



Overview of the New South Wales Forest Management Framework V1.1

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More information

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Abbreviations

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences (Cth)
AHIMS	Aboriginal Heritage Information Management System
AS4708	Australian Standard for Sustainable Forest Management
BC Act	<i>Biodiversity Conservation Act 2016</i> (NSW)
BCT	Biodiversity Conservation Trust
BCP	Biodiversity Conservation Program
CAR	Comprehensive, adequate and representative (reserve system)
Cth	Commonwealth of Australia
DEC	Department of Environment and Conservation (NSW)
DOI	former Department of Industry (NSW)
DPC	Department of Premier and Cabinet
DPI	Department of Primary Industries (NSW)
DPIE	Department of Planning, Industry and Environment (NSW)
EEC	Endangered Ecological Community
EES	Environment, Energy and Science group (DPIE)
EMS	Environmental Management System
EPA	Environment Protection Authority (NSW)
EPA Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
ESFM	Ecologically sustainable forest management
FA	Forest Agreement (NSW)
FCNSW	Forestry Corporation of NSW
FM Act	<i>Fisheries Management Act 1994</i> (NSW)
FMP	Forest Management Plan
FMS	Forest Management System
FRAMES	Forest Resource and Management Evaluation System
FSC	Fisheries Scientific Committee (NSW)
FMZ	Forest management zoning (zones)
GIS	Geographic information system
HHIMS	Historic Heritage Information Management System
IFOA	Integrated Forestry Operations Approvals
IPART	Independent Pricing and Regulatory Tribunal

ISO14001	ISO 14001:2004 – Environmental management systems – Requirements with guidance for use
ILUA	Indigenous land use agreement
IUCN	International Union for Conservation of Nature
LEP	Local Environment Plan
LiDAR	Light Detection and Ranging
LLS	Local Land Services
LLS Act	<i>Local Land Services Act 2013</i> (NSW)
LMBC	Land Management and Biodiversity Conservation
MNES	Matters of National Environmental Significance
NFPS	National Forest Policy Statement (1992)
NP	National Park
NPWS	National Parks and Wildlife Service (NSW)
NPW Act	<i>National Parks and Wildlife Act 1974</i> (NSW)
NRC	Natural Resources Commission
NSW	New South Wales
NV Act	<i>Native Vegetation Act 2003</i> (NSW)
OEH	former Office of Environment and Heritage (NSW)
PAS	Priorities Action Statement
PMF	Park Management Framework
PMP	Park Management Program
PNF	Private native forestry
PNF Code	Private Native Forestry Code of Practice (NSW)
POEO Act	<i>Protection of the Environment Operations Act 1997</i> (NSW)
PR Act	<i>Plantations and Reafforestation Act 1999</i> (NSW)
PR Code	Plantations and Reafforestation (Code) Regulation 2001 (NSW)
PVP	Property vegetation plan
QAA	Quality Assurance Assessments
RFA	Regional Forest Agreement (Cth & State)
RFA Act	<i>Regional Forest Agreements Act 2002</i> (Cth)
ROD	Regional Operations Division
SEED	Sharing and Enabling Environmental Data
SEPP	State Environmental Planning Policies
SoE	State of the Environment
SOFR	Australia’s State of the Forest Report
SOP	Standard Operating Procedures

SOS	Saving our Species
TSC Act	<i>Threatened Species Conservation Act 1995</i> (NSW)
TSSC	Threatened Species Scientific Committee (NSW)

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1 Introduction

The New South Wales Forest Management Framework (the framework) is a comprehensive system for delivering Ecologically Sustainable Forest Management (ESFM) within the NSW forested estate.

The framework includes overarching policy and legislation, institutional and administrative arrangements, and associated planning and operational systems. It is complemented by adaptive management and a continual improvement process incorporating research findings and feedback processes associated with compliance and enforcement systems, stakeholder engagement and monitoring and review mechanisms.

Principles of Ecologically Sustainable Forest Management (ESFM)

✓ Maintain or increase the full suite of forest values for present and future generations across the NSW native forest estate

✓ Ensure public participation, access to information, accountability and transparency in the delivery of ESFM

✓ Ensure legislation, policies, institutional frameworks, codes, standards and practices related to forest management require and provide incentives for ecologically sustainable management of the native forest estate

✓ Apply precautionary principles for prevention of environmental degradation

✓ Apply best available knowledge and adaptive management processes

ESFM seeks to maintain the economic, social and ecological benefits and services provided by forests while maintaining cultural and environmental values, such as biodiversity and water quality, and sustaining the health and productivity of the forest for current and future generations.

The framework addresses ESFM across all public and private land tenures, including conservation reserves, State forests, private native forests and plantations.

The framework sits within a national and international policy context and responds to national and State legislation that has evolved over time as a result of ongoing work to balance ecological, social and economic pressures, and in response to other factors affecting resource availability.

The framework includes legislation, regulations, bilateral agreements, and regulatory instruments subject to NSW law.

The purpose of this document is to demonstrate how ESFM principles are embedded in the policy and legislative context, highlight the progress of ongoing forest management reforms, and to support the implementation of NSW Regional Forest Agreements (RFAs).

This document provides an overview of the framework as at October 2020, including the various State-wide components and laws that regulate and support ESFM.

This document reflects amendments to the framework from the passing of the *Forestry Legislation Amendment Act 2018* (NSW). The changes made by this Act include amending the *Local Land Services Act 2013* (NSW) with respect to private native forestry, the *Forestry Act*

2012 (NSW) with respect to public native forestry and for other purposes, and to make consequential amendments to other Acts and instruments. Further information about these reforms is provided in **section 6.2**.

Table 1.1 illustrates the key NSW Government agencies and provides a summary of the legislation they administer and an overview of their key responsibilities that are integral to the Framework. A full list of relevant laws is provided in **Appendix A**.

1.1 Structure of this document

Section 2 International and National context provides the international and national context for forest management in NSW.

Section 3 NSW land tenures provide an overview of how NSW Forest Management Framework is applied across the State's land tenures.

Section 4 NSW Forest Management Framework provides the overview of the legislation, policy, regulatory instruments and programs underpinning the NSW Forest Management Framework following major legislative reforms, which commenced in November 2018.

Section 5 Managing matters of national environmental significance in RFA regions provides an outline of how the NSW Forest Management Framework considers matters of national environmental significance.

Section 6 Legislative reforms in NSW provides an overview of current and recently completed major legislative reforms relevant to the NSW Forest Management Framework commencing from late 2018.

Section 7 NSW forest management agencies details the key agencies involved in forest management in NSW and their roles and responsibilities.

Section 8 Public consultation and reporting in NSW outlines public consultation and reporting mechanisms under the Framework.

Table 1.1 Key NSW agencies, legislation and responsibilities for forest management

Agency	Legislation	Responsibilities for forest management
Department of Regional NSW	<i>Forestry Act 2012</i> <i>Forestry Regulation 2012</i> <i>Plantations and Reafforestation Act 1999</i> <i>Fisheries Management Act 1994 (FM Act)</i> <i>Local Land Services Act 2013</i>	Forest industry policy and forest science Regulation of plantations Compliance of Crown forestry with licence under <i>FM Act</i> Land manager of Crown-timber land, including State forest, timber reserves and flora reserves Forestry operations on Crown-timber land in compliance with IFOAs. Selling wood Establishing and maintaining plantations Approvals and advice for private native forestry Advice to private landholders on land management options
Department of Primary Industries	<i>Forestry Act 2012</i> <i>Plantations and Reafforestation Act 1999</i> <i>Fisheries Management Act 1994 (FM Act)</i>	Forest industry policy and forest science Regulation of plantations Compliance of Crown forestry with licence under <i>FM Act</i>
Forestry Corporation of NSW (FCNSW is a state-owned corporation)	<i>Forestry Act 2012</i> <i>Forestry Regulation 2012</i>	Land manager of Crown-timber land, including State forest, timber reserves and flora reserves Forestry operations on Crown-timber land in compliance with IFOAs. Selling wood Establishing and maintaining plantations
Local Land Services	<i>Local Land Services Act 2013</i>	Approvals and advice for private native forestry Advice to private landholders on land management options
Environment Protection Authority	<i>Forestry Act 2012</i> <i>Local Land Services Act 2013</i> <i>Protection of the Environment Operations Act 1997</i> <i>Biodiversity Conservation Act 2016</i>	Primary environmental regulator Compliance of Crown forestry with IFOAs Compliance of private native forestry with PNF Code Develops environment protection policy and statutory instruments
National Parks and Wildlife Service	<i>National Parks and Wildlife Act 1974</i> <i>Wilderness Act 1987</i>	Manages the National Park estate Produces plans of management for parks Jointly manages 8 parks with local Aboriginal people Investigation, protection and management of wilderness
Biodiversity Conservation Trust	<i>Biodiversity Conservation Act 2016</i>	Manages private land conservation program
Department of Premier and	<i>Crown Land Management Act 2016</i>	Manages Crown reserves Assesses Aboriginal land claims Aboriginal and non-Aboriginal heritage

<p>Cabinet -Heritage Council NSW</p>	<p><i>Aboriginal Land Rights Act 1983</i> <i>Heritage Act 1977</i></p>	<p>Conservation of heritage</p>
<p>Department of Planning, Industry and Environment (DPIE)¹</p>	<p><i>Crown Land Management Act 2016</i> <i>Biodiversity Conservation Act 2016</i> <i>Part 5A Local Land Services Act 2013</i> <i>Environmental Planning and Assessment Act 1979</i></p>	<p>Conservation of environment Protection of threatened species and communities Native vegetation mapping and compliance Environmental protection Responsible for State environmental planning policies (SEPPs) and related regulatory requirements</p>

¹<https://legislation.nsw.gov.au/#/view/regulation/1977/05/schadministrat/dup172>

2 International and national context

Several international frameworks, Australian Government legislation, policies and bilateral agreements influence forest management in NSW. These are shown in **Figure 1** and described in the following sections.

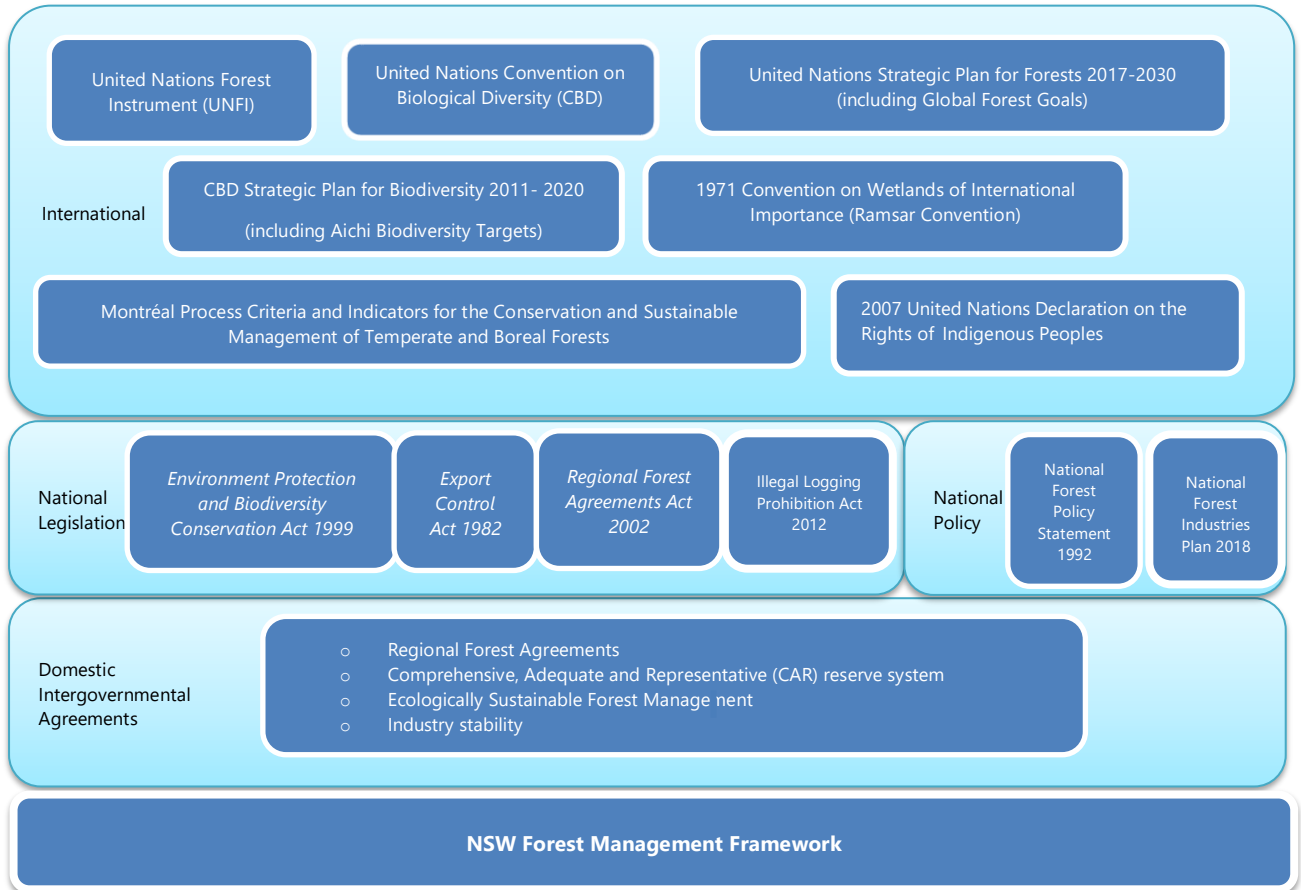


Figure 1 International and national context for forest management in NSW

2.1 Policies

International treaties and forest management

Australia is a signatory to several international treaties, agreements and frameworks which are considered in managing New South Wales' forests. These include the 1971 Convention

on Wetlands of International Importance (Ramsar Convention)², the 1972 World Heritage Convention³ and the 1992 Convention on Biological Diversity⁴.

In 2009, Australia supported the 2007 United Nations Declaration on the Rights of Indigenous Peoples, which recognises, among other matters, the rights of Indigenous peoples to lands and territories, waters and coastal seas, and the resources of the lands, territories and waters (such as animals, vegetation, and minerals).

The United Nations General Assembly (UNGA), through the United Nations Forest Instrument (UNFI), recognises sustainable forest management as a:

*"... dynamic and evolving concept, (which) is intended to maintain and enhance the economic, social and environmental value of all types of forests, for the benefit of present and future generations."*⁵

In 2007, the UN General Assembly adopted the Non-Legally Binding Instrument on All Types of Forests, renamed UNFI in 2015. The UNFI strengthens *"... political commitment and action at all levels to implement effectively sustainable management of all types of forests and to achieve the shared global objectives on forests."*⁶ In 2017, the UN Strategic Plan for Forests 2017-2030 (UNSPF) was adopted and includes six Global Forest Goals to support the implementation of the UNFI and other internationally agreed objectives related to forests.

Montreal Process

Australia is a member country of the Montréal Process Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests (MPWG) – an intergovernmental initiative established in June 1994. In 1995 the MPWG endorsed a comprehensive framework of seven criteria and indicators to provide a common understanding for describing, assessing and evaluating a country's progress towards sustainable forest management. This provides its member countries with⁷:

² The Ramsar Convention aims to halt the world-wide loss of wetlands, and to conserve through wise use and management, those that remain.

³ The World Heritage Convention defines the types of natural and cultural sites which can be considered for inscription on the World Heritage List.

⁴ The Convention on Biological Diversity provides a commitment to sustainable development through conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources.

⁵ Collaborative Partnerships on Forests, Sustainable Forest Management Factsheets. Accessed October 2020: www.cpfweb.org/76228/en/

⁶ Accessed: October 2020

https://www.un.org/esa/forests/wp-content/uploads/2018/08/UN_Forest_Instrument.pdf

⁷ Accessed October 2020

https://www.montrealprocess.org/The_Montreal_Process/About_Us/index.shtml

- an internationally agreed, locally supported tool to integrate issues as they apply to forests;
- a common ground on which stakeholders, public agencies and countries can work out shared objectives and collaborative actions toward sustainable forest management;
- a common framework to monitor, assess, and report on trends in forest conditions with respect to the full range of forest values and, in turn, on the progress toward sustainable forest management;
- a network and forum for exchanging knowledge and experience, deliberating policy tools, maintaining awareness of the important role of forests, and fostering collaboration among countries with diverse natural, socio-economic, and cultural backgrounds.

The former Ministerial Council on Forestry, Fisheries and Aquaculture (MCFFA) agreed to endorse the use of the Montreal Process criteria and indicators as a basis for assessing progress towards sustainable forest management at the national level in Australia. In August 1996, the Montreal Process Implementation Group for Australia (MIG) was formed. Its role is to coordinate Australia's input to the international MPWG, as well as coordinate activities within Australia and liaise with Commonwealth and state/territory agencies and other stakeholders for domestic implementation of and reporting on the Montreal Process criteria and indicators in Australia.

Australia has adapted the Montréal Process indicators to better suit the characteristics of Australia's forests, the goods and services they provide, and the people who depend on or use them. The Montréal Process framework of criteria and indicators is referenced at both the national and state level in a number of mechanisms including legislation, policies, reporting processes and certification systems. It is implemented in Australia's State of the Forests Report (SOFR), the five-yearly national report on the status of Australia's forests, developed by the MIG and the National Forest Inventory Steering Committee, and published by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES). NSW contributes to the SOFR publications.

The Montréal Process framework of criteria and indicators forms the basis of the Australian Standard® for Sustainable Forest Management (AS 4708) administered by the Responsible Wood Certification Scheme. Regional Forest Agreements also specify that the set of sustainability indicators used to monitor forest changes are to be consistent with the Montréal Process criteria and that the Montréal Process criteria and indicators form the basis of the assessments of Regional Forest Agreements.

CBD Aichi Biodiversity Targets

Australia has been a contracting party to the United Nations Convention on Biological Diversity since 1993 (CBD). In 2010, CBD adopted the Strategic Plan for Biodiversity 2011–2020 including the Aichi Biodiversity Targets which run until 2020. Australia provides a four-yearly report on measures taken to implement the convention, as well as progress against the

Aichi targets. There are 20 Aichi targets contained under five strategic goals.⁸ In the context of NSW forest management, the notable targets include:

Aichi Target 4.

By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits, and

Aichi Target 7.

By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

CBD parties are currently undertaking a process to develop the Post-2020 Global Biodiversity Framework.

National Forest Policy Statement 1992

New South Wales is a signatory to Australia's National Forest Policy Statement 1992 (NFPS), which sets out a nationally shared vision for the ecologically sustainable management of Australia's forests. As signatories to the NFPS, the Australian, state and territory governments are committed to the sustainable management of all Australian forests whether public or private, reserved or available for production, and have agreed that:

"... the public and private native forest estate will be managed for the broad range of commercial and non-commercial benefits and values it can provide for present and future generations. Efficiently and sustainably managed public and private forests will provide the basis for nature conservation and maintaining forest biological diversity, and for regional economic development and employment opportunities in a wide range of sectors, including wood production from native and plantation forests, tourism and recreation, water supply, grazing and the pharmaceutical industry" (NFPS 1992, page 6).

National Forest Industries Plan 2018⁹

The Australian Government's National Forest Industries Plan provides the vision and certainty needed for Australia's forestry industry and supports the sustainable forest industries as long-term growth engines for regional Australia. The plan also supports the forest industries' aspirational goal of planting a billion new plantation trees over the next 10 years.

⁸ Convention on Biological Diversity, *Aichi Biodiversity Targets*. Accessed October 2020: <https://www.cbd.int/sp/targets>

⁹ Australian Government Department of Agriculture and Water Resources (2018) *Growing a Better Australia – A Billion Trees for Jobs and Growth*. Accessed October 2020: <http://www.agriculture.gov.au/forestry/publications/growing-better-australia>

2.2 Legislation

Regional Forest Agreements and the *Regional Forest Agreement Act 2002 (Cth)*

RFAs are long-term bilateral agreements between the Australian and state governments.

The NSW and Australian governments signed RFAs for the Eden, North East and Southern regions of NSW, on 26 August 1999, 31 March 2000 and 24 April 2001 respectively. These Agreements were renewed in November 2018.

RFAs are a means of balancing environmental, economic and social uses and values of key native forest regions across Australia. They are derived from the NFPS and are formalised in the *Regional Forest Agreements Act 2002 (Cth)* (RFA Act).

They provide a streamlined approach to satisfying Commonwealth legislative requirements for environmental planning and assessment and for conducting forestry operations to meet ecologically sustainable forest management objectives. The key objectives of the RFA Act, relevant to the framework, are to give effect to certain:

- obligations of the Commonwealth under RFAs
- aspects of the NFPS.

The RFA's key principles are:

- provide for ecologically sustainable forest management and use of forests
- certainty for conservation of the environment and heritage values through the establishment and maintenance of a Comprehensive, Adequate and Representative (CAR) reserve system (see **section 4.5**)
- certainty of resource access for the forestry industry.

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, which are referred to as matters of National Environmental Significance (MNES). The EPBC Act encapsulates the principles of ecologically sustainable development, which are actively promoted under the legislation's objectives. Specifically, the EPBC Act protects the following nine MNES:

- World Heritage properties
- National Heritage places
- wetlands of international importance (Ramsar wetlands)
- listed threatened species and communities
- listed migratory species
- nuclear actions
- Great Barrier Reef Marine Park
- Commonwealth marine areas
- a water resource, in relation to coal seam gas development and large coal mining development.

The EPBC Act also provides protection for the environment where:

- actions proposed are on, or will affect, Commonwealth land and the environment
- Commonwealth agencies are proposing to take an action.

In accordance with the EPBC Act, a proposed action that will or is likely to have a significant impact on nationally protected matters under MNES requires approval from the Australian Government Minister for the Environment.

Under the EPBC Act, forestry operations undertaken in accordance with an RFA are not subject to the assessment and approval requirements of Part 3 of the EPBC Act, unless the forestry operation is proposed within a World Heritage or Ramsar wetland site. In NSW RFA regions, there are no forestry operations permitted within World Heritage or Ramsar wetland sites, and this is expressly prohibited under the *Forestry Act 2012* (NSW).

Notwithstanding, a range of NSW statutory and non-statutory instruments described in this framework provide protections to listed species and communities, including those identified as MNES, in RFA regions. **Section 5** outlines more information on how the framework considers MNES.

Export Control Act 1982

The *Export Control Act 1982* (Cth) establishes a broad framework under which goods for export are regulated. RFAs are recognised under the Export Control (Regional Forest Agreement) Regulations. This recognition provides exemption from the Export Control (Unprocessed Wood) Regulations and the Export Control (Hardwood Wood Chips) Regulations for wood and wood chips sourced from a region where an RFA is in force.

Controls on the export of Unprocessed Wood and Woodchips sourced from NSW plantations were removed in accordance with the Export Control (Unprocessed Wood) Regulations (Cth), following approval by the Australian minister responsible for forestry that the code of practice applying to plantations would satisfactorily protect environmental and heritage values.

Native Title Act 1993

Native title recognises the traditional rights and interests to land and waters of Aboriginal and Torres Strait Islander people. Under the *Native Title Act 1993* (Cth) (Native Title Act), native title claimants can make an application to the Federal Court to have their native title recognised by Australian law. The Native Title Act provides for the recognition and protection of native title and establishes ways in which future dealings affecting native title may proceed and to set standards for those dealings and a mechanism for determining claims to native title.

Native title rights can include rights to hunt, gather, fish and camp, and access lands. Native title rights may exist in public lands in NSW, including national parks or State forests. A determination of native title rights over a national park or State forest does not change the status of the forest or public access and use of a park.

2.3 Other national legislation and policy

There is a wide range of national legislation and policy that impact more generally on forest management, including:

- *Competition and Consumer Act 2010* (Cth)
- *Illegal Logging Prohibition Act 2012* (Cth)
- Australian Renewable Energy (Electricity) Regulations 2001
- National Forest Industries Plan¹⁰

¹⁰ Australian Government Department of Agriculture and Water Resources (2018) *Growing a Better Australia – A Billion Trees for Jobs and Growth*. Accessed October 2020:
<http://www.agriculture.gov.au/forestry/publications/growing-better-australia>

3 NSW land tenures

The NSW Forest Management Framework is applied across the State’s land tenures. Different elements of the framework may apply across all land tenures or to specific land tenures. In the context of forest management, the different land tenures, the State laws under which they are established, the primary purpose of that land tenure and the responsible management agency are shown in **Table 3.1**.

