

NSW Forestry Snapshot Report 2018—19

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



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Cover: Forest in the Port Macquarie region. Photo: Brent Mail Photography/EPA

Section divider 1: Billy buttons – native wildflowers that are widespread throughout eastern NSW in dry forest, grassland and alpine regions. Photo: John Spencer/DPIE

Section divider 2: EPA Operations Officer inspecting a forestry operation. Photo: Brent Mail Photography/EPA

Section divider 3: Rough bark tree fern *Cyathea australis*. Photo: Michael Van Ewijk/DPIE

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Contents

Overview	4
Introduction	6
Links to other reporting	6
What regions are reported	7
NSW Forestry Industry Roadmap	8
1. Snapshot of ecologically sustainable forest management	13
Biodiversity conservation	13
Maintaining the productive capacity of forests	20
Maintaining ecosystem health and vitality	33
Conserving soil and water resources	39
Maintaining forests' contribution to global carbon cycles	39
Socio-economic benefits of forests	40
Legal, institutional and economic frameworks	45
2. Compliance with IFOAs and other requirements	50
New legislative and regulatory arrangements	50
EPA compliance program	50
Crown native forestry compliance and enforcement activities	52
Private native forestry compliance and enforcement activities	54
Fisheries	54
3. Achievement of milestones and undertakings for NSW forest regions	56
Appendix 1: Milestones and undertakings – Coastal IFOAs	58
Appendix 2: Milestones and undertakings – Brigalow–Nandewar region	69
Appendix 3: Milestones and undertakings – Riverina Red Gum IFOA	75
Appendix 4: Milestones and undertakings – South Western Cypress IFOA	80
Appendix 5: IFOAs and Forest Agreements operating in NSW 2018–2019	85
Acronyms and abbreviations	86
References	87

Overview

This is the twentieth 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 that are set out in the Agreements and the IFOAs. Three of the four forest agreements lapsed in March 2019, but the regions are still reported against in this snapshot.

By June 2019, most milestones and undertakings set for coastal and western regions had already been completed. These are recorded in previous reports.

At 30 June 2019, a relatively small number of milestones and undertakings are still to be completed. They are:

- a milestone in the Coastal IFOA region for an operational research trial is now covered by DPI's sustainable yield estimates (DPI 2018)
- six management plans or compliance methodologies that will be considered as part of the review of the three western IFOAs in 2020
- two monitoring plans that will be considered as part of the development of a cross-tenure forest monitoring and improvement program, starting in 2020
- four undertakings that have been identified as having long-range timeframes for completion, and for which no progress has been reported
- others not due in the reporting period.

Measures of ecologically sustainable forest management need to be carefully monitored: they include rates of sustainable harvesting, regeneration, protection of biodiversity and climate change resilience. This report finds that timber harvesting has been maintained within permissible volumes and quantities approved under the IFOAs. Forestry Corporation regeneration surveys found 76% of survey plots in native forests were successfully regenerated with commercial species. This is above the 65% regeneration threshold that Forestry Corporation considers adequate for commercial species.

This report also summarises regulation of forestry activities and results reported by the NSW Environment Protection Authority (EPA) and Forestry Corporation. The EPA's regulatory work continued to focus on high-risk operations. This focus included the protection of hollow-bearing and recruitment trees, streams, soil, forest structure and exclusion zones to protect koala habitat, threatened species and ecological communities. The EPA visited 50 operations in state forests, which resulted in Forestry Corporation being issued:

- warning letters for six operations
- official cautions for three operations
- a clean-up notice for one operation
- advisory letters for six operations
- penalty notices for two operations.

The NSW Forestry Industry Roadmap is the NSW Government's plan for sustainable forest management into the future. Several regulatory reform actions were progressed during 2018–19.

- The NSW Regional Forest Agreements (RFAs) were varied in November 2018. These are now in place until at least 2039.
- The *Forestry Legislation Amendment Act 2018* came into effect in November 2018. The Act delivers stronger penalties and a broader suite of regulatory tools, as well transferring private native forestry approval responsibilities to Local Land Services.

- The new Coastal IFOA took effect from November 2018, replacing the four former coastal IFOAs and setting more contemporary protections for threatened species, habitat, soils and water quality during forestry operations.
- The Terms of Reference for a review of private native forestry (PNF) attracted 204 submissions and confirmed that 91% of stakeholders thought the program could be amended to improve economic and/or environmental outcomes.

Hundreds of Aboriginal people across the state participated in cultural activities, training and joint management of national parks and state forests.

Biodiversity conservation highlights this year included:

- the addition of 10,421 hectares of land to 16 reserves in Forest Agreement regions
- progress on research and monitoring initiatives under the NSW Koala Strategy, including:
 - the release of the *NSW Koala Research Plan 2019–28*, which sets priorities for koala research over the next ten years
 - the development of a statewide koala habitat information base, which provides the best available spatial data on koala habitat and koala occurrence for NSW.

The NSW Government has also established a statewide, cross-tenure NSW Forest Monitoring and Improvement Program to monitor and evaluate ecologically sustainable forest management. The program is independently overseen by the NSW Natural Resources Commission.

Introduction

This is the twentieth 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 the NSW Forest Agreements for coastal regions
- 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)
- management of forests across all tenures, including national parks, for conservation, recreation, cultural heritage and other values.

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 NSW Government agencies and a state-owned corporation listed below, who have all contributed to this report. The organisations are:

- Department of Planning, Industry and Environment (DPIE), including:
 - the NSW Environment Protection Authority (EPA)
 - the National Parks and Wildlife Service (NPWS) that manages, conserves and cares for more than seven million hectares of land in national parks and reserves
 - Department of Primary Industries (DPI), including Forestry, Fisheries and Biosecurity NSW
 - Local Land Services (LLS).
- Forestry Corporation of NSW (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 2018 to 30 June 2019.

Section 1 provides a summary of results of monitoring important ESFM criteria and indicators for native forests of all tenures in NSW coastal regions as well as timber supply in coastal and western IFOA regions. This report adopts the *Ecologically Sustainable Forest Management Criteria and Indicators for the NSW Forest Agreement Regions 2016* (EPA 2017a).

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

Section 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 Forestry Corporation *Sustainability Data Report 2018–19* (FCNSW 2019b)
- 2018–19 annual reports of relevant agencies.

This snapshot also refers to other key reports for context, including *Australia’s State of the Forests Report 2018* (ABARES 2018, referred to in this report as SOFR 2018).

What regions are reported

This report is required to report on the delivery of ESFM and forestry compliance in all forest agreement regions. NSW Forest agreements for the Upper North East (UNE), Lower North East (LNE) and Eden regions lapsed in March 2019 and were not renewed. The Southern Region Forest Agreement expires in May 2022. These regions are now covered under one combined coastal IFOA region and three western IFOA regions. These regions are mapped in Figure 1. The Riverina Red Gum region overlaps with the South Western Cypress region but they have separate IFOAs in place for their operations.



Figure 1 Integrated Forestry Operations Approval (IFOA) regions

The four coastal forestry regions had separate IFOAs in place at the beginning of the reporting period, but from November 2018 these were replaced by a single Coastal IFOA that will be phased in over two years. This Coastal IFOA covers the regions previously known as:

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

With the NSW Forest agreements for the UNE, LNE and Eden regions having lapsed, any outstanding issues contained in these instruments were rolled into other mechanisms such as the NSW Coastal IFOA, and the NSW and Australian Governments' Regional Forest Agreements, which have been now been revised and extended to 2039. An agreement for the Southern region remains in place until May 2022 and will not be renewed.

Due to these changes and the overlap in transitioning to the new IFOA, some parts of this report (such as timber harvesting) refer to the regions in the lapsed Forest Agreements, while other sections (such as land available in state forests) report against the new Coastal IFOA.

The three western NSW inland forestry regions have IFOAs in place but are not covered by NSW Forest Agreements. They are:

- Brigalow–Nandewar
- Riverina Red Gum
- South Western Cypress.

Annual reporting for the western forest areas will include compliance with IFOAs, timber products and progress of remaining milestones identified in the western IFOAs. More information about the regions is available on the [EPA website](#)¹.

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

NSW Forestry Industry Roadmap

The *NSW Forestry Industry Roadmap*² envisions ‘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:

delivery of regulatory modernisation and environmental sustainability

balancing supply and demand

improving community understanding and confidence

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 as summarised below. More information is available on the [NSW DPI website](#)³.

Roadmap implementation 2018–19

Pillar 1 – Regulatory modernisation

Regulatory modernisation involves updating regulations, licences, codes and compliance tools to ensure they keep pace with changing best-practices in the regulatory, environmental and forest management field.

The Roadmap outlines commitments to:

- review and develop options for the renegotiation of the Regional Forest Agreements (RFAs) with the Australian Government
- review the regulatory arrangements for both public and private native forestry and develop a modern and simple regulatory framework in line with the recommendations of the Independent Biodiversity Review Panel
- review, consult on and remake a new Coastal Integrated Forestry Operations Approval (IFOA), which involves combining 12 separate licences and about 2,000 conditions into a single, streamlined, modern document
- start a review of Western (Cypress and Red Gum) Integrated Forest Operations Approvals with public consultation
- review and consult on the existing Codes of Practice for private native forestry.

Regional Forest Agreements

Regional Forest Agreements are bilateral agreements between the Australian Government and four state governments under the *Commonwealth Regional Forest Agreements Act 2002*. They are 20-year plans for the sustainable management and conservation of Australia’s native forests. The NSW and Australian Governments are required to review the three NSW RFAs every five years to assess progress against agreed milestones and

¹ www.epa.nsw.gov.au/your-environment/native-forestry

² www.dpi.nsw.gov.au/_data/assets/pdf_file/0005/711851/nsw-forestry-industry-roadmap.pdf

³ www.dpi.nsw.gov.au

commitments to deliver ecologically sustainable forest management for NSW. These agreements provide a simplified regulatory approval process and promote certainty for forest-based industries to support the sustainable management and protection of native forests.

The RFAs are an agreed form of assessment and approval for the purposes of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. They also provide an exemption from national export legislation that affects the international sale of timber from native forests and plantations.

The three NSW Regional Forest Agreements (RFAs) were renewed in November 2018. They are in place until at least 2039 and include a five-year rolling review and extension mechanism. The renewed agreements reflect contemporary forest management and protection arrangements.

There is a requirement for an annual meeting between the NSW Government and the Commonwealth agencies regarding the implementation of the renewed RFAs, with the first meeting planned for October 2019.

New Native Forestry Bill

The **Forestry Legislation Amendment Act 2018**⁴ (FLA Act) commenced in November 2018. This legislative package amended the *Forestry Act 2012*, *Local Land Services Act 2013*, *Biodiversity Conservation Act 2016*, the Local Land Services Regulation 2014 and a suite of related legislation. For public forestry, the Act increased on-the-spot penalties for not complying with an IFOA from \$1,100 to \$15,000, with court-imposed penalties being as high as \$5 million where non-compliances are intentional and likely to cause significant harm to the environment. It also introduced a range of compliance mechanisms for the EPA, including temporary stop-work orders and remediation orders. The Act gave effect to the Coastal IFOA, including providing the EPA with the ability to make minor amendments though the IFOA's adoption of protocols issued by the EPA from time to time.

For private forestry, the regulatory arrangements remain largely unchanged but now reside in a single Act for all land management activities, the *Local Lands Services Act 2013*. The FLA Act transferred the responsibility for administering and regulating Private Native Forestry (PNF) into a new Part 5B of the *Local Land Services Act 2013*.

Private Native Forestry (PNF) Review

The PNF Review includes a review of the PNF Codes of Practice, PNF regulatory settings, and training and advice services, in line with broader land management and forestry reforms including the NSW Forestry Industry Roadmap and the Independent Biodiversity Legislation Review Panel's recommendations. During the reporting period DPIE continued a review of the PNF framework, with Local Land Services leading the review in collaboration with the Department of Primary Industries and the EPA.

Terms of Reference inviting public feedback were released on 22 November 2018, with submissions closing 15 February 2019. A total of 204 submissions was received from individuals, businesses, landholders, the timber industry, community and environmental organisations, and local councils. An independent consultant, Elton Consulting, reviewed the submissions and prepared a [report](#)⁵ that summarises feedback. Most (91%) submitters felt that amendments to the PNF Program are required to improve economic and/or environmental outcomes and 48% thought they were necessary to make the authorisation and approval system clearer and easier to use. Many offered detailed suggestions for improvements. There was a strong interest in improving compliance and enforcement and having an outcomes-based approach to regulation (48%). Fire as a management tool was also suggested for inclusion in the revised Codes.

⁴ www.epa.nsw.gov.au/your-environment/native-forestry/forestry-regulatory-reforms

⁵ www.lls.nsw.gov.au/help-and-advice/private-native-forestry/private-native-forestry-review/submissions-on-the-pnf-review-terms-of-reference

The next steps in the PNF Review are the review of the existing PNF Codes of Practice and the development of new Codes that are clear and easier to use and enforce, while supporting ecologically sustainable forest management. Information about the progress of the PNF Review is on the [Local Land Services website](#)⁶.

Coastal IFOAs

IFOAs set the rules for how forestry operations must be carried out on state forests and other Crown-timber lands. A Coastal IFOA replaced the four former coastal IFOAs in November 2018. The Coastal IFOA sets more contemporary protections for threatened species, habitat, soils and water quality during forestry operations.

The new IFOA establishes practical, effective and enforceable licence conditions that are not open to interpretation and are clear both to industry operators and the community.

The IFOA delivers a multi-scale landscape model for conserving biodiversity in coastal forests. Increased environmental protections include:

- maintenance of existing landscape protections, including the protection of rainforest, old growth, wildlife corridors and rare ecosystems
- new permanent protections for unique habitat and tree hollows that applies to the landscape and at each harvesting site
- permanent protection of all tree hollows and dead standing trees in regrowth forests, and a higher rate of retention in non-regrowth forests
- improved requirements for the retention of nectar-producing trees for bees and birds such as swift parrots
- use of maps to identify and protect koala habitat and threatened ecological communities
- protection of all streams, with escalating protection based on pollution risk and the size of the catchment.

Changes will be supported by a comprehensive monitoring program that will be overseen by the Natural Resources Commission (NRC): see ‘Research and development’, page 11.

More information about the Coastal IFOA is available on the [EPA website](#)⁷.

Pillar 2 – Balancing supply and demand

Wood Supply Agreements (WSAs) are long-term contracts between the State of NSW, Forestry Corporation and timber processors for the supply of timber from NSW state forests. As outlined in the Roadmap, the NSW Government is committed to addressing timber supply and demand issues, as it understands that certainty of wood supply is critical to ongoing business confidence.

A government-commissioned independent review of current coastal wood supply agreements, conducted by Australian National University Enterprises in 2017, is being used to inform policy decisions and other WSA negotiations. Renegotiation of individual wood supply agreements is a commercial matter between Forestry Corporation and its customers.

The three NSW Regional Forest Agreements (RFAs) were renewed in November 2018. The RFAs aim to strike a long-term sustainable balance between economic, social and environmental demands on our forest resources. These agreements also facilitate forward planning and enhance Forestry Corporation’s ability to set and implement long-term timber supply contracts, thereby providing supply security for industry. The renewed RFAs commit to a sustainable wood supply as estimated in *Sustainable Yield in New South Wales Regional Forest Agreement Regions* (DPI 2018).

⁶ www.lls.nsw.gov.au/sustainable-land-management/pnforestry

⁷ www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/coastal-ifo

Pillar 3 – Community understanding and confidence

NSW Forest Industries Taskforce

The NSW Forest Industries Taskforce (FIT) plays an important role in identifying 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 and provides timely and comprehensive advice to the NSW Government.

The taskforce was co-chaired by the Minister for Lands and Forestry, Paul Toole, and the Hon Rick Colless MLC, Parliamentary Secretary for Natural Resources until March 2019, and had 15 members representing key parts of the industry. DPI provides secretariat support to the taskforce.

During 2018–19, the Minister consulted with key industry stakeholders and members of the Taskforce on future directions for the FIT. Industry and members were supportive of a shift in focus towards addressing strategic issues confronting the sector and working with the NSW Government to develop innovative solutions to assist in implementing key components of the Forestry Industry Roadmap. The re-focus of the Taskforce and its membership had started in late 2018, but due to the machinery of government changes resulting from the March 2019 elections, the new Taskforce is yet to be convened by the minister.

Over the last six years the Taskforce has contributed to:

- producing papers on active and adaptive management and plantations development
- providing advice on industry research opportunities and contributing to the recent completion of a series of important North Coast forestry research projects
- playing a critical role in identifying key issues to be addressed in the NSW Forestry Industry Roadmap and continuing to advise on the delivery and prioritisation of these actions.

Research and development

In 2018–19 the NSW Forest Monitoring and Improvement Steering Committee, independently chaired by the NRC, prepared a draft monitoring program for NSW forests. Comments on the draft were invited in the next reporting period. Progress of the review is reported on the [NRC website](#)⁸.

The program will include targeted research and trend monitoring. It will improve the evidence-base for decision-making for forest management across tenures. This will strengthen the NSW Government’s ability to strategically and adaptively manage forests, including state forests, national parks, private native forests and crown forested land.

DPI Forest Science has an ongoing suite of research projects that are reported under ‘Research and monitoring capacity’, page 46.

Pillar 4 – Industry innovation and new markets

The Forestry Industry Innovation Fund loan scheme was announced in October 2018. The scheme will drive new investment and innovation and position the industry to adjust and capitalise on new opportunities. The low-interest loans will be accessed for a range of projects, all aimed at helping the timber industry access new markets, drive operational efficiencies and invest in new technologies. Specific projects could include mill upgrades, developing new products or processing capabilities, and initiatives to better access new domestic or international markets.

The scheme has generated significant industry interest. Five proposals were in the final stages of approval during 2018–19 and another was under consideration.

⁸ www.nrc.nsw.gov.au/forest-monitoring



Section 1:

ESFM

**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. As noted on page 7, Forest Agreements for all coastal regions except the Southern region lapsed in March 2019. This report meets reporting requirements prior to this change.

