

NSW Forestry Snapshot Report 2016–17



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



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Overview

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

By June 2017, most milestones and undertakings set for coastal and western regions had already been completed and described in previous reports. These ranged from short term milestones for improving forest management, to the establishment of long-term plans, frameworks and reviews. Some milestones and undertakings remain ongoing or are no longer required.

Of those not completed by 30 June 2017:

- five are awaiting finalisation of the Coastal IFOA remake (to be completed in the next reporting period)
- 11 are in progress, including:
 - nine management plans or compliance methodologies that will be considered as part of the five-year statutory reviews of the three western IFOAs (in 2019)
 - two monitoring plans that will be considered as part of the development of a cross tenure forest monitoring and improvement program (commencing in 2019) – in the interim, Forestry Corporation of NSW are acting in accordance with draft plans
- five milestones have been reprioritised and no progress has been reported
- the remainder are related to ongoing work or were not due in the reporting period.

This report finds harvesting maintained at or below permissible volumes and quantities approved under the IFOAs. The report also notes credible regulation of forestry activities and results reported by the EPA and Forest Corporation of NSW.

Measures of ecologically sustainable forest management, such as rates of sustainable harvesting, need to be carefully monitored. Forestry Corporation's regeneration surveys found 84% of survey plots were successfully regenerated with commercial species. This is above the 65% regeneration threshold which is considered adequate for commercial species.

The EPA's regulatory work during this period focused on identified compliance priorities. These included 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.

There were no significant changes in the harvesting of non-wood forest products, except for an increase in the volume of gravel, sand and rock. Visitor surveys found high levels of satisfaction with recreational facilities in national parks and state forests.

Over 200 Aboriginal people are involved in boards and committees that make decisions about joint management of national parks and state forests in NSW. In May 2017, an interim Memorandum of Understanding for Mt Yarrowyck Nature Reserve was signed to enable Aboriginal joint management until ownership and leaseback arrangements are finalised.

Biodiversity conservation highlights this year included:

- the addition of 24,329 hectares of land to the national parks system
- stable populations for most native animal species monitored by WildCount.

While Forestry Corporation monitoring indicates generally good levels of health in the forests and plantations it manages, Bell Miner Associated Dieback (BMAD) across both state forests and national parks remains a concern. An independent BMAD review in 2016–17 has made recommendations for future management.



Figure 1: EPA officer (right) talks to a Forestry Corporation employee in an area that is being harvested for timber production. Photo: Brent Mail Photography/EPA

In August 2016 the NSW Government released the *NSW Forestry Industry Roadmap*. The roadmap’s four priority pillars will underpin sustainable forest management into the future. Several actions were progressed during 2016–17, including:

- commencement of the combined 10 and 15-year review of the Regional Forest Agreements (RFAs)
- finalising the draft coastal IFOA in preparation for public consultation
- development of the new native forestry bill
- working with the Australian Government to facilitate forestry industry participation in the Emissions Reduction Fund.

Introduction

This is the eighteenth annual report on the implementation of the NSW Forest Agreements (FAs) 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 and a state-owned corporation, who have all contributed to the 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), previously Department of Industry (DOI), including Forestry, Fisheries and Biosecurity NSW
- Forestry Corporation (referred to in this report as Forestry Corporation, and as FCNSW in the appendices).

The report provides a snapshot of progress for the period 1 July 2016 to 30 June 2017.

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 Data Report* and *Sustainability Snapshot* (FCNSW 2017b, FCNSW 2017c)
- 2016–17 annual reports of relevant agencies.

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

- the *Commonwealth State of the Forests Report 2013* (ABARES 2014), noting that the *State of the Forests Report 2018* was not available during the reporting period
- the *NSW Report on Native Vegetation 2013–14* (OEH 2014).

What regions are reported

This document reports on four coastal forestry regions that had both Forest Agreements and IFOAs in place during the reporting period:

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

Three inland forestry regions that have IFOAs but not Forest Agreements:

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

These regions are mapped in Figure 2. Note that the Riverina Red Gum region overlaps with the South Western Cypress region but they have separate IFOAs in place for their operations.

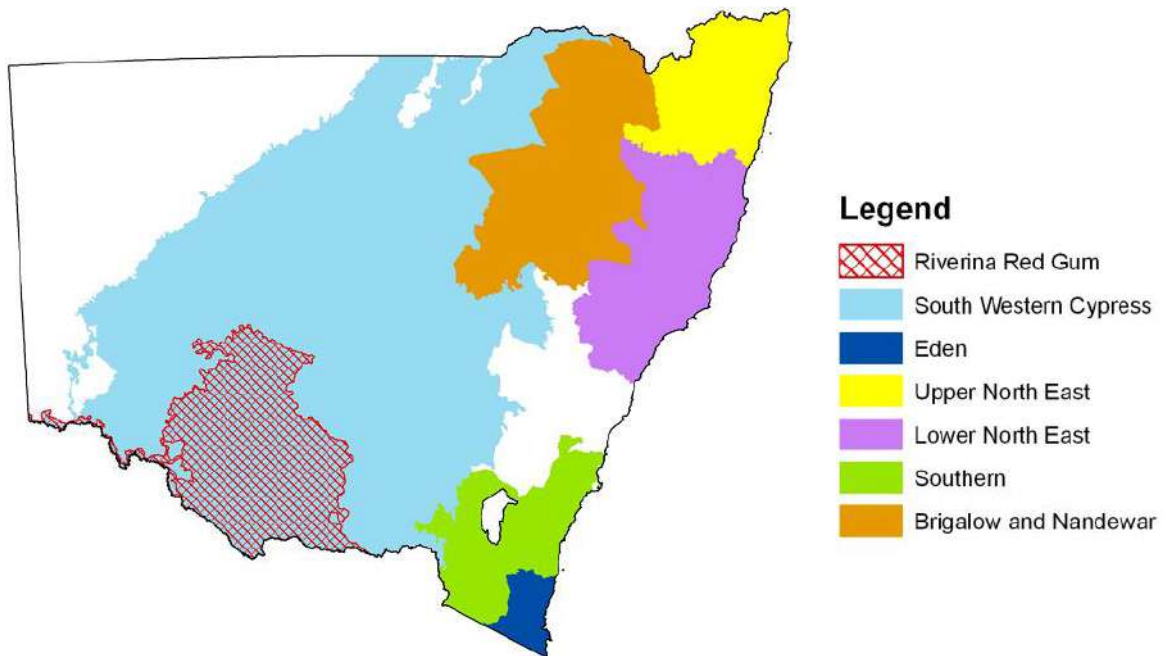


Figure 2: Integrated Forestry Operations Approval (IFOA) regions

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.

NSW Forest Industry Roadmap

In August 2016, the NSW Government released the *NSW Forestry Industry Roadmap* (DPI 2016). The roadmap's vision is 'a sustainably managed forest estate that underpins a dynamic, economically efficient forestry industry, which continues to support regional economies and delivers social and environmental benefits'.

The whole of government strategy is supported by four priority pillars:

1. delivery of regulatory modernisation and environmental sustainability
2. balancing supply and demand

3. improving community understanding and confidence
4. supporting industry innovation and new markets.

The NSW Government has committed to implement clear actions under each of these pillars to ensure the forestry industry is economically viable and ecologically sustainable into the future. A number of these actions are already underway or have been completed. More information is available on the [DPI website](#).

Roadmap implementation 2016–17

Pillar 1 – Regulatory modernisation

Regulatory modernisation involves updating the framework of regulations, licenses, codes, guidance materials and compliance tools to ensure they keep pace with changing business models, user expectations and best practices in the regulatory, environmental or forest management field. In 2016–17, the NSW Government commenced work on reforms to native forestry legislation to ensure regulations are efficient, outcomes-based, enforceable, reflect modern best practice and meet community and industry expectations.

Regional Forest Agreements

The NSW and Australian governments are required to review the NSW RFAs every five years to assess progress of agreed milestones and commitments to delivering ecologically sustainable forest management. In April 2017, the Australian and NSW governments officially commenced the combined 10 and 15-year review of the NSW RFAs, covering the period between 2004 and 2014. An independent reviewer, Ewan Waller, was appointed by the government. The scope and process for conducting the review (outlined in the [scoping agreement](#)²) noted:

- public submissions will be sought
- the independent reviewer will:
 - consider the progress report and submissions
 - prepare a report outlining recommendations for consideration by the NSW and Australian governments
- a joint government response to the recommendations will be compiled
- where appropriate, the public submissions will be used to inform the renewal and improvement of the NSW RFAs.

Coastal IFOA

IFOAs integrate the environmental planning and assessment, environment and water protection, and threatened species conservation regulatory requirements for forestry operations on State forests and other Crown-timber lands.

In 2010, the NSW Government initiated a statutory ten-year review of the both the coastal NSW Forest Agreements and IFOAs. This review determined that the four coastal IFOAs required a major remake as they were difficult to understand and implement, lacked clarity and enforceability and prevented forestry operations keeping pace with industry, environmental and regulatory best practice. It was also identified that there was significant duplication of the requirements across the four coastal IFOAs that could be streamlined and standardised across the coastal region by consolidating the IFOAs into a single coastal IFOA.

¹ www.dpi.nsw.gov.au

² <https://www.epa.nsw.gov.au/your-environment/native-forestry/about-public-native-forestry/regional-forest-agreements-assessments/review-regional-forest-agreements>

In 2014, the NSW Government committed to remake the four existing coastal IFOAs into a single coastal IFOA³ with one clear set of conditions for all forests of coastal NSW. The objective of this remake was to reduce the costs associated with implementation and compliance and to improve the clarity and enforceability of the IFOAs.

The remake also provided an opportunity to recognise innovations in best regulatory practice, incorporate advances in technology and deliver a contemporary regulatory framework that is fit for purpose. The remake IFOA will deliver on the NSW Government’s twin commitments to remake the coastal IFOAs with no erosion of environmental values and no net change to wood supply.

In 2016–17, the Natural Resources Commission (NRC) was engaged by the NSW Government to provide independent advice on the Coastal IFOA. This included advice on a subset of IFOA settings that would best deliver the NSW Government’s twin commitments. The NRC provided this advice in November 2016⁴.



Figure 3: Forestry Corporation employee on the Mid-North Coast. The NSW Forestry Industry Roadmap aims to ensure the forestry industry is both economically viable and ecologically sustainable.
Photo: Forestry Corporation

New Native Forestry Bill

The Roadmap includes a commitment to support a native forest regulatory framework that balances economic benefits with community expectations in a way that is efficient, outcomes-based, enforceable, and reflects modern best practice. This includes laws with modern penalties for environmental offences and a suite of improved regulatory tools to remedy or restrain environmental impacts.

³ <https://www.epa.nsw.gov.au/your-environment/native-forestry/forestry-regulatory-reforms/coastal-ifo-remake/coastal-ifo-public-consultation>

⁴ https://www.nrc.nsw.gov.au/_literature_240607/Final%20report

In 2016–17, the NSW Government was actively preparing this new native forestry Bill. It has since been passed by parliament.

Private Native Forestry Code Review

The Roadmap commits to a review of the Private Native Forestry Code in 2018 or beyond. This will be reported on in the next reporting period.

Pillar 2 - Balancing supply and demand

Timber supply

In 2017, the government held discussions with industry on native timber supply issues and commissioned an independent review of [coastal wood supply agreements](#)⁵. The government is considering these matters together with the resolution of the IFOA remake to determine future timber supply.

An independent external review of the status of the native cypress timber supply in Western NSW, conducted by Australian National University Enterprises, concluded that the current estimates of available volumes and future yields were sound, and sufficient as the basis for the future sustainable supply to industry.

Forestry Corporation has continued to manage wood supply agreements with its customers along commercial and contractual lines.

Pillar 3 - Community understanding and confidence

NSW Forest Industries Taskforce

The NSW Forest Industries Taskforce is an industry led advisory group reporting to the relevant industry Ministers. The group was established to identify key forestry issues and ways in which the general community can be better informed about efforts to achieve balanced outcomes between a viable forestry industry and environmental protections for the forest resource. The taskforce represents key sectors of the forestry industry (including primary processors and manufacturing businesses) and provides timely and comprehensive advice to the NSW Government.

Research and development

The DPI Forest Science team continues to lead research that plays an important role in understanding and better managing our state's forest resources.

Recent examples of research include:

- development of a predictive model of [koala habitat suitability](#)⁶
- measuring [forest residue](#)⁷ on the north coast to establish the potential for using this resource for renewable bioenergy.

DPI Forest Science has an ongoing suite of research projects related to:

- ecology and sustainability
- resource assessment
- health and biosecurity
- carbon, wood products and bioenergy.

⁵ www.dpi.nsw.gov.au

⁶ www.dpi.nsw.gov.au

⁷ www.dpi.nsw.gov.au/forestry/north-coast-residues-project

The EPA:

- works with industry to ensure legislative requirements are clearly understood
- runs awareness campaigns focusing on specific environment protection issues to increase compliance and improve environmental outcomes
- has led innovative mapping programs and research projects to improve environmental and regulatory outcomes.

The NSW Government has also committed to establishing transparent environmental and regeneration monitoring of state forests. This is to determine the effectiveness of the IFOAs at achieving their objectives and is within a framework of a broader landscape monitoring program across tenures. This program is expected to commence in part by late 2019.

Pillar 4 - Industry innovation and new markets

The NSW government has been working closely with the Commonwealth to facilitate the participation of the NSW plantation sector in the processes and markets of the Emissions Reduction Fund (ERF) and ensure the potential value of commercial timber plantations are realised as carbon sequestration methods.



Section 1:

Performance indicators



1. Snapshot of ecologically sustainable forest management

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 2019.

Biodiversity conservation

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). In 2016–17, 24,329 hectares of land was added to 18 reserves in the national parks system in NSW. Of this, 3,187 hectares (12 reserves) fell within the Forest Agreement regions. These areas have not been analysed by forest type.

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. Agencies involved in forestry undertake a range of monitoring programs in NSW forests, both independently and in collaboration.

DPI research and monitoring

The DPI Forest Science team conducts ongoing science-based research to evaluate forestry management priorities and impacts of forestry practices on biodiversity. Research and monitoring approaches include field-based biological research, biometrics, spatial modelling, Geographic Information System (GIS) mapping and cost-benefit analysis.

Biodiversity monitoring in Pilliga forests

Biodiversity monitoring is important for assessing changes in species status over time, in this case at a landscape scale. This helps land managers evaluate the effectiveness of strategies to mitigate potential impacts of forestry operations. Annual biodiversity monitoring was initiated in the Pilliga in north-west NSW in 2013 by Forestry Corporation. While monitoring has targeted different aspects of biodiversity, including diurnal birds and ground fauna, DPI and Forestry Corporation analyses have so far focused on bat survey results.

Pilot studies prior to initiating monitoring were used to identify the most efficient sampling effort for detecting change over time. Sampling showed a decline in activity on bat flyways from 2013 to 2016, then an increase in 2017. Activity off the flyways was low but relatively constant over this period. Flyways are open spaces typically along roads or tracks. Some bats prefer cluttered areas hence the need to sample both flyway and off flyway sites.



