</p>
<p><i>Exclusion zones</i></p> <p>Protecting key exclusion zones in:</p> <p>(a) Western NSW – Forest Management Zones, and Threatened Species Protection Zones</p> <p>(b) Coastal NSW – Mapped Rainforest, Rocky Outcrops and Threatened Species Exclusion Zones.</p>	<p><i>Road and snig track drainage</i></p> <p>Prevention of soil erosion and water quality degradation resulting from inadequate road and snig track drainage establishment and maintenance</p>
<p><i>Threatened ecological communities</i></p> <p>Improved identification and protection of threatened ecological communities (TECs)</p>	
<p><i>Forest structure</i></p> <p>Maintaining forest structure through adequate basal area retention</p>	
<p><i>Forest health</i></p> <p>Consideration of Bell Miner Associated Dieback (BMAD) in the regulatory framework</p>	

Compliance priorities ensure that the EPA targets its regulatory effort on issues deemed to be at high risk of harm or non-compliance. They also provide a clear indication of the EPA's expectations regarding environmental performance.

The EPA's compliance program comprises responsive and proactive activities. Responsive activities include investigating public complaints or notifications. They can also include self-reported incidents by Forestry Corporation. Proactive activities such as audits can focus on geographic areas where public notifications are less likely.

Range of regulatory tools to achieve compliance

The EPA uses a range of regulatory tools to help achieve compliance, including audits, monitoring inspections, investigations, notices, penalty notices, and education/training.

The EPA's compliance audits are independent from the entity being audited. Compliance audits are a preventative tool insofar as they aim to identify risks before they develop into an environmental incident. Compliance audits use a systematic process of assessing actual performance against environmental risk. The scale of harm, sensitivity of the environment and likelihood of environmental harm occurring are used to determine risk. This is followed by a request to take action where improvements are required to reduce environmental risk.

The request allows the auditee to take appropriate risk abatement action to prevent future incidents. Audits are not used to follow up community concerns or intelligence that suggests issues of non-compliance. Investigations are used in these instances.

The EPA carries out investigations to respond to incidents and community concerns about the impacts of logging. Unlike audits, investigations are designed to suit a specific incident or set of allegations. The investigative process is more flexible but aligns to principles of procedural fairness. Investigations can result in a range of actions such as no action, education, improving awareness of law and environmental issues, corrective action, warnings, cautions, penalties, prosecutions, or recommendations for policy and legislative reform.

Crown native forestry compliance and enforcement activities

The EPA's compliance priorities are set annually and are subject to ongoing review. The findings and proposed actions from compliance audits and investigations inform future regulatory activities.

In 2015–16, the EPA completed 14 proactive compliance audits and 21 investigations of forestry operations on NSW public lands. This regulatory work targeted our compliance priorities of hollow-bearing and recruitment trees, koala habitat, stream protection, water pollution and road drainage, forest structure and landscape, and threatened species exclusion zones.

Compliance audit reports for individual public forestry operations are available on the EPA's public register.

Total non-compliances on public land

Non-compliances found and reported by the EPA included:

- 29 non-compliances with EPL conditions
- nine non-compliances with section 120 of the POEO Act
- 190 non-compliances with TSL conditions.
- three non-compliances with the *National Parks and Wildlife Act 1974*.

During 2015–16 the EPA issued Forestry Corporation with 56 requests to develop and implement audit action plans to prevent recurrence of non-compliances and minimise the risk of future environmental incidents. The EPA also issued Forestry Corporation with one formal warning, six show cause letters, 11 official cautions, two clean-up notices, and two penalty notices. The EPA also commenced prosecutions in the Land and Environment Court for impacts from logging in the Glenbog and Badja state forests.

Most non-compliances with TSL conditions were found through the EPA's compliance audit programs. For many of these, Forestry Corporation was asked to put specific action plans in place to address the root cause of a non-compliance. Some of the higher risk non-compliances were followed up with a separate investigation done outside the auditing process.

IFOA regional summary

Upper North East region (UNE)

Audits

The EPA completed three audits in this region during the reporting period.

The region achieved an overall compliance rate of approximately 82%, comprising 147 assessments of compliance with 26 recorded non-compliances. Non-compliance mainly related to water pollution, hollow-bearing and recruitment tree protection, and protection and field mark-up of exclusion zones.

As a result of these audit findings, the EPA requested Forestry Corporation to develop and implement 12 separate audit action plans for matters of non-compliance and environmental risk.

Investigations

The EPA completed one investigation in this region where Forestry Corporation was issued with two penalty notices for harming threatened plants while logging the state forest.

Lower North East region (LNE)

Audits

The EPA completed eight audits in this region during the reporting period.

The region achieved an overall compliance rate of approximately 68%, comprising 370 assessments of compliance with 118 recorded non-compliances. Non-compliances mainly related to incidents of water pollution, hollow-bearing and recruitment tree protection, recruitment tree selection and protection, and field mark-up of exclusion zones.

As a result of these audit findings, the EPA requested Forestry Corporation to develop and implement 39 separate audit action plans for matters of non-compliance and environmental risk.

Investigations

The EPA completed eight investigations in this region. Non-compliances found by these investigations related to inadequate protection of rainforest and old growth, not marking exclusion zone boundaries in the field, and failure to search for and protect wombat habitat north of the Oxley Highway. Official cautions were issued for most of these non-compliances. No penalty notices were issued.

Southern region

Audits

The EPA completed one audit in this region during the reporting period.

The region achieved an overall compliance rate of approximately 99%, comprising 83 assessments of compliance with one recorded non-compliance. The non-compliance related to recruitment tree retention.

As a result of these audit findings, the EPA requested Forestry Corporation to develop and implement one audit action plan for matters of non-compliance and environmental risk.

Investigations

The EPA completed six investigations in this region. Non-compliances related to inadequate stream protection and selection of hollow-bearing trees. A warning letter was issued for some of these non-compliances. No penalty notices were issued.

Eden region

Audits

The EPA did not undertake any compliance audits in this region during the reporting period.

Investigations

The EPA completed four investigations in this region. Non-compliances related to water pollution and inadequate management of threatened species records. Official cautions were issued for some of these non-compliances. No penalty notices were issued.

The EPA commenced prosecutions in the Land and Environment Court for impacts from logging in the Glenbog and Badja state forests.

Brigalow–Nandewar region

Audits

The EPA did not undertake any compliance audits in this region during the reporting period.

Investigations

The EPA completed two investigations in this region. Non-compliances related to logging in stream protection areas. An official caution was issued for some of these non-compliances. No penalty notices were issued.

Riverina Red Gum region

Audits

No audits were carried out in this region during this reporting period.

Investigations

No investigations were carried out in this region during this reporting period.

South Western Cypress region

Audits

The EPA completed two audits in this region during the reporting period.

The region achieved an overall compliance rate of approximately 89%, comprising 102 assessments of compliance with 13 recorded non-compliances. Non-compliance mainly related to hollow-bearing and recruitment tree protection as well as the field mark-up and protection of endangered ecological communities.

As a result of these audit findings, the EPA requested Forestry Corporation to develop and implement four separate audit action plans for matters of non-compliance and environmental risk.

Investigations

No investigations were carried out in this region during this reporting period.

Private native forestry compliance and enforcement activities

The EPA is implementing a PNF monitoring and compliance strategy, and undertaking operational inspections, audits and investigations. This is supported by regulatory extension activities.

During 2015–16, the EPA undertook five audits and investigations and 82 compliance monitoring inspections of PNF operations.

As a result of these audits, inspections and investigations, the EPA issued one formal warning, five show causes, one remedial direction, five official cautions and six penalty notices. These breaches related to issues such as poor road drainage and pollution of waters, not protecting threatened plant species, logging in stream protection areas, protecting koala habitat, and logging without approval. The EPA continues to focus its regulatory effort around these risks.

Forestry Corporation internal compliance program

Forestry Corporation publishes the number of non-compliance incidents requiring corrective action annually. Table 13 summarises incidents recorded in the six years to 2015–16.

Table 13: Number of non-compliance incidents that required corrective action recorded across all state forests by Forestry Corporation, 2010–2016

Year	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16
Number of compliance check sheets conducted by Forestry Corporation supervisors						
Compliance monitoring	–	354	392	284	668	1,291
Systems implementation	–	38	24	20	45	293
Type of incident*	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16
Soil and water	135	175	84	110		
Flora and fauna	103	32	61	25		
Fish habitat and passage	67	28	1	0		
Other non-compliance issues (e.g. safety)	72	150	86	36		
Number of non-compliances recorded by staff for corrective action in moderate and above categories*						
Extreme					0	0
Major					2	1
Moderate					30	20
Total	377	385	232	171	32	20

* Guidelines for internal reporting of non-compliance incidents changed in 2014–15, with the introduction of a new risk and incident management system. Incidents are now reported for three categories with more serious consequence ratings and are specific to forest management. Workplace health and safety performance is reported in the Forestry Corporation annual report (FCNSW 2015a).

Fisheries

Compliance with the Fisheries Licences (FLs) contained in the IFOAs is audited by Fisheries.