Table 3.1 Land tenures in NSW

Tenure	Primary NSW legislation	Primary purpose	Land manager
PUBLIC LAND			
Crown-timber land, including State forest, flora reserves, timber reserves or land affected by a profit à prendre	<i>Forestry Act 2012 (NSW)</i>	Land set aside for the utilisation and management of wood production and other forest products; and in the case of flora reserves for the preservation of native flora. Multiple use public native forests in NSW also provide for recreational uses and for the conservation of environment and heritage values. As well as flora reserves, special management zones can be declared to protect special conservation values and prohibit forestry operations.	FCNSW NPWS manages some flora reserves
Crown-timber land, including State forest, flora reserves, timber reserves or land affected by a profit à prendre	<i>Plantations and Reafforestation Act 1999 (NSW) (2018)</i>	facilitates the reforestation of land, promotes and facilitates the development of timber plantations, and codifies best practice environmental standards, provides a streamlined and integrated scheme, for the establishment, management and harvesting of timber and other forest plantations, consistently with the principle of ecologically sustainable development	FCNSW
Crown-timber land, including State forest, flora reserves, timber reserves or	<i>Biodiversity Conservation Act 2016</i>	EPA’s enforcement powers and compliance tools to regulate public and private native forestry	FCNSW

Tenure	Primary NSW legislation	Primary purpose	Land manager
land affected by a profit à prendre	<i>Protection of the Environment Operations Act 1997</i>		
Conservation reserves <ul style="list-style-type: none"> • national parks • historic sites • state conservation areas • regional parks • karst conservation reserves • nature reserves • Aboriginal areas. 	<i>National Parks and Wildlife Act 1974 (NSW)</i>	Land set aside for the conservation of environment and heritage values, and public appreciation and enjoyment of those lands.	NPWS
Crown reserves including (but not limited to): <ul style="list-style-type: none"> • nature reserves • coastal lands • travelling stock routes • state heritage sites • waterway corridors • commons. 	<i>Crown Land Management Act 2016 (NSW)</i>	Land set aside for public purposes including environmental and heritage protection, recreation and sport, open space, community halls, special events and government services.	DPIE (NPWS) DRNSW(LLS)
Leasehold including Western Lands Leases	<i>Crown Land Management Act 2016 (NSW)</i>	Land leased from the Crown for grazing, agriculture, forestry, residences and businesses.	FCNSW (for the duration of forestry operations)
PRIVATE LAND			
Freehold	<i>Local Lands Services Act 2013 (NSW)</i>	Private use at landowner's discretion, including sustainable forestry, land management, and conservation (subject to legislative constraints)	Landowner
Freehold	<i>Biodiversity Conservation Act 2016</i>	Landholders have more choices to manage native vegetation on their property to improve agricultural productivity and	Landowner

Tenure	Primary NSW legislation	Primary purpose	Land manager
		<p>biodiversity outcomes. Establishes the private land conservation framework, and the requirements to develop a Biodiversity Conservation Investment and a biodiversity values map. This part establishes the three types of private land conservation agreements and prescribes content, duration and variation and other provisions.</p> <p>EPA's enforcement powers and compliance tools to regulate private native forestry.</p> <p>Department of Planning Industry and Environment (DPIE) enforcement powers and compliance tools for native vegetation clearing on private land – exercised by the Environment Energy and Science group</p>	
Freehold	<i>Plantations and Reafforestation Act 1999 (NSW) (2018)</i>	facilitates the reafforestation of land, promotes and facilitates the development of timber plantations, and codifies best practice environmental standards, provides a streamlined and integrated scheme, for the establishment, management and harvesting of timber and other forest plantations, consistently with the principle of ecologically sustainable development	Landowner

4 NSW Forest Management Framework

The framework is made up of legislation, policy, regulatory instruments and programs that regulate and support sustainable forest management in NSW. The framework is administered by several State Government agencies and authorities and applies to both public and private land tenures.

The key NSW laws that underpin the framework are the:

- *Forestry Act 2012* (NSW) (Forestry Act) which provides for regulation of forestry operations on State forests and other Crown-timber lands including requirements to provide for the protection, restoration and enhancement of the quality of the environment in New South Wales and the conservation of threatened species, populations and ecological communities of fish and marine vegetation, having regard to the need to maintain ecologically sustainable development, including the conservation of biological diversity. The Act prescribes the Forestry Corporation of NSW (FCNSW) as the land manager of Crown-timber land and allows for the dedication of flora reserves in State forest. The Act also establishes the regulatory framework for native forestry on State forests and other Crown-timber lands, providing for NSW IFOAs.
- *Biodiversity Conservation Act 2016* (NSW) (BC Act) which provides for the maintenance of a healthy, productive and resilient environment, consistent with the principles of ecologically sustainable development, and includes the listing of threatened species (flora and fauna), threatened ecological communities, and threatening processes, and voluntary conservation measures for private land. It also provides:
 - EPA's enforcement powers and compliance tools to regulate public and private native forestry.
 - Department of Planning Industry and Environment (DPIE) enforcement powers and compliance tools for native vegetation clearing on private land – exercised by the Environment Energy and Science group
- *National Parks and Wildlife Act 1974* (NSW) (NPW Act) which prescribes management requirements for the majority of the NSW public reserve system and the protection and management of Aboriginal heritage
- *Plantations and Reafforestation Act 1999* (NSW) (PR Act) and *Plantations and Reafforestation (Code) Regulation 2001* (PR Code), which provide for the authorisation and regulation of plantations and plantation operations on public or private land
- *Local Land Services Act 2013* (NSW) (LLS Act) which provides for the regulation of native vegetation management on private land and the authorisation and regulation of private native forestry operations

The key laws for forest management in NSW are shown in **Figure 2**. A full list of NSW laws relevant to forest management in NSW is provided in **Appendix A**. The key laws and how they relate to the various land tenures is illustrated in **Appendix B**.

Information on NSW agencies involved in forest management is provided in **section 7**.

The framework has, at its core, four primary elements:

- A comprehensive adequate and representative (CAR) reserve system that securely protects forest environment and heritage values on public and private land
- A system for managing and regulating native forestry on public and private land
- A system for authorising and regulating plantation operations on public and private land
- A system for managing forests outside reserves in a manner that contributes to sustainable environmental, social and economic outcomes.

Each of these elements is described in more detail in the following sections of this document. **Section 4** outlines how the framework provides for the protection and management of MNES as defined in the EPBC Act.



Figure 2 Key NSW laws for forest management

4.1 Public native forestry

NSW Forest Agreements

Four NSW Forest Agreements (FAs) were developed between 1999 and 2002 in consultation with major stakeholders. They provide a framework for long-term management of NSW native forests. They have a duration of 20 years, are reviewed every 5 years and reported on annually. The NSW FAs largely duplicate the Regional Forest Agreements (RFAs) between the NSW Government and the Commonwealth (see below).

The *Forestry Legislation Amendment Act 2018* (NSW) removed the requirement to maintain duplicative policies and reporting and review processes. The Act provides for the creation of Integrated Forest Operations Approvals (IFOA) without the need for a NSW Forest Agreement. This change enabled the NSW Government to allow FAs to lapse on their expiry, with no effect on environmental protections or timber supply. The expiry and lapse of FAs does not impact on the design, management or implementation of IFOAs. Any outstanding issues continued in these instruments can be rolled into other mechanisms.

FAs for the upper north east, lower north east and Eden regions lapsed on 4 March 2019.

The Southern Region FA remains in force until 2022 at which time it will also lapse.

NSW Regional Forest Agreements (RFAs)

RFAs are long-term agreements between the Australian and four state governments for the sustainable management and conservation of Australia's native forests and to provide for the long-term stability of forests and forest industries. (see 2.2)

The NSW and Australian governments signed RFAs for the Eden, North East and Southern regions of NSW, on 26 August 1999, 31 March 2000 and 24 April 2001 respectively

The Australian and NSW governments renewed and extended the NSW RFAs on 28 November 2018 following assessment, public consultation, independent review and consideration.

The NSW RFAs now have a 20-year rolling life, so at any point in time the NSW RFAs will be between 15 and 20 years from expiring, depending on the satisfactory completion of the five-yearly reviews.

The NSW RFAs are implemented through the NSW Forest Management Framework.

Forestry Act 2012 (see page 23)

The Forestry Legislation Amendment Act 2018 (NSW) (FLA Act)

The FLA Act was assented by NSW Parliament on 27 June 2018 and came into force on 9 November 2018 along with the new Coastal IFOA. The changes mainly relate to the regulatory framework for native forestry. An outline of the legislative changes to public and private native forestry in NSW is included in **section 6.2**.

Crown-timber land

Timber on land which is Crown-timber land under the Forestry Act is the property of the Crown. Crown-timber land comprises: land within a State forest; Crown lands (whether or not held under a lease or licence from the Crown); and land affected by a profit à prendre (leasehold land in the process of being converted to freehold, where timber rights have been retained by the Crown for up to 10 years).

It does not include any leasehold tenure listed in the First Schedule of the former *Forestry Act 1916* (NSW) if it is less than two hectares, or any land not in that list.

Where the legislation permits, Crown-timber land may only be harvested by FCNSW in accordance with the requirements of the Forestry Act and the relevant IFOA. Timber in this context means wood within trees which can be harvested for logs and other wood products

Integrated Forestry Operations Approvals (IFOAs)

The *Forestry Act 2012* provides that the approving ministers may grant IFOAs on Crown-timber land, including State forests, with respect to particular regions of NSW.

The *Forestry Legislation Amendment Act 2018* simplified regulatory arrangements, making IFOAs a single integrated licence, by removing the requirement for the FCNSW to hold separate licences under the BC Act, the FM Act and the POEO Act.

IFOAs set the rules for how forestry operations can be carried out on native State forests and Crown-timber lands in NSW. They include rules to protect native plants, animals, important habitat and ecosystems, soils and water in native forestry operations on public land. They also set requirements to achieve ESFM in NSW.

IFOAs are reviewed by the NSW Government every five years to ensure they remain contemporary, address any inefficiencies or changes in best practice and to formally integrate protection measures that had been issued by the NSW Environment Protection Authority (EPA) in the preceding five years for any threatened species, communities and populations listed by the NSW scientific committee(s)(see **section 4.6**) during that period.

The IFOA requires the EPA to prepare and issue a condition for any threatened species listed by the NSW scientific committee(s) upon the issuing of either preliminary determination or a final determination. Forestry operations cannot occur until the condition has been issued. An IFOA does not authorise harm to any threatened ecological community or population (unless otherwise stated in the IFOA), meaning any new listings are automatically protected from harm under the BC Act (NSW).

There are four current IFOAs in NSW:¹¹

- Brigalow Nandewar
- South-Western Cypress
- Riverina Red Gum
- Coastal IFOA (covering the areas of the previous Upper North East, Lower North East, Southern and Eden IFOAs)

Under the *Forestry Act 2012*, public consultation is required on the making, amendment or revocation of a forest agreement referred to in Part 5A of the Forestry Act. The Ministers must also ensure that the public is given the opportunity to participate in a review of a forest agreement and any IFOA for the region.

Regional ESFM Plans / Forest Management Plans

The Forestry Act 2012 and Forestry Regulation require FCNSW to prepare and implement ESFM management plans, also known as Forest Management Plans, for all State forests.

The management plans establish how FCNSW delivers ESFM outcomes and maintain certification to the Australian Standard for Sustainable Forest Management (AS4708:2013) and ISO 14001:2015 *Environmental Management System*.

Each plan covers the management requirements of the Forestry Act, including the native forests estate and the hardwood plantations, within the State forests and associated lands

¹¹ EPA. Accessed October 2019: <https://www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals>

within each region.

The plans form the backbone for delivery of ESFM outcomes and are required to outline the ESFM strategy to be adopted. There are two forest management plans relevant to public native forestry operations in NSW, and collectively, all NSW public native forestry regions are covered in these plans. The are:

- Forest Management Plan for the Coastal Forests of NSW¹², and the
- Forest Management Plan for the Western Forests of NSW¹³.

The Montreal Process criteria and indicators are the international measure by which progress toward meeting ESFM is assessed. The components of the Regional ESFM Plans also reflect these criteria and address:

- natural heritage
- Aboriginal cultural heritage
- non-Aboriginal cultural heritage
- nature conservation
- forest health
- sustainable wood supply
- economic development
- social development
- forestry operations
- consultation, monitoring and reporting.

The plans provide the public with a description of the forest values and the social and economic benefits that flow from forest management activities. They also outline the types of management practices, regulatory constraints, planning processes and monitoring and reporting systems employed by FCNSW in delivery of ESFM.

Hardwood Forest Management System

FCNSW has a Forest Management Policy, which outlines its commitments to conserving and advancing a range of forest values such as biodiversity, forest productivity and carbon sequestration in keeping with the principles of ESFM. The policy is delivered through the

¹² FCNSW (2016) *Forest Management Plan for the Coastal Forests of NSW*. Accessed September 2018: www.forestrycorporation.com.au/_data/assets/pdf_file/0011/669008/hardwood-forests-forest-management-plan.pdf

¹³ FCNSW (2019) *Forest Management Plan for the Western Forests of NSW*. Accessed September 2019: https://www.forestrycorporation.com.au/_data/assets/pdf_file/0005/885560/hfd-western-fmp.pdf

Hardwood Forest Management System (FMS)¹⁴.

The Hardwood FMS includes processes and procedures that guide day-to-day operations by outlining how FCNSW will plan operations, implement procedures, audit and report operations and review performance to achieve sustainable forest management. Continual improvement is a key component of the Hardwood FMS.

The Hardwood FMS covers public native forestry and hardwood plantation management. The Harwood FMS is certified under the Australian Standard for Sustainable Forest Management, AS 4708:2013¹⁵ and ISO 14001:2015 *Environmental management system*, which sets the framework for achieving and continually improving environmental performance.

Note: The FCNSW Softwood Plantation FMS is also certified to both standards.

Further information on the Hardwood FMS and day-to-day planning and management activities of FCNSW is provided in **Appendix C**.

4.2 Private native forestry

Private native forestry (PNF) is the sustainable management of native forests on private property and crown land which is not Crown-timber land, for timber production.

Local Land Services Act 2013

The primary legislation for regulating and managing native forestry operations on private land in NSW is the LLS Act.

The LLS Act requires landholders to obtain a private native forestry plan (PNF Plan) from Local Land Services (LLS) to conduct native forestry operations on private land. A PNF Plan is a legally binding agreement between a landholder and LLS. Once a PNF Plan is entered into, landholders must conduct PNF operations in accordance with the relevant PNF Code.

The LLS Act also establishes the regulatory framework for native forestry on private land including the environmental protections and operating standards in the PNF Codes of Practice.

¹⁴ FCNSW (2016) *Forest Management Plan for the Coastal Forests of NSW*, Accessed July 2019 www.forestrycorporation.com.au/__data/assets/pdf_file/0011/669008/hardwood-forests-forest-management-plan.pdf

¹⁵ Responsible Wood (2018) *Sustainable Forest Management (AS4708)*. Accessed July 2019: <https://www.responsiblewood.org.au/standards/australian/australian-standards-4708-forest-management/>

The Forestry Legislation Amendment Act of 2018 transferred responsibility for the regulation of private native forestry to Local Land Services, with the Environment Protection Authority maintaining its enforcement role. An outline of the legislative changes to public and private native forestry in NSW is included in **section 6.2** and Appendix A.

PNF Codes of Practice

The LLS Act provides that the Minister administering Part 5B of the LLS Act may make a PNF Code of Practice only with concurrence from the Minister administering the BC Act and the Minister administering Part 5A of the LLS Act. The Minister is also required to consult with the Minister administering Part 7A of the FM Act.

PNF Codes apply to the following NSW areas¹⁶:

- Northern NSW
- Southern NSW
- Cypress and western hardwood forests
- River Red Gum forests.

The PNF Codes sets out conditions to ensure that ESFM is implemented and includes:

- ESFM principles and silvicultural standards
- protection of landscape features of environmental and cultural significance
- protection of habitat and biodiversity
- minimising damage to retained trees and native vegetation
- drainage feature protection
- provisions to protect biodiversity (including NSW listed protected and threatened species and habitat)
- provisions to prevent soil erosion and water pollution
- notification and reporting requirements
- minimum operating standards for harvesting in private native forests.

A field guide has been developed for each of the PNF Codes and is designed to further support landholders and PNF operators apply the relevant PNF Code requirements during operations. Additionally, silviculture guidelines have been developed to provide essential information on ESFM to owners and managers of native forests on private land.¹⁷

¹⁶ Local Land Services (2018) Private Native Forestry Code of Practice. Accessed July 2019: <https://www.lls.nsw.gov.au/sustainable-land-management/pnforestry/private-native-forestry-code-of-practice>

¹⁷ For more information please visit the Local Land Services *Private native forestry plans* webpage. Accessed July 2019 <https://www.lls.nsw.gov.au/sustainable-land-management/pnforestry/private-native-forestry-plans>

4.3 Native forestry compliance

The EPA is the primary environmental regulator in NSW and regulates compliance of native forestry on both private and public land to protect the environment and ensure harvesting operations are compliant with:

- IFOAs on Crown-timber land
- PNF plans and the PNF Codes on private land.

The Department of Primary Industries (DPI) regulates compliance with the specific IFOA aquatic and marine environment and species protection rules.

The EPA maintains an active native forestry compliance program for regulating PNF and Crown forestry to ensure compliance by FCNSW, landholders and PNF contractors and to promote continual improvement in their environmental performance.

The compliance program is risk based with the EPA setting a strategic target¹⁸ of assessing the compliance of 95% of high-risk native forestry operations each year.

This is achieved through a range of regulatory activities, including: operational inspections, audits, and investigations, and is supported by education and regulatory extension. Where non-compliances are identified, the EPA has a range of compliance and enforcement tools to correct poor performance or environmental impacts. This is undertaken in accordance with its Compliance Policy¹⁹ and Prosecution Guidelines²⁰, and ranges from education, warnings, official cautions, stop work orders, penalties and prosecutions.

The EPA regulate in accordance with an Annual Compliance Plan²¹, which sets out a range of compliance priorities to focus EPAs regulatory efforts, and establishes clear compliance expectations with FCNSW, landholders and PNF operators.

The EPA and DPI-Fisheries publish annual reports²² on the compliance outcomes for both public and private native forestry each year.

¹⁸ NSW EPA (2017) *Environment Protection Authority Strategic Plan 2017-21* Accessed August 2019: <https://www.epa.nsw.gov.au/about-us/publications-and-reports/strategic-plan>

¹⁹ NSW EPA Compliance Policy. Accessed August 2019:

<https://www.epa.nsw.gov.au/publications/legislation/epa-compliance-policy-130251>

²⁰ NSW EPA (2013) EPA Prosecution Guidelines. Accessed August 2019: <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/legislation/20130141epaprosguide.pdf?la=en&hash=D30D2F76C4058F6E0D17B38E1562F0C36043564D>

²¹ NSW EPA (2019) Compliance Plan 2018-19. Accessed August 2019: <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/legislation/epa-compliance-plan.pdf>

²² NSW EPA, Annual reports. Accessed August 2019: <https://www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports>

The EPA also publish all compliance audit reports for individual public forestry operations. These are available on the EPA's public register²³ and in the compliance audit report register²⁴, available on the EPA website.

Audit reports summarise the EPA's findings against the relevant IFOA for a specific forestry operation. Each audit report contains:

- an audit findings table with details and explanations of compliances and non-compliances, and where the EPA could not determine compliance with audited conditions
- the EPA risk matrix for non-compliances
- FCNSW submission on the EPA's draft audit findings.

The EPA does not routinely publish inspection reports or investigation reports.

4.4 Plantation operations and compliance

The NSW Government is committed to supporting the sustainable development of plantation forestry throughout the State.

Softwood and hardwood plantations, including on private and public land such as State forest, are regulated under the *Plantations and Reafforestation Act 1999* (PR Act) and the *Plantation and Reafforestation (Code) Regulation 2001* (PR Code).

The PR Act defines a plantation as land on which most of the trees forming or expected to form the canopy have been planted for timber production or protection of the environment or any other use, but not for the purpose of food production or any other farm produce other than timber.

The PR Act and PR Code promote and facilitate the sustainable development of softwood and hardwood plantations on already essentially cleared land throughout NSW. They provide for a streamlined and integrated scheme for the establishment, management and harvesting of plantation wood, and other plantation operations, consistent with the principles of ecologically sustainable development.

The PR Act requires plantations or proposed plantations on public or privately-owned land to be authorised before plantation operations can be undertaken. Plantation operations include establishment, management and harvesting operations. Authorisation is required

²³ NSW EPA, Public registers. Accessed August 2019: <https://www.epa.nsw.gov.au/licensing-and-regulation/public-registers>

²⁴ NSW EPA, Compliance audit report register. Accessed August 2019: <https://www.epa.nsw.gov.au/your-environment/native-forestry/native-forestry-nsw-overview/regulating-native-forestry/compliance-audit-report-register>

unless the plantation complies with conditions for Exempt Farm Forestry, where the total area of plantation operations does not exceed 30 hectares and any required clearing of native vegetation does not otherwise require consent under the LLS Act²⁵.

The purposes of authorisation of plantations under the PR Act are to provide a streamlined and integrated process for obtaining approval to establish plantations, to guarantee harvesting rights and to apply codified environmental standards for plantations. Consequently, authorised plantation operations and exempt farm forestry are not otherwise subject to the provisions of the LLS Act or the *Environmental Planning and Assessment Act 1979* (NSW) (EPA Act).

Plantation operations are also exempt from certain provisions of the NPW Act, BC Act, FM Act and *Heritage Act 1977* (NSW), and to certain orders under the *Local Government Act 1993* (NSW) or to notices under *Soil Conservation Act 1938* (NSW).

If an application for authorisation meets the complying requirements of Part 4 of the PR Code, the plantation will be authorised as a 'complying plantation' and be subject to the conditions of the PR Code.

If an application does not meet all the requirements of Part 4 of the PR Code, authorisation will be given only if the impacts of the non-complying parts of the proposal are not significant. In these instances, the plantation will be authorised as a 'non-complying plantation' and may have conditions imposed additional to those in the PR Code in order to mitigate any adverse impacts of plantation operations.

The PR Code requires that before an application for authorisation of a plantation is submitted, the proposed plantation is visited by a DPI (forestry) officer authorised under the PR Act.

Authorised officers carry out site inspections in order to assess soil and water, biodiversity and cultural heritage elements that are the subject of complying development standards, and to assist in relation to the application.

If an application for a new plantation is assessed as having a potentially significant effect on either EPBC Act or NSW listed threatened species, populations, ecological communities or their habitats, a species impact statement in accordance with the BC Act may be required as part of the application process. Further information is provided in **section 5.1.5**.

Existing plantations can be authorised under Section 17 of the PR Act and may be subject to any conditions considered appropriate in connection with establishment, management, harvesting and or the management of threatened species. The Minister with responsibility for forestry may refuse an application for an existing plantation if it is determined that it was not established in accordance with any relevant law at the time of establishment.

²⁵ This formerly fell under the *Native Vegetation Act 2003* (NSW) (NV Act).

DPI-Forestry regulates compliance of public and private plantation operations under the PR Act and PR Code.

4.5 The CAR reserve system

A CAR reserve system is one that comprehensively samples the natural environments, includes representative examples of the natural variability of those environments and adequately protects these values within a system of reserves which are resilient enough (in size, shape and condition) to ensure these environments and their component species are sustainable in the long term.

In NSW, the CAR reserve system comprises:

- formal or dedicated reserves
- informal reserves
- values protected by prescription
- conservation reserves on private land created under legislation through voluntary conservation agreements.

4.5.1 Formal or dedicated reserves

The National Park Estate

The NPW Act is the key statute for management of the national park estate in NSW. The NPW Act sets out the framework for managing the broad range of protected areas in NSW, including forest ecosystems. The objects of the NPW Act are the conservation of nature, the conservation of objects, places and features of cultural value in the landscape (including places, objects or features of significance to Aboriginal people), fostering public appreciation of nature and cultural heritage, and providing for the management of land reserved or dedicated under the NPW Act.

The NPW Act includes several categories for protected area, which allow different levels of sustainable visitor use. The seven formal reserve categories of the parks system identified in the NPW Act are national parks, historic sites, state conservation areas, regional parks, karst conservation reserves, nature reserves and Aboriginal areas. Permissible activities in these reserve categories are determined by a set of management principles for each reserve category and by plans of management which must be prepared for each reserve.

The *Wilderness Act 1987* (NSW) creates a management overlay for land that is essentially unchanged by modern human activity. In NSW, wilderness can be declared only on land which is subject to a wilderness protection agreement or conservation agreement or is reserved or dedicated under the NPW Act.

The NSW national parks estate is part of a national reserve system guided by the CAR reserve principles.

The NPW Act outlines the functions of the 'agency head' of the National Parks and Wildlife Service (NPWS) relating to reservation of land and the powers and functions of the NPWS. One of the functions of the Chief Executive, under Part 4 of the NPW Act, is to consider

proposals for the addition of land to the CAR reserve system. One of the considerations in acquiring land is how the proposal contributes to the CAR reserve system.

Under the NPW Act, the NPWS Chief Executive is responsible for the care, control and management of all land reserved or dedicated under the NPW Act.

The NPW Act also establishes and outlines the functions and duties of the National Parks and Wildlife Advisory Council and the Aboriginal Cultural Heritage Advisory Committee. Advisory groups provide stakeholder advice to the Minister responsible for the environment and Chief Executive on achieving the objects of the NPW Act.

The NPW Act is complemented by the National Parks and Wildlife Regulation 2009, which among other matters:

- provides for the regulation of the use of national parks and other areas administered by the NPWS, including conduct generally, traffic and mooring of vessels
- specifies requirements for licensing and certification
- provides for the protection and care of fauna
- provides for the management of Aboriginal land and objects
- provides for Aboriginal people to be exempted from the restrictions imposed by various sections of the NPW Act on the hunting of certain animals and the gathering of certain plants.