Figure 4: Yellow-bellied sheath-tailed bat (*Saccolaimus flaviventris*) is a threatened species found in the Pilliga which is recorded by ultrasonic surveys. Photo: Brad Law/DPI

The 2013–16 decline cannot be attributed to harvesting or fire as these were restricted to just three of 24 sampling points. Comparison with previous surveys indicates that activity in 2013 was unusually high and that lower activity in 2016 was comparable to activity recorded before systematic monitoring was in place.

Findings indicate that trends in bat activity were not a response to land management approaches but were related to rainfall, with preceding low rainfall associated with less activity. Fluctuations in bat biodiversity span multiple years and this must be accounted for when attributing changes to human activities.

The DPI Forest Science team will commence its analysis of additional biodiversity surveys, including of diurnal birds and ground fauna, in 2019.

Examining the impacts of thinning

Thinning is the removal of selected trees to encourage growth and improve health of the remaining trees. In some forest types, it is unclear how biodiversity responds to thinning, especially over longer periods. DPI Forest Science has established two experiments to assess how different biodiversity components (bats, other small mammals, diurnal birds, reptiles, invertebrates, and plants) respond to thinning in regenerating stands of river red gum and cypress pine on state forest.

In river red gum stands on state forest, thinning in 2012–2015 was associated with an initial increase in activity and richness of bats and a change in bat species composition. This occurred within two years of when the areas were thinned. There was no change in richness for other small mammals, birds, or insect biomass. Common brushtail possums and red foxes were less active after thinning. No other negative effects on biodiversity were detected.

In the cypress state forest trial, thinning took place in 2016. Initial post-thinning surveys demonstrated trends for positive increases in a range of taxa (such as reptiles and birds), although radio-tracked bats avoided day-roosting in thinned patches.

Results from both studies indicate that thinning has neutral to positive effects on some biodiversity. Responses are species-specific and likely to be dependent on vegetation type and the broader landscape of a site. Resampling of experimental sites will continue to track changes in biodiversity as the forests respond to thinning over time.

Case study: Hastings River mouse



Figure 5: Hastings River mouse (*Pseudomys oralis*). Photo: Bronwyn Ellis/FCNSW

The Hastings River mouse is a federally-listed threatened species that largely occurs within NSW. It is an iconic species; however, past management has been based on limited scientific data. In 2015, DPI Forest Science and Forestry Corporation staff placed 50 Elliott traps across 23 one-hectare trapping grids in four state forests. Elliott traps are best practice for capturing small mammals safely. Sites were selected using a combination of field inspection and consulting a species habitat model developed by DPI.

All grids were initially trapped for four nights in March–May 2015, with annual trapping in following years. The Hastings River mouse was recorded in traps 78 times across 18 of the 23 grids between 2015 and 2018. It was not found on five grids. These results demonstrate relatively low capture rates, as would be expected for this species. None of the grids had experienced recent wildfires. Eight of the grids had been recently harvested (post-2010). Trend analysis of the field data is in progress and will explore responses to recent harvesting.

DPI’s research supports the understanding that the Hastings River Mouse is an early to mid-successional species, and that competition with the native Bush Rat and predation by introduced predators are significant factors in population dynamics. The project was undertaken to deliver improved data to provide for better management of the species’ habitat requirements and may inform future forest management for this species.

OEH and NPWS monitoring programs

OEH maintains a comprehensive [threatened species profile search facility](http://www.environment.nsw.gov.au)⁸ 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.

⁸ www.environment.nsw.gov.au



Figure 6: WildCount detected a presumed extinct population of brush-tailed rock-wallabies. Photo: Michael Van Ewijk/OEH. Note: This is not a WildCount motion sensitive image.

WildCount

WildCount is a 10-year program that uses motion sensitive cameras to monitor animals across NPWS estates in eastern NSW. Many of the monitored parks are in Forest Agreement regions. WildCount is the broadest fauna monitoring study of its kind in Australia and one of the biggest in the world. It is designed to assess trends in common widespread species, particularly medium-sized mammals. WildCount detects changes in species occupancy and can act as an early warning system for native species declines, pest animal increases or new pest incursions.

Surveys have been conducted annually in autumn since 2012. The program captures up to 300,000 images every year and has recorded more than 150 different species. Between 2012 and 2016 the program identified 30 new records of nine threatened species (defined as no previous records within a 10-kilometre radius), including:

- black-stripe wallaby
- brush-tailed rock-wallaby
- parma wallaby
- koala
- long-nosed potoroo.

Analyses of data for the first five years (2012–2016) show that:

- most species for which occupancy models were developed (32 of 39) appear to be stable (for example, swamp wallaby, common wombat, common brushtail possum, superb lyrebird)
- five species (mountain brushtail possum, satin bowerbird, spotted quail-thrush, wonga pigeon and feral pig) may be increasing in occupancy

- two species (long-nosed bandicoot, a native species, and introduced rabbits) may be declining; however, further data are required to confirm this.

NPWS will continue the surveys and develop appropriate management responses as changes in occupancy are confirmed (such as declines in native species or increases in feral species). More information on WildCount is available on the [OEH website](#)⁹.

Case study: Pygmy possums move to a new home



Figure 7: Eastern pygmy possum. Photo: Forestry Corporation.

Long-term wildlife monitoring helps identify populations of threatened and endangered species in state forests that can provide animals to help repopulate parks and reserves where they are locally extinct.

This year, Forestry Corporation partnered with other agencies to move 10 threatened eastern pygmy possums from McPherson State Forest on the Central Coast, to the North Head sanctuary in Sydney. The relocation followed extensive monitoring and tracking since 2001.

Another highlight this year was the birth of the first baby bandicoot in a century in Booderee National Park. This followed the translocation of several breeding pairs of endangered southern brown bandicoots from state forests around Eden by Forestry Corporation and Parks Australia. More details are available in *Forestry Corporation Sustainability Snapshot* (FCNSW 2017c).

Forestry Corporation monitoring programs

Forestry Corporation has long-term monitoring programs in place to gather data on targeted species in forestry areas. These include digital recorders, thermal image cameras and seasonal trapping programs, in addition to routine pre-harvest surveys. Refer to the *NSW Forest Report 2014–15* (EPA 2017c) for a full list of programs. These

⁹ www.environment.nsw.gov.au

programs provide information on a range of issues from the impact of fox abatement on native wildlife to the health of forest waterways and catchments.

During the planning phase of forestry operations, flora and fauna surveys are undertaken to determine the presence of threatened species or their preferred habitat. If these threatened species are sighted, their presence is considered when preparing the harvest plan.

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.

Drought and temperature

Although forests affected by extended drought in parts of Australia commenced recovery in the period 2011–16, the trend of increasing mean annual temperatures continued (ABARES 2019). Forestry Corporation’s monitoring programs include checking for signs of drought and related impacts and the results from their surveys are considered in the ongoing management of plantations and State forests.

Land available in state forests

An updated Forest Management Plan (FMP) for coastal hardwood forests was finalised during the year. The plan is a summary of Forestry Corporation’s approach to sustainable forest management. It outlines the legal and regulatory framework and demonstrates the organisation’s commitment to ESFM and to maintaining certification to the Australian Standard for Sustainable Forest Management, as well as the environmental management system ISO 14001.

This plan replaces the 2005 Regional ESFM Plans for the Upper and Lower North East regions, Southern region (South Coast and Tumut sub-regions) and Eden. While the new plan is a more streamlined document than the previous ESFM Plans, this serves to communicate the direction and management approach more efficiently and does not diminish Forestry Corporation’s commitment to delivery of regional ESFM outcomes.

The plan explains how 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). FMZ maps and Forest Management Plans are available from the Forestry Corporation website.

Table 1 provides a description of each zone type and the number of hectares classified under each zone across all IFOAs. Table 2 shows the area of state forest in each IFOA region. Table 3 shows timber reserves on Crown land where Forestry Corporation has the right to harvest timber. These are included in the Western IFOAs.

The area available for sustainable harvesting is further reduced through operational exclusions, as a result of IFOA conditions, and due to operational and market constraints. This results in over 40% of the area under Forestry Corporation management reported as unharvestable for 2016–17. Note that the area subject to sustainable harvesting in 2016–17 in native forests was 1.2% of the total area of native forest under Forestry Corporation management.

Table 1: 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)	28,290
Zone 2 – Informal reserves	299,161
Zone 3 – Protected by prescription	201,458
Zone 4 – General Management Zone (native forest available for timber production)	1,228,736
Zone 5 – Hardwood Plantations Zone	51,908
Zone 6 – Softwood Plantations Zone	182,014
Zone 7 – Non-Forestry Use Zone	6,802
Zone 8 – Areas for further assessment	460
Zone 9 - Unzoned	20,139
Total	2,018,968

* Detailed information for Defined Forest Areas is available in interactive charts on the Forestry Corporation website.

Table 2: Forestry Corporation of NSW Defined Forest Area under the Australian Forestry Standard and Timber Reserves within the IFOA areas

State forests	Hardwood Forests Division	Softwood Plantations Division	Total (hectares)
Brigalow Belt South	262,759		262,759
Eden	152,338	43,262	195,600
Lower North East	481,294	15,021	496,315
Nandewar	12,927	1,601	14,528
Riverina Red Gum	36,776		36,776
South Western Cypress	148,912		148,912
South Coast sub-region	200,398	12,138	212,536
Tumut sub-region	67,884	143,822	211,706
Upper North East	416,635	23,207	439,842
Totals	1,779,923	239,051	2,018,974

Table 3: Timber Reserves within the IFOA areas

Timber reserves by IFOA	Hardwood Forests Division
Brigalow Belt South	1,569
Nandewar	1,100
Riverina Red Gum	5,307
South-Western Cypress	100,995
South Coast sub-region	9
Tumut sub-region	421
Upper North East	823

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 are an estimated 8.5 million hectares of native forests on private land across NSW, of which around half a million hectares are currently authorised to be logged under a PNF approval.

During the reporting period, the EPA regulated private native forestry under the *Native Vegetation Act 2003* and the *PNF Code of Practice*¹⁰. The PNF Code ensures that forest operations improve or maintain environmental outcomes and encourages sustainable management. It also ensures environmentally important ecosystems such as rainforest, old growth forest, wetlands and heathlands are protected.

During the reporting period, approval through a PNF property vegetation plan (PVP) was 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. Subsequent to the reporting period, new PVPs were superseded by PNF plans. Existing PVPs continue to be recognised under transitional arrangements. Local Land Services (LLS) assumed responsibility (30 April 2018) for approvals for PNF. The EPA maintained its compliance and enforcement functions for PNF.

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.

In 2016–17, 38,186 hectares were approved under 338 new PNF PVPs.

Table 4: Area (hectares) of PNF property vegetation plans approved July 2012–June 2017

Forest region	2012–13	2013–14	2014–15	2015–16	2016–17
Northern NSW	43,200	35,190	24,671	41,464	33,177
Southern NSW	4,243	494	577	756	701
Riverina Red Gum	10,047	1,694	871	7,286	2,416
Cypress and Western Hardwood	3,698	3,521	1,837	2,155	1,892
Totals	61,188	40,899	27,956	51,661	38,186

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

Table 5: Total number of property vegetation plans approved July 2012–June 2017

Forest region	2012–13	2013–14	2014–15	2015–16	2016–17
Northern NSW	285	248	202	306	314
Southern NSW	28	6	7	13	11
River Red Gum	26	16	11	18	10
Cypress and Western Hardwood	9	11	2	2	3
Totals	348	281	222	339	338

Source: EPA Forestry database.

Additional PNF trends are reported in the OEH *NSW Report on Native Vegetation 2013–14* (OEH 2014).

¹⁰ www.epa.nsw.gov.au/your-environment/native-forestry/about-private-native-forestry/private-native-forestry-code-practice

Department of Primary Industries – reporting on plantations

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

In addition to the coastal areas, 2,429 hectares of new plantations were authorised in the Murrumbidgee Catchment Management Authority (CMA) region (now Riverina Local Land Service) and 422 hectares of new plantations were authorised in the central west.

Table 6: Area (hectares) of plantations approved under the Plantations and Reafforestation Act in coastal areas (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
2016–17	481	0	181

Sustainable timber harvesting

Monitoring helps ensure that wood and wood products are removed from forests at sustainable levels and that there is robust regeneration so that the same forests are continually regrown in perpetuity. The 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 if specified 20-year limits are not exceeded over the life of the IFOA. During 2016–17 harvested amounts for most regions were below the annual allocation. The only region where the annual allocation was exceeded was the Riverina Red Gum region; however, the volume was still allowable as a short-term increase under the IFOA.

Compliance with sustainable forestry certifications

Forestry Corporation produces timber which is certified sustainable under the internationally recognised Australian Standard® (Sustainable Forest Management) AS4708:2013, otherwise known as Australian Forestry Standard. Forestry Corporation is also certified to the Environmental Management Standard ISO14001:2015.

To maintain certification, 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 undertook independent, external audits in August 2016 and March 2017 as part of maintaining its Australian Forestry Standard and ISO14001 certification. As a result of these recent audits, improvements have been implemented in the management of:

- depots
- Flora Reserves Management Plans
- administrative processes for occupation permits
- stakeholder identification and engagement processes
- identification of activities that may have an impact on the environment.

Audit report summaries are available from the Forestry Corporation website.

Timber harvested in coastal IFOA areas

Figure 8 depicts volumes of logs harvested as a percentage of the volumes specified in the IFOAs. For consistency with earlier reports, Figure 8 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.

Volumes of logs increased from the previous year in the LNE and Southern regions and decreased in UNE and Eden. Volume of pulp increased in Eden. Overall, these trends were within natural variability of timber supply and demand rather than marking significant commercial, environmental or policy changes.