One offence was investigated during 2015–16, which related to an incursion through an unmapped drainage line. The area was rehabilitated by Forestry Corporation prior to inspection. The matter is with the Fisheries Prosecution Review Committee and the outcome is yet to be formally determined.



Milestones and undertakings



3. Achievement of milestones and undertakings defined for NSW forest regions

Milestones record tasks and the timing required for continual improvement in the management of forested areas. They include:

- developing environmental management systems
- preparing management plans for areas of high conservation value
- reporting harvested volumes of timber and other forest products such as firewood
- coordinating approaches to land management issues, such as pest, weed and feral animal control
- entering joint venture initiatives with local landholders and Aboriginal people
- monitoring criteria and indicators
- developing strategies with stakeholders to provide cooperative management opportunities
- preparing management plans for tourism and recreation within forest areas.

Undertakings are other tasks agreed between state agencies that are listed in approvals or licences. They include:

- documents such as policies, roading plans and grazing management plans
- training to be provided
- monthly reports and annual reports
- systems for providing public access to documents.

Progress in coastal Forest Agreements and IFOAs

Appendix 1 reports on 2015–16 progress of milestones specified in the NSW Forest Agreements for the UNE, LNE, Eden and Southern regions. Only ongoing milestones are reported. Completed milestones and those no longer applicable are only reported if there are significant updates or changes. For comparison, progress against the milestones is reported in previous annual progress reports, and the five-year review (DECCW 2010).

Progress in western NSW IFOAs

Appendix 2 reports on achievements of milestones and undertakings in this region as set out in the Brigalow and Nandewar Community Conservation Area Agreement (CCA Agreement) (CCC 2009) and the Brigalow–Nandewar IFOA (EPA 2010a).

Appendix 3 reports on achievement of milestones and undertakings in the Riverina Red Gum region as set out in the Riverina Red Gum IFOA (EPA 2010b).

Appendix 4 reports on achievement of milestones and undertakings in the South Western Cypress region as set out in the South Western Cypress IFOA (EPA 2011).

Appendix 1: Milestones and undertakings – Coastal IFOAs

This appendix reports on 2015–16 progress of milestones and undertakings specified in the NSW Forest Agreements for the UNE, LNE, Eden and Southern regions.

Milestones and undertakings previously recorded as complete or no longer applicable are not listed.

Milestone number	Milestone	Progress for 2015–16
1. Environmental Management Systems – no further reporting, see 2013–14 report		
2. Management planning		
Milestone 2.1 Agency: NPWS	Plans of management for the NPWS estate Refer to UNE, LNE and Eden Forest Agreements (FAs) section 2.3.2, Att. 8; Southern FA section 2.3.2	<p>Of the 395 reserves in the UNE and LNE regions, 281 have plans of management adopted by the NSW Minister for the Environment and 25 have draft plans that have been publicly exhibited. A statement of management intent has been prepared for 78 reserves. Statements of management intent are in preparation for six reserves, and a plan of management for one park is in preparation by its Aboriginal board of management. Four reserves (three Aboriginal areas and one co-managed nature reserve) do not have a current plan.</p> <p>Of the 18 reserves in the Eden region, 17 have plans of management adopted by the NSW Minister for the Environment and one has a draft plan that has been publicly exhibited but is yet to be adopted.</p> <p>Of the 128 reserves in the Southern region, 113 have plans of management adopted by the NSW Minister for the Environment and three draft plans have been publicly exhibited. A statement of management intent has been prepared for 11 reserves. A statement of management intent is in preparation for the remaining reserve (an Aboriginal area).</p> <p>The increase in the number of parks with adopted plans in the UNE and LNE regions arises from the adoption of the Southern Richmond Range Plan of Management (which covered 12 parks), the Karuah, Medowie & Wallaroo Plan of Management (which covered six) and the Worimi Plan of Management (which covered three).</p>
Milestone 2.4 Agency: FCNSW	Report on meeting targets in ecologically sustainable forest management (ESFM) plans Refer to UNE, LNE, Eden, Southern FAs section 2.2.6	FCNSW continues to report at a statewide scale on performance across a range of social, environmental, economic and sustainability areas through its annual report and sustainability snapshot (FCNSW 2016a, FCNSW 2016b). Indicators contribute to the delivery of ESFM reporting outcomes.

Milestone number	Milestone	Progress for 2015–16
Milestone 2.5 Agencies: FCNSW and NPWS	Formation of a working group in Southern region to make recommendations on the management and tenure of areas of state forests that are isolated from the productive state forests Refer to Southern FA section 6.16	This will not be reported in future. The final update was in the 2014–15 report (EPA 2017b).
Milestone 2.7 Agency: FCNSW	Working plans for flora reserves to be incorporated into ESFM plans Refer to UNE and LNE and FAs section 2.2.2; Eden FA section 2.2.2; Southern FA sections 2.2.2, 2.3.2	Draft flora reserve management plan templates have been developed. The new templates have two components: a generic document covering standard conditions and management aims, and a supporting site-specific document which includes local issues and objectives. Management plans will be progressively prepared for new reserves.
Milestone 2.8 Agency: FCNSW	Working plans for informal reserves to be incorporated into ESFM plans Refer to UNE, LNE and Eden FAs section 2.3.3; Southern FA section 2.3.3	This will not be reported in future. The final update was in the 2014–15 report (EPA 2017b).
3. CAR reserve system		
Milestone 3.2 Agency: Fisheries	Aquatic reserves declared under the <i>Fisheries Management Act 1994</i> that affect forestry operations in the UNE, LNE, Eden or Southern regions Refer to LNE, UNE, Eden, Southern FAs section 2.3.4	No new aquatic reserves declared in the reporting period. Refer to the DPI website for information about marine protected areas.
Milestone 3.3 Agencies: NPWS with FCNSW	Upgrading of forest management zones (FMZs), reviewing mineral objections and lands for further consideration (FURCONS)	There have been no further formal reviews of forest management zones, mineral objections or lands for further consideration in 2015–16. However, in March 2016, 11,800 hectares of Murrah, Mumbulla, Tanja and part of Bermagui state forests on the far south coast were set apart as flora reserves under the Forestry Act. Collectively known as the Murrah flora reserves, they provide protection to the last known local koala population. To facilitate consistent management, OEH was appointed land

Milestone number	Milestone	Progress for 2015–16
	Refer to UNE and LNE FAs sections 2.3.1, 2.3.3, 6.16.2; Eden FA section 6.16.1; Southern FA section 2.3.3	<p>manager of the reserves, which adjoin the Aboriginal-owned Biamanga National Park and other national park estate.</p> <p>Part of Wells Crossing Flora Reserve in Newfoundland State Forest was compulsorily acquired for the highway upgrade, with 38.9 hectares of FMZ 1 removed.</p> <p>Part of Boona State Forest was revoked, with 179 hectares of FMZ 3B removed.</p> <p>In addition, several minor changes have been made to reflect more accurate mapping.</p>
4. Crown reserves and assessment of Crown land		
<p>Milestone 4.1</p> <p>Agency: NPWS</p>	<p>Management and five-year review of Crown reserves/state conservation areas</p> <p>Refer to UNE, LNE and Eden FAs 2.3.3; UNE and LNE FA section 2.3.3; Eden FA section 2.2.3; Southern FA section 2.3.3</p>	<p>No progress reported. The third five-year review is due to commence in 2017.</p>
<p>Milestone 4.2</p> <p>Agency: NPWS</p>	<p>Identification and assessment of additional areas available for formal reservation</p> <p>Refer to UNE and LNE FAs section 6.16.2</p>	<p>There were no new assessments or reservations of additional Crown land under the UNE and LNE FAs in 2015–16. Any outstanding land is being assessed under a review of the management of Crown lands. The closing date for submissions was 17 February 2017.</p>
5. Threatened species management – no further reporting, final update was in the 2010–11 report.		
6. Pest, weed and feral animal control		
<p>Milestone 6.2</p> <p>Agency: FCNSW</p>	<p>Preparation of grazing management plans, feral and introduced predator control plans and threatened flora species management plans on state forests</p> <p>Refer to UNE, LNE and Eden FAs section 2.4.2; Southern FA section 2.4.3</p>	<p>This has been completed and will not be reported in future. The final update was in the 2014–15 report (EPA 2017b).</p>

Milestone number	Milestone	Progress for 2015–16
7. Managing for other forest values and uses		
Milestone 7.4 Agencies: OEH, which chairs Occupation Permit Taskforce (NPWS, FCNSW, and NSW Farmers)	After consultation, the occupation permit taskforce must oversee the phasing out of occupation permits in state forests which currently exist in areas identified as formal reserves and informal reserves and permissive occupancies on Crown land identified as formal reserves and informal reserves. Refer to UNE, LNE, Eden FAs section 2.3.3; Southern FA section 2.3.3	No further changes reported since the <i>Review of NSW Forest Agreements and Integrated Forestry Operations Approvals</i> (DECCW 2010).
8. Private land		
Milestone 8.1 Agency: OEH Veg. mapping	Identification of private land of conservation priority Refer to UNE and LNE FAs section 2.9.1 – 1 January 2000; Southern FA section 2.9 – 30 June 2002	Processes in place for identifying private land of conservation priority are listed on page 26 of the <i>Review of NSW Forest Agreements and Integrated Forestry Operations Approvals</i> (DECCW 2010). The information will continue to be updated in subsequent reports.
Milestone 8.5 Agency: FCNSW	Improve administrative arrangements and cooperation and coordination by state agencies to facilitate the timber industry utilising private forest resources including marketing and pricing Refer to Southern FA Att. 6 (3)	The <i>Review of NSW Forest Agreements and Integrated Forestry Operations Approvals</i> (DECCW 2010) summarised programs and arrangements by state agencies and non-government organisations, including marketing and pricing, to assist use and management of private forest resources. A subsequent review is due to commence in 2017.
9. Private native forestry and plantations – no further reporting required – final update was in the <u>2010–11 report</u>		
10. World heritage and wilderness		