The NPWS is responsible for operational management of the parks system including adherence to park management plans or statements of intent, if a reserve category doesn't have an approved park management plan which cover all formal reserve categories.

Plans of management

Plans of management are a requirement under the NPW Act and are prepared for lands reserved under the NPW Act. They guide how a park will be sustainably managed and contain information about the natural environment, Aboriginal heritage, history, and recreational opportunities in a park. After public consultation on exhibited draft plans, plans are formally adopted by the NSW Minister for the Environment.

Plans of management help guide the conservation of biodiversity, the rehabilitation of landscapes, and the protection of natural and cultural heritage. They cover the protection of World Heritage values and Ramsar wetlands, and the management of World Heritage properties or Ramsar wetlands in a park. They also include management principles for use of a park by Aboriginal people for cultural purposes, sustainable visitor or tourist usage, natural resource management and land management practices.

As at August 2019, NPWS has 663 parks covered by an exhibited or adopted plans of management. Each of these has been publicly exhibited, giving the community opportunity for advice or input into the management of the NSW national park estate.

When a park is first reserved and before its plan of management is developed and adopted, a statement of management intent may be prepared to outline management principles and priorities for the park. This statement briefly documents key values, threats and management directions for the park.

A statement of management intent is not a statutory document and a plan of management still needs to be prepared. Publication of a draft or final plan of management replaces the statement(s) of management intent for the relevant parks covered.

Forest Management Zones in State forest

FCNSW maintains and implements a Forest Management Zone (FMZ) system - a land classification system that sets out in spatial format the way State forests are managed²⁶. The FMZ system is based on nationally agreed reserve criteria and differentiates between those areas of State forests that are specifically set aside for conservation and those areas that are available for other activities including wood harvesting. FMZs that contribute to the CAR reserve system include:

- *Zone 1 - Special Protection.* These areas are dedicated and managed to maximise the protection of natural and cultural values. The Forestry Act contains provisions to set apart the whole or part of a State forest as a flora reserve for the preservation of native flora. Wood harvesting, removal of wood or other forest products and materials, grazing by domestic stock, gravel/hard rock quarrying and mineral and petroleum exploration are not generally permitted within this zone. Flora reserves are required to have a working plan under the Forestry Act, to affect the preservation of native flora within the reserve. Areas within this zone are designed to meet the requirements of JANIS dedicated (formal) reserves in the NFPS and, as such, are equivalent to IUCN Protected Areas categories II, III, IV or VI.
- *Zone 2 - Special Management.* These areas are established following public comment and are gazetted and managed for the protection of natural and cultural conservation values where it is not possible or practicable to include them in a Special Protection Zone. Activities not permitted in this zone are like Special Protection Zones except that mineral and petroleum exploration are permitted. Any mining proposal following from exploration will require standard environmental impact assessment and development approval processes. FMZ 2 areas may contribute to CAR reserve system informal reserves or values protected by prescription, subject to size, width and whether they are adjacent to a formal or dedicated reserve. Areas within this zone are designed to meet the requirements of JANIS informal reserves in the NFPS and, as such, are equivalent to IUCN Protected Areas categories I, II, III or IV.
- *Zone 3A – Harvest Exclusions.* These areas exclude wood harvesting operations and are managed for the conservation of identified values and/or forest ecosystems and their natural processes; however, other management and production activities, or size,

²⁶ State Forests NSW (1999) *Managing Our Forests Sustainably: Forest Management Zoning in NSW State Forests*. Accessed July 2019:

www.forestrycorporation.com.au/_data/assets/pdf_file/0003/438402/managing-our-forests-sustainably-forest-mgt-zoning-in-nsw-state-forests.pdf

boundaries or management practicalities, preclude them from being managed as Zone 1 or 2. Zone 3A contributes to the CAR reserve system values protected by prescription. These areas are designed to comply with JANIS “values protected by prescription” but to the fullest extent possible are managed to meet the requirement of JANIS informal reserves.

These may be dedicated leasehold where lease conditions permit activities, such as grazing and timber supply for lease fencing etc., and in some cases residency; areas identified as important by the Department of Planning Industry and Environment where there are current or imminent petroleum and mineral exploration and/or mining activities; or other areas which are excluded from harvesting (e.g. Net Harvestable Area (NHA) exclusions) but size, boundaries or management practicabilities preclude designation as FMZ 1 or FMZ 2.

- *Special Prescription Zone (FMZ 3B)*. These areas are established for the protection and management of identified conservation values, whilst also allowing other management and production activities. These activities (which in some cases includes timber, wood, forest products and materials extraction) are minimised in their design and implementation to maintain or enhance the values that the area is zoned to protect. A case by case assessment of these areas will be undertaken to determine which forestry activities can occur. The decision is dependent on the specific values involved.
- *General Management Zone (FMZ 4)*. These areas are designed for a range of uses and are primarily managed for sustainable wood production. Prescriptions under the various IFOAs are designed to protect important forest ecosystems and habitat for native and threatened flora and fauna species in this zone. FMZ 4 contributes to the CAR reserve system category of values protected by prescription through harvest exclusions applied to mapped areas of rare non-commercial forest types, old growth forest, rainforest and threatened ecological communities.

4.5.2 Conservation on private land

The NSW government recognises that engaging private landowners provides an important opportunity for conservation on private land. More than 70 percent of the state is under private ownership or Crown leasehold and many ecological communities and threatened species are found only on privately owned and managed land. Landholders who protect the plants and animals on their land play a key role in keeping biodiversity across NSW healthy.

The BC Act establishes a NSW Biodiversity Conservation Trust (BCT). The BCT manages and delivers private land conservation across NSW with the aim of maintaining a healthy, productive and resilient environment for the community, now and into the future.

The new private land conservation program is guided by the Biodiversity Conservation Investment Strategy 2018 (BCIS) which identifies priority investment areas and principles for investment. The BCT is responsible for delivering the government’s \$240 million investment over five years in private land conservation. This investment provides opportunities for landholders to diversify their income sources through protecting and managing areas of high environmental value on their properties alongside other uses such as farming.

The objective of the BCT is to protect and enhance biodiversity by:

- encouraging landholders to enter into co-operative arrangements for the management and protection of the natural environment that is significant for the conservation of biodiversity
- seeking strategic biodiversity offset outcomes to compensate for the loss of biodiversity due to development and other activities
- providing mechanisms for achieving the conservation of biodiversity
- promoting public knowledge, appreciation and understanding of biodiversity, and the importance of conserving biodiversity.

The BC Act establishes three main types of voluntary private land conservation agreements.

- Biodiversity stewardship agreements that provide permanent protection and management of biodiversity and allow for the creation of biodiversity credits
- Conservation agreements which are permanent or time-bound agreements and may be eligible for stewardship payments
- Wildlife refuge agreements which are an entry level option for landholders who want to protect the biodiversity on their property but do not wish to enter into a permanent agreement.

Under the new private land conservation framework, existing agreements that are in place will continue, and be governed by the Act they were made under. Existing private land conservation agreements, including conservation agreements under the NPW Act, trust agreements under the *Nature Conservation Trust Act 2001* and BioBanking agreements under the (repealed) *Threatened Species Conservation Act 1995* (TSC Act), will be carried over and remain in place. This means that properties protected under a permanent conservation agreement will continue to be protected.

4.5.3 The NSW NPWS Park Management Framework

DPIE and NSW National Parks and Wildlife Service (NPWS) has adopted into its management all the elements of an environmental management system (EMS). This ensures a consistent approach to management the national park estate to minimise environmental impacts.

The Park Management Framework (PMF) is comprised of elements such as legislation, policy and planning and operational guidelines. As demonstrated in Table 4.1, together they form

an EMS that is consistent with the Australian Standard for Environmental Management Systems (ISO 14001:2004)²⁷.

This model supports continual improvement in the management of the NSW national park estate. The PMF ensures that all key elements required in a management cycle are considered.

Table 4.1 Alignment of EMS with the Australian EMS Standard (ISO 14001:2004)

Australian EMS Standard Framework	Parks Management Framework (PMF)	Examples
General Requirements	Management Objectives	Legislation Strategic plans and program evaluation plans
Environmental Policy	Park Policy	Park management policies are publicly available
Planning	Planning	Annual Operational Plans Plans of Management Environmental Impact Assessment / Review of Environmental Factors Program Delivery Plans for: Biodiversity Conservation; Threatened Species (Saving our Species); Pest Management; and Fire Management. Regional Pest Management Strategies Fire Management Strategies
Implementation and Operation	Operations	NSW Terrestrial Reserve System EES and Parks Organisational Structure and Systems Parks Manuals, Guidelines and Procedures
Checking	Monitoring and Evaluation	NPWS State of the Parks Parks Survey, Monitoring, Evaluation and Research Program
Management Review		

Key to this monitoring and evaluation is the State of the Parks system, used to periodically assess the condition of values and severity of threats on the national park estate, to evaluate

²⁷ Standards Australia and Standards New Zealand (2003) Australian/New Zealand Standard, *Environmental management systems – Requirements with guidance for use - Third edition AS/NZS ISO 14001:2004*. Accessed August 2019: <https://infostore.saiglobal.com/en-au/Standards/AS-NZS-ISO-14001-2004-393320/>

management effectiveness and inform management decisions. Further information on the State of the Parks is provided in **section 8.2.2**.

4.6 NSW scientific committees

In NSW, there are two scientific committees that consider the listing of threatened species and threatened ecological communities. These are the NSW Threatened Species Scientific Committee and the NSW Fisheries Scientific Committee. These two committees and their functions are discussed in the following sections. Further information on the listing of threatened species, threatened ecological communities and threatening processes is provided in **section 4.7.1**.

NSW Threatened Species Scientific Committee

The NSW Threatened Species Scientific Committee (NSW TSSC) is established under the BC Act. It is an independent committee of scientists appointed by the Minister for the Environment.

The NSW TSSC's main functions include:

- To assess the risk of extinction of a species in Australia and decide which species should be listed as critically endangered, endangered, vulnerable or extinct in NSW
- For species that are not listed as threatened species, to decide if there are populations of those species that should be listed as threatened in NSW
- To assess the risk of extinction of an ecological community in Australia and decide which ecological communities should be listed as critically endangered, endangered, vulnerable or collapsed ecological communities
- Identifying species that are extinct or extinct in the wild in NSW, collapsed ecological communities and deciding which key threats to native flora and fauna should be declared key threatening processes under the BC Act
- Reviewing and updating the lists of threatened species, populations and communities and key threatening processes in the schedules of the BC Act.

Under the BC Act, the NSW TSSC must initially assess a species' risk of extinction in Australia. If a species is assessed by the TSSC as being threatened nationally then the Committee will list that species in NSW at that level. If a species is not threatened at the national scale then the TSSC can assess the extinction risk of the species in NSW.

The BC Act and Biodiversity Conservation Regulation 2017 (NSW) set out the criteria used by the NSW TSSC to make these assessments. These assessment criteria are based on those

developed by the IUCN. Guidelines²⁸ provide information on how the BC Act and regulation's listing criteria are interpreted in assessments.

The TSSC sets priorities for its consideration of nominations for listing under the BC Act. The current nomination priorities include:

- species endemic to NSW
- degree of threat
- immediacy of threat
- taxonomic distinctiveness
- such other matters as the TSSC considers relevant.

NSW Fisheries Scientific Committee

The NSW Fisheries Scientific Committee (NSW FSC) is an independent body established under Part 7A of the FM Act. The main functions of the NSW FSC are:

- the listing of species, populations, ecological communities and key threatening processes in the schedules of the FM Act
- advising the Minister on the identification of critical habitat
- reviewing draft joint management agreements and the performance of parties under the agreements
- advising the Director-General on the exercise of DPI functions under threatened species legislation of the FM Act
- advising the Minister and the Natural Resources Commission on matters relating to the conservation of threatened species, populations or ecological communities.

The NSW FSC consists of seven scientists, with expertise in the biology of fish, aquatic invertebrates and marine vegetation; population dynamics, aquatic ecology and genetics of small populations.

4.7 Biodiversity conservation

4.7.1 Threatened species, ecological communities and threatening processes

In NSW the key legislation that identifies and protects threatened species, populations and ecological communities is the BC Act and its regulations. Threatened fish, aquatic invertebrates and marine vegetation are protected under the FM Act.

²⁸ NSW TSSC (2018) *Guidelines for interpreting listing criteria for species, populations and ecological communities under the NSW Biodiversity Conservation Act 2016*. Accessed July 2019: <https://www.environment.nsw.gov.au/committee/scientificcommitteepublications.htm>

Species, populations, ecological communities and key threatening processes are listed in the Schedules of the BC Act or the FM Act. The FM Act covers all fish, aquatic invertebrates and marine vegetation. The BC Act covers the remaining flora, fauna and ecological communities.

The BC Act began on 25 August 2017 and replaced the TSC Act and the *Native Vegetation Act 2003* (NSW).

DPIE (EES) administers the BC Act, with matters relevant to native forestry administered by the NSW EPA. DPI administers the FM Act.

The listing of species and ecological communities as threatened is a function of NSW scientific committees. Further information on NSW scientific committees is provided in **section 4.6**.

A species is considered threatened if:

- there is a reduction in its population size
- it has a restricted geographical distribution
- there are few mature individuals.

A species may be listed under the BC Act or FM Act as:

- vulnerable
- endangered
- critically endangered
- presumed extinct.

The status of a threatened species in NSW depends on:

- the extent of its population reduction
- the size of its geographical distribution
- the number of mature individuals.

Populations of a species and ecological communities can also be listed as threatened. Processes that threaten species may be listed as key threatening processes. Habitat essential to the survival of endangered or critically endangered species, populations of a species or ecological communities, can be declared as critical habitat.

Both NSW and the Commonwealth are signatories to the 2015 *Intergovernmental memorandum of understanding - Agreement on a common assessment method for listing of threatened species and threatened ecological communities* (as detailed in **section 5.1.3**).

Under the memorandum, the parties agree to align their threatened species and ecological communities (NSW opted-in to include ecological communities in October 2016) listing processes with the IUCN Red List categories and criteria and to collaborate on listing assessments to ensure consistent listing status across relevant jurisdictions.

4.7.2 The NSW Biodiversity Conservation Program

The NSW Biodiversity Conservation Program (BCP) outlines strategies for assisting threatened species, populations and ecological communities. The BCP replaced the Priorities Action Statement (PAS) under the BC Act, effective 25 August 2017.

The BCP consists of:

- strategies to achieve the objectives of the program in relation to each threatened species and threatened ecological community
- a framework to guide the setting of priorities for implementing the strategies
- a process for monitoring and reporting on the overall outcomes and effectiveness of the program.

4.7.3 Saving our Species

Saving our Species (SOS) is the NSW Government's program that aims to secure threatened flora and fauna in the wild in NSW.

Through the BCP, SOS implements strategies through its conservation projects. These include strategies to minimise the impacts of key threatening processes, which may, but are not required to be, included in the Program.

SOS is led by DPIE (EES Biodiversity and Conservation), working closely with NPWS to develop and manage the overall program, particularly regarding the management of pest animals and weeds identified as Key Threatening Processes under the BC Act.

There are currently more than 980 threatened species and over 100 threatened ecological communities in NSW. All threatened species are allocated to one of six management streams²⁹. Within those streams, information and critical management actions for each species are identified and collated.

The management actions for species must consider different land tenures. Many threatened flora and fauna have much or their entire habitat on privately owned land. These include about 50% of site-managed species and all the landscape-managed species, so conservation on such land is crucial for their survival. Funds are being invested by SOS to encourage and assist landholders to manage their land for conservation of threatened species and ecological communities.

²⁹ SOS has allocated all threatened species to one of six management streams to meet their different needs. These are:

Site-managed: species can be successfully secured in the wild by carrying out targeted management actions at specific sites

Landscape: generally distributed across large areas and subject to threats at landscape scale

Iconic: species which the community places a high value on and has particular expectations for conservation

Data deficient: there is insufficient knowledge available on the ecology, distribution and/or management requirements to enable a site-managed species project

Partnership: has less than 10% of its population/distribution occurring within NSW

Keep Watch: lower priority for investment in management

To achieve its objectives the SOS program:

- consults extensively with experts and applies independent peer reviewed science to species, populations of a species and ecological communities projects
- takes a rigorous and transparent approach to prioritising investment in projects that ensure benefit to the maximum number of species, populations of a species and ecological communities projects
- provides targeted conservation projects that set out the actions required to save specific flora and fauna on mapped management sites
- regularly monitors the effectiveness of projects so they can be improved over time
- encourages community, corporate and government participation in threatened species conservation by providing a website and a database with information on project sites, volunteering and research opportunities.

Success of the SOS program is measured by the number of sites where threatened species and ecological communities are stable or increasing in the wild in NSW. Conservation activities delivered as part of the SOS program are complemented by effective regulation of human impacts on threatened species and ecological communities. SOS projects are operating on all land tenures including national parks, forested land, with local councils and private landowners.

To evaluate the SOS program, the EES group has developed a comprehensive framework that:

- links investment in projects with their outcomes
- covers short-term, medium-term and long-term timeframes
- facilitates monitoring of projects and evaluation of program effectiveness and efficiency
- reports on species on track to be secure in the wild in NSW for 100 years.

4.8 Cultural heritage

4.8.1 Aboriginal cultural heritage guidelines

Aboriginal cultural heritage is managed and protected under the NPW Act. The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010) is adopted under the National Parks and Wildlife (NPW) Regulation 2009 and sets out the reasonable and practicable steps which individuals and organisations need to take in order to:

- identify whether or not Aboriginal objects are, or are likely to be, present in an area
- determine whether or not their activities are likely to harm Aboriginal objects (if present)
- determine whether an Aboriginal Heritage Impact Permit application is required.

The NPW Act also provides that due diligence may be exercised by complying with a code of practice which is adopted under the NPW Regulation. These codes provide due diligence guidance tailored for specific types of activities or industries. Operational Guidelines for Aboriginal Cultural Heritage Management published by FCNSW (13 September 2010) have been adopted for native forestry on Crown-timbered lands.

These Guidelines describe:

- the types of activities FCNSW undertakes, and their potential impacts
- the types of Aboriginal cultural heritage items that may be found on State forest and should be considered during operations
- the cultural heritage assessment process
- the consultative framework FCNSW uses
- operational guidelines, including staff training requirements
- data management requirements.

Other codes that have been adopted under the NPW Regulation relevant to forestry operations are the:

- Private Native Forestry Codes of Practice, as in force, which sets out requirements for the identification and management of Aboriginal cultural heritage. The PNF Codes require that forest operations not occur within specified distances of a known burial site, an Aboriginal scarred or carved tree or a known Aboriginal object or place as defined in the NPW Act (this requirement does not apply to Aboriginal objects or places that may lawfully be destroyed).
- Plantation and Reafforestation Code.
- Aboriginal Objects Due Diligence Code for Plantation Officers Administering the Plantations and Reafforestation (Code) Regulation 2001 (Department of Industry and Investment, September 2010).³⁰

4.8.2 Aboriginal heritage

In NSW, the principal laws that deal with Aboriginal heritage are the *Heritage Act 1977* (NSW), the NPW Act, and the EPA Act.

Under the NPW Act, it is an offence to harm (destroy, deface, or damage) or desecrate an Aboriginal object or Aboriginal place or move the object from the land on which it has been situated.

The NPW Act also protects places of special significance to Aboriginal culture where objects may not be present. Places of importance to Aboriginal individuals and communities can be given legal protection by:

- declaration of new Aboriginal Places
- reservation and management as Aboriginal Areas and national parks

³⁰ Accessed October 2020: <https://alc.org.au/newsroom/network-messages/new-aboriginal-heritage-regulations-released/>

- formal agreements on the joint management of national parks
- formal agreements with landowners (Voluntary Conservation Agreements).
- The Department of Premier and Cabinet (DPC) – Heritage Council of NSW is responsible for the protection and preservation of all Aboriginal objects and places in NSW. DPC - Heritage administers legislation which ensures that Aboriginal cultural heritage must be considered as part of land management practices. DPC – Heritage protects Aboriginal cultural heritage through:
 - regulation
 - management planning
 - public education and awareness
 - physical protection works.

Aboriginal sites are a very important part of Australia's cultural heritage, and many are on the Australian Government's National Heritage List and the NSW State Heritage Register. Even more important is the significance these sites have for Aboriginal communities. To Aboriginal people, the sites provide a direct link with their traditional culture.

4.8.3 **Aboriginal joint management of parks, State forests and Crown Lands**

Aboriginal groups with a cultural association to a park (i.e. one of the reserve categories of the national parks estate) or State forest can pursue joint management options with NPWS or FCNSW, which include:

- Memoranda of understanding for joint management
These are formal agreements between the NPWS or FCNSW and an Aboriginal community, setting out each group's shared involvement in planning and management of the park or State forest.
- Indigenous land use agreements (ILUAs)
These are limited to Aboriginal groups that have demonstrated credible evidence of native title. They are agreements about the management of public land in the area covered by the native title claim.
- Lease-back agreements
In these agreements, the NPWS returns ownership of a park or reserve to its Aboriginal owners, and then leases it back from them.
- Other options
These include informal agreements between Aboriginal communities and the NPWS or FCNSW, and Aboriginal participation in NPWS advisory committees.

Further information on each of these options is available on the DPIE (EES)³¹ web site and ILUAs are described in more detail below.

Aboriginal co-management of Crown lands

The Crown Lands Management Act 2016 (NSW) facilitates the use of Crown land by the Aboriginal people of NSW because of the spiritual, social, cultural and economic importance of land to Aboriginal people and, where appropriate, to enable the co-management of dedicated or reserved Crown land (clause 1.3(e)).

Indigenous land use agreements

Native title claimants or native title holders can negotiate a joint management arrangement for a park or State forest through the negotiation of an ILUA with the NSW Government.

An ILUA is a voluntary agreement between a native title group and others about the use and management of land and waters.

The NSW Government can negotiate an ILUA with native title claimants regarding the management of public land in their claim area. The ILUA may cover many different land tenures and cover land managed by more than one government agency. This could address the management of national parks or State forest and outline the joint management and the exercise of native title rights on the park or State forest. An ILUA may:

- recognise native title rights
- enable development to take place on the land
- deal with how that development will occur
- deal with how native title rights will be exercised
- address any compensation payable to the native title group.

If the ILUA is registered on the Register of Indigenous Land Use Agreements (Cth) it binds all parties and all native title holders to the terms of the agreement. The native title rights established by an ILUA have the same force under Commonwealth law as if they were part of a native title determination.

4.8.4 State heritage

Listing of places and objects of importance to the people of NSW on statutory heritage registers provides a legal framework for managing the approval of major changes so that heritage significance is retained and not diminished.

³¹ Accessed August 2020: <https://www.environment.nsw.gov.au/topics/parks-reserves-and-protected-areas/park-management/aboriginal-joint-management>

In NSW, there are different types of statutory listings for local, state and national heritage items. A property is a heritage item if it is:

- listed in the heritage schedule of a local council's local environmental plan (LEP) or a regional environmental plan
- listed on the State Heritage Register, a register of places and items of particular importance to the people of NSW
- listed on the National Heritage List established by the Australian Government to list places of outstanding heritage significance to Australia.

Statutory registers provide legal protection for heritage items. In NSW legal protection generally comes from the *Heritage Act 1977* (NSW) and the EPA Act. Places on the National Heritage List are protected under the EPBC Act.

4.8.5 Heritage information systems

DPC - Heritage maintains information systems³² to manage cultural heritage information assisting stakeholders such as private landholders, community groups, local councils and state government agencies to locate, identify, conserve and interpret Aboriginal and non-Aboriginal heritage values, sites and objects. These systems are accessible online and more information on each system is provided below.

Aboriginal Heritage Information Management System (AHIMS)

AHIMS contains details of Aboriginal objects, places and other heritage values across NSW. AHIMS also contains archaeological reports and site records that are unique and, in many cases, irreplaceable.

Historic Heritage Information Management System (HHIMS)

HHIMS is a catalogue of post-contact heritage items and places managed by DPC- Heritage, such as collections of heritage items and individual buildings, most of which are in the national park estate.

State Heritage Register

The State Heritage Register, created in 1999, is a list of places and objects of particular importance to the people of NSW. The register lists a diverse range of over 1,650 items, in both private and public ownership. To be listed, an item must be significant for the whole of NSW. Listing is made under the *Heritage Act 1977* (NSW).

³² EES staff, August 2019

5 Managing matters of national environmental significance in RFA regions

The EPBC Act (Cth) provides for the protection of matters of national environmental significance (MNES). Of particular importance for forest management in the NSW RFA regions are the following MNES:

- World Heritage properties
- National Heritage places
- wetlands of international importance (listed under the Ramsar Convention)
- listed threatened species and ecological communities.

A range of NSW statutory and non-statutory instruments described in **section 4** and in **section 5** provide for the protection of MNES in NSW RFA regions. This includes the establishment and maintenance of the CAR reserve system, conservation programs including SOS, the deliberations on the NSW scientific committee(s) and statutory instruments.

Under the EPBC Act, forestry operations undertaken in accordance with a RFA are not subject to further assessment and approval requirements under Part 3 of the EPBC Act, unless the forestry operation is proposed within a World Heritage or Ramsar wetland site. In NSW RFA regions, there are no forestry operations permitted within World Heritage or Ramsar wetland sites, as this is expressly prohibited under the *Forestry Act 2012*.