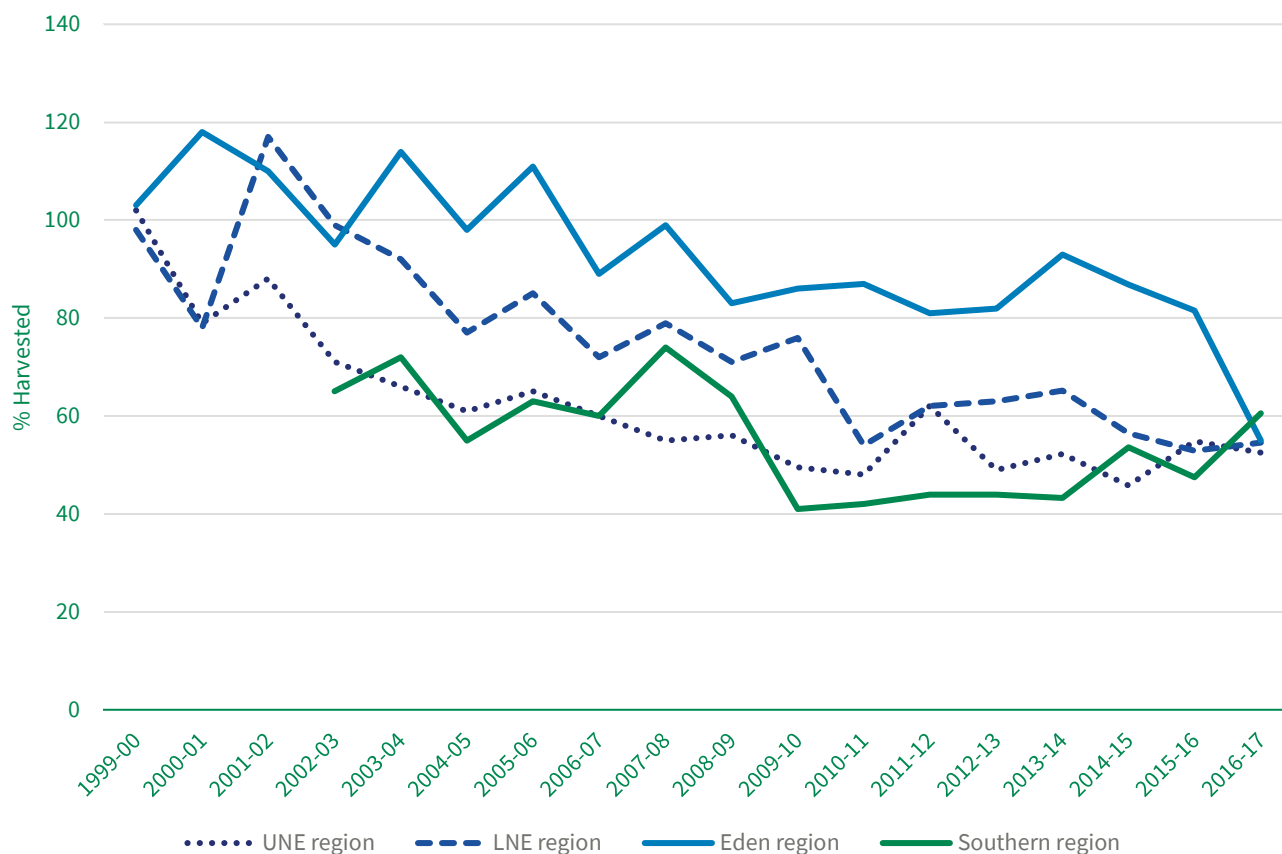


Figure 8: Log volumes harvested as a percentage of volumes specified in IFOAs – all coastal regions

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.

Source: Forestry Corporation data

In the **UNE region**, 57,223 cubic metres of high quality large sawlogs and large veneer logs were harvested from native and hardwood plantation forests during 2016–17. This represents 52.4% of the permitted annual volume (109,000 cubic metres) and is a decrease from the amount harvested in the previous year (59,761 cubic metres). Forestry Corporation also supplied 7,217 cubic metres of poles, piles and girders.

In the **LNE region**, 87,371 cubic metres of high quality large sawlogs and large veneer logs were harvested from native and hardwood plantation forests, representing 54.6% of the permitted annual volume (160,000 cubic metres). This is an increase from the amount harvested in the previous year (84,682 cubic metres). Forestry Corporation also supplied 14,034 cubic metres of poles, piles and girders.

In the **Eden region**, 12,650 cubic metres of high quality large sawlogs were harvested from native forests, representing 55% of the permitted annual volume (23,000 cubic metres). This is a decrease from the amount harvested in the previous year (18,743 cubic metres). No piles, poles or girders were supplied from the Eden region.

In 2016–17, 248,592 tonnes of pulp grade timber were harvested in this region, representing 72% of the permitted annual volume (345,000 tonnes). This was an increase from the previous year (237,478 tonnes or 69% of permitted annual volume). The volume of pulp grade timber harvested from Eden region since 1999–2000 remains below the specified annual volume, as shown in Figure 9.

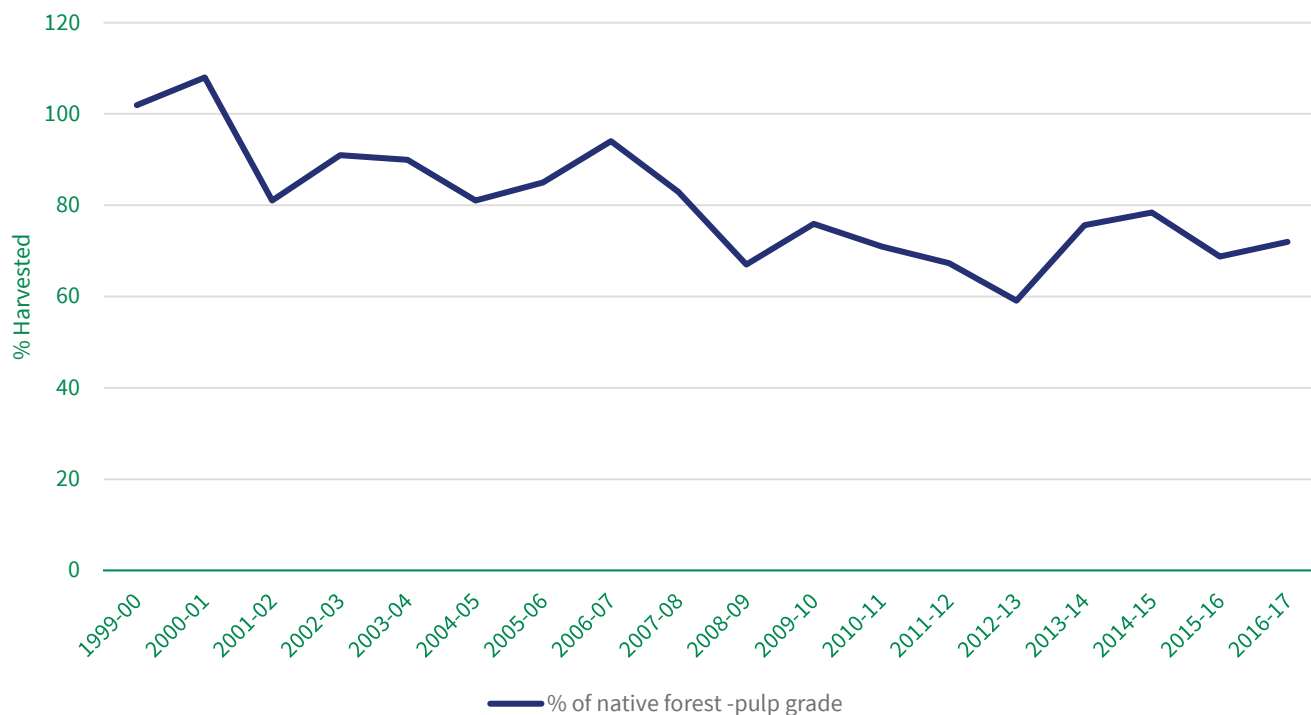


Figure 9: Pulp grade timber harvested as a percentage of the permitted volume specified in the Eden IFOA

Note: Pulp quotas are not specified in other IFOAs.

Source: Forestry Corporation data

In **Southern region** 58,353 cubic metres of high quality large sawlogs and veneer logs were harvested. This represents 60.4% 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). This was an increase of 27% from the previous year. The quantities by sub-region are:

- South Coast sub-region: 37,355 cubic metres (77% of permitted volume) plus 143 cubic metres of poles, piles and girders. This was an increase from the previous year (33,135 cubic metres).
- Tumut sub-region: 21,018 cubic metres (43.7% of permitted volume). This was an increase from the previous year (12,703 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.

In 2016–17, 353,999 cubic metres of non-specified (unregulated) logs were harvested from Forestry Corporation native forests and hardwood plantations across all coastal Forest Agreement and IFOA regions. This is slightly less than in 2015–16. Around 80,000 tonnes of non-specified pulp grade timber were produced (see Table 7 for further detail). This is a 65.5% increase from the previous year.

Table 7: Quantities of native forest and hardwood plantation timber products – coastal regions (2016–17)

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	–	0	0	0	5,309	324	3,476	571
High quality large sawlogs*	m ₃	37,335	21,018	12,650	0	76,290	5,448	50,307	2,870
Small veneer	m ₃	0	0	0	0	5,374	944	699	520
High quality small sawlogs	m ₃	5,440	11	3,138	0	23,895	3,282	20,009	1,972
Low quality sawlogs	m ₃	15,683	13,875	1,234	0	84,130	15,990	44,255	27,121
Large poles/piles and girders	m ₃	143	0	0	0	12,729	1,305	7,217	542
Small poles/piles and girders	m ₃	0	0	0	0	13,541	1,950	3,739	252
Fencing/landscape/sleepers (sawn)	m ₃	29,823	377	4,430	0	7,101	31	3,247	0
Sub-total	m₃	88,424	35,281	21,452	0	228,369	29,275	132,949	33,847
Pulp grade and chipwood**	t	43,288	0	248,592		24,311	9,845	59	2,550

Notes: * The IFOAs specify quotas for these products.

** Figures include both regulated pulp (Eden region) and unregulated pulp. Only the Eden Forest Agreement and IFOA set pulp grade timber quota requirements. Pulp timber in other regions 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 a maximum cap for early thinning for the period 1 July 2013 to 30 June 2019. Figure 10 reports on the volume of sawlogs and quantity of early thinning from operations in the Riverina Red Gum region between 2011–12 and 2016–17.

During 2016–17, 5,436 cubic metres of high quality large sawlogs were harvested from state forests and western lands lease areas. This was above the annualised volume (4,413 cubic metres), but allowable within the 20-year limit (90,253 cubic metres). Figure 6 shows that 29,858 cubic metres of high quality sawlogs have been extracted since 2011, representing 33% of the allowed 20 year volume (over six years).

A total of 5,540 cubic metres of low quality sawlogs and 30,520 tonnes of residue grade log were generated in the course of producing the high quality sawlogs. As shown in Figure 6, a further 12,366 tonnes of residue were harvested from western lands lease areas.

A total of 29,129 tonnes of residue grade logs were harvested from early thinning operations in Riverina state forests during this reporting period. This is below the annualised average (35,370 tonnes). The cumulative quantity of residue grade logs harvested since 2013 remains below the 20-year cap (212,220 tonnes).

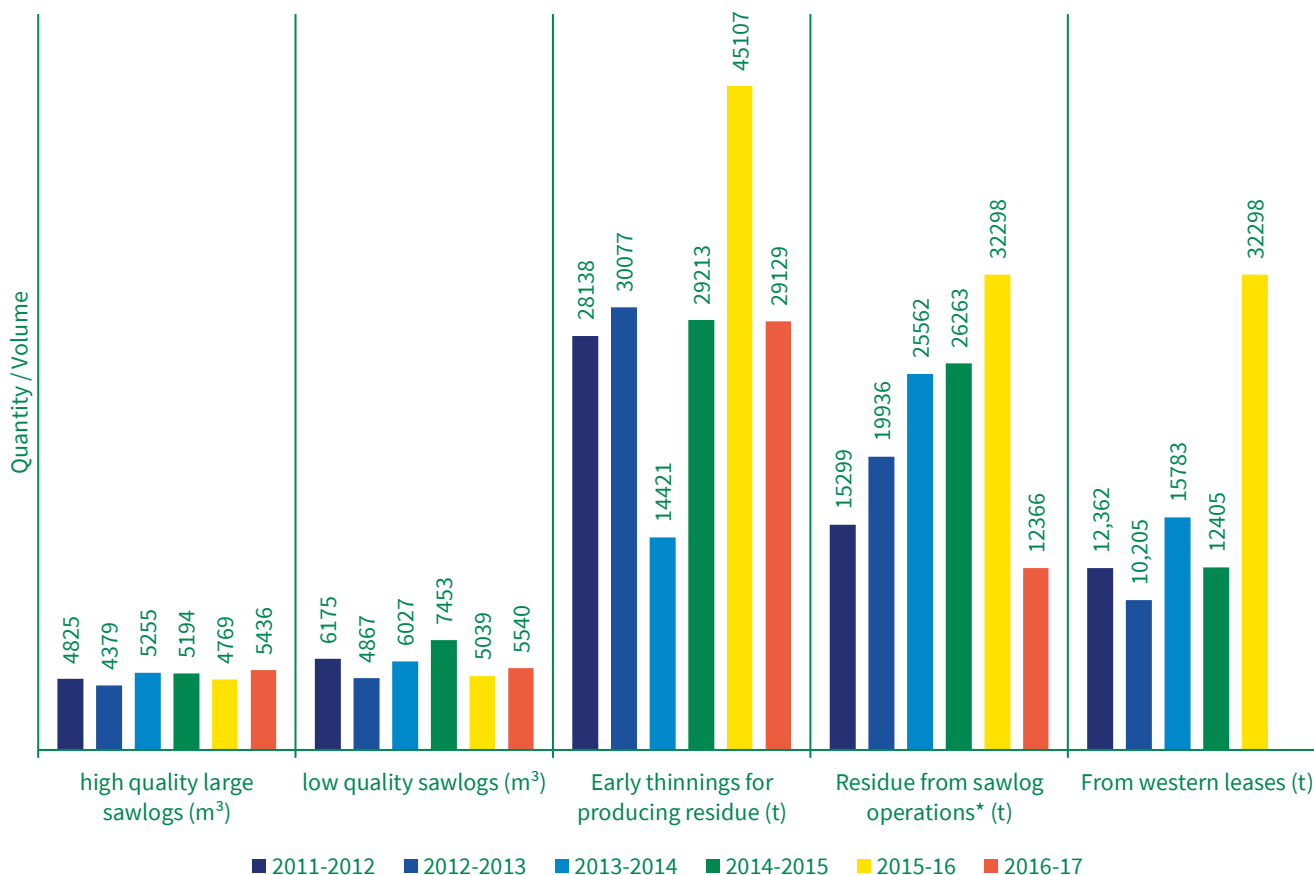


Figure 10: Volume (m³) of high-quality large sawlogs and low-quality sawlogs, and quantity (t) of early thinnings obtained from the Riverina Red Gum region since the IFOA commenced

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 forest products other than timber that are of economic value, such as broombush.

Figure 11 shows the volumes of cypress sawlogs and ironbark sawlogs, and quantity of firewood and fencing obtained from this region in 2016–17 compared with previous years. Figure 12 shows trends in volume harvested, compared to the quota.

In 2016–17, 19,511 cubic metres of cypress logs were harvested in the region, representing 47.5% of the annual average permitted volume (41,000 cubic metres). A total of 1,228 cubic metres of ironbark sawlog and fencing timber were harvested, representing 59.9% of the specified annual limit (2,050 cubic metres), and 3,167 tonnes of firewood were harvested, representing 32.3% of the average yearly allocation (9,800 tonnes).