Milestone number	Milestone	Progress for 2015–16
Milestone 10.1 Agency: NPWS	Review of Gondwana Rainforests of Australia (previously known as the Central Eastern Rainforest Reserves of Australia – CERRA) World Heritage Areas to identify any additional rainforest to be included Refer to UNE and LNE FAs section 2.7	As reported previously, proposed extensions to the Gondwana Rainforests of Australia World Heritage Area were placed on Australia’s Tentative List for World Heritage nomination in 2010. No progress on preparation of a nomination was reported for 2015–16.
Milestone 10.2 Agency: NPWS	Studies of the dedicated reserve system to identify World Heritage values, including eucalypt dominant vegetation and religious beliefs embedded in the landscape Refer to UNE and LNE FAs section 2.7; Eden FA section 2.6; Southern FA section 2.7	World Heritage values assessments have not taken place for the areas covered under the Forest Agreements during the reporting period.

11. Cultural heritage – no further reporting required – final update was in the 2010–11 report

12. Aboriginal interests

Milestone number	Milestone	Progress for 2015–16
Milestone 12.4 Agencies: NPWS FCNSW	NPWS and FCNSW to undertake joint management arrangements with local Aboriginal communities and examination of state forests for co-management arrangements Refer to UNE, LNE and Eden FAs section 5.1.1; Southern FA section 5.1.1	<p>Two new Aboriginal agreements within forestry regions came into effect during 2015–16 covering a total of 507,000 hectares.</p> <p>Tubba-gah Indigenous Land Use Agreement (ILUA) – Brigalow and Nandewar region</p> <p>Commenced 12 January 2016 (64,000 hectares) including:</p> <ul style="list-style-type: none"> • Goonoo CCA Zone 1 National Park • Goonoo CCA Zone 3 State Conservation Area. <p>South Snowy Mountains memorandum of understanding for joint management</p> <p>Commenced 25 June 2016 (443,000 hectares):</p> <ul style="list-style-type: none"> • 23 reserves, mostly in the Southern Forestry region with a small amount of land in the Eden Forestry region • this includes more than 60% of Kosciuszko National Park. <p>FCNSW welcomes Aboriginal groups to undertake traditional activities in native state forests. All programs identified in previous reports are still underway. In addition, ongoing negotiations for Native Title on state forest (various locations) enable title holders to access the forest for traditional uses and potentially for enterprise development/partnerships.</p> <p>FCNSW Hardwood Forests Division has an Aboriginal Partnership Liaison Team of six Aboriginal Liaison Officers who work with Aboriginal communities to further develop these partnership arrangements. Aboriginal groups are regularly contracted to FCNSW for archaeological site surveys as part of the planning process for harvesting and roading operations.</p> <p>FCNSW fosters partnerships with Aboriginal groups and communities including arrangements for joint management, activities and community development on state forest. Examples of joint management partnerships in place or under development in the North East RFA region include:</p> <ul style="list-style-type: none"> • Darkinjung Local Aboriginal Land Council (LALC) – for the joint management of Warre Warren Aboriginal Place in McPherson State Forest • Karuah LALC – negotiations on joint management of the Bulahdelah Mountain Aboriginal Place are in progress • Githabul Rangers – working on forest improvements in Toonumbar State Forest including weed management, cultural burning and road maintenance projects.

Milestone number	Milestone	Progress for 2015–16
Milestone 12.5 Agencies: NPWS FCNSW	Joint ventures with local Aboriginal communities and development of project plans Refer to UNE, LNE and Eden FAs section 5.1.1; Southern FA section 5.1.1	<p data-bbox="904 252 1771 280">NPWS engaged in a range of joint ventures with local Aboriginal communities.</p> <p data-bbox="904 293 1274 322">Eden Forestry Agreement Region</p> <ul data-bbox="904 335 2011 501" style="list-style-type: none"> <li data-bbox="904 335 2011 501">• The 10th anniversary of joint management of Biamanga and Gulaga national parks was celebrated in May 2016. This marked a major milestone in managing these culturally significant parks on the Far South Coast. More than 200 people attended the community event or Biriga Bunaan to reflect on the partnership between NPWS, the Yuin Aboriginal owners and the Gulaga and Biamanga Boards of Management. <p data-bbox="904 513 1319 542">Southern Forestry Agreement Region</p> <ul data-bbox="904 555 2011 788" style="list-style-type: none"> <li data-bbox="904 555 2011 651">• Aboriginal Parks Partnerships projects were undertaken in Morton National Park (Yuin Dhugandha site surveys and site assessments) and Meroo National Park (Burrill Lake Aboriginal cultural heritage track works). <li data-bbox="904 663 2011 788">• Four Aboriginal rangers from the Bundian Way gained valuable experience in how to plan and conduct a commercial tour operation in a remote location, thanks to Aboriginal Partnership funding and Action Learning Initiatives, who provided training in catering, equipment, transport logistics, safety and hospitality. <p data-bbox="904 801 1261 829">LNE Forestry Agreement Region</p> <ul data-bbox="904 842 2024 1254" style="list-style-type: none"> <li data-bbox="904 842 2024 906">• The Aboriginal Park Partnership Program investigated and recorded rock engravings in Brisbane Water, Dharug and Bouddi national parks and the Mooney Aboriginal Area. <li data-bbox="904 919 2024 1043">• The NPWS Lower North Coast region helped the Worimi Conservation Lands Board of Management finalise and launch its first plan of management. The 10-year plan aims to improve awareness, understanding and protection of Worimi culture, and guide conservation, sustainable recreation and tourism on Aboriginal-owned lands in the area. <li data-bbox="904 1056 1966 1120">• NPWS reached agreement with the Saltwater Tribal Council regarding cooperative planning, management and camping fee collection at Saltwater National Park. <li data-bbox="904 1133 2011 1254">• Six culture camps were held in Oxley Wild Rivers and Carrai national parks, in conjunction with Thungutti and Kempsey LALCs and Dunghutti Elders Corporation. The camps were successful in documenting new Aboriginal sites, reviving cultural camping and re-connecting communities to places they had only heard about from Elders. <p data-bbox="904 1267 1267 1295">UNE Forestry Agreement Region</p> <ul data-bbox="904 1308 2018 1367" style="list-style-type: none"> <li data-bbox="904 1308 2018 1367">• Gumbaynggirr Aboriginal people revived the traditional practice of cultural burning on Mullaway and Oceanview Headlands in Coffs Coast Regional Park. This project is supported by the NSW

Milestone number	Milestone	Progress for 2015–16
		<p>Environmental Trust and aims to empower and build capacity among traditional custodians to participate in bush regeneration and burning in native grasslands on coastal headlands, which are considered to be endangered ecological communities.</p> <ul style="list-style-type: none"> • The Arakwal Dolphin Dreaming school excursion program, which teaches students about the life and culture of Byron Bay’s Aboriginal people through story, dance and creative expression, was recognised with a silver award in the Aboriginal Tourism category at the Australian Tourism Awards. <p>FCNSW Regional Aboriginal Affairs Officers continued to facilitate consultation and input from Aboriginal communities, on appropriate protection measures for sites.</p> <p>FCNSW supports a range of Aboriginal community activities and developments, including:</p> <ul style="list-style-type: none"> • providing bark for canoe-making and string-making (free of charge) for the Saltwater Freshwater Festival on the North Coast • sponsorship of the Koori Knockout (Rugby League tournament) and NAIDOC Week activities. <p>FCNSW’s Aboriginal partnerships program aims to empower local communities by providing shelters, toilets and water tanks for cultural camping centres in the forest and by improving access roads. Bark slabs and firewood are provided from existing harvesting operations. Examples of partnerships include:</p> <ul style="list-style-type: none"> • Keepa Keepa Land-based Permit on Sugarloaf Range west of Newcastle – cultural camping and teaching • Anaiwan Land-based Permit in Riamukka State Forest (Walcha area) – cultural camping and teaching, utilising an old forestry depot • Githabul ILUA – working in partnership over the native title and surrounding forest areas; dedicated camping and teaching shelter set up • Bundian Way – cross agency development with Eden LALC; camping and road improvements • McPherson State Forest, inland Central Coast – Bara Barang enterprise development application in process for cultural camping, teaching and tourism. Permit also being issued for seed collection for the Bara Barang nursery of traditional plants. Also considering contracting opportunities • FCNSW provides Aboriginal people with free firewood permits to enhance opportunities to use bush resources. At Purfleet Taree LALC, FCNSW delivers around 25 tonnes of firewood logs free to the community prior to each winter for Aboriginal youth to cut and chop into firewood and provide to Elders for heating. In addition, FCNSW has provided a permit to Biripi Aged Care at