5.1.1 World Heritage and National Heritage

The National Heritage List is Australia's list of natural, historic and Indigenous places of outstanding significance to the nation. World Heritage sites are places that are of outstanding universal value. They have universal value that transcends the value they hold for a particular nation. There are 27 National Heritage listed places in NSW and six of these places are also listed as World Heritage properties.

In the NSW RFA regions there are six listed National Heritage places:

- Australian Alps National Parks and Reserves (Southern RFA)
- Snowy Mountains Scheme (Southern RFA)
- Ku-ring-gai Chase National Park, Lion Island, Long Island and Spectacle Island nature reserves (Lion and Spectacle islands are in the North East RFA)
- Gondwana Rainforests of Australia (North East RFA)
- Greater Blue Mountains (Wollemi and Yengo national parks are in the North East RFA)
- Australian Convict Sites (the Old Great North Road is in the North East RFA).

Gondwana Rainforests of Australia, the Greater Blue Mountains and the Old Great North Road are also World Heritage sites.

Listed places are protected by Australian Government laws and special agreements with state and territory governments and with Indigenous and private owners. Places on the list are protected under the EPBC Act, which requires that approval be obtained before any action takes place that will have, or is likely to have, a significant impact on the national or

World Heritage values of a listed place. To ensure the on-going protection of a national or World Heritage place, under the EPBC Act National and World Heritage listing requires that a management plan be produced that sets out how the heritage values of the place will be protected or conserved.³³

Under the Australian World Heritage Intergovernmental agreement, it is NSW responsibility to manage and protect all World Heritage values on national park estate as well as manage and protect all national heritage values

In the NSW RFA regions, the NPWS manages and protects the values of the National Heritage places and World Heritage properties within the national park estate, in accordance with the relevant plans of management. There are no National Heritage places in areas where forestry operations are permitted. Further information on these listings is provided below.

Australian Alps National Parks and Reserves

In the NSW section of the Australian Alps National Parks and Reserves, there are four reserves managed within the NPWS estate:

- Bimberi Nature Reserve Plan of Management
- Brindabella National Park and State Conservation Area Plan of Management
- Kosciuszko National Park Plan of Management
- Scabby Range Nature Reserve Plan of Management.

Snowy Mountains Scheme

The Snowy Mountains Scheme is the largest public works engineering scheme ever undertaken in Australia and was listed on the National Heritage List in 2016. Snowy Hydro Limited operates and maintains the scheme, much of which is located in or adjacent to the Kosciuszko National Park.

Ku-ring-gai Chase National Park, Lion Island, Long Island and Spectacle Island nature reserves

Lion Island and Spectacle Island are located on the southern border of the North East RFA. NPWS manages and protects the values of these places within the national park estate, in accordance with the *Ku-ring-gai Chase National Park and Lion Island, Long Island and Spectacle Island Nature Reserves Plan of Management*.

Gondwana Rainforests of Australia

There are 28 national parks and reserves that make up the Gondwana Rainforests of Australia World Heritage property in NSW, and each reserve has a plan of management or

³³ Department of the Environment and Energy (n.d.) National Heritage. Accessed September 2018: www.environment.gov.au/heritage/about/national

statement of management intent in place. Further, the *World Heritage Central Eastern Rainforest Reserves of Australia Strategic Overview for Management 2000* covers the World Heritage property across Queensland and NSW. This plan is currently being reviewed and updated and will reflect the new World Heritage property name; The Gondwana Rainforests of Australia.

Greater Blue Mountains

There are eight national parks and reserves that comprise the Greater Blue Mountains World Heritage property, of which the Wollemi and Yengo national parks are in the North East RFA.

The *Greater Blue Mountains World Heritage Area Strategic Plan*: covers the national parks and reserves in this World Heritage property, including: Blue Mountains National Park (NP), Gardens of Stone NP, Jenolan Karst Conservation Reserve, Kanangra-Boyd NP, Nattai NP, Thirlmere Lakes NP, Wollemi NP, and Yengo NP. In addition to the Strategic Plan, each national park or reserve is covered by a statutory plan of management made under the NPW Act.

Old Great North Road

The Old Great North Road is one of 11 sites that make up the Australian Convict Sites World Heritage property listing. The Old Great North Road is in the Yengo and Dharug national parks and NPWS is responsible for their management. Relevant plans include: Old Great North Road Management Plan, Pt 1, 2008, and the Old Great North Road Dharug National Park Maintenance Plan 2007 and Dharug National park Plan of Management (1997).

5.1.2 Ramsar wetlands

Twelve NSW wetlands are listed under the Ramsar Convention that aims to protect their ecological character. These wetlands are on a range of land tenures, including the national park estate, State forests, Crown land and private land.

EES is responsible for implementing the Ramsar Convention in NSW.

Under the Ramsar Convention, NSW is required to protect the ecological character of its Ramsar wetland sites. This involves implementing policies that aim to guarantee conservation and sustainable use of wetlands. It also involves monitoring the condition of Ramsar wetland sites to find out if there are any significant changes to the wetlands and the flora and fauna they support.

This means EES is responsible for:

- coordinating which wetlands are to be nominated for listing as Ramsar wetland sites
- advising on how existing Ramsar wetland sites are managed
- managing Ramsar wetland sites in the national park estate
- promoting the values of the Ramsar Convention
- reporting to the Australian Government on how the Ramsar Convention is being implemented in NSW.

Many other organisations and individuals are involved in Ramsar wetland sites in NSW. They include the Ramsar Convention Secretariat, Australian Government, local governments, landowners and community groups.

There are four Ramsar wetland sites in the NSW RFA regions that are managed by NPWS:

- Blue Lake in the Kosciusko NP – Southern RFA
- Myall Lakes in the Myall Lakes NP – North East RFA
- Hunter Estuary Wetlands in the Hunter Wetlands NP - North East RFA
- Little Llangothlin site in the Little Llangothlin Nature Reserve – North East RFA.

There are no forestry operations in Ramsar wetland sites in NSW RFA regions.

Outside of NSW RFA regions, the NSW Central Murray Forests Ramsar wetland site is managed for multiple values, including maintaining a forestry industry.

The NSW Central Murray Forests are a wetland complex in south-western New South Wales, listed under the Ramsar Convention in 2003. They cover 83,992 hectares and consist of three subsites: Murray Valley NP and Murray Valley Regional Park, Werai group of former State forests, and Koondrook-Perricoota State forests. All three depend on flows in the Murray River.

The management of State forests in the NSW Central Murray Forests is undertaken in accordance with the *Ecologically Sustainable Forest Management Plan for the Riverina Region* (Forests NSW 2008). Forestry operations in these State forests were considered by the Natural Resources Commission (NRC) in the 2009 assessment *Riverina Bioregion Regional Forest Assessment: River red gum and other woodland forests*. The IFOA Riverina Region was one of the key outcomes from the recommendations, including the transfer of certain State forests into the national park estate.

5.1.3 Listed species and communities

New and changed listings under the EPBC Act, as advised by the Australian Government, are considered by the NSW Threatened Species Scientific Committee and the NSW Fisheries Scientific Committee. Further information on these two committees is provided in **section 4.6**.

Under the BC Act, the NSW Threatened Species Scientific Committee must assess a species' risk of extinction in Australia. The BC Act and Biodiversity Conservation Regulation 2017 sets out the criteria used to make these assessments. These criteria are based on the assessment criteria developed by the IUCN.

When a species or ecological community is listed under the EPBC Act, the NSW Threatened Species Scientific Committee will review the listing and commence an assessment and listing process to determine if the species or ecological community should be listed in the Schedules of the BC Act.

If the species or ecological community is already listed in NSW but it is listed at a different threat level, the NSW Threatened Species Scientific Committee will also commence an assessment and listing process to consider aligning the threat level of the species or ecological community in the BC Act with the threat level in the EPBC Act.

When assessing species, the NSW Threatened Species Scientific Committee follows the requirements of the Intergovernmental memorandum of understanding agreement on a common assessment method³⁴.

Appendix D provides some examples of how listed species and communities are considered in NSW under the framework.

Common Assessment Method

The Common Assessment Method (CAM) is a consistent approach to the assessment and listing of nationally threatened species across Australian jurisdictions.

It is based on the best practice standard developed by the IUCN, as used to create the Red List of Threatened Species and Ecosystems, with some amendments to suit the Australian context.

The NSW Government has signed a Memorandum of Understanding (MOU)³⁵ with the Australian Government and other State and Territory jurisdictions to implement the CAM for species³⁶. NSW has also opted to apply the CAM to ecological communities. The MOU provides a framework for managing the review of 'legacy' species and communities (including those species listed as threatened under the EPBC Act but not listed under state/territory legislation, and vice versa for potentially nationally threatened species). It also includes guidelines for information exchange and cooperation on assessments.

Under the CAM MOU, the outcome of national assessments undertaken by one jurisdiction may be accepted by other relevant jurisdictions under their respective threatened species legislation. This reduces duplication of effort while ensuring that a species is listed in the same national threat category at both the Commonwealth level (under the EPBC Act) and State/Territory level.

Under the CAM MOU the Commonwealth is predominantly responsible for assessing species that occur in one or more State or Territory (although a State or Territory can lead the assessment of such species if all relevant jurisdictions agree; the NSW TSSC is currently leading the assessment of several cross jurisdictional species). In general, the NSW TSSC will lead assessments for NSW endemic species or ecological communities.

³⁴ Actions to further harmonise state and national processes and lists is currently underway, under the development of a common assessment method for the assessment and listing of nationally threatened species and ecological communities

³⁵ Australian Government Department of the Environment and Energy (n.d.) Common Assessment Method. Accessed July 2019: www.environment.gov.au/biodiversity/threatened/cam

³⁶ Australian Government Department of the Environment (2015) *Intergovernmental memorandum of understanding - Agreement on a common assessment method for listing of threatened species and threatened ecological communities*. Accessed July 2019: www.environment.gov.au/biodiversity/threatened/publications/mou-cam

Further information on how species, populations and ecological communities are listed as threatened in NSW, including nomination priorities for the NSW TSSC, are provided on the DPIE website³⁷.

5.1.4 Statutory Conservation Planning Documents

The Australian and NSW governments cooperate on the development of statutory plans in response to the listing of threatened species and ecological communities and key threatening processes under the EPBC Act. When a species or ecological community is listed as threatened under the EPBC Act, a conservation advice is developed to assist its recovery. For some species and communities, a more comprehensive recovery plan can be developed if deemed necessary to guide recovery of the species or community. National recovery plans set out the research and management actions necessary to stop the decline of, and support the recovery of, listed threatened species or threatened ecological communities. The aim of a national recovery plan is to maximise the long-term survival in the wild of a threatened species or ecological community.

Once a threatening process is listed under the EPBC Act, a threat abatement plan can be put into place if it is shown to be a feasible, effective and efficient way to abate the threatening process. A recovery plan or threat abatement plan can be made by the Commonwealth alone or jointly with NSW (and with other jurisdictions if relevant) or the Commonwealth can adopt a plan prepared by a State or Territory.

There are consultation requirements under the EPBC Act for listing assessments and making or adopting a national recovery plan. When making a recovery plan the Commonwealth Minister for the Environment must consult the appropriate Minister of each State and Territory in which the species or community occurs.

Under the BC Act, NSW is no longer required to develop recovery plans for threatened species or ecological communities. However, in developing actions under the BCP, NSW gives consideration to relevant threatening processes, conservation advices, recovery plans, threat abatement plans and wildlife conservation plans that are made or adopted under the EPBC Act and as amended from time to time. With iconic species such as the koala, EES works in partnership with the Australian Government to ensure that state strategies and plans complement the national recovery plan and that actions are able to be implemented and reported on.

³⁷ How species, populations and ecological communities are listed as threatened, including nomination priorities. Accessed September 2020:
<https://www.environment.nsw.gov.au/committee/HowToNominateASpeciesAsThreatened.htm>

5.1.5 Forestry operations in RFA regions

General requirements to protect native flora and landscape features on public and private land make a substantial contribution to the conservation of a range of protected and threatened species under the BC Act and EPBC Act and mitigate key threatening processes directly relevant to forestry operations. Listed species and communities under the BC Act are further considered in the IFOAs, PNF Codes and PR Code to varying degrees.

A diagram showing how EPBC Act listings flow through to NSW legislation and is considered in forestry operations in RFA regions is at **Figure 3**.

Integrated Forestry Operations Approvals (IFOAs)

The IFOAs include measures to protect threatened species and their habitat from the impacts of timber harvesting. They set out, for example:

- General landscape conditions such as rainforest, high conservation value old growth forest, habitat trees, habitat corridors, wetlands, heath, rocky outcrops caves, cliffs and tunnels and riparian habitat.
- Species-specific conditions to ensure significant habitat features are protected around known occurrences of threatened species.
- Site-specific conditions issued by the EPA on a case by case basis for any rare, poorly known species. Site-specific conditions are also issued by the EPA for all species listed as threatened by the NSW scientific committee(s), or any threatened species listed in the BC Act that is not listed in the IFOA. Forestry operations cannot occur until the EPA has issued a site-specific condition for either a specific location or for an entire species.
- Requirements for FCNSW to survey for the presence of listed species that require specific protection under the IFOA.
- Requirements for FCNSW to prepare harvest plans and maps for each forestry operation that sets out the general, species and site-specific prescriptions that apply to that operation.
- Requirements for FCNSW to prepare and publicly provide monthly reports and annual reports on proposed and completed forestry operations.

The IFOAs do not authorise harm to any ecological communities or endangered populations (unless expressly permitted otherwise) listed under the BC Act. These are protected from harm by the relevant protections and offence provisions in the BC Act. The IFOAs also provide for the management of threatened species and threatened ecological communities listed in the FM Act.

New information relevant to the protection and management of threatened species and communities can be considered as part of statutory five-year reviews for the IFOAs.

PNF Codes of Practice

The PNF Codes sets out the minimum measures to protect threatened species and their habitat from the impacts of wood harvesting. They provide:

- Protections for landscape features that make a substantial contribution to the conservation or a range of protected and threatened species and mitigate key threatening processes directly relevant to forestry operations. These protections include

rainforest, old growth forest, habitat trees, wetlands, heath, rocky outcrops caves, cliffs and tunnels and riparian habitat.

- The protection of ecological communities or endangered populations under the relevant offence provisions in the BC Act.
- Silvicultural prescriptions that set out the minimum standard of trees that must be retained (basal area) to ensure the forest structure and health is intact and operations are at a harvesting intensity that can maintain biodiversity.
- Protections for specific threatened species listed in Appendix A of the Codes, which apply where there are known records or evidence of threatened species on the property. There are no requirements to survey for species or habitat.
- Requirements for landholders or PNF Contractors to prepare forest operation plans and maps for each forestry operation that sets out the specific environmental and silvicultural prescriptions that apply to that operation.

The PNF Codes are periodically reviewed and updated from time to time and can be changed with the agreement of the relevant NSW Ministers. The PNF Codes largely use landscape protections and low impact harvesting practices to provide general protection for listed species and communities, meaning it is not necessary to frequently amend the PNF Codes to respond to new species, communities and populations listed by the NSW scientific committee(s). More information on the PNF Codes is provided in **section 4.2**.

Plantations and Reafforestation Code

Before an application for authorisation of a plantation is submitted, the PR Code requires that the proposed plantation is visited by an officer who is authorised under the PR Act. Authorised officers assist with applications and carry out site inspections to assess soil stability and salinity, identify any places, objects or items of heritage significance or areas of native vegetation that are the subject of complying development standards. A species impact statement, made in accordance with the BC Act, may be required as part of the application process if an application for a new plantation is assessed as having a potentially significant impact on a threatened species or their habitat, or a threatened ecological community, listed in the BC Act. For EPBC Act listed species or ecological communities that are not also listed in the BC Act, a species impact statement satisfying the requirements of a species impact statement made under the BC Act, may be required if the proposed development is assessed as having a potentially significant impact on the EPBC Act listed species or ecological community. More information on the PR Code is provided in **section 4.4**.

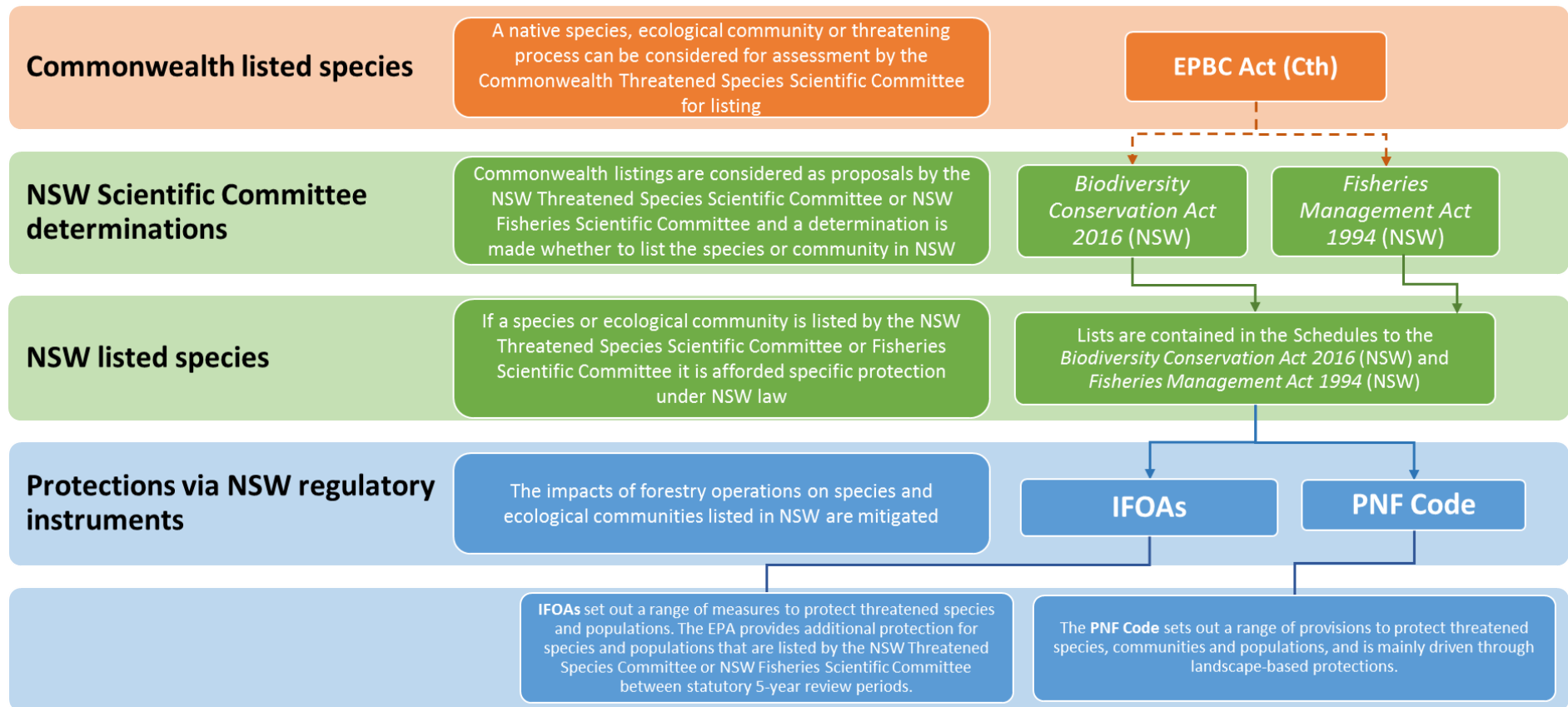


Figure 3 Protection of listed species and communities during forestry operations in NSW

6 Legislative reforms in NSW

The NSW legislative framework for forest management has evolved over the last twenty years in order to respond to changing community expectations, the availability of improved scientific data, and the need to reduce red tape and modernise legislation.

Some of the most important recent reforms to NSW legislation relevant to forest management are outlined in the following sections.

6.1 NSW Forestry Industry Roadmap

The NSW Forestry Industry Roadmap is the NSW Government's strategic action plan to ensure NSW has 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 Roadmap outlines a triple bottom line approach to achieving social, ecological and economic sustainability through four priority pillars. Under each of these pillars, there are clear actions the NSW Government is implementing, including:

1. Regulatory modernisation and environmental sustainability

The NSW Government is committed to a modern regulatory framework that ensures ecological sustainability of NSW forests and balances economic benefits with community expectations through best practice regulation.

This includes:

- reforming native forestry legislation, to streamline the regulatory arrangements, establish contemporary penalties and regulatory tools, and better integrate PNF with land management frameworks
- establishing a new Coastal IFOA, which replaces four previous IFOAs to deliver improved clarity and enforceability of environment protections, and deliver a contemporary and adaptively managed regulatory framework that is fit for purpose
- reviewing the PNF regulatory framework (including PNF Codes) to improve operating standards for ecologically sustainable harvesting in private native forests.

2. Balancing supply and demand

The NSW Government aims to ensure that decisions on balancing resource supply and demand are based on evidence and robust planning, and also provide greater certainty of resource supply for industry to plan investment, recruit and retain employees, and build their business with renewed confidence.

3. Community understanding and confidence

The NSW Government seeks to further build on community engagement through consultation to deliver and enforce a credible, effective and transparent forestry regulation and framework, and to increase community confidence that the forestry industry is sustainable, complies with requirements of the regulatory framework, and is a supplier of forest products from legal and ecologically sustainable sources.

4. Industry innovation and new markets

The carbon economy presents challenges and opportunities for NSW. The forestry industry can play an important role in storing carbon and displacing use of higher carbon materials. This may be aided by the

development of innovative biomass and bioenergy products, and the establishment of accounting methods for carbon sequestration, carbon credits and carbon markets. The NSW Government is committed to ensuring the forestry industry is well placed in the global market to capitalise on these opportunities and contribute to Australia's low carbon economy.

6.2 Forestry Legislation Amendment Act 2018

The *Forestry Legislation Amendment Act 2018* (NSW) (FLA Act) was assented by NSW Parliament on 27 June 2018 and came into force on 9 November 2018 along with the new Coastal IFOA which commenced on 16 November 2018. The FLA Act is a critical component of the regulatory reforms being undertaken by the NSW Government, as part of the NSW Forestry Industry Roadmap.

The FLA Act delivered a streamlined approach to the regulation of the native forestry industry, and provides a more credible, efficient and enforceable regulatory framework. It consolidated five separate legislative frameworks currently governing native forestry regulation into the Forestry Act and the LLS Act.

The FLA Act also aligned the management of native forests on private land with other sustainable land management options and gives landholders a single point of contact through LLS for PNF advice, approvals and extension services.

The FLA Act amended the Forestry Act to simplify the regulatory arrangements for native forestry on State forests, including through making IFOAs a single integrated licence by removing the requirement for the FCNSW to hold separate licences under the BC Act, the FM Act and the POEO Act. The FLA Act also requires IFOA forestry operations to be carried out in accordance with principles of ESFM; it updates the penalties for breaching the IFOAs; and it broadened the EPA's use of alternate enforcement tools.

The FLA Act formally transferred responsibility for approving PNF plans from the EPA to LLS, with the EPA retaining its compliance and enforcement functions. The FLA Act amended the LLS Act to include the regulatory requirements for PNF. It installed LLS as the approving authority of PNF operations and the single point of contact for landholders seeking land management advice and services.

6.3 Aboriginal Cultural Heritage reform

In 2011, the NSW Government committed to creating stand-alone legislation that respects and protects ACH while providing clear and consistent processes for economic and social development.

A proposed new legal framework was released for public consultation between September 2017 and April 2018. This framework was outlined in a detailed proposal paper and the public consultation draft ACH Bill, which was publicly released in February 2018. Consultation closed on 20 April 2018.

More than 1,000 people attended 39 public sessions held around the state and more than 100 written submissions were received from the public and key stakeholders. A number of these submissions raised issues that required further consultation.

The Government is responding to issues raised in the consultations about the current system for regulating harm to Aboriginal cultural heritage, while considering next steps for reform.

6.4 Review of Coastal IFOAs

The NSW Government has updated the rules for native forest harvesting in NSW's coastal wood production State forests. This includes consolidating the four IFOAs for the Eden, Southern, Upper and Lower North East coastal regions of NSW, into a single, modern Coastal IFOA.

The Coastal IFOA modernises and streamlines the regulatory framework for native forestry and delivers improved environmental outcomes while reducing the regulatory burden on the forestry industry.

The commencement of the Coastal IFOA, and of the FLA Act, delivers on commitments made by the NSW Government in the 2016 NSW Forestry Industry Roadmap.

The objectives of the Coastal IFOA remake were to:

- reduce costs associated with implementation and compliance
- improve clarity and enforceability of the conditions for protecting the environment, threatened species and fisheries in State forests
- incorporate innovations in best regulatory practice and advances in technology
- deliver a contemporary regulatory framework that is fit for purpose.

The Coastal IFOA was prepared based on advice from the Forest Practices Authority of Tasmania, a panel of threatened species experts, a trial of proposed settings of the Coastal IFOA in five compartments on the mid-north coast, and the advice of the Natural Resources Commission (NRC).