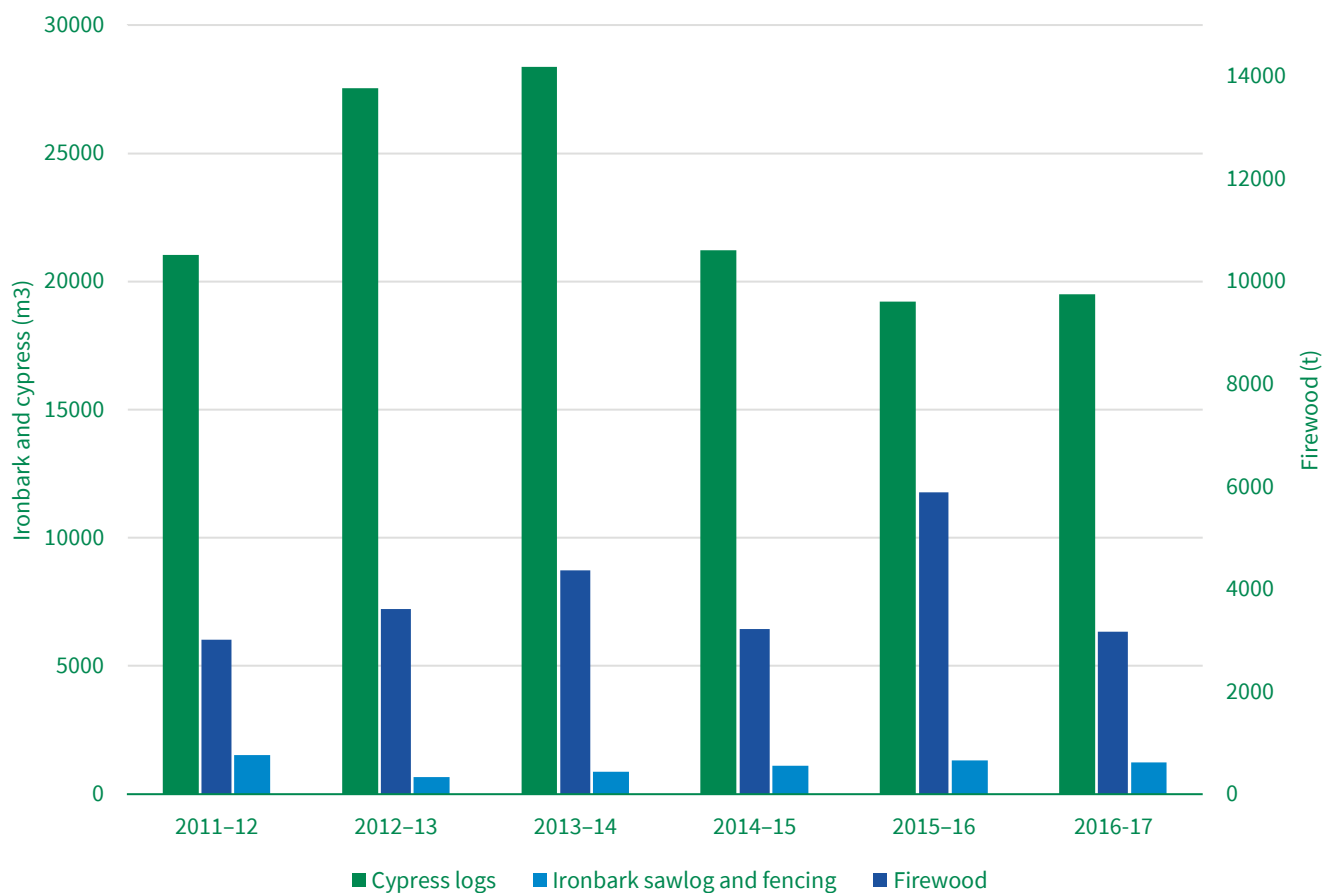


Figure 11: Volumes (m³) of cypress sawlogs and ironbark sawlogs, and quantity (t) of firewood and fencing obtained from the Brigalow and Nandewar region since the IFOA commenced

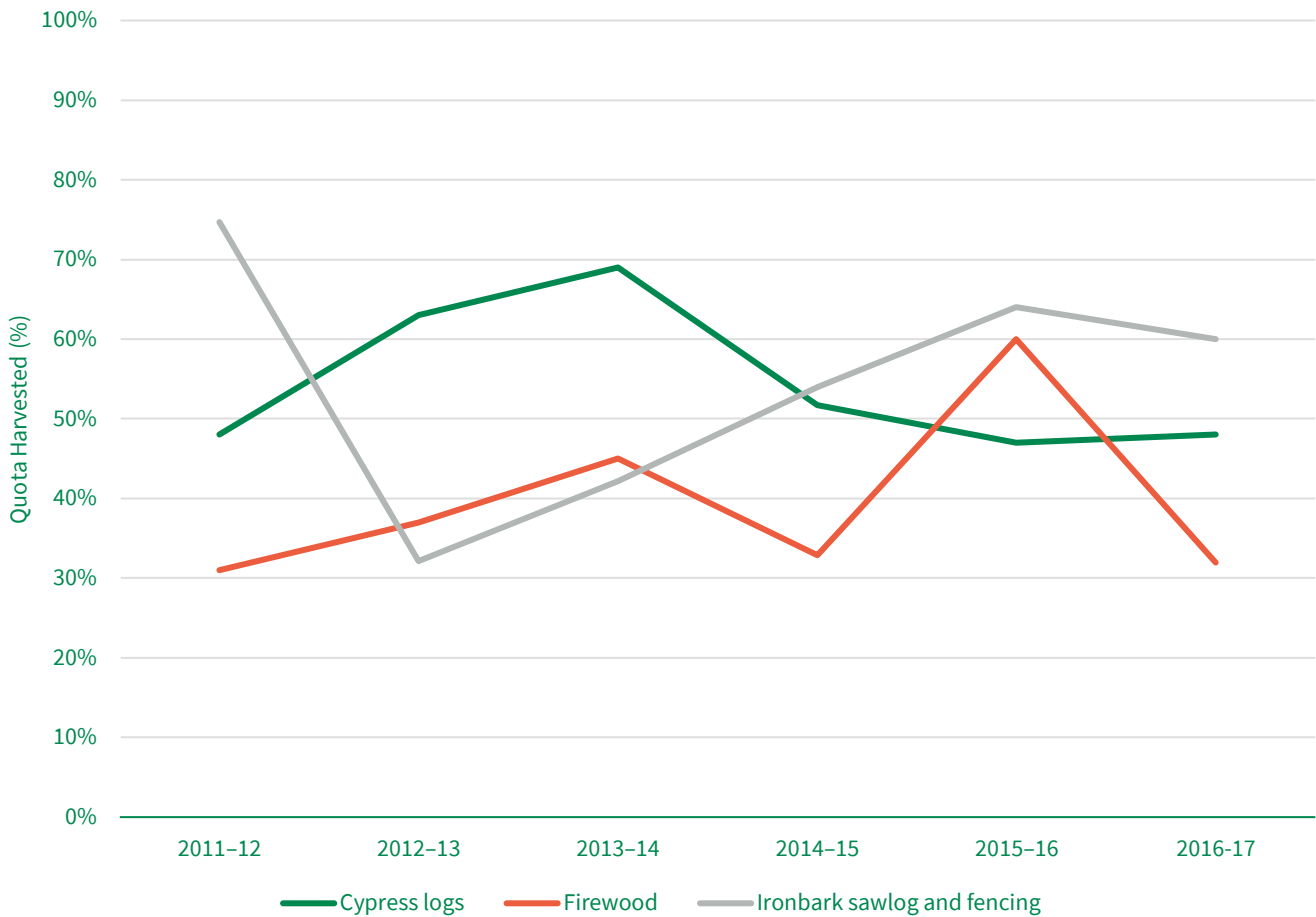


Figure 12: Trends in the percentage of allowable volume over time in the Brigalow–Nandewar region

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 13 shows the volumes and quantities of timber, residue and other products obtained from the South Western Cypress region in 2016–17 compared 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.

During 2016–17, 17,864 cubic metres of cypress logs were harvested from **south** of the Mitchell Highway, representing 79.7% of the maximum permitted annual volume (22,390 cubic metres). No areas were harvested **north** of the Mitchell Highway.

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

Harvesting 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 4,624 tonnes of residue timber from early thinning were harvested. No timber products other than logs and residue were produced. The IFOA provides for harvesting of speciality products; however, strict conditions in relation to the relevant species mean these products are not routinely harvested.

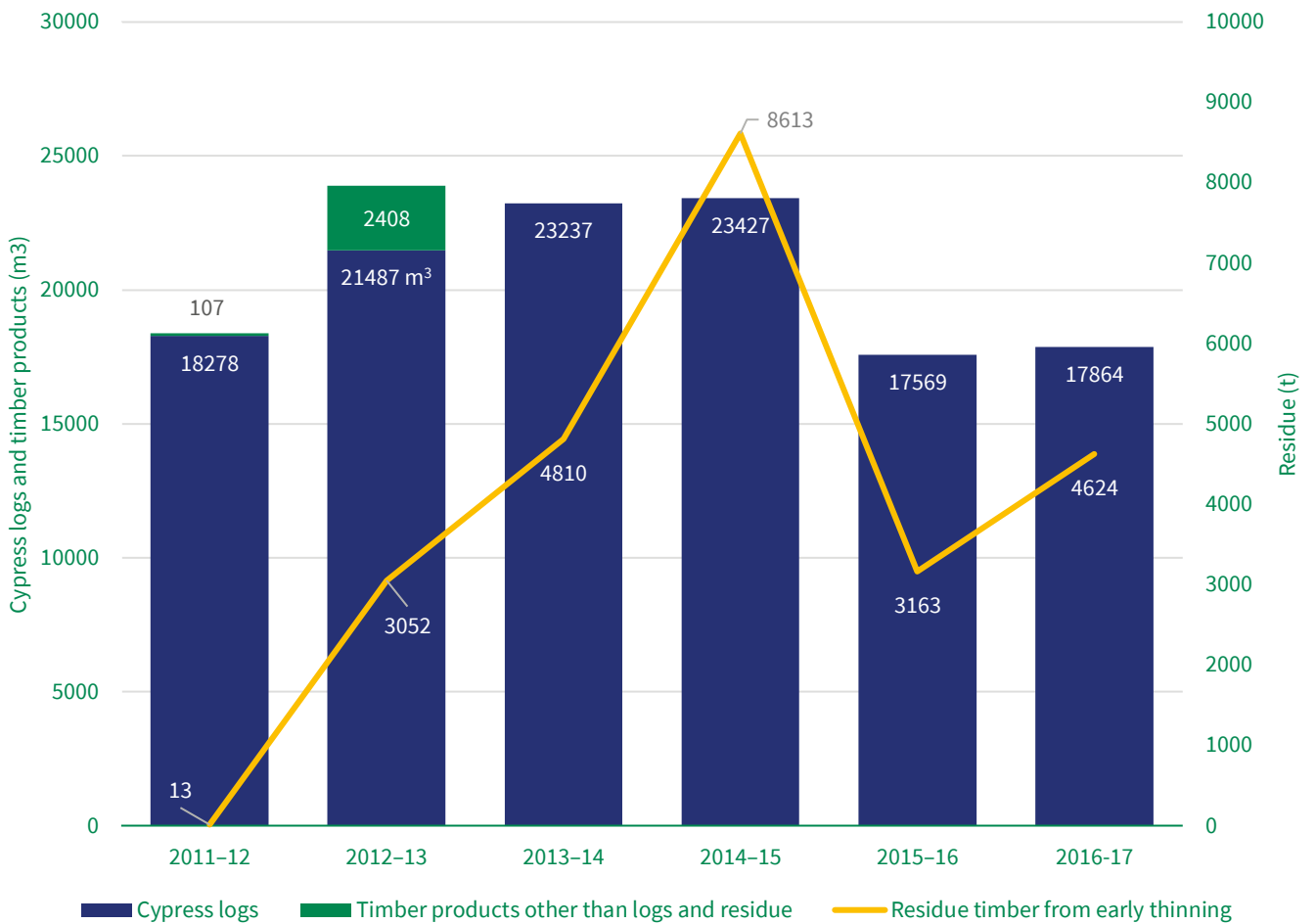


Figure 13: Volume (m³) of cypress sawlogs, timber products other than logs and residue (m³), and quantity of residue timber from early thinning (t) obtained from the South Western Cypress region

Note that zero (0) quantities of other timber products 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 2016–17.

Table 8: Timber and forest products harvested from western IFOA regions in 2016–17

Product	Volume (m ³) or quantity (t)		Estimated net harvest area (ha)
Riverina Red Gum region			
High quality sawlog	5,436 m ³		352
Low quality sawlog	5,540 m ³		
Residue	30,520 t		
Early thinning	29,129 t		510
Residue (western lands leases)	12,366 t		678
Firewood permits issued	Number	Quantity	n/a*
	794	1,165 t	
Brigalow–Nandewar region			
Cypress log	19,511 m ³		2,412
Ironbark log	1,228 m ³		817
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])	3,167 t		Undertaken in conjunction with cypress sawlog and integrated residue operations
Firewood permits issued – see IFOA cl. 82	Number	Quantity	n/a
	612	721.5 t	
Didgeridoo	0		0
Broombush	362t		n/a
South Western Cypress region			
Cypress log–south of Mitchell Highway	17,864 m ³		2,018
Cypress log–north of Mitchell Highway	nil		nil
Cypress log (western lands leases)	nil		nil
Residue	4,624t		444
Timber products	nil		n/a
Didgeridoo	nil		n/a
Firewood permits issued – see IFOA cl. 82	Number	Quantity	n/a
	435	526 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 to ensure viable productivity of natural forests, long term contribution to the livelihoods of NSW communities and access to products for varied markets.

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).

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	2016–17
Apiculture (sites)	1,413	3,705	3,919	4,015	3,937	4,130
Broombush (tonnes)	n/a	1,955	2,396	4,582	2,032	1,597
Charcoal (tonnes)	n/a	1,690	1,763	1,124	1,664	1,016
Telecommunications (sites)	n/a	131	131	138	141	141
Firewood–non-commercial (tonnes)*	5,930	3,873	9,053	10,150	10,101	9,783
Gravel/sand/rock (tonnes)	44,141	70,051	66,232	37,696	67,167	95,162
Grazing (hectares)	354,938	290,817	288,176	284,748	219,702	297,544

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

Sources: Forestry Corporation sustainability reporting (FCNSW 2016b, 2017b) and *A Draft Report on Progress with Implementation of the NSW Regional Forest Agreements (RFAs)* (EPA 2009)

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

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

IFOA area	Grazing area (ha) 2013–14	Grazing area (ha) 2014–15	Grazing area (ha) 2015–16	Grazing area (ha) 2016–17
Brigalow–Nandewar	6,707	4,660	4,204	4,163
South Western Cypress	55,501	43,181	55,935	38,410
Riverina Red Gum	11,199	2,569	3,386	3,368

Source: Forestry Corporation

Forest regeneration

Re-establishment of forests after harvesting is essential for maintaining productive capacity.

Native forest

Native forests are harvested using silvicultural techniques that encourage natural regeneration. Techniques vary across regions and conditions. In 2016–17, 8,215 hectares of forest in the north coast region were harvested using various silvicultural intensities.

An assessment of survey plots in the region found 84% were effectively stocked with regenerated seedlings and trees retained after harvesting. This compares with an average of 78% regeneration rate over the last five years (Table 12). A regeneration threshold of 65% of assessed plots in any given harvest area is considered adequate stocking for commercial species. The stocked proportion of areas that do not meet the 65% threshold are not specifically reported, but are listed for further assessment and potential remedial actions. Forestry Corporation does not assess regeneration success in all harvested areas. Forestry Corporation is planning to move towards remote assessments using drones in future to allow census recording of regeneration success.