Milestone number	Milestone	Progress for 2015–16
		<p>Purfleet to collect wood from nine state forests for elders to teach Aboriginal youth how to make traditional wooden tools.</p> <ul style="list-style-type: none"> FCNSW provides large sheets of bark for canoe-making on request (free of charge) to community groups and in partnership with the NSW Department of Education. Each year a new canoe is made for the Corroboree Sydney festival and featured at the Australian Museum. FCNSW provides the Kempsey LALC with a permit for the long-term use of FCNSW’s Kempsey depot as an Aboriginal Men’s Shed and storage.
<p>13. Aboriginal interests in the Hume and Riverina regions of FCNSW and the South West Slopes region of NPWS</p>		
<p>Milestone 13.2 Agency: FCNSW</p>	<p>Specified enterprise development on state forests within Hume and Riverina regions of Forestry Corporation Refer to Southern FA section 5.1.4.2</p>	<p>The <i>Review of NSW Forest Agreements and Integrated Forestry Operations Approvals</i> (DECCW 2010) summarised initiatives. No further update provided by FCNSW for 2015–16.</p>
<p>Milestone 13.5 Agency: FCNSW</p>	<p>FCNSW to initiate specific employment opportunities in the Hume and Riverina regions of FCNSW subject to external funding Refer to Southern FA section 5.1.4.4</p>	<p>The <i>Review of NSW Forest Agreements and Integrated Forestry Operations Approvals</i> (DECCW 2010) summarised initiatives. No further update provided by FCNSW for 2015–16.</p>
<p>Milestone 13.7 Agency: NPWS</p>	<p>Specified employment and training opportunities with NPWS Refer to Southern FA section 5.1.4.6</p>	<p>Four temporary (three-year) Aboriginal Field Officer positions were maintained with the Enhanced Bushfire Management Program. Two of these positions were based in Eden and the other two, which are based in Narooma and Tanja, are jointly funded by the OEH and the Biamanga and Gulaga boards of management.</p> <p>An Aboriginal Cadet Ranger position was based in Narooma together with a trainee Aboriginal Field Officer.</p> <p>A temporary (two-year) Aboriginal Field Officer was maintained for the Southern Ranges Region Enhanced Bushfire Management Program.</p> <p>A temporary full time (two-year) Aboriginal Field Officer (Aboriginal identified position) was maintained for the South Coast Region Enhanced Bushfire Management Program. Another Aboriginal person was appointed full-time to the program but is not an identified position. These positions are based at Nowra Depot but cover the South Coast region.</p>

Milestone number	Milestone	Progress for 2015–16
		<p>A temporary part-time Clerk position is continuing for an Aboriginal Community Projects Officer in Nowra.</p> <p>South Coast region continued employment of full time Aboriginal Rangers and field officers in all its Areas.</p> <p>Four Aboriginal rangers from the Bundian Way received training in how to conduct a commercial tour operation. See Milestone 12.5 for more details.</p>
14. Supply arrangements		
<p>Milestone 14.1 Agency: FCNSW</p>	<p>Consultation on timber arrangements through the development of plans of operation</p> <p>Refer to UNE, LNE and Eden FAs section 3.4; Southern FA section 4.3</p>	<p>FCNSW regions continue to consult with stakeholders, such as industry and neighbours, when developing the annual plan of operation for each Forestry Agreement region. FCNSW has developed an interactive map to allow stakeholders to view the plans.</p>
15. Supplementing timber supply		
<p>Milestone 15.1 Agency: FCNSW</p>	<p>Supplementary timber supply by actions such as purchasing private lands and/or timber rights to supply high quality large sawlogs and large veneer logs</p> <p>Refer to UNE and LNE FAs sections 2.9.2, 3.3, 3.6, 6.16.2, Att. 10; Eden FA section 2.8.2; Southern FA sections 3.3.3, 3.6</p>	<p>In 2015–16 FCNSW obtained 3279 cubic metres of supplementary timber supply. Of this, 1998 cubic metres were high quality logs.</p>
<p>Milestone 15.2 Agency: FCNSW</p>	<p>Development of a process to consider unmet targets prior to land purchases</p> <p>Refer to UNE and LNE FAs section 6.16.2; Southern FA section 3.3.3</p>	<p>Completed. This will not be reported in future. The final update was in the 2014–15 report (EPA 2017b).</p>
<p>Milestone 15.3 Agency: FCNSW</p>	<p>Establishment of plantations</p>	<p>FCNSW did not establish any new hardwood plantations in 2015–16.</p>

Milestone number	Milestone	Progress for 2015–16
	Refer to UNE FA section 3.2; LNE FA sections 3.1, 3.3, 3.6; Southern FA section 3.6, Att. 8	
16. Forest Resource and Management Evaluation System (FRAMES) improvement, inventory, sustainable yield, volume review		
Milestone 16.1 Agency: FCNSW	Continuous FRAMES development program for the UNE, LNE, Eden and Southern regions Refer to UNE, LNE, Eden FAs section 3.5; Southern FA section 3.5 and Att. 6 (7)	The FRAMES development and implementation report (FCNSW, n.d.) documents the ongoing development of FRAMES to 30 June 2016.
Milestone 16.2 Agency: FCNSW	Inventory system for regrowth forests for Eden; improvement to inventory in UNE, LNE and Southern Refer to UNE, LNE and Eden FAs section 3.5, Att. 8; Southern FA section 3.5, Att. 6 (6) (e)	A recovery study (assessment, felling and grading of 300 sample trees) was undertaken in Eden in 2015. The inventory improvement program included 422 plot measurements on the North Coast and 199 in the red gum region. A total of 35 permanent growth plots were also re-measured.
Milestone 16.3 Agency: FCNSW	Commission and publish an independent review of the FRAMES system, including improvements applying to South Coast and Tumut sub-regions Refer to Southern FA Att. 6 (8 point 1)	An independent review of FRAMES and wood supply forecasts for South Coast, Tumut and Eden was completed by Dr Cris Brack and reported in March 2017 (Brack 2017).
Milestone 16.4 Agency: FCNSW	Monitoring FRAMES through comparison of actual versus predicted volumes Refer to UNE, LNE, Eden section 3.5; Southern FA section 3.5, Att. 6 (6) (f), Att. 6 (7 point 12)	Actual versus predicted reconciliations have been completed for July 2005 to June 2010, July 2008 to June 2013, and July 2010 to June 2015. These reports are available on the FCNSW website . Further reporting will occur pending the completion of the project to improve mapping of forest boundaries.

Milestone number	Milestone	Progress for 2015–16
Milestone 16.5 Agency: FCNSW	Strategic and operational requirements of sustainable yield systems and processes, review sustainable yield every five years using enhanced FRAMES and publish methods Refer to UNE, LNE and Eden FAs section 3.1; Southern FA Att. 6 (8)	Integration of advanced analytical processes that incorporate Light Detection and Ranging (LiDAR) and inventory to improve resource estimates commenced in 2015. A prototype model was prepared for Eden and expansion of the technology to other areas has commenced. Refer to the FRAMES development and implementation report (FCNSW n.d.) for more information.
Milestone 16.6 Agency: FCNSW	Complete and publish independent audits of sustainable yield Refer to Southern FA Att. 6 (8 point 3)	An independent review of FRAMES and wood supply forecasts for South Coast, Tumut and Eden was completed by Dr Cris Brack and reported in March 2017 (Brack 2017).
Milestone 16.7 Agency: FCNSW	Review of wood supply/timber volumes Refer to UNE and LNE FAs sections 3.2, 3.5	Resource estimates and FRAMES modelling are continuously refined as new information becomes available (especially through LiDAR and updated plot measurement).
17. FCNSW practices including silviculture		
Milestone 17.4 Agency: FCNSW	Establishing demonstration areas in the UNE and LNE regions and establishing a register of locations where different silvicultural practices/silvicultural regimes can be examined in Southern region, as an aid for field supervisor training. UNE and LNE FAs section 2.2.8. Southern FA sections 2.2.8, 4.2, Att. 6 (2) (o)	Complete. This will not be reported in future. The last update was in the 2014–15 report (EPA 2017b).
Milestone 17.10 Agency: FCNSW	Liaison by FCNSW with the NSW Department of Planning, NPWS and EPA on proposed forestry operations	This milestone is considered ongoing as liaison will occur when relevant situations arise. FCNSW did not report significant liaison with key agencies during the reporting period 2015–16.