Forest Agreements are not in place for the western regions, but the report summarises a range of undertakings made under western IFOAs and reports on timber supply and allowable limits.

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) and *Overview of the New South Wales Forest Management Framework* (NSW Government 2018).

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 (SOFR) reporting. The latest report is *State of the Forests 2018* (ABARES 2018).

The NSW Government has established a statewide, cross-tenure *NSW Forest Monitoring and Improvement Program* to monitor and evaluate ecologically sustainable forest management. The program is independently overseen by the NSW Natural Resources Commission.

Biodiversity conservation

Protecting forest habitat

Reserving a proportion of forested land in protected areas helps ensure the conservation of biodiversity. There are 19.9 million hectares of native forest in NSW, of which 6.4 million is protected in a range of formal and informal categories (ABARES 2018). Protected areas include formal reserves, such as national parks protected under the *National Parks and Wildlife Act 1974* (NPW Act), land reserved for conservation as flora reserves under the *Forestry Act 2012*, informal Crown reserves, and areas with values protected by prescription, such as scenic protection areas and timber harvesting exclusion zones. Twenty-eight percent of the total forest area of NSW is reported as forming part of Australia's national reserve and having a primary management intent of nature conservation, with 77% of this forest on public land *State of the Forests 2018* (ABARES 2018).

In 2018–19, 10,474 hectares of land were added to 18 reserves (including three new reserves) in the national parks system in NSW. Of this, 10,421 hectares (16 reserves) fell within the Forest Agreement regions. These areas have not been analysed by forest type.

Australia's comprehensive, adequate and representative (CAR) reserves system aims to safeguard vulnerable species and communities and provide links between reserves and other protected areas. The most recent data for forest in different types of CAR reserve is available in *State of the Forests 2018* (ABARES 2018).

Comprehensive, adequate and representative (CAR) reserves

Comprehensive: includes examples of regional-scale ecosystems in each bioregion

Adequate: includes sufficient levels of each ecosystem within the protected area network to provide ecological viability and maintain the integrity of populations, species and communities

Representative: includes areas at a finer scale, to encompass the variability of habitat within ecosystems

Source: DEE undated. For more information about the CAR system see *Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia* (Commonwealth of Australia 1997).

Components of the CAR system

Formal reserves are publicly managed land tenures that cannot be revoked without parliamentary approval.

Informal reserves on public land are protected through administrative instruments by public agencies.

Values protected by prescription: where inclusion in formal or informal reserves is impractical, land is protected through other instruments. In NSW these include Harvest Exclusion and Special Prescription Zones in multiple-use public forest.

Private CAR reserves are areas of private land that are managed in the long term for the protection of CAR values, for example through contractual agreements.

Source: *State of the Forests 2018* (ABARES 2018)

Fragmentation of native forest cover

The loss of large, contiguous, forested areas into smaller pieces of forest (fragmentation) can isolate populations of forest-dwelling species which cannot move across areas that are not connected by native vegetation. This reduces genetic diversity within species.

While fragmentation can occur naturally, the main cause of increasing forest fragmentation over the past 200 years has been forest clearing associated with land-use change, mainly for agriculture, mining, urban development and infrastructure.

The Department of Planning Industry and Environment (DPIE) reports on landcover change annually. This includes rates of vegetation change for different land-use activities and information about conservation and management actions. This information is provided in native vegetation data reports (DPIE 2019a).

State of the Forests 2018 (ABARES 2018) provides the most recent information on forest fragmentation at national and jurisdictional scales.

Protecting forest-dwelling species

Forest-dwelling species are animals and birds that may use forest habitat for all or part of their life cycle. Monitoring these 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.

Australia's *State of the Forests Report 2018* summarises national state and territory reporting on forest-dwelling species for which ecological information is available from 1998 to 2016. As of 2016, there were 896 forest-dwelling species in NSW, of which 434 were dependent on forest habitat (ABARES 2018).

The NSW Government maintains a comprehensive [threatened biodiversity profile search facility](#)⁹. The public can both view this and contribute sighting records and profiles of species, populations and communities, including those that are forest-dwelling. The database is used by NPWS and Forestry Corporation.

The NSW Koala Strategy

The NSW Koala Strategy sets out the first phase of actions to achieve the NSW Government’s goal of stabilising and then increasing koala numbers over the longer-term, ensuring genetically diverse and viable populations across NSW.

The Strategy supports a range of conservation actions delivered over three years under four pillars: koala habitat conservation, conservation through community action, safety and health of koala populations and building our knowledge. DPIE’s Environment, Energy and Science (EES) group coordinates the implementation of the strategy.

Some major achievements during the first year of implementation (2018–19) include:

- Koala habitat conservation:
 - purchasing three properties to protect more than 2,600 hectares of land containing priority koala habitat
 - transferring 4,051 hectares of State forest to the National Parks and Wildlife Service for management (see breakout box, next page)
- Conservation through community action:
 - funding 13 on-ground actions in partnership with the community to address local threats
 - launching the NSW Koala Country website (www.koala.nsw.gov.au) to support and connect community members and organisations working on koala conservation
- Safety and health of koala populations:
 - installing koala fencing to address a known vehicle strike hotspot on Picton Road in Wollondilly
 - starting construction of the Port Stephens koala hospital in June 2019
- Research and monitoring:
 - releasing the [NSW Koala Research Plan 2019–28](#), which sets priorities for koala research over the next ten years
 - starting research into koalas’ responses to intensive forest harvesting, overseen by the NRC
 - developing the [koala habitat information base](#)¹⁰, which provides the best available data on koala habitat and koala occurrence throughout NSW.

More information, including a report card on progress against actions and next steps, is available in the *NSW Koala Strategy 2018–19 Annual Report* (DPIE 2019b).

⁹ www.environment.nsw.gov.au/threatenedspeciesapp

¹⁰ <https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/programs-legislation-and-framework/nsw-koala-strategy/building-knowledge-on-koala-habitat>

Koala habitat transferred to the national park estate

Over 4,000 hectares of koala habitat was added to the national park estate in 2018–19:

- 589 hectares of the Oakes State Forest were added to Gumbaynggirr National Park, 35 kilometres west of Nambucca Heads
- 1,382 hectares of the Mount Boss State Forest, near Wauchope, were transferred as the newly created Kindee Creek State Conservation Area
- 2,080 hectares of Carrai State Forest, north west of Kempsey, were added to Willi Willi National Park.

More information about new areas for conservation in New South Wales is available on the DPIE website.¹¹

Source: *NSW Koala Strategy 2018–19 Annual Report* (DPIE 2019b)

Natural Resources Commission

In this reporting period, the Natural Resources Commission (NRC) began an independent monitoring, evaluation, reporting and improvement program for NSW forests. The program will improve the evidence-base for decision-making for forest management across tenures and will strengthen the NSW Government’s ability to strategically and adaptively manage forests over time, including state forests, national parks, private native forests and crown forested land. As part of this broader program, the Commission is overseeing a monitoring program for the coastal IFOA and RFAs.

The NRC also began overseeing an independent research program under the NSW Koala Strategy that aims to improve understanding of koalas’ responses to native forest harvesting in North Coast state forests.

Three research projects will investigate:

- nutritional value of koala habitat – led by the Australian National University
- koalas’ diet composition and quality – led by Western Sydney University
- koala population density using acoustic sensors – led by DPI’s Forest Science Unit.

Progress updates are available on the [NRC website](#)¹². The Commission will report annually on research findings, with a final report submitted to the Premier and the Minister for Energy and Environment.

DPI research and monitoring

The DPI Forest Science team conducts ongoing 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, GIS mapping and cost-benefit analysis. In 2018–19, DPI continued threatened species research and monitoring for a range of species that included several bat species and Hastings River Mouse. Koala monitoring activities are reported in the breakout box (next page). Since the reporting period, bushfires have impacted large areas of koala habitat. Their effects will be reported in the 2019–20 *Forestry Snapshot*.

¹¹ www.environment.nsw.gov.au/topics/parks-reserves-and-protected-areas/establishing-new-parks-and-protected-areas/new-parks-and-changes-to-parks/new-areas-for-conservation-in-nsw

¹² www.nrc.nsw.gov.au/koala-research

Koala research in NSW forests

Acoustic monitoring

In 2018–19 the DPI Forest Science Unit initiated a major new project that builds on recently completed acoustic monitoring of koalas. The 2015–17 research modelled and mapped koala habitat across northern NSW by recording male koala bellows (Law et al. 2018). In spring 2018, a subset of around 60 sites from this project were re-surveyed, providing a fourth successive year of data.

The surveys found a high rate of koala occupancy with about 80% of sites occupied. This a little higher than in previous years and may be related to more sites being monitored at lower elevations than in previous years (koalas are more common at lower elevations).

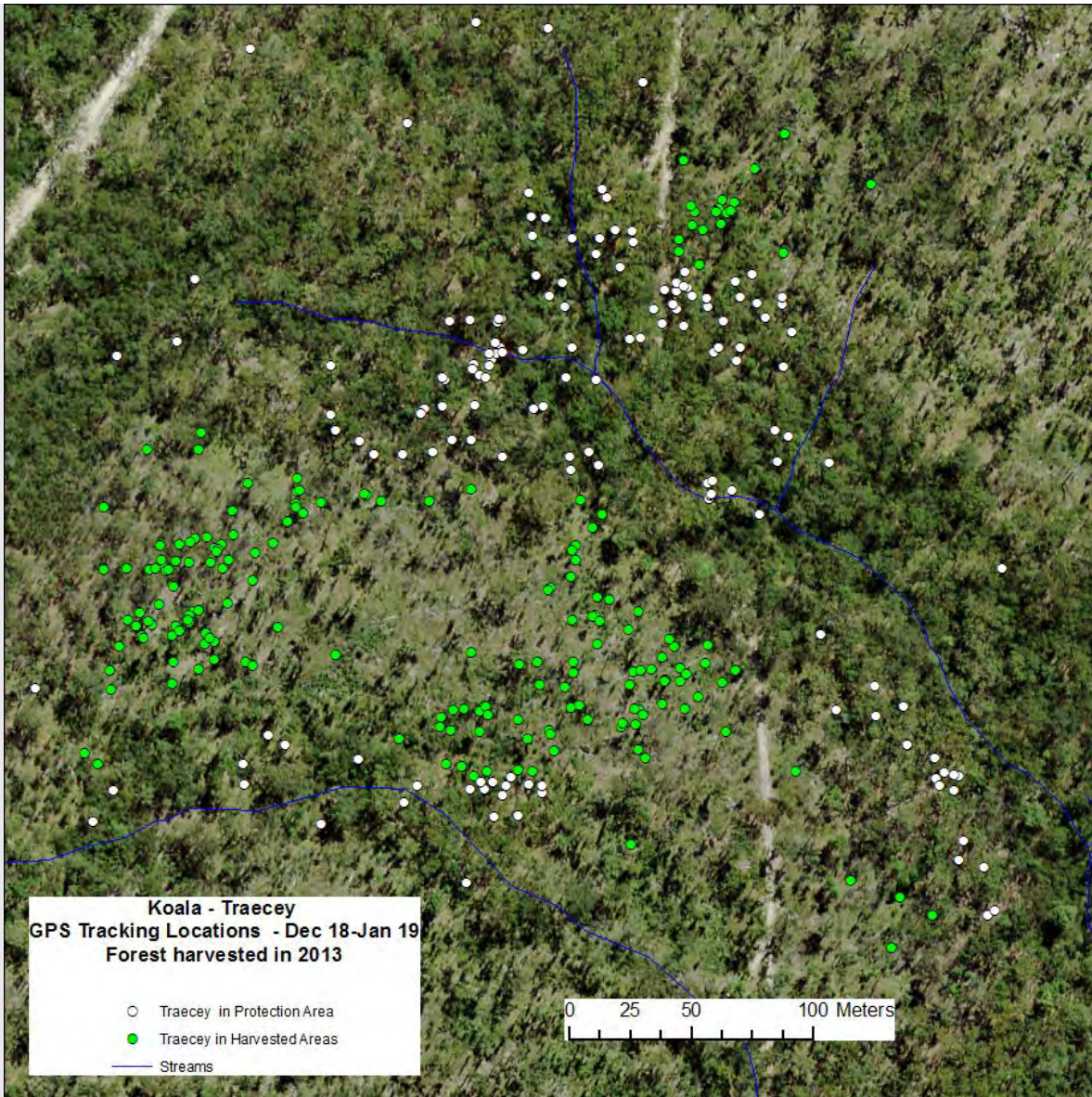
Collectively, these data suggest that at the time of monitoring koalas were widespread across a range of forest types and timber harvest histories in the north-east forests on the Mid North Coast. DPI aims to survey 150 sites in different types of forest across northern NSW, especially those that have been harvested for timber. This will provide the first broad-scale dataset to document the effects of forestry on koalas. Findings will be used to assess the effectiveness of habitat protection measures in place and inform future operations.

GPS tracking

DPI Forest Science Unit also initiated a new koala tracking project using GPS collars in the north-east forests, with several koalas collared and being tracked in state forests near Port Macquarie. Koalas were released with GPS tracking collars after being treated at the Koala Hospital – often for chlamydia. This disease, which causes blindness and infertility, threatens koalas throughout their range.

GPS tracking provides detailed data on koala movements and habitat use; for example, to what extent koalas browse young regenerating eucalypts after harvesting compared to mature forest. The data will help assess the effectiveness of koala protections in state forests and inform strategies to mitigate potential impacts of harvesting.

The research findings will be considered by the Natural Resources Commission (NRC), which is independently commissioning and overseeing other research projects investigating how koalas respond to harvesting on state forests as part of The NSW Koala Strategy (see page 15).



An example of koala tracking in State forest on the North Coast, some of which had been harvested in 2013. In this example, the green dots show GGPS locations for a female koala (Traeacey) using a previously harvested area and white dots show her using forest that was excluded from harvesting in that operation. Image: Forestry Corporation

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 although *WildCount* does not monitor animals on state forests. Of 200 *WildCount* sites across 146 reserves, 177 are in 131 reserves within the boundaries of the IFOA areas:

- 147 sites across 103 reserves in the Coastal area
- 16 sites across 15 reserves in the Brigalow and Nandewar area
- 14 sites across 14 reserves in the South Western Cypress area.

WildCount is the broadest fauna monitoring study of its kind in Australia and one of the biggest in the world. It detects changes in species occupancy and can act as an early warning system for native species declines, pest animal increases or new pest incursions.

In the 2019 field season, the program's eighth year, 100 different species and groups were identified in IFOA areas. This included five new¹³ records of two threatened species: the long-nosed potoroo and the northern brown bandicoot.

In the context of the impacts of the 2020 fire season (after this reporting period), the record of spotted-tailed quoll in Capoompeta National Park in the Upper North East Forest Agreement area (now covered by the Coastal IFOA), was of interest. A wildfire moved through the park in March 2019, part-way through the survey period. Although two cameras were burned, photos were recoverable. These showed quolls present pre-fire. New cameras were deployed which captured photos of quolls after the fire, providing evidence of the resilience of such species following fire events.

Records of *WildCount* sightings are contributed to the [NSW Bionet](#)¹⁴ database. A report on analysis of *WildCount* data from 2012–16 is in preparation. More information on the program is available on the *WildCount* [webpage](#)¹⁵.

Biodiversity Indicator Program

The Biodiversity Indicator Program (BIP) was established to assess the status of biodiversity and ecological integrity in NSW, as required by the *Biodiversity Conservation Act 2016*. This work is a partnership between DPIE, CSIRO, the Australian Museum and Macquarie University. The program has been designed to collect, monitor and assess information on the status and trends of biodiversity in NSW. The method used to develop the indicators has been peer-reviewed and is available in a technical report (OEH 2019). A suite of indicators has been established to report on the status and trends in biodiversity and ecological integrity.

Biodiversity is defined as the variety of living animal and plant life from all sources and includes diversity within and between species as well as diversity of ecosystems.

Ecological integrity is defined as maintaining the diversity and quality of ecosystems and enhancing their capacity to adapt to change and provide for the needs of future generations.

BIP indicators sit under five themes:

expected survival of biodiversity. How many species are expected to survive in 100 years?

state of biodiversity. How much biodiversity presently exists and is likely to persist compared with that which originally existed?

ecosystem quality. What is the present condition of habitats under threat of pressures?

ecosystem management. How effectively is our management maintaining current habitat conditions?

ecosystem integrity. What is the future diversity of ecosystems given their present diversity and condition and our ability to maintain or enhance that condition?

Many of the BIP indicators align with Montreal Process indicators, especially the ecosystem diversity, species diversity and genetic indicators under Criterion 1, Conservation of Biological Diversity. There is also alignment with Criterion 2 (Maintenance of Productive Capacity of Forest Ecosystems) and Criterion 3 (Maintenance of Forest Ecosystem Health and Vitality).

The first assessment of the status of NSW biodiversity and ecological integrity under the Biodiversity Indicator Program will soon be available in the *NSW Biodiversity Outlook Report*, supported by technical Implementation Reports and data packages released via the SEED data portal (www.seed.nsw.gov.au). Assessments will continue at recommended intervals and the program will contribute to the five-year review of the Biodiversity Conservation Act.

¹³ A record is defined as new if there are no previous records within a 5-km buffer.

¹⁴ www.bionet.nsw.gov.au

¹⁵ www.environment.nsw.gov.au/topics/animals-and-plants/surveys-monitoring-and-records/native-animal-monitoring

Forestry Corporation monitoring programs

Forestry Corporation undertakes monitoring programs to gather data on targeted species in state forests: they include routine pre-harvest surveys and a range of long-term monitoring programs. In 2018–19, a total of 1,631 surveys were undertaken, with 2,878 sightings of threatened fauna species. Most sightings were of arboreal mammals such as gliders and bats, or non-raptor birds such as honeyeaters and parrots. Refer to Forestry Corporation’s *Sustainability Report 2018–19* (FCNSW 2019b) for more information.