More information is available in Forestry Corporation’s sustainability reporting (FCNSW 2017b, 2017c)

Table 11: Area of hardwood and cypress forests harvested

Year	Estimated area harvest (ha)
2012–13	31,221
2013–14	23,807
2014–15	23,354
2015–16	17,956
2016–17	23,467

Source: Forestry Corporation

Table 12: Percentage of survey plots stocked in north coast area

Year	Percentage of plots stocked
2012–13	69
2013–14	67
2014–15	81
2015–16	91
2016–17	84

Source: Forestry Corporation

Plantations

No new (first rotation) plantations were established on previously cleared land during the 2016–17 planting season. Forestry Corporation reports planting seasons by calendar year. In 2016, 7,710 hectares of softwood plantation forests were re-established, and 274 hectares of hardwood plantations were re-established.

Effective re-establishment has occurred if more than 80% of seedlings survived after one year. In 2016 no hardwood plantations, and only 15% of softwood plantations required restocking.

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 2018* (SoE) report (EPA 2018) provides the most recent overview of pest threats, monitoring and control strategies in NSW.

Monitoring and control of pests and disease

Management reviews

The Natural Resources Commission (NRC) published reviews into weed and pest animal management in May 2014 and August 2016 respectively. The reviews reported that:

- The cost of weeds on agricultural lands in NSW and expenditure by public agencies on public non-agricultural lands, was estimated at between \$1,671 million and \$1,903 million each year. This comprises expenditure of \$64.59 million by public agencies, and the balance as losses to producers and consumers due to weeds and weed management on agricultural lands.
- Pest animal populations continued to increase across all types of environments, including forests. Wild deer populations in particular increased significantly in distribution and density over the past decade. Invasive pest animals, including wild dogs, deer, rabbits, feral cats, goats, foxes and carp were estimated to cost the NSW economy at least \$170 million annually.

The NRC reviews recommended a strategic and coordinated approach to managing weeds and pest animals, supported by effective regulations through the NSW *Biosecurity Act 2015*, which commenced in July 2017.

Weed management

The *Biosecurity – Weed management policy* (DPI 2016) was finalised during 2016–17 for commencement from 1 July 2017. The policy sets out roles and responsibilities for agencies and land managers and activities to be undertaken to improve management of weed biosecurity risks across the state.

Eleven Regional Weed Committees were established to develop and implement 11 Regional Strategic Weed Management Plans. NPWS and Forestry Corporation are represented on these committees. The plans, launched 30 June 2017, provide guidance for land managers to implement the weed management policy and meet their responsibilities to protect biosecurity. The plans also prioritise the weeds to be addressed in local areas.

More information about these reforms is available on the [Local Land Services website](#)¹¹.

Statewide mapping

In 2016–17:

- In consultation with Local Land Services, NPWS and Forestry Corporation, DPI produced statewide distribution and relative abundance maps for pest animal species to guide the development of regional pest animal management plans.
- NSW DPI Biosecurity NSW collected a variety of tenure neutral mapping data across the state to map weed and pest occurrence and abundance. There is also a requirement to collect information on compliance activities across all land tenure.

Forestry Corporation surveys

Forestry Corporation conducts annual surveys to determine the impacts of disease and pests on the health of softwood and hardwood plantations it manages. In 2016–17, surveys were conducted on around 70% of the hardwood estate. Overall, the surveys found low levels of pests and diseases that affect plantation health, except for a slight increase in bell miner associated dieback (BMAD).

In 2016–17, Forestry Corporation spent around \$1.7 million on pest animal and weed control in areas under its management.

¹¹ www.lls.nsw.gov.au/biosecurity/weed-control

Forestry Corporation has introduced a new module for their mapping application (FCMapApp) which will improve monitoring and make information about plantation health more accessible to staff.

Further details are available in Forestry Corporation’s *Sustainability Report* (FCNSW 2017b) and *Sustainability Snapshot 2016–17* (FCNSW 2017c).

Bell Miner Associated Dieback (BMAD)–independent review

In 2016–17, an [independent review](#)¹² collected the latest scientific information about bell miner associated dieback (BMAD). BMAD was thought to occur where large bell miner populations lead to an increase in the psyllid infestations that cause dieback, because bell miners aggressively deter other birds that feed on the psyllids. The review confirmed this causal model, including the hypothesis that human activities that increase bell miner nesting habitat can lead to an increase in BMAD.

The review also found that while there are relatively few studies on effective strategies for managing BMAD, those that exist consistently confirm that managing bell miner populations will reduce the occurrence of the problem. The studies show that there are cheap and effective strategies for managing BMAD, such as splatter guns to spray herbicide on understorey weeds to reduce nesting habitat.

The review made recommendations for a whole of government cross-tenure approach to managing the issue in NSW, including:

- further research on social, economic and ecological impacts
- minimising canopy disturbance during activities such as harvesting, or vegetation clearing for roads or recreational purposes
- limiting unnatural understorey density (heavy growth of invasive weeds such as lantana)
- ongoing management of invasive weeds
- maintenance of natural fire regimes
- site assessments to determine the best treatment approach where dieback is occurring
- ongoing learning and improvement for land managers dealing with BMAD
- documentation and sharing of detailed information on recommended practices for BMAD identification and intervention
- aerial mapping of the extent of BMAD
- investigating the best options for ongoing monitoring of the problem.

The report was commissioned by the Office of Environment and Heritage, NSW Department of Industry – Lands, the Environment Protection Authority, Forestry Corporation of NSW and the National Parks and Wildlife Service.

Conserving soil and water resources

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.

Forestry Corporation has had water quality monitoring in place for over 40 years. Techniques include Light Detecting and Ranging (LiDAR) technology, which helps identify landscape features such as drainage lines and roads that must be considered when planning a harvesting operation, to protect water quality.

Forestry Corporation also undertakes monitoring during harvesting to ensure appropriate drainage and crossings are in place to minimise erosion and protect the integrity of nearby waterways. In 2016–17, Forestry Corporation

¹² www.environment.nsw.gov.au

conducted 4,900 compliance checks for snig track drains and crossings, road crossings and filter strips. These checks resulted in 85–90% compliance with requirements.

The IFOAs contain conditions for the protection of soil and water during forestry operations. These include conditions to ensure that snig tracks, road building and maintenance do not cause erosion or block waterways. The EPA monitors compliance with these conditions – see Section 3, page 42.

Case study: Baby birds in Koondrook



Figure 14: Release of environmental water during the nesting season helped waterbirds such as intermediate egrets (*Ardea intermedia*) raise their chicks. Photo: John Spencer/OEH

In the summer of 2016–17 a 200-hectare wetland in Koondrook State Forest along the Murray River, known as the Pollack, had started to dry out after natural flooding. The chicks of up to 600 breeding pairs of nesting waterbirds were put at risk. When natural floodwaters subside too quickly from wetlands there is a significant risk of waterbirds abandoning their nests.

Forestry Corporation partnered with a local farmer to upgrade private irrigation channels so that environmental water could be directed into the Pollack. Around a gigalitre of water was released to help the birds stay with their nests through this vulnerable period. The forest wetland also responded well to the additional water.

Hundreds of chicks hatched and fledged safely after the environmental water was released, including Pacific herons, cormorants and intermediate egrets (a threatened species in Victoria). This was the forest’s first natural bird breeding event since 1993. More information is available in Forestry Corporation’s sustainability report (FCNSW 2017b) and on their [website](http://www.forestrycorporation.com.au)¹³.

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 2016–17, softwood forests sequestered a net 3.4 megatonnes of carbon, and hardwood and cypress forests sequestered a net 9.3 megatonnes. More information is available in FCNSW reports (FCNSW 2017b, FCNSW 2017c).

¹³ www.forestrycorporation.com.au

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.

Investment in forest management

Forestry Corporation continues to fund ongoing research and development in areas such as forest ecology, silviculture and forest management through a service level agreement with the Forest Science Unit of DPI Forestry.

In May 2017, Forestry Corporation commenced a program to evaluate the potential uses and benefits of drones. Twelve staff trained as pilots and began trialling drones in a range of different terrains to investigate how they can be used to improve operations such as mapping and monitoring.

Recreation and tourism

In 2016–17, 5,536,000 hectares of forested land were available for recreation and tourism in NSW¹⁴.

The 2016 Park Visitor Survey estimated that there were over 31 million domestic visits to parks and reserves in areas covered by Forest Agreements that year (see Table 14).

Table 14: Estimated visits to NPWS reserves in 2016

Regional Forest Agreement region	Approximate NSW NPWS branch equivalent*	Combined number of domestic visits
Upper North East	North Coast, Hunter/Central Coast, Blue Mountains	22,760,003
Lower North East		
Southern	South Coast, Southern Ranges	8,282,912
Eden		
Total		31,042,915

Source: OEH/NPWS Park Visitor Survey (PVS) 2016. These surveys are undertaken every two years.

* The PVS collects and presents data based on NSW NPWS branch boundaries as at 2017–18. These have been approximated to reflect the NSW regions covered by the Regional Forest Agreement.

The main activities in these parks are:

- picnicking and dining
- water-based recreation
- touring, sightseeing and nature appreciation
- exercise and sport, including walking, cycling and snow sports
- children's play
- camping and accommodation.

The survey found high levels of visitor satisfaction, with an average 94.2% of those surveyed 'satisfied' or 'very satisfied' with their last visit. The next State of the Parks survey, due in 2018–19, will provide a full update on NPWS recreation and tourism data and initiatives.

¹⁴ Calculation by NPWS, based on Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) data and changes to the national parks estate.

Forestry Corporation surveys of visitors to recreational areas in forests they manage also found high levels of visitor satisfaction; for example:

- Bodalla Forest Rest Area exceeded the expectations of 96% of those surveyed, and 99% said they would return. Favourite features were bush walking track and amenities.
- 97% would recommend Sealy and Korora lookouts (Orara East State Forest) to family and friends; 85% were 'very satisfied' with their visit and 15% were 'satisfied' – overall satisfaction of 100%.
- 88.5% of visitors to Allyn River on the Australia Day weekend (Chichester State Forest) would recommend the area to family and friends and 98.5% were satisfied with their visit.
- 100% rated the picnic facilities, camping facilities and natural environment at Coopernook Forest Rest Area as 'above average' and 90% rated the feeling of safety as above average'.

Forestry Corporation estimates that around 27.9 million people visit NSW State Forests' Hardwood Forest estate each year.

Managing recreational assets

The entire NSW State forests estate – approximately two million hectares – is available for recreational pursuits (except during harvesting operations). Forestry Corporation manages over 150 designated visitor areas such as picnic areas, camping areas, walking tracks and lookouts. Other recreational assets, such as mountain bike forests, are managed under Forest Permit arrangements with clubs and are available for general public use outside of organised events.

Upgrades to facilities in 2016–2017 included:

- North Coast:
 - all-weather and disabled access picnic shelter at Sealy Lookout
 - Gumgali Track Interpretation.
- Mid North Coast:
 - commencing an upgrade program at Swans Crossing in Kerewong State Forest
 - Coopernook Forest Rest Area toilet replacement program and establishment of new 'Tall Trees' walking track.
- Hunter and Central Coast:
 - signage upgrade and replacement program commenced (50% completed) in Barrington Tops State Forest
 - Allyn River visitor area redesign and commencement of upgrade works including bollarding and landscaping.
- South Coast:
 - upgrades to visitor areas in Yambulla, Timbillica and Tallaganda state forests
 - partnership works with Eurobodalla Botanical Gardens in Mogo State Forest.



Figure 15: Forestry Corporation added over 70 kilometres of new mountain bike trails to the existing network in state forests on the north and mid-north coast in 2016–17. Photo: Forestry Corporation

Aboriginal connections to forests

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.

National Parks

In May 2017, the Mt Yarrowyck Aboriginal Owners, Armidale and Anaiwan Local Aboriginal Land Councils and NPWS signed an interim Memorandum of Understanding (MoU) for Aboriginal joint management for Mt Yarrowyck Nature Reserve near Armidale. This will be in place until Aboriginal ownership and lease-back negotiations are completed.

There are commitments to negotiate, or current negotiations for, a further 14 joint management arrangements, including:

- eight Indigenous Land Use Agreements (ILUAs)
- the transfer to freehold title of the Werai and Taroo lands under the *National Parks Estate (Riverina Red Gums Reserves) Act 2010*
- three memoranda of understanding.

Over 200 Aboriginal people are involved in boards and committees that make decisions about joint management of parks in NSW.

Aboriginal joint management

One hundred Aboriginal people were employed on Aboriginal joint managed parks (around half of NPWS Aboriginal employees). In 2016–17, Aboriginal joint managed parks contracted work to at least 10 Aboriginal businesses and corporations. This is likely to be an underestimate as small contracts such as catering contracts were not always reported. The contracted work included:

- Aboriginal sites survey assessment
- cultural fire assessment survey
- weed control
- meeting facilitation.

Training

NPWS arranged training sessions attended by over 100 Aboriginal community members. Topics included:

- governance
- cultural site identification
- job application skills
- resume writing
- basic firefighting.

The training was delivered by NPWS and external providers including the Rural Fire Service. Components of some of the training (such as site identification and cultural burning) were delivered by the relevant Joint Management Board or Committee.

Case study: The mountains call us home



Figure 16: Biamanga National Park. Photo: John Spencer/OEH

Celebrating 10 years of joint management, Board members and registered Aboriginal owners participated in the making of *The Mountains Call Us Home*, a film about the Biamanga and Gulaga Joint Management Boards.

The registered Aboriginal Owners and NPWS use the film to:

- promote what has been achieved since the parks were handed back to the traditional owners
- stimulate discussion about future opportunities
- share their experience and learning with other traditional owners who may be entering into joint management arrangements
- educate new employees and contractors about joint management and partnerships
- educate staff and the community about the rich Aboriginal history and associations in the cultural landscape across the Far South Coast.

The film has been shown at community events and staff training and induction days. An extract is available on the [ABC Open website](https://open.abc.net.au/explore/201223)¹⁵.

¹⁵ <https://open.abc.net.au/explore/201223>

Aboriginal Park Partnerships Funding Program

The Aboriginal Park Partnerships Funding Program is an annual contestable funding program for Aboriginal community and NPWS partnership projects in all parks (not just jointly managed parks). The program has funded 200 projects since it started in 2008–09.

The program aims to foster new relationships and strengthen established relationships between OEH, NPWS and Aboriginal communities and focuses on park management.

In 2016–17, the program:

- funded 22 projects at a cost of approximately \$300,000, in more than 20 parks
- employed approximately 50 Aboriginal people in various capacities, mostly in part-time, casual and short-term employment agreements
- held several training sessions; most included on-the-job training and informal mentoring
- held at least five cultural camps with over 150 participants
- held cultural activities attended by approximately 200 people
- directly or indirectly involved 350 community members in projects
- contracted 10 Aboriginal businesses
- carried out bush regeneration in over 20 hectares of park land, planting 3,800 plants.

Projects were held at over 20 parks and reserves across the state.

Forestry Corporation

Six Aboriginal Liaison Officers at Forestry Corporation Hardwood Forests Division's Aboriginal Partnership Liaison Team work with Aboriginal communities to develop partnership arrangements.

Forestry Corporation continues to provide access and co-management arrangements with Aboriginal communities. In addition to arrangements through ILUAs¹⁶, there are eight agreements with communities across the state to manage areas of state forest for camping, teaching and practicing culture.