In November 2018, the NSW Premier requested the NRC to independently oversee a program to reassess existing old growth forest mapping and associated special environmental values on coastal State forests to improve the information base. Areas with special conservation values would continue to be protected; however, the NSW Government may consider rezoning erroneously mapped areas to offset any potential wood supply impacts of the Coastal IFOA, should they be verified by the NRC. The draft Old Growth Reassessment Framework was submitted to the NSW Government in August 2019.

Since then, the 2019-20 fires burnt over 5 million hectares of New South Wales, including 890,000 hectares of native state forest. On the NSW north coast, over 100,000 hectares of mapped old growth in state forests was burnt.

The Commission advised the NSW Government it would be unable to continue in accordance with the terms of reference. Based on this advice, the NSW Government has now suspended the program and approved the remaining funds being repurposed.

The EPA's Native Forestry Map Viewer³⁸ contains the spatial datasets that support the Coastal IFOA settings and is available for public viewing. Users can view, search and interact with each layer as well as create and print maps without the need for GIS software.

³⁸ DPIE (2019) Native Forestry map viewer. Accessed August 2019:
http://webmap.environment.nsw.gov.au/Html5Viewer291/index.html?viewer=IFOA_viewer

The map viewer contains a significant amount of data and is progressively updated to incorporate additional Coastal IFOA spatial datasets as they are finalised. Much of this data is provided by FCNSW.

6.5 Private native forestry

The NSW Government is committed to modernising and reforming the regulatory frameworks for native forestry in NSW. The NSW Government commenced a review of the PNF regulatory framework in 2018.

The PNF Review seeks to balance the ecologically sustainable management of the private native forestry and agricultural industries while recognising the environmental values of the private native forest estate. Information about the review can be found at <https://www.lls.nsw.gov.au/help-and-advice/private-native-forestry>.

6.6 Biodiversity conservation reforms

New biodiversity conservation legislation – the Biodiversity Conservation Act 2015 (BC Act) took effect from the 25 August 2017. The BC Act resulted from a complex suite of reforms that first commenced in 2014 and further to the Independent Biodiversity Legislation Review Panel.

The BC Act and the *Local Land Services Amendment Act 2016* together comprise the overall package of biodiversity reforms to ensure a balanced approach to land management and biodiversity conservation in NSW.

The integrated package of reforms features:

- New arrangements that allow landowners to improve productivity while responding to environmental risks
- New ways to assess and manage the biodiversity impacts of development
- A new State Environmental Planning Policy (SEPP) for impacts on native vegetation in urban areas
- Significant investment in conserving high value vegetation on private land
- A risk-based system for regulating human and business interactions with native flora and fauna
- Streamlined approvals and dedicated resources to help reduce the regulatory burden.

DPIE, LLS, and The Biodiversity Conservation Trust are responsible for administering various components of the new legislation. Part 5A of the LLS Act is generally administered by LLS; however, the EES group has responsibility for native vegetation mapping and compliance under that part of the LLS Act. The Native Vegetation Regulatory map designates areas of NSW to which Part 5A of the Local Land Services Act 2013 applies. Land may be re-categorised by the Secretary of Department of Planning, Industry and Environment, including where a landholder applies for such a re-categorisation.

The Native Vegetation Regulatory map was last updated on the 04 August 2020.³⁹

³⁹ Accessed August 2020: <https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=NVRMap>

The annual review of the Transitional NVR Map was exhibited for public comment from 9 September to 8 October 2019. Following the exhibition period, the updated map was published on 22 November 2019. The annual review resulted in some re-categorisation of certain areas (rural lands) across most NSW Local Government Areas.

Provisions dealing with the clearing of native vegetation in urban, peri-urban and environmental areas are contained in a new environmental planning instrument, administered by DPIE, called the State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017.

Part 5A of the LLS Act is generally administered by LLS; however, EES has responsibility for native vegetation mapping and compliance under that part of the LLS Act.

Wildlife rehabilitators must comply with approved codes of practice. The Codes set out the minimum standards and guidelines for rescue, rehabilitation and release of native animals' incapable of fending for themselves in their natural habitat. The Codes have been prepared in consultation with key partners in the sector including members of the NSW Wildlife Council, Taronga Conservation Society, NSW Wildlife Information, Rescue and Education Service Inc (WIRES) and other relevant species experts.

Compliance with the standards in the Codes is a condition of wildlife rehabilitation licences. Audits of wildlife rehabilitation facilities are conducted to assess compliance. Failure to meet the standards may constitute grounds for suspending or cancelling a licence.

There is a general code of practice for injured, sick and orphaned protected animals and a series of species-specific codes that complement the general code.⁴⁰

⁴⁰ Accessed August 2020: <https://www.environment.nsw.gov.au/topics/animals-and-plants/native-animals/rehabilitating-native-animals/wildlife-rehabilitation-licences>

7 NSW forest management agencies

NSW Government agencies involved in aspects of public and private forest management, and their respective areas of responsibilities are outlined below. **Figure 4** represents the various aspects of regulating and supporting ESFM in NSW, and the allocation of respective roles and responsibilities of relevant agencies to ensure effective administration of the legislative framework.

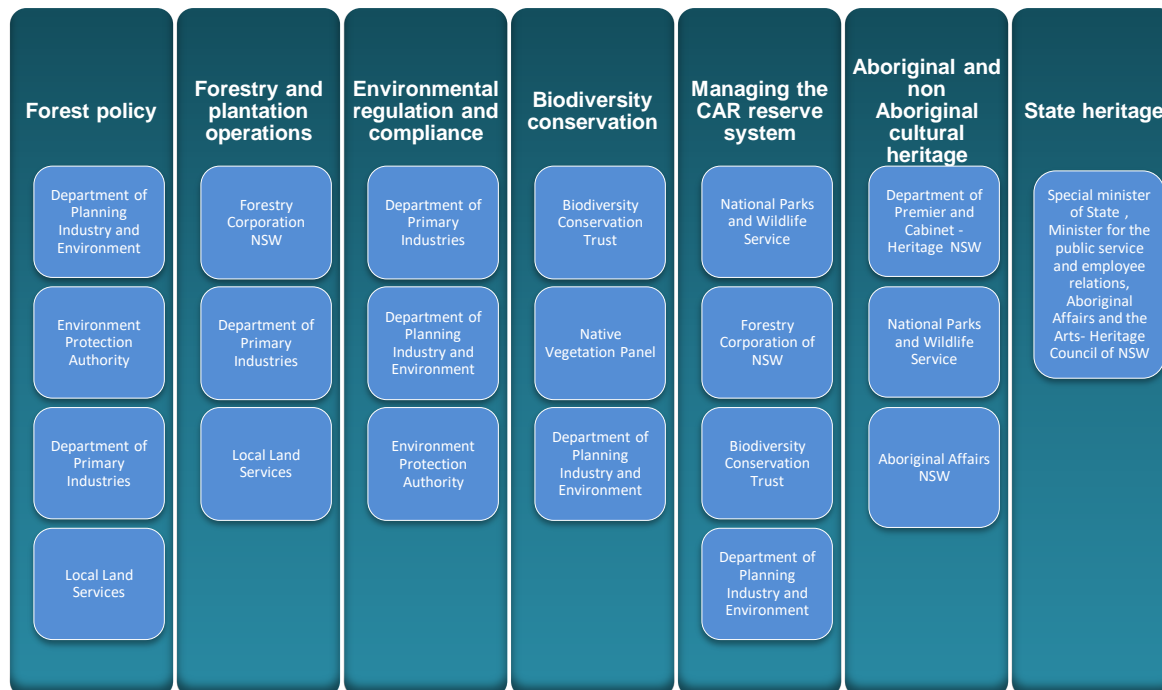


Figure 4 Key NSW agencies involved in forest management

7.1 Department of Regional NSW (DRNSW)

7.1.1 Department of Primary Industries (DPI)

DPI - Forestry advises the NSW Minister for Regional NSW, Industry and Trade on forest industry policy, research and industry development by providing evidence-based information to forest managers and policy makers that underpins the sustainable use of forests.

DPI – Forestry is also responsible for the development and application of plantations’ policy and regulation. DPI - Forestry is responsible for regulating plantations on public and private land under the Plantation and Reafforestation (PR) Act and PR Code.

DPI - Forestry Forest Science group provides evidence-based forest research services that underpin sustainable use of NSW’s native forests and productive plantations. The group provides research and development services to the forestry sector and several stakeholders including FCNSW. Its science-based research outcomes play a key role in shaping policy, industry and environment management decisions, contributing to the sustainable management of forest landscapes through active and adaptive management.

DPI - Fisheries advises the NSW Minister for Agriculture and Western NSW on matters related to the Fisheries Management (FM) Act including those related to the threatened species licences for fish, which form part of the IFOAs.

7.1.2 Local Land Services (LLS)

LLS is a regional agency responsible for delivering quality, customer-focused agricultural, biosecurity, land management, native vegetation, private native forestry and other natural resource management services to landholders, industry and the community. LLS also provide policy advice to the NSW Minister for Agriculture and Western New South Wales on natural resource management and private native forestry.

LLS is responsible for PNF approvals and advice services and is leading the current review of the PNF regulatory framework (including the existing PNF Codes), in partnership with EPA and DPI.

The Native Vegetation Panel is an independent body established under the LLS Act. The Panel's function is to determine applications for approval to clear native vegetation under Division 6 of Part 5A of the LLS Act.

7.1.3 Forestry Corporation of NSW (FCNSW)

FCNSW is a State-owned Corporation established by the Forestry Act, with:

- principal objectives that include being a successful business and operating in compliance with the principles of ecologically sustainable development;
- functions that include carrying out forestry operations on Crown-timber land; selling, supplying or processing timber; establishing and maintaining plantations; and carrying out functions as the land manager of forestry areas.

FCNSW functions as the land manager of forestry areas on public lands, which include State forest, timber reserves and flora reserves. FCNSW objectives and functions include to facilitate public access, promote recreational use and conserve fauna (other than feral animals).

This allows forestry operations to be undertaken by an entity that has neither a regulatory role nor responsibility for policy development and implementation.

FCNSW produces a corporate Annual Report which is tabled in the NSW Parliament. In addition, FCNSW publicly reports its performance against a suite of sustainability indicators consistent with reporting commitments under the Montreal Process, NSW FAs and IFOAs. FCNSW also provides information on sustainability indicators within the Sustainability Supplement to its Annual Report.

7.2 Department of Planning, Industry and Environment (DPIE)

The Department of Planning, Industry and Environment (DPIE) cluster brings together specialists in urban and regional planning, natural resources, industry, environment, Aboriginal and social housing and regional New South Wales. The following agencies exist within DPIE.

7.2.1 NSW Environment Protection Authority (EPA)

The EPA is the primary environmental regulator in NSW and is an independent statutory body. It advises the Minister for Energy and the Environment and leads and partners in the development of environment protection policy, regulations, statutory instruments, research and environmental programs relevant to native forestry regulation on both public and private land. The EPA also provides technical support and expertise to other government agencies.

The EPA is responsible for compliance and enforcement of forestry operations on both public and private land to ensure compliance with the IFOAs and PNF plan and PNF Codes respectively.

7.2.2 **DPIE, Housing and Property group (Crownlands)**

Crownlands is responsible for managing public land through the Crown reserve system, which includes, amongst other matters, nature reserves, coastal lands, waterway corridors and travelling stock routes. They manage leases and licences enabling the use of Crown land and investigate and assess Aboriginal land claims under the *Aboriginal Land Rights Act 1983* (NSW).

7.2.3 **DPIE, Environment, Energy and Science group (EES)**

The Department of Planning, Industry and Environment – Environment, Energy and Science Group replaced the former NSW Office of Environment and Heritage in July 2019. EES also includes the Environment Protection Authority. The former heritage functions of OEH have been transferred to the NSW Heritage within the DPC.

EES is responsible for and protects NSW's environment, which includes the natural environment, Aboriginal country, culture and heritage, and built heritage. EES supports the community, business and government in protecting, strengthening and making the most of a healthy environment and economy in NSW.

EES delivers integrated and customer focused services at the regional and local level to strengthen communities and partnerships across NSW. This includes services, programs and grants to support land use planning, threatened species, native vegetation, education, community engagement, energy efficiency, volunteering, environmental water management, coast and flood protection, compliance and enforcement, adapting to a changing climate and private land conservation.

EES advises the NSW Minister for Energy and Environment and administers programs to protect vulnerable species and communities, such as the BCP and SOS.

7.2.4 **NSW National Parks and Wildlife Service (NPWS)**

NPWS is part of the EES group within the DPIE cluster. The NPWS manages the National Park estate, which includes national parks, nature reserves, flora reserves, World Heritage areas, rainforests, beaches, alpine areas and sites of great cultural and historic significance.

Management of these areas involves a wide range of responsibilities, including flora and fauna conservation, fire management, sustainable tourism and visitation, research, education, and volunteering programs.

NPWS links customer, conservation and cultural outcomes in a sustainable way by building participation in the management and use of the national park estate.

NPWS produces plans of management which outline the values of the national park estate – including biodiversity and Aboriginal culture - and how they'll be managed.

NPWS is committed to working in collaboration with local Aboriginal groups to manage relevant national parks and reserves. Under joint management arrangements, government and local Aboriginal people share the responsibility of park management.

7.2.5 **Natural Resources Commission (NRC)**

The NRC is an independent executive agency within the Planning, Industry and Environment cluster. It has broad investigating and reporting functions for the purposes of establishing a sound evidence basis for the properly informed management of natural resources. Section 13 of the *Natural Resources Commission Act 2003* (NSW) provides for the NRC to undertake audits and reviews relating to forestry as required by the Minister.

For instance, NRC research and advice informed the Coastal IFOA remake in 2018.⁴¹ More recently, the Premier has asked the NRC to independently oversee and chair the NSW Forest Monitoring Steering Committee which advises on a state-wide monitoring, evaluation, reporting and improvement program for NSW forests (see p73).

7.2.6 Biodiversity Conservation Trust (BCT)

The BC Act establishes the NSW Biodiversity Conservation Trust (BCT). The BCT sits within the EES group and manages and delivers private land conservation across NSW with the aim of maintaining a healthy, productive and resilient environment for the community, now and into the future (See **section 4.5.2**).

7.3 Department of Premier and Cabinet (DPC)

7.3.1 Aboriginal Affairs NSW (AA)⁴²

The NSW Government recognises that Aboriginal communities have a role in managing the State's land, water and biodiversity. Aboriginal Affairs NSW works with Aboriginal communities to promote social, economic and cultural wellbeing through opportunity, choice, healing, responsibility and empowerment.

7.3.2 Heritage NSW⁴³

The former heritage functions of OEH have been transferred to Heritage NSW within the Community Engagement Group of Department of Premier and Cabinet. Heritage NSW is responsible for and protects NSW's heritage, which includes Aboriginal cultural heritage and built heritage.

Heritage NSW works with communities to help them identify their important places and objects, manages Aboriginal cultural heritage, approves changes to State heritage listed places, and manages the underwater cultural heritage of NSW, including registering state shipwrecks.

The work of the Heritage NSW is guided by the Heritage Council of NSW and the Aboriginal Cultural Heritage Advisory Committee (ACHAC).

7.4 Independent Pricing and Regulatory Tribunal (IPART)

IPART provides independent regulatory decisions and advice to protect and promote the ongoing interests of the consumers, taxpayers and citizens of NSW.⁴⁴

IPART is an independent statutory authority which advises the NSW Government on issues relating to the level and structure of prices, industry structures and competition, particularly in relation to NSW

⁴¹ NRC. Accessed September 2020: <https://www.nrc.nsw.gov.au/ifo>

⁴² Aboriginal Affairs. Accessed September 2020: <https://www.aboriginalaffairs.nsw.gov.au/our-agency/about/nsw-department-of-premier-and-cabinet>

⁴³ Heritage NSW: Accessed September 2020: <https://www.heritage.nsw.gov.au/what-we-do/about-heritage-nsw/>

⁴⁴ IPART: Accessed September 2020: <https://www.ipart.nsw.gov.au/Home/About-IPART>

Government services. The NSW Government has in the past asked IPART to undertake investigations of regulatory and licensing functions.

8 Public consultation and reporting in NSW

Public consultation and reporting are important elements of ESFM and intrinsic components of the NSW Forest Management Framework. The NSW Government recognises the importance of community and stakeholder participation in the management of our forests with significant requirements for consultation provided through NSW legislation.

The NSW Government committed to improve community acceptance of the forestry industry as a sustainable and renewable industry in the NSW Forestry Industry Roadmap 2016, recognising that the community must be confident the industry is sustainable, the regulatory framework is effective and credible, and the industry complies with the requirements of the regulatory framework.

A key way to demonstrate that the management of NSW forests is credible, transparent, effective, and balancing the legitimate range of economic, social and environmental considerations is through public consultation and reporting mechanisms.

The following sections outline key public consultation and reporting requirements under the framework.

8.1 Public consultation

Public consultation requirements are provided for in a range of different Acts, regulations and other policy instruments in NSW, including:

- preparation and amendment of management plans (also known as Regional ESFM Plans) under the Forestry Regulation 2012 (NSW) under the Forestry Act
- preparation and amendment of IFOAs under the Forestry Act
- preparation and amendment of plans of management under the NPW Act
- preparation and amendment of the PNF Codes under the LLS Act
- activities associated with the implementation of the BC Act, including listing of threatened species and threatened ecological communities
- preparation, amendment and review of District Bushfire Management Committee plan of operations and Bush Fire Risk Management Plans under the *Rural Fires Act 1997* (NSW)
- activities associated with the implementation of the *Wilderness Act 1987* (NSW)
- design and implementation of the NSW Forest Monitoring and Improvement Program
- publication of State of the Environment reports including reporting against performance measures, sustainability indicators, audits, research and reviews
- consultation with the Aboriginal community in relation to Aboriginal cultural heritage information
- preparation, amendment or revocation of FAs under the Forestry Act
- five-yearly reviews of FAs under the Forestry Act.

NSW also undertakes public consultation processes jointly with the Australian Government for the five yearly reviews of RFAs.

The BC Act encourages community involvement in the protection of threatened species and ecological communities. Anyone can propose changes to the threatened species or threatened ecological community lists. There is also an opportunity for public involvement in the assessment process for determinations made by the NSW TSSC. The TSSC places preliminary determinations on public exhibition for comment on

the Environment website⁴⁵. The NSW TSSC then reviews the preliminary determination and these comments and, if appropriate, makes a final determination to list, change the status or delist that species, ecological community or key threatening process in the Schedules of the BC Act.

8.1.1 FCNSW Stakeholder engagement on forestry operations

At an operational level, FCNSW provides several channels through which individuals or stakeholder groups can make contact or provide feedback on issues of concern.

Since the commencement of the IFOAs, it has been a regulatory requirement to make copies of operational harvesting plans available to the public. Since 2012, FCNSW has made available on its website all the current approved wood harvesting and operational roadwork plans.

In August 2019 Forestry Corporation launched a new mapped based web-service to allow members of the public and stakeholder groups to access information for areas where plans are scheduled or in development. This service is known as the Forestry Corporation Web Portal⁴⁶. It allows interested stakeholders to 'subscribe' to a plan to receive email notifications of status changes or additional documents becoming available (such as road work and harvest plans or other relevant reports and maps).

The FCNSW website has a 'contact us' link⁴⁷ and maintains an email account specifically for public enquiries.

As part of the operational planning process, FCNSW provides written notification to forest neighbours and consults with local communities, interest groups and school bus companies to ensure that the impact of operational activity is minimised.

Since 2006, FCNSW has maintained a 1300 phone number (1300 655 687) that enables the public to contact FCNSW and make general enquires on matters such as visiting forests, road closures and to make complaints. This number directs the caller via a menu option to a number of staff and regional office numbers depending on the nature of the query. In addition, a 1800 'LOGHAUL' number (1800 564 4285) is maintained by FCNSW to enable the public to raise issues regarding log haulage. The number connects to an answering service that is forwarded directly to the relevant FCNSW officer who is responsible. If that officer is unavailable, a recorded message advises the caller to leave a message, which will be responded to at the earliest convenience. FCNSW advertise the number on the back of every contracted log truck, which have unique identifying numbers.

⁴⁵ NSW Threatened Species determinations. Accessed September 2020: <https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations>

⁴⁶ FCNSW Accessed October 2020: <https://planportal.fcnsw.net/>

⁴⁷ FCNSW (2018) Contact us. Accessed October 2020: <http://www.forestrycorporation.com.au/about/contact-us>

8.2 Monitoring, reporting and evaluation

The framework has monitoring and reporting mechanisms in place to provide the public with access to information on progress and status of various matters. There are specific forest reporting requirements and also more general requirements that are tenure related (not forest related).

8.2.1 Forest related reporting

Both the legislation regulating the forestry industry in NSW and the RFAs include comprehensive and rigorous monitoring and reporting requirements.

The Forestry Act provides for five yearly reviews of NSW FAs and for annual reports on each FA, including with respect to ESFM in the region and compliance with any IFOA for the region⁴⁸. The EPA is responsible for the preparation of these annual reports on progress on the implementation of NSW FAs and IFOAs. The annual reports provide results of monitoring ESFM criteria and indicators; wood supply; compliance with IFOAs for each region; and achievement of milestones defined in each of the four NSW FAs.

The PR Act provides that the Minister for Regional New South Wales, Industry and Trade must maintain a register of authorised plantations which includes a description of each plantation's location and the conditions relating to its authorised status. The Minister is to make the register publicly available on the DPI's website.

The RFAs provide for five yearly reviews on their performance, which includes inviting public comments and an independent review. The RFA Act requires that five-yearly reviews are tabled in the Australian Parliament. Under NSW's RFAs, the NSW Government is required to develop and maintain a coordinated *Monitoring, Evaluation and Reporting Plan*, including the identification of research priorities, within the broader framework across relevant forest management tenures and to support RFA outcomes reporting for ESFM.

The *Annual Reports (Statutory Bodies) Act 1984* (NSW) provides that the FCNSW must produce and table in the NSW Parliament an annual report on its performance, operations and financial results. FCNSW produces a corporate Annual Report including information on annual sustainability indicators. In addition, FCNSW publicly reports its performance against a suite of sustainability indicators consistent with reporting commitments under the Montreal Process criteria and indicators, the NSW FAs and IFOAs.

Australia's State of the Forest Report

NSW contributes data and information every five years to the Australia's State of the Forest Report (SOFR), which is prepared by the Australian Government and contributed to by state and territory governments. SOFR is a national report on the status of Australia's forests, and reports against the Montreal Process

⁴⁸ NSW EPA (2019) Integrated Forestry Operations Approvals, Annual Reports. Accessed August 2019: <https://www.epa.nsw.gov.au/your-environment/native-forestry/integrated-forestry-operations-approvals/annual-reports>

criteria and indicators (also known as sustainability indicators) adapted for Australia. SOFR meets reporting requirements under the RFA Act.

NSW Forestry Snapshot Report

The EPA reports on progress on the implementation of the NSW Forest Agreements in the IFOAs annually. These Snapshots include results of monitoring ecologically sustainable forest management criteria and indicators, timber supply, compliance with IFOAs for each region and achievement of milestones defined in each of the four NSW Forest Agreements.⁴⁹

8.2.2 General reporting

Annual reports

Annual Reports (Departments) Act 1985 (NSW) requires General Government Sector Agencies, such as EES, DPI and the EPA, to prepare annual reports on the operations they undertake and have the reports tabled in the NSW Parliament.

State of the Parks

The NSW State of the Parks is a monitoring and reporting framework in use by NPWS and represents best practice for assessing protected area management. It is based on the IUCN best practice framework and utilises both quantitative and qualitative information.

State of the Parks is based around a periodic online assessment that asks park managers to provide current information about each of their parks. Information collected includes:

- Park attributes (i.e. gazetted area, bioregions, international agreements, and catchment management areas)
- Context information (i.e. plans, values, threats, stakeholders, commercial activities and visitation)
- An assessment of management effectiveness (on all management issues i.e. pests, weeds, visitors, fire, law enforcement, natural and cultural heritage management).

Collective assessments then inform evaluation of the park system at various scales and for thematic issues. State of the Parks data has regularly provided information to support transparent reporting at a variety of scales including meeting State of the Forests and State of the Environment.

NSW Report on Native Vegetation

⁴⁹ EPA. Accessed October 2020: <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/forestagreements/2020p2290-forestry-snapshot-2018-19.pdf?la=en&hash=356D4972E2445F783E0AE0380BB7B3CCDCDB5BF>

The NSW Report on Native Vegetation⁵⁰ provides a comprehensive picture of the status of the regulation, protection and extent of native vegetation in NSW and includes the following:

- Native Vegetation report card provides information on the conservation, restoration, management and approvals for clearing native vegetation, including approvals for clearing under PVPs.
- Private Native Forestry report card provides information on the number and area of PNF Plans.
- Woody Vegetation Change report card provides a summary of losses in woody vegetation extent as a result of agriculture, infrastructure, forestry and bushfire. The period covered is earlier than in other sections of this report owing to the extended length of time required to analyse the satellite data.
- Compliance and Enforcement report card reports on compliance and enforcement activities under the then *NV Act*, including private native forestry.