Maintaining the productive capacity of forests

Land available for timber production

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

Land available in state forests

Forestry Corporation manages state-owned native forests and timber plantations across NSW. Around half of the forest area managed by Forestry Corporation is available for timber production, with the remainder set aside in formal or informal reserves or otherwise excluded from harvest operations.

Forestry Corporation’s Forest Management Plan (FMP) for coastal hardwood forests outlines the legal and regulatory framework and demonstrates the organisation’s commitment to ESFM and to maintaining its Responsible Wood Scheme and ISO 14001 certifications.

The Western IFOA continues to operate under the Ecological Sustainable Forest Management Plan for the Western Region. An updated Forest Management Plan for the Western Forests of NSW was published in 2018–19.

The plans are a summary of the Forest Management System implemented by Forestry Corporation to meet its objectives and explain how the organisation uses a land classification system called Forest Management Zoning (FMZ). More details about the FMZ system and how it relates to the CAR reserves system is available 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 the zone type and the number of hectares classified under each across all IFOAs. The area of some zones was slightly reduced in this period due to transfer of land to flora reserves – see Coastal Milestone 3.3, page 59. Table 2 shows the area of State forest in each IFOA region, while Table 3 details timber reserves on Crown land where Forestry Corporation has the right to harvest timber.

Table 1 Forestry Corporation of NSW Defined Forest Areas* under the Australian Forestry Standard by zone classifications, across all IFOAs

Zone and description	Area (hectares)
Formal Reserve	32,996
Informal Reserves	280,270
Protected by Prescription	193,098
Zone 4 – General Management Zone	1,219,728
Zone 5 – Hardwood Plantations Zone	51,238
Zone 6 – Softwood Plantations Zone	195,071
Zone 7 – Non-Forestry Use Zone	6,270
Zone 8 I – Areas for further assessment	459
Zone 8 II – To be assessed	12,962
Zone 90 – Unzoned	117
Total	1,992,209

* Detailed information for Defined Forest Areas is available in interactive charts on the Forestry Corporation website. Forest management zones are explained in the Forestry Corporation’s Sustainability Report (FCNSW 2019b).

Table 2 Forestry Corporation of NSW Defined Forest Areas 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
Coastal	1,288,107	241,137	1,529,244
Nandewar	12,927	1,601	14,528
Riverina Red Gum	36,775	-	36,775
South Western Cypress	148,903	-	148,903
Total	1,749,471	242,738	1,992,209

Source: Forestry Corporation

Table 3 Timber reserves within the IFOA areas (hectares)

Timber reserves by IFOA	Hardwood Forests Division
Brigalow Belt South	1,569
Coastal	1,253
Nandewar	1,100
Riverina Red Gum	5,306
South Western Cypress	100,717

Source: Forestry Corporation

Private native forestry

Private native forestry (PNF) is the management of native forest on private land for sustainable timber harvesting. There are an estimated 7.4 million hectares of native forests on private land across NSW (ABARES 2019).

Landholders wishing to carry out forestry operations on private land are required to hold a PNF Plan. This is a legally binding agreement between a landholder and the relevant regulatory authority (now Local Land Services) that is valid for up to 15 years. PNF Plans give landowners the security they need to make long-term forest management decisions.

Private native forestry approvals

Forestry operations within approved areas may occur on a cyclical basis at any time during the term of the approval. Only a small percentage of the total approved area will have active forestry operations occurring in the reporting period. Landscape features of cultural and environmental significance, such as vulnerable and endangered ecological communities, rainforest, old growth forest, wetlands, heathlands and cultural heritage items and sites, must be protected under the relevant PNF Code of Practice for that region. The PNF codes also contain provisions for retaining habitat trees and recruitment trees capable of forming hollows for habitat in future.

Local Land Services (LLS) approves PNF Plans and the EPA regulates compliance and enforcement of PNF Plans and the PNF Codes of Practice. In 2018–19, a total of 33,520 hectares were approved under 248 new PNF Plans.

Table 4 Area (hectares) of private native forestry plans approved July 2014–June 2019

Forest region	2014–15	2015–16	2016–17	2017–18	2018–19
Northern NSW	24,671	41,464	33,177	24,584	24,458
Southern NSW	577	756	701	259	372
Riverina Red Gum	871	7,286	2,416	2,549	4,134
Cypress and Western Hardwood	1,837	2,155	1,892	4,261	4,555
Totals	27,956	51,661	38,186	31,653	33,520

Sources: LLS, EPA Forestry database.

Table 5 Total number of private native forestry plans approved July 2014–June 2019

Forest region	2014–15	2015–16	2016–17	2017–18	2018–19
Northern NSW	202	306	314	229	216
Southern NSW	7	13	11	2	12
Riverina Red Gum	11	18	10	11	9
Cypress and Western Hardwood	2	2	3	11	11
Totals	222	339	338	253	248

Source: LLS, EPA Forestry database.

Mapping private native forestry

Both biophysical factors (such as forest type and site conditions) and market factors (such as distance to nearest sawmill) can be used to measure and quantify timber values. The DPI Forest Science Unit collated and analysed some of these values to spatially map the suitability of native forests on private properties for timber production in northern NSW. In total, 395,782 net hectares of private native forest on 4,353 properties were modelled and

mapped. This resulted in an interactive spatial surface that categorised the suitability of these blocks of forest for timber production in northern NSW. The methodology and findings are reported on the DPI website¹⁶.

Land available in plantations

Plantations approved under the *Plantations and Reafforestation Act 1999* in coastal IFOA areas since 2011 are listed in Table 6. For data from 2001 to 2011, refer to the *NSW Forest Report 2014–15* (EPA 2017c). Figures for timber volumes and other products supplied from these plantations are reported by the [Australian Department of Agriculture](#)¹⁷.

In addition to the coastal areas, 1,823 hectares of existing plantations were authorised in the Murrumbidgee and Murray catchments and 986 hectares of existing 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
2014–15	69	13	21
2015–16	423	0	604
2018–19	7,212	0	3,912

* Derived from data provided by DPI and reported across previous forestry reports. The figures above may include section 13, 14 or 17 plantation approvals. In 2014–15 a significant area of plantation authorisations was cancelled in the North East RFA regions. In this period the number of cancellations exceeded the number of authorisations. More information is available in the report on progress with NSW Regional Forest Agreements (State of NSW and EPA 2017).

Sustainable timber harvesting

Sustainable yield is a measure of how much wood can be harvested from a forest over a long period of time, while maintaining wood supply levels and meeting sustainable use objectives for the forest. Monitoring helps ensure that wood and wood products are removed from forests at levels which meet society's need for forest products each year, but do not negatively impact biodiversity or the forest's ability to function and regenerate. SOFR 2018 defines a sustainable timber yield as: 'the volume of wood (specifically, higher-grade sawlogs) that can be removed each year from an area of forest while ensuring maintenance of the functioning of the native forest system as a whole and the supply of wood products in perpetuity' (ABARES 2018).

The Coastal and Western IFOAs specify the types, volumes and quantities of native forest timber products that Forestry Corporation is permitted to harvest. Actual versus specified volumes (or tonnage) harvested are reported here. The IFOAs permit annual variations to the specified volumes to accommodate changes in environmental and

¹⁶ https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0008/1143647/A-rating-model-applied-to-private-native-forest-on-the-NSW-north-coast.pdf

¹⁷ <https://www.agriculture.gov.au/abares/research-topics/forests/forest-economics/plantation-and-log-supply#australian-plantation-statistics-2016>

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 2018–19, harvested amounts for all regions were within the yearly permitted amount or remained under the 20-year limit specified by the relevant IFOA.

Compliance with sustainable forestry certifications

Forestry Corporation produces timber that is certified sustainable under the internationally recognised Responsible Wood® Scheme using the Australian Standard® for Sustainable Forest Management (*AS 4708:2013*). Forestry Corporation is also certified to the Environmental Management Standard *ISO 14001:20015*. 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 *AS 4708:2013*.

Forestry Corporation underwent independent, external surveillance audits in October 2018 for Hardwood Forests Division and in September 2018 for its Softwood Plantations Division as part of maintaining its Responsible Wood® and *ISO 14001:20015* certifications. The organisation was deemed to meet the requirements for both standards. A small number of minor non-conformances with the standards were identified and action plans accepted by the auditors. These issues will be checked by the auditors as part of subsequent audits to ensure they have been resolved. Summary audit reports are available from the [Forestry Corporation website](#).¹⁸

Timber harvested in Coastal IFOA areas

The document: *Sustainable Yield in NSW Regional Forest Agreement regions* (DPI 2018) meets a commitment in the RFAs to publicly release estimates of sustainable yield for public forests in RFA regions where timber harvesting is permitted. The NSW Government is committed to updating this document every five years in line with the RFA renewal process or if circumstances change and impact the sustainable yield estimates.

Under the 2018 variations to the Regional Forest Agreements (RFAs), New South Wales recommitted to supplying wood from public native forests and hardwood plantations in RFA regions at or below the sustainable yield. This approach is consistent with the NSW Government's ongoing commitment to ecologically sustainable forest management (ESFM) and with wood supply volumes and arrangements in NSW.

The Coastal IFOA commits to reviewing and updating timber allocations to align with sustainable yield in accordance with the RFAs. As of 30 June 2019, the review and update were yet to be undertaken. The following text continues to report harvested volumes and quantities against the allocations specified in the IFOA.

Figure 2 depicts volumes of logs harvested as a percentage of the volumes specified in the IFOAs. For consistency with earlier reports, the figure 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, including poles, piles and girders, are shown in Table 7 and described for each region on the next two pages. The coastal IFOAs do not cover operations conducted in plantations.

Volumes of logs increased from the previous year in the Lower North East (LNE) and Southern regions, and decreased in the Upper North East (UNE) and Eden regions. Volumes 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.

¹⁸ <https://www.forestrycorporation.com.au/sustainability/certification>

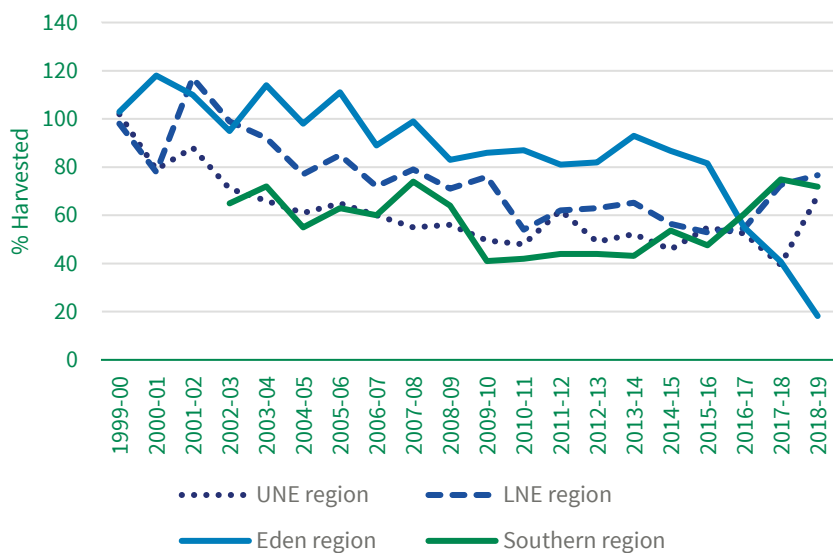


Figure 2 Log volumes harvested as a percentage of volumes specified in IFOAs – all coastal regions

Source: Forestry Corporation data

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.

In the UNE region, 74,271 cubic metres of high-quality large sawlogs and large veneer logs were harvested from native and hardwood plantation forests during 2018–19. This represents 68.1% of the permitted annual volume (109,000 m³) and is an increase from the amount harvested in the previous year (42,933 m³). The Forestry Corporation also supplied 6,208 m³ of poles, piles and girders.

In the LNE region, 122,792 cubic metres of high-quality large sawlogs and large veneer logs were harvested from native and hardwood plantation forests, representing 76.7% of the permitted annual volume (160,000 m³). This is an increase from the amount harvested in the previous year (116,239 m³). Forestry Corporation also supplied 13,684 m³ of poles, piles and girders.

In the Eden region, 4,179 cubic metres of high-quality large sawlogs were harvested from native forests, representing 18.2% of the permitted annual volume (23,000 m³). This is a decrease from the amount harvested in the previous year (9,374 m³) and continues a planned transition into regrowth forest harvesting. No piles, poles or girders were supplied from the Eden region.

In 2018–19, a total of 194,614 tonnes of pulp grade timber was harvested in this region, representing 56.4% of the permitted annual volume (345,000 tonnes). This was a decrease from the previous year (232,997 tonnes or 67.5% of permitted annual volume). The volume of pulp grade timber harvested from the Eden region since 1999–2000 remains below the specified annual volume, as shown in Figure 3.

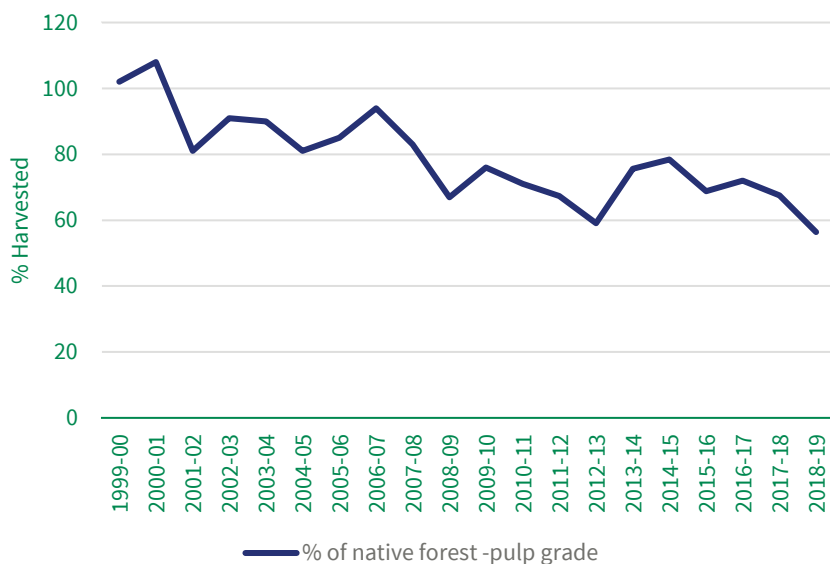


Figure 3 Pulp grade timber harvested as a percentage of the permitted volume specified in the Eden IFOA

Source: Forestry Corporation data

Pulp quotas are not specified in other IFOAs

In the Southern region, 69,386 cubic metres of high-quality large sawlogs and veneer logs were harvested. This represents 71.9% of the annual permitted volume, (96,500 m³, comprising 48,500 m³ from the South Coast sub-region and 48,000 m³ from the Tumut sub-region). This was a decrease from the previous year. The quantities by sub-region are:

- South Coast sub-region: 41,562 cubic metres (86% of permitted volume), a decrease from the previous year (43,473 m³)
- Tumut sub-region: 27,824 cubic metres (58% of permitted volume), a decrease from the previous year (28,806 m³).

No piles, poles or girders were harvested from the Tumut sub-region and 540 cubic metres of these products were harvested from the South Coast sub-region.

Volumes and quantities not specified in the Forest Agreements and IFOAs

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

In 2018–19, a total of 386,066 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 more than in 2017–18, when 358,982 m³ were harvested. This year, 138,691 tonnes of non-specified pulp grade timber were produced (see Table 7 for further detail). This is a slight decrease from the previous year, when 155,393 tonnes were produced.

Table 7 Quantities (m³) of native forest and hardwood plantation timber products – coastal regions (2018–19)

Log type	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*	0	0	0	0	5,043	1,609	3,397	21
High-quality large sawlogs*	1,449	27,824	4,179	0	94,735	9,755	58,051	1,623
Small veneer	0	0	0	0	3,739	1,513	413	1,218
High-quality small sawlogs	7,234	126	1,512	0	21,996	6,446	30,263	1,554
Low-quality sawlogs	16,802	17,587	85	0	97,638	24,211	59,630	7,104
Large poles /piles and girders	113	0	0	0	9,282	2,369	10,606	574
Small poles/ piles and girders	540	0	0	0	10,422	3,262	6,208	1,224
Biomass	0	0	0	0	5,359	4,492	0	2,539
Firewood/Misc.	30,218	1,802	7,049	0	18,083	517	5,297	54
Pulp grade and chipwood**	59,575	1,323	194,614	0	23,392	14,089	0	40,312
Total	115,931	48,662	207,439	0	289,689	68,263	173,865	56,223

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.

* 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'.

Timber volumes harvested in western IFOA regions

Riverina Red Gum region

The Riverina Red Gum IFOA identifies 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 4 reports on the volume of sawlogs and residue from these operations in the Riverina Red Gum region between 2011–12 and 2018–19.

During 2018–19, a total of 4,499 cubic metres of high-quality large sawlogs was harvested from state forests and Western Lands Lease areas. This was slightly above the annualised volume (4,413 m³). In the eight and a half years since 2011, 38,338 m³ of high-quality sawlogs have been harvested, accounting for 42.5% of the allowed 20-year volume of 90,253m³.

As shown in Figure 4, a total of 4,554 cubic metres of low-quality sawlogs and 22,852 tonnes of residue grade log were generated in the course of producing the high-quality sawlogs. A further 17,729 tonnes of residue were harvested from western lands lease areas.

A total of 39,473 tonnes of residue grade logs was harvested from early thinning operations in Riverina state forests. A total of 198,902 tonnes of logs has been harvested since extraction of this product was allowed in 2013, within the cap for this period (212,220 tonnes). The IFOA was amended in June 2019 to allow the continued harvesting of residue, with a cap of 176,850 tonnes between 1 July 2019 and 30 June 2024.