New arrangements in 2016–17 included:

- Djinders Land based Permit, which enabled the community to construct a cultural camp in Ramornie State Forest west of Grafton. The project included a timber shelter, water tanks, access road and landscaping for camping and teaching.
- Development of a cultural visitor experience in Bulahdelah State Forest in partnership with Karuah Local Aboriginal Land Council (LALC). This included sculpture workshops for LALC members and work in the forests preparing the site for the visitor experience.
- Partnership with the community to develop a cultural visitor experience in Orara East State Forest. This included the Gumgali walking track (see case study) and assistance with development of cultural tours being run by a community led non-profit Aboriginal Corporation.

Aboriginal groups are regularly contracted to FCNSW for archaeological site surveys as part of the planning process for harvesting and roading operations.

¹⁶ ILUAs are voluntary agreements between native title groups and other stakeholders about the use of land and water. Current ILUAs related to forestry include Gundungurra, in the Moss Vale and Lithgow area, and Githabul, on the north coast. For more information see Forestry Corporation's forest management plans and sustainability supplement at www.forestrycorporation.com.au

Case study: partnering with traditional owners



Figure 17: Members of the Muurrbay Language and Culture Cooperative in Orara East State Forest near Coffs Harbour. Photo: Forestry Corporation

The award-winning Gumgali Track in Orara East State Forest near Coffs Harbour is the first Aboriginal interpretive walk in a state forest in NSW. The 400-metre track to Korora Lookout tells the local dreamtime story of Gumgali the black goanna through timber sculptures, a mural and a soundbar in Gumbaynggirr language and English.

The track demonstrates the value of working closely with traditional owners to protect and enhance cultural heritage in forests. It enables the local Aboriginal community to share their language and heritage with the local community and tourists and provides ongoing opportunities for Aboriginal enterprises, such as a coffee van that visits the forest, and cultural showcases.

The track was constructed by Forestry Corporation in partnership with the Coffs Harbour and District Local Aboriginal Land Council, Coffs Elders Group, Muurrbay Language and Culture Cooperative, Bularri Muurlay Nyanggan Aboriginal Corporation and local artists.

Employment in the forest sector

Employment in the forest sector is a direct measure of how forests contribute to the NSW economy. In 2016–17, around 22,300 people worked in NSW forestry and forest products manufacturing industries. Of these, around 8,900 worked in the forestry, harvesting and support services sector, including 570 at Forestry Corporation.

Forestry Corporation staff 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. During 2016–17, the trend towards greater gender equity at Forestry Corporation continued, with an increase in the number of women employed from 17.2% in the previous year to 18.1%.

NPWS employed the equivalent of 1,884 full-time staff during this period. This figure is based on average 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 August 2016, the NSW Government released a whole-of-Government Strategy that provides for the future of the forestry industry in NSW. The *NSW Forestry Industry Roadmap* sets clear actions around improvements to the legal, institutional and economic frameworks that support Forestry. Further detail can be found on page 7 of this report.

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.

Research and monitoring capacity

Forestry Corporation maintains research and development capacity through a service level agreement (SLA) with the Forest Science Unit of DPI Forestry. In 2016-17, Forestry Corporation invested \$1.7 million in research under this SLA. This year, Forestry Corporation has also:

- collaborated with Forest and Wood Products Australia (FWPA) on monitoring research projects using remote sensing
- commenced development of version two of the FCMapApp software. The application streamlines collection and reporting of planning, survey and monitoring data so that spatial information is more accessible to staff on the ground.



Section 2:

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.

During 2016–17 the approvals consisted of terms of the approval (or ‘non-licence terms’) in accordance with 69 P of the *Forestry Act 2012* and three 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 Management Licences (FMLs) under the *Fisheries Management Act 1994*.

Non-licence terms describe the forestry operations covered by the approval and include a description of the area of the state to which it applies. Among other requirements, conditions in non-licence terms include requirements for preparation and maintenance of strategic management plans, annual reports and operational plans.

EPLs contain conditions that aim to protect the aquatic environment from water pollution caused by forestry activities. TSLs contain conditions that set out minimum measures that protect threatened species, populations, habitat and ecosystems from activities associated with timber harvesting. FMLs include conditions to protect threatened fish species, populations, ecological communities and habitat from activities associated with timber harvesting.

In this reporting period, the non-licence terms are the responsibility of the signatory Ministers of the IFOA, being the Minister for the Environment and the Minister for Lands and Forestry. TSLs and EPLs are regulated by the EPA, and FML are regulated by the NSW Department of Primary Industries (Fisheries).

As at 30 June 2017 there were seven IFOAs, covering the Upper North East, Lower North East, Southern (including Tumut), Eden, Brigalow–Nandewar, South Western Cypress and Riverina Red Gum regions (see page 7).

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.

There were no amendments to existing IFOAs and no new IFOAs were established during 2016–17, although a comprehensive remake of the four coastal IFOAs continued (see page 8).

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 forestry operations meet the principles of ecologically sustainable forest management. In this reporting period, the EPA’s compliance program was 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.

The compliance priorities for 2016–17 are summarised in Table 15. Table 15: The Crown and private native forestry compliance priorities for 2016–17

Crown forestry environmental compliance priorities	Private native forestry environmental compliance priorities
<p><i>Hollow-bearing and recruitment trees</i> 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> Identification, retention and protection of adequate and appropriate trees for maintenance and replacement of arboreal tree hollow habitat.</p>
<p><i>Koalas</i> Protecting koalas and their habitat</p>	<p><i>Koalas</i> Protecting koalas and their habitat</p>
<p><i>Drainage line crossings</i> 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> 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> Protecting vegetation adjoining streams and drainage features to maintain water quality and riparian habitat.</p>	<p><i>Streams and drainage features</i> Protecting vegetation adjoining streams and drainage features to maintain water quality and riparian habitat.</p>
<p><i>Exclusion zones</i> Protecting key exclusion zones in: (a) Western NSW – Forest Management Zones, and Threatened Species Protection Zones (b) Coastal NSW – Mapped Rainforest, Rocky Outcrops and Threatened Species Exclusion Zones.</p>	<p><i>Road and snig track drainage</i> 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> Improved identification and protection of threatened ecological communities (TECs).</p>	
<p><i>Forest structure</i> Maintaining forest structure through adequate basal area retention.</p>	
<p><i>Forest health</i> 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.

During 2016–17, to support this compliance priority approach, the EPA developed, trialled and refined an environmental risk assessment framework for public and private forestry operations. Under this framework the EPA identified 14 high-risk operations that required compliance assessment. These and other operations were assessed for compliance during the year.

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, inspections or desktop assessments can focus on geographic areas where public notifications are less likely or there are higher risk environmental values present.



Figure 18: EPA officer measuring trees to ensure suitable future hollow-bearing trees are retained.
Photo: Brent Mail Photography/EPA

Range of regulatory tools to achieve compliance

The EPA uses a range of regulatory tools to help achieve compliance of native forestry operations on private and public land. This includes education, audits, inspections, investigations, desktop assessments, notices, orders, penalty notices and prosecutions.

During compliance audits the EPA uses 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. These action plans allow the auditee to take appropriate risk abatement action to prevent future incidents. An investigation is initiated where non-compliances of a significant environmental or systemic concern are found during the auditing process. Investigations are conducted separately to the audit process and require the collection of evidence to substantiate an alleged offence and for the appropriate compliance action to be taken.

Where community concerns or intelligence suggest issues of non-compliance, inspections or investigations are used in place of audits. These compliance activities are more focused on elements that may be non-compliant or have potential to cause environmental impacts.

The EPA carries out investigations to respond to incidents and community concerns about the impacts of harvesting. 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, orders, penalties, prosecutions, or recommendations for policy and regulatory reform.

Crown native forestry compliance and enforcement activities

Compliance effort

This section reports on outcomes from the EPA's native forestry compliance and enforcement activities on state forests. For results of EPA compliance and enforcement activities on private native forests, see page 48.

The EPA's compliance priorities are set annually and are subject to ongoing review. See Table 12. The findings and proposed actions from compliance audits and investigations inform future regulatory activities.

In 2016–17, as part of its proactive compliance program the EPA undertook and subsequently finalised 12 compliance audits. Where non-compliances are identified during an audit, the EPA requests that FCNSW implement audit action plans to improve its future operational performance. In 2016–17 the EPA also undertook proactive inspections on another 11 forestry operations.

Several responsive investigations of forestry operations were carried out because of third party allegations or matters identified by the EPA as part of its proactive program.

Compliance audit reports are available on the [EPA's public register](#)¹⁷. A link to individual audit reports can also be found on the [EPA website](#).

Regulatory action on public land

During 2016–17, the EPA concluded investigations into a number of matters with substantive regulatory action taken for seven forestry operations on NSW public lands.

The EPA issued Forestry Corporation with five advisory letters, one formal warning, three show cause letters, six official cautions and one clean-up notice.

IFOA regional summary

Upper North East region (UNE)

Audits and proactive inspections

No compliance audits were conducted or finalised in this region during the reporting period. However, the EPA proactively inspected four operations in the UNE region this year. Inspections focused on:

- mark up and protection of riparian and rainforest exclusion zones
- mark up and protection of a koala high use exclusion zone
- adequacy of road drainage and crossing structures
- selection and retention of hollow-bearing trees, recruitment trees and koala feed trees.

One of these inspections resulted in a request for corrective action to be implemented at a drainage feature crossing. The other inspections resulted in no further action.

Investigations

As a result of investigations in 2016–17, official cautions were issued for non-compliances in three operations. Non-compliances for one operation related to issues with rainforest protection, snig track drainage, habitat tree retention, stream protection and threatened fauna protection.

¹⁷ <https://www.epa.nsw.gov.au/licensing-and-regulation/public-registers>

In the second operation non-compliances related to machinery operation, the clearing of vegetation and spoil being placed in an unmapped drainage line.

The official caution for the third operation was for re-opening a road without doing a pre-logging or pre-roading survey.

The EPA's compliance policy guided the way in which the EPA investigated and responded to each of these matters.

Lower North East region (LNE)

Audits and proactive inspections

The EPA undertook and subsequently finalised five proactive compliance audits in this region. The compliance audits assessed:

- compartment mark-up surveys
- koala mark-up searches and protection
- mark-up of exclusion and buffer zones
- rainforest protection
- retained tree protection
- threatened species exclusion zone protections.

Some audits also included focus on basal area retention, water pollution issues and road drainage requirements.

The region achieved an overall compliance rate of approximately 77%, comprising 267 assessments of compliance with 61 recorded non-compliances. Non-compliances that were identified mainly related to poor hollow-bearing and recruitment tree selection and protection, inadequate stream protection; insufficient koala mark-up searching and failures to mark-up rainforest.

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

The EPA also undertook proactive field inspections on two additional operations in the LNE region this year. Both of these operations were revisited to ensure that previous regulatory actions were implemented and corrective action undertaken.

Investigations

As a result of investigations in 2016–17, official cautions were issued for non-compliances in two operations.

The official caution for one operation was issued for failure to protect marked hollow-bearing and recruitment trees, trees falling into rainforest exclusion zones, and failure to mark rainforest exclusions in the field.

The second official caution was issued for another operation where an incursion into a third order stream protection zone resulted in a pollution risk in the riparian protection zone.

A clean-up notice was also issued for this operation to remediate the area of riparian protection zone where soil had been disturbed.

Southern region

Audits and proactive inspections

The EPA undertook and subsequently finalised two compliance audits in this region during the reporting period. The compliance audits assessed:

- mark-up of exclusion and buffer zones

- rainforest protection
- retained tree selection, retention and protection.

The region achieved an overall compliance rate of approximately 63%, comprising 127 assessments of compliance with 47 recorded non-compliances. Non-compliance mainly related to inadequate hollow-bearing and recruitment tree selection and failure to protect rocky outcrops.

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

The EPA also undertook proactive inspections on two additional operations in the Southern region this year. These inspections focused on assessing the selection of hollow bearing and recruitment trees and resulted in no further actions.

Investigations

During 2016–17, a prosecution was lodged in the Land and Environment Court relating to searching and protection of rocky outcrops in Badja State Forests. The alleged breaches occurred in 2013–14. The court decided on the matter in the next reporting period.

The EPA also completed one investigation in this region. A formal warning was issued to Forestry Corporation for failure to mark-up and protect a giant burrowing frog exclusion zone. The EPA's compliance policy guided the way in which the EPA investigated and responded to each of these matters.

Eden region

Audits and proactive inspections

The EPA completed three compliance audits in this region during the reporting period. These audits assessed the selection, retention and protection of hollow-bearing and recruitment trees. One audit also assessed the protection of a rocky outcrop. Another audit also focused on the protection and mark-up of rare forest ecosystems, stream exclusion zones and wetlands.

The region achieved an overall compliance rate of approximately 69%, comprising 191 assessments of compliance with 58 recorded non-compliances. Non-compliances included inadequate protection of hollow-bearing and recruitment trees, and failure to retain sufficient numbers of hollow-bearing and recruitment trees.

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

No proactive field inspections were undertaken in this region in the reporting period.

Investigations

During 2016–17, a prosecution was considered by the Land and Environment Court that related to searching and protection of rocky outcrops in Glenbog State Forest. The alleged breaches occurred in 2013–14. The court decided on the matter in the next reporting period.

Another matter relating to searching and protection of rocky outcrops in Glenbog State Forest was also lodged with the court, however it was withdrawn in the next reporting period due to lack of evidence.

Brigalow–Nandewar region

Audits and proactive inspections

The EPA completed two compliance audits in this region during the reporting period. These focused on:

- large white cypress retention
- drainage feature protection

- drainage feature crossings
- road drainage
- wetland protection.

The region achieved an overall compliance rate of approximately 81%, comprising 16 assessments of compliance with three recorded non-compliances. Non-compliance related to ineffective drainage on roads, unstable road crossings, and a failure to accurately reflect the location of a road on the harvest plan operational map.

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

The EPA also conducted two proactive inspections on operations in the Brigalow-Nandewar region this year which looked at cypress retention, drainage features and wetland protection. These resulted in no further action.

Investigations

No investigations were finalised during this reporting period.

Riverina Red Gum region

Audits and proactive inspections

No compliance audits were conducted in this region during the reporting period.

The EPA conducted a proactive inspection on a western lands lease property this year. The inspections focused on retention of trees, basal area and riparian protection. This inspection resulted in a further investigation.

Investigations

No investigations were finalised during this reporting period.

South Western Cypress region

Audits and proactive inspections

No compliance audits or proactive inspections were conducted in this region during the reporting period.

Investigations

The EPA completed one investigation in this region. Forestry Corporation was issued an official caution for harvesting in a Sandhill Pine Woodland Endangered Ecological Community (EEC), failure to document the extent and location of an EEC, and harvesting large white cypress trees. The EPA's compliance policy guided the way in which the EPA investigated and responded to each of these matters.

Private native forestry compliance and enforcement activities

The EPA undertakes operational inspections and investigations on private native forestry operations. This is supported by regulatory extension activities.

As a result of investigations and inspections, the EPA issued advisory letters for three operations, show causes for three operations, official cautions for two operations and penalty notices for three operations. Breaches included:

- clearing without an approval
- not having a forest operation plan
- conducting forestry operations in exclusion zones
- pollution of waters.