State of the Environment

The NSW State of the Environment (SoE)⁵¹ report is prepared every three years and:

- assesses the status and condition of major environmental resources in NSW and examines environmental trends
- describes the pressures that affect the environment and the responses to those pressures
- provides credible, scientifically based environmental information at a state-wide level to assist those involved in environmental policy and decision-making and managing the state's natural resources.
- The 2018 report is structured around six themes – Drivers, Human Settlement, Climate and Air, Land, Biodiversity, Water and Marine. Topics within each theme provide detailed information about the status and trends of specific environmental issues.
- Themes of relevance to forest management in NSW reported in the SoE include native vegetation and biodiversity.

NSW SoE reporting relies on extensive contributions from many NSW Government departments and agencies, as well as within the EPA, the agency responsible for coordinating report preparation. Independent experts also provided a range of perspectives, additions and helpful advice.

NSW SoE reports are prepared every three years. The next report is to be published in 2021.

8.2.3 Forest monitoring

Forest monitoring can include monitoring species of flora and fauna, vegetation types or coverage, or other matters such as water quality and quantity.

⁵⁰ DPIE. Accessed October 2020: <https://www.environment.nsw.gov.au/research-and-publications/publications-search/nsw-report-on-native-vegetation-2014-2016>

⁵¹ NSW EPA (2018) NSW State of the Environment 2018. Accessed October 2020: <https://www.soe.epa.nsw.gov.au/>

NSW is currently investigating new ways to implement forest monitoring across forest tenures under the Forest Monitoring and Improvement Program overseen by the Natural Resource Commission (see section below).

Monitoring commitments are outlined in NSW RFAs. The implementation of the RFAs is monitored through the five-yearly reviews and the annual meetings between the Parties in the periods between the five-yearly reviews. The State will continue to publicly report on the results of monitoring of Sustainability Indicators every five years to align with and inform the five-yearly reviews required under RFAs and reporting will be under the headings of the Montreal Process Criteria.

In the NSW RFAs, the Parties commit to a policy of open access to information and agree that all data held by each of them that is used for ongoing implementation and monitoring of this Agreement is published under the least restrictive AusGOAL endorsed licences (including Creative Commons) unless otherwise agreed, or where data is confidential or otherwise restricted.

The monitoring program implemented by FCNSW is known as the "Hardwood Forest Management System" (Hardwood FMS). This is the system of policies, processes and procedures used by FCNSW to ensure forest activities achieve ESFM. The Hardwood FMS (see **Appendix C**) including a system of monitoring, audit and management review that allows for continual improvement and adaptive management and maintaining EMS certification under ISO 14001 or a demonstrated equivalent environmental management system. FCNSW is also required to implement and comply with a monitoring program for the Coastal IFOA (see below).

Further information on various forest monitoring programs is provided in the following sections.

NSW Forest Monitoring and Improvement Program

The NSW Government has allocated \$7.2 million over four years to June 2022 for a cross-tenure Forest Monitoring and Improvement Program to monitor and report changes in the conservation and sustainable management of forests. The Program is being overseen by the Natural Resources Commission and the NSW Forest Monitoring Steering Committee.⁵² An additional \$2 million has been allocated by the EPA from 2019-20 for the design and implementation of the Coastal IFOA monitoring program over five years. In addition, FCNSW will provide \$7.5 million over five years to support effectiveness monitoring under the Coastal IFOA monitoring program.

The Steering Committee has established a Program Framework which sets out how the program will be implemented over its first five years.⁵³ The Program will improve the evidence-base for decision-making for forest management across tenures. It 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. The Program will support monitoring, evaluation, research and reporting including RFAs and IFOAs. Under the Program, the Commission will provide independent recommendations to the NSW Government on potential improvements in forest management across tenures in NSW.

⁵² NRC (2019) NSW Forest Monitoring and Improvement Program. Accessed August 2019:

<https://www.nrc.nsw.gov.au/forest-monitoring>

⁵³ NSW Natural Resources Commission (2019). Accessed October 2019: <https://www.nrc.nsw.gov.au/forest-monitoring>

A key deliverable of the Program Framework was the design of a Coastal IFOA monitoring program to ensure the ongoing effectiveness of the IFOA in delivering its objectives and outcome statements.⁵⁴ The Natural Resources Commission publicly released a draft monitoring program for the Coastal IFOA in November 2019. The approved monitoring program will inform the adaptive management of the Coastal IFOA conditions and protocols.

Monitoring flora and fauna

NSW monitors forest dwelling species to meet requirements specified by relevant legislation and/or sustainable forest management policies. Forest monitoring data is integral to reporting and continual improvement processes.

Forest dwelling species are monitored under programs implemented by a range of bodies, including state forest management and nature conservation agencies, universities, non-government organisations and private individuals.

DPI Forest Science - Forest Ecology Team is undertaking research that includes modelling koala habitat and occupancy using acoustic sensors.⁵⁵

The species routinely monitored by FCNSW or DPI in the biodiversity monitoring program are provided in Table 8.1.

Table 8.1 Monitoring of forest dwelling species in NSW RFA regions by FCNSW and/or DPI

Monitoring, date commenced	Location	Category	Details
Southern brown bandicoot (<i>Isoodon obesulus</i>) 2013	Ben Boyd National Park and Nadgee Nature Reserve in the far south-eastern corner of NSW	Ground-living mammals	Infrared cameras used to monitor trends in southern brown populations at 40 sites. In addition to the target species, the cameras record information about the status of other threatened fauna, including the long-nosed potoroo (<i>Potorous tridactylus</i>) and eastern pygmy possum (<i>Cercatetus nanus</i>), as well as other species of interest for environmental management, such as the long-nosed bandicoot (<i>Perameles nasuta</i>).
Brush-tailed Rock Wallaby (<i>Petrogale penicillata</i>)	Cessnock / Watagans,	Ground-living mammals	<i>Pellet counts assessing ongoing presence of BRTPs as a result of fox control</i>

⁵⁴ Coastal IFOA Conditions: Monitoring Conditions, 121-122.

⁵⁵ DPI Accessed August 2019: <https://www.dpi.nsw.gov.au/forestry/science/koala-research>

Monitoring, date commenced	Location	Category	Details
2000. Pellet counts at standard points across 3 sites. 3 times per year	Watagans and Pokolbin SFs LNE		<i>programs - part of Fox threat abatement plan.</i>
Large-footed Myotis (<i>Myotis macropus</i>) 1996	Kippara and Mount Boss State Forests UNE	Flying mammal	Banding of bats inhabiting several bridges in Kippara State Forest and surrounding area. Occuring for more than 10 years.
Southern Brown Bandicoot (<i>Isodon obesulus</i>) 2007	Yambulla, Nadgee, Timbillica and East Boyd State Forests – Far south east NSW Eden	Ground-living mammals	Twice annual remote camera sample surveys. Monitoring persistence in the landscape over time and habitat management strategy within the Eden threatened species licence
Smoky Mouse (<i>Pseudomys fumeus</i>) 2007	Nullica State Forest Eden	Ground-living mammals	Twice annual remote camera sample surveys. Monitoring persistence in the landscape over time and habitat management strategy within the Eden threatened species licence including vegetation plots.
Giant Burrowing Frog (<i>Helioporus australicus</i>) 2007	Nullica nad Yambulla State Forests Eden	Frogs	Breeding site monitoring, through identification of tadpoles, stream and weather monitoring, song meter call identification
Yellow-bellied Glider (<i>Petaurus australis</i>) 2010	Bago and Maragle State Forests Tumut	Arboreal Mammals	Surveys and monitoring of population to assess ongoing persistence of population and provide data on endangered population.
Bell-minor associated Dieback (forest health) 2016	Northern NSW forests UNE, LNE	Forest Health	Investigations underway into satellite image modelling for retrosepctive assessment of change in canopy health, helicopter flights undertaken to repeat 2004 forest health assessing
Koala (<i>Phascolarctos cinereus</i>) 2015	Northern NSW forests and Eden forests UNE, LNE, Eden	Arboreal mammals	Song meters deployed to record the male bellowing calls in spring / early summer
<i>Acacia ruppia</i> 2005	Northern Forests UNE	Flora	Response to disturbance, review results with EPA, determine appropriate protective measures

Monitoring, date commenced	Location	Category	Details
Niemeyera whitei 2005	Northern Forests UNE	Flora	Response to disturbance, review results with EPA, determine appropriate protective measures
Boronia umbellata 2005	Northern Forests UNE	Flora	Response to disturbance, review results with EPA, determine appropriate protective measures
Melaleuca groveana 2005	Northern Forests UNE, LNE	Flora	Response to disturbance, review results with EPA, determine appropriate protective measures
Tasmania purpurascens 2005	Northern Forests LNE	Flora	Response to disturbance, review results with EPA, determine appropriate protective measures
Hibbertia marginate 2005	Northern Forests UNE	Flora	Response to disturbance, review results with EPA, determine appropriate protective measures
Grevillea quadricauda 2005	Northern Forests UNE	Flora	Response to disturbance, review results with EPA, determine appropriate protective measures
Eucalyptus glaucina 2005	Northern Forests UNE	Flora	Response to disturbance, review results with EPA, determine appropriate protective measures
Angophora robur 2005	Northern Forests UNE	Flora	Response to disturbance, review results with EPA, determine appropriate protective measures
Parsonia dorrigoensis 2005	Northern Forests UNE, LNE	Flora	Response to disturbance, review results with EPA, determine appropriate protective measures
Macrozamia johnsonii 2005	Northern Forests UNE	Flora	Response to disturbance, review results with EPA, determine appropriate protective measures
Biodiversity in eucalypt plantations 1997	Northern Forests UNE	Ground-living mammals, arboreal mammals, diurnal and nocturnal birds	DPI Research and monitoring
Significant bat roosts 1999	Southern Forests RFA	Bats	Annual population counts
Burning study 1986	Eden RFA	Various	Monitoring flora and fauna response to burning
Forest bats 1999	Northern Forests	Bats	Annual banding

Monitoring, date commenced	Location	Category	Details
	LNE		
Golden-tipped bat (Kerivoula papuensis) 2001	Southern RFA	Arboreal mammals	Periodic Radio tracking
Hastings River mouse (Pseudomys oralis) 2015	Northern Forests UNE	Ground-living mammals	1,150 traps in 23 locations
Aquatic macro-invertebrates 2015	Northern Forests UNE	Invertebrate	Ongoing monitoring at 6 sites
Northern corroboree frog (Pseudophryne pengilleyi) 2005	Tumut area	Amphibians	Monitored via call response

Source: FCNSW and DPI staff. Table notes: (1) North East RFA; (2) Eden RFA; (3) Southern RFA

Some examples of forest dwelling species monitoring are found in Table 8.2

Table 8.2 Example forest dwelling species monitoring in RFA regions by EES and NPWS

Monitoring	Location	Category	Details	Commenced
Hastings river mouse (<i>Pseudomys oralis</i>) Spotted-tailed quoll (<i>Dasyurus maculatus</i>) Rufous scrub bird (<i>Atrichornis rufescens</i>)	North-eastern NSW – Gondwana Rainforests of Australia ¹	Ground-living mammals Non-raptor bird	N/A	2009-2014
Spotted-tailed quoll (<i>Dasyurus maculatus</i>)	Southern Kosciuszko National Park and Merriangaah Nature Reserve ³	Ground-living mammals	See case study – Attachment A	2005
Southern brown bandicoot (<i>Isoodon obesulus</i>)	Ben Boyd National Park and Nadgee Nature Reserve (far south-eastern corner of NSW) ²	Ground-living mammals	See case study – Attachment A	2013
High altitude frogs: mountain mist frog (<i>Litoria nyakalensis</i>) hip-pocket frog (<i>Assa darlingtoni</i>)	North-eastern NSW – cool temperate rainforest (impact of changing climate) ¹	Amphibians	Jointly undertaken by Newcastle, Southern Cross and Griffith universities	2009-2014
Fire impacts on cool temperate rainforest	North-eastern NSW ¹	Vascular and non-vascular	NPWS volunteer program ⁴	1930

Monitoring	Location	Category	Details	Commenced
		plants, birds, other fauna	130 plots, 30 actively monitored	

Source: EES, NPWS and Rural Fire Service Staff.

Table notes: (1) North East RFA; (2) Eden RFA; (3) Southern RFA; (4) Coordinated by a staff member of the Rural Fire Service.

Some examples of forest dwelling species for which monitoring was undertaken in NSW RFA regions by EES or NPWS are provided in

Some examples of forest dwelling species monitoring are found in Table 8.2

Table 8.2.

The EPA also undertakes targeted projects from time to time, and recent examples include the koala habitat and occupancy mapping program, and the threatened ecological communities (TECs) mapping project, designed to inform improvements in the recognition, management and regulation of TECs in native forestry areas in NSW.

BioNet and the Atlas of NSW Wildlife

The Atlas of NSW Wildlife is the NSW database of flora and fauna records. The Atlas contains records of plants, mammals, birds, reptiles, amphibians, some fungi, some invertebrates (such as insects and snails listed under the BC Act) and some fish. The Atlas also contains known and predicted distributions of vegetation communities, and of endangered populations and key threatening processes listed under the BC Act.

WildCount

WildCount is a 10-year fauna monitoring program that commenced in 2012. It uses motion-sensitive digital cameras in 200 sites across 146 parks and reserves in eastern NSW.

WildCount looks at trends in occurrence of animals at these sites, to understand if animals are in decline, increasing or stable. WildCount will be able to detect if there is a change in occurrence that meets the criteria for listing species under the IUCN Red List. The power to detect such change means EES can examine other broad trends such as increases in pest species. Understanding these changes in native and pest species will assist in the management of parks and reserves.

Biodiversity Indicator Program

DPIE has established the Biodiversity Indicator Program to assess the status of biodiversity in New South Wales at the beginning of the BC Act – the first assessment – then at recommended intervals, including contributing to the 5-year review of the BC Act.⁵⁶

⁵⁶ Accessed Oct 2020 <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/biodiversity-indicator-program>

The Biodiversity Baseline Assessment is a method and program for assessing and reporting on the status and trends in biodiversity and ecological integrity in NSW, including all plants, animals, insects, fungi and micro-organisms.

Native vegetation mapping

EES is responsible for gathering, managing and providing information on native vegetation across NSW including making this information more accessible, understandable and useful. Some key activities in native vegetation mapping include describing types of vegetation in NSW and monitoring changes in vegetation cover over time to report on trend in both vegetation loss and regrowth.

EES is refining the hierarchical vegetation classification system for NSW. At the core is a consistent Plant Community Type classification unit that is primarily quantitatively defined from the analysis of site survey data. This classification system will improve the recognition and reporting of vegetation communities by government and commercial environmental consultants, especially through planning and development assessment processes.

EES conducts field surveying to ensure that maps and descriptions of plant communities are as robust and reliable as possible. EES also analyses satellite images to assess the size and condition of natural areas in NSW where different types of flora and fauna occur. In some cases, existing long-term data sets for particular areas or species can be used to understand how the numbers of species or their habitats have been changing over time.

Sharing and Enabling Environmental Data (SEED)

The NSW Government's Sharing and Enabling Environmental Data (SEED) portal has been developed with and for the community of NSW as a central place where anyone can access, contribute and visualise NSW environmental data.

Monitoring water quality and quantity

FCNSW maintain long-term water quality and quantity monitoring sites in State forests. Water quality is currently being measured at 22 sites, and water quantity at 25 sites, across both native and planted forests. Multiple control and treatment sites are monitored in the long term both before and after operations, which may include harvesting, roading activities or burning. The sites monitored and locations are:

- Wilson River preliminary study- 55 km NW of Wauchope
- Red Hill hydrology project- 23 km NNE of Tumut
- Karuah hydrology research project- 200 km N of Sydney
- Unmapped drainage project- Brooman State Forest- 25 km N of Batemans Bay
- Yambulla hydrology project- 50km SW of Eden.

Appendix A: Laws relevant to forest management in NSW

Legislation	Responsible agency	Purpose	Tenure
<i>Aboriginal Land Rights Act 1983</i> (NSW)	AANSW	<p>An Act to provide land rights for Aboriginal persons in New South Wales; to provide for representative Aboriginal Land Councils in New South Wales; to vest land in those Councils; to provide for the acquisition of land, and the management of land and other assets and investments, by or for those Councils and the allocation of funds to and by those Councils; to provide for the provision of community benefit schemes by or on behalf of those Councils.</p> <p>Special Minister of State, Minister for the Public Service and Employee Relations, Aboriginal Affairs, and the Arts</p>	Crown
<i>Biodiversity Conservation Act 2016</i> (NSW)	DPIE-EES	<p>The purpose of this Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development.</p> <p>This Act makes it an offence to harm or pick a protected species, threatened species, population, ecological community or damage a critical habitat or other habitat of a threatened species, except under authority of a license issued by NPWS; or in the course of an activity that has satisfied the requirements of the EPA Act. The BC Act supports sustainable development and productive farming that responds to environmental risk through a more balanced approach to land management and biodiversity conservation in NSW. This affects sustainable forest management in the areas of private native forestry and plantations</p> <p>Application of the Act to timber harvesting and other forest operations is controlled by the application of Conservation Protocols or Approval Conditions for different groups of threatened animal and plant species. These have been jointly prepared by NPWS and FCNSW and are used to assist in the preparation of harvest plans.</p> <p>Protected and threatened fauna are under the control of the State. Almost all native animals, birds and reptiles are protected fauna and may not be taken or killed except pursuant to a licence issued by the NPWS. Protected native flora may not be picked or removed except pursuant to a licence issued by State Forests and an authorisation issued by the NPWS. Different conditions apply to threatened species.</p>	All

Legislation	Responsible agency	Purpose	Tenure
		The BC Act is administered by the Minister for Energy and the Environment.	
<i>Biosecurity Act 2015 (NSW) and Biodiversity Regulation 2017</i>	DPI	<p>An Act to provide a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, dealing with biosecurity matter, carriers and potential carriers, and other activities that involve biosecurity matter, carriers or potential carriers.</p> <p>The Act also provides a framework for the timely and effective management of pests, diseases, contaminants and other biosecurity matter that are economically significant for primary production industries.</p> <p>This Act is administered by Minister for Agriculture and Western New South Wales</p>	All
<i>Dangerous Goods (Road and Rail Transport) Act 2008 (NSW)</i>	EPA and SafeWork NSW	<p>The purpose of the Act is to regulate the transport of dangerous goods by road and rail in order to promote public safety and protect property and the environment.</p> <p>Minister for Better Regulation and Innovation, except parts; Minister for Energy and Environment, so far as it relates to the on-road and on-rail transport of dangerous goods by road or rail.</p>	
<i>Environmental Planning and Assessment Act 1979 (NSW)</i>	DPIE	<p>The Act promotes the sharing of responsibility for environmental planning between the different levels of government in the State and encourages public participation.</p> <p>Objectives of the EPA Act relevant to forestry management are to encourage the proper management, development and conservation of forests for the purpose of promoting the social and economic welfare of the community and a better environment, and protection of endangered fauna and rare flora, and the environment.</p> <p>FCNSW operates under Part 5 of the EPA Act, and where necessary prepares environmental impact assessments and Environmental Impact Statements (EISs), which may include Species Impact Statements (SISs) for forestry and timber harvesting operations in compliance with this Act. Decisions made in the determination of an EIS may affect timber harvesting operations through site specific conditions included in Harvesting Plans.</p> <p>The EPA Act is administered by the Minister for Planning and Public Spaces, except Part 6, jointly with the Minister for Better Regulation and Innovation</p>	

Legislation	Responsible agency	Purpose	Tenure
<p><i>Fisheries Management Act 1994</i> (NSW)</p>	<p>DPI, FCNSW</p>	<p>Threatened fish and marine vegetation are protected under the FM Act. The IFOAs include prescriptions to protect soil, water, and threatened species and their habitats.</p> <p>Sections 218 to 220 of the FM Act refer to obstructions to fish passage. Section 218 gives the Minister authority to require the construction of works (other than public authority works) that enable fish to pass through or over dams, weirs or reservoirs. These Sections of the Act need to be considered when constructing bridges, culverts or other watercourse crossings for forest roads and trails.</p> <p>The FM Act is administered by the Minister for Agriculture and Western New South Wales</p>	
<p><i>Forestry Act 2012</i> (NSW)</p>	<p>EPA, DPIE, FCNSW</p>	<p>An Act to provide for the dedication, management and use of State forests and other Crown-timber land for forestry and other purposes; to constitute the Forestry Corporation of New South Wales as a statutory State owned corporation and to specify its objectives and functions; to repeal the <i>Forestry Act 1916</i> (NSW) and the <i>Timber Marketing Act 1977</i> (NSW) and to amend certain other legislation; and for related purposes.</p> <p>The Act also provides for forest agreements and integrated forestry operations approvals for licensing operations in state forests for a 20-year period. The Act replaced the former <i>Timber Marketing Act 1977</i> (NSW), Timber Marketing Regulation 2010 and part of the <i>Forestry and National Park Estate Act 1998</i> (NSW).</p> <p>The Forestry Act is administered by the Deputy Premier, Minister for Regional NSW, Industry and Trade and the Minister for Energy and the Environment.</p>	<p>Crown-timber land</p>
<p><i>The Forestry Legislation Amendment Act 2018</i> (NSW)</p>	<p>various</p>	<p>An Act to</p> <p>(a) to amend the Local Land Services Act 2013 and other Acts to transfer responsibility for the regulation of private native forestry to Local Land Services, with the Environment Protection Authority maintaining its enforcement role,</p> <p>(b) to amend the Forestry Act 2012, the Biodiversity Conservation Act 2016 and other Acts to update the regulatory framework for public native forestry and the enforcement role of the Environment Protection Authority,</p> <p>(c) to make minor, related and consequential amendments to the Local Land Services Act 2013, the Forestry Act 2012 and other Acts and instruments.</p>	<p>Public and private lands</p>

Legislation	Responsible agency	Purpose	Tenure
<i>Heritage Act 1977 (NSW)</i>	DPC – Heritage	<p>The Act aims to encourage the conservation of the State’s heritage and to provide for the identification and registration of items of State heritage significance.</p> <p>It also establishes the Heritage Council of NSW. Under the Act, any permanent, interim, or protective order relevant to protect a natural or cultural heritage conservation item on Crown-timber land must be notified to FCNSW. FCNSW maintains a Heritage and Conservation Register that records details of any heritage item that could be subject to a heritage conservation order, as required under S.170 of the Act.</p> <p>This Act is administered by the Special Minister of State, Minister for the Public Service and Employee Relations, Aboriginal Affairs, and the Arts.</p>	All
<i>Local Lands Services Act 2013 (NSW)</i>	LLS	<p>The LLS Act provides the regulatory framework for the management of native vegetation in NSW, and the approval and regulation of private native forestry operations.</p> <p>The LLS Act is administered by Minister for Agriculture and Western New South Wales, and the Minister for Energy and the Environment</p> <p>The LLS Act provides that the Minister may make a PNF Code of Practice only with concurrence from the Minister administering the BC Act and the Minister administering Part 5A of the LLS Act.</p>	Private
<i>National Park Estate (Land Transfers) Act 1998 (NSW)</i>	NPWS	<p>An Act to transfer certain State forest and other Crown land to the national park estate or Aboriginal ownership; and for other purposes.</p> <p>The Act is administered by the Minister for Energy and Environment</p>	Crown land
<i>National Parks and Wildlife Act 1974 (NSW)</i>	NPWS and DPC - Heritage (for Part 6 and related provisions)	<p>An Act for the conservation of nature, the conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including places, objects and features of significance to Aboriginal people, fostering public appreciation, understanding and enjoyment of nature and cultural heritage and their conservation, and providing for the management of land reserved under this Act.</p> <p>The land reserved under the Act includes: national park, historic site, state conservation area, regional park, karst conservation reserve, nature reserve, Aboriginal area</p>	Conservation estate All (for Aboriginal cultural heritage)

Legislation	Responsible agency	Purpose	Tenure
		<p>The Act provides for the establishment of the National Parks and Wildlife Advisory Council and the Aboriginal Cultural Heritage Advisory Committee.</p> <p>The Act also provides for Aboriginal land to be leased to the Minister and reserved under the Act.</p> <p>Special Minister of State, Minister for the Public Service and Employee Relations, Aboriginal Affairs, and the Arts, Division 3 of Part 3 and Parts 6 and 6A, jointly with the Minister for Energy and Environment; remainder, Minister for Energy and Environment</p>	
<p><i>Plantations and Reafforestation Act 1999</i> (NSW)</p>	<p>DPI</p>	<p>An Act to facilitate the reforestation of land, to promote and facilitate development for timber plantations on essentially cleared land, to codify best practice environmental standards, and provide a streamlined and integrated scheme, for the establishment, management and harvesting of timber and other forest plantations, and to make provision relating to regional transport infrastructure expenditure in connection with timber plantations, and to do so consistently with the principles of ecologically sustainable development.</p> <p>The PR Act is administered by the Deputy Premier Minister for Regional NSW, Industry and Trade</p>	<p>All</p>
<p><i>Protection of the Environment Operations Act 1997</i> (NSW) and <i>Protection of the Environment Operations (General) Regulation 2009</i></p>	<p>EPA</p>	<p>The POEO Act is the key piece of environment protection legislation administered by the EPA.</p> <p>With commencement of the Forestry Legislation Amendment Act, forestry operations are regulated under the general provisions of the POEO Act for pollution of water offences.</p> <p>Forestry operations that are carried out in accordance with the IFOAs and PNF Codes can provide a statutory defence for a pollution of waters offence under the POEO Act.</p> <p>The Protection of the Environment Operations (General) Regulations 2009 was amended in March 2014 to allow residues from authorised clearing and timber harvesting (part 3 Burning of bio-material in electricity generation works) to be burnt for electricity generation, consistent with other states.</p> <p>The regulation aligns with the NSW Renewable Energy Action Plan to remove barriers to renewable energy production.</p> <p>This means that any pulp wood logs, heads and off-cuts, and trees thinned under accordance with a private native forestry plan or IFOA can be used in electricity generation.</p>	<p>All</p>