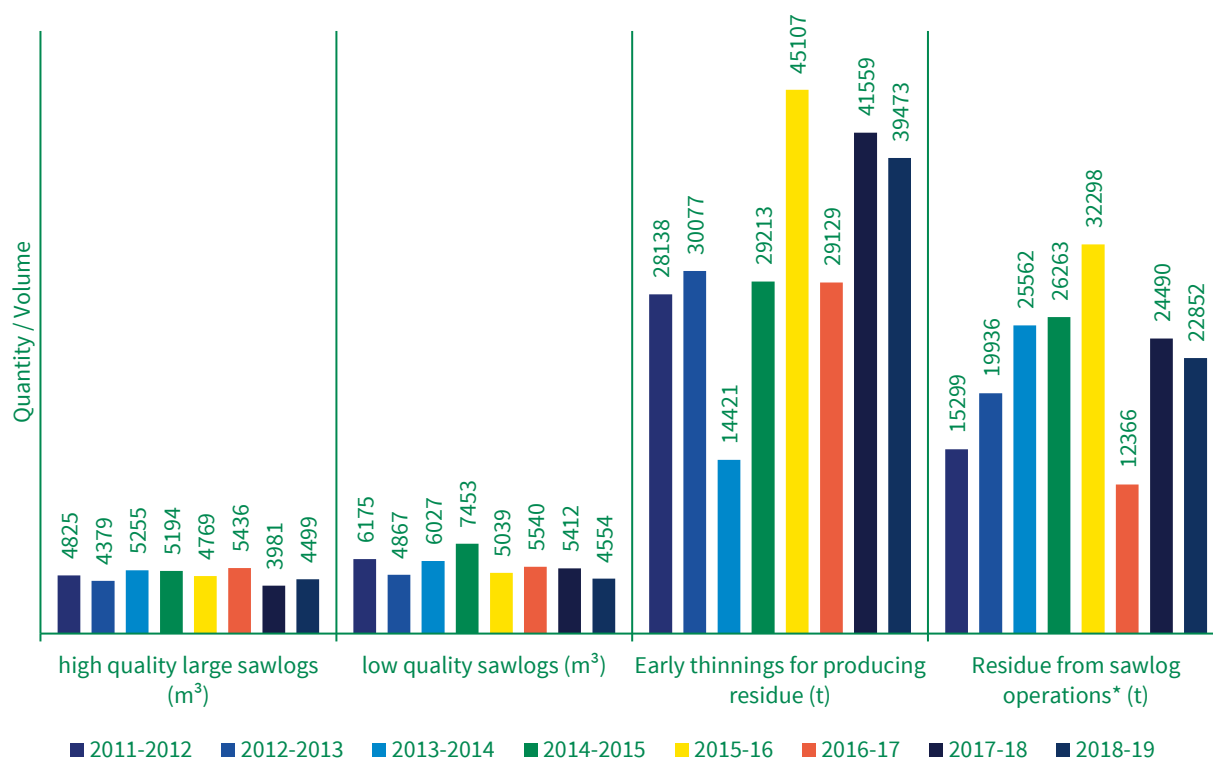


Figure 4 Volume (m³) of high-quality large sawlogs and low-quality sawlogs and quantity (t) of early thinnings obtained from the Riverina Red Gum region since the IFOA commenced

Table 8 Timber and forest products harvested from the Riverina Red Gum region in 2018–19

Product	Volume (m ³) or quantity (t)	Estimated net harvest area (ha)
High-quality sawlog	4,499 m ³)
Low-quality sawlog	4,554 m ³) 359 – all three products from the same area
Residue	22,852 t)
Early thinning residue	39,473 t	920
Residue (Western Lands Leases)	17,729 t	715
Firewood permits issued	1,763 t (1,448 permits)	n/a*

Source: Forestry Corporation

* n/a – not available

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 5 shows the volumes of cypress and ironbark sawlogs and fencing, and quantity of firewood obtained from this region in 2018–19 compared with previous years. Figure 6 shows trends in volume harvested, compared to the quota.

In 2018–19, a total of 1,970 cubic metres of cypress logs was harvested in the region, representing 5% of the annual average permitted volume (41,000 m³). The decline in volumes compared to previous years was mainly due to the closure of the Baradine sawmill in March 2018. A total of 908 m³ of ironbark sawlog and fencing timber was harvested, representing 43% of the specified annual limit (2,050 m³) and 4,854 tonnes of firewood were harvested, representing 50% of the average yearly allocation (9,800 tonnes).

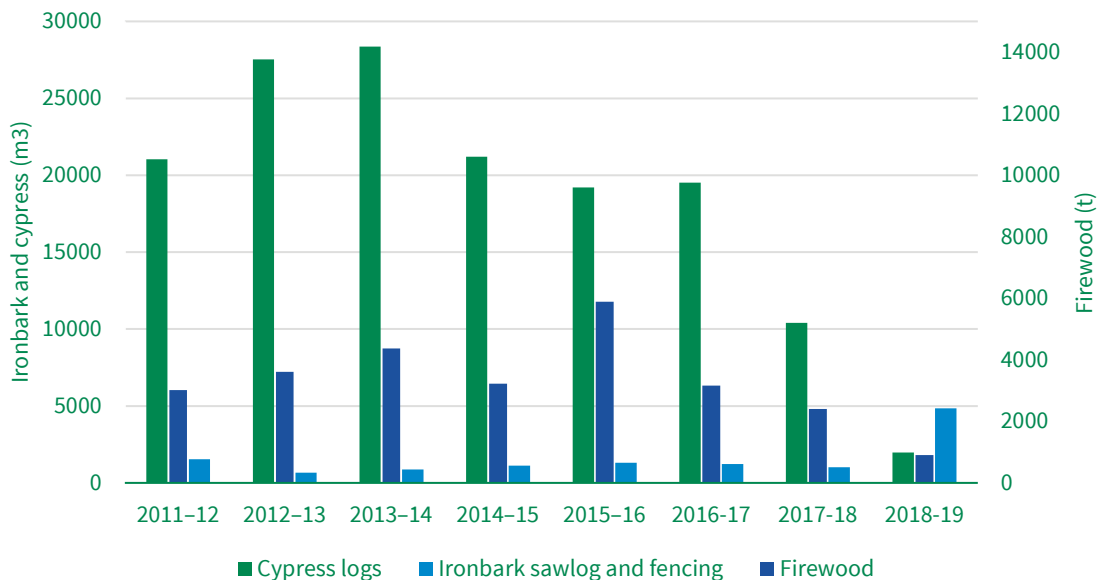


Figure 5 Volumes (m³) of cypress sawlogs and ironbark sawlogs and fencing and quantity (t) of firewood obtained from the Brigalow and Nandewar region since the IFOA commenced

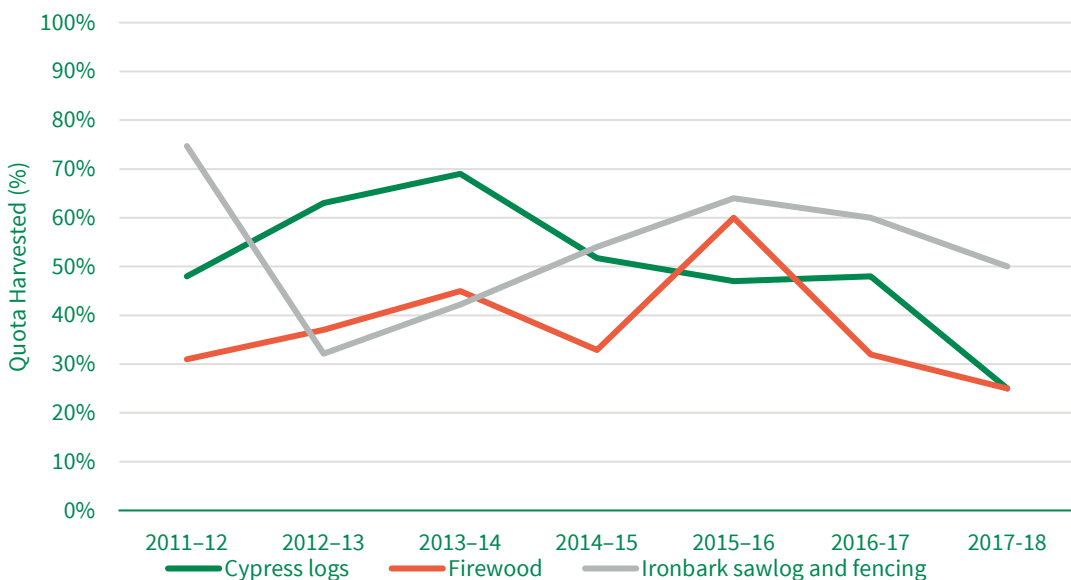


Figure 6 Trends in the percentage of allowable volume over time in the Brigalow–Nandewar region

Table 9 Timber and forest products harvested from the Brigalow–Nandewar region in 2018–19

Product	Volume (m ³) or quantity (t)	Estimated net harvest area (ha)
Cypress log	1,970 m ³	331
Ironbark log	801 m ³	4,803
Timber products (including ironbark and cypress fencing)	nil	-
Firewood (not including permits under the <i>Forestry Act 1916</i>)	4,854 t	Undertaken in conjunction with cypress sawlog and integrated residue operations
Firewood permits issued (see IFOA cl. 82)	432 t (490 permits)	n/a*
Didgeridoo	nil	-
Broombush	194 t	n/a*

Source: Forestry Corporation

* n/a – not available

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 7 shows the volumes and quantities of timber, residue and other products obtained from the South Western Cypress region in 2018–19 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 2018–19, a total of 20,524 cubic metres of cypress logs were harvested from **south** of the Mitchell Highway, representing 92% of the maximum permitted annual volume (22,390 m³). **North** of the Mitchell Highway, 491 m³ of cypress logs were harvested.

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 8,890 tonnes of residue timber from early thinning was harvested. No timber products other than logs and residue were produced. The IFOA provides for harvesting of speciality products, although strict conditions in relation to the relevant species mean these products are not routinely harvested.

Tables 8–10 summarise timber products obtained from state forests and Western Lands Leases covered by the three western IFOAs in 2018–19.

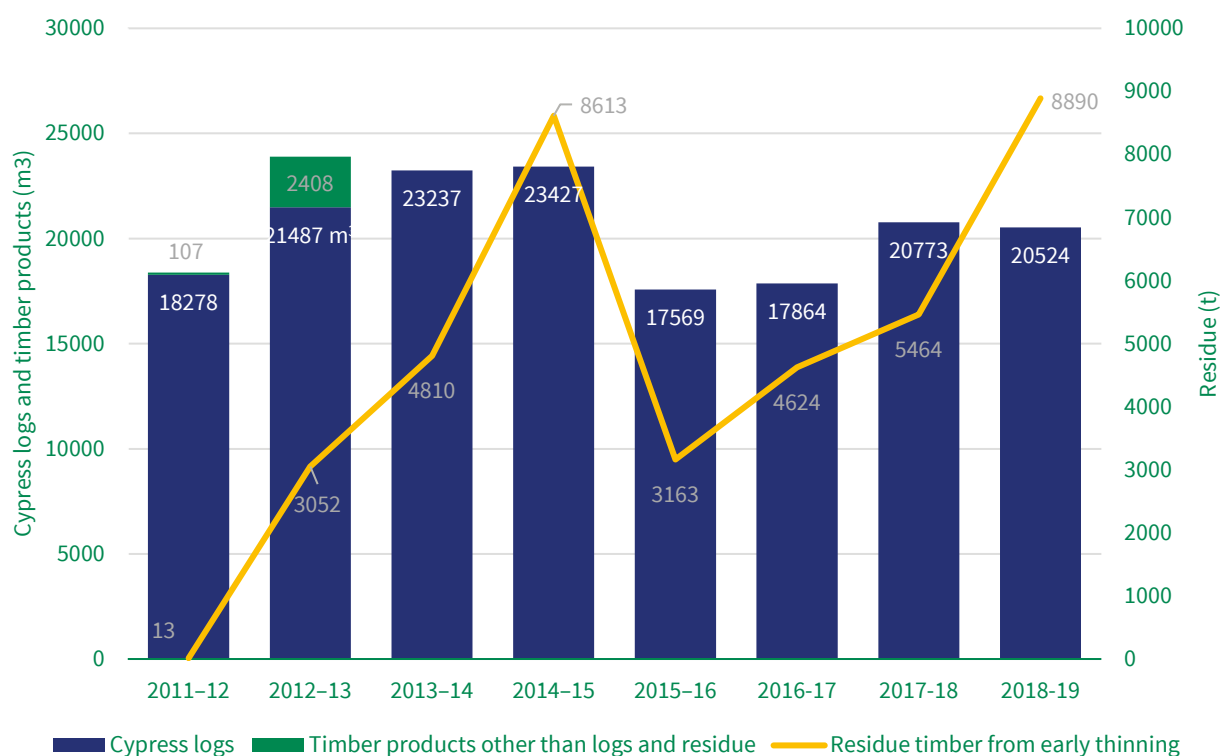


Figure 7 Volume (m³) of cypress sawlogs, timber products other than logs and residue and quantity (t) of residue timber from early thinning obtained from the South Western Cypress region

Note that zero (0) quantities of timber products other than logs and residue have been harvested since 2013–14.

Table 10 Timber and forest products harvested from the South Western Cypress region in 2018–19

Product	Volume (m ³) or quantity (t)	Estimated net harvest area (ha)
Cypress log – south of Mitchell Highway	20,524 m ³	1,718
Cypress log – north of Mitchell Highway	491 m ³	139
Cypress log – Western Lands Leases	nil	-
Residue	8,890 t	8,013
Timber products	nil	-
Firewood permits issued (see IFOA cl. 82)	266 t (282 permits)	n/a*

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.

Forestry Corporation reports annually on trends in the provision of selected non-wood forest products and services in state forests in its Sustainability Report (FCNSW 2019b).

Forest regeneration

Re-establishment of forests after harvesting is essential for maintaining productive capacity and a requirement under the Responsible Wood® Standard under which Forestry Corporation operates.

Native forest

Native forests in NSW are harvested using silvicultural techniques that aim to promote natural regeneration. Forestry Corporation ensures that natural or assisted regeneration of native forests is effective and timely. Techniques vary across regions and conditions. In 2018–19, a total of 11,116 hectares of forest on the North Coast were harvested using various silvicultural prescriptions. For the South Coast this figure was 5,018 hectares.

An assessment of survey plots during the period found 76% were effectively stocked with commercial species of regenerated seedlings and trees retained after harvesting (Table 11). A regeneration threshold of 65% of assessed plots in any given harvest area is considered adequate stocking of commercial species. Areas that do not meet the 65% threshold are listed for further assessment and potential remedial actions. Forestry Corporation uses a sampling methodology to assess regeneration success and is planning to move towards remote assessments using drones to allow census recording of regeneration success.

More information is available in Forestry Corporation’s Sustainability Report (FCNSW 2019b).

Table 11 Percentage of survey plots effectively stocked with commercial species in coastal IFOA areas

Year*	Percentage of plots stocked
2012–13	69
2013–14	78
2014–15	81
2015–16	91
2016–17	77
2017–18	69
2018–19	76

Source: Forestry Corporation

* Year corresponds to the period assessed, which is between two to five years after the harvesting event.

Plantations

Forestry Corporation ensures the effective and timely replanting of timber plantations following harvesting operations and reports planting seasons by calendar year. No new (first rotation) plantations were established on historically cleared land during the 2018 planting season. In 2018, a total of 7,391 hectares of softwood plantation forests were re-established, along with 322 hectares of hardwood plantations.

Effective re-establishment in plantations has occurred if more than 80% of seedlings survive after one year. In 2018, 12.9% of hardwood plantations and 10.5% of softwood plantations required restocking.

Maintaining ecosystem health and vitality

Measuring the scale and impact of pest animals, weeds, disease and insect infestations in forests helps inform the development of adequate management responses. *NSW State of the Environment 2018* (EPA 2018b) provides the most recent overview of pest threats, monitoring and control strategies in NSW.

Monitoring and control of pests and disease

Forestry Corporation surveys

Forestry Corporation funds the DPI Forest Health team to undertake annual surveys to determine the impacts of disease and pests on the health of the timber plantations it manages. In 2018–19, surveys were conducted on most of the softwood plantations and around 40% of the hardwood plantation estate. Overall, the surveys found low levels of pests and diseases that affect plantation health, with minimal changes from the previous reporting period. The main issues of concern included:

- softwood plantation estate – continued localised impacts from the sirex wood wasp, which is being managed via biocontrol and silviculture, and moderate levels of drought damage across several regions
- hardwood plantation estate – an increase in damage from stem borer, mainly in spotted gum species. This is associated with drought stress.

In 2018–19, Forestry Corporation spent around \$2.4 million on pest animal and weed control in areas under its management. Further details are available in Forestry Corporation's *Sustainability Report 2018–19* (FCNSW 2019b).

DPI Biosecurity

DPI Biosecurity provides forest health and biosecurity services to plantation and native forest managers, including:

- detection and mapping of the extent and severity of pests and diseases in plantations and native forests
- technical advice on the management of pests and diseases
- research on the impact and management of pests and diseases
- biosecurity surveillance for exotic forest pests and diseases, including at NSW ports
- liaison with state, federal and international forest health and biosecurity agencies and the forestry sector.

Some key activities during the reporting period are outlined below.

Pest Animal

During 2018–19, Regional Strategic Pest Animal Management Plans (RSPAMPs) were implemented for each of the 11 Local Land Services regions. These include the regions covered by IFOAs in Figure 1 of this report. The plans are available on the [LLS website](https://www.lls.nsw.gov.au/biosecurity/pestplan)¹⁹.

The plans identify the priority established pest animals in each region and the general management approach for these species, to help guide more specific local management plans. The regional plans emphasise the shared management responsibility of public and private landholders as well as the important role of the general community in helping to prevent the establishment of new pest species. The plans cross-reference the [NSW Invasive Species Plan 2018–2021](#)²⁰ to help ensure a consistent approach to pest animal management across NSW.