Milestone number	Milestone	Progress for 2015–16
	not covered by an FA or IFOA including environmental assessment and evaluation Refer to UNE, LNE and Eden FAs section 2.2.7	
18. External auditing processes and reporting results, review processes – no reporting required.		
19. Charcoal provisions in NSW Forest Agreements – no further reporting required – final update was in the 2010–11 report		
20. Staff training, employment and industry initiatives – no further reporting required – final update was in the 2010–11 report		
21. Community awareness and education – no further reporting required – final update was in the 2010–11 report		
22. Community consultation – informing the public – no further reporting required – final update was in the 2010–11 report		
23. Reporting and monitoring		
Milestone 23.1 Agency: EPA	Monitoring and reporting of criteria and indicators Refer to UNE and LNE FAs section 2.11.2, Att. 9; Eden FA section 2.10.2, Att. 9; Southern FA section 2.11.2, Att. 7	NSW Government agencies finalised the revised ESFM criteria and indicators (EPA 2017a), which now reflect the recommendations of the <i>Review of the NSW Forest Agreements and IFOAs</i> (DECCW 2010), that they be practical, measurable, cost-effective, and capable of being implemented at the regional level. The indicators align with the new Montreal Implementation Group (MIG) indicators wherever practical.
Milestone 23.2 Agency: EPA	Annual reports on FAs and tabling reports Refer to UNE, LNE, Eden and Southern FAs section 6.9	Annual reports on the implementation of the NSW Forest Agreements have been completed up to and including the current report. Annual reports have been tabled up to 2014–15. All reports are published on the EPA website after tabling. Each report compiles progress for all regions. The annual reports provide progress on: <ul style="list-style-type: none"> • achievement of milestones in the NSW FAs • monitoring of key ESFM criteria and indicators by FCNSW and OEH • compliance with the IFOAs.
24. Research and data management		
Milestone 24.7 Agency: FCNSW	Operational research trial Refer to Eden FA section 3.1	The project is dependent on the outcomes of the IFOA remake, which will include consideration of conditions around operations in filter strips.

Milestone number	Milestone	Progress for 2015–16
Milestone 24.8 Agency: FCNSW	Develop a suite of computational tools to help manage NSW forests at operational scales for a range of values, including wood yield, growth stage, water quality and quantity, natural and cultural heritage and wildlife habitat Refer to Southern FA Att. 6 (6) (a)	Completed. This will not be reported in future. The final update was in the 2014–15 report (EPA 2017b).
Milestone 24.9 Agency: FCNSW	Develop by the end of 2010, a model to predict recruitment and maintenance of habitat trees over time Refer to Southern FA Att. 6 (6) (b)	<p>This milestone is complete.</p> <p>A model of the current and predicted distribution and abundance of hollow trees for the North Coast (UNE region) was presented at the 2001 Australian Wildlife Management Society Conference. The model identified the proportion of trees that were assessed as hollow in a large-scale inventory based on tree species and diameter class. Future tree lists were produced from the FRAMES model based on a range of proposed silvicultural scenarios, including no-harvesting for exclusion zones. The species and diameter-based hollow-bearing tree ratios from the original inventory were applied to future tree lists to predict the future availability of hollow-bearing trees. Plots were allocated to forest type and growth stage strata and the proportion of harvested and unharvested areas was identified for each stratum.</p> <p>The results indicated that the combination of single tree selection (STS) silviculture and a comprehensive reserve network within the native forest estate would lead to an overall increase in availability of hollow-bearing trees in the longer term.</p> <p>In 2014, FCNSW updated models for assessing hollow-availability based on tree diameter for both the North and the South Coast. These models can be incorporated into FRAMES to predict the future abundance of hollow-bearing trees. The monitoring program that is being developed as part of the Coastal IFOA remake consider the need to further track this abundance over time.</p> <p>Publications</p> <ul style="list-style-type: none"> • Conference abstract: Hollow-bearing trees in the public forests of Northern New South Wales: abundance and distribution now and in the future. • FCNSW report based on this paper which includes South Coast models.

Appendix 2: Milestones and undertakings with identified time periods – Brigalow–Nandewar region

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2015-16
Community Conservation Area Agreement Undertakings 4.1 and 13.2	Community Conservation Area Agreement The Community Conservation Council will review the Community Conservation Area Agreement in consultation with the Community Conservation Advisory Committees after seven years. The Council may develop amendments or a replacement Agreement consistent with the Act.	10 June 2016	NPWS	No progress. The initial appointments to the three Community Conservation Advisory Committees lapsed and new committees have not been appointed.
Community Conservation Area Agreement Undertaking 10.1	Plans of management (OEH) OEH to develop plans of management for zones 1, 2 and 3 of the community conservation area in consultation with the Community Conservation Advisory Committees.	Ongoing	NPWS	Of the 62 reserves under zones 1, 2 and 3, five have plans of management adopted by the NSW Minister for the Environment and five draft plans have been publicly exhibited. A statement of management intent has been prepared for 48 reserves. Statements of management intent are in preparation for the remaining four reserves (all Aboriginal Areas).
Brigalow Nandewar Green Firewood Strategy	No further reporting is required, see 2013-14 report.			
IFOA clauses 29(1) and (5)	Proposed new Threatened Species Conservation (TSC) Act listings	When required	EPA to notify FCNSW	No longer applicable. FCNSW is notified of new listings directly by the NSW Scientific committee after they have made a preliminary or

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2015–16
	EPA required to notify FCNSW of proposed new TSC Act listings relevant to forestry operations.			final determination. EPA no longer provides additional notifications (as agreed with FCNSW).
IFOA clauses 37(1) to (5)	<p>37. Sustainable yield study for hardwood species</p> <p>(1) FCNSW is to conduct (over the first five years of the term of this approval) a study of the sustainable yield for logs and other timber products from tableland hardwood and western hardwood species (other than western ironbark trees) in the Brigalow–Nandewar region for the remainder of the term of this approval.</p> <p>See IFOA for full undertakings 37 (1) to (5).</p>	Study to be undertaken within the first five years of commencement of the IFOA (by October 2015)	FCNSW	As part of its tactical inventory program for the Brigalow Nandewar, FCNSW is progressively collecting field data that will enable such a study to be undertaken once a sufficient sample has been collected.
IFOA clauses 41(1) to (7)	<p>41. Travelling stock reserves</p> <p>FCNSW was required to draft a plan for managing logging operations and submit this plan to the EPA.</p> <p>See IFOA for full undertakings 41(1) to (7).</p>	FCNSW plan for managing logging operations on travelling stock reserves in the Brigalow–Nandewar region	FCNSW (EPA may provide written comments)	A draft TSR management plan is being prepared by FCNSW. Once completed it will be forwarded to the EPA for consideration and comment.
IFOA clauses 44(1) to (3)	<p>44. Assessment of regeneration in silvicultural management</p> <p>(1) FCNSW must assess the extent and nature of regeneration in areas of land within the Brigalow–Nandewar region that are logged during the term of this approval. Assessments must be carried out on a regular and periodic basis.</p> <p>See IFOA for full undertakings 44 (1) to (3).</p>	The first such assessment is to be completed by the end of 2013	FCNSW	Assessment of regeneration is now being undertaken as part of the FCNSW Western Inventory program, using fixed plots, remote sensing and post harvesting assessment tools. This has been ongoing for Brigalow since December 2014.

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2015-16
IFOA clauses 46 (1) to (3)	<p>46. Pest animal management plan – review and amendment</p> <p>(1) FCNSW must review the pest animal management plan applying to state forests within the Brigalow–Nandewar region, regularly and periodically (and at least every five years from the date of its approval for implementation). Accordingly, the Pest Animal Management Plan 2006 Western Region NFOB (referred to in clause 45) must be reviewed by 30 June 2011.</p> <p>See IFOA for full undertakings 46(1) to (3).</p>	<p>The Pest Animal Management Plan 2006 Western Region NFOB (referred to in clause 45) must be reviewed by 30 June 2011</p>	FCNSW	<p>Completed. Review of the current plan (1 July 2014 – 30 June 2019) not due until 2019.</p>
IFOA clauses 49 (1) to (3)	<p>49. Weed management plan – review and amendment</p> <p>FCNSW must review the weed management plan applying to state forests within the Brigalow–Nandewar region, regularly and periodically (and at least every five years from its approval for implementation). Accordingly, the Weed Management Plan 2006 Western Region NFOB (referred to in clause 48) must be reviewed by 30 June 2011.</p> <p>See IFOA for full undertakings 49 (1) to (3).</p>	<p>The Weed Management Plan 2006 Western Region NFOB (referred to in clause 48) must be reviewed by 30 June 2011</p>	FCNSW	<p>Completed. Review of the current plan (1 July 2014 – 30 June 2019) not due until 2019.</p>
IFOA clauses 52 (1) to (3)	<p>52. Grazing management plan – review and amendment</p> <p>(1) FCNSW must review its grazing management plan applying to state forests within the Brigalow–Nandewar region, regularly and periodically (and at least every five years from the date of its approval for implementation). Accordingly, the Grazing</p>	<p>The Grazing Management Plan 2006 Western Region NFOB (referred to in clause 51) must be reviewed by 30 June 2011</p>	FCNSW	<p>Completed. Review of the current plan (1 July 2014–30 June 2019) not due until 2019.</p>