Legislation	Responsible agency	Purpose	Tenure
		The POEO Act is administered by the Minister for Energy and the Environment.	
Pesticides Act 1999	EPA, APVMA	APVMA manage the registration and off label use of pesticides. EPA regulate the safe and correct use of pesticides from the point of sale. This Act is administered by the Minister for Energy and the Environment	All
<i>Road Transport Act 2013 (NSW)</i>	Roads and Maritime Services	All motorised vehicles operating on State forests and Crown Timber Lands must be registered in accordance with the provisions of the <i>Road Transport Act 2013 (NSW)</i> and comply with the provisions set out in the Regulation to the <i>Roads Act 1993 (NSW)</i> . Motorised vehicular timber harvesting plant (where applicable) must be issued with a "Permit to operate an unregistered motor vehicle for logging purposes" issued by the Roads and Traffic Authority. This Act is administered by the Minister for Transport and Roads, jointly with the Minister for Regional Transport and Roads.	Public Roads
<i>Roads Act (1993)</i>	FCNSW, DPIE Transport for NSW, Roads and Maritime Services	The objects of this Act are: <ul style="list-style-type: none"> • to set out the rights of members of the public and persons who own land adjoining a public road to pass along public roads, and • to establish the procedures for the opening, closing and classifying a public road, and • to provide for the declaration of RMS and other public authorities as roads authorities for both classified and unclassified roads, and • to confer certain functions and distribution of functions (in particular, the function of carrying out road work) on RMS and on other roads authorities, and • to regulate the carrying out of various activities on public roads This Act is administered by the Minister for Transport and Roads, jointly with the Minister for Regional Transport and Roads, except parts; Parts 2, 4 and 12 (except section 178 (2)) and the remaining provisions of the Act in so far as they relate to Crown roads, the Minister for Water, Property and Housing; so far as it relates to Lord Howe Island and section 252 (so far as it relates to the functions of the Minister under the Act), the Minister for Energy and Environment; Division 2 of Part 3 (so far as it relates to the widening of an unclassified public road for which a council is the roads authority), section 175 (so far as it relates to the power to enter land along or near a	Public Roads

Legislation	Responsible agency	Purpose	Tenure
		public road for which a council is the roads authority), section 178 (2) and section 252 (so far as it relates to the functions of the Minister under the Act), the Minister for Local Government	
<i>Rural Fires Act 1997 (NSW)</i>	Rural Fire Service	<p>The Act provides for</p> <ul style="list-style-type: none"> • the Prevention, mitigation and suppression of bush and other fires in local government areas (or parts of areas) and other parts of the State constituted as rural fire districts, and • for the co-ordination of bush firefighting and bush fire Prevention throughout the State, and • for the Protection of persons from injury or death, and property from damage, arising from fires, and • for the Protection of infrastructure and environmental, economic, cultural, agricultural and community assets from damage arising from fires, and for • the Protection of the environment by requiring certain activities referred to in paragraphs (a)–(c1) to be carried out having regard to the principles of ecologically sustainable development described in section 6 (2) of the Protection of the Environment Administration Act 1991. <p>Importantly, it also ensures that measures to reduce the hazards that contribute to the occurrence, intensity and spread of fire are carried out by responsible agencies such as Forestry Corporation NSW and NSW NPWS.</p> <p>This Act regulates the proclamation of the Bush Fire Danger Period in NSW and declaration of Total Fire Bans under adverse fire weather conditions. It restricts the lighting of fires in the open except under prescribed conditions and coordinates major fire-fighting activities during emergencies. This Act also prescribes penalties for various offences.</p> <p>This Act is administered by the Minister for Police and Emergency Services</p>	All
<i>Soil Conservation Act 1938 (NSW)</i>	DPIE	<p>The Act regulates clearing on certain categories of “protected land”. This act applies to timber harvesting on Crown Timber Lands other than State Forests or Timber Reserves which are determined as Protected Lands. The Act determines protected lands within proclaimed catchments.</p> <p>This Act is administered by the Minister for Agriculture and Western New South Wales; except some parts that are jointly administered with the Minister for Energy and the Environment</p>	All

Legislation	Responsible agency	Purpose	Tenure
<i>Surveying and Spatial Information Act 2002</i> (NSW)	NSW Land Registry Services	<p>The Act provides that no unauthorised person may deface or interfere with any survey mark, e.g. survey peg, shield tree, trigonometric marker, etc.</p> <p>This Act is administered by the Minister for Customer Service</p>	All
<i>Water Management Act 2000</i> (NSW)	DPIE Water	<p>Part 3 of the Act provides for the protection of rivers and lakes in relation to excavation and alteration to the bed and banks or rivers and lakes either for property improvement, extraction of materials (sand, gravel, etc.) or in association with the construction of river crossings such as bridges and causeways.</p> <p>There may be some instances where a major stream or river crossing is proposed as part of or in preparation for forestry operations. The design and construction of the crossing would be required to be planned in close consultation with DPIE in order to ensure that the protective intent of this part of the Act is met.</p> <p>This Act is administered by Minister for Water, Property and Housing</p>	All
<i>Wilderness Act 1987</i> (NSW)	NPWS	<p>An Act to provide for the permanent protection of wilderness areas, for the proper management of wilderness areas, and to promote the education of the public in the appreciation, protection and management of wilderness.</p> <p>This Act is administered by the Minister for Energy and the Environment.</p>	All
<i>Work Health and Safety Act 2011</i> (NSW)	SafeWork NSW	<p>The main object of the Act is to provide for a balanced and nationally consistent framework to secure the health and safety of workers and workplaces.</p> <p>This Act applies to the storage and handling of dangerous goods even if the dangerous goods are not at a workplace or for use in carrying out work. This Act also applies to the operation or use of high-risk plant, affecting public safety, even if the plant is not situated, operated or used at a workplace or for use in carrying out work. Certain materials that are classified as dangerous or hazardous are used in plantation establishment and maintenance work. All managers, contractors and employees must familiarise themselves with the type of dangerous goods they are handling.</p> <p>This Act is administered by the Minister for Better Regulation and Innovation</p>	All

Supporting Policy Instruments

Forestry operations on private land in NSW must also consider Local Environment Plans (LEPs) and State Environment Planning Policies (SEPPs) which are regulated under the EPA Act.

Exemptions apply for public forestry operations carried out on State forest or other Crown-timber land in accordance with an IFOA, and plantation operations (including Exempt Farm Forestry) authorised or undertaken in accordance with the PR Act.

Local Environment Plans (LEP)

Land-use planning in NSW is governed by the EPA Act. Under the EPA Act, each Local Government Area has a LEP to guide development and protect natural resources. LEPs are prepared by local councils, in consultation with their community and approved by the Minister for Planning and Public Spaces. Councils make their LEPs in accordance with state-based planning guidelines. Council's power to regulate the use of land for forestry purposes is not limited or otherwise constrained by other legislation.

The various LEP zones may be applied to either prohibit forestry, permit forestry 'without consent' or to permit forestry only 'with consent' from the local council. Where development consent is required, the proponent is required to obtain council consent even though harvesting may be authorised under a PNF Plan. However, councils cannot regulate the actual 'forestry operations' as this is authorised through the PNF Plan. They may control only the land use or associated aspects of the land use and land management - for example, with conditions restricting or limiting the use of vehicles or vehicle movements.

There are no NSW Government gazetted planning guidelines that are specific to PNF. This means local councils use their discretion to determine how PNF is treated under the zoning of their LEPs. Conditions applying to PNF activities that are 'permissible with consent of the council' are similarly left to individual local councils to determine.

Existing use rights are provided under the EPA Act. Where an existing use is proven, it may exempt a landholder from requirements in an LEP that prohibit forestry (e.g. through a change in zoning). In the case of forestry, there are no specific guidelines to assist councils to assess and determine an existing use right. The extent that existing use rights are assessed and determined is a matter for individual local councils.

State Environment Planning Policies (SEPP)

Current relevant NSW SEPPs that relate to forestry operations are outlined below.

SEPP (Koala Habitat Protection) 2020

Koala SEPP No. 44 was in force from 1995 through to 2019. In early 2020 this was replaced by State Environmental Planning Policy Koala Habitat Protection 2019.

However, in November 2020, the NSW Government announced plans to revert to operations under the former State Environmental Planning Policy No. 44 - Koala Habitat protection (SEPP 44) while a new policy is developed in 2021 that would protect koalas and the interests of farmers.

The State Environmental Planning Policy (Koala Habitat Protection) 2020 commenced on 30 November 2020 to replace and repeal the State Environmental Planning Policy (Koala Habitat protection) 2019.

The Koala SEPP 2020 replicates the objectives and provisions of Koala SEPP No. 44.

SEPP Vegetation (Vegetation in Non-Rural Areas) 2017

The Vegetation SEPP works together with the BC Act and the *Local Land Services Amendment Act 2016* (NSW) to create a framework for the regulation of clearing of native vegetation in NSW.

This SEPP applies only to private native forests in certain LEP zones (i.e. principally urban and Environmental (E) zones) and ensures the biodiversity offset scheme (established under the LMBC reforms) applies to all clearing of native vegetation that exceeds the offset thresholds in urban areas and environmental conservation zones that does not require development consent.

Vegetation SEPP provides private land conservation outcomes by creating a market for biodiversity offset credits under the Biodiversity Offsets Scheme by using voluntary Biodiversity Stewardship Agreements with landowners.

State Environment Planning Policy (Coastal Management) 2018

The SEPP (Coastal Management) 2018 updated and consolidated into one integrated policy the previous SEPPs: SEPP 14 (Coastal Wetlands), SEPP 26 (Littoral Rainforests) and SEPP 71 (Coastal Protection), including clause 5.5 of the Standard Instrument – Principal Local Environmental Plan. These previous SEPPs are now repealed.

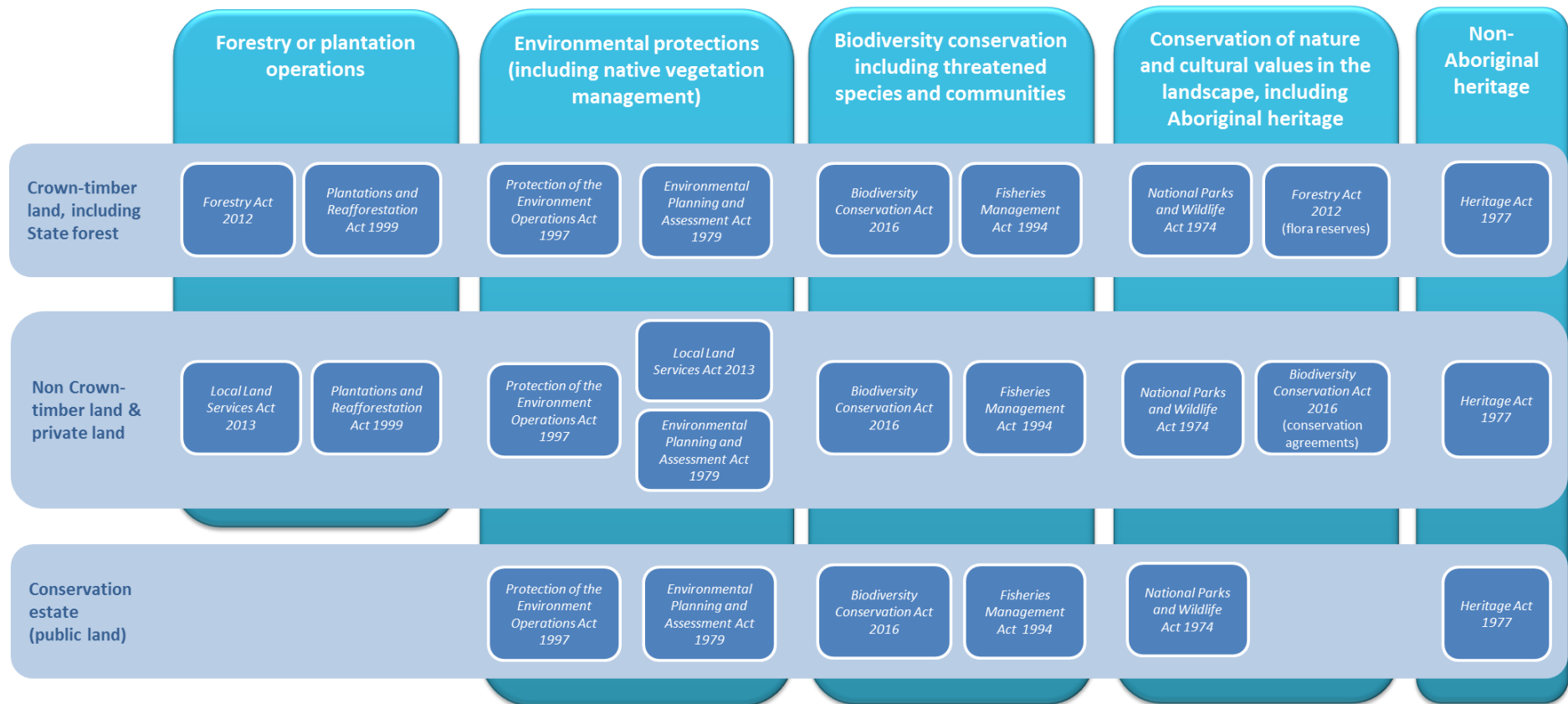
The Coastal Management SEPP gave effect to the objectives of the *Coastal Management Act 2016* (NSW) from a land use planning perspective, by specifying how development proposals are to be assessed if they fall within the coastal zone. Its objective is to ensure that future coastal development is appropriate and sensitive to the coastal environment.

An integrated and coordinated approach to land use planning is promoted by the Coastal Management SEPP. It defines the four coastal management areas in the *Coastal Management Act 2016* (NSW) through detailed mapping and specifies assessment criteria that are tailored for each coastal management area. Councils and other consent authorities must apply these criteria when assessing proposals for development that fall within one or more of the mapped areas.

Detailed interactive maps accompany the Coastal Management SEPP and are accessible via a webmap viewer. The map's layers can be viewed down to the individual (administrative boundaries) lot scale and printed directly from the viewer.

The PNF Code prohibits forestry operations in wetlands and rainforest, and this includes Coastal Wetlands and Littoral Rainforest under the Coastal Management SEPP. Development consent is required in addition to a PNF plan to conduct forestry operations in the Coastal Protection Zone.

Appendix B: Acts relevant to different land tenures



Appendix C: Hardwood Forest Management System

Forestry Corporation of NSW (FCNSW) maintains a Hardwood Forest Management System (FMS) for the management of public native forests and hardwood plantations. The FMS is a framework of policies, processes and procedures that guide day-to-day operations by outlining how FCNSW plan operations, implement procedures, audit and report operations and review performance to achieve sustainable forest management.

The development, implementation and continual improvement of the FMS is overseen by the Senior Management team and supported by an implementation committee to ensure it remains relevant to FCNSW operations.

The FMS ensures FCNSW has:

- objectives and targets for achieving ESFM that can be tracked and reported upon
- controls in place to minimise any negative impact on the environment
- a process to identify and resolve issues of concern and continually improve operations
- regular audits to ensure activities and systems comply with regulations and are best practice
- a process to review the performance of management systems and processes.

It also ensures that State forests are managed according to adaptive management principles.

Further information on various elements of the FCNSW Hardwood FMS are provided in this appendix.

Certification of the Hardwood FMS

The Hardwood FMS is certified under the Australian Standard for Sustainable Forest Management, AS 4708:2013⁵⁷. The standard is recognised by the *Programme for the Endorsement of Forest Certification (PEFC)*⁵⁸, an international not-for-profit, non-governmental organisation dedicated to promoting Sustainable Forest Management through independent third-party certification.

⁵⁷ Responsible Wood (2018) Sustainable Forest Management (AS 4708). Accessed July 2019: <https://www.responsiblewood.org.au/standards/australian/australian-standards-4708-forest-management/>

⁵⁸ PEFC (2018) Home. Accessed July 2019: <https://www.pefc.org/>

The FCNSW Environmental Management System (EMS) is certified to ISO 14001:2015 *Environmental Management System*, which sets the framework for achieving and continually improving environmental performance.

A third-party certification body, currently British Standards International (BSI), undertakes regular external surveillance audits of FCNSW's compliance with ISO 14001:2004 and AS4708:2013. These audits are conducted on a 9month rotation to ensure that all seasons are subject to audit, and that all native forest regions are exposed to routine surveillance auditing. In addition to the surveillance audits, BSI also undertakes 3 yearly re-certification audits of FCNSW.

Third party certification bodies, such as BSI, are externally accredited and audited by Australia's national accreditation body – the Joint Accreditation System of Australia and New Zealand.

Summaries of the external audit reports are available, on request, and through the FCNSW website⁵⁹.

Developing greater consistency and efficiency of FMS

As part of the continual improvement process, FCNSW has developed and refined many aspects of the FMS. Improvements to elements of the FMS arise from monitoring and review processes and are implemented with the aim of ensuring that practices are both effective and efficient. Some of the key improvements include:

Revision of the compliance monitoring system

The compliance monitoring system has been revised to reduce duplication and shift emphasis from a process driven to an outcomes oriented system. Coupled with the compliance monitoring system are a series of Key Performance Indicators that are used to drive improvements in contractor compliance and the non-conformance/ incident reporting system.

This system monitors and audits aspects of forest activities that have been identified through risk assessment as having 'significant' risks (wood harvesting, road works, plantation establishment, weed control, pest animal control and hazard reduction burning); reports and investigates incidents of non-compliance and identifies corrective and preventative actions; and considers complaints and improvement suggestions. This system comprises the following elements:

- Operational Compliance Monitoring – focusses on the day to day monitoring and recording of activities that are undertaken during supervision and implementation of operational plans for specific activities and includes incident reports, monthly operations

⁵⁹ FCNSW (n.d.) Accessed September 2019:
<https://www.forestrycorporation.com.au/sustainability/certification>

reports and general documentation that describes how FCNSW meets its regulatory obligations.

- Quality Assurance Assessments (QAA) – provides a less frequent, higher level assessment that is risk-based. Particular aspects of an operation that present known risks, have been identified as areas of concern from previous monitoring or may be related to specific incidents can be targeted in QAA. These assessments use robust procedures, consistent forms and processes and allow performance to be monitored against established standards.
- Independent audit –undertaken either by independent contractors that specialise in management systems, or by qualified internal staff that conduct an independent review of another area of FCNSW business. Independent audits are focussed on review of the FMS and may be undertaken vertically, such that an entire component is reviewed from planning through to implementation, or horizontally, where one aspect of forest activities is reviewed across many locations or functions.
- External audit –undertaken by regulatory agencies especially EPA, DPI (Forestry) and DPI (Fisheries) and through independent review of FCNSW's certification under the AS4708 and ISO14001 standards.

Each of these elements is reported centrally and used as part of the management review process.

Centralised non-conformance reporting

In 2006, a centralised system for capturing, reviewing and actioning of non-conformance incidents was developed. Prior to 2006, non-conformance data was stored in separate regional systems. The system, referred to as the Non-conformance Incident Recording system, ensures that the necessary data to appropriately describe, action and report non-conformances and complaints is captured. This system fulfilled the regulatory requirement to maintain a compliance register but also delivered a one-stop-shop for environmental incidents that could be tracked by management to ensure that appropriate corrective actions are determined and closed out.

While this system allowed a severity rating to be applied to incidents, a recognised shortcoming was the inability to apply risk assessments and separate systems were in place to manage safety and environmental incidents. In 2014, a project commenced to source and to implement an incident recording system (RiskWare) that could capture and report both environmental and safety incidents and enable risk assessments to better inform management on the potential broader implications of incidents.

Development of a risk management framework

In 2018, FCNSW developed a risk management framework based on relevant Australian Standards[®]. This framework ensures that robust processes are applied for identifying and documenting significant risks, determining causes, putting the appropriate mitigation measures in place and conducting reviews.

Risk management is a fundamental component of the FMS and FCNSW seeks to manage a range of risks to mitigate any potential social, environmental, technological, safety, financial, reputational and security consequences. FCNSW regularly reviews its operations to ensure that activities that may have significant risks are identified and appropriate mitigation strategies are implemented.

Part of the risk management framework includes risk management guidelines⁶⁰, which outline the processes used to manage non-conformances and identify, assess and prioritise risks, as well as risk mitigation and monitoring processes. The development of a central risk management software system (RiskWare) commenced in 2014. The risk management guidelines are under review in 2019.⁶¹

Risk register update

The risk register is an important component of any EMS that describes the interactions between the business/entity and its operating environment and the potential for undesirable outcomes. In 2013-2014 an organisation wide risk register was developed to allow oversight and standardisation of risk management. In 2018, detailed Division wide operational risk registers were developed with direct links to the organisation wide Register. In 2018, the process of creating Divisional risk registers was completed; however, further work is to be undertaken to fully integrate all organisational risks with the new incident management system.

Harvest planning systems

In 2001, a manual for planning of wood harvesting in native forest IFOA regions was developed. The manual was designed to ensure a consistent approach to harvest planning across the regions covered by RFAs. The key objective of the system was to produce clear, consolidated, user-friendly harvest plans⁶² that combined data from field surveys for wood and non-wood values, codes of practice, eco-field guides, and regulatory requirements. The key elements of the manual are:

- Standardised operational plan templates that consider safety, forest condition and silviculture, legal requirements, special site specific requirements (such as research plots, apiary sites, private property boundaries), forest management zones, flora and fauna (threatened species) requirements, tree retention, cultural heritage, soil and water and roads and drainage feature protections and crossings
- Forms to capture records which demonstrate that implementation of operational plans meet regulatory requirements'
- Procedures for plan amendments, stakeholder notification and consultation and communication with forest neighbours and other interested parties

⁶⁰ Generally, the risk management guidelines are not publicly available as they are internal working documents. Further information can be found at www.forestrycorporation.com.au

⁶¹ Pers com: FCNSW, Jodie Millsom, 2019

⁶² FCNSW (2019) Harvest Plans. Accessed September 2019:
<https://www.forestrycorporation.com.au/operations/harvest-plans>

- Requirements, templates, forms and checklists for flora and fauna surveys, soil regolith assessments, fish habitat assessment and aboriginal and non-aboriginal interests and values
- Interpretation and instruction to meet licencing, compliance and reporting obligations
- Documentation and approval processes for forestry activities in exclusion zones.

The manual is currently undergoing a major review in line with new Coastal IFOA requirements, and will be developed in an electronic format which will allow for easy review and update as required. In 2014, as part of the process of continual improvement, FCNSW commenced the development of Standard Operating Procedures (SOPs) (internal FCNSW working documents) for wood harvesting that combine the latest best practice methodologies with interpretation of licencing requirements, to deliver an updated package of instructional material for FCNSW staff and contractors. These SOPs have been rolled-out with updated and improved harvest plan templates that make operational harvesting plans easier to interpret and implement. Further work is intended to develop SOPs for other aspects of FCNSW's management activities such as road construction and maintenance. These SOPs are being reviewed in line with new IFOA requirements.

Competency and training

Contractors, operators and FCNSW supervisory staff are required by the FMS and certification standards to be trained and accredited to a recognised level of competence in the various tasks they undertake. Training includes environmental care in the fields of:

- operational plan implementation
- flora and fauna management
- Aboriginal and non-Aboriginal cultural heritage management
- silviculture
- soil and water management
- work health safety procedures
- first aid skills
- log measuring and grading
- chainsaw and harvest machinery operation.

Specific and ongoing training programs exist for contractors and their operators and competencies must be in place for all operators. Additionally, FCNSW routinely conducts 'wildlife schools' to ensure staff have the necessary flora and fauna identification skills required for implementation of the IFOAs. Firefighting training is conducted internally and through accredited external providers to ensure FCNSW are capable and effective in meeting the incident response requirements associated with bushfires.

In 2019, a large program of IFOA awareness training commenced across the Hardwood Forests Division. This training was aimed at staff and contractors undertaking roading and wood harvesting activity and targeted specific requirements of the various licences associated with the new Coastal IFOA including: road construction and maintenance, soil regolith stability, tree retention, management of rainforest, old growth and other boundaries and the environmental assessment and reporting requirements of the Coastal IFOA. The content of the training was influenced by the release of the new Coastal IFOA as well as from

findings from the audits of the regulatory agencies that were highlighting issues like tree retention as areas for improvement.

Prompted by the development of the SOPs for wood harvesting, a range of training activities has recently been instigated to ensure standardisation across the workforce. The SOPs now provide a single user friendly standard from which contractor and staff training can be based into the future.

Incident risk management, incident management and training in elements of the FMS such as RiskWare also occur as and when required.