¹⁹ <https://www.lls.nsw.gov.au/biosecurity/pestplan>

²⁰ <https://www.dpi.nsw.gov.au/biosecurity/weeds/strategy/strategies/nsw-invasive-species-plan-2018-2021>

Statewide maps of the distribution and relative abundance of priority pest animals published in 2017 were a key information source for RSPAMPs. These maps will be updated every five years, or more frequently for species that are still spreading rapidly, such as feral deer.

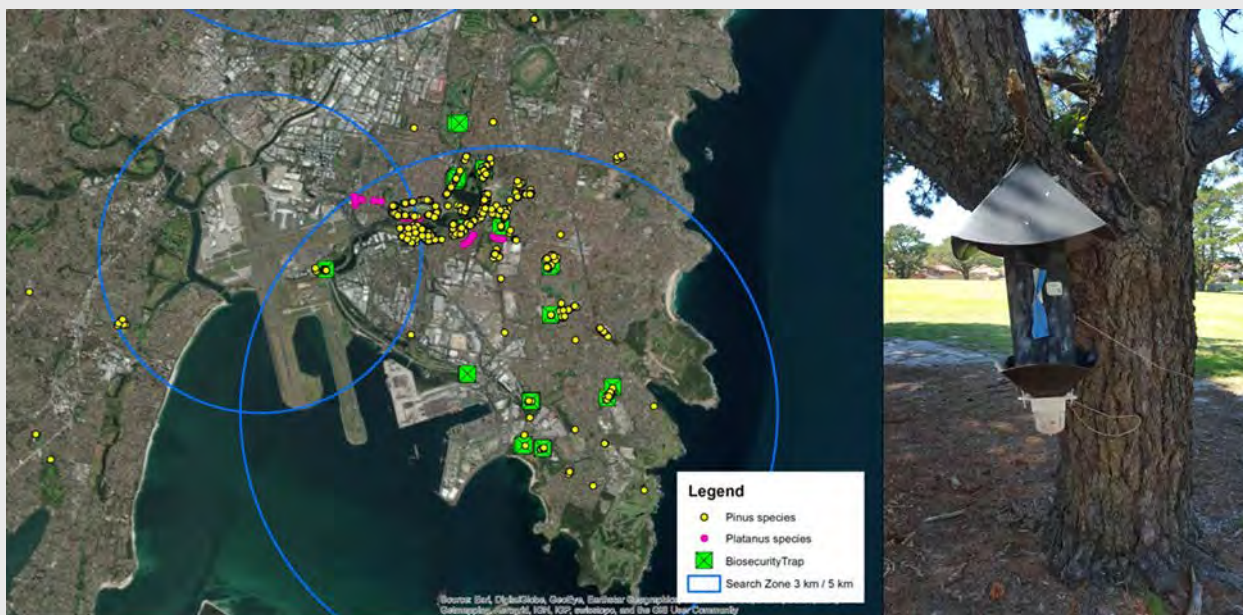
During the reporting period the NSW Vertebrate Pest Research Unit undertook research projects in collaboration with the Centre for Invasive Species Solutions and other partners. Improved solutions to manage the impacts of deer, wild dogs/foxes and rabbits are being developed. More information is available at <https://invasives.com.au>.

Biosecurity surveillance in forests

DPI Forestry conducts an annual forest biosecurity surveillance program for early detection of exotic forest pests that threaten native forests, plantations and amenity trees. Surveillance is conducted at high-risk sites around major ports, such as Port Botany and Port Kembla, which have been determined to be the most likely entry point for exotic pests. These actions help to prevent the spread of pests and disease to other parts of NSW, including forests.

Host trees of target pests are visually assessed for damage, and traps with pest-specific lures are installed to capture pest insects. Surveillance is designed to increase the chance of detecting pests soon after they arrive and before they spread too far, thus increasing the possibility of eradicating them if necessary.

DPI works closely with industry, Plant Health Australia, and the Australian Government Department of Agriculture to identify high-priority pests and high-risk sites and coordinate national surveillance for exotic forest pests. The high-priority pests targeted in surveillance include those that affect hardwood species and may impact on amenity trees and native forests. More information is available on the Plant Health Australia [website](#),²¹



**Biosecurity surveillance for exotic forest pests and diseases at Port Botany, showing location of hosts surveyed and insect traps monitored (left), and an insect trap hanging in a tree (right).
Images: DPI Forestry.**

²¹ <https://www.planthealthaustralia.com.au/strategies/national-forest-biosecurity-surveillance-strategy>

Weeds

In 2018–19, the NSW Weed Biocontrol Taskforce, led by DPI’s Weed Research Unit, undertook research to find suitable biological agents to combat ox-eye daisy, mother-of-millions and Hudson pear. The Taskforce also mass reared and released agents to assist in the management of Madeira vine and cat’s claw creeper. All these weeds occur in forest areas.

Each of the 11 Local Land Services regions had a Regional Weeds Coordinator and Regional Weeds Committee in place to facilitate the implementation of their Regional Strategic Weeds Management Plan. Regional Weeds Committees comprise members from all tenures and industries who have a duty to manage weeds, including private, commercial and government forestry, and each Regional Strategic Weed Management Plan identifies forestry assets and biosecurity risks associated with forestry-related land uses in each region.

Local control authorities within each region provide operational inspections of land, compliance, control of certain high-risk weeds and engagement with owners and occupiers of land, including forestry lands. Table 12 shows weed inspections of land used for forestry in 2018–2019. (For comparison, a total of 70,115 biosecurity activities were conducted for weeds by local control authorities across the state.)

Table 12 Weed inspections of land used for forestry in 2018–2019

Land use including forestry*	No. of inspections by local control authorities
Production from dryland agriculture and plantations	13,258
Production from irrigated agriculture and plantations	1,188
Production from relatively natural environments	6,866

* www.agriculture.gov.au/abares/aclump/land-use/alum-classification

Records indicate that 147 inspections of land held by State Forests were conducted in 2018–19.

Note that these land use classifications also contain land uses other than forestry and the data should be used as an indicator only.

Source: NSW DPI Biosecurity Information System Weeds

Saving our Species pest management actions and strategies

The *Saving our Species* (SoS) program strategically identifies the most important pest management actions needed to ensure the survival of threatened species and ecological communities. SoS also includes specific strategies to address Key Threatening Processes, the majority of which are directly related to the impacts of pests. These strategies include eradication and/or containment objectives where appropriate, as well as specific research and development required to better address these Key Threatening Processes.

Pest monitoring and control on NPWS estate

Over 800 pest and weed management activities were implemented and reported on the NPWS estate in 2018–19. More than 60% of the effort was recorded against critical programs, primarily for threatened species conservation and protection of neighbouring agricultural enterprises. During this period, over 23,000 pest animals were removed and more than 145,000 dog and fox baits laid.

Glossies in the mist



Glossy Black Cockatoos. Photo: John Spencer/DPIE

Glossy Black Cockatoos are small black cockatoos with colourful tail panels. They are found throughout forest and woodlands across the NSW coast and central tablelands. The birds are listed as vulnerable under the *NSW Biodiversity Conservation Act 2016*. Threats to glossies include loss or degradation of habitat due to clearing and land management activities.

Glossies need large tree hollows to nest in, and feed only on the seeds of a small number of trees of the *Allocasuarina* and *Casuarina* species (commonly known as she-oaks). The coastal IFOA provides protection for these birds by requiring that Glossy Black Cockatoo feed trees and hollow-bearing trees are searched for and mapped before harvesting. These searches ensure that harvesting operations avoid essential habitat.

In 2018–19, the *Saving our Species* program supported the *Glossies in the Mist* project in the Great Western Wildlife Corridor. This corridor provides important habitat connectivity for glossies between the Blue Mountains and Morton National Park.

As part of the project, over 300 citizen scientists recorded sightings of Glossy Black Cockatoos. This helped identify significant feeding and nesting habitats. The project also planted over 5,500 foraging and nesting trees throughout the corridor. More information is available on the [DPIE website](#)²².

Impact of fire

Fire is an important part of many forest ecosystems in Australia and may have positive or negative impacts on forest health and vitality. *State of the Forests Report 2018* (ABARES 2018) provides details on the extent of forest burnt by planned and unplanned fire across all jurisdictions. The NSW Rural Fire Service reports that 288,422 hectares were burnt by bush, grass and forest fires in NSW in 2018–19 (RFS 2019).

²² <https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/saving-our-species-program/threatened-species-conservation/featured-projects/glossies-in-the-mist>

Hazard reduction

The NPWS Enhanced Bushfire Management Program has significantly increased the area treated for bushfire hazard reduction since the inception of the program. In 2018–19, NPWS treated 139,338 hectares, covering 1,836 ha of mechanical works and 137,502 ha of prescribed burning. This is higher than the agency's annual target of 135,000 ha. The target is calculated on a rolling five-year average to take account of variability from season to season.

In 2018–19, continuing drought conditions meant that it was not safe to conduct hazard reduction burns in many locations across the state.

Forestry Corporation carries out fuel reduction activities in more than 350,000 hectares of state forest, which is around 17% of the state forest estate. This includes around 20,000 hectares of hazard-reduction burning and more than 350,000 hectares used for grazing. Forestry Corporation also works with Aboriginal communities to carry out low-intensity burns using traditional methods in state forests. Details of hazard-reduction activities for 2018–19 are available in Forestry Corporation's Sustainability Report (FCNSW 2019b).

Firefighting

Both Forestry Corporation and NPWS are formal firefighting authorities and work in close collaboration with the Rural Fire Service to manage fire risk and contribute to the state's combined firefighting response. This includes employing and training firefighting staff and maintaining large networks of roads and fire trails, firefighting fleet and equipment, and a network of fire towers that allow for rapid detection and response to new ignitions.

In the five years to 2018–19, NPWS contained around 85% of wildfires that started within park boundaries. In 2018–19 there were 357 wildfires on the park estate, affecting an area of 80,143 hectares. NPWS also worked with other agencies to contain fires outside the park estate.

Dry weather in recent years has made it more challenging to suppress fires such as the Yankees Gap bushfire near Bemboka on the South Coast, which affected approximately 20,000 hectares of national park land. It took six weeks and statewide resources to get this fire under control.

This year NPWS started a four-year project to upgrade its light fire fleet, with 280 vehicles upgraded to improve safety and performance. These vehicles are an essential tool for fire crews, enabling them to access fires in some of the most rugged and remote areas of the state.

Drone trials to enhance firefighting capability

During 2018–19 Forestry Corporation continued trialling thermal imaging drones on several live fire sites to identify and monitor fires. Thermal imaging presents huge advantages in these scenarios and will mean Forestry Corporation staff can be removed from hazardous environments for monitoring work.

Forestry Corporation also trialled drones to better understand how the emerging technology of aerial ignition can support a safe and effective hazard-reduction burning program. Trials during the year in Benandarah State Forest, north of Batemans Bay, showed that drones can effectively ignite hazard-reduction burns in hard-to-access areas. The drones were operated by the agency's certified drone pilots according to a prescribed burn plan. The results showed that over the two-day trial, double the usual area could be burnt using drone incendiaries for ignition.

Forestry Corporation ground crews concentrated on lighting the burns from road lines, while drone incendiaries were used to light ridgetops, remote areas and areas such as around powerlines. Trials suggest this approach will be less risky for forestry staff and provide better bushfire protection for neighbours and forest assets.



On returning from a flight to assess the edge of a spot fire, a Forestry Corporation drone takes a group photo of staff, including the Civil Aviation Safety Authority-certified drone pilot. Photo: Forestry Corporation

Conserving soil and water resources

Protecting the soil and water in forests ensures that they can continue to provide important ecosystem services such as clean water, biodiversity and the prevention of soil erosion, and can be used sustainably for multiple purposes. Soil and water in forests may be damaged or degraded by activities such as road construction and maintenance, fire, grazing, wood harvesting and recreation. Drought and increasing temperatures can also harm these resources. Ongoing strategies to mitigate these risks are described in the 2017–18 report (EPA 2019).

Drought and temperature

The climate of New South Wales is changing due to global warming. As reported in *NSW State of the Environment 2018* (EPA 2018b), average temperatures for the most recent decade (2008 to 2017) are around 1°C higher than late in the last century (1960 to 1990), with 2014 and 2017 reaching up to 1.5°C higher. Other observed changes include increased variability in rainfall and temperature and some increase in the incidence of extreme weather events. These changes are expected to become more severe over time. Best estimates suggest that by 2070 the average temperature will have risen by a further 2.1°C, with much larger increases in extreme temperatures. The future effects of climate change will be extensive, and will include more severe droughts and heatwaves; reduced water availability; damaging impacts on species, ecosystems and agriculture; and increased fire risk.

Drought conditions began in mid-2017 and have continued to deteriorate. Drought can increase the levels of pests and disease in plantations and state forests, and water availability may be affected by forestry activities through, for example, water use in plantations or non-compliance with waterway protection requirements.

NSW State of the Environment 2018 (SoE 2018 – EPA 2018b) reports that fire weather conditions have become more severe and the fire season has lengthened in some parts of NSW. These trends are projected to continue. SoE 2018 also notes recent research that indicates the risk of pyroconvection in NSW has been increasing in spring and summer and that intense bushfires are more likely to occur in future.

Legislative approaches to maintaining water quantity are reported in *State of the Forests 2018* (ABARES 2018). The IFOAs and the Regional Forest Agreements contain provisions to mitigate potential impacts on water quantity, which are described in the 2017–18 *Forestry Snapshot Report* (EPA 2019).

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 carbon storage in hardwood products, such as flooring and furniture. SOFR 2018 provides estimates for carbon storage up to 2016.

In addition, a product substitution impact is achieved by using locally grown, certified wood and timber products instead of products sourced from less-regulated markets or other popular but more carbon-intensive alternatives, such as concrete and steel.

Forestry Corporation calculates that in 2018–19 softwood forests under their management sequestered a net 3.4 megatonnes of carbon, and hardwood and cypress forests 8.1 megatonnes. More information is available in the Forestry Corporation's *Sustainability Data Report 2018–19* (FCNSW 2019b).

NPWS has been granted \$4 million from the NSW Climate Change Fund to rehabilitate previously cleared and degraded land through a tree-planting program. Over five years, more than 1.5 million trees will be planted at various locations, including areas adjacent to ex-forestry land that has been incorporated into the reserve system. Around 1,300 hectares will be planted in areas protected by national parks and reserves. The program aims to:

- absorb greenhouse gases, with a projected 100,000 tonnes of CO₂ predicted to be sequestered
- supplement habitat for local wildlife
- provide the foundation for natural ecological processes to recommence.

The grant covers all planting costs and the maintenance of planting sites for five years. Each site will be registered under the Australian Government’s Emissions Reduction Fund. Work has begun on 13 projects, with a further five planned. The NPWS tree planting program is the first carbon credit project to have been established within a national parks system in Australia. All revegetation activities are being designed to ensure a balance of land management, biodiversity and carbon-sequestration objectives.

Socio-economic benefits of forests

In addition to timber, forests provide a range of products and services that benefit local communities and the economy. These include forest products and services such as firewood, honey, cattle grazing, recreation and tourism. Forests are also managed for the economic, cultural and heritage benefits they provide to both Aboriginal and non-Aboriginal communities.

SOFR 2018 provides the most recent information about NSW contributions to the national log harvest and the value of other forest products on a national scale.

Honey is an example of the value of non-wood products, with 1,986 commercial bee sites in the NPWS estate providing a revenue source of approximately \$387,270 in 2018–19 as well as commercial opportunities for the apiary industry. A further 4,493 commercial apiary sites were provided on state forests.

Population-scale surveys undertaken by NPWS since 2008 have identified that national parks play a key role in generating tourism and recreation expenditure across NSW. Approximately 60 million trips were made to NSW national parks in 2018, with 33 million of these made by tourists who reported that visiting a national parks was the primary or one of the main reasons for their trip. Trips generated by national parks contributed \$9.5 billion in direct expenditure in 2018, with every dollar spent also generating an additional 80 cents of economic activity in the surrounding local economy. The total (direct plus indirect) economic activity generated by tourism and recreation in NSW national parks in 2018 is estimated to be \$17.1 billion.

Recreation and tourism

Recreation and tourism activities in native forests are highly valued by the NSW community and forests are managed to accommodate these activities. In 2018–19, a total of 5,569,000 hectares of forested land was available for recreation and tourism in nature conservation reserves in NSW²³ with an additional two million hectares of state forests available for recreation and tourism.

The most recent NPWS survey of visitors to national parks (2018) was summarised in last year’s *Forestry Snapshot* (EPA 2019), with further detail available on the [DPIE website](#)²⁴. More information on visitation is provided through the regular State of the Parks survey. The next survey is due in 2021.

Managing recreational assets

National Parks and Wildlife NSW

In 2018 the NSW Government announced an \$80 million investment in nine projects over seven years to create iconic, world class nature-based experiences in national parks across NSW. The projects will develop and expand visitor facilities and infrastructure, including tracks and trails, new and upgraded lookouts, picnic areas, eco-accommodation and campsites. Work on the program is now well-underway, with construction commenced on both the Thredbo Valley Trail Mountain biking trail and the Snowies Iconic Walk in Kosciusko National Park. Detailed design, planning and consultation have started on remaining projects.

²³ Figure drawn from 2018 Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) data.

²⁴ <https://www.environment.nsw.gov.au/research-and-publications/our-science-and-research/our-research/social-and-economic/social/domestic-visitation>

In 2019 the NSW Government announced a \$150-million investment to improve access to national parks across NSW, to be implemented by June 2023. The Improving Access to National Parks investment comprises:

- **Part A:** \$140 million investment in visitor infrastructure and facilities to achieve a range of outcomes, including:
 - \$36.4 million for increased safety and accessibility of walking tracks and trails
 - \$38.7 million for enhancement of visitor facilities (e.g. picnic areas, BBQs)
 - \$45 million for increased support for families and people with restricted mobility (including \$9.9 million for upgrading access to iconic lookout points to a mobility-impaired access standard)
- **Part B:** \$1 million investment in Safe Access Initiatives to achieve the expansion of the *Think Before You Trek* safety program for bushwalkers and working with other agencies to deliver other priority safety programs like rock fishing.
- **Part C:** Investment in Digital Access Initiatives to achieve the development of digital tools such as:
 - digital platforms to improve the customer experience
 - enhanced mobile connectivity and virtual tours.