The EPA also terminated three PNF Property Vegetation Plans for non-compliance with the Code.

Forestry Corporation internal compliance program

Forestry Corporation annually publishes the number of non-compliance incidents requiring corrective action. Table 16 summarises incidents recorded in the three years to 2016–17.

Table 16: Number of non-compliance incidents that required corrective action recorded across all State forests by Forestry Corporation, 2014–2017

	2014–15	2015–16	2016–17
Number of compliance check sheets conducted by Forestry Corporation supervisors			
Compliance monitoring	668	1,291	2,211
Systems implementation	45	293	567
Number of non-compliances recorded by staff for corrective action in moderate and above categories*			
Extreme	0	0	0
Major/severe	2	1	3
Moderate	30	20	19
Total	32	20	22

* Guidelines for internal reporting of non-compliance incidents changed in 2014–15, with the introduction of a new risk and incident management system. For non-compliances under the previous system, please refer to the 2015–16 report (EPA 2018).

Fisheries

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

The Department undertook the following compliance actions:

- Issued one formal caution in relation to a Fisheries Licence breach at Belmore State Forest, which was investigated and reported in the 2015–16 reporting period. The caution was in relation to rehabilitation of an accidental incursion along an unmapped drainage line not occurring within the required five days (condition 8.4.3(b)).
- Issued one formal caution in relation to a Fisheries Licence breach at Gibberagee State Forest. The caution was for a breach of the licence in relation to works on a crossing not meeting the general conditions for in-stream works (condition 8.2(b) and (c)).



Section 3:

Milestones and undertakings



3. Achievement of milestones and undertakings for NSW forest regions

Milestones and undertakings are tasks specified in the Forest Agreements and IFOAs that provide a way of measuring the achievement of ecologically sustainable forest management. These tasks range from short term milestones for improving forest management, to the establishment of ongoing and long-term undertakings such as plans, frameworks and reviews.

This Snapshot reports on the cumulative achievement or progress of hundreds of tasks. At June 2017, most milestones and undertakings had been completed or were no longer applicable, and have not been listed in more recent reports. Refer to earlier annual forestry reports and the five- and ten-year review (DECCW 2010) for information about previous milestones and undertakings that are complete or no longer applicable.

Milestones

Tasks and required timeframes 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 and weed control
- entering joint venture initiatives with local landholders and Aboriginal people
- monitoring criteria and indicators
- preparing management plans for tourism and recreation within forest areas.

Undertakings

Other tasks agreed between State agencies that are listed in approvals or licences. They include:

- any remaining documents to be prepared, such as monitoring and management plans
- training to be provided
- monthly reports and annual reports
- systems for providing public access to documents.

Of the remaining milestones and undertakings:

- approximately 53 relate to ongoing work such as reporting, periodic reviews and updates to plans, and Aboriginal employment and training
- five are awaiting finalisation as part of the NSW Government Coastal IFOA remake
- 11 are in progress, including:
 - nine management plans or compliance methodologies that will be considered as part of the five-year statutory reviews of the three western IFOAs (in 2019)
 - two monitoring plans that will be considered as part of the development of a cross tenure forest monitoring and improvement program (commencing in 2019) – in the interim, Forestry Corporation of NSW is working in accordance with draft plans

- three are low priority or have long-range timeframes for completion.

Three overdue milestones for western forest regions related to the requirement for the Forestry Corporation to prepare plans for managing logging operations on travelling stock reserves. Forestry Corporation's draft management plans for these reserves have been provided for the next reporting period, and will be finalised as part of the first statutory review of the three western IFOAs (due in 2019).

Appendix 1 reports on 2016–17 progress of milestones specified in the NSW Forest Agreements for the UNE, LNE, Eden and Southern regions.

Appendix 2 reports on achievement of milestones and undertakings 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 2016–17 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 2016–17
1. Environmental Management Systems – no further reporting, see 2013–14 report (EPA 2017b)		
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, 284 have plans of management adopted by the NSW Minister for the Environment and 29 have draft plans that have been publicly exhibited. A statement of management intent has been prepared for 72 reserves. Statements of management intent are in preparation for five reserves, and a plan of management for one park is in preparation by its Aboriginal board of management. Four reserves (two Aboriginal areas and two co-managed nature reserves) do not have a current plan.</p> <p>Of the 17 reserves in the Eden region, 16 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, 116 have plans of management adopted by the NSW Minister for the Environment and four draft plans have been publicly exhibited. A statement of management intent has been prepared for seven reserves. A statement of management intent is in preparation for the remaining reserve (an Aboriginal area).</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 and economic areas through its annual report and sustainability snapshot (FCNSW 2017a, FCNSW 2017b). Indicators contribute to the delivery of ESFM reporting outcomes.
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.
3. CAR reserve system		

Milestone number	Milestone	Progress for 2016–17
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 have been declared since 2002. Aquatic reserves are now managed under the <i>Marine Estate Management Act 2014</i> . 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) 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	There were no formal reviews of forest management zones, mineral objections or lands for further consideration in 2016–17. There were minor reductions in the area of Forest Management Zones due to the Government converting some areas of State Forests to another tenure (revocations). None of these revocations were related to protected areas. <ul style="list-style-type: none"> • Zone 1 reduced by 1.93 hectares • Zone 2 reduced by 6.47 hectares • Zone 3A reduced by 58.27 hectares • Zone 3B reduced by 177 hectares • Zone 4 reduced by 395.28 hectares • Zone 5 reduced by 38.47 hectares • Zone 7 reduced by 34.65 hectares
4. Crown reserves and assessment of Crown land		
Milestone 4.1 Agency: NPWS	Management and five-year review of Crown reserves/state conservation areas 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	No progress reported. The third five-year review is due to commence in 2018.
Milestone 4.2 Agency: NPWS	Identification and assessment of additional areas available for formal reservation Refer to UNE and LNE FAs section 6.16.2	There were no new assessments or reservations of additional Crown land under the UNE and LNE FAs in 2016–17. Land use and management decisions about additional Crown land now occur as part of the government's progressive response to recommendations arising from the Crown lands Management Review 2014 (NSW Government 2014).
5. Threatened species management – no further reporting, final update was in the 2010–11 report (EPA 2014)		
6. Pest, weed and feral animal control – no further reporting, final update was in the 2014–15 report (EPA 2017c).		

Milestone number	Milestone	Progress for 2016–17
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). No update was provided by OEH for this report.
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 2010–11 report (EPA 2014)		
10. World heritage and wilderness		
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	Agreement to retain the Gondwana Rainforests of Australia World Heritage Area (extensions to an existing property) on Australia’s Tentative List at the Meeting of Environment Ministers on 15 December 2016. No further action occurred to progress the preparation of a nomination.

Milestone number	Milestone	Progress for 2016–17
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	There were no World Heritage values assessments 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 (EPA 2014)		
12. Aboriginal interests		
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	No new Aboriginal agreements within these forestry regions came into effect during 2016–17. 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. 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 road building and maintenance operations. FCNSW fosters partnerships with Aboriginal groups and communities including arrangements for joint management, activities and community development in state forests. For examples of joint management partnerships see previous reports.

<p>Milestone 12.5 Agencies: NPWS, FCNSW</p>	<p>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>	<p>NPWS engaged in a range of joint ventures with local Aboriginal communities.</p> <p>Eden Forestry Agreement Region</p> <p>NPWS created an Aboriginal identified position to manage the Murrah Flora Reserve.</p> <p>NPWS contributed financially to the Coastal Weeds Project, an interagency project employing Aboriginal community members to undertake weed control along the Far South Coast.</p> <p>NPWS collaborated with local Commercial Tour Operators (CTO) to build the capacity of the Eden Local Aboriginal Land Council trainee ranger program through mentoring, training and work opportunities:</p> <ul style="list-style-type: none"> • NPWS employed an Aboriginal CTO to provide qualified guides, equipment and logistical support for a guided canoe trip to further the objectives of the Bundian Way project. An Aboriginal Elder provided valuable cultural knowledge of the area to participants. • NPWS staff accompanied and supported the trip and introduced participants to some of the complexities of park/land management and how cultural sites are managed under current legislation. <p>Southern Forestry Agreement Region</p> <p>NPWS entered a four-year partnership with the local Aboriginal community to develop an Aboriginal cultural heritage interpretive walk along the southern foreshore of Burrill Lake, Meroo National Park.</p> <p>NPWS employed members of the local Aboriginal community to carry out a range of works associated with the interpretative walk and protection of Aboriginal heritage values, including:</p> <ul style="list-style-type: none"> • installing picnic tables • clearing vegetation • developing and installing signage (this included developing content, providing knowledge, and artwork) • bush regeneration. <p>NPWS mentored Aboriginal community members and provided on-the-job training in a variety of construction and bush regeneration techniques.</p> <p>LNE Forestry Agreement Region</p> <p>Allowah Day is an annual cultural day organised for all Aboriginal school students from Year 5 to Year 12 in the Hawkesbury Area. Over 150 Aboriginal students from five high schools and six primary schools visit Shaws Creek Aboriginal Place in Yellomundee Regional Park.</p> <p>The cultural day allows students to come together, build connections with each other and build networks, while on Country. The day includes a ‘Welcome to Country’ by a Darug Elder, a smoking ceremony, and multiple workshops run by local Aboriginal community members who shared their knowledge and skills.</p> <p>NPWS staff work with the local Aboriginal and wider community to deliver the program.</p>
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Milestone number	Milestone	Progress for 2016–17
UNE Forestry Agreement Region		
<p>NPWS contracted an Aboriginal natural resources management corporation, Madhima Gulgan Community Association (MGCA) to control weeds and plant trees along a traditional path in Marshalls Creek Nature Reserve. Other Indigenous people participated and were mentored in bush regeneration techniques. These skills can assist participants to gain permanent employment.</p> <p>MGCA and NPWS conducted a workshop with professional and volunteer bush regenerators to increase awareness of cultural heritage issues when working in the field and how to identify, treat and record sites or objects.</p> <p>Two community volunteer days, one for weed control and another for tree planting, improved cultural heritage awareness and local habitat value. Landcare helped promote these projects.</p> <p>At a ‘back to country’ day, Bundjalung people of Byron Bay developed expertise in planting bush foods and protecting them from grazing animals. Participants developed knowledge of bush foods and their uses. In December 2016, 55 adults and 60 children planted 200 plants at a culturally significant site in Arakwal National Park.</p>		
FCNSW		
<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. 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. See previous reports for examples of partnerships and other activities.</p>		
13. Aboriginal interests in the Hume and Riverina regions of FCNSW and the South West Slopes region of NPWS		
Milestone 13.2 Agency: FCNSW	<p>Specified enterprise development on state forests within Hume and Riverina regions of Forestry Corporation</p> <p>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 2016–17.</p>
Milestone 13.5 Agency: FCNSW	<p>FCNSW to initiate specific employment opportunities in the Hume and Riverina regions of FCNSW subject to external funding</p> <p>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 2016–17.</p>

Milestone number	Milestone	Progress for 2016–17
Milestone 13.7 Agency: NPWS	Specified employment and training opportunities with NPWS Refer to Southern FA section 5.1.4.6	<p>Four temporary (three-year) Aboriginal Field Officer positions were maintained with the NPWS Enhanced Bushfire Management Program. Two positions are based in Eden. The other two, based in Narooma and Tanja, are jointly funded by OEH and the Biamanga and Gulaga boards of management.</p> <p>An Aboriginal Cadet Ranger and a trainee Aboriginal Field Officer were based in Narooma.</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. South Coast region continued employment of full time Aboriginal Rangers and field officers in all its Areas.</p> <p>A temporary part-time Clerk position is continuing for an Aboriginal Community Projects Officer in Nowra.</p> <p>Four Aboriginal rangers from the Bundian Way (Eden) received training in how to conduct a commercial tour operation. See Milestone 12.5 for more details.</p>
14. Supply arrangements		
Milestone 14.1 Agency: FCNSW	<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 map¹⁸ to allow stakeholders to view the plans.</p>
15. Supplementing timber supply		
Milestone 15.1 Agency: FCNSW	<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>There was no harvesting of private native forests in 2016–17.</p>

¹⁸ <https://fcnsw.maps.arcgis.com/apps/webappviewer/index.html?id=7bc8935c0d924d86b42de5c6c4abdde1>

Milestone number	Milestone	Progress for 2016–17
Milestone 15.3 Agency: FCNSW	Establishment of plantations Refer to UNE FA section 3.2; LNE FA sections 3.1, 3.3, 3.6; Southern FA section 3.6, Att. 8	FCNSW established 342.5 ha of second rotation hardwood plantations in 2016–17.
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, undated) documents the ongoing development of FRAMES to 30 June 2016. Nothing new to report for 2016–17.
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)	In 2016, 430 inventory plots were measured, predominantly in the Spotted Gum forests on the North Coast.
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 (8.1)	This milestone is complete and will not be reported in future. The final update was in the 2015–16 report (EPA 2018).
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 (7.12)	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 ¹⁹ . Further reporting will cover the period July 2012 to June 2017.

¹⁹ <https://www.forestrycorporation.com.au/about/pubs/corporate/auditor-generals-performance-audit-of-native-forest-and-hardwood-plantation-operations>

Milestone number	Milestone	Progress for 2016–17
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)	In 2015, a program to improve resource estimates based on LiDAR and plot imputation commenced with a pilot program in Eden. This approach was extended to the Spotted Gum forests on the North Coast, commencing in 2016. Refer to the FRAMES development and implementation report (FCNSW undated) for more information.
Milestone 16.6 Agency: FCNSW	Complete and publish independent audits of sustainable yield Refer to Southern FA Att. 6 (8.3)	This milestone is complete and will not be reported in future. The final update was in the 2015–16 report (EPA 2018).
Milestone 16.7 Agency: FCNSW	Review of wood supply/timber volumes Refer to UNE and LNE FAs sections 3.2, 3.5	FCNSW maintains a process of continuous improvement in source data (LiDAR and inventory plot measurements). This information is used to update resource estimates and FRAMES modelling.
17. FCNSW practices including silviculture		
Milestone 17.10 Agency: FCNSW	Liaison by FCNSW with the NSW Department of Planning, NPWS and EPA on proposed forestry operations not covered by an FA or IFOA including environmental assessment and evaluation Refer to UNE, LNE and Eden FAs section 2.2.7	This milestone is considered ongoing as liaison will occur when relevant situations arise. FCNSW did not report significant liaison with key agencies during 2016–17.
18. External auditing processes and reporting results, review processes – final update was in the 2010–11 report (EPA 2014)		
19. Charcoal provisions in NSW Forest Agreements – no further reporting required – final update was in the 2010–11 report (EPA 2014)		
20. Staff training, employment and industry initiatives – no further reporting required – final update was in the 2010–11 report (EPA 2014)		
21. Community awareness and education – no further reporting required – final update was in the 2010–11 report (EPA 2014)		
22. Community consultation – informing the public – no further reporting required – final update was in the 2010–11 report (EPA 2014)		
23. Reporting and monitoring		

Milestone number	Milestone	Progress for 2016–17
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	Complete, this will not be reported in future. The last update was in the 2015–16 report (EPA 2018). The new criteria and indicators are available online (EPA 2017a).
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 2015–16. All reports are published on the EPA website after tabling. Each report records 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, including NPWS • 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 coastal IFOA remake, which will include consideration of conditions around operations in filter strips.
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)	This milestone is complete and will not be reported in future. The final update was in the 2015–16 report (EPA 2018).