New technologies/computational tools to better deliver ESFM

Since 2005, FCNSW has made a number of significant investments to provide better forest management outcomes, reduce costs and increase the quality of information available for planning.

Remote sensing

The development of Light Detection and Ranging (LiDAR) technology, as a means of remote sensing, has been of significant benefit in delivery of ESFM outcomes. LiDAR has enabled development of a range of products that assist in planning forest management activities including:

- Accurate Digital Elevation Models that more closely identify landform elements such as steep slopes to assist in the application of soil erosion mitigation measures
- Identification of extraction tracks used in previous harvesting activity which can be used to more effectively undertake current harvesting events
- Identification of previous mass movement events, which may be related to particular higher risk landscapes
- Delineation of drainage features – identification of drainage features previously relied on aerial photograph interpretation undertaken during the 1960s, which was often found to be incorrect. LiDAR provides a very accurate prediction of where drainage features occur in the landscape enabling mapping and protection of riparian wildlife habitat and soil and water values
- Development of wood volume models that assist with operational, tactical and strategic planning. Canopy height has a strong correlation with the productive capacity of a site. LiDAR, which can capture the height of trees, combined with algorithms can be used to predict areas likely to grow taller trees and provide an indication of the relative density of those trees. This type of information across a landscape provides data that has greatly improved the ability to optimise wood supply for the long term, more effectively target tactical resource planning and more efficiently undertaking wood harvesting.

Mapping application

During 2012, FCNSW commenced investigation of a map application (referred to as the FCMapApp) for use on mobile electronic devices such as smart phones and tablets. The aim was to develop an App that would complement operational planning processes and allow real-time capture of spatial data that can be stored in a central database and be made available to other FCNSW staff and contractors. Version 1 of the App become operational in

December 2013 and has revolutionised the capture and transfer of data used in the planning and implementation of forest management activities.

The system is being further refined, but currently allows:

- Recording of environmental point features and hazards such as habitat trees, mine shafts and flora and fauna records. It also enables recording of line attributes and polygons to delineate existing or proposed roads and tracks or other features such as harvesting treatments
- When inserted into harvesting machinery, the tracking and recording of harvesting areas enabling real-time checking of compliance in addition to ensuring that harvesting occurs across the whole of the nett available area
- General navigation around the forest incorporating all the relevant spatial data for roads, trails and tracks
- Recording of polygons and features associated with fire-fighting activity including: fire boundary, containment lines, water points, staging and refuge areas.

Ecology tools

In 2009, it was recognised by FCNSW that there were significant time and resource costs as well as risks associated with the collating and accessing of flora and fauna data held in hard copy and various databases which were used for implementation of the IFOAs. To improve this situation, a project called Ecology Tools was instigated to:

- improve data handling from FCNSW Biodata (flora and fauna database)
- develop a field-based data entry system using mobile electronic devices combined with file transfer systems that enable direct up/down load of data into corporate systems and avoid the need to manually enter records
- develop a computer desktop searching tool to collate flora and fauna records for operational planning purposes
- automate the mapping/GIS functions to reduce the time cost and potential for data handling errors.

In mid-2014, Ecology Tools, encompassing a module within the FCMapApp with data base searching and GIS mapping functionality, was delivered to staff across NSW. Uptake of the system has been fully realised for the North East RFA region but the Southern and Eden RFA regions have not yet fully adopted the use of the mobile data entry platform.

Forest Research

Improved information derived from research drives the adaptive management and continuous improvement process that is critical to ESFM. The majority of forestry research in NSW is carried out by the DPI-Forestry Forest Science group, in part through a service level

agreement with FCNSW. These projects are reported through the publication of the FCNSW's Annual Report⁶³. Some of the key activities have been to:

- develop an efficient cloning propagation system to allow rapid deployment of improved material into operational plantings
- use wastes/biosolids to enhance native tree growth on rehabilitated mine sites
- develop predictive equations to estimate root biomass carbon in woodland eucalypts as a long-term store of carbon
- develop models to predict impacts of tree planting on salt mobilisation, water yield and quality
- determine the greenhouse footprint of wood products in NSW
- conduct forest health surveys across hardwood plantations to identify and quantify important pests, diseases, weeds and nutrient deficiencies
- undertake biodiversity studies that highlight the need to move toward broader, more holistic biodiversity monitoring that is undertaken over many years rather than one-off pre-harvest surveys.

Model to predict recruitment and maintenance of habitat trees over time

A model of the current and predicted distribution and abundance of hollow trees for the North Coast (UNE region) was produced and presented at the 2001 Australian Wildlife Management Society Conference⁶⁴. A paper presenting the findings has been made publicly available⁶⁵.

The model identified the proportion of trees that were assessed as hollow in a large scale inventory based on tree species and diameter class. Future tree lists were produced from the Forest Resource And Management Evaluation System (FRAMES) model based on a range of proposed silvicultural scenarios, including no-harvesting in exclusion zones. The species and diameter based hollow-bearing tree ratios from the original inventory were applied to tree lists to predict the future availability of hollow-bearing trees. Plots were allocated to forest

⁶³ FCNSW (n.d.) Annual Reports. Accessed July 2019:

<http://www.forestrycorporation.com.au/about/pubs/corporate/annual-report>

⁶⁴ Williams J. (2003) State Forest of NSW, *Hollow-bearing trees in the public forests of Northern New South Wales; abundance and distribution now and in the future*. Australasian Wildlife Management Society 14th Annual Conference and Annual General Meeting 3-5 December 2001 Dubbo NSW Australia, Conference Program and Abstracts, pp 18.

⁶⁵ FCNSW (2017) *Hollow-bearing trees on the Mid North Coast of NSW – Abundance and spatial distribution now, and a model for the future*. Unable to Access July 2019: www.forestrycorporation.com.au/_data/assets/pdf_file/0010/716581/paper-hollow-bearing-trees-on-the-mid-north-coast.pdf

type and growth stage strata and the proportion of harvested and unharvested areas were identified for each strata. The results indicated that the combination of Single Tree selection silviculture and comprehensive reserve network within the native forest estate would lead to an overall increase in availability of hollow-bearing trees in the longer term. The model has been incorporated into the application of FRAMES.

Standard Operating Procedures

FCNSW have a series of standard operating procedures which inform day to day operations under various forest management activities, including:

- SOP 1 Drainage feature protection
- SOP 2 Exclusion zone management
- SOP 3 Forest mark up
- SOP 4 Operating in Inherent Hazard Level 3
- SOP 5 Log dumps
- SOP 6 Roads and crossing management and wet weather
- SOP 8 Snigging and snig track crossing
- SOP 9 Tree felling and servicing of logs and products
- SOP 10 Fire precautions and other miscellaneous requirements for harvesting contractors.
- SOP 11 Road maintenance
- SOP 11A Road maintenance – surface and foundation defects and formation shaping
- SOP 12 Road construction and upgrade
- SOP 14 Mass movement – site specific conditions
- SOP 15 Road crossings of drainage features
- SOP Threatened ecological community management

Other information and resources

FCNSW also has a suite of other resources which are used to understand the forests they manage, including eco-field guides, which were prepared when the RFAs were introduced:

- *Field Guide to Flora, Fauna and Heritage Features of Forest Management of South East of NSW*, State Forests of NSW (1998)
- *Field Guide to Flora, Fauna and Heritage Features of Forest Management on the South Coast of NSW*, Forests NSW (2005)
- *Field Guide to Forest Management in North East NSW*, Forests NSW (2000).

Appendix D: Examples of how listed species and communities are managed in NSW

This appendix presents three case studies to illustrate how listed species and communities are managed in NSW. Two forest related threatened species and one forest related threatened ecological community, listed under the EPBC Act, are presented for the:

- Spotted- tailed Quoll
- Greater Glider
- Lowland Grassy Woodland in the South East Corner Bioregion.

Case study 1: Spotted-tailed Quoll

Scientific name: *Dasyurus maculatus*

Conservation status in NSW: Vulnerable

Commonwealth status: Endangered (South-eastern mainland population)

The Spotted-tailed Quoll is the largest marsupial carnivore surviving on mainland Australia. It has rich-rust to dark-brown fur above, with irregular white spots on the back and tail, and a pale belly. The spotted tail distinguishes it from all other Australian mammals, including other quoll species.

The range of the Spotted-tailed Quoll has contracted considerably since European settlement. It is now found in eastern NSW, eastern Victoria, south-east and north-eastern Queensland, and Tasmania. Only in Tasmania is it still considered relatively common.

The Spotted-tailed Quoll is a primarily forest-dependent species that occupies a wide range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, disused animal burrows, rocky outcrops and rocky-cliff faces as den sites.

Conservation status

The Spotted-tailed Quoll is listed as threatened under both the EPBC Act and the BC Act.

In New South Wales the species is listed as Vulnerable under the BC Act, which replaced the TSC Act in 2017. Under the TSC Act, a Priority Action Statement (PAS) containing 33 recovery actions was adopted for the species that focussed on addressing knowledge gaps and managing the threats to quoll populations as identified through scientific research.

In 2017, the BC Act replaced the TSC Act. The listing of Vulnerable for Spotted-tailed Quoll was transferred unchanged to the new legislation. Recovery Plans do not form part of this act. A 'Landscape Species Toolbox' has been publicly exhibited for the species under the SOS program that constitutes a strategy under the BCP under the BC Act. The key threats identified in the SOS project in NSW are:

- Loss, fragmentation and degradation of habitat
- Competition with introduced predators

- Deliberate poisoning, shooting and trapping, primarily in response to chicken predation
- Roadkill
- Cane toads.

The species was listed as Endangered by the Commonwealth Threatened Species Scientific Committee (TSSC) in 2004. A National Recovery Plan for the species commenced in May 2016. The Recovery Plan sets out the actions required to address priority threats to the species.

A Recovery Plan for this species was developed and EES have implementation responsibility for many of the actions in the plan.

National parks and reserves

It is estimated that 67% of the Spotted-tailed Quoll species distribution in NSW occurs on land within the reserve estate. These protected areas are managed for the conservation of nature, including biological diversity, habitat, ecosystems, landforms and landscapes. They offer physical protection to endangered wildlife, while park-specific conservation and research programs target native plants, animals and ecosystems.

For example, all four of the priority management areas identified under SOS for implementation of the conservation project for the spotted-tailed quoll are focussed on land within the public reserve system. These include the Jenolan-Kanangra NP (Greater Blue Mountains NP), Byadbo (Kosciuszko NP), Barren Grounds Nature Reserve-Budderoo National Park (Illawarra-Highlands) and Northern Tablelands (Oxley Wild Rivers, New England, Guy Fawkes River NPs). At the Jenolan-Kanangra site, five key conservation management actions are active to address critical threats and ensure the population of this threatened species is viable in the long-term (**Table 8.3**).

Table 8.3 Conservation management actions for the Spotted-tailed Quoll

Action type	Threat name	Objective	Methodology type
Management action	Foxes	Reduce pest species densities and maintain at low levels	Control foxes in strategic and targeted locations
Management action	Road mortality and injury	Minimise incidence of roadkill	Manage human disturbance - Identify sensitive locations
Threat monitoring action	Foxes	Reduce pest species densities and maintain at low levels	Monitoring pest/weed threat
Threat monitoring action	Road mortality and injury	Minimise incidence of roadkill	Monitoring disturbance impacts
Species monitoring action		Track species abundance / condition over time	Mammal monitoring

State forest

Forestry Act (NSW) provides for Integrated Forestry Operations Approvals (IFOAs) that integrate the regulatory regimes for environmental planning and assessment, protection of the environment and threatened species conservation on State forests. The IFOAs incorporate licence conditions that protect soil, water and threatened species and their habitats.

The Spotted-tailed Quoll is protected in NSW under the Biodiversity Conservation Act. Its habitat features are protected under the IFOAs, which prohibit forestry operations from adversely impacting important habitat features including known maternal or permanent den sites and latrine sites. Exclusion zones (between 3.5 and 12 hectares in zone), protections of coarse woody debris, limitations on road construction be implemented where there are known quoll records present. This is in addition to general requirements to protect areas where quolls are likely to occur, including old growth forest, rocky outcrops, cliffs, caves along with hollow-bearing trees, dead standing trees.

Pre-logging surveys are required to assist in location of these features, although the cryptic nature of the spotted-tailed quoll means that detection of dens is almost impossible without radio-tracking or other research intervention.

Private land

Forestry operations on Private Native Forests (PNF) are subject to Codes of Practice (PNF Codes) that establish a regulatory framework for the sustainable management of private native forestry operations in NSW. As a threatened species listed in NSW, the Spotted-tailed Quoll and its habitat is protected under the PNF Code. The PNF Code requires exclusion zones (of 100-200 metre radius around the record) to be applied where there is a record or site evidence of a Spotted-tailed Quoll den site, maternal den or latrine site within the area of forest operations. This is in addition to general requirements to protect areas where quolls are likely to occur, including old growth forest, riparian areas, rocky outcrops, cliffs, caves along with hollow-bearing trees, dead standing trees.

Saving Our Species

Under the BC Act, the BCP outlines current strategies for assisting threatened species, populations and ecological communities. Through the BCP the SOS program implements strategies through its conservation projects.

The Spotted-tailed Quoll has been assigned to the Landscape species management stream under the SOS program. Landscape-managed species are assisted by addressing threats such as habitat loss or degradation within a landscape. This is because these species are often widely distributed, highly mobile or dispersed, or affected by landscape-scale threats.

Under the SOS program, a range of actions have been identified to support the conservation of the Spotted-tailed Quoll. These include:

- Conservation of old-growth forest stands and other areas of known habitat under perpetual, funded conservation agreements such as BioBanking agreements, conservation property vegetation plans or inclusion in the conservation reserve system
- Identifying and targeting restoration and revegetation projects at areas where connectivity between large areas of known habitat is compromised, with the aim of increasing the width, condition and security of critical landscape links

- Implementing cross-tenure, landscape scale predator control programs in areas where significant populations of spotted-tailed quoll are known to occur, and monitor populations of the target introduced predator
- Monitoring significant spotted-tailed quoll populations to investigate the impact of fox and wild dog baiting
- Designing and distributing an educational brochure for designing 'quoll-proof' poultry runs and aviaries and distribute
- Modifying poultry runs and aviaries based on best-practice guidelines
- Incorporating methods to reduce the numbers of spotted-tailed quolls killed at sections of roads where road kills are frequently reported. Assess the effectiveness of different mitigation methods
- Monitoring survival of spotted-tailed quoll populations in habitat newly colonised by cane toads.

SOS: The Barren Grounds-Budderoo Quollidor project

The Barren Grounds-Budderoo Quollidor project is an example of a SOS project that aims to improve the conservation of a spotted-tailed quoll population. The 'Quollidor' is the name given to the connected vegetation corridor that links habitat from the South Coast escarpment forests, through Barren Grounds Nature Reserve and Budderoo National Park on the Budderoo Plateau, north to the Metropolitan Special Area water catchments and west to the southern Blue Mountains.

Infra-red camera monitoring and trapping programs have revealed that Barren Grounds Nature Reserve and Budderoo National Park support a resident high-density, breeding population of quolls in the core of the Quollidor project area. Fifty spotted-tailed quolls were detected in these two conservation reserves during the 2017-18 monitoring period. Because quolls have large home ranges, from 300 to 3000 hectares, it is known that they will be moving from these reserves onto the private land surrounding the Quollidor.

The Quollidor project is focussed around a core area of intensive habitat management and year-round fox-control on the national parks estate for the protection of numerous threatened species, including the Long-nosed Potoroo, Eastern Ground Parrot and Eastern Bristlebird. The project supports private land managers to reduce fox numbers in areas directly around the reserves to increase the core area of enhanced Quollidor habitat. The project has identified Broger's Creek, Upper Kangaroo River, Carrington Falls and Knights Hill/Pheasant Ground as priority areas for increased fox control that will support the intensive control programs already occurring in the national parks.

Case study 2: Greater Glider

Scientific name: *Petauroides volans*

Conservation status in NSW: Not listed as threatened – Protected Species with some populations listed as Endangered.

Commonwealth status: Vulnerable

The greater glider is a large gliding marsupial that feeds exclusively on eucalypt leaves and buds. Greater gliders shelter during the day in hollows that are usually positioned high in old trees. During the night, movements are primarily restricted to gliding between trees.

The distribution of the greater glider includes the ranges and coastal plain of eastern Australia, where it inhabits a variety of eucalypt forests and woodlands. Presence and density of Greater Gliders is related to soil fertility, eucalypt tree species, disturbance history and density of suitable tree hollows

The broad extent of occurrence is unlikely to have changed appreciably since European settlement. However, the area of occupancy has decreased substantially mostly due to land clearing. This area is probably continuing to decline due to further clearing, fragmentation impacts, fire and some forestry activities.

Conservation status

The species was listed as Vulnerable under the EPBC Act in 2016 following consideration by the Commonwealth Threatened Species Scientific Committee. The Greater Glider is also listed as Vulnerable in Queensland and Victoria. It is not listed as having a conservation status in NSW.

In NSW, however, where a species has not been listed, a specific population of that species can be listed, if that population is of significant conservation value based on its role in the conservation of the species or others. In NSW there are three populations of Greater Gliders that are listed as Endangered. These populations are found in the Eurobodalla local government area, the Mount Gibraltar Reserve area and the Seven Mile Beach National Park area. Several conservation actions have been identified for these endangered populations, including:

- Undertake surveys to determine distribution and habitat preferences
- Undertake habitat mapping using API and vegetation assessment
- Develop habitat maps and assessment guidelines for Council and the then Catchment Management Authority (now Local Land Services NSW)
- Identify priority areas for habitat restoration to increase the extent and connectivity of habitat
- Develop guidelines for habitat restoration activities including key tree species, combinations and configurations
- Investigate the use of nest boxes to improve habitat quality in areas with few or no hollows
- Encourage landowners to remove barbed wire from the top strand of existing fences and to not use barbed wire for the top strand of new fences in forested areas

- Increase community awareness of the status, ecology and management of the population through the provision of information (brochures, web, media, forums, field visits).

State forest

While the current NSW listed Endangered populations of Greater Glider do not occur on State forests, the IFOAs include landscape protection measures that would largely protect Greater Gliders, such as protection of old growth forest and retention of hollow-bearing trees and dead standing trees. IFOAs require a certain rate of hollow-bearing trees to be retained (which increase in areas where greater gliders occur), as well as general landscape exclusion zones such as stream corridors and the protection of all mapped old growth forest.

Private land

The PNF Code does not permit forestry operations which result in harm to animals that are part of an endangered population. Outside of those populations the PNF Code contains general landscape provisions that would largely protect habitat for the Greater Glider, including the protection of all old growth forest and the retention of hollow-bearing trees and dead standing trees.

Case study 3: Lowland Grassy Woodland in the South East Corner Bioregion

Scientific name: Lowland Grassy Woodland in the South East Corner Bioregion

Conservation status in NSW: Endangered Ecological Community

Commonwealth status: Critically Endangered - Listed as Lowland Grassy Woodlands and Derived Grasslands of the South East Corner Bioregion

An ecological community is a unique and naturally occurring assemblage of plants and animals. The presence of an ecological community can be determined by factors such as soil type, position in the landscape, climate and water availability, all of which influence species composition. A threatened ecological community (TEC) is an ecological community listed under the BC Act as being at risk of extinction unless threats affecting these areas are managed and reduced.

Lowland Grassy Woodland in the South East Corner Bioregion is the name given to the ecological community associated with rain shadow areas of the south coast and hinterland of New South Wales. Lowland Grassy Woodland is an open forest or woodland often with a layer of scattered small trees, an open shrub layer and a mostly continuous grassy ground layer. Some examples may reach a height of 40 m, but many regrowth stands may be less than 10 m tall. It typically occurs in undulating terrain up to 500 m elevation on granitic substrates (e.g. adamellites, granites, granodiorites, gabbros, etc.) but may also occur on locally steep sites and on acid volcanic, alluvial and fine-grained sedimentary substrates.

This ecological community has undergone a large reduction in extent since European settlement, largely due to clearing and weed invasion. It has a very restricted distribution, as evidenced by highly fragmented remnants. It is estimated that about 80% of the estimated original area of Lowland Grassy Woodland has been cleared for agriculture with more than 95% of the remaining mapped extent occurring as highly fragmented patches less than 10 hectares in size. Significant areas of understorey have been compromised by invasion of perennial exotic grasses. Almost all the remaining area of the community occurs on private land or on public easements where it is threatened by timber harvesting, clearing, grazing, weed invasion and inappropriate fire regimes. The proportion of distribution of Lowland Grassy Woodland in the South East Corner Bioregion on reserve is 6.02%.

Conservation status

The ecological community was listed in NSW in 2007 under the TSC Act. It was listed as Critically Endangered by the Commonwealth in 2013. A national Recovery Plan was not developed as the ecological community was being managed through existing state level actions.

State forest

Forestry operations are prohibited from all TECs, including Lowland Grassy Woodland, by the IFOA. They are required to be protected under the BC Act offence provisions. In 2016, the EPA mapped this TEC using a combination of aerial photography interpretation, environmental modelling and site assessments. This has produced an indicative map and identification key for this TEC in State Forests. Under a Memorandum of Understanding, these maps and keys are required to be used for harvest planning and operations and is used by the EPA for regulatory purposes.

The draft Coastal IFOA, see **section 6.4**, proposes to include the indicative map of areas that are considered to potentially support Lowland Grassy Woodland. Forestry operations must be excluded from those areas or a field key used to identify and protect the extent of Lowland Grassy Woodland within the indicative mapped area.

Private land

The PNF Code does not permit forestry operations within Endangered Ecological Communities (EECs) unless it occurs under an approved Ecological Harvesting Plan. An Ecological Harvest Plan can be issued by LLS where it can be demonstrated that forestry operations could improve or maintain the quality or health of the EEC. No Ecological Harvesting Plan for operations within Lowland Grassy Woodland has ever been approved.

Saving Our Species

The management actions for this species are now addressed through the NSW Saving Our Species program, under the BC Act. The key threats identified for this TEC include:

- Reduced integrity and survival of small, isolated stands due to the small population size of many species, enhanced risks from environmental stochasticity, disruption to pollination and dispersal of fruits or seeds, and likely reductions in the genetic diversity of isolated populations
- Fragmentation resulting in altered fire frequencies within some patches, which may reduce the viability of some native plant populations
- Invasion by non-native plant species, including noxious weeds (e.g. African Love-grass), pasture species (e.g. Kikuyu) and environmental weeds
- Moderate to heavy grazing by livestock and feral animals resulting in the decline and disappearance of palatable plant species, including shrubs and herbs, and compaction and erosion of topsoil
- Habitat clearing and degradation resulting in substantial decreases in native mammal fauna diversity and densities
- Dieback associated with a number of factors, including the establishment of large Noisy Miner (*Manorina melanocephala*) colonies
- Harvesting of firewood (either living or standing dead, including material on the ground)
- Removal of on-ground woody debris as part of farm 'clean-up', resulting in reduced fauna habitat and shelter for grazing-sensitive plants
- Habitat degradation through fertiliser application to promote perennial exotic grasses
- Lack of knowledge about the Lowland Grassy Woodland in the South East Corner Bioregion amongst local landholders
- Inappropriate grazing by domestic stock
- Change in land use (passive management)
- Fragmentation of existing patches
- Overgrazing and trampling by overabundant native herbivores.

In response to these threats, a range of management actions have been identified. The actions listed in **Table 8.4** are supplementary to NSW legislation and can be used by

stakeholders, where applicable to guide management at a site, regional or state scale. Each year a report card will help improve the actions identified to support the TEC.

Table 8.4 Actions to guide the management of the Lowland Grassy Woodland in the South East Corner Bioregion threatened ecological community

Action description	Scale
Encourage landholders to engage in early weed identification and intervention, and to implement prevention measures using current best management practices. Develop and distribute information and guidelines for managing key weeds (including African Lovegrass) while protecting Lowland Grassy Woodland ecological values. Provide assistance to landholders to identify and control weeds.	Site, Area
Educate landholders about the distribution, ecological values and management requirements of Lowland Grassy Woodland through stakeholder engagement forums, information packages and other community engagement activities.	Site, Area
Encourage appropriate grazing regimes for domestic stock through a combination of measures including fencing and developing grazing guidelines. Develop grazing management plans that provide grazing guidelines that will promote the maintenance of ground cover values.	Site, Area
Investigate and implement a variety of Noisy Miner control measures. This could include encouraging other species to recolonise affected areas (via methods such as nest box installation to provide sugar gilder habitat or through the addition of a shrubby habitat mosaic to attract woodland birds).	Site
Implement active management actions such as thinning dense woody regrowth, biomass control and responding to weed release as required on a site by site basis.	Site
Identify indicators and criteria for ecological burning; develop and distribute guidelines to stakeholders and Rural Fire Service. Develop and distribute management guidelines for post-burn erosion control and weed management. Encourage engagement between landholders and local Rural Fire Service officers for the purpose for fire management education and burn coordination.	Area
Identify opportunities to increase individual patch sizes and reconnect fragmented patches. This could include revegetation at appropriate sites.	Site
Assess and monitor sites to determine impacts. If required, implement adaptive management using current recommended practices that target control of overabundant native herbivores.	Site
Assess and monitor sites to determine impacts. If required, implement adaptive management using current recommended practices that target control of vertebrate pest animals.	Site