Both programs focus on accommodating a significant growth in visitation and growing the \$21.3 billion contribution that nature-based tourism makes to the NSW economy.

During the reporting period NPWS continued to inspect, maintain and upgrade visitor facilities (recreational assets) through the Asset Management Framework to ensure that visitor experiences were maximised while public safety risks were minimised.

Forestry Corporation

Forestry Corporation provides public access across its estate and facilities for a wide range of activities for community benefit. The extensive road network in state forests provides opportunities for recreational pursuits and a large number of designated visitor sites have been developed and enhanced over recent years, several winning state and national tourism awards. Many activities, such as mountain-bike riding, horse riding, camping and four-wheel driving, can be undertaken in state forests free of charge. Organised groups, clubs (including mountain biking, archery and shooting clubs) and commercial tourism operators can use state forests or establish recreational facilities within forests under a permit system. The management of tourism and recreational facilities is part of Forestry Corporation's commitment to managing forests for these values.

Aboriginal connections to forest

There is increasing recognition of the importance of establishing tenure and management arrangements that enable Aboriginal people to maintain cultural, spiritual and social connections to land, including forest areas. Aboriginal participation in forest management helps to ensure that their cultural values are protected, maintained and enhanced in NSW forests.

SOFR 2018 identifies four different types of Indigenous ownership and management and provides the most recent data on the area of forest in these categories. As of 2016, over 56,000 Indigenous cultural places and heritage sites were registered across 37,548 hectares of NSW forests (ABARES 2018).

Indigenous ownership and management categories across all tenures

Indigenous owned and managed: freehold lands that are both owned and managed by Indigenous communities.

Indigenous managed: lands that are managed but not owned by Indigenous communities (e.g. Crown reserves and leases) and lands that are owned by Indigenous people but have formal shared management agreements with Australian and state and territory government agencies.

Indigenous co-managed: lands that are owned and managed by other parties, but have formal, legally binding agreements in place to include input from Indigenous people in the process of developing and implementing a management plan (e.g. joint management arrangements, nature conservation reserve memorandums of understanding).

Other special rights: lands subject to native title determinations, registered Indigenous Land Use Agreements and legislated special cultural use provisions. These may provide for the right to access areas of cultural significance or the use of areas for cultural purposes, or provide a legal requirement for consultation with the local Indigenous community before any major development activities take place.

Source: SOFR 2018

National Parks and Wildlife Service

Aboriginal joint management (co-management)

Aboriginal joint management is a partnership between NPWS and Aboriginal communities for the management of a park or reserve or multiple parks and reserves. The program works with Aboriginal people to foster opportunities and partnerships that help protect their culture and heritage and enable them to manage parks and access traditional lands. Aboriginal joint management is one way in which NPWS embraces Aboriginal culture from ancient to modern and strengthens the role of Aboriginal communities in decision-making.

NPWS has 32 agreements with Aboriginal communities to jointly manage 149 parks and reserves covering almost a third of the national park estate. Each year, the agency supports and funds a meeting of the NSW Aboriginal Joint Management Custodians (Aboriginal representatives of these agreements). The meeting and follow-up working groups are an opportunity for these representatives to have input into statewide NPWS policy issues.

Training

In 2018–19, NPWS arranged training sessions attended by 130 Aboriginal community members. Topics included:

- rural fire training
- work health and safety and environmental monitoring
- governance training
- map training.

Aboriginal Park Partnerships Funding Program

Each year NPWS offers an internal contestable funding program for Aboriginal Park Partnership projects. This funding is available to Aboriginal community groups partnering with NPWS. In 2018–19, activities were conducted across 15 parks and reserves.

Approximately ten Aboriginal businesses were contracted to the value of \$60,000 for services such as field survey work, teaching Aboriginal knowledge, supervising field work, community liaison, event promotion, facilitation of a cultural fire assessment, weed control and bush regeneration work.

Cultural events held on NPWS parks and reserves were attended by over 300 Aboriginal people. These events included:

- digging for pippies and learning about middens at Tyagarah Back to Country Day
- cultural burning in the Gumbaynggir community
- cultural activities and artwork at Dharawal National Park Maddens Day event
- language workshops, discovery tours, cultural artwork and fossil trackway interpretation at the Mungo Youth Project at Willandra Lakes World Heritage Area

- smoking ceremony, connecting to Country, caring for Country and continuing culture at Allawah Day in the Hawkesbury area.

Forty-seven Aboriginal people were employed on short-term contracts across some of the 21 projects within the program, including restoration works.

Forestry Corporation

As at June 2019, the area under Forestry Corporation management included:

- 57,422 hectares of state forests with recognised Native Title
- six gazetted Aboriginal Places
- 4,131 protected Aboriginal sites
- 1,679 hectares managed for Aboriginal cultural heritage.

Six Aboriginal Liaison Officers in Forestry Corporation's Hardwood Forests Division's Aboriginal Partnership Liaison Team work with Aboriginal communities to develop partnership arrangements and manage these sites.

Forestry Corporation continues to provide access and co-management arrangements with Aboriginal communities. In addition to arrangements through Indigenous Land Use Agreements (ILUAs),²⁵ there are eight agreements with communities across the state to manage areas of state forest for camping, teaching and practising culture.

Thirty-four Aboriginal groups are regularly contracted to Forestry Corporation for archaeological site surveys as part of the planning process for harvesting and roading operations. Six Aboriginal groups have seed and plant collection permits for state forests.

Forestry Corporation also works with Aboriginal communities to carry out cultural burning in state forests.

Protection of non-Aboriginal cultural values

Forests are also managed to protect and maintain non-Indigenous cultural values. These include sites of historic and aesthetic importance and areas with cultural or social significance to certain community groups. These sites may retain remnants of old buildings, infrastructure or equipment that show connections to the past, or be valued for their beauty and the opportunities for recreational activities. SOFR 2018 has the most recently compiled data on the area of forest in NSW where non-Indigenous heritage sites occur.

National Parks and Wildlife Service

Historic heritage overview

NPWS is responsible for the management of a wide variety of historic heritage sites across its estate. Many of these represent or one or more of the six 'Key Stories' that are communicated through the heritage items located in National Parks. These Key Stories are:

- **Creating and Experiencing National Parks** – examples include national park infrastructure from various periods and reflecting different approaches, such as visitor centres, signage, seating, shelters and chalets
- **Aboriginal Country, Shared History** – examples include Aboriginal graves, missions and reserves, camping areas, Aboriginal resistance sites, massacre sites and whaling stations

²⁵ ILUAs are voluntary agreements between native title groups and other stakeholders covering the use of land and water. Current ILUAs related to forestry include Western Bundjalung, Gundungurra in the Moss Vale and Lithgow area, and Githabul on the North Coast. For more information see the Forestry Corporation's forest management plans and sustainability supplement at www.forestrycorporation.com.au.

- **Arriving and Settling** – examples include landing sites, stone cairns, roads and tracks, huts, homesteads and farms, quarantine stations, migrant camps and construction towns
- **Pastoral Lives** – examples include shepherds’ huts, homesteads, detached kitchens or cook houses, meat houses, sheep washes, woolsheds, river wharfs, stock routes and airstrips
- **Defending and Protecting NSW** – examples include lighthouses and lighthouse keeper’s living quarters, gun emplacements, radar stations, fortifications and military camps.
- **Making a Living from Nature** – examples include sites of work camps, logging trails, sawmills, timber tramways, mines, engine houses, tunnels, water wheels and hydro-electric schemes.

Historic heritage sites managed by NPWS that reflect these Key Stories at June 2019:

- one World Heritage site
- five National Heritage List (NHL) sites
- eight nationally significant sites not on the NHL
- fifty-three State Heritage Registered (SHR) sites
- forty State Significant sites not on the SHR
- over 150 locally significant sites.

These sites, which include both forestry and non-forestry areas, represent nearly 5,000 individual items of heritage significance.

Historic heritage investment

Each year NPWS offers an internal contestable funding program to assist with the conservation, management and presentation of heritage sites. In 2018–19 funding from this program was provided to over 20 heritage sites on NPWS estate, enabling successful completion of a variety of important conservation planning activities and works.

The Cutters Camp complex

The Cutters Camp complex, the former Forestry Commission NSW forestry camp in Mebbin National Park, has been assessed as being of local significance. In 2019, significant work was undertaken, building on work funded in 2018, to ensure its conservation and an appropriate ongoing use.

Architectural drawings to guide the reuse, an interpretation plan and all heritage approvals were completed. Key identified conservation works on the structure were also successfully completed.



Cutters Hut, part of an important heritage site. Photo: Kathleen Helmann/NPWS

Employment in the forestry sector

Employment in the forestry sector is a direct measure of how forests contribute to the NSW economy. Forestry jobs range across harvesting, support services, wood product, pulp and paper manufacturing, conservation and reserve management.

In 2016 (the most recent data), 16,396 people worked in NSW forestry and forest products manufacturing industries (ABARES 2019). This number includes workers in forestry, harvesting and support services. The employment figures below are based on average full-time equivalent staffing, including casual employees and overtime, and are subject to seasonal fluctuation, depending on demand for services such as firefighting.

As of 30 June 2019, Forestry Corporation employed 532 full-time equivalent staff. Of these, 315 were primarily involved in management, administration and technical roles and 217 were engaged in field contractor management, road construction and maintenance, tree planting and pruning, nursery work, forest conservation, fire mitigation and suppression, and supporting forest recreation. In addition to this, Forestry Corporation contracts third-party organisations, each of which has its own workforce, for activities such as harvesting, timber haulage and plantation site preparation.

Information about NPWS employment in the forest sector for this period can be found in the [Office of Environment and Heritage 2018–19 Annual Report](#). This shows the staff profile across the NSW Office of Environment and Heritage (OEH), including staff in Divisions of OEH beyond NPWS, some of whom are employed in the forest sector.

DPI's Forestry Unit employed 36.5 full-time equivalent (FTE) staff, comprising 22 in the DPI Forests Science team, 5.5 to administer the Plantations and Reafforestation Act, four in management and five in policy and industry development roles.

During the reporting period, Local Lands Services employed 10.5 FTE staff to administer the PNF program under Part 5B of the Local Lands Services Act, comprising seven private native forestry operations staff and 3.5 staff in policy roles.

The EPA employs a number of operational and policy staff to regulate forestry, but figures are not supplied as these have not been categorised as forestry sector roles.

Legal, institutional and economic frameworks

Changes to the legal framework

The *Forestry Legislation Amendment Act 2018* commenced in November 2018. The Act delivers more streamlined, transparent and enforceable environmental laws for native forestry, including stronger penalties for non-compliance and a broader suite of compliance tools: see page 9 for more information. The new legislation also transfers the responsibility for administering and regulating Private Native Forestry (PNF) into a new Part 5B of the *Local Land Services Act 2013*. The *Forestry Legislation Amendment Act 2018* transfers approval and extension functions for PNF to Local Land Services. The EPA retains compliance and enforcement functions for PNF.

The Coastal IFOA also commenced in November 2018: see page 10 for more details.

The NSW Regional Forest Agreements (RFAs) were varied in November 2018. These are now in place until at least 2039.

The institutional framework

The institutional framework for conservation and sustainable forest management encompasses administrative arrangements for regulatory compliance and enforcement, decision-making and community engagement.

Overview of the New South Wales Forest Management Framework (NSW Government 2018) outlines the institutional framework in place during the reporting period. Table 13 summarises the role of different agencies within this framework.

Table 13 NSW agencies that contribute to sustainable forest management

Agency	Responsibilities in relation to NSW forest management
Department of Planning, Industry and Environment	
Biodiversity and Conservation	<ul style="list-style-type: none"> develops and administers conservation programs for threatened species and ecological communities
Environment Protection Authority	<ul style="list-style-type: none"> regulates native forestry operations on both public and private land develops regulatory policy and strategy contributes to legislative reform processes, including policy advice and stakeholder engagement
Local Land Services	<ul style="list-style-type: none"> approves PNF Plans contributes to policy and legislation reform and provides advice on private land management leading PNF Review
National Parks and Wildlife Service	<ul style="list-style-type: none"> manages national parks and other areas reserved for environmental, cultural and recreational values
Policy, Strategy and Science	<ul style="list-style-type: none"> develops strategy, policy and provides advice on conservation and land use
Primary Industries	<ul style="list-style-type: none"> develops forest policy and strategy undertakes forest science research responsible for plantations policy and regulation
Forestry Corporation of NSW	Conducts forestry operations including: <ul style="list-style-type: none"> harvesting and supplying wood to processors establishing and managing plantations managing native forest areas.
Natural Resources Commission	<ul style="list-style-type: none"> provides independent advice to the NSW Government on natural resource management undertakes audits and reviews relating to forestry as required by the Minister oversees a statewide monitoring, evaluation, reporting and improvement program for NSW forests

The *NSW Forestry Industry Roadmap* provides a whole-of-government strategy for a strong, competitive and ecologically sustainable forest industry. See pages 8 to 11 for updates on Roadmap progress during the reporting period.

Research and monitoring capacity

The DPI Forest Science team provides forest research services that underpin the sustainable use of native forests and productive plantations in NSW. The team has extensive technical expertise and capability in field-based research, biometrics, spatial modelling, GIS and cost-benefit analysis. DPI Forestry provides research and development services to the forestry sector and stakeholders, including contracted research projects that assist Forestry Corporation of NSW in its management of publicly owned state forest. The team also works with organisations with an environmental and/or forestry socio-economic focus.

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

- **forest ecology and sustainability** – demonstrating sustainable management of forested landscapes by:
 - installing landscape scale biodiversity
 - monitoring programs with a focus on new low-cost technology
 - developing predictive spatial models for optimal management of threatened species in forests
 - monitoring biodiversity in hardwood plantations
 - assessing the implications on forest biodiversity of ecological thinning and residue extraction
- **forest resource assessment** – improving the accuracy, efficiency and cost effectiveness of forest assessment over space and time by:
 - assessing and adopting remote sensing technologies
 - assessing and characterising plantation and native forest timber resources
 - growth modelling and wood quality assessment
 - assessing the socio-economic impact of forest management practices
- **forest health and biosecurity** – providing forest health and biosecurity services to plantation and native forest managers by:
 - detecting and mapping the extent and severity of pests and diseases in plantations and native forests
 - providing technical advice on managing pests and diseases
 - researching the impact and management of pests and diseases
 - biosecurity surveillance for exotic forest pests and diseases that incorporate NSW port environs
 - liaising with state, federal and international forest health and biosecurity agencies and the forestry sector
- **carbon in forests, wood products and bio-energy** – providing scientific evidence to underpin carbon accounting in forests and wood products and the utilisation of wood waste for bioenergy production by:
 - quantifying the carbon footprint in forests and wood products
 - life cycle analysis of forest products
 - biomass quantification and characterisation in forests and residue from sawlog harvesting, thinning and wood processing
 - technical guidance on the development of carbon abatement forestry projects to operate under the Commonwealth’s Emission Reduction Fund
 - technical assessment of mechanical fuel reduction.

Forestry Corporation maintains research and development capacity through a service level agreement (SLA) with the DPI’s Forest Science Unit. In 2018–19, Forestry Corporation invested \$2.1 million in research, of which \$1.8 million was through the SLA. This is consistent with levels of investment over previous years.

Research activities this year included:

- advanced habitat modelling of several threatened frog species
- publication of passive acoustic and sound recognition results for monitoring koalas in native forests with a history of timber harvesting – see page 16
- publication of results demonstrating overall positive increase in biodiversity in cypress stands that had been thinned, although responses of specific taxa were variable
- aerial and ground surveys of the softwood and eucalypt plantation estate for detection of pests and diseases
- completion of a biomass residue study based in native forests on the NSW North Coast.

Further detail is available in *Forestry Corporation Annual Report 2018–19* (FCNSW 2019a).

NPWS maintains a research and monitoring capacity across a range of its functions. Some examples of this are referenced in earlier sections of this report, such as:

- contributing to monitoring under the NSW Koala Strategy (p.15)
- the WildCount monitoring program (p.18)
- contributing to the Biodiversity Indicator Program (p.19)
- contributing to pest and weed monitoring, including through the Saving Our Species program (p.33-35)
- field surveys of Aboriginal heritage as part of Aboriginal park partnerships (p.42)

Energy Environment and Science Directorate, of which NPWS is a part, is also contributing to the draft monitoring program for NSW forests being prepared by the NSW Forest Monitoring and Improvement Steering Committee, independently chaired by the NRC, as referenced on page 11 of this report.

Further information is available at www.environment.nsw.gov.au.



Section 2:

Compliance

2. Compliance with IFOAs and other requirements

Integrated forestry operations approvals (IFOAs) provide the regulatory and operational framework for the conduct of native 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. At 30 June 2019, there were four IFOAs, covering the Coastal, Brigalow–Nandewar, South Western Cypress and Riverina Red Gum regions (see Appendix 5).

New legislative and regulatory arrangements

On 16 November 2018 new legislative and regulatory arrangements took effect in NSW. The new Coastal IFOA began, replacing the former Upper North East, Lower North East, Southern and Eden IFOAs. Transitional arrangements have been put in place to limit the impacts of this change on the forestry industry. These arrangements mean that some operations that had been planned or started under the former IFOAs may continue under the old set of rules until 16 November 2020. From that date, all forestry operations must be undertaken in accordance with the Coastal IFOA requirements.

IFOAs authorise the carrying out of forestry operations in accordance with principles of ecologically sustainable forest management (ESFM). Each IFOA integrates the regulatory regimes for environmental planning and assessment, the protection of the environment, and threatened species conservation – including threatened species, populations and ecological communities under Part 7A of the *Fisheries Management Act 1994*.