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2015–16
	Management Plan 2006 Western Region NFOB (referred to in clause 51) must be reviewed by 30 June 2011. See IFOA for full undertakings 52 (1) to (3).			
IFOA clause 55	55. Burning operations management plan – preparation of first plan FCNSW must prepare (and approve for implementation) a burning operations management plan that complies with clause 54 within 12 months of the commencement of this approval. FCNSW is to invite EPA and DPI (Fisheries) to provide comments on a draft of the plan, and is to take into account any comments made by those agencies (within a reasonable time) in finalising the plan.	Plan is to be finalised within 12 months of commencement	FCNSW (EPA and Fisheries may provide written comments)	Completed. This will not be reported in future. The final update was in the 2014–15 report (EPA 2017b).
IFOA clauses 57 (1) to (3)	57. Burning operations management plan – review and amendment (1) FCNSW must review the burning operations management plan applying to state forests within the Brigalow–Nandewar region, regularly and periodically (and at least every five years from the date of its approval for implementation). See IFOA for full undertakings 57 (1) to (3).	Regularly and periodically – and at least every five years from the date of its approval for implementation	FCNSW	Review of the current plan (1 July 2014 – 30 June 2019) not due until 2019.
IFOA clauses 60 (1) to (3)	60. Road and fire trail management plan – review and amendment (1) FCNSW must review the road and fire trail management plan applying to the Brigalow–Nandewar region, regularly and periodically (and at least every five years from its	Regularly and periodically and at least every five years from its approval for implementation	FCNSW	Review of the current plan (1 July 2014 – 30 June 2019) not due until 2019.

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2015–16
	approval for implementation). Accordingly, the Road Management Plan 2006 Western Region NFOB must be reviewed by 30 June 2011. See IFOA for full undertakings 60 (1) to (3).			
IFOA clauses 80 to 88	80. Annual reports on forestry operations (1) FCNSW is to provide EPA and DPI (Fisheries) with a report on forestry operations undertaken in the Brigalow–Nandewar region in each financial year. The information that must be included in the annual report is set out in clauses 81 to 87. See IFOA for full undertakings 80 to 88.	The annual report for a financial year is to be provided to EPA and NSW Fisheries by 1 September in the next financial year (A copy of each annual report under this Division is to be kept by FCNSW for the remainder of the term of this approval.)	FCNSW (to be confirmed by EPA and Fisheries)	EPA received FCNSW’s 2015–16 annual report on forestry operations in the western region, which includes the Brigalow–Nandewar region, on 2 September 2016.
IFOA clauses 149 to 151	149. Species management plans for certain threatened plant species FCNSW is to prepare a species management plan for each of the following threatened species of plant to assist in identifying, managing and controlling any adverse impacts of forestry operations on the species: (a) <i>Bertya</i> sp. A Cobar-Coolabah (also named <i>Bertya</i> opponents) (b) <i>Diuris tricolor</i> (c) <i>Pomaderris queenslandica</i> (d) <i>Pterostylis cobarensis</i> (e) <i>Swainsona recta</i> (f) <i>Swainsona sericea</i> . See IFOA for full undertakings 149–151.	Within 12 months of the commencement approval and to be submitted to EPA	FCNSW	Draft species management plans have been prepared. FCNSW is reviewing the EPA’s comments in consultation with experts, with a view to finalising and implementing the plans.

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2015–16
IFOA clauses 152 to 154	<p>152. Monitoring plans for plant species</p> <p>To review and approve the development of FMPs for the following species: <i>Acacia jucunda</i>, <i>Monotaxis macrophylla</i>, <i>Phebalium glandulosum</i> subsp. <i>eglandulosum</i>.</p> <p>See IFOA for full undertakings 152–154.</p>	Within 12 months of the commencement approval and to be submitted to EPA	FCNSW	Draft monitoring plans have been prepared. FCNSW is reviewing the EPA's comments in consultation with experts, with a view to finalising and implementing the plans.
IFOA clauses 149, 152 and 259	<p>Approved plans</p> <p>Intention to amend IFOA to give effect to approved plans under clauses referred to above. This will result in amendment and ultimately omission of clause 259.</p>	Potentially within 12 months of the commencement approval	EPA and FCNSW	Subject to finalisation of actions 149 and 152.
IFOA clause 155	<p>155. Strategic monitoring and assessment program</p> <p>FCNSW is to develop and undertake a strategic monitoring and assessment program in the Brigalow–Nandewar region:</p> <p>(a) to improve knowledge of the habitat requirements of threatened species within the region, and</p> <p>(b) to monitor populations of native animals and plants within the region and assess the extent to which any changes in population levels may be attributable to forest management and practice.</p> <p>See IFOA for full undertaking 155.</p>	FCNSW is to develop the strategic monitoring and assessment program in consultation with EPA before the end of the 12-month period following the commencement of this approval	FCNSW	<p>A draft strategic monitoring and assessment program has been developed.</p> <p>To ensure parity across the state, this draft program is now being considered as part of a statewide native forestry strategic monitoring program being developed as part of the coastal IFOA remake.</p> <p>The timing of delivery of the monitoring and assessment programs is therefore linked to the delivery of the coastal IFOA remake. In the interim, FCNSW implemented a draft monitoring framework from October 2014.</p>
IFOA clauses 158 and 159	<p>Give effect to species management plans</p> <p>Approval of monitoring plan for <i>Polygala linariifolia</i> and <i>Tylophora linearis</i>.</p>	Not stated	EPA and FCNSW	Species management plans have been finalised and are being implemented.

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2015-16
IFOA clauses 233 (1) to (4)	<p data-bbox="450 252 981 316">Auditing methodology for the retention of trees</p> <p data-bbox="450 331 981 627">(1) FCNSW is to develop, in consultation with EPA, a methodology for auditing compliance with the requirements for the retention of trees for the purposes of this Part (namely, clauses 197 (2), 198, 199, 200, 206 and 216). FCNSW is to endeavour to have in place an auditing methodology (approved by EPA) within 12 months of the commencement of this approval.</p> <p data-bbox="450 643 981 667">See IFOA for full undertaking 233 (1) to (4).</p>	Within 12 months of the commencement approval	EPA and FCNSW	<p data-bbox="1608 252 2047 316">A draft methodology has been prepared.</p> <p data-bbox="1608 331 2047 659">To ensure parity across the state, if possible, an agreed audit methodology will aim to be consistent with any tree retention assessment requirements that are developed through the coastal IFOA remake process. The timing of delivery of this audit methodology is therefore linked to the delivery of the coastal IFOA remake.</p>

Appendix 3: Milestones and undertakings – Riverina Red Gum IFOA

IFOA clauses	Detail	Timeframe	Responsibility	Progress for 2015–16
26	Five-year review Five-year review of approval, consideration on minimum basal area retention, new TSC act listings, drainage protection features	January 2016	Ministers (both agencies)	The five-year review will commence 2017–18. For more information, see the NSW Forestry Industry Roadmap .
27 (1) to (4)	Review early thinning operations (other than in the western lands leases) (1) A review of the early thinning program referred to in clause 5 will be conducted in the period 1 July 2012 to 31 December 2012 to determine a sustainable annual maximum amount of river red gum residue that may be produced from early thinning operations, taking into account the silvicultural and environmental impacts and benefits of the program, and the extent of the resource. (2) The terms of reference for the review will be set jointly by EPA and Forestry Corporation. See IFOA for full undertakings 27 (1) to (4)	Prior to 1 July 2012 – review will be conducted from 1 July 2012 to 31 December 2012	Joint FCNSW and EPA review conducted by independent scientific panel (membership mutually agreed by agencies) – jointly funded	Remote sensing data capture (LiDAR) and remeasure of permanent growth plots was undertaken March–June 2015. This information will be used to undertake yield modelling to predict sustainable timber volumes beyond 2019.
27 (5) to (10)	Review residue operations in the western lands leases (5) Forestry Corporation will conduct a series of reviews for the purpose of recommending the maximum volume of residue and residue logs (including dry residue and dry residue	Joint TOR by 31 Dec 2012 for the first review period 1 January 2014 – 31 December 2019	Joint TOR Forestry Corporation (lead) EPA review and joint recommendations required	This milestone will not be reported on in future as it has been superseded by Amendment No. 6 to the Riverina Red Gum IFOA, which commenced 23 June 2016. The amendment sets the maximum volume of residue logs that may be produced from