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

This appendix reports on 2016–17 progress of milestones and undertakings in the Brigalow and Nandewar Community Conservation Area Agreement and the Brigalow–Nandewar IFOA. Milestones and undertakings previously recorded as complete or no longer applicable are not listed.

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2016–17
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 (EPA 2017b).			
IFOA clauses 29(1) and (5)	Proposed new Threatened Species Conservation (TSC) Act listings EPA required to notify FCNSW of proposed new TSC Act listings relevant to forestry operations.	When required	EPA to notify FCNSW	No longer applicable. This will not be reported in future. The final update was in the 2015–16 report (EPA 2018).

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2016–17
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>	<p>Study to be undertaken within the first five years of commencement of the IFOA (by October 2015)</p>	FCNSW	<p>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.</p> <p>This data is required prior to the five-year statutory review of the IFOA, which will commence in late 2019. The delay in this review is due to the NSW Government’s decision to postpone it until after finalisation of the Coastal IFOA in 2018.</p>
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>	<p>FCNSW plan for managing harvesting operations on travelling stock reserves in the Brigalow–Nandewar region</p>	<p>FCNSW (EPA may provide written comments)</p>	<p>A draft TSR management plan is being finalised by FCNSW and will be forwarded to the EPA for consideration and comment in September 2017. Finalisation of the plans will be considered in the five-year statutory review of the IFOA, which will commence in late 2019. The delay in this review is due to the NSW Government’s decision to postpone it until after finalisation of the Coastal IFOA in 2018.</p>
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>	<p>The first such assessment is to be completed by the end of 2013</p>	FCNSW	<p>Assessment of regeneration is now being undertaken as part of the FCNSW Western Inventory and growth monitoring program, using fixed plots, remote sensing and post harvesting assessment tools. This has been ongoing for Brigalow since December 2014.</p>

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2016–17
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>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>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 Management Plan 2006 Western Region NFOB (referred to in clause 51) must be reviewed by 30 June 2011.</p> <p>See IFOA for full undertakings 52 (1) to (3).</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>Review of the current plan (1 July 2014–30 June 2019) not due until 2019.</p>

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2016–17
IFOA clauses 57 (1) to (3)	<p>57. Burning operations management plan – review and amendment</p> <p>(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).</p> <p>See IFOA for full undertakings 57 (1) to (3).</p>	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)	<p>60. Road and fire trail management plan – review and amendment</p> <p>(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 approval for implementation). Accordingly, the Road Management Plan 2006 Western Region NFOB must be reviewed by 30 June 2011.</p> <p>See IFOA for full undertakings 60 (1) to (3).</p>	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.
IFOA clauses 80 to 88	<p>80. Annual reports on forestry operations</p> <p>(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.</p> <p>See IFOA for full undertakings 80 to 88.</p>	The annual report for a financial year is to be provided to the 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 the EPA and Fisheries)	The EPA received FCNSW’s 2016–17 annual report on forestry operations in the western region, which includes the Brigalow-Nandewar region, on 1 September 2017.

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2016–17
IFOA clauses 149 to 151	<p>149. Species management plans for certain threatened plant species</p> <p>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:</p> <p>(a) <i>Bertya</i> sp. A Cobar-Coolabah (also named <i>Bertya</i> opponents)</p> <p>(b) <i>Diuris tricolor</i></p> <p>(c) <i>Pomaderris queenslandica</i></p> <p>(d) <i>Pterostylis cobarensis</i></p> <p>(e) <i>Swainsona recta</i></p> <p>(f) <i>Swainsona sericea</i>.</p> <p>See IFOA for full undertakings 149–151.</p>	Within 12 months of the commencement approval and to be submitted to the EPA	FCNSW	<p>Draft species management plans have been prepared. FCNSW is reviewing the EPA's previous comments in consultation with experts. The drafts also require substantial updates to:</p> <ul style="list-style-type: none"> • address new legislative requirements arising from the <i>Biodiversity Conservation Act 2016</i> • ensure that proposed actions reflect new NSW Wildlife Atlas species records. A significant number of records post-date the original drafts. <p>Finalisation of the plans will be considered in the five-year statutory review of the IFOA, which will commence in late 2019. The delay in this review is due to the NSW Government's decision to postpone it until after finalisation of the Coastal IFOA in 2018.</p>
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 the EPA	FCNSW	As for clauses 149 to 151 above.
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.

Milestone/clause	Detail	Timeframe	Responsibility	Progress for 2016–17
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 the 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 prepared by FCNSW.</p> <p>To ensure parity across the state, this program will instead be considered as part of a statewide NSW Forest Monitoring and Improvement Program²⁰ that includes components relevant to the coastal and western IFOAs.</p> <p>The timing of delivery of the monitoring and assessment programs are linked to this initiative. In the interim, FCNSW implemented an interim monitoring framework from October 2014 in the Pilliga forests. This work is ongoing.</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	Complete. This will not be reported on in future. The final update was in the 2015–16 report (EPA 2018).
IFOA clauses 233 (1) to (4)	<p>Auditing methodology for the retention of trees</p> <p>(1) FCNSW is to develop, in consultation with the 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 the EPA) within 12 months of the commencement of this approval.</p> <p>See IFOA for full undertaking 233 (1) to (4).</p>	Within 12 months of the commencement approval	EPA and FCNSW	<p>A draft methodology has been prepared by FCNSW.</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.</p> <p>The methodology will be finalised during the first five-year statutory review, which will commence in late 2019. The delay in the commencement of this review is due to the NSW Government decision to defer the review until finalisation of the Coastal IFOA in 2018.</p>

²⁰ <https://www.nrc.nsw.gov.au>

Appendix 3: Milestones and undertakings – Riverina Red Gum IFOA

This appendix reports on 2016–17 progress of milestones and undertakings in the Riverina Red Gum IFOA. Milestones and undertakings previously recorded as complete or no longer applicable are not listed.

IFOA clauses	Detail	Timeframe	Responsibility	Progress for 2016–17
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 2019. For more information, see the NSW Forestry Industry Roadmap ²¹ . The delay in this review is due to the NSW Government's decision to postpone it until after finalisation of the Coastal IFOA in 2018.
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 the 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.

²¹ <https://www.dpi.nsw.gov.au>

IFOA clauses	Detail	Timeframe	Responsibility	Progress for 2016–17
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. 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>
31	<p>Field protocol for measuring distances</p> <p>Develop a field protocol for measuring distances specified in clauses 104, 105 and 106.</p>	<p>To be undertaken within 12 months of commencement (due 1 January 2012)</p>	<p>Joint FCNSW, Fisheries and the EPA</p>	<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.</p> <p>FCNSW will continue using the interim conditions for measuring distances until the protocol has been finalised.</p> <p>The methodology will be finalised during the first five-year statutory review, which will commence in late 2019. The delay in the commencement of this review is due to the NSW Government decision to defer the review until finalisation of the Coastal IFOA in 2018.</p>
47 (4), (6) and (7)	<p>Travelling stock reserves</p> <p>FCNSW must prepare a plan for managing operations on travelling stock reserves. The EPA and Local Land Services (LLS) to be consulted.</p> <p>See IFOA for full undertakings 47 (1) to (9)</p>	<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.</p>	<p>FCNSW (lead) and OEHL and LLS consulted</p>	<p>A draft TSR management plan is being prepared and will be forwarded to the EPA for consideration and comment in September 2017.</p> <p>Finalisation of the plans will be considered in the five-year statutory review of the IFOA, which will commence in late 2019. The delay in this review is due to the NSW Government's decision to postpone it until after finalisation of the Coastal IFOA in 2018.</p>

IFOA clauses	Detail	Timeframe	Responsibility	Progress for 2016–17
50 (1) to (4)	<p>Assessment of regeneration in silvicultural management</p> <p>FCNSW must assess the extent and nature of regeneration in areas of land logged during the approval. OEH to be consulted regarding assessment of regeneration in silvicultural management.</p> <p>See IFOA for full undertakings 50 (1) to (4)</p>	<p>To be undertaken before carrying out the first assessment, which is due 31 December 2013</p>	<p>FCNSW (lead) and OEH consulted</p>	<p>Assessment of regeneration now occurs as part of the FCNSW Western Inventory and growth monitoring program, using fixed plots, remote sensing and post harvesting assessment tools.</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>	<p>FCNSW</p>	<p>Review of the current plan (1 July 2014 – 30 June 2019) not due until 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>	<p>FCNSW</p>	<p>Review of the current plan (1 July 2014 – 30 June 2019) not due until 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>	<p>FCNSW</p>	<p>Review of the current plan (1 July 2014 – 30 June 2019) not due until 2019.</p>

IFOA clauses	Detail	Timeframe	Responsibility	Progress for 2016–17
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	Review of the current plan (1 July 2014 – 30 June 2019) not due until 2019.
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 the EPA and Fisheries	The EPA received the FCNSW 2016–17 annual program of forestry operations for the Brigalow-Nandewar, South West Cypress and Riverina Red Gum IFOAs on 4 July 2017.
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 the 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 the EPA and Fisheries	The EPA received the FCNSW 2016–17 annual report on forestry operations in the western region, which includes the Riverina Red Gum region, on 1 September 2017.

IFOA clauses	Detail	Timeframe	Responsibility	Progress for 2016–17
138, 140–143	<p>New records to be forwarded to the EPA</p> <p>(1) FCNSW must advise the 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).</p> <p>See IFOA for full undertakings related to new records</p>	<p>Within three months of the new record being made or two working days for spp. listed in cl. 140</p>	<p>FCNSW – must notify the EPA</p>	<p>New records are provided routinely (generally every three months) via the agreed data transfer arrangements between FCNSW & the EPA.</p>
238–243	<p>Environment Protection Licence annual return</p> <p>In addition to the annual report required (cls 86 to 91) FCNSW must prepare and give the EPA an annual return relating to the EPL.</p>	<p>Calendar years – from the first year within 60 days of end of year (i.e. 1 March 2012)</p>	<p>FCNSW – must submit to the EPA</p>	<p>The EPA received FCNSW's EPL annual return in February 2017.</p>

Appendix 4: Milestones and undertakings – South Western Cypress IFOA

This appendix reports on 2016–17 progress of milestones and undertakings in the South Western Cypress IFOA. Milestones and undertakings previously recorded as complete or no longer applicable are not listed.

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2016–17
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 2016–17.
41 (2), (4), (6) and (7)	Travelling stock reserves FCNSW to prepare a plan managing logging operations on TSRs. The 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 the EPA The EPA to comment on FCNSW draft plan within two months of receiving draft	FCNSW (lead) LLS and the EPA consulted	A draft TSR management plan is being prepared and will be forwarded to the EPA for consideration and comment in September 2017. Finalisation of the plans will be considered in the five-year statutory review of the IFOA, which will commence in late 2019. The delay in this review is due to the NSW Government's decision to postpone it until after finalisation of the Coastal IFOA in 2018.
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. The 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) the EPA consulted before carrying out the first assessment	FCNSW (lead) and the EPA consulted	Assessment of regeneration now occurs as part of the FCNSW Western Inventory and growth monitoring program, using fixed plots, remote sensing and post harvesting assessment tools

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2016–17
46, 49, 52, 57, 60	Plan reviews for South Western Cypress region 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).	By 30 June 2016 and at least every five years for 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	FCNSW	Review of the current plan (1 July 2014 – 30 June 2019) not due until 2019.
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. The 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 the EPA (comments)	Review of the current plan (1 July 2014 – 30 June 2019) not due until 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 the 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 the EPA and Fisheries	The EPA received the FCNSW 2016–17 annual program of forestry operations for the Brigalow-Nandewar, South West Cypress and Riverina Red Gum IFOAs on 4 July 2017.
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 Annual report for financial year must be given to the EPA and Fisheries See IFOA for full undertakings 80 to 88	By 1 September in next financial year (i.e. first report due 1 September 2012)	FCNSW (lead); report must be given to the EPA and Fisheries	The EPA received the FCNSW 2016–17 annual report on forestry operations, which covers the Brigalow–Nandewar, South West Cypress and Riverina Red Gum regions on 1 September 2017.

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2016–17
149 and 151	<p>Preparation of species management plans</p> <p>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.</p> <p>The species are: <i>Austrostipa metatoris</i>, <i>A. wakoolica</i>, <i>Diuris tricolor</i>, <i>Pterostylis cobarensis</i>, <i>Swainsona sericea</i>.</p> <p>Note: It is contemplated that if the EPA approves the contents of a species management plan, the IFOA will be amended to require the plan to be given effect to. The EPA and FCNSW intend that the species management plans required will be finalised and approved within 12 months of the commencement of the IFOA.</p>	12 months of the commencement (due by 1 July 2012)	FCNSW (lead) and the EPA approve	<p>Draft species management plans have been prepared. FCNSW is reviewing the EPA's previous comments in consultation with experts. The drafts also require substantial updates to:</p> <ul style="list-style-type: none"> • address new legislative requirements arising from the <i>Biodiversity Conservation Act 2016</i> • ensure that proposed actions reflect new NSW Wildlife Atlas species records. A significant number of records post-date the original drafts. <p>Finalisation of the plans will be considered in the five-year statutory review of the IFOA, which will commence in late 2019. The delay in this review is due to the NSW Government's decision to postpone it until after finalisation of the Coastal IFOA in 2018.</p>
155	<p>Strategic monitoring and assessment program (SM&AP)</p> <p>FCNSW is to develop and undertake a strategic monitoring and assessment program in the South Western Cypress region.</p>	Within 12 months of the commencement (due by 1 July 2012)	FCNSW (lead) and OEH	<p>SW Cypress SM&AP will use the same methodology as the Brigalow SM&AP.</p> <p>To ensure parity across the state, this program will instead be considered as part of a statewide NSW Forest Monitoring and Improvement Program²² that includes components relevant to the coastal and western IFOAs.</p> <p>The timing of delivery of the monitoring and assessment programs is linked to this initiative.</p>

²² <https://www.nrc.nsw.gov.au>

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2016–17
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 the 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 the 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 the EPA has approved it in writing. It may be amended from time to time with the written approval of the 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 the 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.</p> <p>Finalisation of the plans will be considered in the five-year statutory review of the IFOA, which will commence in late 2019.</p> <p>The delay in this review is due to the NSW Government’s decision to postpone it until after finalisation of the Coastal IFOA in 2018.</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 complete 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> <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>	Annual assessment and mapping within five years (due July 2016)	FCNSW	Review of the current plan (1 July 2014 – 30 June 2019) not due until 2019.

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2016–17
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 the EPA notified	The EPA received FCNSW's EPL annual report in February 2017. This report includes information about pollution incidents and breaches.
309 to 314	<p>Special annual return to be given to the 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 the EPA notified	The EPA received FCNSW's special annual return relating to harvesting operations and ancillary road construction in February 2017.

IFOAs operating in NSW as of June 2017

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
Forestry Corporation	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	Protection of the Environment Operations Act 1997
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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