EPA compliance program

The EPA is responsible for regulating native forestry operations on private and public (Crown) land in NSW. This is to ensure that impacts on soil and water, threatened species and their habitat are mitigated in accordance with the PNF Codes or IFOA. In 2018–19, the EPA carried out a strategic compliance and enforcement program on native forestry operations. The compliance program comprised a proactive risk-based approach and actions in response to concerns raised by the community.

Proactive compliance activities

The EPA focuses its regulatory efforts on operations where there are higher environmental or regulatory risks. To determine the risk levels of various operations, EPA officers assess each planned harvesting operation against environmental risk criteria as shown in Table 4. Environmental risk criteria are intended to be adaptable and responsive to emerging environmental issues and trends in environmental compliance.

The EPA also considers the public interest when assessing risk. This includes predicted or actual elevated community concern about a proposed harvesting operation and the proximity of proposed forestry operations to protected areas and rural and residential areas. This risk assessment approach forms just one part of how the EPA prioritises its regulatory activities for proactive work. This approach is supplemented by other local and regional priorities.

Responsive compliance activities

Responsive activities include investigating public complaints or notifications. They can also include self-reported incidents by Forestry Corporation. The EPA investigates all public reports of non-compliance.

Table 14 Crown and private native forestry environmental risk assessment criteria

Environmental risk criteria	Crown forestry	Private native forestry
Hollow-bearing and recruitment trees – planned retention rates	Yes	No
Threatened species – proximity to operation and density of records	Yes	Yes
Koalas – proximity to operation and density of records	Yes	Yes
Soil erosion and water pollution hazard – including connectivity of logging, roads and tracks to sensitive waterways	Yes	Yes
Streams and drainage features – the quantity and ordering of streams	Yes	Yes
Exclusion zones – types and proportion of sensitive areas	Yes	Yes
Threatened ecological communities – actual or potential occurrence	Yes	Yes
Forest structure – planned intensity of operations	Yes	No

Compliance priorities differ across tenures due to different rules that apply and other factors. Issues are still checked even if not identified as priorities

Range of regulatory tools to achieve compliance

The EPA uses a range of regulatory tools to promote native forestry operations' compliance with the IFOAs or PNF Code and reduce potential environmental harm. These tools include audits, field inspections, investigations, desktop assessment, notices, orders, penalty notices and education. These activities are explained in more detail in the EPA's [Compliance Policy](#)²⁶. A register of investigations initiated by community reports is available on the [EPA website](#)²⁷. Final audit reports for specific operations are available on the EPA's [compliance audit report register](#)²⁸.



EPA officer assessing compliance with IFOA conditions.
Photo: Chris Fraser/EPA

²⁶ www.epa.nsw.gov.au/licensing-and-regulation/legislation-and-compliance/policies-and-guidelines

²⁷ www.epa.nsw.gov.au/your-environment/native-forestry/native-forestry-nsw-overview/regulating-native-forestry/register-of-investigations

²⁸ www.epa.nsw.gov.au/your-environment/native-forestry/native-forestry-nsw-overview/regulating-native-forestry/compliance-audit-report-register

Crown native forestry compliance and enforcement activities

This section tabulates 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 51.

In 2018–19, as part of its compliance program the EPA inspected 50 operations (see Table 15). These inspections were conducted either in response to reports of non-compliance from the public, to support investigations, or as a part of proactive compliance activities. The EPA also finalised compliance actions for several operations in IFOA regions (see Table 16).

Table 15 Number of operations inspected in 2018–19

IFOA (region or sub-region)	Number of operations inspected for compliance and enforcement
Upper North East	8
Lower North East	14
Southern	14
Eden IFOA	6
Brigalow–Nandewar	1
Riverina Red Gum	6
South West Cypress	1
Total	50

Table 16 Number of operations for which compliance action was taken in 2018–19 (by IFOA)

Type of Compliance Action	Advisory Letters*	Formal Warnings**	Official Cautions [§]	Clean-up Notices	Penalty Notices	Prosecutions
Upper North East	1	3	2	0	1	0
Lower North East	1	0	1	0	1	0
Southern	4	2	0	1	0	0
Eden	0	1	0	0	0	0
Brigalow–Nandewar	0	0	0	0	0	0
Riverina Red Gum	0	0	0	0	0	0
South-Western Cypress	0	0	0	0	0	0
Total operations	6	6	3	1	2	0

The numbers in the table represent the number of operations that were issued with a compliance action, not the total number of actions issued. If several Penalty Notices were issued for an operation this is recorded as one in this table. In addition, each compliance action may relate to several breaches. As the Coastal IFOA started during the reporting period, compliance actions for Coastal regions are linked to investigations during the former IFOAs.

* Advisory letters are usually issued where it is considered possible that a breach has occurred, but not enough evidence is available to prove the offence.

** Where a non-compliance is minor, the EPA may choose to issue a formal warning.

[§] The EPA may issue an official caution if the offence is one for which a penalty notice may be issued. A caution is used rather than a penalty notice if the issuing officer has reasonable grounds to believe that an offence has been committed and believes a caution is appropriate in the circumstances.

Corunna State Forest: EPA listening to community concerns and improving environmental outcomes

Corunna State Forest is on the NSW South Coast almost 10 kilometres south of Narooma, covering an area of about 180 hectares. It adjoins Corunna Lake, which falls within the Batemans Marine Park and lies close to the Gulaga and Eurobodalla National Parks. There are several records of threatened species in Corunna, including the White-bellied Sea-Eagle (pictured below), Masked Owl and Swift Parrot.



White-bellied Sea-eagle. Photo: John Turbill/DPIE

In February 2018, Forestry Corporation announced upcoming harvesting operations in Corunna. Shortly after, the EPA met with Forestry Corporation and local community representatives to discuss their respective roles and responsibilities and set out how the organisations would engage with each other. Further meetings occurred in the leadup to the operation.

The EPA adopted a proactive approach to promote Forestry Corporation's compliance with the IFOA. This reflected the environmental sensitivity and community interest in the upcoming harvesting operations.

In June, July and August 2018, the EPA carried out several pre-harvest inspections. No prospective non-compliance matters were observed. The EPA continued to engage with Forestry Corporation, requesting up-to-date operational planning information, clarifying obligations and collaboratively addressing relevant community concerns.

When harvesting operations began in September 2018, EPA officers responded to a significant number of community enquiries and concerns, mostly relating to protection of the water quality in Corunna Lake and the Masked Owl. EPA officers undertook inspections to ensure compliance with the IFOA and maintained ongoing engagement with Forestry Corporation regarding the operation.

Following this engagement, special protections were afforded to a pair of White-bellied Sea Eagles that nested and produced young prior to and during harvesting operations within the forest.

During a final post-operation audit in early 2019 the EPA identified problems with drainage on an access road. A Clean-up Notice was issued under the *Protection of the Environment Operations Act 1997* and remedial works were completed by Forestry Corporation.

The EPA valued the community's interest and commitment to protecting the environmental values of Corunna State Forest. Working closely with community members helped achieve improved environmental protections.

Private native forestry compliance and enforcement activities

The EPA undertakes inspections and investigations into PNF operations. During 2018–19, EPA officers visited 35 planned or actual logging sites in the field to conduct inspections or as a component of ongoing investigations. The EPA also finalised compliance actions for 18 operations (see Table 17).

Table 17 Number of operations for which compliance action was taken in 2018–19

Type of compliance action	Number of operations issued with compliance action
Advisory Letter	7
Directions (Voluntary)	2
Formal warnings	8
Official cautions	0
Clean-up notices	0
Stop work orders	0
Penalty notices	0
Prosecutions	1

The numbers in table represent the number of operations that were issued with a compliance action, not the total number of actions issued. If several Penalty Notices were issued for an operation this is recorded as one in this table. In addition, each compliance action may relate to several breaches.

Fisheries

Compliance with the Fisheries Licences (FLs) contained in the IFOAs is audited by DPI (Fisheries). The Department reported that it did not undertake any forestry audits or investigations involving Fisheries Licences in 2018–19.



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.

Milestones

Tasks and required timeframes for continual improvement in the management of forested areas 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 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.

At June 2019, most milestones and undertakings had either 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 10-year review (DECCW 2010) for information about previous milestones and undertakings that are complete or no longer apply.

Of those milestones and undertakings still underway by June 2019:

- approximately 55 relate to ongoing work such as reporting, periodic reviews and updates to plans and Aboriginal employment and training. Updates are provided in each report where available for these ongoing yet important undertakings. Where no update has been provided by the reporting agency or is not available, the progress update will state the year when an update was last provided. Several periodic reviews that were due in the reporting period have been deferred until the completion of the review of the three western IFOAs, which is planned for 2020
- eight are in progress but overdue, including:
 - six management plans or compliance methodologies that will be considered as part of the review of the three western IFOAs in 2020, including plant and species management plans in the Brigalow–Nandewar region and South Western Cypress region and a sustainable yield study in the Brigalow–Nandewar region

- two monitoring plans that will be considered as part of the development of a cross-tenure forest monitoring and improvement program commencing in 2020. In the interim, the Forestry Corporation of NSW is working in accordance with draft plans
- four undertakings have been identified as having long-range timeframes for completion:
 - the Gondwana heritage listing (Coastal region)
 - enterprise development and initiation of employment opportunities for Aboriginal people in the Hume and Riverina regions (two undertakings in the Coastal region)
 - Community Conservation Advisory committees (Brigalow–Nandewar region)
 - a milestone in the Coastal region for an operational research trial is now covered by the DPI yield estimates (DPI 2018).

Appendix 1 reports on progress in completing milestones and undertakings in the NSW Forest Agreements for the Upper North East (UNE), Lower North East (LNE), Eden and Southern regions. While the new Coastal IFOA replaced the four regional IFOAs in November 2018 (see page 10), Forest Agreements were still in place for UNE, LNE and Eden until March 2019. Milestones and undertakings under these agreements will be reported until the Southern agreement expires in 2022. A different reporting approach may be adopted after that point.

Appendix 2 reports on progress in completing 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 progress in completing milestones and undertakings in the Riverina Red Gum region as set out in the Riverina Red Gum IFOA (EPA 2010b).

Appendix 4 reports on progress in completing 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 progress in 2018–19 in achieving the 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 in 2018–19
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	77% reserves in the UNE, LNE, Eden and Southern regions of the NPWS estate have plans of management that have been adopted by the Minister for the Environment in previous periods. A further 7% have draft plans that have been publicly exhibited. A statement of management intent is in place for 13%.
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 level on performance across a range of social, environmental and economic areas through its annual report and sustainability snapshot (FCNSW 2019a, FCNSW 2019b). 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 that includes local issues and objectives. Management plans will be progressively prepared for new reserves.
3. CAR reserve system		
Milestone 3.2 Agency: Fisheries	Aquatic reserves declared under the <i>Fisheries Management Act 1994</i> that affect	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 ²⁹ for information about marine protected areas.

²⁹ <https://www.dpi.nsw.gov.au/fishing/habitat/protecting-habitats/mpa>

Milestone number	Milestone	Progress in 2018–19
	forestry operations in the UNE, LNE, Eden or Southern regions Refer to LNE, UNE, Eden, Southern FAs section 2.3.4	
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	Forest Management Zones have been updated to reflect the proposed flora reserves announced by the Government in May 2018. Work is progressing on formalising these proposed reserves and the changes are being finalised by DPI for gazettal. Overall the changes will increase protection through transfers from informal reserves to formal reserves. More details are available on the DPIE website ³⁰ . <ul style="list-style-type: none"> • Zone 1 increased by 26,250 hectares • Zone 2 reduced by 15,594 hectares • Zone 3A reduced by 10,915 hectares • Zone 3B reduced by 7 hectares • Zone 4 reduced by 8,679 hectares • Zone 5 reduced by 640 hectares • Zone 7 reduced by 298 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	The third five-year review of state conservation areas is well progressed. It is examining the 142 state conservation areas that existed at October 2017. NPWS is working closely with the Division of Resources and Geoscience to apply a new approach to the review, focusing on landscape-scale information and using data not available in previous reviews. Once finalised, a review report will be published on the agency's website.
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	Land use and management decisions about additional Crown land now occur as part of the government's progressive response to recommendations arising from the <i>Crown Lands Management Review 2014</i> (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)

³⁰ <https://www.environment.nsw.gov.au/topics/parks-reserves-and-protected-areas/establishing-new-parks-and-protected-areas/new-parks-and-changes-to-parks/new-areas-for-conservation-in-nsw>

Milestone number	Milestone	Progress in 2018–19
7. Managing for other forest values and uses – no further reporting, final update was in the 2016–17 (EPA 2018a)		
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). New conservation areas on private land up to 2016–17 are reported in the NSW native vegetation 2016–17 data spreadsheet (DPIE 2019a).
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 in the use and management of private forest resources. The next review will start in 2020.
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 Area 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 has occurred to progress the preparation of a nomination.
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 number	Milestone	Progress in 2018–19
Milestone 12.4 Agencies: NPWS, FCNSW	NPWS and FCNSW to undertake joint management arrangements with local Aboriginal communities and examination of state forests for co-management arrangements Refer to UNE, LNE and Eden FAs section 5.1.1; Southern FA section 5.1.1	<p>NPWS</p> <p>NPWS continued implementation of existing Joint Management agreements. No new Aboriginal agreements within these forestry regions came into effect during 2018–19.</p> <p>South Coast Branch:</p> <ul style="list-style-type: none"> continued to implement existing joint management agreements with the Biamanga National Park Board of Management and Gulaga National Park Board of Management established a new Aboriginal identified Ranger role based in Merimbula continued employment for two Joint Management Officer roles based in Narooma to assist with the Biamanga National Park Board of Management and Gulaga National Park Board of Management continued Aboriginal-identified roles to manage the Murrah Flora Reserve that are partly funded by the Aboriginal Boards of Management. There are five identified Aboriginal Field Officer roles in the Enhanced Bushfire Management Program. <p>Thirty Aboriginal people are currently employed in South Coast Branch, including 23 Aboriginal identified roles.</p> <p>Southern Ranges Branch:</p> <p>NPWS continues to work with Aboriginal communities associated with the Northern and Southern Kosciuszko Aboriginal Working Groups through Memorandums of Understanding (MOUs). The main objective of these MOUs is to maintain and grow the positive relationship between NPWS and the communities. The key priorities of the MOUs are recognition and respect, employment, education and training, cultural awareness, and access to Country. Strategic Plans exist for both MOU groups.</p> <p>North Coast Branch:</p> <ul style="list-style-type: none"> continued to implement existing Joint Management agreements – Arakwal, Githabul and Western Bundjalung ILUAs and Gaagal Wangan Aboriginal-owned park Board of Management consulted with traditional Aboriginal owners as per the Yarriabini and Serpentine MOUs. <p>There are 60 Aboriginal people currently employed in North Coast Branch.</p> <p>Hunter Central Coast Branch:</p> <ul style="list-style-type: none"> continued to implement the existing Joint Management agreements – Saltwater National Park MOU and the Worimi Conservation Lands (WCL) Aboriginal-owned park. The Saltwater National Park MOU includes exclusive cultural camping twice per calendar year and other cultural activities the WCL joint management agreement generates significant employment opportunities, with Aboriginal people employed in 13 full time and 14 casual roles in 2018–19

Milestone number	Milestone	Progress in 2018–19
		<ul style="list-style-type: none"> continued implementation of the Seal Rocks Land and Environment Court agreement which commits to Aboriginal employment targets. Three Aboriginal people continued to be employed in full time roles under this agreement. <p>FCNSW</p> <p>FCNSW welcomes Aboriginal groups to undertake traditional activities in native state forests. All programs identified in previous reports are still underway. In addition, ongoing negotiations for Native Title on state forest (various locations) enable title holders to access the forest for traditional uses and potentially for enterprise development/partnerships.</p> <p>FCNSW Hardwood Forests Division has an Aboriginal Partnership Liaison Team of six Aboriginal Liaison Officers who work with Aboriginal communities to further develop these partnership arrangements. Aboriginal groups are regularly contracted to FCNSW for archaeological site surveys as part of the planning process for harvesting and road building and maintenance operations.</p> <p>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>
<p>Milestone 12.5</p> <p>Agencies: NPWS, FCNSW</p>	<p>Joint ventures with local Aboriginal communities and development of project plans</p> <p>Refer to UNE, LNE and Eden FAs section 5.1.1; Southern FA section 5.1.1</p>	<p>NPWS</p> <p>NPWS engaged in a range of joint ventures with local Aboriginal communities.</p> <p>South Coast Branch:</p> <ul style="list-style-type: none"> contributed financially to the Coastal Weeds Project, an interagency project employing Aboriginal community members to undertake weed control along the Far South Coast supported the Eden Local Aboriginal Land Council in the development of an Aboriginal tourism business for the Bundian Way is a part of the Eden Solution Brokerage Accord and is working towards the revocation of a portion of land in Ben Boyd National Park for the Eden Local Aboriginal Land Council continues its 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 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. <p>Aboriginal Parks Partnership Fund projects in this region include:</p> <ul style="list-style-type: none"> communicating cultural highlights in Dharawal National Park Walbunja Weed Whackers.

Milestone number**Milestone****Progress in 2018–19****Hunter Central Coast Branch:**

- continued its ongoing partnership with Taree Indigenous Development Enterprise (TIDE) and other local government organisations to generate local Aboriginal employment and training while delivering biodiversity and cultural heritage management outcomes. These outcomes are delivered by contracting TIDE through a variety of external and NPWS conservation program funds
- engaged with the Worimi community regarding the repatriation of human remains.

This region's Aboriginal Park Partnerships Fund project is the Barrington Tops Connecting with Country project.

North Coast Branch:

- participated in a consultative process with Bandjalang and Yaegl native title holders to progress management and use of Country
- maintained a program of ongoing collaborative land management and protection of Aboriginal cultural heritage values on Reserve Country through meetings, workshops and field days with the Clybucca Custodians Group, Wollumbin Consultative Group, Yarriabini National Park Aboriginal Consultative Group and the Serpentine MOU Group
- engaged Bandjalang and Githabul land and services contractors for facility maintenance, weed and threatened species management in collaboration with Aboriginal Corporations, other Government agencies and neighbouring landholders.
- Aboriginal Parks Partnership Fund projects in this region include:
 - Gumbaynggirr Community Cultural Burn Capacity Development Project
 - Tyagarah Back to Country Day.