IFOA clauses	Detail	Timeframe	Responsibility	Progress for 2015–16
	<p>logs) that may be produced from logging operations (including early thinning operations) in the western lands leases for each of the following periods:</p> <p>a) 1 January 2014 to 31 December 2019 b) 1 January 2020 to 31 December 2025 c) 1 January 2026 to 31 December 2031.</p> <p>(6) The terms of reference for the review will be set jointly by Forestry Corporation and DECCW no less than 12 months before the commencement of the next review period (for example, the terms of reference for the review described in subclause (5)(b) must be settled by 31 December 2012).</p> <p>See IFOA for full undertakings 27 (5) to (10)</p>			<p>harvesting operations (including early thinning operations) on western lands lease areas from 1 July 2016 to 31 December 2030.</p> <p>It addresses issues raised by landholders in relation to IFOA constraints that impact farm management activities, including safety and access impediments to managing stock and weeds.</p> <p>The amendment also delivers new tree retention requirements for dead standing trees.</p>
28 (2), (3)	<p>Optimal basal area retention rate trial</p> <p>(2) FCNSW may carry out a trial in accordance with this clause to determine the optimal rate of basal area retention for the purposes of clause 43, in a range between six and 12 square metres per hectare, having regard to the need for both ecologically sustainable forest management and a sustainable timber supply.</p> <p>See IFOA for full undertakings 27 (2) and (3)</p>	<p>Note: This research will inform the five-year review referred to in clause 26.</p> <p>Also part of RRG Structural Adjustment Package Agreements – to feed into Adaptive Management Program (by June 2013)</p>	<p>FCNSW (lead) must consult with the EPA as to the area selected and parameters of the trial</p>	<p>This milestone will be reported against if FCNSW chooses to initiate a trial.</p>
29 (1) to (4)	<p>Auditing methodology for tree retention requirements in this approval</p> <p>(1) FCNSW is to develop, within 12 months of the commencement of this approval and in consultation with EPA, a methodology for:</p>	<p>To be undertaken within 12 months of commencement (due 1 January 2012)</p>	<p>FCNSW (lead) in consultation with the EPA</p> <p>Requires EPA written approval to have effect</p>	<p>No longer applicable. This will not be reported in future. The final update was in the 2014–15 report (2017b).</p>

IFOA clauses	Detail	Timeframe	Responsibility	Progress for 2015–16
	<p>a) auditing compliance with the requirements for the retention of trees for the purposes of this approval (clauses 42 to 45 and clause 179); and</p> <p>b) calculating diameter breast height over bark using stump dimensions (clause 191). See IFOA for full undertakings 29 (1) to (4) See also tree retention requirements under clauses 42–45, 179 and 191.</p>			
31	<p>Field protocol for measuring distances Develop a field protocol for measuring distances specified in clauses 104, 105 and 106.</p>	To be undertaken within 12 months of commencement (due 1 January 2012)	Joint FCNSW, Fisheries and the EPA	<p>As previously reported, a draft protocol has been prepared. The protocol will remain in draft until the feasibility of utilising improved technology around stream identification (including mapping using LiDAR) has been considered. FCNSW will continue using the interim conditions for measuring distances until the protocol has been finalised.</p>
47 (4), (6) and (7)	<p>Travelling stock reserves FCNSW must prepare a plan for managing operations on travelling stock reserves. EPA and Local Land Services (LLS) to be consulted. See IFOA for full undertakings 47 (1) to (9)</p>	To be undertaken within 12 months of commencement (due 1 January 2012); the EPA to comment on FCNSW draft plan within two months of receiving draft.	FCNSW (lead) and OEH and LLS consulted	A draft TSR management plan is being prepared. Once completed it will be forwarded to the EPA for consideration and comment.
50 (1) to (4)	<p>Assessment of regeneration in silvicultural management FCNSW must assess the extent and nature of regeneration in areas of land logged during the approval. OEH to be consulted regarding</p>	To be undertaken before carrying out the first assessment, which is due 31 December 2013	FCNSW (lead) and OEH consulted	<p>A draft methodology has been prepared. To ensure parity across the state (if possible) an agreed audit methodology will aim to be consistent with any regeneration assessment requirements that are developed through the coastal IFOA remake</p>

IFOA clauses	Detail	Timeframe	Responsibility	Progress for 2015–16
	<p>assessment of regeneration in silvicultural management.</p> <p>See IFOA for full undertakings 50 (1) to (4)</p>			<p>process. However, it must consider the unique nature of red gums and their requirement for flooding to trigger regeneration rather than logging. The timing of delivery of this methodology is therefore linked to the delivery of the coastal IFOA remake.</p>
52 (1) to (3)	<p>Pest animal management plan – review and amendment</p> <p>(1) FCNSW must review the pest animal management plan applying to state forests within the Riverina state forests, regularly and periodically (and at least every five years from the date of its approval for implementation).</p> <p>See IFOA for full undertakings 52 (1) to (3)</p>	<p>Regularly and periodically, and at least every five years from the date of its approval for implementation</p>	FCNSW	<p>The next review is due in 2019.</p>
55 (1) to (3)	<p>Weed management plan – review and amendment</p> <p>(1) FCNSW must review the weed management plan applying to state forests within the Riverina state forests, regularly and periodically (and at least every five years from its approval for implementation).</p> <p>See IFOA for full undertakings 55 (1) to (3)</p>	<p>Regularly and periodically, and at least every five years from the date of its approval for implementation</p>	FCNSW	<p>The next review is due in 2019.</p>
58 (1) to (3)	<p>Grazing management plan – review and amendment</p> <p>(1) FCNSW must review its grazing management plan applying to state forests within the Riverina state forests, regularly and periodically (and at least every five years from the date of its approval for implementation).</p> <p>See IFOA for full undertakings 58 (1) to (3)</p>	<p>Regularly and periodically, and at least every five years from the date of its approval for implementation</p>	FCNSW	<p>The next review is due in 2019.</p>

IFOA clauses	Detail	Timeframe	Responsibility	Progress for 2015–16
61	Burning operations management plan – preparation of first plan Forestry Corporation must prepare (and approve for implementation) a burning operations management plan that complies with clause 60 within 12 months of the commencement of this approval. Forestry Corporation is to invite DECCW and DII (Fisheries) to provide comments on a draft of the plan, and is to take into account any comments made by those agencies (within a reasonable time) in finalising the plan.	Plan is to be finalised within 12 months of commencement (due by 1 January 2012)	FCNSW (lead) EPA and Fisheries consulted	Completed. This will not be reported in future. The final update was in 2014–15 (2017b).
63 (1) to (3)	Burning operations management plan – review and amendment (1) FCNSW must review the burning operations management plan applying to state forests within the Riverina state forests, regularly and periodically (and at least every five years from the date of its approval for implementation). See IFOA for full undertakings 63 (1) to (3)	Regularly and periodically, and at least every five years from the date of its approval for implementation	FCNSW	Review of the current plan (1 July 2014 – 30 June 2019) not due until 2019.
66 (1) to (3)	Road and fire trail management plan – review and amendment (1) FCNSW must review the road and fire trail management plan applying to the Riverina state forests, regularly and periodically (and at least every five years from its approval for implementation). See IFOA for full undertakings 66 (1) to (3)	Regularly and periodically, and at least every five years from the date of its approval for implementation	FCNSW	Completed. Review of the current plan (1 July 2014 – 30 June 2019) not due until 2019.

IFOA clauses	Detail	Timeframe	Responsibility	Progress for 2015–16
71 (1) to (5)	Preparation of annual program of forestry operations FCNSW must prepare annual program of operations for each financial year and forward a copy of the annual program to the EPA and DPI (Fisheries) before the commencement of that financial year. See IFOA for full undertakings 71 (1) to (5)	First one due 1 July 2011	FCNSW (lead) forward to EPA and Fisheries	EPA received the FCNSW 2015–16 annual program of forestry operations for the Brigalow-Nandewar, South West Cypress and Riverina Red Gum IFOAs on 30 June 2016.
82	FCNSW to provide monthly advice on operations	Monthly reports commenced on 1 April 2011	FCNSW (lead)	Completed. This is an ongoing commitment.
86 to 91	Annual reports on forestry operations Annual report for financial year must be given to EPA and Fisheries See IFOA for full undertakings 86 to 91	By 1 September in next financial year (i.e. first report due 1 September 2012)	FCNSW (lead); report must be given to EPA and Fisheries	EPA received the FCNSW 2015–16 annual report on forestry operations in the western region, which includes the Riverina Red Gum region, on 2 September 2016.
138, 140–143	New records to be forwarded to EPA (1) FCNSW must advise EPA of any record of a threatened species of animal or plant made or found in the Riverina state forests during the term of this approval ('new record') if FCNSW considers it may be suitable for inclusion on the Atlas of NSW Wildlife (referred to in clause 137). See IFOA for full undertakings related to new records	Within three months of the new record being made or two working days for spp. listed in cl. 140	FCNSW – must notify EPA	New records are provided routinely (generally every 3 months) via the agreed data transfer arrangements between FCNSW & EPA.
238–243	Environment Protection Licence annual return In addition to the annual report required (cls 86 to 91) FCNSW must prepare and give EPA an annual return relating to the EPL.	Calendar years – from the first year within 60 days of end of year (i.e. 1 March 2012)	FCNSW – must submit to EPA	EPA received FCNSW's EPL annual return in February 2016.