Southern Ranges Branch:

- continued supporting the local Aboriginal Community to deliver the Aboriginal Discovery Program (since 2007), which employs two full time Aboriginal Discovery Rangers based in Tumut. The rangers deliver cultural education, indigenous tour programs and support Aboriginal Community cultural preservation outcomes.

FCNSW

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.

Milestone number	Milestone	Progress in 2018–19
13. Aboriginal interests in the Hume and Riverina regions of FCNSW and the South West Slopes region of NPWS		
Milestone 13.2 Agency: FCNSW	Specified enterprise development on state forests within Hume and Riverina Forestry Corporation regions Refer to Southern FA section 5.1.4.2	The <i>Review of NSW Forest Agreements and Integrated Forestry Operations Approvals</i> (DECCW 2010) summarised initiatives. No further update was provided by FCNSW for 2018–19.
Milestone 13.5 Agency: FCNSW	FCNSW to initiate specific employment opportunities in the Forestry Corporation Hume and Riverina regions subject to external funding Refer to Southern FA section 5.1.4.4	The <i>Review of NSW Forest Agreements and Integrated Forestry Operations Approvals</i> (DECCW 2010) summarised initiatives. No further update was provided by FCNSW for 2018–19.
Milestone 13.7 Agency: NPWS	Specified employment and training opportunities with NPWS Refer to Southern FA section 5.1.4.6	<p>Thirty Aboriginal people are currently employed in South Coast Branch. This includes 23 Aboriginal-identified roles. There are four vacancies in Aboriginal-identified roles across the branch that are being filled.</p> <p>Maintained roles</p> <ul style="list-style-type: none"> • three Aboriginal Field Officer (Aboriginal-identified) positions for the South Coast Branch Enhanced Bushfire Management Program based at Eden Works Depot and West Nowra Works Depot • one Aboriginal Field Officer (Aboriginal-identified position) for the Southern Ranges Branch Enhanced Bushfire Management Program Tumut team based at Blowering Works Depot • two Aboriginal Field Officer (Aboriginal-Identified) positions in the Illawarra-Highlands Area team based at Byarong Park Works Depot • one Aboriginal Field Officer (Aboriginal-Identified) position in the Shoalhaven Area team based at West Nowra Works Depot • one Aboriginal Field Officer (Aboriginal-Identified) casual position in the Shoalhaven Area team based at West Nowra Depot. This role is related to the Jervis Bay National Park joint management arrangement • one Joint Management Officer (Aboriginal Identified) position in Eurobodalla Area team based at Narooma • one Ranger (Aboriginal Identified) position in the Eurobodalla Area team based at Narooma • one Aboriginal Field Officer (Aboriginal-Identified) position in the Eurobodalla Area team based at Narooma Works Depot. This role is related to Gulaga National Park Joint Management arrangement • one Aboriginal Field Officer (Aboriginal-Identified) position in the Eurobodalla Area team based at Tanja Works Depot. This role is related to Biamanga National Park Joint Management arrangement • two Aboriginal Field Officer (Aboriginal-Identified) positions in the Eurobodalla Area team based at the Narooma Works Depot and Tanja Works Depot

Milestone number	Milestone	Progress in 2018–19
		<ul style="list-style-type: none"> two Aboriginal Field Officer (Aboriginal-Identified) positions in the Sapphire Coast Area team based at Eden Works Depot. two Discovery Ranger (Aboriginal Identified) positions in the Visitor Experience team based at Nowra <p>Roles filled in 2018–19</p> <ul style="list-style-type: none"> two Aboriginal Field Officer (Aboriginal-identified) positions for the South Coast Branch Enhanced Bushfire Management Program based at Tanja and Narooma Works Depots. These roles are part-funded by EBMP Program and the Trusts of Biamanga and Gulaga National Parks Joint Management arrangements two Aboriginal Field Officer positions (Aboriginal-identified positions) in Riverina-Highlands one Aboriginal Field Officer position (Aboriginal-identified positions) in Snowy River Area two Aboriginal Discovery Ranger positions (Aboriginal-identified positions) based in Tumut <p>Vacant roles</p> <ul style="list-style-type: none"> one Joint Management Officer (Aboriginal Identified) position in Eurobodalla Area team based at Narooma one Ranger (Aboriginal Identified) positions in the Eurobodalla Area team based at Narooma one Aboriginal Field Officer (Aboriginal-Identified) position in the Illawarra-Highlands Area team based at Byarong Park Works Depot one Ranger (Aboriginal Identified) position in the Sapphire Coast Area team based at Merimbula one Aboriginal Field Officer position (Aboriginal-Identified position) based in Alpine Queanbeyan Area one Aboriginal Field Officer position (Aboriginal-Identified position) in the Services Team based at Perisher two part-time Aboriginal Support Assistant positions (Aboriginal-identified positions) in Riverina-Highlands and Snowy River Areas.

14. Supply arrangements

Milestone 14.1 Agency: FCNSW	Consultation on timber arrangements through the development of plans of operation Refer to UNE, LNE and Eden FAs section 3.4; Southern FA section 4.3	FCNSW regions continue to consult with stakeholders, such as industry and neighbours, when developing the annual plan of operation for each Forestry Agreement region. This milestone is considered ongoing. FCNSW has developed an interactive map ³¹ to allow stakeholders to view the plans.
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15. Supplementing timber supply

³¹ <https://planportal.fcnsw.net>

Milestone number	Milestone	Progress in 2018–19
Milestone 15.1 Agency: FCNSW	Supplementary timber supply by actions such as purchasing private lands and/or timber rights to supply high-quality large sawlogs and large veneer logs 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	Harvesting of private native forests took place on 22.8 hectares in these regions in 2018–19.
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 322 hectares of second-rotation hardwood plantations in the UNE and LNE regions in 2018–19.
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)	Research and development in 2018–19 focused on: <ul style="list-style-type: none"> • building and evaluation of next-generation inventory estimates for Eden, utilising LiDAR and advanced statistics • development of a process to link North Coast strategic forecasts and operational scheduling outcomes.
Milestone 16.2 Agency: FCNSW	Inventory system for regrowth forests for Eden; improvement to inventory in UNE, LNE and Southern Refer to UNE, LNE and Eden FAs section 3.5, Att. 8; Southern FA section 3.5, Att. 6 (6) (e)	A total of 166 plots were measured – 122 in the Tumut Regional Forest Agreement (RFA) subregion to update information for the 2019 RFA review, and 44 in the UNE to support upgrades to the LiDAR based next generation inventory.
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 and published 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 ³² . Further reporting has been delayed pending updates to IFOA and RFAs.
Milestone 16.5 Agency: FCNSW	Strategic and operational requirements of sustainable yield systems and processes,	The <i>Sustainable Yield in New South Wales Regional Forest Agreement Regions</i> (DPI 2018) report, incorporating updated sustainable yield calculations for the North Coast RFA and South Coast subregion of the Southern RFA,

³² <https://www.forestrycorporation.com.au/about/pubs/corporate/auditor-generals-performance-audit-of-native-forest-and-hardwood-plantation-operations>

Milestone number	Milestone	Progress in 2018–19
	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)	was published in November 2018 by DPI. Analyses for the Tumut subregion of the Southern RFA were being prepared late in the 2018–19 financial year.
Milestone 16.7 Agency: FCNSW	Review of wood supply/timber volumes Refer to UNE and LNE FAs sections 3.2, 3.5	FCNSW publishes wood supply in its Annual Reports, which are available at www.forestrycorporation.com.au/about/pubs/corporate/annual-report .
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 2018–19.
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 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 2017–18. 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 number	Milestone	Progress in 2018–19
Milestone 24.7 Agency: FCNSW	Operational research trial Refer to Eden FA section 3.1	This trial did not occur. The new Coastal IFOA has provisions for harvesting near drainage features that were incorporated into revised sustained yield estimates published by DPI.

Appendix 2: Milestones and undertakings – Brigalow–Nandewar region

This appendix reports on progress in 2018–19 in achieving the 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 in 2018–19
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	Each park has a statement of management Intent in place. However, there are no longer any Community Conservation Advisory Committees in operation. Therefore, NPWS cannot consult with them to prepare plans of management, which is a statutory step under the Brigalow and Nandewar Act. NPWS is unable to adopt any plans of management in CCA zoned parks until this is legislatively addressed.
Brigalow Nandewar Green Firewood Strategy	No further reporting is required, see 2013–14 report (EPA 2017b).			

Milestone/clause	Detail	Timeframe	Responsibility	Progress in 2018–19
IFOA clauses 37(1) to (5)	<p>37. Sustainable yield study for hardwood species</p> <p>(1) FCNSW is to conduct (over the first five years of the term of this approval) a study of the sustainable yield for logs and other timber products from tableland hardwood and western hardwood species (other than western ironbark trees) in the Brigalow–Nandewar region for the remainder of the term of this approval.</p> <p>See IFOA for full undertakings 37 (1) to (5).</p>	Study to be undertaken within the first five years of commencement of the IFOA (by October 2015)	FCNSW	<p>Tactical inventory is progressively collecting field data that will enable such a study to be undertaken once a sufficient sample has been collected. This will be supported by inventory collected from the remeasure of Continuous Forest Inventory (CFI) plots planned for 2018–19.</p> <p>This data is required prior to review of the western IFOAs, which will start in 2020.</p>
IFOA clauses 41(1) to (7)	<p>41. Travelling stock reserves</p> <p>FCNSW to draft a plan for managing logging operations and submit this plan to the EPA.</p> <p>See IFOA for full undertakings 41(1) to (7).</p>	FCNSW plan for managing logging operations on travelling stock reserves in the Brigalow–Nandewar region	FCNSW (EPA may provide written comments)	Finalisation of the plans will be considered in the review of the western IFOAs, planned for 2020.
IFOA clauses 44(1) to (3)	<p>44. Assessment of regeneration in silvicultural management</p> <p>(1) FCNSW must assess the extent and nature of regeneration in areas of land within the Brigalow–Nandewar region that are logged during the term of this approval. Assessments must be carried out on a regular and periodic basis.</p> <p>See IFOA for full undertakings 44 (1) to (3).</p>	The first such assessment is to be completed by the end of 2013	FCNSW	Assessment of regeneration is now being undertaken as part of the FCNSW Western Inventory and growth monitoring program, using fixed plots, remote sensing and post harvesting assessment tools. This has been ongoing for Brigalow since December 2014.

Milestone/clause	Detail	Timeframe	Responsibility	Progress in 2018–19
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).</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) has been deferred until the review of the western IFOAs has been completed.</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).</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) has been deferred until the review of the western IFOAs has been completed.</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).</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) has been deferred until the review of the western IFOAs has been completed.</p>

Milestone/clause	Detail	Timeframe	Responsibility	Progress in 2018–19
	See IFOA for full undertakings 52 (1) to (3).			
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) has been deferred until the review of the western IFOAs has been completed.
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).</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) has been deferred until the review of the western IFOAs has been completed.
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</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	FCNSW (to be confirmed by the EPA and Fisheries)	The EPA received FCNSW’s 2018–19 annual report on forestry operations in the western region, which includes the Brigalow–Nandewar region, in September 2019.

Milestone/clause	Detail	Timeframe	Responsibility	Progress in 2018–19
	<p>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>	<p>kept by FCNSW for the remainder of the term of this approval.)</p>		
IFOA clauses 149 to 151	<p>149. Species management plans for certain threatened plant species</p> <p>FCNSW is to prepare plans for:</p> <p>(a) <i>Bertya</i> sp. A Cobar-Coolabah (also named <i>Bertya opponens</i>)</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>	<p>Within 12 months of the commencement approval and to be submitted to the EPA</p>	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 Biodiversity Conservation Act 2016 • 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 has been deferred until the review of the western IFOAs has been completed.</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>	<p>Within 12 months of the commencement approval and to be submitted to the EPA</p>	FCNSW	<p>As for clauses 149 to 151 above.</p>
IFOA clauses 149, 152 and 259	<p>Approved plans</p> <p>Intention to amend IFOA to give effect to approved plans under</p>	<p>Potentially within 12 months of the commencement approval</p>	EPA and FCNSW	<p>Subject to finalisation of actions 149 and 152.</p>

Milestone/clause	Detail	Timeframe	Responsibility	Progress in 2018–19
	clauses referred to above. This will result in amendment and ultimately omission of clause 259.			
IFOA clauses 233 (1) to (4)	Auditing methodology for the retention of trees (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). See IFOA for full undertaking 233 1) to (4).	Within 12 months of the commencement approval	EPA and FCNSW	A draft methodology has been prepared by FCNSW. If possible, an agreed audit methodology will aim to be consistent with any tree retention assessment requirements that are developed through the coastal IFOA remake process. The methodology will be finalised during the first five-year statutory review, which will commence in 2020. 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.

Appendix 3: Milestones and undertakings – Riverina Red Gum IFOA

This appendix reports on progress in 2018–19 in achieving the 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 in 2018–19
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)	Public consultation on review of western IFOAs is planned for 2020-21. For more information, see the NSW Forestry Industry Roadmap . ³³
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. This milestone will be considered as part of the Western IFOA review, which will commence in 2020.

³³ <https://www.dpi.nsw.gov.au>

IFOA clauses	Detail	Timeframe	Responsibility	Progress in 2018–19
28 (2), (3)	<p>Optimal basal area retention rate trial</p> <p>(2) FCNSW may carry out a trial in accordance with this clause to determine the optimal rate of basal area retention for the purposes of clause 43, in a range between six and 12 square metres per hectare, having regard to the need for both ecologically sustainable forest management and a sustainable timber supply.</p> <p>See IFOA for full undertakings 28(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 is voluntary and 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 using 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 review of the western IFOAs, which is planned for 2020.</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 OEH and LLS consulted</p>	<p>Finalisation of the plans will be considered in the review of the western IFOAs, which is planned for 2020.</p>

IFOA clauses	Detail	Timeframe	Responsibility	Progress in 2018–19
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>	To be undertaken before carrying out the first assessment, which is due by 31 December 2013	FCNSW (lead) and OEH 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.
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>	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) has been deferred until the review of the western IFOAs has been completed.
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>	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) has been deferred until the review of the western IFOAs has been completed.
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>	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) has been deferred until the review of the western IFOAs has been completed.

IFOA clauses	Detail	Timeframe	Responsibility	Progress in 2018–19
63 (1) to (3)	<p>Burning operations management plan – review and amendment</p> <p>(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).</p> <p>See IFOA for full undertakings 63 (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) has been deferred until the review of the western IFOAs has been completed.
66 (1) to (3)	<p>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 Riverina state forests regularly and periodically (and at least every five years from its approval for implementation).</p> <p>See IFOA for full undertakings 66 (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) has been deferred until the review of the western IFOAs has been completed.
71 (1) to (5)	<p>Preparation of annual program of forestry operations</p> <p>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.</p> <p>See IFOA for full undertakings 71 (1) to (5)</p>	First one due 1 July 2011	FCNSW (lead) forward to the EPA and Fisheries	The EPA received the FCNSW 2018–19 annual program of forestry operations for the Brigalow–Nandewar, South West Cypress and Riverina Red Gum IFOAs in July 2018.
86 to 91	<p>Annual reports on forestry operations</p> <p>Annual report for financial year must be given to the EPA and Fisheries</p> <p>See IFOA for full undertakings 86 to 91</p>	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 2018–19 annual report on forestry operations in the western region, which includes the Riverina Red Gum region, in September 2019.

IFOA clauses	Detail	Timeframe	Responsibility	Progress in 2018–19
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 species 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 and 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 its 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 April 2019.</p>

Appendix 4: Milestones and undertakings – South Western Cypress IFOA

This appendix reports on progress in 2018–19 in achieving the 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 2018–19
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 2018–19.
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	Finalisation of the plans will be considered in the review of the western IFOAs, which is planned for 2020.
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) with 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 2018–19
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) has been deferred until the review of the western IFOAs has been completed.
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) has been deferred until the review of the western IFOAs has been completed.
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 2018–19 annual program of forestry operations for the Brigalow–Nandewar, South West Cypress and Riverina Red Gum IFOAs in July 2018.
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 2018–19 annual report on forestry operations, which covers the Brigalow–Nandewar, South West Cypress and Riverina Red Gum regions in September 2019.

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2018–19
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 give effect to the plan. 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 as a significant number of records post-date the original drafts. <p>Finalisation of the plans will be considered in the review of the western IFOAs, which is planned for 2020. 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>This program will be considered as part of a statewide <u>NSW Forest Monitoring and Improvement Program</u>.³⁴</p> <p>The timing of delivery of the monitoring and assessment programs is linked to this initiative.</p>

³⁴ <https://www.nrc.nsw.gov.au>

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2018–19
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 by FCNSW.</p> <p>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 2020. 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>
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 or 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) has been deferred until the review of the western IFOAs has been completed.

IFOA Clauses	Detail	Timeframe	Responsibility	Progress for 2018–19
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 April 2019. 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 the 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 logging operations and ancillary road construction in April 2019.

Appendix 5: IFOAs and Forest Agreements operating in NSW 2018–2019

Current IFOAs and Forest Agreements – all regions at June 2019

Forest Agreement/IFOA	Commenced	In place until
Coastal		
Coastal IFOA	15 November 2018	November 2038
Southern region Forest Agreement	3 May 2002	3 May 2022
Western regions		
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

Previous Forest Agreements and IFOAs for coastal regions (replaced by Coastal IFOA in November 2018)

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
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

Acronyms and abbreviations

cl.	Clause from an Act or other legislation
DPI	NSW Department of Primary Industries
DPIE	NSW Department of Planning, Industry and Environment
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
m ³	cubic 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
SOFR 2018	<i>State of the Forests Report 2018</i>
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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