Appendix 4: Milestones and undertakings – South Western Cypress IFOA

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2015-16
32, 142, 144, 148, 178	New evidence of species FCNSW to notify OEH of its discovery of new evidence of plant and animal species.	Within three months of the new record being made or found, or two working days for species listed in cl. 144	FCNSW	No action reported as being required for 2015-16.
41 (2), (4), (6) and (7)	Travelling stock reserves FCNSW to prepare a plan managing logging operations on TSRs. EPA to be consulted regarding draft plan for managing operations on travelling stock reserves.	To be undertaken within 12 months of commencement (Due 1 July 2012) FCNSW cannot carry out operations on TSRs until it has considered written comments on the plan from EPA EPA to comment on FCNSW draft plan within two months of receiving draft	FCNSW (lead) LLS and EPA consulted	A draft TSR management plan is being prepared and will be forwarded to the EPA for consideration and comment when complete.
44	Assessment of regeneration in silvicultural management FCNSW must assess the extent and nature of regeneration in areas of land within the South Western Cypress region that are logged during the term of this approval. EPA to be consulted regarding an assessment of regeneration in silvicultural management.	To be undertaken within the first five years of the IFOA (due by 31 December 2015) EPA consulted before carrying out the first assessment	FCNSW (lead) and EPA consulted	Draft prepared and currently being reviewed prior to EPA consultation.
46, 49, 52, 57, 60	Plan reviews for South Western Cypress region	By 30 June 2016 and at least every five years for	FCNSW	Completed. The next review is due in 2019.

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2015–16
	Forestry Corporation must review the pest animal management, weed, grazing, road management, and burning operation plans applying to state forests within the South Western Cypress region, regularly and periodically (and at least every five years from the date of its approval for implementation).	pest animal management, weed, grazing, road management plans By 30 June 2017 for review of burning operations plan Preparation of first burning operations plan – see 55 below		
55	Preparation of first burning operations plan within 12 months of commencement Forestry Corporation must prepare (and approve for implementation) a burning operations management plan that complies with cl. 54 within 12 months of the commencement of this approval. EPA and Fisheries to be invited to comment on a draft burning operations management plan.	Plan is to be finalised within 12 months of commencement (due by 1 July 2012)	FCNSW (lead), Fisheries and EPA (comments)	Completed. The next review is due in 2019.
65	Preparation of annual program of forestry operations Forestry Corporation must prepare annual program of operations for each financial year and must forward the annual program to EPA and DPI (Fisheries) before the commencement of that financial year. See IFOA for full undertakings 65 (1) to (5)	First one due 1 July 2011	FCNSW (lead) forward to EPA and Fisheries	EPA received the FCNSW 2015–16 annual program of forestry operations for the Brigalow-Nandewar, South West Cypress and Riverina Red Gum IFOAs on 30 June 2016.
76	Monthly advice on operations FCNSW to provide monthly advice on operations	Monthly	FCNSW (lead)	The process of reporting is in place and reporting continues as per the requirements of the IFOA.
80 to 88	Annual reports on forestry operations	By 1 September in next financial year (i.e. first	FCNSW (lead); report must be	EPA received the FCNSW 2015–16 annual report on forestry operations,

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2015–16
	Annual report for financial year must be given to EPA and Fisheries See IFOA for full undertakings 80 to 88	report due 1 September 2012)	given to EPA and Fisheries	which covers the Brigalow–Nandewar, South West Cypress and Riverina Red Gum regions on 2 September 2016.
149 and 151	Preparation of species management plans FCNSW must prepare and forward species management plans for the plant species referred to in cl. 149 to the EPA before the end of the 12-month period following the commencement of this approval. The species are: <i>Austrostipa metatoris</i> , <i>A. wakoolica</i> , <i>Diuris tricolor</i> , <i>Pterostylis cobarensis</i> , <i>Swainsona sericea</i> . Note: It is contemplated that if EPA approves the contents of a species management plan, the IFOA will be amended to require the plan to be given effect to. EPA and FCNSW intend that the species management plans required will be finalised and approved within 12 months of the commencement of the IFOA.	12 months of the commencement (due by 1 July 2012)	FCNSW (lead) and EPA approve	Draft species management plans were submitted to the EPA. FCNSW is reviewing the EPA’s comments in consultation with experts, with a view to finalising and implementing the plans.
155	Strategic monitoring and assessment program (SM&AP) FCNSW is to develop and undertake a strategic monitoring and assessment program in the South Western Cypress region.	Within 12 months of the commencement (due by 1 July 2012)	FCNSW (lead) and OEH	SW Cypress SM&AP will use the same methodology as the Brigalow SM&AP. To ensure parity across the state, this draft program is now being considered as part of a statewide native forestry strategic monitoring program being developed as part of the coastal IFOA remake. The timing of delivery of the monitoring and assessment program is therefore linked to the delivery of the coastal IFOA remake.

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2015-16
233 (1) to (4)	<p>Auditing compliance with Part (namely, clauses 198, and 216) – methodology to be developed</p> <p>(1) FCNSW is to develop, in consultation with EPA, a methodology for auditing compliance with the requirements for the retention of trees for the purposes of this Part (namely, cls 198 and 216). FCNSW is to endeavour to have in place an auditing methodology (approved by EPA) within 12 months of the commencement of this approval.</p> <p>(4) The methodology developed under this clause does not have effect unless and until EPA has approved it in writing. It may be amended from time to time with the written approval of EPA.</p> <p>See IFOA for complete 233 (1) to (4)</p>	12 months of the commencement (due by 1 July 2012)	FCNSW (lead) and EPA (approval)	<p>A draft methodology has been prepared.</p> <p>To ensure parity across the state, if possible, an agreed audit methodology will aim to be consistent with any tree retention assessment requirements that are developed through the coastal IFOA remake process. The timing of delivery of this audit methodology is therefore linked to the delivery of the coastal IFOA remake.</p>
240	<p>Burning operations – annual planning and mapping within five years</p> <p>Before including a burning operation in an annual program of forestry operations, FCNSW must carry out a comparative assessment of the environmental impact of carrying out the operation and of not carrying out the operation.</p> <p>FCNSW must, within the five years of the commencement of this approval:</p> <p>(a) identify and map vegetation types within the state forests of the South Western Cypress region and prepare post-fire age class distribution maps for those vegetation types, and</p>	Annual assessment and mapping within five years (due July 2016)	FCNSW	Completed, next review due 2019.

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2015-16
	<p>(b) develop a theoretical post-fire age class distribution model for those vegetation types to enable a comparison to be made with actual post-fire age class distribution for those types, in accordance with the process outlined in the FCNSW Corporate Fuel Management Plan 2008 (Chapter 6.2.2).</p> <p>See IFOA for full 240 (1) to (5)</p>			
306 and 307	<p>Pollution incident notification</p> <p>Relating to breaches of the terms of the EPL (in carrying out logging operations and ancillary road construction).</p> <p>Notification and reports of pollution incidents causing or threatening material harm to the environment.</p>	<p>Details relating to a breach must be included on the register within 14 days of FCNSW becoming aware of the breach</p> <p>Written notification within seven days of FCNSW becoming aware of the incident</p>	FCNSW (lead) and EPA notified	EPA received FCNSW's EPL annual report in February 2016.
309 to 314	<p>Special annual return to be given to EPA</p> <p>In addition to the annual report required to be prepared under Chapter 1 [of the IFOA], FCNSW is to prepare and give to [EPA] an annual return relating to logging operations and ancillary road construction regulated by the terms of the EPL.</p>	Within 60 days of the end of each calendar year (first date 1 March 2012)	FCNSW (lead) and EPA notified	EPA received FCNSW's special annual return relating to logging operations and ancillary road construction in February 2016.

Appendix 5: Forest agreements and IFOAs operating in NSW

Forest Agreements and IFOAs for coastal regions

Forest Agreement/IFOA	Commenced	In place until
Eden region Forest Agreement	5 March 1999	4 March 2019
LNE region Forest Agreement	5 March 1999	4 March 2019
UNE region Forest Agreement	5 March 1999	4 March 2019
Southern region Forest Agreement	3 May 2002	3 May 2022
IFOA for the Eden region	1 January 2000	31 December 2018
IFOA for the LNE region	1 January 2000	31 December 2018
IFOA for the UNE region	1 January 2000	31 December 2018
IFOA for the Southern region	13 May 2002	31 December 2020

IFOAs established for western forest regions

Agreement/IFOA	Commenced	In place until
Brigalow and Nandewar Community Conservation Area Agreement (CCA Agreement)	11 June 2009	10 June 2016
Brigalow–Nandewar IFOA	23 October 2010	31 December 2025
Riverina Red Gum IFOA	1 January 2011	31 December 2030
South Western Cypress IFOA	1 July 2011	31 December 2025

Acronyms and abbreviations

cl.	Clause from an Act or other legislation
DPI	NSW Department of Primary Industries
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
ESFM	ecologically sustainable forest management
FA	NSW Forest Agreement
FCNSW	Forestry Corporation of NSW
FL	Fisheries Licence
FMZ	Forest Management Zone
FCNSW	Forestry Corporation of NSW
FRAMES	Forest Resource and Management Evaluation System
ha	hectares
IFOA	Integrated Forestry Operations Approval granted under the <i>Forestry Act 2012</i>
ILUA	Indigenous Land Use Agreement
LALC	Local Aboriginal Land Council
LiDAR	Light Detection and Ranging
LNE	Lower North East region
LLS	Local Land Services
m	metres
NPWS	National Parks and Wildlife Service (within OEH)
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
PNF	private native forestry
PVP	property vegetation plan
SOE	State of the Environment
TOR	terms of reference
TSC Act	<i>Threatened Species Conservation Act 1995</i>
TSL	Threatened Species Licence
t	tonnes
UNE	Upper North East region

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